

2013 TCRP

**TRANSIT
COOPERATIVE
RESEARCH
PROGRAM**



ANNUAL REPORT OF PROGRESS

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2013
TCRP

**TRANSIT
COOPERATIVE
RESEARCH
PROGRAM**

ANNUAL REPORT OF PROGRESS

Research sponsored by the Federal Transit Administration in cooperation with the Transit Development Corporation

TRANSPORTATION RESEARCH BOARD

WASHINGTON, D.C.

2013

www.TRB.org

TRANSIT COOPERATIVE RESEARCH PROGRAM

The nation's growth and the need to meet mobility, environmental, and energy objectives place demands on public transit systems. Current systems, some of which are old and in need of upgrading, must expand service area, increase service frequency, and improve efficiency to serve these demands. Research is necessary to solve operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the transit industry. The Transit Cooperative Research Program (TCRP) serves as one of the principal means by which the transit industry can develop innovative near-term solutions to meet demands placed on it.

The need for TCRP was originally identified in *TRB Special Report 213—Research for Public Transit: New Directions*, published in 1987 and based on a study sponsored by the Federal Transit Administration (FTA). A report by the American Public Transportation Association (APTA), *Transportation 2000*, also recognized the need for local, problem-solving research. TCRP, modeled after the longstanding and successful National Cooperative Highway Research Program, undertakes research and other technical activities in response to the needs of transit service providers. The scope of TCRP includes a variety of transit research fields including planning, service configuration, equipment, facilities, operations, human resources, maintenance, policy, and administrative practices.

TCRP was established under FTA sponsorship in July 1992. Proposed by the U.S. Department of Transportation, TCRP was authorized as part of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), reauthorized in June 1998 by the Transportation Equity Act for the 21st Century (TEA-21), again reauthorized in August 2005 by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), and reauthorized again in 2012 by Moving Ahead for Progress in the 21st Century (MAP-21).

On May 13, 1992, a memorandum agreement outlining TCRP operating procedures was executed by the three cooperating organizations: FTA; the National Academies, acting through the Transportation Research Board (TRB); and the Transit Development Corporation, Inc. (TDC), a nonprofit educational and research organization established by APTA. TDC is responsible for forming the independent governing board, designated as the TCRP Oversight and Project Selection (TOPS) Committee. This memorandum agreement was updated on January 12, 1999.

Research problem statements for TCRP are solicited periodically but may be submitted to TRB by anyone at any time. It is the responsibility of the TOPS Committee to

formulate the research program by identifying the highest priority projects. As part of the evaluation, the TOPS Committee defines funding levels and expected products. TCRP research is designed to ensure consistency with FTA's strategic research goals.

Once selected, each project is assigned to an expert panel, appointed by TRB. The panels prepare project statements (requests for proposals), select contractors, and provide technical guidance and counsel throughout the life of the project. The process for developing research problem statements and selecting research agencies has been used by TRB in managing cooperative research programs since 1962.

Because research cannot have the desired impact if products fail to reach the intended audience, special emphasis is placed on disseminating TCRP results to the intended end-users of the research: transit agencies, service providers, and suppliers. TRB provides a series of research reports, syntheses of transit practice, and other supporting material developed by TCRP research. APTA will arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by urban and rural transit industry practitioners.

TCRP provides a forum where transit agencies can cooperatively address common operational problems. TCRP results support and complement other ongoing transit research and training programs.

For additional information, go to www.trb.org/TCRP.

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The **National Academy of Engineering** was established in 1964, under the charter of the National Academy of Sciences, as a parallel organization of outstanding engineers. It is autonomous in its administration and in the selection of its members, sharing with the National Academy of Sciences the responsibility for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encourages education and research, and recognizes the superior achievements of engineers. Dr. C. D. Mote, Jr., is president of the National Academy of Engineering.

The **Institute of Medicine** was established in 1970 by the National Academy of Sciences to secure the services of eminent members of appropriate professions in the examination of policy matters pertaining to the health of the public. The Institute acts under the responsibility given to the National Academy of Sciences by its congressional charter to be an adviser to the federal government and, on its own initiative, to identify issues of medical care, research, and education. Dr. Harvey V. Fineberg is president of the Institute of Medicine.

The **National Research Council** was organized by the National Academy of Sciences in 1916 to associate the broad community of science and technology with the Academy's purposes of furthering knowledge and advising the federal government. Functioning in accordance with general policies determined by the Academy, the Council has become the principal operating agency of both the National Academy of Sciences and the National Academy of Engineering in providing services to the government, the public, and the scientific and engineering communities. The Council is administered jointly by both Academies and the Institute of Medicine. Dr. Ralph J. Cicerone and Dr. C. D. Mote, Jr., are chair and vice chair, respectively, of the National Research Council.

The **Transportation Research Board** is one of six major divisions of the National Research Council. The mission of the Transportation Research Board is to provide 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 activities 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. www.TRB.org

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TRANSIT COOPERATIVE RESEARCH PROGRAM

Annual Report of Progress

DECEMBER 31, 2013

INTRODUCTION

The Transit Cooperative Research Program (TCRP) was established in 1992 to provide a continuing program of applied research on transit issues. The program is sponsored by the Federal Transit Administration (FTA) and carried out under a three-way agreement among the National Academies (the Academies), acting through its Transportation Research Board (TRB); the Transit Development Corporation, an educational and research arm of the American Public Transportation Association (APTA); and the FTA.

TCRP focuses on issues significant to the transit industry, with emphasis on developing near-term research solutions to a variety of transit problems involving facilities, vehicles, equipment, service concepts, operations, policy, planning, human resources, maintenance, and administrative practices.

TCRP is a unique undertaking. Anyone with an interest in public transportation may play a role in setting the research agenda for the program by submitting research problem statements to TRB at any time. Problem statements are solicited annually on the Internet and by means of a mailing to more than 3,000 individuals representing transit agencies, metropolitan planning organizations (MPOs), universities, and federal agencies. In addition, to complement the open solicitation process, from time to time, research needs conferences are held or small consultant studies are commissioned to develop research problem statements on topics of special interest.

The selection of research projects is the responsibility of the TCRP Oversight and Project Selection (TOPS) Committee. The TOPS Committee consists of industry executives, representing the primary beneficiaries of TCRP research. It functions as the TCRP governing board and sets research priorities.

HOW TCRP PROGRAMS ARE FORMULATED

The annual research program is the foundation of TCRP. Formulating the annual program—that is, identifying the highest priority projects to be researched in a given fiscal year—is the primary duty of the TOPS Committee. Projects to be funded are based on the TOPS Committee's assessment of current problems facing transit agencies. The programming process encompasses a series of five steps.

First, research statements that describe problems in the industry are solicited annually by TCRP staff, but they may be submitted to TRB by anyone at any time. Approximately 2,700 research problem statements have been submitted since program inception. Research problem statements are typically submitted by individuals representing the following:

- Transit Agencies,
- APTA Committees,
- TRB Committees,
- FTA,
- Universities, and
- Consultants.

Table 1 shows the origin of problem statements submitted to date.

TABLE 1 ORIGIN OF PROBLEM STATEMENTS

| ORGANIZATION | FY '92-'10 | | FY '11 | | FY '12 | | FY '13 | | FY '14 | |
|-----------------|------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|
| | NO. | % | NO. | % | NO. | % | NO. | % | NO. | % |
| Transit/Local | 621 | 30.2 | 33 | 34.0 | 20 | 21.3 | 14 | 25.0 | 23 | 32.4 |
| State DOT | 139 | 6.7 | 6 | 6.2 | 3 | 3.2 | 4 | 7.1 | 5 | 7.1 |
| FTA | 204 | 9.9 | 6 | 6.2 | 23 | 24.5 | 2 | 3.7 | 3 | 4.2 |
| APTA Committees | 110 | 5.3 | 5 | 5.1 | 2 | 2.1 | 4 | 7.1 | 5 | 7.1 |
| TRB Committees | 170 | 8.3 | 9 | 9.3 | 7 | 7.4 | 11 | 19.6 | 17 | 23.9 |
| Industry | 54 | 2.6 | 7 | 7.2 | 4 | 4.3 | 1 | 1.8 | 1 | 1.4 |
| University | 259 | 12.6 | 13 | 13.4 | 10 | 10.6 | 4 | 7.1 | 3 | 4.2 |
| Consultants | 319 | 15.5 | 17 | 17.5 | 16 | 17.0 | 13 | 23.2 | 11 | 15.5 |
| Other | 184 | 8.9 | 1 | 1.1 | 9 | 9.6 | 3 | 5.4 | 3 | 4.2 |
| Totals | 2060 | 100.0 | 97 | 100.0 | 94 | 100.0 | 56 | 100.0 | 71 | 100.0 |

In addition to this process, in some years, the TOPS Committee authorizes special efforts to develop research problem statements around specific themes. For instance, in 1994 projects to aid in increasing transit ridership were developed by the Project H-5 workshop, "Identification of Research Needs to Increase U.S. Transit Ridership." TCRP Project Panel H-4, "Transit Policy-Related Studies," generated five projects in the policy area. Problem statements for fiscal years 1997, 1998, and 1999 were developed under TCRP Project J-8, "New Paradigms for Public Transit," and under Project H-15, "Projects to Support 'Mobility for the 21st Century.'" In 2001, problem statements were developed on public transportation security under TCRP Project J-10, "Public Transportation Security Research," in response to the attacks of September 11, 2001. Consultants have also been retained to develop research problem statements in the areas of human resources and transit bus improvements.

Second, screening workshops are conducted to evaluate candidate problem statements and to recommend problems for consideration by the TOPS Committee. The screening panels consider, in addition to FTA strategic research goals, five strategic priorities adopted in the TCRP strategic plan:

1. Place the customer first,
2. Enable transit to operate in a technologically advanced society,
3. Continuously improve public transportation,
4. Flourish in the multimodal system, and
5. Revitalize transit organizations.

TCRP revises its strategic plan periodically and adjusts selection criteria to be consistent with the plan.

The problem statements are screened to determine the following:

- Whether the problem supports the FTA strategic research goals and/or the TCRP strategic plan,
- Whether the problem is important to transit agencies,
- Whether the problem is researchable,
- Whether the contemplated research is timely,
- Whether successful research will produce significant benefits,
- Whether the probability of success of the proposed study is sufficiently high,
- Whether the proposed study can be designed to avoid undesirable duplication of other completed or ongoing research, and
- Whether the proposed study is appropriate for TCRP or whether it should be performed elsewhere.

Third, the short list of problem statements is presented to the TOPS Committee for consideration in formulating each year's program.

Fourth, the technical merits of the problems that survive the screening by the screening workshops are further evaluated by the TOPS Committee at an annual meeting held for this purpose. Based on the comments and discussions, the TOPS Committee selects the program of projects for the next program year.

Finally, each year's program is referred to TRB for review, acceptance, and execution.

RESEARCH PROGRAM

TCRP was established by Memorandum Agreement in 1992. Since then, the TOPS Committee has generally met twice each year, a total of 46 times, to select the research program for the next fiscal year and to review TCRP procedures and performance.

Most problem statements selected by the TOPS Committee become research projects, but some are treated as syntheses. Research projects involve original research, which includes data collection, analysis, and preparation of materials for use by the transit industry. Syntheses search out and assemble useful knowledge from all available sources, especially from practitioners, and report on current practices in the subject area. In addition to these two types of studies, TCRP also conducts IDEA (Innovations Deserving Exploratory Analysis) investigations, legal studies, and quick-response studies. IDEA investigations are intended to develop commercially viable products; legal studies examine legal issues facing the transit industry; and quick-response studies address a variety of issues that require a very short-term response. To date, TCRP includes 691 authorized study activities: 319 research projects, 123 syntheses, 76 IDEA investigations, 59 legal studies, 103 quick-response studies, and 11 special projects.

FINANCING THE PROGRAM

TCRP funding was authorized by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) for fiscal years 1992 through 1997; by the Transportation Equity Act for the 21st Century (TEA-21) for fiscal years 1998 through 2005; by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) for fiscal years 2006 through 2012; and by the Moving Ahead for Progress in the 21st Century Act (MAP-21) for fiscal years 2013 through 2014. Funding for each year of the program is provided below:

- FY 1992 \$8.92 M
- FY 1993 \$7.75 M
- FY 1994 \$8.475 M
- FY 1995 \$8.475 M
- FY 1996 \$7.61 M
- FY 1997 \$8.25 M
- FY 1998 \$4.00 M
- FY 1999 \$8.25 M
- FY 2000 \$7.15 M
- FY 2001 \$6.73 M
- FY 2002 \$8.25 M
- FY 2003 \$8.196 M
- FY 2004 \$8.196 M
- FY 2005 \$8.184 M
- FY 2006 \$8.91 M
- FY 2007 \$9.30 M
- FY 2008 \$9.30 M
- FY 2009 \$10.00 M
- FY 2010 \$10.00 M
- FY 2011 \$9.98 M
- FY 2012 \$6.50 M
- FY 2013 \$3.50 M
- FY 2014 TBD

HOW TCRP IS ORGANIZED TO ADMINISTER RESEARCH PROGRAMS

Nine research fields and 45 problem areas are used to classify TCRP research (see Figure 1). The distribution of all projects and syntheses through December 2013 is shown in Table 2.

| PROBLEM AREAS | | |
|--|--|--|
| RESEARCH FIELD A Operations | RESEARCH FIELD B Service Configuration | RESEARCH FIELD C Engineering of Vehicles and Equipment |
| 11 Scheduling 12 Vehicle Operations 13 Control Systems 14 Fare Collection 15 User Information Systems 16 Safety and Security | 21 System Planning 22 Specialized Service Planning 23 Service Performance 24 Marketing | 31 Buses 32 Vans 33 Heavy Rail Cars 34 Commuter Rail Vehicles 35 Light Rail Cars 36 People-Mover Vehicles 37 Vehicle Components |
| RESEARCH FIELD D Engineering of Fixed Facilities | RESEARCH FIELD E Maintenance | RESEARCH FIELD F Human Resources |
| 41 Buildings 42 Rail Operating Facilities 43 Passenger Stations and Terminals 44 Bus Stop Facilities | 51 Vehicle Servicing 52 Vehicle Inspections and Maintenance 53 Vehicle Corrective Repairs 54 Overhaul and Rebuilding 55 Non-Vehicle Maintenance 56 Maintenance Management | 61 Recruitment 62 Training 63 Employee Reviews 64 Job Classification 65 Salary Administration 66 Labor Relations 67 Performance Improvement Programs |
| RESEARCH FIELD G Administration | RESEARCH FIELD H Policy and Planning | RESEARCH FIELD J Special Projects |
| 71 Financial Management 72 Procurement and Inventory Control 73 Risk Management 74 Law 75 Management Information Systems 76 Transit Organizations | 81 Policy Analysis 82 Planning 83 Economics 84 Environmental Analysis | 91 Areas not covered elsewhere |

Figure 1. TCRP Classification System.

**TABLE 2 DISTRIBUTION OF PROJECTS AND SYNTHESSES BY FIELD
THROUGH DECEMBER 31, 2013**

| RESEARCH FIELDS | NUMBER OF PROJECTS | NUMBER OF SYNTHESSES |
|---------------------------------------|---------------------------|-----------------------------|
| Operations | 76 | 36 |
| Service Configuration | 50 | 25 |
| Engineering of Vehicles and Equipment | 31 | 9 |
| Engineering of Fixed Facilities | 37 | 4 |
| Maintenance | 12 | 6 |
| Human Resources | 22 | 17 |
| Administration | 21 | 12 |
| Policy and Planning | 62 | 14 |
| Special Projects | 11 | 0 |

PROJECT PANELS

Each project is assigned to a panel appointed by TRB. Panel membership must be balanced in terms of professional qualifications, geography, age, gender, and ethnicity. Table 3 displays panel composition by affiliation, race, and gender. Nominations for members of new panels are solicited through a mailing to more than 3,000 individuals, including representatives of women's and minority organizations. Information about panel nominations is also available on the TCRP website. For most panels, more than four nominees are received for each available slot. Emphasis on selection of well-balanced panels has resulted in membership that reflects the diversity in the transit industry. To ensure that research is relevant to the industry, approximately 45 percent of the members of most panels are employed by transit systems.

**TABLE 3 PANEL COMPOSITION OF ACTIVE PROJECTS
(58 Project Panels, 534 Members)**

| PANEL COMPOSITION | NO. | % |
|-------------------------------------|----------------|----------------|
| AFFILIATION | | |
| Transit System | 241 | 45.1 |
| State Government | 40 | 7.5 |
| Local Government/MPO | 40 | 7.5 |
| Federal Government | 1 | 0.2 |
| Industry/Consultants/Private Sector | 145 | 27.2 |
| University | 48 | 8.9 |
| Association | 19 | 3.6 |
| RACE | | |
| | Members/Chairs | Members/Chairs |
| White | 356/38 | 74.8/65.5 |
| Minorities | 120/20 | 25.2/34.5 |
| GENDER | | |
| | Members/Chairs | Members/Chairs |
| Male | 327/36 | 68.7/62.1 |
| Female | 149/22 | 31.3/37.9 |

Panels have four important responsibilities:

1. Defining the scope of the study in a research project statement (request for proposals),
2. Selecting a contractor from among the agencies submitting proposals,
3. Monitoring the research over the duration of the contract, and
4. Reviewing the final report.

HOW PROJECTS ARE PLACED UNDER CONTRACT

TCRP concentrates on applied research projects. The program is directed at problems of an immediate, near-term nature that can be undertaken with moderate research funds. TCRP project-funding levels are typically approximately \$400,000 per project. As TCRP initiates each year's program, the project panels meet to write research project statements based on the research problems referred by the TOPS Committee. Research project statements are only available on the Internet. Proposals are submitted according to fixed deadlines; extensions are not granted. An average of six to eight proposals are received per project.

It is important to note that the opportunity to propose is open to anyone. Agency selection is based on the following factors: (1) understanding of the problem, (2) research approach, (3) experience of the research team, (4) application of results and implementation plan, (5) plan for participation by disadvantaged business enterprises, and (6) facilities and equipment. Note that the fifth factor was added in 1997 to supplement ongoing TCRP outreach efforts to encourage greater participation in the program by disadvantaged business enterprises. Staff and panel members evaluate all proposals based on these criteria.

The funds available for a project are specified in the research project statement, and contract awards cannot exceed this amount. Cost-proposal line items are examined to determine the reasonableness of the allocation of funds and staffing to the various tasks. The unit costs of the research proposed and such elements as compensation for key personnel, distribution of effort for key tasks, overhead rate, size of any fixed fee, and those expenditures included in direct costs are evaluated. At a second panel meeting, typically held about 30 days after the panel members have received the proposals, agency selection is made. Panel members candidly discuss all aspects of each agency's known performance on other research projects. These panel deliberations are privileged. Agency selection is made by all panel members excluding staff and liaison representatives. Successful proposals are retained by the panel members for use in monitoring the research.

Following the selection meeting, TCRP staff notifies the selected organization. After the Academies' Office of Contracts and Grants completes a financial investigation, a contract between the Academies and the research agency is executed, and the research commences.

The policy of TCRP is to provide a debriefing to unsuccessful proposers upon request. The debriefing is intended to indicate to the proposers the strengths and weaknesses of their proposal based on the panel review.

The Academies' research contract is normally one of the following types:

- Cost reimbursement (CR),
- Cost reimbursement plus fixed fee (CRPFF), or
- Fixed price (FP).

The Academies decides, in agreement with the agency, which type of contract will be executed in each case. The research agency's proposal is made a part of the contract with the Academies. Thus, in addition to the specific objectives outlined in the contract, the research agency's cost estimates are also recognized as being part of the agreement. However, the principal investigator does have flexibility in conducting the research, if it is consistent with the general scheme of the proposal.

MONITORING RESEARCH IN PROGRESS

Once research begins, TCRP staff monitors the administrative and technical progress of the project in accordance with the approved proposal and amplified work plan to ensure conformance with contractual obligations. The project panel maintains control over the research process during execution of the study. Its first involvement is the approval of the researcher's amplified work plan. This amplified plan is due 15 days after the contract start date. It provides a detailed expansion of the research plan and furnishes a complete description of the activities to be pursued in conducting the research. The amplified plan's purpose is to assist the staff in its monitoring activities and to provide further technical panel guidance to the researcher.

TCRP staff reviews quarterly progress reports and monthly progress schedules and maintains contact with the principal investigators. TCRP project managers visit their assigned research agencies throughout the contract period and discuss with each principal investigator the project's status to learn whether the research is being pursued in accordance with the approved research plan. Finally, the project manager and the corresponding project panel evaluate the completed research to determine the degree of technical compliance with the contract.

PROMOTING DISSEMINATION AND APPLICATION OF RESEARCH RESULTS

In an applied research program such as TCRP, research results must be not only accurate but also usable. In the TCRP brochure, Information and Instructions for Preparing Proposals, proposers are encouraged to include a section in their proposals on "Applicability of Results to Transit Practice." This section should clearly describe how the anticipated research results can be used to improve transit practices and should indicate the expected audience for research results. This measure is taken to ensure that final research reports are presented in language that is understandable to transit managers, professionals, and administrators.

Thus, research agencies for TCRP are required to report their results in a form that succinctly summarizes the findings for the busy administrator and likewise informs the transit practitioner of the application of the findings. The program specifies style and

organization of all reports to guide the researchers in their writing so that the maximum use by the practitioner may be obtained.

In addition to publication, measures are taken to ensure that useful research results are made immediately available to the appropriate personnel. One means consists of advance distribution of the researcher's draft final report to selected potential users. Another consists of publishing TCRP research results digests. Digests promote early awareness of project results to encourage implementation. For the most part, digests are brief summaries of specific findings that emphasize how the research results may be of use. The contents are organized in terms of the problem and the solution to it, the findings, and the applications.

After publication, products are distributed through TRB's distribution system. Copies are sent directly to approximately 1,200 TRB sponsors and members who request transit publications, as well as to about 350 libraries, transit representatives, and university-liaison representatives. As a further means of disseminating the research reports, announcements of their availability are included in TRB's weekly electronic newsletter, which is distributed to approximately 40,000 individuals. FTA personnel automatically receive copies of each published report, providing an additional conduit through which direct contact with possible users can be initiated. TRB also maintains warehouse copies and lists products annually in the TRB catalog. In addition, all TCRP publications are available on the Internet in PDF (portable document format) for immediate and free electronic access.

Further dissemination of the reports and support products is carried out according to the Dissemination Plan developed by APTA under TCRP Project J-1, "Dissemination and Implementation of TCRP Research Findings." The purpose of Project J-1 is to ensure that TCRP products reach the appropriate transit industry audience. For each product, APTA identifies a target audience and ensures that these individuals receive the material. APTA staff also promotes the program and disseminates products at 10 major conferences each year, including the Community Transportation Association of America (CTAA) Annual Meeting, the Conference of Minority Transportation Officials (COMTO) Annual Meeting, and the TRB Annual Meeting. Approximately 500 copies of each product are distributed in this manner in addition to those distributed directly to TRB members. Announcements of products are routinely published in Passenger Transport and TR News. APTA includes sessions on research in its conferences, and researchers are encouraged to present findings at the APTA, TRB, CTAA, and other conferences. To aid in the dissemination of findings, APTA maintains a TCRP dissemination home page on the Internet at www.tcrponline.org.

Under TCRP Project J-1, a TCRP Ambassador Program has been established with the assistance of COMTO to create a network of geographically distributed transit professionals who are briefed on TCRP products and who represent TCRP at transit agencies and at national, state, and regional conferences. Participants in the TCRP Ambassador Program are identified through a nomination process and are selected by a designated panel. Each TCRP ambassador serves a 2-year term. In any given year, there are typically 16 ambassadors available to represent TCRP at various functions. Requests for nominations are issued to the transit industry on a periodic basis.

CURRENT STATUS

In the period from August 1992 (when the first TCRP grant was received) through December 2013, 691 study activities have been authorized:

- 319 research projects;
- 11 special projects;
- 76 transit IDEA investigations;
- 59 transit legal studies;
- 103 quick-response studies; and
- 123 transit syntheses.

Approximately 605 studies have been completed as of December 31, 2013. (See Tables 5 through 13 for a summary of project status.) Project completion means that the panel has reviewed the draft final report and the research agency has submitted a final report that incorporates the panel comments. Before publication, the editorial staff of the Cooperative Research Programs checks the document thoroughly for accuracy and then oversees typesetting and publication. Not all completed projects are published in the TCRP report series. In some cases, a research results digest or other form of publication is deemed more appropriate than a report.

Table 4 lists all TCRP publications, including 208 published reports, 108 syntheses, 107 research results digests, 44 legal research digests, 61 web-only documents, and 44 CD-ROMs. A total of 52 IDEA investigation reports are available from TCRP.

ACCOMPLISHMENTS IN 2013

TCRP published the results of 19 projects in 2013. The following TCRP activities of particular interest were completed during the year.

Operations, Maintenance, and Safety

TCRP Report 157: State of Good Repair: Prioritizing the Rehabilitation and Replacement of Existing Capital Assets and Evaluating the Implications for Transit presents a framework for transit agencies to use for prioritizing capital asset rehabilitation and replacement decisions. By applying this framework, a decision maker can answer questions about asset rehabilitation and replacement investment decisions. The published report is accompanied by four spreadsheet models that apply the framework.

TCRP Report 160: Paratransit Emergency Preparedness and Operations Handbook provides paratransit service providers with guidance, strategies, tools, and resources to plan and prepare for, respond to, and recover from a range of emergencies. The guidance has applicability to urban, suburban, rural, and tribal paratransit operating environments. Guidance is directed to in-house paratransit operations and to paratransit services operated under contract. It has relevance for Americans with Disabilities Act (ADA) paratransit and general public demand-response operations.

TCRP Project E-6, “Transit Bus Mechanics: Building for Success—The ASE Transit Bus Maintenance Certification Test Series,” previously developed transit bus maintenance technician certification tests through the Institute for Automotive Service Excellence (ASE). The certification tests are similar to those for the automotive, medium- and heavy-duty truck, and school bus industries. In 2013, ASE continued to administer eight transit bus tests developed through TCRP—electrical and electronics; brakes; diesel engines; heating, ventilation, and air conditioning; transmission and drivetrain; suspension and steering; compressed natural gas engines; and preventive maintenance inspections. To date, approximately 3,000 technicians have passed over 10,000 transit bus tests. In addition, the ASE Board of Directors approved an ASE Transit Bus Master Technician designation for those who pass seven of the eight transit bus tests. Approximately 570 have attained the ASE Transit Bus Master Technician status.

Similarly, TCRP Project E-7, “Initiating a National Transit Industry Rail Vehicle Technician Program: Building for Success,” has developed a proposed program for training and certification for rail vehicle maintenance technicians in a number of technical areas. This proposed program, which would be offered by the Transportation Learning Center, has been piloted at a number of major rail transit agencies. Formal implementation of the program is currently under discussion.

Management and Administration

TCRP Report 159: Transforming Public Transportation Institutional and Business Models provides an analysis of and strategy for defining and implementing transformative change in institutional and business models for operating and maintaining public transportation systems. It addresses a wide range of issues important to continued efficient operations, including responding to the needs of affected customer markets, improving operating procedures, implementing effective capital asset management, carrying out long-term planning and mission definition, improving and expanding functional areas as well as expertise and technical skill sets of the workforce, identifying and improving necessary business practices, identifying and implementing innovative funding mechanisms, implementing performance measures and improved governance models, identifying required organizational structures, and instituting effective area-wide collaborative practices.

TCRP Report 162: Building a Sustainable Workforce in the Public Transportation Industry—A Systems Approach is a guidebook that provides practical recommendations to assist transit organizations in building a more sustainable workforce and better orienting themselves as an employer of choice. The recommendations are presented in four modules: strategies for recruitment, retention, training and development, and professional capacity building (Module 1); metrics to evaluate the effectiveness of human resource practices adopted or contemplated (Module 2); reflections and strategies that pertain to image management (Module 3); and a framework for an ongoing benchmarking process (Module 4). Information across the modules is in the form of example successful programs, state-of-the-art initiatives, industry effective practices, and directions to implement and measure those practices.

Planning

TCRP Report 158: Improving ADA Paratransit Demand Estimation: Regional Modeling provides a sketch planning model and regional models to (1) improve the ability of metropolitan planning organizations and transit operators to estimate the probable future demand for ADA complementary paratransit service and (2) predict travel by ADA paratransit-eligible individuals on all modes, not just ADA paratransit. All model parameters and coefficients are contained in this report, and a fully implemented version is available on an enclosed CD-ROM.

TCRP Report 161: Methods for Forecasting Demand and Quantifying Need for Rural Passenger Transportation: Final Workbook presents step-by-step procedures for quantifying the need for passenger transportation services and the demand that is likely to be generated if passenger transportation services are provided. This report is supplemented by a spreadsheet model that can be used to implement the procedures included in the workbook.

TCRP Report 165: Transit Capacity and Quality of Service Manual, Third Edition, is a reference document that provides current guidance on transit capacity and quality of service issues and the factors influencing both. The manual contains background, statistics, and graphics on the various types of public transportation, and it provides a framework for measuring transit availability, comfort, and convenience from the passenger and transit provider points of view. The manual contains quantitative techniques for calculating the capacity and other operational characteristics of bus, rail, demand-responsive, and ferry transit services, as well as transit stops, stations, and terminals. Example calculations are included.

FY 2014 PROGRAM

In October 2013, the TOPS Committee allocated funds for fiscal year 2014. Table 14 lists the new projects, continuations of existing projects, and special projects that were selected for funding.

POLICIES ON BIAS AND CONFLICT OF INTEREST

TOPS Committee

In the administration of TCRP, it is essential to maximize both the substance and the appearance of fairness in the selection and management of contractors while simultaneously ensuring the quality of and expanding the number of potential researchers as much as possible.

It is in the interest of TCRP to use the expertise of the best-qualified individuals and organizations available to conduct research while avoiding actual or apparent conflicts of interest. However, conflicts may arise or appear to arise if members of the TOPS Committee or the organizations with which they are affiliated submit proposals on projects.

To prevent such problems in the administration of TCRP, members of the TOPS Committee are not permitted to serve concurrently as principal investigators on any TCRP projects. Additionally, the following rules will apply to all members of the TOPS Committee for the duration of their terms of appointment:

- A TOPS Committee member is not permitted to be involved in the selection process for TCRP contractors in which the individual member or an affiliated organization is being considered.
- No involvement by a TOPS Committee member is permitted in TRB's administration of a contract in which the individual member or an affiliated organization is involved.
- No involvement by a TOPS Committee member is permitted in setting or modifying administrative policies that would directly or materially affect either the administration of existing contracts with the individual TOPS member or affiliated organization or the ability of the member or affiliated organization to submit proposals.

Because of the special position of the TOPS Committee Chair, the following additional rules also will apply during the Chair's term:

- Neither the TOPS Committee nor the immediate administrative unit of which the Chair is a part may propose on any TCRP projects.
- The Chair may not be involved in the preparation of a proposal for a TCRP project.
- The Chair may not work on a TCRP project as a member of the research team or as a consultant to the team.

