



# TCRP

TRANSIT  
COOPERATIVE  
RESEARCH  
PROGRAM

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TRANSPORTATION RESEARCH BOARD  
*OF THE NATIONAL ACADEMIES*

Annual Report  
of Progress

2008

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TRANSPORTATION RESEARCH BOARD

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[www.TRB.org](http://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), and again reauthorized in August 2005 by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

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/CRP/TCRP/TCRP.asp](http://www.trb.org/CRP/TCRP/TCRP.asp).**

# THE NATIONAL ACADEMIES

*Advisers to the Nation on Science, Engineering, and Medicine*

The **National Academy of Sciences** is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. On the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. Dr. Ralph J. Cicerone is president of the National Academy of Sciences.

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. Charles M. Vest 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 the Academies and the Institute of Medicine. Dr. Ralph J. Cicerone and Dr. Charles M. Vest 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](http://www.TRB.org)

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## 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 six 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 2,300 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.

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, the FTA reviews problem statements and submits comments. In the review, one of the criteria used by the FTA is support of the FTA strategic research goals for a particular fiscal year. For fiscal year 2009, the FTA strategic research goals included the following:

1. Increasing transit ridership;
2. Improving safety, security, and emergency preparedness;
3. Improving capital and operating efficiencies; and
4. Protecting the environment and promoting energy independence.

Third, a screening workshop is conducted to evaluate candidate problem statements and to recommend problems for consideration by the TOPS Committee. The screening panel considers, in addition to the 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.

Fourth, the FTA reviews and comments on the short list of problem statements after screening, and then the short list of problem statements is presented to the TOPS Committee for consideration in formulating each year's program.

Fifth, 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.

**TABLE 1 ORIGIN OF PROBLEM STATEMENTS**

ORGANIZATION	FY '92-'05		FY '06		FY '07		FY '08		FY '09	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Transit/Local	488	31.3	36	35.3	19	21.9	34	28.8	28	29.5
State DOT	103	6.6	7	6.9	7	8.0	11	9.3	7	7.4
FTA	147	9.4	6	5.9	12	13.8	5	4.2	11	11.6
APTA Committees	65	4.2	15	14.7	4	4.6	11	9.3	7	7.4
TRB Committees	116	7.4	8	7.8	10	11.5	13	11.0	8	8.4
Industry	33	2.1	3	2.9	7	8.0	6	5.1	3	3.1
University	198	12.7	8	7.8	6	6.9	17	14.4	12	12.6
Consultants	254	16.3	13	12.8	18	20.7	12	10.2	11	11.6
Other	154	9.9	6	5.9	4	4.6	9	7.7	8	8.4
Totals	1558	100	102	100	87	100	118	100	95	100

## RESEARCH PROGRAM

TCRP was established by Memorandum Agreement in 1992. Since then, the TOPS Committee has generally met twice each year, a total of 36 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, quick-response studies, and an International Transit Studies Program (ITSP). IDEA investigations are intended to develop commercially viable products; legal studies examine legal issues facing the transit industry; quick-response studies address a variety of issues that require a very short-term response; and ITSP provides an opportunity for transit professionals to learn from transit agencies in other countries. To date, TCRP includes 538 authorized study activities: 265 research projects, 88 syntheses, 59 IDEA investigations, 39 legal studies, 79 quick-response studies, and 8 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; and by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) for fiscal years 2006 through 2009. A total of \$8.92 million was available for TCRP in fiscal year 1992, \$7.75 million for fiscal year 1993, \$8.475 million each for

fiscal years 1994 and 1995, \$7.61 million for fiscal year 1996, \$8.25 million for fiscal year 1997, \$4.0 million for fiscal year 1998, \$8.25 million for fiscal year 1999, \$7.15 million for fiscal year 2000, \$6.73 million for fiscal year 2001, \$8.25 million for fiscal year 2002, \$8.196 million each for fiscal years 2003 and 2004, \$8.184 million for fiscal year 2005, \$8.91 million for fiscal year 2006, and \$9.3 million for fiscal years 2007, 2008, and 2009.

## **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 2008 is shown in Table 2.

**TABLE 2 DISTRIBUTION OF PROJECTS AND SYNTHESSES BY FIELD THROUGH DECEMBER 31, 2008**

<b>Research Fields</b>	<b>Number of Projects</b>	<b>Number of Syntheses</b>
Operations	43	22
Service Configuration	43	17
Engineering of Vehicles and Equipment	25	9
Engineering of Fixed Facilities	29	3
Maintenance	10	5
Human Resources	15	13
Administration	14	8
Policy and Planning	52	11

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. TC RP Classification System.

## 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 40 percent of the members on almost every panel are employed by transit systems.

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 THE 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.