When a newly appointed Chair of the TOPS Committee or other member of the Committee has existing activities or commitments covered in the foregoing lists of rules on a TCRP project at the time of appointment, those circumstances will be disclosed without delay to the Executive Committee of TOPS, and recommendations will be made by the Executive Committee on a case-by-case basis. All issues arising out of the need to interpret these rules will be resolved by the Executive Committee, with the affected members standing aside as appropriate.

TCRP Project Panels

TRB, as a unit of the National Research Council, accords special importance to the policies and procedures established by the institution for ensuring the integrity of and, hence, public confidence in the reports. Extensive efforts are made to ensure the soundness of reports issued by the institution by selecting highly qualified members. Yet, if a report is to be not only sound but also effective as measured by its acceptance in quarters in which it should be influential, the report must be and must be perceived to be (1) free of any significant conflict of interest, (2) not compromised by bias, and (3) untainted by allegations of scientific misconduct.

To address questions of potential bias and conflict of interest for the protection of both the individual involved and the institution, individuals participating in studies and other activities are asked to complete a Potential Sources of Bias and Conflict of Interest

form to be submitted to and reviewed by the institution. In addition, project panels are asked to discuss the general questions of bias and conflict of interest and the relevant circumstances of their individual members at each panel meeting.

The question of potential sources of bias ordinarily relates to views stated or positions taken that are largely intellectually motivated or that arise from the close identification or association of an individual with a particular point of view or the positions or perspectives of a particular group. Such potential sources of bias are not necessarily disqualifying for purposes of panel service. Indeed, it often is necessary, in order to ensure that a panel is fully competent, to appoint members in such a way as to represent a balance of potentially biasing backgrounds or professional or organizational perspectives.

It is also essential that the work of panels not be compromised by a significant conflict of interest or, in some circumstances, the significant appearance of conflict of interest on the part of any member of a panel or anyone associated with the work of a panel (e.g., consultants, staff). For this purpose, the term "conflict of interest" means any financial or other interest that conflicts with the service of an individual because it (1) could impair the individual's objectivity or (2) could create an unfair competitive advantage for any person or organization. The existence of a significant conflict of interest ordinarily disqualifies an individual from service.

SUMMARY

TCRP focuses on issues significant to the transit industry, emphasizing the development of near-term research solutions to a variety of transit problems involving facilities, service concepts, operations, policy, planning, human resources, maintenance, and administrative practices.

TCRP processes ensure maximum exposure of the research efforts while they are in progress in the hope that research results will find their way more quickly into practice in the form of policies, procedures, and specifications by the transit industry.

TABLE 4. Publications of the Transit Cooperative Research Program

| Reports | | |
|----------------|-----------|---|
| No. | Proj. No. | Title, Pages, Publication Year |
| 1 | E-02 | Artificial Intelligence for Transit Railcar Diagnostics, 64 p. (1994) |
| 2 | C-02 | Applicability of Low-Floor Light Rail Vehicles in North America, 174 p. (1995) |
| 3 | B-03 | Workbook for Estimating Demand for Rural Passenger Transportation, 124 p. (1995) |
| 4 | A-03 | Aids for Rail Car Side-Door Observation, 130 p. (1995) |
| 5 | E-04 | Guidelines for Development of Public Transportation Facilities and Equipment Management Systems, 56 p. (1995) |
| 6 | A-02 | Users' Manual for Assessing Service-Delivery Systems for Rural Passenger Transportation, 240 p. (1995) |
| 7 | D-04 | Reducing the Visual Impact of Overhead Contact Systems, 90 p. (1995) |
| 8 | F-03 | The Quality Journey: A TQM Roadmap for Public Transportation, 80 p. (1995) |
| 9 | B-01 | Transit Operations for Individuals with Disabilities, 118 p. (1995) |
| 10 | A-01 | Fare Policies, Structures, and Technologies, 182 p. (1996) |
| 11 | C-05 | Impact of Radio Frequency Refarming on Transit Communications, 42 p. (1996) |
| 12 | A-09 | Guidelines for Transit Facility Signing and Graphics, 64 p. (1996) |
| 13 | A-08 | Rail Transit Capacity, 178 p. (1996) |
| 14 | H-04C | Institutional Barriers to Intermodal Transportation Policies and Planning in Metropolitan Areas, 212 p. (1996) |
| 15 | C-04 | Procurement Specification Guidelines for Mass Transit Vehicle Window Glazing, 46 p. (1996) |
| 16 | H-01 | Transit and Urban Form, Volumes 1 and 2, 452 p. (1996) |
| 17 | A-05 | Integration of Light Rail Transit into City Streets, 270 p. (1996) |
| 18 | A-06 | A Handbook for Acquiring Demand-Responsive Transit Software, 82 p. (1996) |
| 19 | A-10 | Guidelines for the Location and Design of Bus Stops, 218 p. (1996) |
| 20 | H-02 | Measuring and Valuing Transit Benefits and Disbenefits, 46 p. (1996) |
| 21 | B-07 | Strategies to Assist Local Transportation Agencies in Becoming Mobility Managers, 142 p. (1997) |
| 22 | H-04D | The Role of Transit in Creating Livable Metropolitan Communities, 184 p. (1997) |
| 23 | C-03 | Wheel/Rail Noise Control Manual (distributed through APTA), 212 p. (1997) |
| 24 | B-05 | Attracting Paratransit Patrons to Fixed-Route Services, 392 p. (1997) |
| 25 | F-04 | Bus Operator Workstation Evaluation and Design Guidelines, 22 p. (1997) |
| 26 | A-07 | Operational Analysis of Bus Lanes on Arterials, 70 p. (1997) |
| 27 | H-04A | Building Transit Ridership, 156 p. (1997) |
| 28 | H-04B | Transit Markets of the Future: The Challenge of Change, 194 p. (1998) |
| 29 | F-05 | Closing the Knowledge Gap for Transit Maintenance Employees: A Systems Approach, 56 p. (1998) |
| 30 | A-11 | Transit Scheduling: Basic and Advanced Manuals, 148 p. (1998) |
| 31 | H-07 | Funding Strategies for Public Transportation, Volumes 1 and 2, 83 p. (1998) |
| 32 | A-14 | Multipurpose Transit Payment Media, 132 p. (1998) |
| 33 | H-04D(02) | Transit-Friendly Streets: Design and Traffic Management Strategies to Support Livable Communities, 72 p. (1998) |
| 34 | H-11 | Assessment of the Economic Impacts of Rural Public Transportation, 209 p. (1998) |
| 35 | H-09 | Economic Impact Analysis of Transit Investments: Guidebook for Practitioners, 196 p. (1998) |
| 36 | B-09 | A Handbook: Using Market Segmentation to Increase Transit Ridership, 194 p. (1998) |
| 37 | B-02 | A Handbook: Integrating Market Research into Transit Management, 207 p. (1998) |
| 38 | C-08 | Guidebook for Evaluating, Selecting, and Implementing Fuel Choices for Transit Bus Operations, 164 p. (1998) |
| 39 | H-10 | The Costs of Sprawl—Revisited, 229 p. (1998) |
| 40 | H-03 | Strategies to Attract Auto Users to Public Transportation, 105 p. (1998) |
| 41 | C-10C | New Designs and Operating Experiences with Low-Floor Buses, 103 p. (1998) |
| 42 | H-13A | Consequences of the Interstate Highway System for Transit: Summary of Findings, 64 p. (1998) |
| 43 | C-10A | Understanding and Applying Advanced On-Board Electronics, 102 p. (1999) |

Reports

| No. | Proj. No. | Title, Pages, Publication Year |
|-----|--------------------------|---|
| 44 | E-02A | Demonstration of Artificial Intelligence Technology for Transit Railcar Diagnostics, 72 p. (1999) |
| 45 | A-12 | Passenger Information Services: A Guidebook for Transit Systems, 52 p. (1999) |
| 46 | B-10 | The Role of Transit Amenities and Vehicle Characteristics in Building Transit Ridership: Amenities for Transit Handbook and the Transit Design Game Workbook, 240 p. (1999) |
| 47 | B-11 | A Handbook for Measuring Customer Satisfaction and Service Quality, 212 p. (1999) |
| 48 | H-12 | Integrated Urban Models for Simulation of Transit and Land Use Policies: Guidelines for Implementation and Use, 31 p. (1999) |
| 49 | H-08 | Using Public Transportation to Reduce the Economic, Social, and Human Costs of Personal Immobility, 133 p. (1999) |
| 50 | B-13 | A Handbook of Proven Marketing Strategies for Public Transit, 182 p. (1999) |
| 51 | B-08 | A Guidebook for Marketing Transit Services to Business, 50 p. (1999) |
| 52 | A-17 | Joint Operation of Light Rail Transit or Diesel Multiple Unit Vehicles with Railroads, 482 p. (1999) |
| 53 | J-08B | New Paradigms for Local Public Transportation Organizations, Task 1 Report: Forces and Factors That Require Consideration of New Paradigms, 94 p. (1999) |
| 54 | G-05 | Management Toolkit for Rural and Small Urban Transportation Systems, 375 p. (1999) |
| 55 | B-06 | Guidelines for Enhancing Suburban Mobility Using Public Transportation, 81 p. (1999) |
| 56 | A-19 | Integrating School Bus and Public Transportation Services in Non-Urban Communities, 400 p. (1999) |
| 57 | D-06 | Track Design Handbook for Light Rail Transit, 352 p. (2000) |
| 58 | J-08B | New Paradigms for Local Public Transportation Organizations, 59 p. (2000) |
| 59 | C-10B | Hybrid-Electric Transit Buses: Status, Issues, and Benefits, 98 p. (2000) |
| 60 | H-20 | Using Geographic Information Systems for Welfare to Work Transportation Planning and Service Delivery, 83 p. (2000) |
| 61 | B-14 | Analyzing the Costs of Operating Small Transit Vehicles: User's Guide STVe, 42 p. (2000) |
| 62 | B-18 | Improving Public Transportation Access to Large Airports, 148 p. (2000) |
| 63 | B-20 | Enhancing the Visibility and Image of Transit in the United States and Canada, 320 p. (2000) |
| 64 | H-15A | Guidebook for Developing Welfare-to-Work Transportation Services, 190 p. (2000) |
| 65 | A-10A | Evaluation of Bus Bulbs, 69 p. (2001) |
| 66 | A-18 | Effective Practices to Reduce Bus Accidents, 96 p. (2001) |
| 67 | C-03A | Wheel and Rail Vibration Absorber Testing and Demonstration, 45 p. (2001) |
| 68 | F-07 | Part-Time Transit Operators: The Trends and Impacts, 134 p. (2001) |
| 69 | A-13 | Light Rail Service: Pedestrian and Vehicular Safety, 141 p. (2001) |
| 70 | A-21 | Guidebook for Change and Innovation at Rural and Small Urban Transit Systems, 262 p. (2001) |
| 71 | D-07/Tasks 01, 03, 04 | Track-Related Research, Vol. 1: Broken Rail Detection, Control of Wheel/Rail Friction, and Wide-Gap Welding Techniques, 108 p. (2001) |
| 71 | D-07/Task 02 | Track-Related Research, Vol. 2: Transit-Switch Design Analysis (Phase I), 40 p. (2003) |
| 71 | D-07/Task 06 | Track-Related Research, Vol. 3: Exothermic Welding of Heavy Electrical Cables to Rail and Applicability of AREMA Track Recommended Practices for Transit Agencies, 30 p. (2004) |
| 71 | D-07/Task 07 | Track-Related Research, Vol. 4: Friction Control Methods Used by the Transit Industry, 108 p. (2005) |
| 71 | D-07/Task 08 | Track-Related Research, Vol. 5: Flange Climb Derailment Criteria and Wheel/Rail Profile Management and Maintenance Guidelines for Transit Operations, 140 p. (2005) |
| 71 | D-07/Task 11 | Track-Related Research, Vol. 6: Direct-Fixation Track Design Specifications, Research, and Related Material (& CD 61), 12 p. (2005) |
| 71 | D-07/Task 16 | Track-Related Research, Vol. 7: Guidelines for Guard/Restraining Rail Installation, 34 p. (2010) |
| 72 | A-22 | Simulators and Bus Safety: Guidelines for Acquiring and Using Transit Bus Operator Driving Simulators, 60 p. (2001) |
| 73 | B-15 | Characteristics of Urban Travel Demand (& CD 17), 56 p. (2002) |
| 74 | H-10 | Costs of Sprawl—2000, 620 p. (2002) |
| 75 | B-16 | The Role of the Private-for-Hire Vehicle Industry in Public Transit (& CD 16), 81 p. (2002) |
| 76 | B-17 | Guidebook for Selecting Appropriate Technology Systems for Small Urban and Rural Public Transportation Operators, 73 p. (2002) |
| 77 | F-09 | Managing Transit's Workforce in the New Millennium, 146 p. (2002) |

| Reports | | |
|----------------|--------------|--|
| No. | Proj. No. | Title, Pages, Publication Year |
| 78 | H-19 | Estimating the Benefits and Costs of Public Transit Projects: A Guidebook for Practitioners (& CD 18), 144 p. (2002) |
| 79 | B-21 | Effective Approaches to Meeting Rural Intercity Bus Transportation Needs, 184 p. (2002) |
| 80 | A-24 | A Toolkit for Self-Service, Barrier-Free Fare Collection (& CD 19), 220 p. (2002) |
| 81 | F-10 | Toolbox for Transit Operator Fatigue (& CD 21), 234 p. (2002) |
| 82 | B-19 | Improving Public Transit Options for Older Persons, Volume 1: Handbook, 59 p.; Volume 2: Final Report, 204 p. (2002) |
| 83 | B-18A | Strategies for Improving Public Transportation Access to Large Airports, 137 p. (2002) |
| 84 | J-09/Task 01 | e-Transit: Electronic Business Strategies for Public Transportation, Vol. 1: Supply Chain: Parts and Inventory Management, 31 p. (2002) |
| 84 | J-09/Task 03 | e-Transit: Electronic Business Strategies for Public Transportation, Vol. 2: Application Service Provider Implementation Guidelines, 34 p. (2002) |
| 84 | J-09/Task 06 | e-Transit: Electronic Business Strategies for Public Transportation, Vol. 3: Using the Internet for Transit Training and Certification (& CD 27), 10 p. (2003) |
| 84 | J-09/Task 04 | e-Transit: Electronic Business Strategies for Public Transportation, Vol. 4: Advanced Features of Transit Websites (& CD 34), 10 p. (2003) |
| 84 | J-09/Task 08 | e-Transit: Electronic Business Strategies for Public Transportation, Vol. 5: Concept for an e-Transit Reference Enterprise Architecture, 44 p. (2004) |
| 84 | J-09/Task 10 | e-Transit: Electronic Business Strategies for Public Transportation, Vol. 6: Strategies to Expand and Improve Deployment of ITS in Rural Transit Systems, 20 p. (2005) |
| 84 | J-09/Task 09 | e-Transit: Electronic Business Strategies for Public Transportation, Vol. 7: The Successful Adoption of Web-Based Collaborative Software, 66 p. (2005) |
| 84 | J-09/Task 12 | e-Transit: Electronic Business Strategies for Public Transportation, Vol. 8: Improving Public Transportation Technology Implementations and Anticipating Emerging Technologies, 76 p. (2008) |
| 84 | J-09/Task 13 | e-Transit: Electronic Business Strategies for Public Transportation, Vol. 9: Transit Enterprise Architecture and Planning Framework, 148 p. (2011) |
| 85 | H-24 | Public Transit Board Governance Guidebook, 30 p. (2002) |
| 86 | J-10B(04) | Public Transportation Security, Vol. 1: Communication of Threats: A Guide, 42 p. (2002) |
| 86 | J-10B(05) | Public Transportation Security, Vol. 2: K9 Units in Public Transportation: A Guide for Decision Makers, 120 p. (2002) |
| 86 | J-10B(03) | Public Transportation Security, Vol. 3: Robotic Devices: A Guide for the Transit Environment, 23 p. (2003) |
| 86 | J-10A(03) | Public Transportation Security, Vol. 4: Intrusion Detection for Public Transportation Facilities Handbook, 162 p. (2003) |
| 86 | J-10A(02) | Public Transportation Security, Vol. 5: Security-Related Customer Communications and Training for Public Transportation Providers (& CD 43), 8 p. (2004) |
| 86 | J-10B(02) | Public Transportation Security, Vol. 6: Applicability of Portable Explosive Detection Devices in Transit Environments, 36 p. (2004) |
| 86 | J-10B(01) | Public Transportation Security, Vol. 7: Public Transportation Emergency Mobilization and Emergency Operations Guide, 126 p. (2005) |
| 86 | J-10F | Public Transportation Security, Vol. 8: Continuity of Operations (COOP) Planning Guidelines for Transportation Agencies (joint report), 84 p. (2005) |
| 86 | J-10C | Public Transportation Security, Vol. 9: Guidelines for Transportation Emergency Training Exercises (joint report), 146 p. (2006) |
| 86 | J-10D | Public Transportation Security, Vol. 10: Hazard and Security Plan Workshop: Instructor Guide (& CD 64), 208 p. (2006) |
| 86 | J-10H | Public Transportation Security, Vol. 11: Security Measures for Ferry Systems, 72 p. (2006) |
| 86 | J-10G | Public Transportation Security, Vol. 12: Making Transportation Tunnels Safe and Secure Exercises (joint report), 182 p. (2006) |
| 86 | J-10J | Public Transportation Security, Vol. 13: Public Transportation Security Inspections: A Guide for Policy Decision Makers (& WOD 38), 68 p. (2007) |
| 87 | H-25 | Strategies for Increasing the Effectiveness of Commuter Benefits Programs, 70 p. (2002) |
| 88 | G-06 | A Guidebook for Developing a Transit Performance-Measurement System (& CD 25), 368 p. (2003) |
| 89 | J-06/Task 29 | Financing Capital Investment: A Primer for the Transit Practitioner, 172 p. (2003) |

Reports

| No. | Proj. No. | Title, Pages, Publication Year |
|-----|-----------------|---|
| 90 | A-23 | Bus Rapid Transit, Vol. 1: Case Studies in Bus Rapid Transit (& CD 31), 54 p. (2003) |
| 90 | A-23 | Bus Rapid Transit, Vol. 2: Implementation Guidelines, 224 p. (2003) |
| 91 | H-26 | Economic Benefits of Coordinating Human Service Transportation and Transit Services, 171 p. (2003) |
| 92 | A-20A(02) | Strategies for Improved Traveler Information, 112 p. (2003) |
| 93 | H-21 | Travel Matters: Mitigating Climate Change with Sustainable Surface Transportation, 79 p. (2003) |
| 94 | A-25 | Fare Policies, Structures and Technologies: Update, 232 p. (2003) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 1: Introduction, 90 p. (2013) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 2: HOV Facilities, 127 p. (2006) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 3: Park-and-Ride/Pool, 96 p. (2004) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 5: Vanpools and Buspools, 55 p. (2005) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 6: Demand Responsive/ADA, 52 p. (2004) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 9: Transit Scheduling and Frequency, 41 p. (2003) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 10: Bus Routing and Coverage, 74 p. (2004) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 11: Transit Information and Promotion, 71 p. (2003) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 12: Transit Pricing and Fares, 59 p. (2004) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 13: Parking Pricing and Fees, 60 p. (2005) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 14: Road Value Pricing, 67 p. (2003) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 15: Land Use and Site Design, 140 p. (2003) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 16: Pedestrian and Bicycle Facilities, 490 p. (2012) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 17: Transit Oriented Development, 136 p. (2007) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 18: Parking Management and Supply, 86 p. (2003) |
| 95 | B-12A | Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series), Ch. 19: Employer and Institutional TDM Strategies, 184 p. (2010) |
| 96 | A-20B(02) | Determining Training for New Technologies: A Decision Game and Facilitation Guide, 44 p. (2003) |
| 97 | J-08B and J-08C | Emerging New Paradigms: A Guide to Fundamental Change in Local Public Transportation Organizations, 110 p. (2003) |
| 98 | B-23 | Resource Requirements for Demand-Responsive Transportation Services (& CD 40), 42 p. (2003) |
| 99 | B-22A | Embracing Change in a Changing World: Case Studies Applying New Paradigms for Rural and Small Urban Transit Service Delivery, 27 p. (2004) |
| 100 | A-15A | Transit Capacity and Quality of Service Manual, 2nd Edition (& CD 42), 600 p. (2003) |
| 101 | B-24 | Toolkit for Rural Community Coordinated Transportation Services, (with brochure), 448 p. (2004) |
| 102 | H-27 | Transit-Oriented Development in the United States: Experiences, Challenges, and Prospects, 552 p. (2004) |
| 103 | F-11 | Public Transportation Operating Agencies as Employers of Choice (& CD 45), 12 p. (2004) |
| 104 | H-24A | Public Transportation Board Effectiveness: A Self-Assessment Handbook, 46 p. (2004) |
| 105 | H-30 and H-30A | Strategies to Increase Coordination of Transportation Services for the Transportation Disadvantaged (& CD 51), 80 p. (2005) |

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| No. | Proj. No. | Title, Pages, Publication Year |
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| 106 | H-29A | Practitioner's Handbook—From Handshake to Compact: Guidance to Foster Collaborative, Multimodal Decision Making (joint report with NCHRP Report 536) (& CD 52), 68 p. (2005) |
| 107 | H-25A | Analyzing the Effectiveness of Commuter Benefits Programs (& WOD 27), 74 p. (2005) |
| 108 | B-26 | Car-Sharing: Where and How It Succeeds (& CD 60), 266 p. (2005) |
| 109 | E-05 | Guidebook for Developing and Sharing Transit Bus Maintenance Practices, 120 p. (2005) |
| 110 | J-06/Task 55 | Commuting in America III (joint report with NCHRP Report 550), 196 p. (2006) |
| 111 | H-32 | Elements Needed to Create High-Ridership Transit Systems (& CD 66; & WOD 32), 136 p. (2007) |
| 112 | D-08 | Improving Pedestrian Safety at Unsignalized Crossings (joint report with NCHRP Report 562) (& WOD 30), 112 p. (2006) |
| 113 | H-28 | Using Archived AVL-APC Data to Improve Transit Performance and Management (& WOD 23), 96 p. (2006) |
| 114 | C-16 | Center Truck Performance on Low-Floor Light Rail Vehicles, 76 p. (2006) |
| 115 | A-26 | Smart Card Interoperability Issues for the Transit Industry, 99 p. (2006) |
| 116 | B-25 | Guidebook for Evaluating, Selecting, and Implementing Suburban Transit Services (& WOD 34), 44 p. (2006) |
| 117 | D-11 | Design, Operation, and Safety of At-Grade Crossings of Exclusive Busways (& WOD 36), 40 p. (2007) |
| 118 | A-23A | Bus Rapid Transit Practitioner's Guide (& WOD 39), 242 p. (2007) |
| 119 | B-28 | Improving ADA Complementary Paratransit Demand Estimation, 104 p. (2007) |
| 120 | J-06/Task 59 | Racial and Gender Diversity in State DOTs and Transit Agencies, 52 p. (2007) |
| 121 | B-30 | Toolkit for Integrating Non-Dedicated Vehicles in Paratransit Service, 59 p. (2008) |
| 122 | B-32 | Understanding How to Motivate Communities to Support and Ride Public Transportation, 81 p. (2008) |
| 123 | H-31 | Understanding How Individuals Make Travel and Location Decisions: Implications for Public Transportation, 137 p. (2008) |
| 124 | B-31 | Guidebook for Measuring, Assessing, and Improving Performance of Demand-Response Transportation, 123 p. (2008) |
| 125 | A-28 | Guidebook for Mitigating Fixed-Route Bus-and-Pedestrian Collisions, 65 p. (2008) |
| 126 | B-29 | Leveraging ITS Data for Transit Market Research: A Practitioner's Guidebook, 82 p. (2008) |
| 127 | F-12 | Employee Compensation Guidelines for Transit Providers in Rural and Small Urban Areas, 204 p. (2008) |
| 128 | H-27A | Effects of TOD on Housing, Parking, and Travel, 64 p. (2008) |
| 129 | H-34 | Local and Regional Funding Mechanisms for Public Transportation, 71 p. (2009) |
| 130 | A-27 | Shared Use of Railroad Infrastructure with Noncompliant Public Transit Rail Vehicles: A Practitioner's Guide, 120 p. (2009) |
| 131 | G-08 | A Guidebook for the Evaluation of Project Delivery Methods (& WOD 41), 102 p. (2009) |
| 132 | C-15 | Assessment of Hybrid-Electric Transit Bus Technology (& CD 71), 86 p. (2009) |
| 133 | B-33 | Practical Measures to Increase Transit Advertising Revenues, 112 p. (2009) |
| 134 | A-31 | Transit, Call Centers, and 511: A Guide for Decision Makers, 100 p. (2009) |
| 135 | A-29 | Controlling System Costs: Basic and Advanced Scheduling Manuals and Contemporary Issues in Transit Scheduling, 412 p. (2009) |
| 136 | B-31A | Guidebook for Rural Demand-Response Transportation: Measuring, Assessing, and Improving Performance, 98 p. (2009) |
| 137 | A-30 | Improving Pedestrian and Motorist Safety Along Light Rail Transit Alignments (& WOD 42), 158 p. (2009) |
| 138 | G-10 | Estimating Soft Costs for Major Public Transportation Fixed Guideway Projects, 148 p. (2010) |
| 139 | F-14 | Guidebook for Recruiting, Developing, and Retaining Transit Managers for Fixed-Route Bus and Paratransit Systems (& CD 77), 208 p. (2010) |
| 140 | B-35 | A Guide for Planning and Operating Flexible Public Transportation Services, 102 p. (2010) |
| 141 | G-11 | A Methodology for Performance Measurement and Peer Comparison in the Public Transportation Industry, 120 p. (2010) |
| 142 | F-13 | Vehicle Operator Recruitment, Retention, and Performance in ADA Complementary Paratransit Operations (& WOD 50), 140 p. (2010) |
| 143 | B-34 | Resource Guide for Commingling ADA and Non-ADA Paratransit Riders, 112 p. (2011) |

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| 144 | G-09 | Sharing the Costs of Human Services Transportation, Vol. 1: The Transportation Services Cost Sharing Toolkit (& CD 86), 80 p. (2011) |
| 144 | G-09 | Sharing the Costs of Human Services Transportation, Vol. 2: Research Report, 140 p. (2011) |
| 145 | H-36 | Reinventing the Urban Interstate: A New Paradigm for Multimodal Corridors, 154 p. (2011) |
| 146 | C-19 | Guidebook for Evaluating Fuel Charges for Post-2010 Transit Bus Procurements, 252 p. (2011) |
| 147 | B-37 | Toolkit for Estimating Demand for Rural Intercity Bus Services (& CD 100), 196 p. (2011) |
| 148 | F-15 | Practical Resources for Recruiting Minorities for Chief Executive Officers at Public Transportation Agencies, 52 p. (2011) |
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| 151 | D-13 | A Guide for Implementing Bus on Shoulder (BOS) Systems, 118 p. (2012) |
| 152 | H-40 | Guidelines for Ferry Transportation Services, 160 p. (2012) |
| 153 | B-38 | Guidelines for Providing Access to Public Transportation Stations (& CD 107), 144 p. (2012) |
| 154 | H-38 | Developing, Enhancing, and Sustaining Tribal Transit Services: A Guidebook (& WOD 54), 234 p. (2012) |
| 155 | D-14 | Track Design Handbook for Light Rail Transit, Second Edition, 710 p. (2012) |
| 156 | G-12 | Guidebook for Evaluating Fuel Purchasing Strategies for Public Transit Agencies, 134 p. (2012) |
| 157 | E-09 | State of Good Repair: Prioritizing the Rehabilitation and Replacement of Existing Capital Assets and Evaluating the Implications for Transit, 132 p. (2012) |
| 158 | B-28A | Improving ADA Paratransit Demand Estimation: Regional Modeling (& CD 121), 104 p. (2012) |
| 159 | H-43 | Transforming Public Transportation Institutional and Business Models, 82 p. (2012) |
| 160 | A-37 | Paratransit Emergency Preparedness and Operations Handbook, 110 p. (2013) |
| 161 | B-36 | Methods for Forecasting Demand and Quantifying Need for Rural Passenger Transportation: Final Workbook (& WOD 58), 80 p. (2013) |
| 162 | F-16A | Building a Sustainable Workforce in the Public Transportation Industry—A Systems Approach, 216 p. (2013) |
| 163 | B-40 | Strategy Guide to Enable and Promote Use of Fixed-Route Transit by People with Disabilities (Pending) |
| 164 | B-42 | Community Toolbox for Improving Options and Coordination of Transportation for Military Service Members, Veterans, and Their Families (Pending) |
| 165 | A-15C | Transit Capacity and Quality of Service Manual—3rd Edition (& CD 138), 808 p. (2013) |

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| 1 | B-01 | Transit Operations for Individuals with Disabilities, 4 p. (1994) |
| 2 | J-07 | Synthesis of Information Related to Transit Problems, 4 p. (1994) |
| 3 | F-03 | Total Quality Management in Public Transportation, 40 p. (1994) |
| 4 | J-06/Task 02 | Transit Ridership Initiative, 48 p. (1995) |
| 5 | A-04 | Electronic On-Vehicle Passenger Information Displays (Visual and Audible), 6 p. (1995) |
| 6 | H-05 | Research Agenda for Increasing Transit Ridership, 16 p. (1995) |
| 7 | H-01 | An Evaluation of the Relationships Between Transit and Urban Form, 56 p. (1995) |
| 8 | J-07 | Synthesis of Information Related to Transit Problems, 6 p. (1995) |
| 9 | C-04 | Responding to Vandalism of Transit Bus and Rail Vehicle Passenger Windows, 5 p. (1996) |
| 10 | J-06/Task 06 | Integrating Americans with Disabilities Act Paratransit Services and Health and Human Services Transportation, 13 p. (1997) |
| 11 | G-03 | Guidelines for the Consistent Collection, Categorization, and Dissemination of Bus Transit Loss Data, 9 p. (1996) |
| 12 | G-03 | Transit Risk Manager: Risk Management Software for Bus Transit Systems (& CD 13), 4 p. (1996) |
| 13 | E-01 | Leveraging Information for Better Transit Maintenance, 21 p. (1996) |

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| 14 | H-06 | Coordinated Intermodal Transportation Pricing and Funding Strategies, 30 p. (1997) |
| 15 | D-02 | Derailment of Transit Vehicles in Special Trackwork, 4 p. (1997) |
| 16 | A-14 | Multipurpose Fare Media: Developments and Issues, 56 p. (1997) |
| 17 | C-06 | Improved Methods for Increasing Wheel/Rail Adhesion in the Presence of Natural Contaminants, 6 p. (1997) |
| 18 | B-04 | Public Agency Guidance on Employer-Based TDM Programs, 4 p. (1997) |
| 19 | C-03 | Wheel/Rail Noise Mitigation, 4 p. (1997) |
| 20 | J-03 | International Transit Studies Program, 22 p. (1997) |
| 21 | H-13A | Consequences of the Development of the Interstate Highway System for Transit, 22 p. (1997) |
| 22 | J-03 | International Transit Studies Program: Urban and Regional Bus Operations in Smaller European Cities, 36 p. (1997) |
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| 31 | J-03 | International Transit Studies Program: Applications of Intelligent Transportation Systems to Public Transit in Europe, 18 p. (1998) |
| 32 | J-07/Topic SA-09A | Accessibility of Automated Fare Vending and Collection for Customers with Disabilities, 12 p. (1998) |
| 33 | J-03 | International Transit Studies Program: Private Urban Transit Systems and Low-Cost Mobility Solutions in Major Latin American Cities, 40 p. (1999) |
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| 35 | A-15 | Highlights of the Transit Capacity and Quality of Service Manual: First Edition, 36 p. (1999) |
| 36 | J-03 | International Transit Studies Program: Revitalizing Urban Public Transport in Australia and New Zealand, 21 p. (1999) |
| 37 | J-07 | Synthesis of Information Related to Transit Problems, 8 p. (2000) |
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| 39 | C-11 | Alternative-Fuel Transit Bus Hazard Assessment Model, 7 p. (2000) |
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| 42 | J-03 | International Transit Studies Program, 34 p. (2001) |
| 43 | A-17A | Supplementing and Updating TCRP Report 52, 60 p. (2001) |
| 44 | G-04A | Consensus Standards for the Rail Transit Industry, 30 p. (2001) |
| 45 | J-06/Task 38 | Identification of the Critical Workforce Development Issues in the Transit Industry, 23 p. (2001) |
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| 50 | J-05 | Legal Aspects of Transit and Intermodal Transportation Programs, 3 p. (2002) |
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| 54 | J-03 | International Transit Studies Program: Emerging Trends in European Public Transport, 35 p. (2002) |

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| 55 | J-08B | Support for Fundamental Change in Public Transportation, 13 p. (2002) |
| 56 | G-06 | A Summary of TCRP Report 88: A Guidebook for Developing a Transit Performance-Measurement System, 25 p. (2003) |
| 57 | J-06/Task 42 | Developing a Recommended Standard for Automated Fare Collection for Transit: Scoping Study—Regional Fare Management Programs, 26 p. (2003) |
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| 59 | J-10/Task 03 | A Guide to Public Transportation Security Resources, 20 p. (2003) |
| 60 | J-06/Task 46 | Characteristics of State Funding for Public Transportation—2002, 125 p. (2003) |
| 61 | B-12 | Traveler Response to Transportation System Changes: An Interim Introduction to the Handbook, 23 p. (2003) |
| 62 | J-03 | International Transit Studies Program: Transit Operations in Central and Eastern Europe, 44 p. (2003) |
| 63 | J-07 | Synthesis Information Related to Transit Problems, 7 p. (2003) |
| 64 | J-03 | International Transit Studies Program: Excellence in Customer Service in Transit Operations in Small to Medium-Sized Cities in Western Europe, 26 p. (2003) |
| 65 | H-29 NCHRP 08-45 | A New Vision of Mobility: Guidance to Foster Collaborative Multimodal Decision Making (joint digest with NCHRP RRD 288), 10 p. (2004) |
| 66 | J-03 | International Transit Studies Program: Transit Design, Construction, and Operations in the Mediterranean Region, 28 p. (2004) |
| 67 | J-07 | Synthesis of Information Related to Transit Problems, 8 p. (2004) |
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| 91 | J-07 | Synthesis of Information Related to Transit Problems, 10 p. (2009) |
| 92 | J-03 | International Transit Studies Program: Balancing Infrastructure Reinvestment with System Expansion, 27 p. (2009) |
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| 104 | J-07 | Synthesis of Information Related to Transit Problems, 12 p. (2012) |
| 105 | H-41 | Summary of Research Findings: Assessing and Comparing Environmental Performance of Major Transit Investments (& WOD 55), 24 p. (2012) |
| 106 | J-07 | Synthesis of Information Related to Transit Practices, 12 p. (2013) |
| 107 | H-44 | Developing Partnerships Between Transportation Agencies and the Disability and Underrepresented Communities, 64 p. (2013) |

Legal Research Digests (Project J-05)

| No. | Topic No. | Title, Pages, Publication Year |
|-----|-----------|--|
| 1 | 01-06 | Strategies to Facilitate Acquisition and Use of Railroad Right of Way by Transit Providers, 16 p. (1994) |
| 2 | 01-07 | Successful Risk Management for Rideshare and Carpool-Matching Programs, 24 p. (1994) |
| 3 | 01-04 | State Limitations on Tort Liability of Public Transit Operations, 18 p. (1994) |
| 4 | 01-01 | Transit Labor Protection—A Guide to Section 13(c) Federal Transit Act, 32 p. (1996) |
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| 6 | 01-05 | Requirements That Impact the Acquisition of Capital-Intensive Long-Lead Items, Rights of Way, and Land for Transit, 24 p. (1996) |
| 7 | 03-02 | The Impact of Civil Rights Litigation Under Title VI and Related Laws on Transit Decision Making, 24 p. (1997) |
| 8 | 01-02 | Transportation Service Agreements: A Preparation and Reference Guide for Transit Attorneys, 40 p. (1997) |
| 9 | 03-05 | Strategies to Minimize Liability under Federal and State Environmental Laws, 20 p. (1998) |
| 10 | 02-01 | Restrictions on Speech and Expressive Activities in Transit Terminals and Facilities, 36 p. (1998) |
| 11 | 02-02 | Potential Tort Liability for Transit Agencies Arising Out of the Americans with Disabilities Act, 40 p. (1998) |
| 12 | 03-03 | The Zoning and Real Estate Implications of Transit-Oriented Development, 50 p. (1999) |
| 13 | 03-01 | Report on Innovative Financing Techniques for Transit Agencies, 41 p. (1999) |
| 14 | 04-02 | Treatment of Privacy Issues in the Public Transportation Industry, 29 p. (2000) |
| 15 | 04-01 | Impact of the Family and Medical Leave Act of 1993 on the Transit Industry, 39 p. (2000) |
| 16 | 03-04 | Drug and Alcohol Testing—A Survey of Labor-Management Relations, 60 p. (2001) |
| 17 | 05-03 | Guide to Federal Buy America Requirements, 29 p. (2001) |

Legal Research Digests (Project J-05)

| No. | Topic No. | Title, Pages, Publication Year |
|-----|-----------|---|
| 18 | 05-01 | Federal and State Licensing and Other Safety Requirements for Commercial Motor Vehicle Operators and Equipment, 90 p. (2001) |
| 19 | 06-02 | Impact of the Americans with Disabilities Act on Transit Operations, 43 p. (2003) |
| 20 | 07-01 | Transit Passengers and Civil Rights, 68 p. (2005) |
| 21 | 08-01 | Trademarking and Licensing for Transit Providers, 30 p. (2005) |
| 22 | | The Case for Searches on Public Transportation (Proj. J-06, Task 60), 82 p. (2005) |
| 23 | 08-04 | The Americans with Disabilities Act: The Federal Transit Administration's Letters of Findings and Compliance Assessments (& CD 65), 106 p. (2007) |
| 24 | 09-05 | Transit Bus Stops: Ownership, Liability, and Access, 61 p. (2008) |
| 25 | 09-01 | Privacy Issues with the Use of Smart Cards, 25 p. (2008) |
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| 31 | 12-01 | Guide to Federal Buy America Requirements—2009 Supplement, 36 p. (2010) |
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| 42 | 14-02 | Transit Agency Intergovernmental Agreements: Common Issues and Solutions (& CD 122), 56 p. (2012) |
| 43 | 14-03 | Contractual Means of Achieving High-Level Performance in Transit Contracts (& CD 134), 48 p. (2013) |
| 44 | 15-02 | Legal Issues in Public Emergency Planning and Operation, 74 p. (2013) |

Syntheses (Project J-07)

| No. | Topic No. | Title, Pages, Publication Year |
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| 1 | SC-01 | Safe Operating Procedures for Alternative Fuel Buses, 48 p. (1993) |
| 2 | SC-03 | Low-Floor Transit Buses, 44 p. (1994) |
| 3 | SF-02 | Incentive Programs to Improve Transit Employee Performance, 46 p. (1994) |
| 4 | SB-01 | Integration of Bicycles and Transit, 54 p. (1994) |
| 5 | SG-03 | Management Information Systems, 78 p. (1994) |
| 6 | SG-04 | The Role of Performance-Based Measures in Allocating Funding for Transit Operations, 52 p. (1994) |
| 7 | SD-01 | Regulatory Impacts of Design and Retrofit of Bus Maintenance Facilities, 50 p. (1994) |
| 8 | SC-04 | Retrofit of Buses to Meet Clean Air Regulations, 48 p. (1994) |
| 9 | SC-02 | Waste Control Practices at Bus Maintenance Facilities, 26 p. (1995) |
| 10 | SA-01 | Bus Route Evaluation Standards, 54 p. (1995) |
| 11 | SA-02 | System-Specific Spare Bus Ratios, 46 p. (1995) |
| 12 | SE-01 | Transit Bus Service Line and Cleaning Functions, 48 p. (1995) |
| 13 | SG-01 | Risk Management for Small and Medium Transit Agencies, 32 p. (1995) |

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| No. | Topic No. | Title, Pages, Publication Year |
|-----|-----------|--|
| 14 | SB-02 | Innovative Suburb-to-Suburb Transit Practices, 50 p. (1995) |
| 15 | SA-03 | System-Specific Spare Rail Vehicle Ratios, 44 p. (1995) |
| 16 | SA-07 | Changing Roles and Practices of Bus Field Supervisors, 46 p. (1996) |
| 17 | SA-05 | Customer Information at Bus Stops, 64 p. (1996) |
| 18 | SF-01 | Bus Occupant Safety, 56 p. (1996) |
| 19 | SA-06 | Passenger Transfer System Review, 37 p. (1996) |
| 20 | SH-01 | Transit-Focused Development, 55 p. (1997) |
| 21 | SF-03 | Improving Transit Security, 35 p. (1997) |
| 22 | SF-04 | Monitoring Bus Maintenance Performance, 48 p. (1997) |
| 23 | SD-02 | Inspection Policy and Procedures for Rail Transit Tunnels and Underground Structures, 95 p. (1997) |
| 24 | SA-04 | AVL Systems for Bus Transit, 47 p. (1997) |
| 25 | SC-05 | Light Rail Vehicle Compression Requirements, 34 p. (1997) |
| 26 | SA-08 | Bus Transit Fare Collection Practices, 29 p. (1997) |
| 27 | SF-05 | Emergency Preparedness for Transit Terrorism, 73 p. (1997) |
| 28 | SG-05 | Managing Transit Construction Contract Claims, 50 p. (1997) |
| 29 | SA-09 | Passenger Counting Technologies and Procedures, 50 p. (1998) |
| 30 | SB-03 | ADA Paratransit Eligibility Certification Practices, 38 p. (1998) |
| 31 | SG-06 | Paratransit Contracting and Service Delivery Methods, 35 p. (1998) |
| 32 | SB-04 | Transit Advertising Revenue: Traditional and New Sources and Structures, 58 p. (1998) |
| 33 | SF-06 | Practices in Assuring Employee Availability, 75 p. (1999) |
| 34 | SA-10 | Data Analysis for Bus Planning and Monitoring, 68 p. (2000) |
| 35 | SG-08 | Information Technology Update for Transit, 106 p. (2000) |
| 36 | SG-07 | Identifying and Reducing Fraudulent Third Party Tort Claims Against Public Transit Agencies, 58 p. (2000) |
| 37 | SB-05 | Communicating with Persons with Disabilities in a Multimodal Transit Environment, 48 p. (2001) |
| 38 | SA-12 | Electronic Surveillance Technology on Transit Vehicles, 57 p. (2001) |
| 39 | SA-11 | Transportation on College and University Campuses, 62 p. (2001) |
| 40 | SF-07 | A Challenged Employment System: Hiring, Training, Performance Evaluation, and Retention of Bus Operators, 72 p. (2001) |
| 41 | SB-06 | The Use of Small Buses in Transit Service, 71 p. (2002) |
| 42 | SH-02 | Use of Flexible Funds for Transit Under ISTEA and TEA-21, 40 p. (2002) |
| 43 | SB-08 | Effective Use of Transit Websites, 79 p. (2002) |
| 44 | SF-09 | Training for On-Board Bus Electronics, 63 p. (2002) |
| 45 | SB-07 | Customer-Focused Transit, 100 p. (2002) |
| 46 | SF-08 | Diversity Training Initiatives, 59 p. (2003) |
| 47 | SF-10 | Corporate Culture as the Driver of Transit Leadership Practices, 91 p. (2003) |
| 48 | SA-14 | Real-Time Bus Arrival Information Systems, 61 p. (2003) |
| 49 | SA-13 | Yield to Bus—State of the Practice, 78 p. (2003) |
| 50 | SC-06 | Use of Rear-Facing Position for Common Wheelchairs on Transit Buses, 42 p. (2003) |
| 51 | SB-10 | Transit Advertising Sales Agreements, 99 p. (2004) |
| 52 | SF-11 | Transit Operator Health and Wellness Programs, 80 p. (2004) |
| 53 | SB-09 | Operation Experiences with Flexible Transit Services, 58 p. (2004) |
| 54 | SE-02 | Maintenance Productivity Practices, 92 p. (2004) |
| 55 | SH-03 | Geographic Information System Applications in Transit, 66 p. (2004) |
| 56 | SG-10 | Performance-Based Measures in Transit Fund Allocation, 74 p. (2004) |
| 57 | SA-15 | Use of Computer-Aided Scheduling and Dispatch for Demand-Responsive Transit Services, 80 p. (2004) |
| 58 | SC-07 | Emergency Response Procedures for Natural Gas Transit Vehicles, 54 p. (2005) |
| 59 | SH-04 | Strategic Planning and Management in Transit Agencies, 44 p. (2005) |
| 60 | SB-11 | Practices in No-Show and Late Cancellation Policies for ADA Paratransit, 50 p. (2005) |

Syntheses (Project J-07)

| No. | Topic No. | Title, Pages, Publication Year |
|-----|-----------|---|
| 61 | SE-03 | Maintenance Staffing Levels for Light Rail Transit, 42 p. (2005) |
| 62 | SB-12 | Integration of Bicycles and Transit, 70 p. (2005) |
| 63 | SH-05 | On-Board and Intercept Transit Survey Techniques, 92 p. (2005) |
| 64 | SD-03 | Bus Use of Shoulders, 91 p. (2006) |
| 65 | SB-13 | Transit Agency Participation in Medicaid Transportation Programs, 48 p. (2006) |
| 66 | SH-06 | Fixed-Route Bus Transit Ridership Forecasting and Service Planning Methods, 51 p. (2006) |
| 67 | SH-08 | Bus Transit Service in Land Development Planning, 62 p. (2006) |
| 68 | SB-14 | Methods of Rider Communication, 95 p. (2006) |
| 69 | SH-07 | Web-Based Survey Techniques, 104 p. (2006) |
| 70 | SC-08 | Mobile Data Terminals, 150 p. (2007) |
| 71 | SB-15 | Paratransit Managers' Skills, Qualifications, and Needs, 52 p. (2007) |
| 72 | SC-09 | Use of Biodiesel in a Transit Fleet, 61 p. (2008) |
| 73 | SA-17 | AVL Systems for Bus Transit: Update, 104 p. (2008) |
| 74 | SB-15 | Policies and Practices for Effectively and Efficiently Meeting ADA Paratransit Demand, 54 p. (2008) |
| 75 | SA-16 | Uses of Higher Capacity Buses in Transit Service, 72 p. (2008) |
| 76 | SB-16 | Integration of Paratransit and Fixed-Route Transit Services, 48 p. (2008) |
| 77 | SA-18 | Passenger Counting Systems, 74 p. (2008) |
| 78 | SA-19 | Transit Systems in College and University Communities, 98 p. (2008) |
| 79 | SA-20 | Light Rail Vehicle Collisions with Vehicles at Signalized Intersections, 48 p. (2009) |
| 80 | SF-13 | Transit Security Update, 150 p. (2009) |
| 81 | SE-05 | Preventive Maintenance for Transit Buses, 80 p. (2010) |
| 82 | SH-11 | Transit Fare Arrangements for Public Employees, 90 p. (2010) |
| 83 | SA-22 | Bus and Rail Transit Preferential Treatments in Mixed Traffic, 210 p. (2010) |
| 84 | SH-09 | Current Practices in Greenhouse Gas Emissions Savings from Transit, 82 p. (2010) |
| 85 | SH-10 | Effective Use of Citizen Advisory Committees for Transit Planning and Operations, 72 p. (2010) |
| 86 | SH-12 | Relationships Between Streetcars and the Built Environment, 72 p. (2010) |
| 87 | SA-23 | Practices in the Development and Deployment of Downtown Circulators, 122 p. (2011) |
| 88 | SB-18 | Strollers, Carts, and Other Large Items on Buses and Trains, 170 p. (2011) |
| 89 | SH-13 | Public Participation Strategies for Transit, 96 p. (2011) |
| 90 | SA-24 | Video Surveillance Uses by Rail Transit Agencies, 90 p. (2011) |
| 91 | SA-25 | Use and Deployment of Mobile Device Technology for Real-Time Information, 96 p. (2011) |
| 92 | SG-11 | Transit Asset Condition Reporting, 54 p. (2011) |
| 93 | SF-14 | Practices to Protect Bus Operators from Passenger Assault, 126 p. (2011) |
| 94 | SB-17 | Innovative Rural Transit Services, 52 p. (2011) |
| 95 | SF-15 | Practices for Wayside Rail Transit Worker Protection, 90 p. (2012) |
| 96 | SA-27 | Off-Board Fare Payment Using Proof-of-Payment Verification, 117 p. (2012) |
| 97 | SF-16 | Improving Transit Safety Through Rewards and Discipline, 62 p. (2012) |
| 98 | SB-19 | Ridesharing as a Complement to Transit, 72 p. (2012) |
| 99 | SB-19 | Uses of Social Media in Public Transportation, 66 p. (2012) |
| 100 | SE-06 | Elevator and Escalator Maintenance and Safety Practices, 58 p. (2012) |
| 101 | SA-26 | Implementation and Outcomes of Fare-Free Transit Systems, 104 p. (2012) |
| 102 | SB-23 | Integrating Passenger and Ferry Service with Mass Transit, 54 p. (2013) |
| 103 | SB-21 | Transit Station and Stop Adoption Programs, 68 p. (2013) |
| 104 | SB-22 | Use of Electronic Passenger Information Signage in Transit, 108 p. (2013) |
| 105 | SB-22 | Use of Market Research Panels in Transit, 70 p. (2013) |
| 106 | SA-29 | Energy Savings Strategies for Transit Agencies, 76 p. (2013) |
| 107 | SD-04 | Rail Transit Track Inspection Practices (Pending) |
| 108 | SF-17 | Transit Bus Operator Distraction Policies, 100 p. (2013) |

IDEA

| No. | Proj. No. | Title, Pages, Publication Year |
|-----|-----------|--|
| 1 | J-04 | Customer Satisfaction Index for the Mass Transit Industry, 61 p. (1995) |
| 2 | J-04 | Adaptive Diagnostic System Project, 35 p. (1997) |
| 3 | J-04 | Automatic Rail-Wheel Inspection Station, 11 p. (1997) |
| 4 | J-04 | Management Information Benefits of Integrating Electronic Fareboxes with Other On-board Equipment, 30 p. (1995) |
| 5 | J-04 | Improved Passenger Counter and Classifier System for Transit Operations, 28 p. (1996) |
| 7 | J-04 | Pneumatically Operated and Flexible Wheelchair Restraint System, 16 p. (1995) |
| 8 | J-04 | Real-Time Transit Data Broadcast, 15 p. (1995) |
| 9 | J-04 | Independent Transportation Network: Alternative Transportation for the Elderly, 27 p. (1997) |
| 10 | J-04 | Automatic Data Collection on Transit Users via Radio Frequency Identification, 42 p. (1996) |
| 11 | J-04 | Compact Disc—Interactive Multimedia Violence Prevention Training Program. Customers, Conflicts, and You: A Transit Operator's Guide to Problem Solving (CD-ROM was previously distributed by the National Training Institute), 0 p. (2001) |
| 13 | J-04 | Self-Paced PC-Based Track Safety Training System, 11 p. (1998) |
| 14 | J-04 | Market Study and Operational Test Results for the Instant Rent-A-Car (IRAC) Station Field Tests, 42 p. (1998) |
| 15 | J-04 | Internet Information Sharing for Transit Maintenance, 37 p. (1997) |
| 16 | J-04 | A Public Transit-Compatible Restraint System for Wheelchair Users, 26 p. (1998) |
| 17 | J-04 | Operational Evaluation of a Rail-Based Wheel Gauge Inspection System, 11 p. (1998) |
| 18 | J-04 | Pilot Testing Innovative Payment Operations for Independent Transportation for the Elderly, 35 p. (2002) |
| 19 | J-04 | Field Testing and Evaluation of the Transit Integrated Monitoring System, 25 p. (1998) |
| 20 | J-04 | Non-Contact Sensor for Improved Passenger Counting and Classification System for Rail Transit, 25 p. (2001) |
| 21 | J-04 | Smart Parking Lot with Just-in-Time Shuttle, 11 p. (2001) |
| 22 | J-04 | Sleeved Column System for Crashworthiness of Light Rail Vehicles, 29 p. (2001) |
| 24 | J-04 | Operational Testing of Intelligent Rail Lubrication System, 8 p. (1998) |
| 28 | J-04 | Transit Scratchitti Removal, 54 p. (2002) |
| 29 | J-04 | Fare Machine Tactile/Audio Instruction System, 40 p. (2003) |
| 31 | J-04 | A Tool for Evaluating and Optimizing Bus Stop Location Decisions, 64 p. (2005) |
| 32 | J-04 | Simulation and Animation Model for Planning and Designing Transit Facilities, 16 p. (2005) |
| 33 | J-04 | Community Visualization in Design of Light Rail Transit-Oriented Development, 26 p. (2004) |
| 35 | J-04 | Innovative Bioterrorism Detection Technology for Transit Security, 33 p. (2005) |
| 36 | J-04 | Cleaning Device for Electrified Third Rail Insulators, 28 p. (2006) |
| 37 | J-04 | Bandwidth Expansion and Real-Time Surveillance for Security on Transit Buses, 25 p. (2005) |
| 38 | J-04 | Assessment of Rear-Facing Wheelchair Accommodation on BRT, 36 p. (2005) |
| 39 | J-04 | Dynamic Timetable Generator from Schedule Data, 28 p. (2006) |
| 40 | J-04 | Counter Terrorism Chemical Detector for Rail Transit Vehicles, 36 p. (2005) |
| 41 | J-04 | Track Geometry/Design Testing for Transit Applications, 40 p. (2007) |
| 42 | J-04 | Detection of Radioactivity in Transit Stations, 26 p. (2006) |
| 44 | J-04 | Cleaning and Recoating Electrified Third Rail Cover Boards, 18 p. (2008) |
| 45 | J-04 | Chemical and Biological Decontamination System for Rail Transit Facilities, 29 p. (2007) |
| 47 | J-04 | Cleaning Device for Electrified Third Rail Insulators—Phase 2, 23 p. (2008) |
| 49 | J-04 | Smart Sander Enhancement for Commuter Rail, 35 p. (2008) |
| 50 | J-04 | Developing Regional Mobility Management Centers, 65 p. (2012) |
| 52 | J-04 | Travel Assistance Device (TAD) to Help Transit Riders, 42 p. (2009) |
| 53 | J-04 | Ultraviolet Germicidal Irradiation for Transit Buses, 24 p. (2009) |
| 54 | J-04 | Detection of Radioactivity in Transit Stations—Phase 2, 22 p. (2009) |
| 55 | J-04 | Warning Device for Rail Transit Personnel for Approaching Trains, 20 p. (2008) |
| 57 | J-04 | Independent Wheelchair Securement, 22 p. (2010) |

| IDEA | | |
|---------------------------|--------------|--|
| No. | Proj. No. | Title, Pages, Publication Year |
| 58 | J-04 | Google Transit Data Tool for Small Transit Agencies, 23 p. (2011) |
| 59 | J-04 | Recoating Electrified Third Rail Cover Boards—Phase 2, 12 p. (2010) |
| 60 | J-04 | Transit Communications Interface Profiles (TCIP) Traveler Information Pilot, 33 p. (2011) |
| 61 | J-04 | Flexible Carpooling to Transit Stations, 70 p. (2012) |
| 62 | J-04 | Development of Online Training Maintenance Module for Bus Transit Technicians, 18 p. (2012) |
| 65 | J-04 | A Context Aware Transit Navigator, 8 p. (2013) |
| 66 | J-04 | Advanced Wayside Energy Storage Systems (WESS) for Rail Transit, 81 p. (2012) |
| 70 | J-04 | Effortless Passenger Identification System, 24 p. (2013) |
| Web-Only Documents | | |
| No. | Proj. No. | Title, Pages, Publication Year |
| 1 | F-04 | Bus Operator Workstation Evaluation and Design Guidelines: Final Report, 694 p. (1997) |
| 2 | B-01 | Evaluating Transit Operations for Individuals with Disabilities, 366 p. (1997) |
| 3 | B-02 | Directions: A Simple Guidebook for Integrating Market and Customer Research into Transit Decision-Making to Become Customer Oriented, 30 p. (1998) |
| 4 | E-03 | Inventory Management for Bus and Rail Public Transit Systems: Final Report, 114 p. (1998) |
| 5 | H-13B | Trends in Single Occupant Vehicle and Vehicle Miles of Travel Growth in the United States: Final Report, 100 p. (1998) |
| 6 | A-15 | Transit Capacity and Quality of Service Manual, First Edition (CD 2), 426 p. (1999) |
| 7 | H-08 | Using Public Transportation to Reduce the Economic, Social and Human Costs of Personal Immobility, 322 p. (1999) |
| 8 | B-08 | Marketing Transit Services to Business, 242 p. (1999) |
| 9 | H-12 | Integrated Urban Models for Simulation of Transit and Land-Use Policies: Final Report, 252 p. (1999) |
| 10 | G-02 | Bar Coding in Mass Transit Operations and Maintenance—Application Guide Book, 84 p. (1999) |
| 11 | A-19 | Integrating School Bus and Public Transportation Services in Non-Urban Communities—Implementation Guide, 160 p. (1999) |
| 12 | B-12 | Traveler Response to Transportation System Changes, Interim Handbook, 446 p. (2000) |
| 13 | J-06/Task 33 | Cost of Meeting Accessibility Requirements for Over-the-Road Buses, 130 p. (2000) |
| 14 | H-20 | Using Geographic Information Systems for Welfare to Work Transportation Planning and Service Delivery—Case Studies, 76 p. (2000) |
| 15 | F-06 | Guidelines for the Effective Use of Uniformed Transit Police and Security Personnel, 312 p. (2001) |
| 16 | H-15A | Welfare to Work: Integration and Coordination of Transportation and Social Services, 214 p. (2001) |
| 17 | E-03A | Applications for Improved Inventory Management for Public Transit Systems, 104 p. (2001) |
| 18 | F-06A | Developing Useful Transit-Related Crime and Incident Data, 76 p. (2001) |
| 19 | A-10A | An Evaluation of Bus Bulbs on Transit, Traffic, and Pedestrian Operations, 162 p. (2001) |
| 20 | B-17 | Advanced Public Transportation Systems for Rural Areas, 200 p. (2002) |
| 21 | H-24 | Public Transit System Policy Boards: Organization and Characteristics, 200 p. (2002) |
| 22 | B-04 | Public Agency Guidance on Employer-Based TDM Programs and Employer Technical Memorandum Characteristics of Effective TDM Programs, 229 p. (2003) |
| 23 | H-28 | Uses of Archived AVL-APC Data to Improve Transit Performance and Management: Review and Potential (& Rep. 113), 167 p. (2003) |
| 24 | H-24A | The Public Transportation Board Effectiveness Study (Contractor's Final Report), 44 p. (2004) |
| 25 | J-10B(01) | Public Transportation Emergency Mobilization Guide: Appendix B—Survey of U.S. Public Transportation Systems, 41 p. (2005) |
| 26 | H-21A | TravelMatters: Mitigating Climate Change with Sustainable Surface Transportation, 53 p. (2005) |
| 27 | H-25A | Appendixes to TCRP Report 107: Analyzing the Effectiveness of Commuter Benefit Programs (& Rep. 107), 97 p. (2005) |
| 28 | J-06/Task 62 | Train Door Systems Analysis: Appendixes (& RRD 74), 64 p. (2006) |
| 29 | B-27 | Cost-Benefit Analysis of Providing Non-Emergency Medical Transportation (& RRD 75), 208 p. (2006) |