**TABLE 3 PANEL COMPOSITION OF ACTIVE PROJECTS**  
(88 Project Panels, 683 Members)

<b>Panel Composition</b>	<b>No.</b>	<b>%</b>
<b>AFFILIATION</b>		
Transit System	271	39.7
State Government	60	8.8
Local Government/MPO	46	6.7
Federal Government	15	2.2
Industry/Consultants/Private Sector	187	27.4
University	76	11.1
Association	28	4.1
<b>RACE</b>	<b>Members/Chairs</b>	<b>Members/Chairs</b>
White	426/66	71.6/75.0
Minorities	169/22	28.4/25.0
<b>GENDER</b>	<b>Members/Chairs</b>	<b>Members/Chairs</b>
Male	402/58	67.6/66.0
Female	193/30	32.4/34.0

It is important to note that the opportunity to propose is open to anyone. Agency selection is based on the following factors: (1) concept of the problem, (2) research approach, (3) research principles, (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 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 technical areas in which their proposals were judged weak and deficient.

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 signed 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 telephone 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 at least 2,000 TRB members who request transit publications, as well as to about 100 libraries, 50 TRB transit representatives, and more than 150 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 33,000 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 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, Community Transportation Association of America, and other conferences. APTA also develops plans for presenting selected research results in formats more accessible to practitioners—for example, workshops, software, videos, and training aids. To aid in the dissemination of findings, APTA maintains a TCRP dissemination home page on the Internet at [www.tcrponline.org](http://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 2008, 538 study activities have been authorized:

- 265 research projects;
- 8 special projects (J-1, J-2, J-3, and J-8, J-8A, J-8B, J-9, J-10) in addition to those listed below;
- 59 transit IDEA investigations (J-4);
- 39 transit legal studies (J-5);
- 79 quick-response studies (J-6 and J-11); and
- 88 transit syntheses (J-7).

A total of 460 studies have been completed as of December 31, 2008. (See Tables 5 through 14 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 164 published reports resulting from completed research projects, 76 syntheses, 88 research results digests, 28 legal research digests, 40 web-only documents, and 25 CD-ROMs. A total of 41 IDEA investigation reports are available through the National Technical Information Service or from TCRP.

## **ACCOMPLISHMENTS IN 2008**

TCRP published 23 project reports in 2008. The following TCRP activities of particular interest were in progress or were completed during the year.

## Transit Vehicles and Maintenance

TCRP Project E-6, “Transit Bus Mechanics: Building for Success—The ASE Transit Bus Maintenance Certification Test Series,” continues to develop tests for the Institute for Automotive Service Excellence (ASE) to certify transit bus mechanics. The tests are similar to those for the automotive, medium- and heavy-duty truck, and school bus industries. The project panel has identified 10 subject areas for testing.

In 2008, ASE administered seven transit bus tests—electrical and electronics; brakes; diesel engines; electronic diesel engine specialist; heating, ventilation, and air conditioning; transmission and drivetrain; and suspension and steering. ASE is offering the tests nationwide in the spring and fall of each year as part of the regular test schedule.

Subject matter experts have started work on developing the final three transit bus tests—preventive maintenance inspections, compressed natural gas, and hybrid electric. These tests should become part of the ASE test series in 2009.

Test development involves coordination with organized labor to ensure the availability of relevant training. In combination with the ASE tests, the training serves as a means for developing the bus maintenance workforce.

*TCRP Synthesis 72: Use of Biodiesel in a Transit Fleet* provides information on current experiences with the use of biodiesel fuel to provide transit agencies with the information needed to make informed decisions regarding implementation of this relatively new fuel option. Topics covered include engine manufacturer requirements and warranty considerations, maintenance implications, emissions testing results, cold weather operations, fuel specifications and procurement considerations, fuel storage, and delivery.

*TCRP Synthesis 75: Uses of Higher Capacity Buses in Transit Service* explores the use of higher capacity public buses in trunk, express, long-distance commuter, bus rapid transit, and special services (e.g., for sports and special events) in North America. These higher capacity buses include articulated, double-deck, 45-ft, and other buses that have a significant increase in passenger capacity compared with conventional 40-ft buses. The synthesis examines where and how these buses are being deployed in regular and flexible public transit services and experiences with them.

*TCRP Web-Only Document 40: Development of Crash Energy Management Performance Requirements for Light-Rail Vehicles* explores potential crash scenarios for various light-rail vehicle designs and examines applications of the results to develop crash energy management guidelines. The results are being used by the American Society of Mechanical Engineers (ASME) in the potential development of light-rail vehicle crashworthiness standards using crash energy management techniques.