Web-Only Documents

| No. | Proj. No. | Title, Pages, Publication Year |
|-----|--------------|--|
| 30 | D-08 | Improving Pedestrian Safety at Unsignalized Crossings: Appendices B to O (joint web-only document with NCHRP WOD 91) (& Rep. 112), 270 p. (2006) |
| 31 | G-07 | Managing Capital Costs of Major Federally Funded Public Transportation Projects (& RRD 78), 297 p. (2006) |
| 32 | H-32 | Elements Needed to Create High Ridership Transit Systems: Interim Guidebook (& Rep. 111), 237 p. (2006) |
| 33 | J-05 | The Federal Transit Act, as Amended through August 10, 2005, and Related Laws, 317 p. (2007) |
| 34 | B-16 | Developing Guidelines for Evaluating, Selecting, and Implementing Suburban Transit Services (Contractor's Final Report) (& Rep. 116), 250 p. (2006) |
| 35 | D-10 | Appendixes to TCRP RRD 84: Audible Signals for Pedestrian Safety in LRT Environments (& RRD 84), 147 p. (2007) |
| 36 | D-11 | Appendixes to TCRP Report 117: Design, Operation, and Safety of At-Grade Crossings of Exclusive Busways (& Rep. 117), 155 p. (2007) |
| 37 | D-07/Task 14 | Rail Base Corrosion Detection and Prevention, 129 p. (2007) |
| 38 | J-10J | Appendixes to TCRP Report 86: Public Transportation Security, Volume 13: Public Transportation Passenger Security Inspections: A Guide for Decision Makers (& Rep. 86 Vol. 13), 77 p. (2007) |
| 39 | A-23A | Appendixes to TCRP Report 118: Bus Rapid Transit Practitioner's Guide (& Rep. 118), 50 p. (2007) |
| 40 | C-17 | Development of Crash Energy Management Performance Requirements for Light-Rail Vehicles, 154 p. (2008) |
| 41 | G-08 | Evaluation of Project Delivery Methods (& Rep. 131), 231 p. (2009) |
| 42 | A-30 | Selected Appendixes for TCRP Report 137: Improving Pedestrian and Motorist Safety Along Light Rail Alignments (& Rep. 137), 341 p. (2009) |
| 43 | J-07 | Track Maintenance Costs on Rail Transit Properties, 72 p. (2009) |
| 44 | B-38 | Literature Review for Providing Access to Public Transportation Stations, 100 p. (2009) |
| 45 | A-29 | Appendixes to TCRP Report 135: Controlling System Costs: Basic and Advanced Scheduling Manuals and Contemporary Issues in Transit Scheduling, 222 p. (2009) |
| 46 | J-06/Task 71 | Rural Transit Achievements: Assessing the Outcomes of Increased Funding for Rural Passenger Services under SAFETEA-LU, 120 p. (2009) |
| 47 | D-07/Task 17 | Guidelines for Rail Base Inspection and Rail Condemnation Limits for Corrosion Induced Material Loss, 26 p. (2009) |
| 48 | D-12 | Ground-borne Noise and Vibration in Buildings Caused by Rail Transit, 208 p. (2010) |
| 49 | B-36 | Methods for Forecasting Demand and Quantifying Need for Rural Passenger Transportation, 83 p. (2010) |
| 50 | F-13 | Survey Instrument, Productivity Charts, and Interview Protocol for Case Studies for TCRP Report 142 (& Rep. 142), 42 p. (2010) |
| 51 | J-06/Task 75 | Guiding the Selection and Application of Wayside Energy Storage Technologies for Rail Transit and Electric Utilities, 64 p. (2010) |
| 52 | D-07/Task 18 | Performance-Based Track Geometry, Phase I, 100 p. (2012) |
| 53 | A-32 | Operation of Light Rail Transit Through Ungated Crossings at Speeds over 35, 124 p. (2012) |
| 54 | H-38 | Developing, Enhancing, and Sustaining Tribal Transit Services: Final Research Report (& Rep. 154), 143 p. (2012) |
| 55 | H-41 | Assessing and Comparing Environmental Performance of Major Transit Investments (& RRD 105), 344 p. (2012) |
| 56 | H-39 | Methodology for Determining the Economic Development Impacts of Transit Projects, 365 p. (2012) |
| 57 | B-39 | Audience Measurement for Transit Advertising, 142 p. (2012) |
| 58 | B-36 | Methods for Forecasting Demand and Quantifying Need for Rural Passenger Transportation (& Rep. 161), 104 p. (2013) |
| 59 | A-33A | Using Pictograms to Make Transit Easier to Navigate for Customers with Communications Barriers, 99 p. (2013) |
| 60 | A-36 | Command-Level Decision Making for Transit Emergency Managers (joint web-only document with NCHRP WOD 200), 70 p. (2013) |
| 61 | J-11/Task 17 | Millennials & Mobility: Understanding the Millennial Mindset and New Opportunities for Transit Providers, 70 p. (2013) |

| CDs | | |
|------------|------------------|---|
| No. | Proj. No. | Title, Publication Year |
| 2 | A-15 | Transit Capacity and Quality of Service Manual: First Edition (WOD 6) (1999) |
| 3 | D-05 | Performance of Direct-Fixation Track Software: Design Guidelines and Software (1999) |
| 4 | C-11 | Alternative-Fuel Transit Bus Hazard Assessment Model (2001) |
| 13 | G-03 | Transit Risk Manager for Bus Services (Contractor's CD) (& RRD 12) (1996) |
| 16 | B-16 | Multimedia Presentation: Role of Private-for-Hire Vehicle Industry in Public Transit (& Rep. 75) (2002) |
| 17 | B-15 | Supporting Material for TCRP Report 73: Characteristics of Urban Travel Demand (& Rep. 73) (2002) |
| 18 | H-19 | Estimating and Presenting the Benefits and Costs of Public Transit Projects: Guidebook for Practitioners (& Rep. 78) (2002) |
| 19 | A-24 | A Toolkit for Self-Service Barrier-Free Fare Collection (& Rep. 80) (2002) |
| 20 | 20-06 NCHRP | Selected Studies in Transportation Law, Vol. 1: Construction Contract Law (2004) |
| 20 | 20-06 NCHRP | Selected Studies in Transportation Law, Vol. 2: Eminent Domain (2009) |
| 20 | 20-06 NCHRP | Selected Studies in Transportation Law, Vol. 3: Environmental Law and Transportation (2003) |
| 20 | 20-06 NCHRP | Selected Studies in Transportation Law, Vol. 3 Supplement: Environmental Law and Transportation (2010) |
| 20 | 20-06 NCHRP | Selected Studies in Transportation Law, Vol. 4: Tort Liability of Highway Agencies (2002) |
| 20 | J-05/Topic 05-04 | Selected Studies in Transportation Law, Vol. 5: Transit Law (2004) |
| 20 | J-05/Topic 06-03 | Selected Studies in Transportation Law, Vol. 6: Transit Labor 13[c] Decisions (2003) |
| 20 | J-05/Topic 07-03 | Selected Studies in Transportation Law, Vol. 7: Transit Charter Bus Service Decisions and Documents (2005) |
| 20 | 20-06 NCHRP | Selected Studies in Transportation Law, Vol. 8: Transportation Law and Government Relations (2007) |
| 21 | F-10 | Toolbox for Transit Operator Fatigue (& Rep. 81) (2002) |
| 25 | G-06 | Guidebook for Developing a Transit Performance-Measure System and Supplementary Material (& Rep. 88) (2003) |
| 27 | J-09/Task 06 | Using the Internet for Transit Training and Certification (& Rep. 84 Vol. 3) (2003) |
| 31 | A-23 | Supporting Material for TCRP Report 90, Volume 1, BRT Case Studies (& Rep. 90 Vol. 1) (2003) |
| 34 | J-09/Task 04 | Supporting Material for TCRP Report 84, Volume 4: Advanced Features of Transit Websites (& Rep. 84 Vol. 4) (2003) |
| 40 | B-23 | Supporting Material for TCRP Report 98 (NU DRT Software, User's Manual, and Supplementary Documents) (& Rep. 98) (2003) |
| 42 | A-15A | TCRP Report 100 (TCQSM) 2nd Edition and Supplemental Material (& Rep. 100) (2003) |
| 43 | J-10A(02) | Supporting Material for TCRP Report 86: Public Transportation Security; Vol. 5, Security-Related Customer Communications and Training for Public Transportation Providers (& Rep. 86 Vol. 5) (2004) |
| 45 | F-11 | Public Transportation Operating Agencies as Employers of Choice: Toolkit (& Rep. 103) (2004) |
| 51 | H-30 | Appendix Material for TCRP Report 105 (& Rep. 105) (2004) |
| 52 | H-29A | A Research Results Compendium to TCRP Report 106 (& Rep. 106) (2005) |
| 60 | B-26 | Appendix Material for TCRP Report 108 (& Rep. 108) (2005) |
| 61 | D-07/Task 11 | Direct-Fixation Track Design Specifications, Research, and Related Material (& Rep. 71 Vol. 6) (2005) |
| 64 | J-10D | TCRP Report 86: Public Transportation Security, Volume 10: Hazard and Security Plan Workshop: Instructor Guide—Appendixes (& Rep. 86 Vol. 10) (2006) |
| 65 | J-05/Topic 08-04 | The Americans with Disabilities Act: The Federal Transit Administration's Letters of Findings and Compliance Assessments (& LRD 23) (2007) |
| 66 | H-32 | Building and Retaining Transit Ridership: The Keys to Success—An Interactive CD (& Rep. 111) (2007) |
| 71 | C-15 | Appendixes to and Toolkit for TCRP Report 132: Assessment of Hybrid-Electric Transit Bus Technology (& Rep. 132) (2009) |
| 77 | F-14 | Model Job Descriptions and Employer Information (& Rep. 139) (2010) |
| 86 | G-09 | Cost Sharing Model for TCRP Report 144 (& Rep. 144 Vol. 1) (2010) |
| 96 | J-05/Topic 11-02 | TCRP LRD 36: Appendixes to Case Studies (& LRD 36) (2011) |
| 100 | B-37 | Estimation of Demand for Rural Intercity Bus Services Toolkit (& Rep. 147) (2011) |
| 107 | B-38 | Planning Tool and Appendixes for TCRP Report 153 (& Rep. 153) (2012) |

CDs

| No. | Proj. No. | Title, Publication Year |
|-----|---------------------|---|
| 120 | J-05/Topic 13-03 | Transit Labor 13c Employee Protection Digest (LRD 41) (2012) |
| 121 | B-28A | Supplemental Material to TCRP Report 158 (& Rep. 158) (2012) |
| 122 | J-05/Topic 14-02 | TCRP LRD 42 Intergovernmental Agreements (& LRD 42) (2012) |
| 134 | J-05/Topic 14-03 | Performance-Based Clauses and Standards for TCRP LRD 43 (& LRD 43) (2013) |
| 138 | A-15C | Supporting Material and Tools to Accompany TCRP Rep 165 (& Rep. 165) (2013) |

Note

Publications in parentheses with an ampersand (&) are companion publications.

Publications in parentheses without an ampersand are reports or digests published as stand-alone CDs.

TABLE 5 SUMMARY OF PROJECT STATUS THROUGH DECEMBER 31, 2013

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|-----------------------|---|------------|-----------------|---|------------|------------|---|----------------|---------------|
| A : OPERATIONS | | | | | | | | | |
| A-01 | Fare Policies, Structures, and Technologies | \$450,000 | \$449,941 | Multisystems | 4/1/1993 | 6/30/1997 | Completed - Published as Report 10 | | |
| A-02 | User's Manual for Assessing Service-Delivery Systems for Rural Passenger Transportation | \$300,000 | \$300,000 | Ecosometrics | 5/15/1993 | 5/19/1995 | Completed - Published as Report 6 | | |
| A-03 | Aids for Rail Car Side-Door Observation | \$200,000 | \$199,789 | Telephonics Corp | 6/7/1993 | 2/28/1995 | Completed - Published as Report 4 | | |
| A-04 | Electronic On-Vehicle Passenger Information Displays (Visual and Audible) | \$100,000 | \$100,000 | Municipality of Metropolitan Seattle | 3/1/1994 | 3/31/1996 | Completed - Published as RRD 5 | | |
| A-05 | Integration of Light Rail Transit into City Streets | \$250,000 | \$250,000 | Korve Engineering | 3/1/1994 | 2/28/1996 | Completed - Published as Report 17 | | |
| A-05A(01) | Second Train Coming Warning Sign Demonstration Project | \$200,000 | \$200,000 | Los Angeles County Metropolitan Transit Authority | 4/14/1997 | 1/31/2002 | FTA Demonstration - Completed - Published as RRD 51 | | |
| A-05A(02) | Second Train Coming Warning Sign Demonstration Project | \$200,000 | \$200,000 | Mass Transit Agency, Baltimore, MD | 2/26/1997 | 1/31/2001 | FTA Demonstration - Completed - Published as RRD 51 | | |
| A-06 | A Handbook for Acquiring Demand-Responsive Transit Software | \$200,000 | \$200,000 | Systan | 2/22/1994 | 7/20/1996 | Completed - Published as Report 18 | | |
| A-07 | Operational Analysis of Bus Lanes on Arterials | \$100,000 | \$100,000 | Wilbur Smith Assoc | 5/1/1994 | 6/30/1996 | Completed - Published as Report 26 | | |
| A-07A | Operational Analysis of Bus Lanes on Arterials: Application and Refinement | \$70,000 | \$70,000 | Wilbur Smith Assoc | 6/16/1997 | 8/31/1999 | Completed - Published as RRD 38 | | |
| A-08 | Rail Transit Capacity | \$200,000 | \$199,640 | Transport Consult Ltd | 3/1/1994 | 10/31/1995 | Completed - Published as Report 13 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|-------|---|------------|-----------------|------------------------------------|------------|------------|---|----------------|---------------|
| A-09 | Guidelines for Transit Facility Signing and Graphics | \$250,000 | \$249,952 | KRW | 4/18/1994 | 1/17/1996 | Completed - Published as Report 12 | | |
| A-10 | Guidelines for the Location and Design of Bus Stops | \$300,000 | \$250,000 | Texas A&M Research Foundation | 11/1/1994 | 7/30/1996 | Completed - Published as Report 19 | | |
| A-10A | Evaluation of Bus Bulbs | \$175,000 | \$175,000 | Texas A&M Research Foundation | 2/27/1998 | 8/30/2000 | Completed - Published as Report 65 and Web Document 19 | | |
| A-11 | Transit Scheduling: Basic and Advanced Manuals | \$200,000 | \$199,846 | Transportation Management & Design | 10/1/1994 | 1/15/1997 | Completed - Published as Report 30 | | |
| A-12 | Passenger Information Services: A Guidebook for Transit Systems | \$250,000 | \$250,000 | Texas A&M Research Foundation | 3/1/1996 | 2/28/1998 | Completed - Published as Report 45 | | |
| A-13 | Light Rail Service: Pedestrian and Vehicular Safety | \$400,000 | \$400,000 | Korve Engineering | 4/23/1996 | 11/30/2000 | Completed - Interim Report Published as RRD 34; Final Report Published as Report 69 | | |
| A-14 | Multipurpose Transit Payment Media | \$300,000 | \$300,000 | Multisystems | 1/29/1996 | 9/30/1997 | Completed - Published as RRD 16 and Report 32 | | |
| A-15 | Transit Capacity and Quality of Service Manual: First Edition | \$250,000 | \$250,000 | Kittelton and Assoc | 11/1/1996 | 1/31/1999 | Completed - Published as RRD 35; Web Document 6; and as CRP-CD-2 | | |
| A-15A | Transit Capacity and Quality of Service Manual: Second Edition | \$300,000 | \$300,000 | Kittelton and Assoc | 10/29/1999 | 9/1/2003 | Completed - Published as Report 100 | | |
| A-15B | Update of Transit Chapters of Highway Capacity Manual | \$22,000 | \$22,000 | Kittelton and Assoc | 9/10/2003 | 3/31/2004 | Completed - Forwarded to HCM Committee | | |
| A-15C | Transit Capacity and Quality of Service Manual, Third Edition | \$400,000 | \$400,000 | Kittelton and Assoc | 9/22/2010 | 3/15/2013 | Completed - Published as Report 165 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|----------|--|------------|-----------------|---------------------------------------|------------|------------|--|----------------|---------------|
| A-16 | Improved Traffic Signal Priority for Transit | \$105,270 | \$105,270 | U of Arizona | 2/17/1997 | 2/28/1998 | Terminated | | |
| A-16A | Improved Traffic Signal Priority for Transit | \$194,730 | \$194,730 | Gardener Transportation Systems, Inc. | 6/7/1999 | 11/30/2006 | Completed - Not Published | | |
| A-17 | Joint Operation of Light Rail Transit or Diesel Multiple Unit Vehicles with Railroads | \$250,000 | \$249,820 | Edwards and Kelcey | 10/7/1996 | 9/30/1998 | Completed - Published as Report 52 | | |
| A-17A | Supplementing and Updating TCRP Report 52: Joint Operation of Light Rail Transit or Diesel Multiple Unit Vehicles with Railroads | \$40,000 | \$39,995 | Edwards and Kelcey | 8/18/2000 | 4/18/2001 | Completed - Published as RRD 43 | | |
| A-18 | Effective Practices to Reduce Bus Accidents | \$250,000 | \$250,000 | Technology & Management Systems | 12/1/1996 | 9/30/1999 | Completed - Published as Report 66 | | |
| A-19 | Integrating School Bus and Public Transportation Services in Non-Urban Communities | \$200,000 | \$199,751 | Multisystems | 12/1/1996 | 4/21/1999 | Completed - Published as Report 56 and Web Document 11 | | |
| A-19A(1) | Scoping Study for Project A-19A(2) | \$9,000 | \$8,059 | Multisystems | 4/1/2001 | 12/31/2001 | Completed | | |
| A-19A(2) | Vehicle Guide for Integrating Non-Urban School and Public Transportation Services | \$166,000 | \$163,986 | Team, Inc. | 5/1/2002 | 1/30/2007 | Cancelled | | |
| A-20A(1) | Strategies for Improved Traveler Information | \$90,417 | \$90,417 | Charles River Assoc. | 6/22/1998 | 1/31/2002 | Completed - Results to A-20A(2) | | |
| A-20A(2) | Strategies for Improved Traveler Information | \$359,583 | \$50,000 | Multisystems, Inc. | 7/1/2002 | 3/3/2003 | Completed - Published as Report 92 | | |
| A-20B(1) | Training for New Technology | \$109,105 | \$109,105 | Battelle | 1/4/1999 | 7/6/2000 | Terminated | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|----------|---|----------------------|-----------------|--|------------|-----------|---|----------------|---------------|
| A-20B(2) | Training for New Technology | \$90,895 \$50,000 | \$90,895 | Klein Associates, Inc. | 1/3/2001 | 2/15/2003 | Completed - Published as Report 96 | | |
| A-21 | Guidebook for Change and Innovation at Rural and Small Urban Transit Systems | \$150,000 | \$148,662 | KFH Group | 8/25/1999 | 2/24/2001 | Completed - Published as Report 70 | | |
| A-22 | Simulators and Bus Safety: Guidelines for Acquiring and Using Transit Bus Operator Driving Simulators | \$250,000 | \$250,000 | Milestone Group | 8/19/1999 | 7/30/2001 | Completed - Published as Report 72 | | |
| A-23 | Implementation Guidelines for Bus Rapid Transit Systems | \$250,000 | \$249,980 | Daniel, Mann, Johnson & Mendenhall (DMJM) | 5/24/2000 | 5/1/2003 | Completed - Published as Report 90, Volumes 1 and 2 | | |
| A-23A | Bus Rapid Transit Practitioner's Guide | \$300,000 | \$300,000 | Kittelison & Associates, Inc. | 11/15/2003 | 9/30/2006 | Completed - Published as Report 118 and Web Document 39 | | |
| A-24 | A Toolkit for Self-Service, Barrier-Free Fare Collection | \$250,000 | \$249,921 | Multisystems | 8/30/2000 | 3/1/2002 | Completed - Published as Report 80 | | |
| A-25 | Fare Policies, Structures and Technologies: Update | \$250,000 | \$249,939 | Multisystems | 7/1/2001 | 4/15/2003 | Completed - Published as Report 94 | | |
| A-26 | Smart Card Interoperability Issues for the Transit Industry | \$250,000 | \$249,323 | Acumen Building Enterprise | 10/15/2003 | 4/30/2006 | Completed - Published as Report 115 | | |
| A-27 | Shared Use of Railroad Infrastructure with Non-Compliant Public Transit Rail Vehicles: A Practitioner's Guide | \$200,000 | \$198,564 | Booz Allen & Hamilton | 8/31/2005 | 9/30/2008 | Completed - Published as Report 130 | | |
| A-28 | Guidebook for Mitigating Fixed-Route Bus-and-Pedestrian Collisions | \$250,000 | \$250,000 | Science Applications International Corporation | 11/2/2005 | 9/15/2007 | Completed - Published as Report 125 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|-------|---|------------|-----------------|--|------------|------------|---|------------------------|---------------|
| A-29 | Controlling System Costs: Basic and Advanced Scheduling Manuals and Contemporary Issues in Transit Scheduling | \$375,000 | \$375,000 | Dan Boyle & Associates | 7/31/2006 | 3/15/2009 | Completed - Published as Report 135 and Web Document 45 | | |
| A-30 | Improving Pedestrian and Motorist Safety Along Light Rail Transit Alignments | \$300,000 | \$300,000 | iTrans Consulting, Ltd. | 9/8/2006 | 6/30/2009 | Completed - Published as Report 137 and Web Document 42 | | |
| A-31 | Transit, Call Centers, and 511: A Guide for Decision Makers | \$250,000 | \$250,000 | Battelle | 12/15/2006 | 6/30/2009 | Completed - Published as Report 134 | | |
| A-32 | Operation of Light Rail Transit through Ungated Crossings at Speeds Over 35 mph | \$295,000 | \$294,924 | Science Applications International Corporation | 11/26/2008 | 12/31/2011 | Completed - Published as Web Document 53 | | |
| A-33 | Communication with Vulnerable Populations: A Transportation and Emergency Management Toolkit | \$350,000 | \$349,888 | The Louis Berger Group, Inc. | 8/27/2009 | 9/26/2011 | Completed - Published as Report 150 | | |
| A-33A | Using Pictograms to Make Transit Easier to Navigate for Customers with Communication Barriers | \$100,000 | \$99,887 | The Louis Berger Group, Inc. | 12/6/2011 | 9/30/2012 | Completed - Published as Web Document 59 | | |
| A-34 | Improving Safety-Related Rules Compliance in the Public Transportation Industry | \$350,000 | \$350,000 | Foster-Miller, Inc. | 9/30/2009 | 9/1/2011 | Completed - Published as Report 149 | | |
| A-35 | Defining and Implementing a Transit Safety Culture | \$500,000 | \$500,000 | Sam Schwartz Engineering | 12/15/2010 | 3/1/2014 | Research in Progress | R. Chen L. McElveen | D. Schwager |
| A-36 | Command-Level Decision Making for Transit Emergency Managers | \$435,000 | \$434,767 | Engineering & Computer Simulations | 11/1/2010 | 9/30/2014 | Research in Progress | R. Lyons R. Chen | S. Parker |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|----------------------------------|---|------------|-----------------|------------------------------------|------------|-----------|--|----------------|---------------|
| A-37 | Paratransit Emergency Operations and Preparedness Handbook | \$350,000 | \$350,000 | BCG Transportation Group | 11/4/2010 | 6/30/2012 | Completed - Published as Report 160 | | |
| A-38 | Guidebook for Pedestrian Crossings for Public Transit Rail Services | \$250,000 | \$250,000 | Texas A&M Transportation Institute | 2/1/2013 | 5/31/2014 | Research in Progress | R. Chen | D. Schwager |
| A-39 | Improving Transportation Network Efficiency Through Implementation of Transit-Supportive Roadway Strategies | \$300,000 | \$300,000 | Kittleson & Associates | 1/31/2013 | 9/30/2014 | Research in Progress | D. Paukowits | S. Parker |
| A-40 | Manual to Improve Rail Transit Safety at Platform/Train and Platform/Guideway Interfaces | \$275,000 | | | | | In development | P. Centolanzi | D. Schwager |
| B : SERVICE CONFIGURATION | | | | | | | | | |
| B-01 | Transit Operations for Individuals with Disabilities | \$200,000 | \$344,969 | EG&G Dynatrend | 6/1/1993 | 3/31/1997 | Completed - Published as RRD 1, Report 9, and Web Document 2 | | |
| B-01A | Demonstration of Paratransit/Fixed-Route Feeder Service for ADA Compliance | \$240,000 | \$240,000 | | | | FTA Demonstration - Cancelled | | |
| B-02 | A Handbook: Integrating Market Research into Transit Management | \$600,000 | \$339,368 | Northwest Research Group | 7/1/1993 | 1/31/1996 | Completed - Published as Report 37 and Web Document 3 | | |
| B-03 | Workbook for Estimating Demand for Rural Passenger Transportation | \$200,000 | \$199,685 | SG Associates, Inc. | 6/1/1993 | 2/28/1995 | Completed - Published as Report 3 | | |
| B-04 | Transportation Demand Management (TDM) Strategies | \$300,000 | \$300,000 | COMSIS Corp | 6/15/1993 | 3/31/1996 | Completed - Published as RRD 18 and Web Document 22 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|-------|--|------------|-----------------|-----------------------------------|------------|------------|---|----------------|---------------|
| B-05 | Guidebook for Attracting Paratransit Patrons to Fixed-Route Services | \$250,000 | \$250,000 | Bionetics Corp, Ketron Division | 2/22/1994 | 3/21/1996 | Completed - Published as Report 24 | | |
| B-06 | Guidelines for Enhancing Suburban Mobility Using Public Transportation | \$300,000 | \$274,993 | Urbitran Assoc | 12/1/1994 | 12/31/1996 | Completed - Published as Report 55 | | |
| B-07 | Strategies to Assist Local Transportation Agencies in Becoming Mobility Managers | \$300,000 | \$299,952 | Crain & Assoc | 10/3/1994 | 8/31/1997 | Completed - Published as Report 21 | | |
| B-08 | A Guidebook for Marketing Transit Services to Business | \$150,000 | \$149,985 | Multisystems | 1/15/1996 | 7/31/1998 | Completed - Published as Report 51 and Web Document 8 | | |
| B-09 | A Handbook: Using Market Segmentation to Increase Transit Ridership | \$250,000 | \$249,999 | Northwest Research Group | 5/1/1996 | 5/15/1998 | Completed - Published as Report 36 | | |
| B-10 | The Role of Passenger Amenities and Vehicle Characteristics in Building Transit Ridership: Amenities for Transit Handbook and the Transit Design Game Workbook | \$200,000 | \$200,000 | Project for Public Spaces | 2/1/1996 | 11/30/1998 | Completed - Published as Report 46 | | |
| B-11 | A Handbook for Measuring Customer Satisfaction and Service Quality | \$200,000 | \$200,000 | M.O.R. PACE | 1/2/1996 | 4/15/1998 | Completed - Published as Report 47 | | |
| B-12 | Updating the Traveler Response to Transportation System Changes Handbook | \$300,000 | \$300,000 | Richard H. Pratt Consultant, Inc. | 2/1/1997 | 11/5/1999 | Completed - Published as Web Document 12 | | |
| B-12A | Continuing Update of the | \$300,000 | \$300,000 | Richard H. Pratt Assoc | 11/5/1999 | 12/31/2012 | Completed - Published as Report 95 series | | |
| B-12B | Traveler Response to | \$75,000 | | | | | | | |
| B-12C | Transportation Systems Changes Handbook | \$81,600 | | | | | | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|---------------|--|-----------------------|-----------------|-------------------------------|------------|------------|--|----------------|---------------|
| B-13 | A Handbook of Proven Marketing Strategies for Public Transit | \$150,000 | \$150,000 | Texas A&M Research Foundation | 1/6/1997 | 10/6/1998 | Completed - Published as Report 50 | | |
| B-14 | Analyzing the Costs of Operating Small Transit Vehicles | \$150,000 | \$149,503 | KFH Group | 8/1/1997 | 4/6/2000 | Completed - Published as Report 61 | | |
| B-15 | Characteristics of Urban Travel Demand | \$250,000 | \$249,998 | Cambridge Systematics | 8/18/1997 | 9/30/2001 | Completed - Published as Report 73 | | |
| B-16 | The Role of the Private-for-Hire Vehicle Industry in Public Transit | \$250,000 | \$249,990 | North Carolina State U. | 3/9/1998 | 7/30/2001 | Completed - Published as Report 75 and CRP-CD-16 | | |
| B-17 | Guidebook for Selecting Appropriate Technology Systems for Small Urban and Rural Public Transportation Operators | \$200,000 | \$199,905 | North Carolina State U. | 4/20/1998 | 7/30/2001 | Completed - Published as Report 76 and Web Document 20 | | |
| B-18 | Improving Public Transportation Access to Large Airports | \$150,000 | \$150,000 | Leigh Fisher Associates | 12/14/1998 | 6/13/2000 | Completed - Published as Report 62 | | |
| B-18A | Strategies for Improving Public Transportation Access to Large Airports | \$200,000 | \$200,000 | Leigh Fisher Associates | 6/20/2000 | 5/17/2002 | Completed - Published as Report 83 | | |
| B-19 | Improving Public Transit Options for Older Persons | \$300,000 | \$300,000 | Westat, Inc. | 10/4/1999 | 4/12/2002 | Completed - Published as Report 82 | | |
| B-20 B-20A | Enhancing the Visibility and Image of Transit in the United States and Canada | \$250,000 \$60,000 | \$310,000 | Wirthlin Worldwide | 7/15/1999 | 9/1/2000 | Completed - Published as Report 63 | | |
| B-21 | Effective Approaches to Meeting Rural Intercity Bus Transportation Needs | \$150,000 | \$99,957 | KFH Group | 9/27/1999 | 11/16/2001 | Completed - Published as Report 79 | | |
| B-22 | New Paradigms for Rural and Small Urban Transit Service Delivery | \$82,000 | \$82,000 | University of Arizona | 5/31/2000 | 3/31/2002 | Completed - See Project B-22A | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|-------|--|------------|-----------------|---------------------------|------------|------------|---|----------------|---------------|
| B-22A | Case Studies in New Paradigms for Rural and Small Urban Transit Service Delivery | \$18,000 | \$17,995 | KFH Group | 6/30/2003 | 1/31/2004 | Completed - Published as Report 99 | | |
| B-23 | Resource Requirements for Demand-Responsive Transportation Services | \$250,000 | \$249,971 | Northwestern University | 11/1/2000 | 10/1/2003 | Completed - Published as Report 98 | | |
| B-24 | Toolkit for Rural Community Coordinated Transportation Services | \$250,000 | \$250,000 | Westat, Inc. | 8/20/2001 | 12/15/2003 | Completed - Published as Report 101 | | |
| B-25 | Guidebook for Evaluating, Selecting, and Implementing Suburban Transit Services | \$300,000 | \$299,977 | Urbitran Associates, Inc. | 11/1/2003 | 5/1/2006 | Completed - Published as Report 116 and Web Document 34 | | |
| B-26 | Car-Sharing: Where and How It Succeeds | \$250,000 | \$250,000 | NelsonNygaard | 10/10/2003 | 10/9/2005 | Completed - Published as Report 108 | | |
| B-27 | Cost Benefit Analysis of Providing Non-Emergency Medical Transportation | \$250,000 | \$250,000 | Altarum | 12/30/2003 | 11/1/2005 | Completed - Published as RRD 75 and Web Document 29 | | |
| B-28 | Improving ADA Complementary Paratransit Demand Estimation | \$250,000 | \$250,000 | NelsonNygaard | 8/24/2004 | 3/31/2007 | Completed - Published as Report 119 | | |
| B-28A | Improving ADA Paratransit Demand Estimation: Regional Modeling | \$330,000 | \$330,000 | NelsonNygaard | 5/15/2008 | 4/30/2012 | Completed - Published as Report 158 | | |
| B-29 | Leveraging ITS Data for Transit Market Research: A Practitioner's Guidebook | \$200,000 | \$200,000 | Portland State University | 2/3/2005 | 11/30/2007 | Completed - Published as Report 126 | | |
| B-30 | Toolkit for Integrating Non-Dedicated Vehicles in Paratransit Service | \$250,000 | \$249,921 | NelsonNygaard | 9/1/2004 | 10/1/2007 | Completed - Published as Report 121 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|-------|--|------------|-----------------|-------------------------------|------------|------------|---|----------------|---------------|
| B-31 | Guidebook for Measuring, Assessing, and Improving Performance of Demand-Response Transportation | \$250,000 | \$250,000 | KFH Group | 9/8/2005 | 9/15/2007 | Completed - Published as Report 124 | | |
| B-31A | Guidebook for Rural Demand-Response Transportation: Measuring, Assessing, and Improving Performance | \$150,000 | \$150,000 | KFH Group | 9/30/2007 | 8/31/2009 | Completed - Published as Report 136 | | |
| B-32 | Understanding How to Motivate Communities to Support and Ride Public Transportation | \$300,000 | \$324,542 | SRBI | 9/29/2005 | 10/30/2007 | Completed - Published as Report 122 | | |
| B-33 | Practical Measures to Increase Transit Industry Advertising Revenues | \$285,000 | \$285,000 | Denneen & Company | 3/19/2007 | 2/15/2009 | Completed - Published as Report 133 | | |
| B-34 | Resource Guide for Commingling ADA and Non-ADA Paratransit Riders | \$300,000 | \$300,000 | TranSystems, Inc. | 8/30/2006 | 9/30/2010 | Completed - Published as Report 143 | | |
| B-35 | A Guide for Planning and Operating Flexible Public Transportation Services | \$300,000 | \$300,000 | DMP Group | 8/16/2007 | 3/30/2010 | Completed - Published as Report 140 | | |
| B-36 | Methods for Forecasting Demand and Quantifying Need for Rural Passenger Transportation: Final Workbook | \$300,000 | \$599,180 | Vanesse Hangen Brustlin, Inc. | 12/4/2007 | 9/30/2012 | Completed - Published as Report 161 and Web Document 58 | | |
| B-37 | Estimation of Demand for Rural Intercity Bus Services | \$200,000 | \$199,411 | KFH Group, Inc. | 12/11/2007 | 3/31/2011 | Completed - Published as Report 147 | | |
| B-38 | Guidelines for Providing Access to Public Transportation Stations | \$500,000 | \$489,288 | Kittleson & Assoc | 9/17/2008 | 10/1/2011 | Completed - Published as Report 153; Literature Review Published as Web Document 44 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|--|---|------------|-----------------|-----------------------------------|------------|-----------|--|----------------|---------------|
| B-39 | Audience Measurement for Transit Advertising | \$350,000 | \$350,000 | People Count | 12/1/2009 | 5/1/2012 | Completed - Published as Web Document 57 | | |
| B-40 | Strategy Guide to Enable and Promote the Use of Fixed-Route Transit by People with Disabilities | \$300,000 | \$300,000 | TranSystems | 9/30/2011 | 1/30/2014 | Completed - Publication Pending | D. Sweet | D. Schwager |
| B-41 | How to Create, Implement, Sustain, and Evaluate Travel Training for Older Adults: A Handbook | \$300,000 | \$300,000 | Westat, Inc. | 11/4/2011 | 1/31/2014 | Research in Progress | P. Brown | L. Goldstein |
| B-42 | Community Toolbox for Improving Options and Coordination of Transportation for Military Service Members, Veterans, and Their Families | \$200,000 | \$200,000 | KFH Group | 4/13/2012 | 2/1/2014 | Completed - Publication Pending | M. Lesh | D. Schwager |
| B-43 | Use of Web-Based Rider Feedback to Improve Public Transit Services | \$250,000 | \$250,000 | Georgia Tech Research Corporation | 1/11/2013 | 4/10/2014 | Research in Progress | J. Stoltzfus | G. Chisholm |
| B-44 | Impact of the Trend Toward Separate Statewide Medicaid Transportation Brokerages on Human Service Transportation Coordination | \$300,000 | | | | | In development | R. Opstelter | D. Schwager |
| C : ENGINEERING OF VEHICLES AND EQUIPMENT | | | | | | | | | |
| C-01 | Personal Mobility Aid Securement and Passenger Restraint on Transit Vehicles | \$300,000 | \$299,971 | Cleveland Clinic Foundation | 7/15/1993 | 1/13/1996 | Completed - Not Published | | |
| C-02 | Applicability of Low-Floor Light Rail Vehicles in North America | \$200,000 | \$198,497 | Booz-Allen & Hamilton | 6/8/1993 | 1/31/1995 | Completed - Published as Report 2 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|-------|--|-----------------------|-----------------|---|------------|------------|---|----------------|---------------|
| C-03 | Wheel/Rail Noise Control Manual | \$300,000 | \$300,000 | Wilson, Ihrig & Assoc | 3/1/1994 | 10/15/1996 | Completed - Published as RRD 19 and Report 23 | | |
| C-03A | Wheel and Rail Vibration Absorber Testing and Demonstration | \$300,000 | \$300,000 | Wilson, Ihrig & Assoc | 9/1/1997 | 10/31/2000 | Completed - Published as Report 67 | | |
| C-04 | Procurement Specification Guidelines for Mass Transit Vehicle Windows Glazing | \$200,000 | \$199,875 | U of Dayton | 9/26/1994 | 3/25/1996 | Completed - Published as RRD 9 and Report 15 | | |
| C-05 | Impact of Radio Frequency Refarming on Transit Communications | \$125,000 \$17,151 | \$142,151 | Arthur D Little | 9/26/1994 | 12/31/1995 | Completed - Published as Report 11 | | |
| C-06 | Improved Methods for Increasing Wheel/Rail Adhesion in the Presence of Natural Contaminants | \$150,000 | \$150,000 | Tranergy Corp | 12/1/1994 | 8/15/1996 | Completed - Published as RRD 17 | | |
| C-06A | Demonstration of Improved Methods for Increasing Wheel/Rail Adhesion in the Presence of Natural Contaminants | \$262,000 | \$18,820 | Vincent Terrill | 11/1/1997 | 6/30/1998 | Scoping Study Completed. Demonstration Project Cancelled. | | |
| C-07 | Technology Assessment of Refueling-Connection Devices for CNG, LNG, and Propane | \$150,000 | \$149,989 | SAIC | 3/15/1996 | 9/14/1997 | Completed - Published as RRD 25 | | |
| C-08 | Evaluating Fuel Choices for Transit Bus Operations | \$150,000 | \$150,000 | ARCADIS Geraghty & Miller, Inc. | 4/1/1996 | 3/15/1998 | Completed - Published as Report 38 | | |
| C-09 | Paratransit Vehicle Specifications and Related Special Maintenance Requirements | \$250,000 | \$250,000 | Bionetics Corp, Ketron Division | 2/1/1996 | 10/31/1999 | Completed - ParaSPEC Software Developed | | |
| C-10A | Understanding and Applying Advanced On-Board Bus Electronics | \$170,000 | \$170,000 | John J. Schiavone, Technical & Corporate Communications | 6/16/1997 | 10/15/1998 | Completed - Published as Report 43 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|-------|---|--|-----------------|--|------------|------------|--|----------------|---------------|
| C-10B | Hybrid Electric Transit Buses: Status, Benefits, and Issues | \$45,000 | \$44,585 | Northeast Alternative Vehicle Consortium | 6/15/1999 | 2/15/2000 | Completed - Published as Report 59 | | |
| C-10C | New Designs and Operating Experiences with Low-Floor Transit Buses | \$35,000 | \$35,000 | Rolland King | 7/1/1997 | 4/30/1998 | Completed - Published as Report 41 | | |
| C-11 | Alternative-Fuel Transit Bus Hazard Assessment Model | \$300,000 | \$299,921 | SAIC | 12/1/1997 | 12/31/2000 | Completed - Published as RRD 39 and CRP-CD-4 | | |
| C-12 | Standard Technical Specifications for 35/40-Foot Low-Floor and CNG Transit Buses | \$269,000 | \$269,000 | American Public Transportation Association | 9/1/1998 | 6/30/2001 | Completed - Specifications Published by APTA | | |
| C-13 | 30-Foot Transit Bus Technical Specification | \$92,000 | \$92,000 | American Public Transportation Association | 9/1/2000 | 6/30/2002 | Completed - Specifications Published by APTA | | |
| C-14 | Technical Assistance for Development of Transit Bus Standards | \$125,000 (01) \$250,000 (02) \$250,000 (03) \$250,000 (04) \$250,000 (05) \$150,000 (06) | \$1,275,000 | American Public Transportation Association | 10/1/2001 | 9/30/2008 | Completed - Standards published by APTA | | |
| C-15 | Assessment of Hybrid-Electric Transit Bus Technology | \$300,000 | \$300,000 | West Virginia University | 12/20/2004 | 7/31/2009 | Completed - Published as Report 132 | | |
| C-16 | Center Truck Performance of Low-Floor Light Rail Vehicles | \$250,000 | \$249,170 | Interfleet Technology, Inc. | 10/19/2004 | 4/18/2006 | Completed - Published as Report 114 | | |
| C-17 | Development of Crash Energy Management Performance Requirements for Light-Rail Vehicles | \$300,000 | \$299,990 | Applied Research Associates, Inc. | 9/22/2005 | 3/31/2008 | Completed - Published as Web Document 40 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|--|--|-------------------------------------|-----------------|--|------------|------------|-------------------------------------|----------------|---------------|
| C-18 | Strategic Plan for Meeting Transit Industry Wireless Communication Needs | \$225,000 \$ 48,000 \$ 50,000 | \$272,972 | Science Applications International Corp. | 10/22/2008 | 10/31/2012 | Completed - Resources to APTA | | |
| C-19 | Guidebook for Evaluating Fuel Choices for Post-2010 Transit Bus Procurements | \$150,000 \$150,000 | \$300,000 | Science Applications International Corporation | 11/15/2007 | 12/31/2010 | Completed - Published as Report 146 | | |
| C-20 | Use of Mobility Devices on Paratransit Vehicles and Buses | \$400,000 | \$399,157 | Oregon State University | 11/4/2011 | 12/31/2013 | Completed - Publication Pending | J. Day | G. Chisholm |
| C-21 | Positive Train Control (PTC), Radio Spectrum Planning for Passenger Commuter Rail Operators in the United States | | | | | | Cancelled | | |
| C-22 | Bus Operator Workstation Design for Improving Occupational Health and Safety | \$275,000 | | | | | In development | G. Rymarz | D. Schwager |
| D : ENGINEERING OF FIXED FACILITIES | | | | | | | | | |
| D-01 | Rail Corrugation Mitigation in Transit | \$500,000 | \$270,000 | Assoc of American Railroads | 8/22/1994 | 11/30/1997 | Completed - Published as RRD 26 | | |
| D-02 | Derailment of Transit Vehicles in Special Trackwork | \$400,000 | \$399,956 | Zeta-Tech Assoc | 4/1/1994 | 6/30/1996 | Completed - Published as RRD 15 | | |
| D-03 | Tunnel Track Reconstruction Methods Using Precast Concrete Systems | \$450,000 | \$30,895 | Louis Berger & Assoc | 6/1/1994 | 12/31/1994 | Terminated | | |
| D-03A | Tunnel Track Reconstruction Methods Using Precast Concrete Systems | \$39,921 | \$39,921 | Thomas Dyer | 9/1/1995 | 12/31/1996 | Completed - Not Published | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|------|--|--|-----------------|---|------------|------------|---|----------------|---------------|
| D-04 | Reducing the Visual Impact of Overhead Contact Systems | \$100,000 | \$100,000 | Urbitran Assoc | 12/15/1993 | 5/31/1995 | Completed - Published as Report 7 | | |
| D-05 | Performance of Direct-Fixation Track Structure: Design Guidelines and Software | \$300,000 | \$300,000 | Battelle Memorial Inst | 2/23/1995 | 6/22/1999 | Completed - Published as CRP-CD-3 | | |
| D-06 | Track Design Handbook for Light Rail Transit | \$350,000 | \$350,000 | Parsons, Brinckerhoff, Quade, & Douglas | 1/2/1996 | 8/30/1999 | Completed - Published as Report 57 | | |
| D-07 | Joint Rail-Related Research with the Association of American Railroads/TTCI | \$250,000 (99) \$200,000 (00) \$150,000 (02) \$150,000 (03) \$ 50,000 (04) \$150,000 (05) \$150,000 (07) \$200,000 (09) \$476,896 (11) | \$1,776,896 | Transportation Technology Center, Inc. | 10/28/1999 | 6/30/2014 | Continuing Project - See D-7 Table | T. Williams | S. Parker |
| D-08 | Improving Pedestrian Safety at Unsignalized Roadway Crossings | \$275,000 (TCRP) \$275,000 (NCHRP) | \$550,000 | Texas Transportation Institute | 10/1/2002 | 3/6/2006 | Completed - Published as Report 112 and Web Document 30 | | |
| D-09 | Transit Vehicles and Facilities on Streets and Highways | \$350,000 | \$349,969 | Parsons Brinckerhoff Quade & Douglas | 11/1/2002 | 6/30/2007 | Completed - Published by AASHTO | | |
| D-10 | Audible Signals for Pedestrian Safety in Light Rail Transit Environments | \$400,000 | \$400,000 | Konve Engineering | 10/3/2003 | 1/31/2007 | Completed - Published as RRD 84 and Web Document 35 | | |
| D-11 | Design, Operation, and Safety of At-Grade Crossings of Exclusive Busways | \$150,000 | \$150,000 | BMI - SG | 9/29/2004 | 2/15/2007 | Completed - Published as Report 117 and Web Document 36 | | |
| D-12 | Ground-Borne Noise and Vibration in Buildings Caused by Rail Transit | \$425,000 | \$424,867 | Acentech, Inc. | 9/16/2005 | 12/31/2009 | Completed - Published as Web-Only Document 48 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|------------------------|---|---------------------------------------|-----------------|--|------------|------------|--|---------------------|---------------|
| D-13 | A Guide for Implementing Bus-on-Shoulder (BOS) Systems | \$200,000 | \$200,000 | Wilbur Smith Associates, Inc. | 9/15/2006 | 4/30/2011 | Completed - Published as Report 151 | | |
| D-14 | Track Design Handbook for Light Rail Transit, Second Edition | \$300,000 | \$300,000 | PB Americas, Inc. | 9/24/2009 | 11/30/2011 | Completed - Published as Report 155 | | |
| D-15 | Effective Practices for the Protection of Transportation Infrastructure from Cyber Incidents | \$150,000 (TCRP) \$150,000 (NCHRP) | \$300,000 | Countermeasures Assessment and Security Experts, LLC | 5/2/2013 | 11/1/2014 | Research in Progress as NCHRP 20-59(48) | R. Gerhart | S. Parker |
| D-16 | Improving the Safety and Sustainability of Stray Current Control of DC - Powered Rail Transit Systems | \$350,000 | \$349,921 | Corpro Companies, Inc. | 2/16/2012 | 6/30/2014 | Research in Progress | R. Chen R. Frigo | S. Parker |
| D-17 | Detecting and Mitigating Low-Level DC Leakage and Fault Currents in Transit | | | | | | In development | T. Williams | S. Parker |
| E : MAINTENANCE | | | | | | | | | |
| E-01 | Leveraging Information for Better Transit Maintenance | \$350,000 \$150,000 | \$349,890 | RAND Corp | 9/1/1993 | 11/30/1995 | Completed - Published as RRD 13 | | |
| E-02 | Artificial Intelligence Technology for Transit Railcar Diagnostics | \$150,000 | \$149,597 | ANSTEC | 5/17/1993 | 6/16/1994 | Completed - Published as Report 1 | | |
| E-02A | Demonstration of Artificial Intelligence Technology for Railcar Diagnostics | \$200,000 | \$199,947 | ANSTEC | 2/27/1997 | 10/31/1998 | Completed - Published as Report 44 | | |
| E-03 | A Desk Guide for Inventory Managers in the Transit Industry | \$150,000 | \$150,000 | Klick, Kent, & Allen, Inc. | 12/1/1993 | 7/31/1995 | Completed - Published as RRD 28 and Web Document 4 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|-------|--|--|-----------------|--|------------|------------|---|----------------------------|---------------|
| E-03A | Revised Inventory Management Desk Guide | \$150,000 | \$150,000 | Draycott Consulting | 10/1/1997 | 3/31/2000 | Completed - Published as RRD 40 and Web Document 17 | | |
| E-04 | Guidelines for the Development of Public Transportation Facilities and Equipment Management Systems | \$200,000 | \$200,000 | Parsons, Brinckerhoff, Quade, & Douglas | 6/10/1994 | 9/30/1995 | Completed - Published as Report 5 | | |
| E-05 | Guidebook for Developing and Sharing Transit Bus Maintenance Practices | \$300,000 | \$300,000 | Transit Resource Center | 9/26/2003 | 7/15/2005 | Completed - Published as Report 109 | | |
| E-06 | Transit Bus Mechanics: Building for Success - The ASE Transit Bus Maintenance Certification Test Series | \$450,000 (04) \$300,000 (05) \$300,000 (07) \$275,000 (08) | \$845,608 | National Institute for Automotive Service Excellence (ASE) | 8/1/2004 | 6/30/2012 | Completed - 8 ASE Transit Bus Tests Now Offered | | |
| E-07 | Initiating a National Transit Industry Rail Vehicle Technician Qualification Program: Building for Success | \$400,000 (08) \$400,000 (09) \$400,000 (10) \$200,000 (11) \$500,000 (12) | \$1,900,000 | Transportation Learning Center | 7/18/2008 | 3/1/2014 | Research in Progress | B. Jackson J. Stoltzfus | C. Jenks |
| E-08 | Extending and Deepening National Transit Training Standards | \$250,000 | \$250,000 | Transportation Learning Center (TLC) | 7/14/2008 | 10/13/2009 | Completed - Results Used by TLC | | |
| E-09 | State of Good Repair: Prioritizing the Rehabilitation and Replacement of Existing Capital Assets and Evaluating the Implications for Transit | \$150,000 (10) | \$150,000 | Spy Pond Partners | 10/6/2010 | 3/31/2012 | Completed - Published as Report 157 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|----------------------------|--|------------------------|-----------------|---------------------------------------|------------|------------|---|---------------------------------------|---------------|
| E-09A | State of Good Repair: Prioritizing the Rehabilitation and Replacement of Existing Capital Assets and Evaluating the Implications for Transit | \$350,000 (12) | \$350,000 | Spy Pond Partners | 9/25/2012 | 6/30/2014 | Research in Progress | K. Gates C. Nutakor T. Williams | D. Schwager |
| E-10 | Maintenance Technician Staffing Levels for Modern Public Transit Fleets | \$300,000 | \$300,000 | EDSI Consulting | 1/23/2013 | 7/24/2014 | Research in Progress | B. Jackson | G. Chisholm |
| F : HUMAN RESOURCES | | | | | | | | | |
| F-01 | Fitness-for-Duty Testing in the Transit Workplace | \$300,000 \$500,000 | \$474,350 | Battelle Memorial Inst | 6/1/1993 | 10/31/1996 | Completed - Not Published | | |
| F-02 | Innovative Labor-Management Practices | \$250,000 | \$199,935 | Mercer Management Consult | 7/15/1993 | 10/31/1994 | Completed - Not Published | | |
| F-03 | A Quality Journey: A TQM Roadmap for Public Transportation | \$500,000 | \$500,000 | MacDorman & Assoc | 5/10/1993 | 11/10/1995 | Completed - Published as RRD 3 and Report 8 | | |
| F-04 | Bus Operator Workstation Evaluation and Design Guidelines | \$250,000 | \$250,000 | Penn State U | 5/1/1994 | 2/28/1997 | Completed - Published as Report 25 and Web Document 1 | | |
| F-05 | Closing the Knowledge Gap for Transit Vehicle Maintenance Employees-- A Systems Approach | \$300,000 | \$300,000 | RAND Corp | 10/10/1994 | 9/9/1996 | Completed - Published as Report 29 | | |
| F-06 | Guidelines for the Effective Use of Uniformed Transit Police/Security Personnel | \$400,000 | \$399,490 | Interactive Elements | 12/12/1994 | 5/29/1997 | Completed - Published as Web Document 15 | | |
| F-06A | Guidelines for Collecting, Analyzing, and Reporting Transit Crime Data | \$175,000 | \$150,000 | Technology & Management Systems, Inc. | 4/1/1998 | 3/31/2000 | Completed - Published as RRD 41 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|------|--|------------|-----------------|--------------------------------|------------|------------|-------------------------------------|----------------|---------------|
| F-07 | Part-Time Transit Operators: The Trends and Impacts | \$250,000 | \$250,000 | Charles River Assoc | 10/15/1997 | 10/31/2000 | Completed - Published as Report 68 | | |
| F-09 | Managing Transit's Workforce in the New Millennium | \$250,000 | \$250,000 | McGlothin Davis, Inc. | 2/1/2000 | 1/30/2002 | Completed - Published as Report 77 | | |
| F-10 | Toolbox for Transit Operator Fatigue | \$300,000 | \$299,828 | Foster-Miller, Inc. | 10/15/2000 | 6/30/2002 | Completed - Published as Report 81 | | |
| F-11 | Positioning the Public Transportation Operating Agency as an Employer of Choice | \$300,000 | \$299,705 | Watson Wyatt Worldwide | 9/12/2002 | 10/15/2003 | Completed - Published as Report 103 | | |
| F-12 | Employee Compensation Guidelines for Transit Providers in Rural and Small Urban Areas | \$300,000 | \$300,000 | KFH Group | 9/27/2005 | 3/3/2008 | Completed - Published as Report 127 | | |
| F-13 | Vehicle Operator Recruitment, Retention and Performance in ADA Complementary Paratransit Operations | \$300,000 | \$300,000 | TranSystems | 9/4/2007 | 1/30/2010 | Completed - Published as Report 142 | | |
| F-14 | Guidebook for Recruiting, Developing, and Retaining Transit Managers for Fixed-Route and Paratransit Systems | \$250,000 | \$249,998 | ICF, Inc. | 9/12/2008 | 2/26/2010 | Completed - Published as Report 139 | | |
| F-15 | A Practical Guide for Recruiting Minorities for Chief Executive Officers at Public Transportation Agencies | \$250,000 | \$249,945 | Generator Group, LLC | 12/5/2008 | 3/30/2011 | Completed - Published as Report 148 | | |
| F-16 | Building a Sustainable Workforce in the Public Transportation Industry - A Systems Approach | \$150,000 | \$149,278 | Transportation Learning Center | 9/29/2010 | 3/28/2011 | Completed - Results to F-16A | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|---------------------------|---|------------|-----------------|---|------------|------------|--|----------------------------|---------------|
| F-16A | Building a Sustainable Workforce in the Public Transportation Industry - A Systems Approach | \$350,000 | \$350,000 | ICF, Inc. | 9/30/2011 | 4/30/2013 | Completed - Published as Report 162 | | |
| F-17 | Improving Bus Operator Health, Wellness and Retention | \$350,000 | \$350,000 | Transportation Learning Center | 10/13/2011 | 11/30/2013 | Completed - Publication Pending | J. Stoltzfus B. Jackson | G. Chisholm |
| F-18 | Policing and Security Practices for Small- and Medium-Sized Transit Systems | \$150,000 | \$150,000 | Countermeasure Assessment and Security Experts, LLC | 9/30/2011 | 12/31/2014 | Research in Progress | R. Gerhart | S. Parker |
| F-19 | A National Training and Certification Program for Transit Vehicle Maintenance Instructors | \$250,000 | \$250,000 | Transportation Learning Center | 1/21/2013 | 4/20/2014 | Research in Progress | B. Jackson | G. Chisholm |
| F-20 | Transit Labor-Management Partnerships: What Makes Them Work? What Makes Them Last? | \$300,000 | \$300,000 | AECOM Technical Services, Inc. | 11/12/2012 | 11/11/2014 | Research in Progress | B. Jackson | D. Schwager |
| F-21 | Tools and Strategies for Eliminating Assaults Against Transit Operators | \$300,000 | \$300,000 | Countermeasures Assessment & Security Experts, LLC | 12/1/2013 | 6/1/2015 | Research in Progress | | G. Chisholm |
| F-22 | Identifying Best Practices and Sharing Resources for Transit Technical Training | | | | | | On Hold - Pending Funding | | G. Chisholm |
| G : ADMINISTRATION | | | | | | | | | |
| G-01 | Information Technologies-- State-of-the-Art Applications for Transit Properties | \$100,000 | \$100,000 | Castle Rock Consult | 12/1/1993 | 5/31/1995 | Completed - Not Published | | |
| G-02 | Bar Coding in Transit Operations and Maintenance | \$150,000 | \$149,999 | Telephonics Corp | 1/15/1993 | 9/14/1995 | Completed - Published as Web Document 10 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|-------|---|-------------------------------------|-----------------|--|------------|------------|--|----------------|---------------|
| G-03 | Transit Risk Manager for Bus Systems | \$195,000 | \$192,964 | Risk Management Center | 10/1/1994 | 5/31/1996 | Completed - Published as RRDs 11 and 12; Risk Manager Software Developed | | |
| G-04 | Developing Standards for System and Subsystem Interfaces in Electric Rail Passenger Vehicles | \$200,000 | \$200,000 | Thomas J McGean | 1/15/1996 | 10/1/1997 | Completed - Project Continued as G-4A | | |
| G-04A | Developing Standards for System and Subsystem Interfaces in Electric Rail | \$275,000 | \$755,148 | Thomas J McGean | 9/1/1997 | 2/28/2002 | Completed - Published as RRD 44 | | |
| G-04B | Passenger Vehicles - Extension | \$325,000 \$300,000 \$320,000 | | | | | | | |
| G-04C | Developing Standards for System and Subsystem Interfaces in Electric Rail Passenger Vehicles - Transition to APTA | \$75,000 | \$75,000 | American Public Transportation Association | 4/1/2002 | 7/31/2003 | Completed - APTA Standards Published | | |
| G-05 | Management Toolkit for Small Urban and Rural Public Transportation Systems | \$250,000 | \$249,896 | KFH Group | 2/1/1997 | 3/31/1999 | Completed - Published as Report 54 | | |
| G-06 | A Guidebook for Developing a Transit Performance-Measurement System | \$300,000 | \$300,000 | Kittleson & Associates | 6/28/2001 | 11/28/2002 | Completed - Published as Report 88 and RRD 56 | | |
| G-07 | Managing Capital Costs of Major Federally Funded Public Transportation Projects | \$300,000 | \$300,000 | Booz, Allen & Hamilton | 9/10/2003 | 12/1/2005 | Completed - Published as RRD 78 and Web Document 31 | | |
| G-08 | A Guidebook for the Evaluation of Project Delivery Methods | \$300,000 | \$300,000 | Northeastern University | 10/1/2006 | 10/31/2008 | Completed - Published as Report 131 and Web Document 41 | | |
| G-09 | Sharing the Costs of Human Services Transportation | \$250,000 | \$250,000 | Westat | 10/15/2006 | 9/30/2010 | Completed - Published as Report 144 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|--------------------------------|--|------------|-----------------|--|------------|------------|--|----------------|---------------|
| G-10 | Estimating Soft Costs for Major Public Transportation Fixed Guideway Projects | \$300,000 | \$300,000 | AECOM Consult | 8/24/2007 | 12/1/2009 | Completed - Published as Report 138 | | |
| G-11 | A Methodology for Performance Measurement and Peer Comparison in the Public Transportation Industry | \$300,000 | \$300,000 | Kittleson & Associates | 11/1/2007 | 3/1/2010 | Completed - Published as Report 141 | | |
| G-12 | Fuel Purchasing Strategies for Public Transit Agencies | \$300,000 | \$299,997 | Science Applications International Corporation | 12/11/2009 | 3/2/2012 | Completed - Published as Report 156 | | |
| G-13 | Developing an ITS Technology Web Portal for Transit System Leaders | \$100,000 | \$99,993 | Consensus Systems Technologies Corp. | 11/15/2011 | 1/31/2014 | Research in Progress | J. Spencer | L. Goldstein |
| H : POLICY AND PLANNING | | | | | | | | | |
| H-01 | Transit and Urban Form | \$600,000 | \$600,000 | Parsons, Brinckerhoff, Quade, & Douglas | 6/10/1993 | 3/31/1996 | Completed - Published as RRD 7 and Report 16 | | |
| H-02 | Measuring and Valuing Transit Benefits and Disbenefits | \$300,000 | \$300,000 | Cambridge Systematics | 5/26/1993 | 5/31/1996 | Completed - Published as Report 20 | | |
| H-03 | Strategies to Attract Auto Users to Public Transportation | \$300,000 | \$300,000 | Portland State U | 5/2/1994 | 10/31/1996 | Completed - Published as Report 40 | | |
| H-04A | Building Transit Ridership: An Exploration of Transit's Market Share and the Public Policies that Influence It | \$250,000 | \$250,000 | Charles River Assoc | 10/17/1994 | 10/16/1997 | Completed - Published as Report 27 | | |
| H-04B | Transit Markets of the Future - The Challenge of Change | \$250,000 | \$249,995 | U of Arizona | 2/1/1995 | 4/30/1997 | Completed - Published as Report 28 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|----------|--|------------|-----------------|---|------------|------------|--|----------------|---------------|
| H-04C | Institutional Barriers to Intermodal Transportation Policies and Planning in Metropolitan Areas | \$250,000 | \$249,998 | Crain & Assoc | 10/3/1994 | 6/30/1996 | Completed - Published as Report 14 | | |
| H-04D | The Role of Transit in Creating Livable Metropolitan Communities | \$250,000 | \$250,000 | Project for Public Spaces | 10/3/1994 | 7/31/1997 | Completed - Published as Report 22 | | |
| H-04D(2) | Transit-Friendly Streets: Design and Traffic Management Strategies to Support Livable Communities | \$75,000 | \$75,000 | Project for Public Spaces | 7/1/1996 | 7/31/1997 | Completed - Published as Report 33 | | |
| H-04E | Sustainable Transportation | \$150,000 | \$150,000 | TRB Studies and Information Services Division | 5/1/1994 | 12/31/1996 | Completed - Published as TRB Special Report 251 | | |
| H-05 | Research Agenda for Increasing Transit Ridership | \$200,000 | \$54,828 | N/A | 11/18/1994 | 11/19/1994 | Completed - Published as RRD 6 | | |
| H-06 | Coordinated Intermodal Transportation Pricing and Funding Strategies | \$200,000 | \$150,000 | Multisystems | 12/1/1994 | 6/30/1997 | Completed - Published as RRD 14 | | |
| H-07 | Funding Strategies for Public Transportation | \$200,000 | \$199,836 | Price Waterhouse | 2/15/1996 | 12/31/1997 | Completed - Published as Report 31 | | |
| H-08 | Using Public Transportation to Reduce the Economic, Social, and Human Costs of Personal Immobility | \$300,000 | \$299,996 | Crain & Assoc | 2/12/1996 | 6/30/1999 | Completed - Published as Report 49; Case Studies Published as Web Document 7 | | |
| H-09 | Economic Impact Analysis of Transit Investments: Guidebook for Practitioners | \$200,000 | \$200,000 | Cambridge Systematics | 1/2/1996 | 12/1/1997 | Completed - Published as Report 35 | | |
| H-10 | Costs of Sprawl--2000 | \$300,000 | \$300,000 | Rutgers U Center for Urban Policy Research | 4/1/1996 | 4/30/2001 | Completed - Interim Report Published as Report 39; Final Report Published as Report 74 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|-------|--|------------|-----------------|---|------------|------------|---|----------------|---------------|
| H-11 | Assessment of the Economic Impacts of Rural Public Transportation | \$250,000 | \$250,000 | Ecosometrics | 1/15/1996 | 10/14/1997 | Completed - Published as Report 34 | | |
| H-12 | Integrated Urban Models for Simulation of Transit and Land-Use Policies: Guidelines for Implementation and Use | \$100,000 | \$100,000 | U of Toronto | 6/1/1997 | 9/30/1998 | Completed - Published as Report 48 and Web Document 9 | | |
| H-13A | Consequences of the Interstate Highway System for Transit | \$125,000 | \$125,000 | Parsons, Brinckerhoff, Quade, & Douglas | 5/31/1996 | 12/31/1997 | Completed - Interim Report Published as RRD 21; Final Report Published as Report 42 | | |
| H-13B | Trends in Single-Occupant Vehicle and Vehicle Miles of Travel Growth in the U.S. | \$125,000 | \$125,000 | Charles River Assoc | 4/16/1996 | 10/16/1997 | Completed - Published as RRD 30 and Web Document 5 | | |
| H-14 | Making Transit Work: Insight from Western Europe, Canada and the United States | \$400,000 | \$400,000 | TRB Studies and Information Services | 3/10/1997 | 12/30/2000 | Completed - Published as TRB Special Report 257 | | |
| H-15 | Projects to Support "Mobility for the 21st Century" | \$150,000 | | N/A | | | Completed - Workshop Conducted April 1997 | | |
| H-15A | Guidebook for Developing Welfare-to-Work Transportation Services | \$300,000 | \$300,000 | Multisystems | 5/11/1998 | 6/30/2000 | Completed - Published as Report 64 and Web Document 16 | | |
| H-16 | A National Transit Industry Labor-Management Cooperation Program: New Paradigms for Labor-Management Relations in the Transit Industry of the 21st Century | \$150,000 | \$75,000 | Cornell University | 8/6/1998 | 1/31/2002 | Completed - Three Workshops Conducted | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|---------------|--|-----------------------|-----------------|---|------------|------------|--|----------------|---------------|
| H-17 | New Forms of Labor/Management Cooperation: A Series of Meetings Leading to a Demonstration of Innovative Working Assignments | \$150,000 | | | | | Cancelled | | |
| H-19 H-19A | Estimating the Benefits and Costs of Public Transit Projects: A Guidebook for Practitioners | \$200,000 \$50,000 | \$250,000 | Parsons, Brinckerhoff, Quade, & Douglas | 3/23/1999 | 10/31/2001 | Completed - Published as Report 78 | | |
| H-20 | Using Geographic Information Systems (GIS) for Welfare to Work Transportation Planning and Service Delivery | \$125,000 | \$124,970 | Multisystems | 10/19/1998 | 2/15/2000 | Completed - Published as Report 60 and Web Document 14 | | |
| H-21 | Travel Matters: Mitigating Climate Change with Sustainable Surface Transportation | \$175,000 | \$174,953 | Center for Neighborhood Technology | 6/7/2001 | 3/7/2003 | Completed - Published as Report 93 | | |
| H-21A | Travel Matters: Mitigating Climate Change with Sustainable Surface Transportation | \$100,000 | \$100,000 | Center for Neighborhood Technology | 6/7/2003 | 10/1/2004 | Completed - Published as Web Document 26 | | |
| H-22A | Evaluation of the National Transit Database | \$900,000 | | FTA Project with KPMG Peat Marwick | 2/1/2000 | 5/31/2001 | Completed - FTA Report Prepared | | |
| H-22B | Evaluation of the National Transit Database-TRB Committee | \$100,000 | | TRB Division B | 8/1/2000 | 4/30/2001 | Completed - Letter Reports Prepared | | |
| H-22C | Implementation of the Redesignated National Transit Database | \$1,500,000 | | FTA Project | | | FTA Project - Completed | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|-------|--|------------|-----------------|---------------------------------------|------------|------------|---|----------------|---------------|
| H-23 | Assessment of the Benefits of New Transit Investments vs. Investments in Existing Infrastructure | \$200,000 | | FTA Project | | | FTA Project - Completed | | |
| H-24 | Public Transit Board Governance Guidebook | \$150,000 | \$150,000 | Simon & Simon Research and Assoc. | 10/11/2000 | 7/15/2002 | Completed - Published as Report 85 and Web Doc 21 | | |
| H-24A | Public Transportation Board Effectiveness: A Self-Assessment Handbook | \$175,000 | \$175,000 | AECOM Consulting Transportation Group | 1/13/2003 | 6/13/2004 | Completed - Published as Report 104 and Web Document 24 | | |
| H-25 | Strategies for Increasing the Effectiveness of Commuter Benefits Programs | \$150,000 | \$150,000 | ICF Consulting, Inc. | 10/13/2000 | 11/15/2002 | Completed - Published as Report 87 | | |
| H-25A | Analyzing the Effectiveness of Commuter Benefit Programs | \$160,000 | \$160,000 | ICF Consulting, Inc. | 4/8/2003 | 6/30/2005 | Completed - Published as Report 107 and Web Document 27 | | |
| H-26 | Economic Benefits of Coordinating Human Service Transportation and Transit Services | \$150,000 | \$150,000 | Westat | 10/15/2000 | 4/15/2003 | Completed - Published as Report 91 | | |
| H-27 | Transit-Oriented Development in America: Experiences, Challenges, and Prospects | \$250,000 | \$250,000 | UC - Berkeley | 9/1/2001 | 1/30/2004 | Completed - Published as Report 102 | | |
| H-27A | Effects of TOD on Housing, Parking and Travel | \$250,000 | \$250,000 | Parsons Brinckerhoff Quade & Douglas | 10/1/2004 | 4/30/2008 | Completed - Published as Report 128 | | |
| H-28 | Use of Archived AVL-APC Data to Improve Transit Performance and Management | \$300,000 | \$300,000 | Northeastern University | 8/1/2001 | 4/30/2006 | Completed - Interim Report Published as Web Document 23; Final Report Published as Report 113 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|---------------|--|---------------------------------------|-----------------|-----------------------|------------|------------|---|----------------|---------------|
| H-29 | From Handshake to Compact: Guidance to Foster Collaborative, Multimodal Decision Making | \$200,000 (TCRP) \$150,000 (NCHRP) | \$350,000 | TransManagement, Inc. | 8/1/2001 | 10/28/2004 | Completed - Published as Report 106 | | |
| H-30 H-30A | Strategies to Increase Coordination of Transportation Services for the Transportation Disadvantaged | \$200,000 | \$200,000 | TransSystems | 7/16/2002 | 10/9/2004 | Completed - Published as Report 105 | | |
| H-31 | Understanding How Individuals Make Travel and Location Decisions: Implications for Public Transportation | \$350,000 | \$350,000 | TransSystems | 10/22/2003 | 8/31/2007 | Completed - Published as Report 123 | | |
| H-32 | Elements Needed to Create High Ridership Transit Systems | \$300,000 | \$300,000 | TransSystems | 11/4/2004 | 10/30/2006 | Completed - Published as Report 111 | | |
| H-33A | State and National Transit Investment Analysis: Quick-Response Analyses for SAFETEA-LU Commission | \$100,000 | \$100,000 | Cambridge Systematics | 2/21/2006 | 12/30/2006 | Completed - Results to APTA | | |
| H-33B | State and National Transit Investment Analysis: Additional Analyses for AASHTO Bottom Line Report and Related APTA Reports | \$100,000 | \$100,000 | Cambridge Systematics | 10/16/2007 | 10/15/2008 | Completed - Results to AASHTO and APTA | | |
| H-34 | Local and Regional Funding Mechanisms for Public Transportation | \$250,000 | \$250,000 | Cambridge Systematics | 8/8/2006 | 9/15/2008 | Completed - Published as Report 129 | | |
| H-35 | The Role of Transit in Emergency Evacuation | \$65,000 | \$65,000 | NAS/TRB | 11/1/2006 | 7/31/2008 | Completed - Published as TRB Special Report 294 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|------|---|------------------------|-----------------|--------------------------------------|------------|------------|--|---|---------------|
| H-36 | Reinventing the Urban Interstate: A New Paradigm for Multimodal Corridors | \$400,000 | \$349,984 | Dowling Associates | 10/26/2007 | 11/1/2010 | Completed - Published as Report 145 | | |
| H-37 | Characteristics of Premium Transit Services that Affect Choice of Mode | \$375,000 | \$774,945 | RSG, Inc. | 12/28/2007 | 12/30/2013 | Completed - Publication Pending | J. Ryan N. Islam | D. Schwager |
| H-38 | Developing, Enhancing and Sustaining Tribal Transit Services: A Guidebook | \$400,000 | \$399,366 | LSC Transportation Consultants, Inc. | 9/30/2008 | 12/31/2011 | Completed - Published as Report 154 and Web Document 54 | | |
| H-39 | Methodology for Determining the Economic Development Impacts of Transit Projects | \$400,000 | \$400,000 | Rutgers University | 11/11/2008 | 6/23/2012 | Completed - Published as Web Document 56 | | |
| H-40 | Guidelines for Ferry Transportation Services | \$200,000 | \$199,286 | Atup | 10/30/2008 | 11/30/2011 | Completed - Published as Report 152 | | |
| H-41 | Assessing and Comparing Environmental Performance of Major Transit Projects | \$400,000 | \$400,000 | Cambridge Systematics, Inc. | 12/24/2009 | 3/1/2012 | Completed - Published as Research Results Digest 105 and Web Document 55 | | |
| H-42 | An Exploration of Fixed-Guideway Transit Criteria Revisited | \$400,000 \$100,000 | \$500,000 | University of California - Berkeley | 11/19/2010 | 9/30/2013 | Completed - Publication Pending | P. Centolanzi J. Garland S. Herre D. Weeks | L. Goldstein |
| H-43 | Transforming Public Transportation Institutional and Business Models | \$300,000 | \$300,000 | High Street Consulting Group | 10/1/2010 | 10/31/2012 | Completed - Published as Report 159 | | |
| H-44 | Developing Partnerships Between Transportation Agencies and the Disability and Underrepresented Communities | \$75,000 | \$74,955 | Simon & Simon Research Associates | 9/21/2010 | 9/30/2012 | Completed - Published as Research Results Digest 107 | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer | |
|-----------------------------|--|--|-----------------|--------------------------------------|------------|------------|----------------------|-------------------------------------|-----------------------------|-------------|
| H-45 | Livable Transit Corridors: Methods, Metrics, and Strategies | \$400,000 | \$400,000 | CFA Consultants | 1/20/2012 | 12/31/2014 | Research in Progress | A. Loui J. Price J. Stoltzfus | D. Schwager | |
| H-46 | Quantifying Transit's Impact on GHG Emissions and Energy Use: The Land Use Component | \$400,000 | \$400,000 | ICF, Inc. | 10/11/2011 | 9/3/2014 | Research in Progress | T. Hodges | D. Schwager | |
| H-47 | Linking Transit Agencies and Land Use Decision-making | \$300,000 | \$300,000 | Parsons Brinckerhoff | 1/25/2012 | 9/24/2014 | Research in Progress | F. Hall | D. Schwager | |
| H-48 | Value Capture for Financing Transit | | | | | | Cancelled | | | |
| H-49 | Improving Transit Integration Among Multiple Transit Providers | \$300,000 | \$299,783 | Nelson\Nygaard | 1/2/2013 | 7/1/2014 | Research in Progress | V. Austin | L. Goldstein | |
| J : SPECIAL PROJECTS | | | | | | | | | | |
| J-01 | Dissemination and Implementation of TCRP Research Findings | \$400,000 (92) \$600,000 (94) \$250,000 (95) \$450,000 (96) \$696,000 (97) \$596,000 (98) \$666,600 (99) \$696,605 (00) \$691,600 (01) \$700,000 (02) \$696,000 (03) \$700,000 (04) \$736,000 (05) \$750,000 (06) \$775,000 (07) \$750,400 (08) \$756,000 (09) \$695,000 (10) \$720,000 (11) \$404,600 (12) \$313,650 (13) | | American Public Transportation Assoc | 2/15/1993 | | | Continuing Project | J. Stoltzfus M. Drancsak | D. Schwager |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|------|--|--|-------------------------------|------------|------------|------------|--|--------------------------|---------------|
| J-02 | TCRP Strategic Planning Process and Strategic Plan | \$50,000 | \$50,000 | Various | 10/28/1992 | 12/31/1996 | Completed | | |
| J-03 | International Transit Studies Program | \$250,000 (92) \$250,000 (94) \$250,000 (95) \$325,000 (96) \$325,000 (97) \$200,000 (98) \$450,000 (99) \$325,000 (00) \$325,000 (01) \$325,000 (02) \$325,000 (03) \$325,000 (04) \$325,000 (05) \$325,000 (06) \$450,000 (07) \$425,000 (08) \$500,000 (09) \$500,000 (10) \$500,000 (11) | Various | Various | 2/1/1994 | | Continuing Project; Currently On Hold Pending Funding; Publications - RRDs 20, 22, 27, 31, 33, 36, 42, 47, 49, 53, 54, 58, 62, 64, 66, 68, 70, 71, 77, 81, 85, 87, 88, 89, 92, 95, 96, 101, 102, and 103 | R. Daguiard R. Boenau | G. Chisholm |
| J-04 | Innovations Deserving Exploratory Analysis--The Transit IDEA Program | \$500,000 (92) \$500,000 (94) \$400,000 (95) \$400,000 (96) \$500,000 (97) \$500,000 (99) \$500,000 (00) \$500,000 (01) \$200,000 (02) \$500,000 (03) \$500,000 (04) \$500,000 (05) \$500,000 (06) \$500,000 (07) \$560,000 (08) \$560,000 (09) \$560,000 (10) \$560,000 (11) \$460,000 (12) \$300,000 (13) | Transportation Research Board | | 12/1/1992 | | Continuing Project; See J-4 Table | H. Nejako | S. Parker |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|------|---|---|-----------------|-------------------------------|------------|----------|--|----------------|---------------|
| J-05 | Legal Aspects of Transit and Intermodal Transportation Programs | \$150,000 (92) \$175,000 (93) \$300,000 (95) \$150,000 (96) \$175,000 (97) \$300,000 (99) \$120,000 (00) \$150,000 (01) \$150,000 (02) \$100,000 (03) \$ 25,000 (04) \$150,000 (05) \$250,000 (06) \$250,000 (07) \$250,000 (08) \$250,000 (09) \$250,000 (10) \$300,000 (11) \$200,000 (12) \$ 50,000 (13) | | Transportation Research Board | 3/1/1993 | | Continuing Project; See J-5 Table - Published as RRD 50 | R. Maristch | G. Chisholm |
| J-06 | TCRP Quick Response for Special Needs | \$100,000 (93) \$ 50,000 (94) \$329,139 (95) \$100,000 (96) \$175,000 (97) \$125,000 (98) \$535,887 (99) \$335,000 (00) \$ 75,000 (01) \$200,000 (02) \$150,000 (03) \$500,000 (04) \$150,000 (05) \$300,000 (06) \$150,000 (07) \$ 75,000 (08) \$250,000 (09) \$205,000 (10) \$150,000 (11) \$ 0 (12) \$100,000 (13) | | Various | 1/1/1994 | | Continuing Project; See J-6 Table | J. Stoltzfus | C. Jenks |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|---------|---|--|-----------------|-------------------------------|------------|-----------|--|----------------|---------------|
| J-07 | Synthesis of Information Related to Transit Practices 94) | \$1,800,000 (92- \$375,000 (95) \$375,000 (96) \$400,000 (97) \$200,000 (98) \$400,000 (99) \$400,000 (00) \$400,000 (01) \$375,000 (02) \$400,000 (03) \$500,000 (04) \$600,000 (05) \$600,000 (06) \$600,000 (07) \$600,000 (08) \$700,000 (09) \$755,000 (10) \$750,000 (11) \$650,000 (12) \$350,000 (13) | | Transportation Research Board | 12/1/1992 | | Continuing Project; See J-7 Table; Publications - RRDs 2, 8, 37, 48, 63, 67, 73, 80, 86, 91, 98, 104, and 108 | J. Stoltzfus | G. Chisholm |
| J-08 | New Paradigms for Public Transit | \$171,000 (96) | | | | | Completed | | |
| J-08A | New Paradigms for Public Transportation: A Scoping Study | \$154,000 (96) | \$154,000 | Eno Transportation Foundation | 2/25/1997 | 2/24/1998 | Completed - Future Search Held May 1997; Published as RRD 24 | | |
| J-08B/C | New Paradigms for Local Public Transportation Organizations | \$325,000 (97) \$400,000 (99) | \$323,283 | Cambridge Systematics | 5/11/1998 | 9/30/2003 | Completed - Task 1 Published as Report 53; Task 5 Published as Report 58; Phase III Issue Paper Published as RRD 55; Final Report Published as Report 97 | | |
| J-09 | e-Transit: Electronic Business Strategies for Public Transportation | \$400,000 (00) \$175,000 (02) \$210,000 (03) \$100,000 (04) \$100,000 (05) \$100,000 (06) | | | | | Completed - See J-9 Table | | |