## Planning

*TCRP Report 122: Understanding How to Motivate Communities to Support and Ride Public Transportation* provides a comprehensive discussion of the methods and strategies used by public transportation agencies in the United States and Canada to enhance their public images and motivate people to support and use public transportation. Additionally, the report identifies and describes methods and strategies used by other industries (comparable with public transportation) to enhance their public images and to motivate people to support and use their



products and services. Also, this report examines the perceptions, misperceptions, and use of public transit, and the extent to which these impact support. Finally, the report identifies effective communication strategies, campaigns, and platforms for motivating individuals to action in support of public transportation and recommends ways to execute those communication strategies, campaigns, and platforms.

*TCRP Report 123: Understanding How Individuals Make Travel and Location Decisions: Implications for Public Transportation* explores a broader social context for individual decision making related to residential location and travel behavior. The findings from this research contribute to efforts to predict mode choice and to influence it through better policies and design, education, and communication.

*TCRP Report 126: Leveraging ITS Data for Transit Market Research: A Practitioner's Guidebook* describes currently used intelligent transportation systems (ITS) and transit ITS technologies that have the greatest promise for transit market research. This guidebook documents ITS and transit ITS technologies currently in use, assesses their potential to provide market research data, and presents methods for collecting and analyzing these data. Also, the guidebook provides three in-depth case studies that illustrate how ITS data have been successfully used to improve market research practices.

*TCRP Report 128: Effects of TOD on Housing, Parking, and Travel* provides information on the behavior and motivation of transit-oriented development (TOD) residents, employees, and employers in their mode choice. The report also identifies best practices to promote, maintain, and improve TOD-related transit ridership. The report addresses nine questions: (1) what are the demographic profiles of TOD residents and employers; (2) what motivates residents or employers to locate in TODs; (3) what are the travel characteristics (e.g., frequency of travel by different modes) of people who live or work in a TOD; (4) what was the travel pattern of the TOD resident prior to moving to the TOD; (5) what levels of transit connectivity to desired origins and destinations are required to promote transit ridership at TODs; (6) what motivates or impedes transit ridership in a TOD; (7) which strategies have been effective in increasing transit ridership at TODs; (8) what steps should transit agencies take in supporting TODs to maximize transit ridership; and (9) what TOD land-use and design features (e.g., mixed land-use, traffic calming, bus bulbs, short blocks, and street furniture) have had an effect on travel patterns, transit ridership, or the decision to locate in a TOD?

## **Operations and Safety**

*TCRP Report 125: Guidebook for Mitigating Fixed-Route Bus-and-Pedestrian Collisions* assists small, medium, and large transit agencies and their community members in better understanding bus-and-pedestrian collisions and in determining preventative or remedial strategies for reducing the frequency and severity of these types of collisions. The guidebook is divided into four parts. Part I discusses how to mitigate the four most common collision types and circumstances. Part II presents a variety of strategies, including operator training and outreach, safety checks, defensive driving techniques and policies, public outreach and education, traffic engineering and roadway design, bus mirror configuration and placement, bus design/modification, bus stop location planning and bus stop design, and bus stop lighting and illumination. Detailed information for more than 80 applications of the strategies is presented, as well as information on many more suggested applications of the strategies. Part III contains 14 case studies, which provide in-depth examples for the best-documented applications. The case studies include detailed information about what is known about the bus-and-pedestrian collision problem, the implementation of one or more mitigating strategies, the goals and costs of

implementation, and the successful and problematic elements of strategy implementation. Part IV presents a discussion of important considerations for improving pedestrian safety around transit buses. This section includes a description of contributing factors that are not necessarily directly linked to one of the four primary types of bus-and-pedestrian collisions described in the guidebook, but that were identified by transit agencies and other stakeholders as playing an important role in the occurrence of these collisions. This section also discusses how to approach strategy implementation and specifically how to combine two or more strategies to succeed in reducing bus-and-pedestrian collisions and improving overall safety.

*TCRP Synthesis 73: AVL Systems for Bus Transit: Update* documents the state of the practice, focusing on the uses of computer-aided dispatch/automatic vehicle location (CAD/AVL) systems in fixed-route and demand-responsive services (bus AVL), as well as changes in agency practices related to the use of AVL systems. Information is presented on the characteristics of implemented bus AVL systems; on agency experiences with designing, procuring, implementing, integrating, and using these systems; and on benefits and costs. This synthesis updates *TCRP Synthesis 24*, published in 1997.

### **Paratransit/Demand-Response Services**

*TCRP Report 124: Guidebook for Measuring, Assessing, and Improving Performance of Demand-Response Transportation* is a resource to assist demand-response transit (DRT) systems in measuring, assessing, and improving their performance, focusing on systems in urban areas.

The guidebook includes a typology of DRT systems in urban areas with categories based on criteria affecting performance; defines key performance data and a limited set of performance measures for DRT systems; identifies the various factors that influence DRT system performance; provides performance data from systems representative of the defined categories; identifies policies, procedures, practices, and strategies—collectively referred to as management actions—that DRT systems have implemented to improve their performance; and documents quantitative and qualitative effects on performance from those management actions.