TABLE 5 (continued)

| No. | Title | Allocation | Contract Amount | Contractor | Start Date | End Date | Status | FTA Liaison(s) | Staff Officer |
|------|---|--|-----------------|------------|------------|----------|-------------------------------------|----------------|---------------|
| J-10 | Public Transportation Security Research | \$2,000,000 (02) \$ 400,000 (03) \$ 350,000 (04) | | | | | Completed - See J-10 Table | | |
| J-11 | Quick Response Research on Long-Term Strategic Issues | \$300,000 (07) \$300,000 (08) \$300,000 (09) \$ 75,000 (10) \$198,000 (11) \$ 80,000 (13) | | | | | Continuing Project - See J-11 Table | J. Stoltzfus | D. Schwager |

**TABLE 6 SUMMARY OF TCRP PROJECT D-7 STATUS THROUGH DECEMBER 31, 2013
Joint Track-Related Research with the Association of American Railroads/Transportation Technology Center, Inc.**

| No. | Title | Contract Amount | Contractor | Start Date | End Date | Status | Staff Officer |
|-----|---|-----------------|---------------------|------------|------------|--|---------------|
| 01 | Broken Rail Detection | \$31,685 | TTCI | 10/28/1999 | 3/30/2001 | Completed - Published in Report 71, Volume 1 | |
| 02 | Transit Switch Design Evaluation (Phase I) | \$107,298 | TTCI | 10/28/1999 | 3/31/2002 | Completed - Published in Report 71, Volume 2 | |
| 03 | Wide-Gap Welding Techniques | \$40,119 | TTCI | 10/28/1999 | 7/31/2001 | Completed - Published in Report 71, Volume 1 | |
| 04 | Control of Wheel-Rail Friction | \$70,898 | TTCI | 10/28/1999 | 6/30/2001 | Completed - Published in Report 71, Volume 1 | |
| 05 | Guidelines for an Alternative Transit Switch Design | \$79,109 | TTCI | 3/7/2001 | 9/30/2005 | Completed - Published as RRD 72 | |
| 06 | Exothermic Welding of Heavy Electrical Cables to Rail | \$50,046 | TTCI | 3/7/2001 | 11/15/2003 | Completed - Published in Report 71, Volume 3 | |
| 07 | Friction Control Methods Used by the Transit Industry | \$106,700 | TTCI | 3/7/2001 | 1/31/2005 | Completed - Published in Report 71, Volume 4 | |
| 08 | Flange Climb Derailment Criteria & Wheel/Rail Profile Management and Maintenance Guidelines for Transit Operators | \$188,113 | TTCI | 7/17/2003 | 3/15/2005 | Completed - Published in Report 71, Volume 5 | |
| 09 | Applicability of AREMA Track Recommended Practices for Transit Agencies | \$25,170 | TTCI | 8/11/2003 | 5/15/2004 | Completed - Published in Report 71, Volume 3 | |
| 10 | Acoustic Rail-Break Detection Demonstration at MTA New York City Transit | \$49,000 | TTCI | 9/24/2003 | 11/30/2005 | Completed - Published as RRD 76 | |
| 11 | Direct-Fixation Track Design Specifications, Research, and Related Material | \$50,000 | Laurence E. Daniels | 5/6/2004 | 6/7/2005 | Completed - Published in Report 71, Volume 6 | |
| 12 | Use of Guard/Girder/Restraining Rail | \$40,619 | TTCI | 10/25/2005 | 9/30/2006 | Completed - Published as RRD 82 | |
| 13 | Performance and Testing Requirements for Portable Track Geometry Inspection Systems | \$35,275 | TTCI | 10/25/2005 | 12/15/2006 | Completed - Published as RRD 83 | |
| 14 | Rail Base Corrosion Detection and Prevention | \$74,110 | TTCI | 10/25/2005 | 3/15/2007 | Completed - Published as Web Document 37 | |
| 15 | Design of Track Transitions | \$34,383 | TTCI | 10/25/2005 | 6/30/2006 | Completed - Published as RRD 79 | |

TABLE 6 (continued)

| No. | Title | Contract Amount | Contractor | Start Date | End Date | Status | Staff Officer |
|-----|--|-----------------|------------|------------|-----------|---|---------------|
| 16 | Guidelines for Guard/Restraining Rail Installation | \$63,500 | TTCI | 4/1/2008 | 6/30/2009 | Completed - Published as Report 71, Volume 7 | |
| 17 | Guidelines for Rail Base Inspection and Rail Condemnation Limits for Corrosion - Induced Material Loss | \$80,500 | TTCI | 4/1/2008 | 2/25/2009 | Completed - Published as Web Document 47 | |
| 18 | Performance-Based Track Geometry, Phase I | \$199,800 | TTCI | 12/2/2009 | 4/30/2011 | Completed - Published as Web Document 52 | |
| 19 | Performance-Based Track Geometry, Phase II | \$249,900 | TTCI | 1/12/2012 | 3/31/2014 | Research in Progress | S. Parker |
| 20 | Wheel Profile Maintenance Guidelines | \$233,196 | TTCI | 1/11/2012 | 6/30/2014 | Research in Progress | S. Parker |

**TABLE 7 SUMMARY OF TCRP PROJECT J-4 STATUS THROUGH DECEMBER 31, 2013
Innovations Deserving Exploratory Analysis--The Transit IDEA Program**

| No. | Title | Contractor | Start Date | End Date | Status | Staff Officer |
|---------|---|---|------------|------------|------------|---------------|
| IDEA 01 | Customer Satisfaction Index for the Mass Transit Industry | Tri-County Metropolitan Transportation District of Oregon | 8/1/1994 | 4/30/1995 | Completed | |
| IDEA 02 | Adoptive Diagnostic System Demonstration Project | San Francisco Bay Area Rapid Transit District | 2/1/1995 | 9/2/1998 | Completed | |
| IDEA 03 | Automatic Wheel Inspection Station | International Electronic Machines Corp. | 8/1/1994 | 9/30/1995 | Completed | |
| IDEA 04 | Management Information Benefits of Integrating Electronic Fareboxes with Other On-Board Equipment | Northeastern University | 8/15/1994 | 9/22/1995 | Completed | |
| IDEA 05 | Improved Passenger Counter and Classification System for Transit Applications | E. F. Greneker & Associates | 10/15/1995 | 4/14/1996 | Completed | |
| IDEA 06 | Interactive Training with Video and Audio | Transit Engineering | 10/1/1994 | 11/18/1995 | Terminated | |
| IDEA 07 | Wheelchair Restraint System | Baylor College of Medicine | 10/1/1994 | 10/31/1995 | Completed | |
| IDEA 08 | Real-Time Transit Data Broadcast | Transcom International Ltd. | 10/1/1994 | 9/30/1995 | Completed | |
| IDEA 09 | Independent Transportation Network (ITN): Alternative Transportation for the Elderly | Southern Maine Areas Agency on Aging | 4/15/1995 | 8/31/1996 | Completed | |
| IDEA 10 | Automatic Data Collection on Transit Users Via Radio Frequency Identification (RF/ID) | Advanced Systems Group International | 8/1/1995 | 6/30/1996 | Completed | |
| IDEA 11 | Compact Disc-Interactive Violence Prevention Training Program | San Francisco Municipal Railway | 7/15/1996 | 2/29/2000 | Completed | |
| IDEA 12 | Transit and Intermodal Scheduling Using Expert Systems | Vertical Systems, Inc. | 3/1/1997 | | Terminated | |
| IDEA 13 | Interactive PC-Based Track Safety Training | TransTech Management | 5/1/1996 | 7/27/1998 | Completed | |
| IDEA 14 | Instant Rent-A-Car Technology Applied to Transit Station Car Practice | C. F. International | 9/1/1996 | 7/31/1998 | Completed | |
| IDEA 15 | Internet Information Sharing for Transit Maintenance | Kiernan Transit Associates | 9/1/1996 | 12/15/1997 | Completed | |

TABLE 7 (continued)

| No. | Title | Contractor | Start Date | End Date | Status | Staff Officer |
|---------|--|---|------------|------------|------------|---------------|
| IDEA 16 | Transit Restraint System for Wheelchairs | Cleveland Clinic Foundation | 9/1/1996 | 12/31/2001 | Completed | |
| IDEA 17 | Pilot Testing of a Prototype Rail Based Wheel Gauge Inspection System | International Electronic Machines Corp. | 4/1/1997 | 8/30/1998 | Completed | |
| IDEA 18 | Pilot Testing Innovative Payment Operations for Independent Transportation for the Elderly | Independent Transportation Network | 4/1/1997 | 10/31/2002 | Completed | |
| IDEA 19 | Transit Integrated Monitoring System: Operational Evaluation | University of Virginia | 1/15/1998 | 1/15/1999 | Completed | |
| IDEA 20 | Non-Contact Sensor for Improved Passenger Counting and Classification System for Transit and Rail Applications | E.F. Greneker & Associates | 12/1/1997 | 2/22/2001 | Completed | |
| IDEA 21 | Smart Parking Lot with Just-in-Time Shuttle | Oregon State University | 10/1/1997 | 12/31/2001 | Completed | |
| IDEA 22 | Sleeved Column System for Crashworthiness of Light Rail Vehicles | Arthur D. Little, Inc. | 12/31/1998 | 2/22/2001 | Completed | |
| IDEA 23 | Optimizing Travel Paths for People with Disabilities | Washington University | 3/1/1998 | 10/1/1998 | Completed | |
| IDEA 24 | Operational Testing of Innovative and Intelligent Rail Lubrication System | Tranenergy Corporation | 1/1/1998 | 6/30/1998 | Completed | |
| IDEA 25 | Operating Policies for Improved Transit Productivities | Systan, Inc. | 5/17/2000 | 7/16/2001 | Terminated | |
| IDEA 26 | Designing Transit Services for the Mode-Choice Market: Stage III Planning Tools and Processes | The Mission Group | 6/30/2000 | 3/31/2005 | Terminated | |
| IDEA 27 | "Gap Guard," For Reducing the Gap Between Rail Platforms and Cars | Ultimate Technologies | 12/17/1999 | 4/29/2002 | Terminated | |
| IDEA 28 | Transit Scratchitti Removal by Controlled Fire Polishing | Columbia University | 2/2/2000 | 3/20/2002 | Completed | |
| IDEA 29 | Fare Machine Tactile/Audio Instruction System | KRW Inc. | 9/25/2001 | 4/11/2003 | Completed | |
| IDEA 30 | Predictive Diagnostics for Bus Maintenance | Georgia Tech Research Institute | 12/19/2001 | 7/1/2003 | Terminated | |

TABLE 7 (continued)

| No. | Title | Contractor | Start Date | End Date | Status | Staff Officer |
|---------|--|--|------------|------------|------------|---------------|
| IDEA 31 | A Tool for Evaluating and Optimizing Bus Stop Location Decisions | Northeastern University | 12/12/2001 | 8/31/2006 | Completed | |
| IDEA 32 | Simulation and Animation Model for Planning and Designing Transit Facilities | TransAn | 12/19/2001 | 11/23/2005 | Completed | |
| IDEA 33 | Community Visualization in Design of Light Rail Transit-Oriented Development | University of Kentucky | 12/6/2001 | 9/30/2003 | Completed | |
| IDEA 34 | Mechanical Precision Docking System for Bus Rapid Transit | Greater Cleveland Regional Transit Authority | 5/30/2002 | 6/30/2006 | Terminated | |
| IDEA 35 | Innovative Bioterrorism Detection Technology for Transit Security | Science Applications International Corporation | 5/30/2003 | 8/8/2005 | Completed | |
| IDEA 36 | Cleaning Device for Electrified Third Rail Insulators | Arun Vohra | 5/7/2003 | 10/25/2004 | Completed | |
| IDEA 37 | Bandwidth Expansion and Real-Time Surveillance for Security on Transit Buses | Carnegie-Mellon University | 8/23/2003 | 5/20/2005 | Completed | |
| IDEA 38 | Assessment of Rear Facing Wheelchair Accommodation on BRT | Oregon State University | 8/27/2003 | 1/6/2005 | Completed | |
| IDEA 39 | Dynamic Timetable Generator from Schedule Data | Systems & Solutions, Inc. | 9/24/2003 | 1/31/2006 | Completed | |
| IDEA 40 | Counter Terrorism Chemical Detector for Rail Transit Vehicles | Connecticut Analytical Corporation | 11/25/2003 | 12/28/2005 | Completed | |
| IDEA 41 | Track Geometry/Design Testing for Transit Applications | Trak-Tech Corporation | 12/22/2003 | 6/18/2007 | Completed | |
| IDEA 42 | Detection of Radioactivity in Transit Stations | Advanced Fuel Research, Inc. | 6/25/2004 | 10/20/2006 | Completed | |
| IDEA 43 | Portable Electronic Wheel Gauge | International Electronic Machines | 12/30/2004 | 9/30/2008 | Terminated | |
| IDEA 44 | Cleaning and Recoating Electrified Third Rail Cover Boards | Arun Vohra | 6/30/2005 | 12/31/2007 | Completed | |

TABLE 7 (continued)

| No. | Title | Contractor | Start Date | End Date | Status | Staff Officer |
|---------|--|--|------------|------------|----------------------|---------------|
| IDEA 45 | Chemical and Biological Decontamination System for Rail Transit Facilities | Foster Miller, Inc. | 3/31/2005 | 12/29/2006 | Completed | |
| IDEA 46 | Toxic Industrial Chemical Detection for Rail Transit Systems | MESI, Inc. | 9/30/2005 | 6/30/2007 | Terminated | |
| IDEA 47 | Cleaning Device for Electrified Third Rail Insulators - Phase 2 | Arun Vohra | 9/30/2005 | 12/20/2007 | Completed | |
| IDEA 48 | Biometric Notification Network for Transit Employees | Eyemetric Identity Systems | 12/20/2005 | 4/30/2009 | Terminated | |
| IDEA 49 | Smart Sander Enhancement for Commuter Rail | AEA Technology Rail | 12/30/2005 | 11/30/2007 | Completed | |
| IDEA 50 | Developing Regional Mobility Management Centers | WESTAT | 7/28/2007 | 3/30/2012 | Completed | |
| IDEA 51 | Bioterrorism Detection Technology for Transit Security - Phase 2 | Science Applications International Corporation | 10/20/2006 | 9/30/2008 | Terminated | |
| IDEA 52 | Travel Assist Device (TAD) to Help Transit Riders | University of South Florida | 3/20/2007 | 1/31/2010 | Completed | |
| IDEA 53 | Ultraviolet Germicidal Irradiation for Transit Buses | JKA Company | 5/29/2007 | 2/20/2009 | Completed | |
| IDEA 54 | Detection of Radioactivity in Transit Stations - Phase II | Advanced Fuel Research, Inc. | 6/25/2007 | 10/30/2009 | Completed | |
| IDEA 55 | Warning Device for Rail Rapid Transit Personnel for Approaching Trains | Victoria Consultants, LLC | 6/29/2007 | 12/10/2008 | Completed | |
| IDEA 56 | Detection of Explosives and Weapons in Transit Systems | Systems Micro Technologies (Kirsen) Inc. | 11/15/2013 | 11/15/2014 | Research in Progress | J. Williams |
| IDEA 57 | Independent Wheelchair Securement | Oregon State University | 3/12/2008 | 12/30/2010 | Completed | |
| IDEA 58 | Google Transit Data Tool for Small Transit Agencies | PEMCO, Inc. | 12/30/2008 | 3/28/2011 | Completed | |
| IDEA 59 | Recoating Electrified Third Rail Cover Boards - Phase 2 | Arun Vohra | 9/22/2009 | 6/30/2010 | Completed | |
| IDEA 60 | TCIP Traveler Information Pilot | Ayers Electronic Systems, LLC | 12/15/2008 | 5/31/2011 | Completed | |

TABLE 7 (continued)

| No. | Title | Contractor | Start Date | End Date | Status | Staff Officer |
|---------|---|---|------------|------------|----------------------|---------------|
| IDEA 61 | Flexible Carpooling to Transit Stations | Trip Convergence Ltd. | 12/22/2008 | 12/31/2012 | Completed | |
| IDEA 62 | Development of Electrical Maintenance Training Module for Bus Transit Technicians | CDX Global | 10/23/2009 | 8/10/2012 | Completed | |
| IDEA 63 | Improving Bus Transit On-Time Performance Through the Use of AVL Data | Pascal Systems, Inc. | 9/20/2013 | 5/29/2014 | Research in Progress | J. Williams |
| IDEA 64 | Improved Crashworthiness of Rail Transit Vehicles Using Advanced Composite Structures | University of California, Davis | 3/30/2010 | 12/31/2010 | Terminated | |
| IDEA 65 | A Context Aware Transit Navigator | University of Illinois at Chicago | 6/30/2010 | 3/21/2013 | Completed | |
| IDEA 66 | Advanced Wayside Energy Storage Systems (WESS) for Rail Transit | Navigant Consulting, Inc. | 11/8/2010 | 12/30/2011 | Completed | |
| IDEA 67 | Diesel - Electric Locomotive Energy Recovery and Conversion | ThermAdynamics LLC | 9/20/2011 | 3/31/2014 | Research in Progress | J. Williams |
| IDEA 68 | Light Rail Transit/Street Grade Crossing Safety System | SIL4 Systems, Inc. | 6/20/2011 | 3/31/2014 | Research in Progress | J. Williams |
| IDEA 69 | Predictive Failure Mode Characterization System for Rail Transit Car Equipment | Dayton T. Brown, Inc. | 3/30/2012 | 11/30/2013 | Terminated | |
| IDEA 70 | Effortless Passenger Identification System | North Dakota State University | 3/30/2012 | 7/31/2013 | Completed | |
| IDEA 71 | Transit Information Access for Persons with Visual or Cognitive Impairments | University of California, Santa Cruz | 9/29/2012 | 8/15/2014 | Research in Progress | J. Williams |
| IDEA 72 | Noncontact Electronic Wheel Gauge | International Electronic Machines Corp. | 3/26/2012 | 3/31/2014 | Research in Progress | J. Williams |
| IDEA 73 | Innovative Operating Strategy for Paratransit Services | Texas A&M University | 8/30/2012 | 1/31/2014 | Research in Progress | J. Williams |
| IDEA 74 | Apparatus for Gap Management | Rutgers University | 8/8/2013 | 3/6/2015 | Research in Progress | J. Williams |

TABLE 7 (continued)

| No. | Title | Contractor | Start Date | End Date | Status | Staff Officer |
|---------|--|------------------------------|------------|-----------|----------------------|---------------|
| IDEA 75 | Transit Trip Planning Web Application | Resource Systems Group, Inc. | 6/1/2013 | 6/1/2014 | Research in Progress | J. Williams |
| IDEA 76 | RideScout Mobile Application | RideScout, LLC | 6/20/2013 | 6/19/2014 | Research in Progress | J. Williams |
| IDEA 77 | Rail Neutral Temperature Monitoring | Protran Technology | | | In development | J. Williams |
| IDEA 78 | Prototype Retrofit Bumper for LRV Safety | Applied Research Associates | | | In development | J. Williams |
| IDEA 79 | Smartcard AFC in Small Transit Agencies | Acumen Building Enterprise | | | In development | J. Williams |

TABLE 8 SUMMARY OF TCRP PROJECT J-5 STATUS THROUGH DECEMBER 31, 2013
Legal Aspects of Transit and Intermodal Transportation Programs

| No. | Title | Consultant | Start Date | Estimated Completion Date | Staff Officer |
|-------|--|---|----------------|---------------------------------|---------------|
| 01-01 | Transit Labor Protection--A Guide to Section 13(c) Federal Transit Act | G. Kent Woodman, Esq., and Jane Sutter Starke, Esq., Eckert, Seamans, Cherin & Mellot | September 1993 | Completed - Published as LRD 4 | |
| 01-02 | Purchase of Service Agreements for Public Transportation Agencies (Transit) | Robert Weaver, Esq., Weaver & Prell | September 1994 | Completed - Published as LRD 8 | |
| 01-03 | Legal Issues Associated with Intermodalism | Russell Leibson, Esq., Carroll, Burdick & McDonough | June 1994 | Completed - Published as LRD 5 | |
| 01-04 | State Limitations on Tort Liability for Public Transit Operations | Larry W. Thomas, Esq., Cameron & Hornbostel | September 1993 | Completed - Published as LRD 3 | |
| 01-05 | Procurement and Funding Procedures Which Impact the Procurement of Expensive Long Lead Items | Kevin M. Sheys, Esq., Oppenheimer, Wolff & Donnelly | October 1994 | Completed - Published as LRD 6 | |
| 01-06 | Strategies to Facilitate Acquisition and Use of Right of Way | Kevin M. Sheys, Esq., Oppenheimer, Wolff & Donnelly | September 1993 | Completed - Published as LRD 1 | |
| 01-07 | Risk Management for Rideshare Carpool Matching Programs | Russell Leibson, Esq., Carroll, Burdick & McDonough | September 1993 | Completed - Published as LRD 2 | |
| 02-01 | Restriction of Speech and Related Activity at Transit and Terminal Facilities | Norman Y. Herring, et al. | September 1995 | Completed - Published as LRD 10 | |
| 02-02 | Reconciling ADA with Tort Liability Law | Robert Hirsh, Esq., Krukowski, & Costello | January 1996 | Completed - Published as LRD 11 | |
| 03-01 | Innovative Financing Techniques for Transit Providers | Mary A. Collins & Victor Hsu | March 1996 | Completed - Published as RRD 13 | |
| 03-02 | The Impact of Civil Rights Litigation on Transit Decisionmaking | Sandra Van de Walle | April 1996 | Completed - Published as LRD 7 | |
| 03-03 | Zoning and Real Property Implications of Transit-Oriented Development | Robert Freilich & S. Mark White | May 1996 | Completed - Published as LRD 12 | |
| 03-04 | Drug and Alcohol Testing - A Survey of Labor-Management Relations | Robert Hirsch, Esq., Krukowski & Costello | June 1996 | Completed - Published as LRD 16 | |

TABLE 8 (continued)

| No. | Title | Consultant | Start Date | Estimated Completion Date | Staff Officer |
|-------|--|--|----------------|--------------------------------------|---------------|
| 03-05 | Strategies to Minimize Liability Under Federal and State Environmental Laws | G. Martin Cole, Rothberg & Logan | August 1996 | Completed - Published as LRD 9 | |
| 04-01 | The Impact of the Federal Wage, Hour, and Family Medical Leave Act on the Transit Industry | Lauri D'Auri | May 1998 | Completed - Published as LRD 15 | |
| 04-02 | Privacy Issues in Public Transportation | Mark McNulty, Special Counsel, State of Delaware | September 1997 | Completed - Published as LRD 14 | |
| 05-01 | Federal and State Licensing and Other Safety Requirements for Commercial Motor Vehicles, Operators and Equipment | Rex Nicholson Trans Tech Attorney | March 2000 | Completed - Published as LRD 18 | |
| 05-02 | A Survey of Joint Development Techniques | Mattie Condray | November 1999 | Cancelled | |
| 05-03 | Guide to Federal Buy America Provisions | Jaye Pirshing Johnson | January 2000 | Completed - Published as LRD 17 | |
| 05-04 | A Compilation of Transit Laws | Paul Dempsey | January 2000 | Completed - Published as CRP-CD-20/5 | |
| 06-01 | Integrated Transit Operation and Maintenance and the Use of Private Contractors | John Brennan, Attorney-at-Law | October 2001 | Cancelled | |
| 06-02 | Impact of the Americans with Disabilities Act on Transit Operations | Cross, Gunther, Witherspoon & Galchus, PC | July 2001 | Completed - Published as LRD 19 | |
| 06-03 | Transit Labor 13(c) Decisions | Shelly Brown Associates | June 2001 | Completed - Published as CRP-CD-20/6 | |
| 07-01 | Transit Passengers and Civil Rights | Larry Thomas | September 2003 | Completed - Published as LRD 20 | |
| 07-02 | State and Transit Authority Immunity from State Laws | | | Cancelled | |
| 07-03 | Transit Charter Bus Service: Decisions and Documents | Shelly R. Brown | March 2003 | Completed - Published as CRP-CD-20/7 | |
| 08-01 | Trademarking and Licensing for Transit Providers | Raju & Sarracino, LLC | September 2004 | Completed - Published as LRD 21 | |
| 08-02 | Innovative Financing Techniques for Transit Providers (Update) | | | Cancelled | |

TABLE 8 (continued)

| No. | Title | Consultant | Start Date | Estimated Completion Date | Staff Officer |
|-------|---|-------------------------------------|----------------|--|---------------|
| 08-03 | The Federal Transit Act as Amended Through August 10, 2005 and Related Laws | Jocelyn K. Waite Waite & Associates | January 2005 | Completed - Published as Web Document 33 | |
| 08-04 | FTA Interpretations - The Americans with Disabilities Act | Shelly R. Brown | January 2005 | Completed - Published as LRD 23 | |
| 09-01 | Privacy Issues with the Use of Smart Cards | Paul Dempsey | May 2006 | Completed - Published as LRD 25 | |
| 09-02 | Use of Fees or Alternatives to Fund Transit | Jaye Pershing Johnson | September 2006 | Completed - Published as LRD 28 | |
| 09-03 | Application of Physical Ability Testing to Current Workforce of Transit Employees | Jocelyn K. Waite Waite & Associates | November 2008 | Completed - Published as LRD 34 | |
| 09-04 | Civil Rights Implications of the Allocation of Funds Between Bus and Rail | Larry Thomas | October 2006 | Completed - Published as LRD 27 | |
| 09-05 | Transit Bus Stops: Ownership, Liability and Access | Jocelyn K. Waite Waite & Associates | June 2006 | Completed - Published as LRD 24 | |
| 09-06 | Resources for Legal Issues Associated with Bus Maintenance | Jocelyn K. Waite Waite & Associates | June 2006 | Completed - Published as LRD 26 | |
| 09-07 | How to Handle Security-Related Documents | | | Cancelled | |
| 10-01 | First Amendment Implications for Transit Facilities: Speech, Advertising, and Loitering | Ames, Miller & Van Eaton | July 2007 | Completed - Published as LRD 29 | |
| 10-02 | Developing and Implementing a Transit Advertising Policy | Lew Bricker & Smith Amundsen | August 2008 | Completed - Published as LRD 33 | |
| 10-03 | Reconciling Security, Disclosure & Record-Retention Requirements in Transit Procurements | Jocelyn K. Waite Waite & Associates | June 2009 | Completed - Published as LRD 32 | |
| 10-04 | Competition Requirements of Design-Build, Construction Manager at Risk, and Public-Private Contracts - Seven Case Studies | Anthony Songer | November 2007 | Completed - Published as LRD 39 | |
| 11-01 | Legal Handbook for the New Starts Process | Daniel Duff, Thompson, Coburn | July 2008 | Completed - Published as LRD 30 | |

TABLE 8 (continued)

| No. | Title | Consultant | Start Date | Estimated Completion Date | Staff Officer |
|-------|---|-------------------------------|---------------|---|---------------|
| 11-02 | Transit-Oriented Development and Joint Development: Case Studies and Legal Issues | The TOD Group | July 2008 | Completed - Published as LRD 36 | |
| 11-03 | Transit Agencies Compliance with Title VI: Limited English Proficiency Requirements | Steven Diaz | December 2008 | Completed - Published as Research Results Digest 97 | |
| 12-01 | Guide to Buy America Requirements - 2009 Supplement | Jaye Pershing Johnson | January 2009 | Completed - Published as LRD 31 | |
| 12-02 | Reductions in Transit Service or Increases in Fares: Civil Rights, ADA, Regulatory, and Environmental Justice Issues | Larry Thomas | April 2009 | Completed - Published as LRD 35 | |
| 12-03 | Legal Aspects Relevant to Outsourcing Transit Functions Not Traditionally Outsourced | Daniel Duff, Thompson, Coburn | April 2009 | Completed - Published as LRD 38 | |
| 12-04 | Legal Arrangements for Use and Control of Real-Time Data | Larry Thomas | May 2009 | Completed - Published as LRD 37 | |
| 13-01 | Strategies to Facilitate Acquisition of New and Use of Existing Railroad Right-of-Way by Transit and Other Intercity Providers (Update) | Kevin Sheys | February 2010 | Cancelled | |
| 13-02 | Legal Issues Involving Surety for Public Transportation Projects | Capital Project Strategies | March 2010 | Completed - Published as LRD 40 | |
| 13-03 | Transit Labor 13(c) Employee Protection Digest | Shelly Brown | February 2010 | Completed - Published as LRD 41 | |
| 14-01 | Update to TCRP Selected Studies in Transportation Law, Volume 5-Phase I | Paul Dempsey | March 2011 | March 2014 | J. McDaniel |
| 14-02 | Transit Agency Intergovernmental Agreements: Common Issues and Solutions | Larry Thomas | March 2011 | Completed - Published as LRD 42 | |
| 14-03 | Contractual Means of Achieving High-Level Performance in Transit Contracts | Larry Thomas | April 2011 | Completed - Published as LRD 43 | |
| 14-04 | Legal Handbook for Rural Transit Providers | | | Cancelled | |
| 15-01 | Legal Issues with Obtaining Insurance on Large Transit Capital Projects | Kerness Consulting | June 2012 | April 2014 | J. McDaniel |

TABLE 8 (continued)

| No. | Title | Consultant | Start Date | Estimated Completion Date | Staff Officer |
|-------|--|--------------|----------------|---------------------------------|---------------|
| 15-02 | Legal Issues in Emergency Planning and Operations | URS | June 2012 | Completed - Published as LRD 44 | |
| 15-03 | Transit Agency Public Private Partnerships: Legal Issues | Larry Thomas | September 2012 | February 2014 | J. McDaniel |
| 15-04 | How HIPPA and Other Privacy Laws Affect Public Transportation Operations | Larry Thomas | September 2012 | May 2014 | J. McDaniel |

TABLE 9 SUMMARY OF TCRP PROJECT J-6 STATUS THROUGH DECEMBER 31, 2013
Quick Response for Special Needs

| No. | Title | Consultant | Start Date | Estimated Completion Date | Staff Officer |
|---------|--|--|----------------|--------------------------------|---------------|
| Task 01 | New Transit Bus | Ronald J. Hartman and Rosalyn Simon | March 1994 | Completed | |
| Task 02 | Transit Ridership Initiative | Robert Stanley, Cambridge Systematics | March 1994 | Completed - Published as RRD 4 | |
| Task 03 | Organizational Research Structure for APTA | Barbara T. Harder | February 1994 | Completed | |
| Task 04 | Station Car Demonstration | Kevin Sheys, Esq., Oppenheimer, Wolff & Donnelly | March 1994 | Completed | |
| Task 05 | Characteristics of State and Local Transit Funding | Sarah Campbell, TransManagement, Inc., and Robert Stanley, Cambridge Systematics, Inc. | July 1995 | Completed | |
| Task 06 | Integrating Americans with Disabilities Act (ADA) Paratransit Services with Health and Human Services Transportation | Rosalyn Simon | June 1995 | Completed | |
| Task 07 | Impact of a Change in the Matching Ratio for Transit Projects | Booz-Allen & Hamilton, Inc. | August 1995 | Completed | |
| Task 08 | Impact of Elimination of Federal Operating Assistance for Transit | TransManagement, Inc. and Cambridge Systematics, Inc. | August 1995 | Completed | |
| Task 09 | The Value of Federal Support for Transit Research | National Transportation Consortium of Minority Colleges and Universities | August 1995 | Completed | |
| Task 10 | Direct Cost of Drug and Alcohol Testing | Battelle | August 1995 | Completed | |
| Task 11 | FCC Proposal to Institute User Fees or to Auction Radio Frequencies | Arthur D. Little, Inc. | September 1995 | Completed | |
| Task 12 | Innovative Technologies Initiative | Brian McCollom | March 1996 | Completed | |
| Task 13 | Commuter Rail System Management Contracts to Minimize Cost and Maximize Productivity | John Cline, Kent Woodman, and Jane Sutter Starke | March 1996 | Completed | |
| Task 14 | Development of a Transit Bus Research Agenda | John J. Schiavone | February 1996 | Completed | |

TABLE 9 (continued)

| No. | Title | Consultant | Start Date | Estimated Completion Date | Staff Officer |
|---------|---|--|----------------|---------------------------------|---------------|
| Task 15 | The Useful Life of a Heavy Duty Transit Bus | Edward Abrams, Abrams-Cherwony & Associates, Henry Hide, TMG International | December 1996 | Completed | |
| Task 16 | Development of a Human Resources Research Agenda | Gayland Moffat | June 1996 | Completed | |
| Task 17 | Available Geographic Information System (GIS) Technology and Potential Transit Applications | Lawrence Harman, Bridgewater State College | | Task Cancelled | |
| Task 18 | Characteristics and Functions of State Transit Associations | Katherine Hooper | August 1996 | Completed | |
| Task 19 | Continuing Examination of Successful Transit Ridership Initiatives | Cambridge Systematics, Inc. | April 1997 | Completed - Published as RRD 29 | |
| Task 20 | Feasibility of an Orientation Course for New Members of Transit Agency Boards of Directors | Deborah Price | | Task Cancelled | |
| Task 21 | New Paradigms Research and Strategic Plan Update | Various | September 1997 | Completed | |
| Task 22 | Market Research on Current National Public Attitudes Toward Public Transportation | Fleishman-Hillard | October 1997 | Completed | |
| Task 23 | Survey of Current Practice and Potential Improvements in Screening of Transit Personnel Placement in Customer Sensitive Positions | Watson Morris Consulting, Simon & Simon Research & Associates, Inc. | February 2000 | Completed | |
| Task 24 | Combating Global Warming Through Sustainable Surface Transportation Policy: A Research Scoping Study | Elizabeth Deakin | April 1998 | Completed | |
| Task 25 | APTA/FTA Bus Technology: Research Agenda for TCRP | N/A | November 1997 | Completed | |
| Task 26 | Identification of Research Needs for Rural and Small Transit Agencies | N/A | | Completed | |
| Task 27 | Organizational Support for APTA/FTA Intelligent Transportation Systems (ITS) International Exchange Program Workshops | George Wynne | September 1998 | Completed | |

TABLE 9 (continued)

| No. | Title | Consultant | Start Date | Estimated Completion Date | Staff Officer |
|---------|--|--|----------------|------------------------------------|---------------|
| Task 28 | Characteristics of State Funding for Public Transportation | Robert Stanley, Cambridge Systematics, Inc. | March 1999 | Completed | |
| Task 29 | Financing Capital Investment: A Primer for the Transit Practitioner | Hagler Bailly, Inc. | October 1999 | Completed - Published as Report 89 | |
| Task 30 | Data Collection on Pupil Safety on Transit Buses | University of Michigan Transportation Research Institute | October 1999 | Completed | |
| Task 31 | Transportation & Livable Communities Summary Booklet | Stephen Davies, Project for Public Spaces, Inc. | April 1999 | Completed | |
| Task 32 | Evaluation of the National Transit Database - TRB Committee | Renamed Project H-22B | January 2000 | Completed | |
| Task 33 | Cost of Meeting Accessibility Requirements for Over-the-Road Buses | KFH Group, Inc. | January 2000 | Completed | |
| Task 34 | Documentation of Independent Technical Study Tour Featuring German Shared Track | David Phraner, Edwards & Kelcey | June 2000 | Completed | |
| Task 35 | GIS Forum | Planners Collaborative, Inc. | September 2000 | Completed | |
| Task 36 | Analyses for TEA-21 Reauthorization Activities | Cambridge Systematics | December 2000 | Completed | |
| Task 37 | Procurement Issues in the Public Transportation Industry: An Assessment of Perceptions and Concerns | Scott Baker, AECOM Consulting | January 2001 | Completed | |
| Task 38 | Identification of the Critical Workforce Development Issues in the Transit Industry | Brian Vogel, Quatt Associates | March 2001 | Completed - Published as RRD 45 | |
| Task 39 | Supplemental Analysis of National Survey on Contracting Transit Services | Daniel K Boyle | May 2001 | Completed | |
| Task 40 | Identification of Practices, Techniques, and Strategies for Attracting and Retaining Employees in the Transit Industry | Brian Vogel, Quatt Associates | March 2001 | Completed - Published as RRD 45 | |
| Task 41 | Transit Research and Reauthorization | Cambridge Systematics | October 2001 | Completed | |

TABLE 9 (continued)

| No. | Title | Consultant | Start Date | Estimated Completion Date | Staff Officer |
|---------|---|----------------------------------|----------------|-------------------------------------|---------------|
| Task 42 | Developing a Recommended Standard for Automated Fare Collection for Transit: Scoping Study-Regional Fare Management Programs | Rich Lobron | May 2002 | Completed - Published as RRD 57 | |
| Task 43 | Expanded State and National Transit Investment Analysis | Cambridge Systematics | December 2001 | Completed | |
| Task 44 | Identification of Competitive Contract Success Stories and Management Guidelines | | | Cancelled by Requestor | |
| Task 45 | Advanced Transportation Technology Workshop | BCAE Consultants | August 2002 | Completed | |
| Task 46 | Characteristics of State Funding for Public Transportation - 2002 | Cambridge Systematics | September 2002 | Completed - Published as RRD 60 | |
| Task 47 | Case Studies in Environmental Justice | University of South Florida | June 2003 | Completed | |
| Task 48 | Transit Industry Interface with International Standards | Thomas McGean, PE | October 2003 | Completed | |
| Task 49 | Feasibility and Issues Associated with the Concept of Environmental Transfer Credits with a Public Transportation Focus | Environmental Financial Products | November 2003 | Completed | |
| Task 50 | Light Rail Vehicle (LRV) Crashworthiness Standards | Aaron James | August 2003 | Completed | |
| Task 51 | Update of Examination of Successful Transit Ridership Initiatives | Cambridge Systematics | November 2003 | Completed - Published as RRD 69 | |
| Task 52 | Economic Perspective on the Value of Public Transportation | HLB Decision Economics, Inc. | November 2003 | Completed | |
| Task 53 | Hudson Institute Transportation Vision 2010 and Beyond Project | Hudson Institute | December 2003 | Completed | |
| Task 54 | Develop a Curriculum for Leadership Development Workshop for Upper Level Managers Serving in Public- and Private-Sector Organizations in the Transit Industry | Eno Transportation Foundation | February 2004 | Completed | |
| Task 55 | Support for the Preparation of "Commuting in America" | MacroSys | January 2004 | Completed - Published as Report 110 | |

TABLE 9 (continued)

| No. | Title | Consultant | Start Date | Estimated Completion Date | Staff Officer |
|---------|---|--|----------------|---|---------------|
| Task 56 | Excess Liability Insurance - Developing Alternatives for Public Transit Agencies | | | Cancelled | |
| Task 57 | The Business Case for Transit Standards | AECOM Consult | March 2004 | Completed - Published by APTA | |
| Task 58 | Warehouse, Fulfillment, Dissemination - Developing and Implementing Multi-Organizational Solutions for Transit Research Materials | Bain & Associates | January 2005 | Completed | |
| Task 59 | Racial and Gender Diversity in State DOTs and Transit Agencies: A Benchmark Scoping | University of Minnesota | July 2005 | Completed - Published as Report 120 | |
| Task 60 | The Case for Searches on Public Transportation | Jocelyn Waite, Waite & Associates | August 2004 | Completed - Published as LRD 22 | |
| Task 61 | Support for Transit Industry Participation in the 2004 ITS World Congress | | | Cancelled by Requestor | |
| Task 62 | Train Door Systems Analysis | Transportation System Design, Inc. | December 2004 | Completed - Published as RRD 74 and Web Document 28 | |
| Task 63 | Support for TRB "Potential Impacts of Climate Change on U.S. Transportation" Study | TRB Division B | October 2005 | Completed - Published as TRB Special Report 290 | |
| Task 64 | Identification of Existing Practices, Guidelines, Strategies and Related Activities Applicable to Level Boarding and Commuter Rail Facilities and Equipment | SEB Associates | September 2005 | Completed | |
| Task 65 | Operation of Street-Running Light Rail Transit at Higher Speeds | Korve Engineering | June 2006 | Completed | |
| Task 66 | Small Starts and New Starts Program Research | PB Consult | September 2005 | Completed | |
| Task 67 | Strategic Assessment of Wireless Capabilities and Needs for the Public Transportation Industry | Science Applications International Corporation | August 2006 | Completed | |
| Task 68 | Background Information and Issues Associated with Ridership Estimates for Major Capital Projects | AECOM Consult | August 2006 | Completed | |
| Task 69 | Quality Service in Public Transportation Organizations | PSTG Consulting | August 2007 | Completed | |

TABLE 9 (continued)

| No. | Title | Consultant | Start Date | Estimated Completion Date | Staff Officer |
|---------|--|--|----------------|---|---------------|
| Task 70 | Security Standards and Guidelines Pertinent to Public Transportation | KFH Group | October 2007 | Completed | |
| Task 71 | Rural Transit Achievements: Assessing the Outcomes of Increased SAFETEA-LU Funding for Rural Passenger Services | KFH Group | March 2008 | Completed - Published as RRD 93 and Web Document 46 | |
| Task 72 | Professional Certification and Credentialing Program for the Transit Industry | McGlothlin Davis, Inc. | September 2009 | Completed - Published as RRD 100 | |
| Task 73 | Bus Fleet Management in an Era of Increasing Technical Complexity | Eagle Harbor Group, LLC | December 2008 | Completed | |
| Task 74 | Improving Mobility for Veterans | Westat, Inc. | September 2009 | Completed - Published as RRD 99 | |
| Task 75 | Guiding the Selection and Application of Wayside Energy Storage Technologies for Rail Transit and Electric Utilities | American Public Transportation Association | May 2009 | Completed - Published as Web Document 51 | |
| Task 76 | Support for a Transit Wireless Communications Joint Council | Science Applications International Corporation | July 2009 | Completed | |
| Task 77 | Support for APTA/FTA Transit Train Control Assessment | Jacobs Engineering Group | August 2009 | Completed | |
| Task 78 | FCC Narrowbanding of Passenger Transport Provider Radio Systems in the United States | Shulman, Rogers, Gandal, Porly & Ecker, P.A. | November 2010 | Completed | |
| Task 79 | Positive Train Control (PTC) Radio Spectrum Planning for Passenger Commuter Rail Operations in the United States | Stantec Consulting | June 2011 | Completed | |
| Task 80 | Research Symposium on Sleep Hygiene and Fatigue of Transit Operators | TRB Technical Activities Division | April 2011 | Completed | |
| Task 81 | Impact of Non-Emergency Medical Transportation on Transit Agencies | RLS & Associates | September 2012 | Completed - Publication Pending | G. Chisholm |
| Task 82 | Identifying Data Standards, Structures, and Related Supports for Mobility Management | TransitPlus, Inc. | January 2013 | Completed - Publication Pending | D. Schwager |
| Task 83 | Strategic Analysis of Open Fare Payment Systems | Volpe Center | October 2013 | October 2014 | D. Schwager |

TABLE 10 SUMMARY OF TCRP PROJECT J-7 STATUS THROUGH DECEMBER 31, 2013
Synthesis of Information Related to Transit Practices

| No. | Title | Topic Consultant | Start Date | Status | FTA Liaison(s) | Staff Officer |
|-----------------------|--|---------------------------|---------------|---------------------------------------|----------------|---------------|
| A : OPERATIONS | | | | | | |
| SA-01 | Bus-Route Evaluation Standards | Howard P. Benn | December 1992 | Completed - Published as Synthesis 10 | | |
| SA-02 | System-Specific Spare Bus Ratios | Judith T. Pierce | August 1993 | Completed - Published as Synthesis 11 | | |
| SA-03 | System-Specific Spare Rail Vehicle Ratios | Judith T. Pierce | August 1993 | Completed - Published as Synthesis 15 | | |
| SA-04 | AVL Systems for Bus Transit | Paula Okunieff | August 1995 | Completed - Published as Synthesis 24 | | |
| SA-05 | Customer Information at Bus Stops | John Dobies | March 1995 | Completed - Published as Synthesis 17 | | |
| SA-06 | Passenger Transfer Systems | Richard Stern | March 1995 | Completed - Published as Synthesis 19 | | |
| SA-07 | Changing Roles and Practices of Bus Field Supervisors | Gayland Moffat | December 1994 | Completed - Published as Synthesis 16 | | |
| SA-08 | Bus Transit Fare Collection Practices | Richard Stern | November 1995 | Completed - Published as Synthesis 26 | | |
| SA-09 | Passenger Counting Technologies and Procedures | Daniel K. Boyle | October 1996 | Completed - Published as Synthesis 29 | | |
| SA-09A | Accessibility of Automated Fare Vending and Collection for Customers with Disabilities | Daniel K. Boyle | April 1997 | Completed - Published as RRD 32 | | |
| SA-10 | Data Analysis for Bus Planning and Monitoring | Peter G. Furth | January 1998 | Completed - Published as Synthesis 34 | | |
| SA-11 | Transportation on College and University Campuses | James H. Miller | February 2000 | Completed - Published as Synthesis 39 | | |
| SA-12 | Electronic Surveillance Technology on Transit Vehicles | Patricia Maier, Jim Caton | February 2000 | Completed - Published as Synthesis 38 | | |

TABLE 10 (continued)

| No. | Title | Topic Consultant | Start Date | Status | FTA Liaison(s) | Staff Officer |
|-------|--|-------------------------------|---------------|---------------------------------------|----------------|---------------|
| SA-13 | Yield to Bus Programs - State of the Practice | Rolland King | January 2002 | Completed - Published as Synthesis 49 | | |
| SA-14 | Real Time Bus Arrival Information Systems | Carol Schweiger | January 2002 | Completed - Published as Synthesis 48 | | |
| SA-15 | Computer-Aided Scheduling and Dispatch in Demand-Responsive Transit Services | David Kessler | November 2003 | Completed - Published as Synthesis 57 | | |
| SA-16 | Uses of Higher Capacity Buses in Transit Service | Bendon Hemily Rolland King | October 2006 | Completed - Published as Synthesis 75 | | |
| SA-17 | AVL Systems for Bus Transit: Update | Doug Parker, TranSystems | November 2006 | Completed - Published as Synthesis 73 | | |
| SA-18 | Passenger Counting Systems | Daniel Boyle | October 2007 | Completed - Published as Synthesis 77 | | |
| SA-19 | Transit Systems in College and University Communities | Gail Murray | October 2007 | Completed - Published as Synthesis 78 | | |
| SA-20 | Light Rail Vehicle Collisions with Vehicles at Signalized Intersections | Kelley Pecheux, SAIC | November 2007 | Completed - Published as Synthesis 79 | | |
| SA-21 | Inventory of Operating Agreements Between Passenger Rail and Freight Railroads | | | Cancelled | | |
| SA-22 | Bus and Rail Transit Preferential Treatments in Mixed Traffic | Alan Danaher | November 2008 | Completed - Published as Synthesis 83 | | |
| SA-23 | Practices in the Development and Deployment of Downtown Circulators | Daniel Boyle | November 2009 | Completed - Published as Synthesis 87 | | |
| SA-24 | Video Surveillance Uses by Rail Transit Agencies | Dorothy Schulz | December 2009 | Completed - Published as Synthesis 90 | | |
| SA-25 | Use and Deployment of Mobile Device Technology for Real-Time Transit Information | Carol Schweiger | December 2009 | Completed - Published as Synthesis 91 | | |

TABLE 10 (continued)

| No. | Title | Topic Consultant | Start Date | Status | FTA Liaison(s) | Staff Officer |
|----------------------------------|---|--|---------------|--|----------------|---------------|
| SA-26 | Implementation and Outcomes of Fare-Free Transit Systems | University of South Florida, Joel Volinski | November 2010 | Completed - Published as Synthesis 101 | | |
| SA-27 | Off-Board Transit Fare Payment Using Proof-of-Payment Verification | Lee Engineering, Thomas Larwin | November 2010 | Completed - Published as Synthesis 96 | | |
| SA-28 | Use of Electronic Passenger Information Signage in Transit | Carol Schweiger | December 2011 | Completed - Published as Synthesis 104 | | |
| SA-29 | Energy Savings Strategies for Transit Agencies | Frank Gallivan | November 2011 | Completed - Published as Synthesis 106 | | |
| SA-30 | Maintaining Transit Effectiveness Under Major Financial Constraints | Joel Volinski | November 2012 | January 2014 | B. Alberts | D. Vlasak |
| SA-31 | Common Sense Approaches for Improving Transit Bus Speeds | Dan Boyle | December 2012 | January 2014 | M. Baltés | D. Vlasak |
| SA-32 | System-Specific Spare Bus Ratios (update) | Martin Minkoff | November 2012 | January 2014 | C. Walker | D. Vlasak |
| SA-33 | Critical Incident Management and Clearance Practices for Rail Transit | Dan Boyle | November 2013 | December 2014 | W. Powell | D. Vlasak |
| SA-34 | Open Data Opportunities and Challenges for Transit Agencies | Carol Schweiger | November 2013 | December 2014 | C. Wilder | D. Vlasak |
| SA-35 | Better On-Street Bus Stops | Dan Boyle | December 2013 | January 2015 | R. Daguiard | D. Vlasak |
| B : SERVICE CONFIGURATION | | | | | | |
| SB-01 | Integration of Bicycles and Transit | John T. Doolittle | February 1993 | Completed - Published as Synthesis 4 | | |
| SB-02 | Innovative Suburb-to-Suburb Transit Practices | Katherine S. Hooper | July 1994 | Completed - Published as Synthesis 14 | | |
| SB-03 | ADA Paratransit Eligibility Certification Practices | Richard Weiner | November 1996 | Completed - Published as Synthesis 30 | | |

TABLE 10 (continued)

| No. | Title | Topic Consultant | Start Date | Status | FTA Liaison(s) | Staff Officer |
|-------|---|------------------------------------|---------------|---------------------------------------|----------------|---------------|
| SB-04 | Transit Advertising Revenue: New Sources and Structures | Beverly R. Silverberg | October 1996 | Completed - Published as Synthesis 32 | | |
| SB-05 | Communicating with Persons with Disabilities in a Multimodal Transit Environment | Angela Iannuzziello | July 1999 | Completed - Published as Synthesis 37 | | |
| SB-06 | Use of Small Buses in Transit Services | Brendon Hemily, Rolland D. King | March 2000 | Completed - Published as Synthesis 41 | | |
| SB-07 | Customer-Focused Transit | John Potts | January 2001 | Completed - Published as Synthesis 45 | | |
| SB-08 | Effective Use of Transit Websites | Bruce Schaller | February 2001 | Completed - Published as Synthesis 43 | | |
| SB-09 | Operational Experiences with Flexible Transit Services | David Koffman | November 2002 | Completed - Published as Synthesis 53 | | |
| SB-10 | Transit Advertising Sales Agreements | Bruce Schaller | November 2002 | Completed - Published as Synthesis 51 | | |
| SB-11 | Practices in No-Show and Late Cancellation Policies for ADA Paratransit | Rosemary Mathias | October 2004 | Completed - Published as Synthesis 60 | | |
| SB-12 | Integration of Bicycles and Transit | Robert Schneider | October 2004 | Completed - Published as Synthesis 62 | | |
| SB-13 | Transit Agency Participation in Medicaid Transportation Programs | Kenneth Hosen, KFH Group | January 2005 | Completed - Published as Synthesis 65 | | |
| SB-14 | Methods of Rider Communication | Carol Schweiger, TranSystems Corp. | October 2005 | Completed - Published as Synthesis 68 | | |
| SB-15 | Policies and Practices for Effectively and Efficiently Meeting ADA Paratransit Demand | David Chia, Planners Collaborative | October 2006 | Completed - Published as Synthesis 74 | | |
| SB-16 | Integration of Paratransit and Fixed-Route Transit Services | R. Weiner Nelson/Nygaard | October 2007 | Completed - Published as Synthesis 76 | | |

TABLE 10 (continued)

| No. | Title | Topic Consultant | Start Date | Status | FTA Liaison(s) | Staff Officer |
|--|--|----------------------------|---------------|--|----------------|---------------|
| SB-17 | Innovative Rural Transit Services | Ken Hosen | May 2010 | Completed - Published as Synthesis 94 | | |
| SB-18 | Strollers, Carts, and Other Large Items on Buses and Trains | J. Goldman | November 2009 | Completed - Published as Synthesis 88 | | |
| SB-19 | Ridesharing as a Complement to Transit | Gail Murray | November 2010 | Completed - Published as Synthesis 98 | | |
| SB-20 | Uses of Social Media in Public Transportation | Susan Bregman | November 2010 | Completed - Published as Synthesis 99 | | |
| SB-21 | Transit Station and Stop Adoption Programs | Kathryn Harrington-Hughes | December 2011 | Completed - Published as Synthesis 103 | | |
| SB-22 | Use of Market Research Panels in Transit | Kathryn Coffel | December 2011 | Completed - Published as Synthesis 105 | | |
| SB-23 | Integrating Passenger Ferry Service with Mass Transit | Tim Payne | December 2011 | Completed - Published as Synthesis 102 | | |
| SB-24 | Advanced Methods for Title VI Fare and Service Analysis | Sue Knapp | November 2012 | On Hold | A. Ontiveros | D. Vlasak |
| SB-25 | Practices for Establishing ADA Paratransit Assessment Facilities | Russell Thatcher | November 2013 | December 2014 | H. Clark | D. Vlasak |
| C : ENGINEERING OF VEHICLES AND EQUIPMENT | | | | | | |
| SC-01 | Safe Operating Procedures for Alternative Fuel Buses | Acurex Environmental Corp. | January 1993 | Completed - Published as Synthesis 1 | | |
| SC-02 | Waste Control Practices at Bus Maintenance Facilities | Acurex Environmental Corp. | January 1993 | Completed - Published as Synthesis 9 | | |
| SC-03 | Low-Floor Transit Buses | Rolland D. King | May 1993 | Completed - Published as Synthesis 2 | | |
| SC-04 | Retrofit of Buses to Meet Clean Air Regulations | John J. Schiavone | February 1994 | Completed - Published as Synthesis 8 | | |

TABLE 10 (continued)

| No. | Title | Topic Consultant | Start Date | Status | FTA Liaison(s) | Staff Officer |
|--|---|-----------------------------------|----------------|---------------------------------------|---|---------------|
| SC-05 | Light Rail Vehicle Compression Requirements | Z. M. Lewalski | September 1995 | Completed - Published as Synthesis 25 | | |
| SC-06 | Use of Rear Facing Position for Common Wheelchairs on Transit Buses | Brendon Hemily, Uwe Rutenberg | January 2002 | Completed - Published as Synthesis 50 | | |
| SC-07 | Emergency Response Procedures for Natural Gas Transit Vehicles | Michael Murphy | December 2003 | Completed - Published as Synthesis 58 | | |
| SC-08 | Mobile Data Terminals | Larry Harman | October 2005 | Completed - Published as Synthesis 70 | | |
| SC-09 | Use of Biodiesel in a Transit Fleet | John Schiavone | November 2006 | Completed - Published as Synthesis 72 | | |
| D : ENGINEERING OF FIXED FACILITIES | | | | | | |
| SD-01 | Regulatory Impacts of Design and Retrofit on Bus Maintenance Facilities | Edward M. Abrams, Frank Spielberg | February 1993 | Completed - Published as Synthesis 7 | | |
| SD-02 | Rail Transit Tunnel and Underground Structures Inspection Policy and Procedures | Henry A. Russell | June 1994 | Completed - Published as Synthesis 23 | | |
| SD-03 | Bus Use of Shoulders | Peter Martin | November 2004 | Completed - Published as Synthesis 64 | | |
| SD-04 | Rail Transit Track Inspection Practices | John Zuspan | December 2011 | January 2014 | R. Weishun Chen A. Dluger A. Zakei | D. Vlasak |
| E : MAINTENANCE | | | | | | |
| SE-01 | Transit Bus Service Line and Cleaning Functions | John J. Schiavone | February 1994 | Completed - Published as Synthesis 12 | | |
| SE-02 | Maintenance Productivity Practices | Frank Venezia | November 2002 | Completed - Published as Synthesis 54 | | |

TABLE 10 (continued)

| No. | Title | Topic Consultant | Start Date | Status | FTA Liaison(s) | Staff Officer |
|----------------------------|--|---|---------------|--|----------------|---------------|
| SE-03 | Maintenance Staffing Levels for Light Rail Transit Systems | Richard Stanger, Manuel Padron & Associates, Inc. | November 2004 | Completed - Published as Synthesis 61 | | |
| SE-04 | Track Maintenance Costs on Rail Transit Properties | Lawrence Daniels | November 2006 | Completed - Published as Web Document 43 | | |
| SE-05 | Preventive Maintenance Intervals for Transit Buses | John J. Schiavone | November 2008 | Completed - Published as Synthesis 81 | | |
| SE-06 | Elevator and Escalator Maintenance and Safety Practices | John J. Schiavone | November 2010 | Completed - Published as Synthesis 100 | | |
| F : HUMAN RESOURCES | | | | | | |
| SF-01 | Bus Occupant Safety | Rolland D. King | March 1995 | Completed - Published as Synthesis 18 | | |
| SF-02 | Employee Incentive Programs to Improve Transit Performance | Ronald Hartman and Elaine Kurtz | April 1993 | Completed - Published as Synthesis 3 | | |
| SF-03 | Methods for Reducing Violence and Improving Transit Security | Jerome Needle | March 1995 | Completed - Published as Synthesis 21 | | |
| SF-04 | Monitoring Maintenance Performance | John J. Schiavone | October 1995 | Completed - Published as Synthesis 22 | | |
| SF-05 | Emergency Procedures for Transit Counter Terrorism | Annabelle Boyd, John Sullivan | June 1996 | Completed - Published as Synthesis 27 | | |
| SF-06 | Practices in Ensuring Employee Availability | Joel Volinski | December 1997 | Completed - Published as Synthesis 33 | | |
| SF-07 | Practices for Bus Operator Hiring, Training, Performance Evaluation, and Retention | Gayland K. Moffat | December 1999 | Completed - Published as Synthesis 40 | | |
| SF-08 | Diversity Training Initiatives | Gwynn Simpson | January 2001 | Completed - Published as Synthesis 46 | | |

TABLE 10 (continued)

| No. | Title | Topic Consultant | Start Date | Status | FTA Liaison(s) | Staff Officer |
|---------------------------|---|------------------------------|---------------|--|----------------|---------------|
| SF-09 | Training for On-Board Bus Electronics | John Schiavone | February 2001 | Completed - Published as Synthesis 44 | | |
| SF-10 | Corporate Culture as the Driver of Transit Leadership Practices | Mary Davis | January 2002 | Completed - Published as Synthesis 47 | | |
| SF-11 | Transit Operator Health and Wellness Programs | Mary J. Davis | November 2002 | Completed - Published as Synthesis 52 | | |
| SF-12 | Paratransit Managers' Skills, Qualifications, and Needs | John Potts The DMP Group | November 2006 | Completed - Published as Synthesis 71 | | |
| SF-13 | Transit Security Update | Yuko Nakanishi | October 2007 | Completed - Published as Synthesis 80 | | |
| SF-14 | Practices to Protect Bus Operators from Passenger Assault | Yuko Nakanishi | November 2009 | Completed - Published as Synthesis 93 | | |
| SF-15 | Practices for Wayside Rail Transit Worker Protection | Chris Kozub | December 2010 | Completed - Published as Synthesis 95 | | |
| SF-16 | Improving Bus Transit Safety Through Rewards and Discipline | Jay Goodwill | December 2010 | Completed - Published as Synthesis 97 | | |
| SF-17 | Transit Bus Operator Distraction Policies | Chris Kozub | December 2011 | Completed - Published as Synthesis 108 | | |
| G : ADMINISTRATION | | | | | | |
| SG-01 | Risk Management for Small and Medium Transit Agencies | Michael M. Kaddatz | February 1994 | Completed - Published as Synthesis 13 | | |
| SG-02 | Reducing Fraudulent Third-Party Claims Against Transit Agencies | Ronald Hartman, Elaine Kurtz | April 1993 | Cancelled - See SG-7 | | |
| SG-03 | Management Information Systems | Roger Boldt | October 1993 | Completed - Published as Synthesis 5 | | |
| SG-04 | The Role of Performance-Based Measures in Allocating Funding for Transit Operations | Ronald Hartman, Elaine Kurtz | April 1993 | Completed - Published as Synthesis 6 | | |

TABLE 10 (continued)

| No. | Title | Topic Consultant | Start Date | Status | FTA Liaison(s) | Staff Officer |
|--------------------------------|---|---------------------------------|---------------|---------------------------------------|----------------|---------------|
| SG-05 | Managing Transit Construction Contract Claims | Joel Callahan | November 1995 | Completed - Published as Synthesis 28 | | |
| SG-06 | Paratransit Contracting and Service Delivery Methods | Rosalyn M. Simon | October 1996 | Completed - Published as Synthesis 31 | | |
| SG-07 | Identifying and Reducing Fraudulent Third-Party Tort Claims Against Public Transit Agencies | Boyd, Maier & Associates | August 1998 | Completed - Published as Synthesis 36 | | |
| SG-08 | Information Technology Update for Transit | Roger Boldt | August 1998 | Completed - Published as Synthesis 35 | | |
| SG-10 | Performance-Based Measures in Transit Fund Allocation | Robert Stanley | October 2003 | Completed - Published as Synthesis 56 | | |
| SG-11 | Transit Asset Condition Reporting | Stephen Berrang, Brian McCollom | November 2009 | Completed - Published as Synthesis 92 | | |
| SG-12 | Optimizing Bus Warranty | John Schiavone | November 2012 | January 2014 | C. Walker | D. Vlasak |
| SG-13 | Successful Practices for Utility Coordination in Transit Projects | Cesar Quiroga | December 2013 | January 2015 | G. Reese | D. Vlasak |
| H : POLICY AND PLANNING | | | | | | |
| SH-01 | Transit-Focused Development | Douglas Porter | February 1995 | Completed - Published as Synthesis 20 | | |
| SH-02 | Use of Flexible Funding Under ISTEA and TEA-21 | Robert Stanley | January 2000 | Completed - Published as Synthesis 42 | | |
| SH-03 | Geographic Information Systems Applications in Transit | John Sutton | October 2003 | Completed - Published as Synthesis 55 | | |
| SH-04 | Strategic Planning and Management in Transit Agencies | Judson Lawrie | January 2004 | Completed - Published as Synthesis 59 | | |
| SH-05 | On-Board and Intercept Transit Survey Techniques | Bruce Schaller | November 2004 | Completed - Published as Synthesis 63 | | |

TABLE 10 (continued)

| No. | Title | Topic Consultant | Start Date | Status | FTA Liaison(s) | Staff Officer |
|-------|---|--|---------------|---------------------------------------|---------------------------|---------------|
| SH-06 | Fixed-Route Transit Ridership Forecasting and Service Planning Methods | Daniel Boyle | October 2005 | Completed - Published as Synthesis 66 | | |
| SH-07 | Web-Based Survey Techniques | Gregory Spitz, RSG, Inc. | October 2005 | Completed - Published as Synthesis 69 | | |
| SH-08 | Bus Transit Service in Land Development Planning | Mary Kay Christopher | November 2005 | Completed - Published as Synthesis 67 | | |
| SH-09 | Current Practices in Greenhouse Gas Emissions Savings from Transit | Frank Gallivan, Michael Grant, ICF International | November 2008 | Completed - Published as Synthesis 84 | | |
| SH-10 | Effective Use of Citizen Advisory Committees for Transportation Planning and Operations | Kristin Hull, CH2MHILL | November 2008 | Completed - Published as Synthesis 85 | | |
| SH-11 | Transit Fare Arrangements for Public Employees | Daniel Boyle | November 2008 | Completed - Published as Synthesis 82 | | |
| SH-12 | Relationships Between Streetcars and the Built Environment | Ron Golem, BAE Urban Economics | January 2009 | Completed - Published as Synthesis 86 | | |
| SH-13 | Public Participation Strategies for Transit | Scott Giering | December 2009 | Completed - Published as Synthesis 89 | | |
| SH-14 | Sub-Allocating FTA Section 5307 Funding Among Multiple Recipients in Metropolitan Areas | John Potts | November 2012 | January 2014 | A. Schildge J. Sprowls | D. Vlasak |

TABLE 11 SUMMARY OF TCRP PROJECT J-9 STATUS THROUGH DECEMBER 31, 2013
e-Transit: Electronic Business Strategies for Public Transportation

| No. | Title | Contract Amount | Consultant | Start Date | End Date | Staff Officer |
|---------|---|-----------------|--------------------------------|----------------|--|---------------|
| Task 01 | Supply Chain: Parts and Inventory Management | \$45,000 | Mitretek | July 2001 | Completed - Published as Report 84, Volume 1 | |
| Task 02 | Regulatory Issues | \$20,056 | Mitretek | | Cancelled | |
| Task 03 | Application Service Provider Implementation Guidelines | \$45,000 | Mitretek | July 2001 | Completed - Published as Report 84, Volume 2 | |
| Task 04 | Advanced Features of Transit Websites | \$55,000 | Multisystems | July 2001 | Completed - Published as Report 84, Volume 4 | |
| Task 05 | Electronic Payments | | | | Cancelled | |
| Task 06 | Using the Internet for Transit Training and Certification | \$35,000 | Multisystems | July 2001 | Completed - Published as Report 84, Volume 3 | |
| Task 07 | Create and Manage a Series of e-Zine Articles | | | | Cancelled - See Task 11 | |
| Task 08 | Concept for an e-Transit Reference Enterprise Architecture | \$23,000 | Mitretek | June 2003 | Completed - Published as Report 84, Volume 5 | |
| Task 09 | The Successful Adoption of Web-Based Collaborative Software | \$50,000 | Center for Applied Research | December 2003 | Completed - Published as Report 84, Volume 7 | |
| Task 10 | Strategies to Expand and Improve Deployment of ITS in Rural Transit Systems | \$50,000 | Acumen Building Enterprises | January 2004 | Completed - Published as Report 84, Volume 6 | |
| Task 11 | The "e-Zine Technology Knowledge Center" for Transit | \$205,000 | E G&G Technical Services | September 2005 | Completed | |
| Task 12 | Improving Public Transportation Technology Implementations and Anticipating Emerging Technologies | \$250,000 | Battelle | October 2004 | Completed - Published as Report 84, Volume 8 | |
| Task 13 | Transit Enterprise Architecture and Planning Framework | \$213,000 | Consensus Systems Technologies | September 2008 | Completed - Published as Report 84, Volume 9 | |

TABLE 12 SUMMARY OF TCRP PROJECT J-10 STATUS THROUGH DECEMBER 31, 2013
Public Transportation Security Research

| No. | Title | Contract Amount | Contractor | Start Date | End Date | Staff Officer |
|-----------|---|-----------------------|---|----------------|--|---------------|
| J-10(01) | Development of Research Agenda/Conduct Four Security Workshops | \$300,000 \$32,000 | Booz Allen Hamilton, Inc. American Public Transportation Association | November 2001 | Completed - APTA Publication Issued | |
| J-10(02) | White Papers on Decontamination Procedures and Technology Clearinghouse/Product Testing | \$20,000 | Science Applications International Corp. | April 2002 | Completed | |
| J-10(03) | A Guide to Public Transportation Security Resources | \$5,000 | McCormick Taylor | September 2002 | Completed - Published as RRD 59 | |
| J-10(04) | Logistics Support for International Transportation Associations Transit Security Summit | \$20,000 | American Public Transportation Association | September 2002 | Completed | |
| J-10A(01) | Update of FTA "Transit System Security Program Planning Guide" and FTA "Transit Security Handbook" | \$150,000 | McCormick Taylor | March 2002 | Completed - FTA Publication Issued | |
| J-10A(02) | Security-Related Customer Communications and Training for Public Transportation Providers | \$400,000 | McCormick Taylor | March 2002 | Completed - Published as Report 86, Volume 5 | |
| J-10A(03) | Intrusion Detection for Public Transportation Facilities Handbook | \$250,000 | Science Applications International Corp. | June 2002 | Completed - Published as Report 86, Volume 4 | |
| J-10A(04) | A Scan of Tools for Evaluating and Prioritizing Anti-Terrorist Security Measures for Transit Applications | \$25,000 | McCormick Taylor | February 2003 | Completed | |
| J-10B(01) | Emergency Public Transportation Mobilization and Emergency Operations Guide | \$400,000 | McCormick Taylor | March 2002 | Completed - Published as Report 86, Volume 7 | |
| J-10B(02) | Applicability of Portable Explosive Detection Devices in Transit Environments | \$200,000 | Science Applications International Corp. | June 2002 | Completed - Published as Report 86, Volume 6 | |
| J-10B(03) | Robotic Devices: A Guide for the Transit Environment | \$20,000 | Science Applications International Corp. | June 2002 | Completed - Published as Report 86, Volume 3 | |
| J-10B(04) | Communication of Threats: A Guide | \$20,000 | McCormick Taylor | March 2002 | Completed - Published as Report 86, Volume 1 | |

TABLE 12 (continued)

| No. | Title | Contract Amount | Contractor | Start Date | End Date | Staff Officer |
|-----------|---|---------------------------------------|--|----------------|---|---------------|
| J-10B(05) | K9 Units in Public Transportation: A Guide for Decision Makers | \$15,000 | McCormick Taylor | March 2002 | Completed - Published as Report 86, Volume 2 | |
| J-10C | Guidelines for Transportation Emergency Training Exercises | \$100,000 (TCRP) \$100,000 (NCHRP) | McCormick Taylor | July 2004 | Completed - Published as Report 86, Volume 9 | |
| J-10D | Hazard and Security Plan Workshop: Instructor Guide | \$200,000 | AECOM Consulting | May 2004 | Completed - Published as Report 86, Volume 10 | |
| J-10E | A Guide to Transportation and Hazards Resources | \$37,500 | University of Colorado at Boulder | January 2007 | Completed - Published as RRD 90 | |
| J-10F | Continuity of Operations (COOP) Planning Guidelines for Transportation Agencies | \$100,000 (TCRP) \$100,000 (NCHRP) | McCormick Taylor | July 2004 | Completed - Published as Report 86, Volume 8 | |
| J-10G | Making Transportation Tunnels Safe and Secure | \$200,000 (TCRP) \$200,000 (NCHRP) | Science Applications International Corporation | September 2004 | Completed - Published as Report 86, Volume 12 | |
| J-10H | Security Measures for Ferry Systems | \$150,000 | Science Applications International Corporation | August 2004 | Completed - Published as Report 86, Volume 11 | |
| J-10J | Public Transportation Passenger Security Inspections: A Guide for Decision Makers | \$100,000 | Countermeasures Assessment and Security Experts, LLC | February 2006 | Completed - Published as Report 86, Volume 13 and Web Document 38 | |

**TABLE 13 SUMMARY OF TCRP PROJECT J-11 STATUS THROUGH DECEMBER 31, 2013
Quick-Response Research on Long-Term Strategic Issues**

| No. | Title | Contractor | Start Date | Estimated Completion Date | Staff Officer |
|---------|--|--|----------------|---|---------------|
| Task 01 | Research for ENO Transportation Foundation Forum on the Future of Metropolitan Transportation | ENO Transportation Foundation | December 2006 | Completed - White papers produced for Forum | |
| Task 02 | Public Transportation Contribution to Greenhouse Gas Reduction and Improved Air Quality | Science Applications International Corporation | April 2007 | Completed - Published by APTA | |
| Task 03 | Broadening and Localizing the Connection Between Public Transportation and Petroleum Conservation | ICF International | July 2007 | Completed - Published by APTA | |
| Task 04 | Support for the Transit Portion of the AASHTO Transportation Visioning Effort | A. Cambridge Systematics B. APTA | April 2007 | Completed | |
| Task 05 | Strategy for Demonstrating the Economic Return on Transit and the Benefits of Growth | HDR | July 2007 | Completed - Published by APTA | |
| Task 06 | Role of Transit Agencies in the Regional Planning Process | Paul N. Bay | July 2008 | Completed - Results to APTA | |
| Task 07 | Economic Impact of Transit (Update of 1999 APTA Report) | Cambridge Systematics | December 2008 | Completed - Results to APTA | |
| Task 08 | Implications of an Aging Population on Public Transit Agency Funding Needs | Nelson\Nygaard | April 2009 | Completed - Results to APTA | |
| Task 09 | Improving Transit Systemwide Energy Efficiency to Enhance Transit's Role in Climate Change Strategies | Center for Neighborhood Technology | April 2010 | Completed - Published by APTA | |
| Task 10 | Regional Institutional Models for Transit Agencies | Booz Allen & Hamilton | May 2010 | Completed - Results to APTA | |
| Task 11 | Approaches to Updating Urbanized Area Population and Density Data | The Nielson Group | April 2011 | Completed - Results to APTA | |
| Task 12 | Survey of Existing Resources, Practices and Metrics of Workforce Development Programs in the U.S. Transit Industry | Transportation Learning Center | September 2009 | Completed - Results to APTA | |
| Task 13 | National Forum on Performance-Based Planning | Cambridge Systematics | August 2010 | Completed | |
| Task 14 | Assessment of Alternative Local and Regional Funding Mechanisms | Cambridge Systematics | July 2011 | Completed - Results to APTA | |

TABLE 13 (continued)

| No. | Title | Contractor | Start Date | Estimated Completion Date | Staff Officer |
|---------|--|------------------------------|---------------|--|---------------|
| Task 15 | Impacts of Cuts and Reductions in Public Transportation Funding | KFH Group | June 2011 | Completed - Results to APTA | |
| Task 16 | Improving Safety Performance Comparisons Among Transportation Modes | Watchung Transportation, LLC | February 2012 | Completed - Results to APTA | |
| Task 17 | Millennials and Mobility: Understanding the Millennial Mindset and New Opportunities for Transit Providers | Latitude Research | November 2012 | Completed - Published as Web Document 61 | |
| Task 18 | Broadening Transportation Evaluation Criteria | ICF Consulting | January 2013 | Completed - Results to APTA | D. Schwager |
| Task 19 | Critical Assessment for Future Transportation Needs Analysis | Arlee Reno | August 2013 | February 2014 | A. Lerner |
| Task 20 | An Analysis of Bus Axle Weight Issues | | | In development | D. Schwager |

**TABLE 14 NEW PROJECTS AND CONTINUATIONS SELECTED FOR THE
TCRP FISCAL YEAR 2014 PROGRAM (Tentative)**

| Project Number | Title | Allocation (\$) |
|-----------------------|--|------------------------|
| | NEW PROJECTS | |
| A-41 | Improving the Resiliency of Transit Systems Threatened by Natural Disasters | \$350,000 |
| E-11 | The Relationship Between Asset Conditions and Service Quality | \$350,000 |
| G-14 | Contracting Commuter Rail Services | \$300,000 |
| H-50 | Local Tools for Transit Agencies: Development of a Local Economic Development Measurement Tool | \$150,000 |
| H-51 | Understanding Changes in Demographics, Preferences and Markets for the Transit Industry | \$350,000 |
| H-52 | A Guidebook for Planning Transit Park-and-Ride Facilities | \$300,000 |
| | Total New Projects | \$1,800,000 |
| | SPECIAL PROJECTS | |
| J-1 | Dissemination and Implementation of Research Findings | \$308,219 |
| J-4 | Innovations Deserving Exploratory Analysis: The Transit IDEA Program | \$300,000 |
| J-5 | Legal Aspects of Transit and Intermodal Transportation Programs | \$250,000 |
| J-7 | Synthesis of Information Related to Transit Problems | \$550,000 |
| J-11 | Quick-Response Research on Long-Term Strategic Issues | \$150,000 |
| | Total Special Projects | \$1,558,219 |
| | Unallocated Balance | \$21,781 |
| | GRAND TOTAL | \$3,380,000 |

NOTICE TO READERS

Information about project status and detailed project write-ups are available on the TCRP website: www.trb.org/TCRP.

HOW TO ORDER TCRP PUBLICATIONS

TCRP publications are listed in Table 4.

TCRP reports, syntheses, research results digests, legal research digests, and CD-ROMs can be ordered with a credit card through the online TRB bookstore (trb.org/bookstore), by telephone (202-334-3213), or by fax (202-334-2519). We accept Visa, MasterCard, and American Express. TRB uses a secure web server; credit card numbers are encrypted for transmittal and erased from the system as soon as an order is processed.

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Atlanta, GA 30374-1494

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