The guidebook addresses the diversity of DRT systems, service areas, and passengers; identifies the important controllable factors affecting performance; and includes performance assessment methods based on reliable data and meaningful measures. Such assessment methods will allow relevant assessments of performance over time and across systems. A companion guidebook is currently being prepared, through a continuation of this research, which focuses specifically on rural DRT systems. It is expected that this companion guidebook will be completed in 2009.

*TCRP Synthesis 74: Policies and Practices for Effectively and Efficiently Meeting ADA Paratransit Demand* provides a state-of-the-practice summary of a range of policies and practices that transit agencies use to provide service more effectively and efficiently to persons with disabilities. As demand for paratransit services continues to increase in many communities, transit agencies are looking for innovative ways to serve the individuals who must use paratransit, while also operating more efficiently to contain costs and/or provide more service from the available resources. This report highlights policies and practices that transit agencies would be able to apply to their own services, often without the need to devote significant funds, personnel, or other resources. The report also identifies certain

practices and technologies still under development that may offer great potential for improving the effectiveness and efficiency of paratransit services.

*TCRP Synthesis 76: Integration of Paratransit and Fixed-Route Transit Services* summarizes existing practice relating to the integration of paratransit and fixed-route services in a variety of operating environments, including the provision of paratransit feeder services, community bus or circulators, connectors, fixed-route fare incentives, and route deviation. This synthesis pays particular attention to items such as cost savings; efficiency and productivity improvements; operations management; customer satisfaction; ridership; program features; service configuration, including transfers; technology used; barriers and opportunities; and service capacity constraints. In addition, information is provided about practices to promote multi-modal awareness among current and potential paratransit customers and to offer travel training in exploring alternative accessible transportation modes; about incentives, including fares and amenities, that have been used and their effectiveness; and about programs that have attempted to serve customers eligible for ADA complementary paratransit with an integrated fixed-route and paratransit service.

### **Rural Public Transportation**

*TCRP Report 127: Employee Compensation Guidelines for Transit Providers in Rural and Small Urban Areas* provides guidelines for employee compensation so that rural and small urban transit managers have a meaningful resource to use when making wage and benefit decisions. The report also provides information that can be used by transit managers at rural and small urban transit agencies to attract and retain employees. The report is accompanied by an interactive computer tool that provides an easy way to explore salary and benefit characteristics of transit systems in rural and small urban areas. By entering the basic characteristics of a transit system, service area, and operating environment, transit managers can query a database to compute and report salary and benefit characteristics of comparable systems.

### **Legal Research for Public Transportation Systems**

TCRP Project J-5, "Legal Aspects of Transit and Intermodal Transportation Programs," provides authoritatively researched, specific, limited-scope studies of legal issues and problems having national significance and application to transit agencies. During 2008, the results of four topics were published.

*TCRP Legal Research Digest 24: Transit Bus Stops: Ownership, Liability, and Access* informs transit providers and government officials of the different levels of ownership, liability, and maintenance associated with bus stops and bus shelters; identifies the categories of legal issues that are associated with ownership and liability; and provides information on the problems and practices of others who have dealt with such problems, including protective provisions in franchise agreements and service provider contracts.

*TCRP Legal Research Digest 25: Privacy Issues with the Use of Smart Cards* examines basic privacy issues associated with the acquisition and storage of financial and trip data including, but not limited to, who can access the data, what data may be accessed under what conditions, and how the information can be used.

*TCRP Legal Research Digest 26: Resources for Legal Issues Associated with Bus Maintenance* is a resource that informs interested persons of all current federal and state statutes, regulations, and guidance related to bus maintenance.

*TCRP Legal Research Digest 27: Civil Rights Implications of the Allocation of Funds between Bus and Rail* examines whether there is ongoing Title VI controversy specific to transit agencies and others, including an examination of whether Title VI challenges have increased or diminished and in what legal forum they are brought; how Title VI challenges vary in character; the nature of the response to each type of Title VI challenge and the record of success; specific defenses or strategies that are available to transit systems faced with these types of Title VI actions; and the efforts other than regulatory ones that transit agencies have made to uphold Title VI protections and avoid adverse actions.

### **Transit Lessons from Abroad**

Since 1994, TCRP Project J-3, "International Transit Studies Program," has sponsored 29 leadership development missions. More than 375 transit professionals have participated in missions to Europe, Asia, Canada, South America, New Zealand, and Australia in the past 14 years. The purpose of the program is to expand the horizons of U.S. transit managers. The findings and observations of the participants are published in the TCRP Research Results Digest Series. *TCRP Research Results Digest 87: Emergency Preparedness, Response, and Recovery in the Transit Industry* and *TCRP Research Results Digest 88: Innovative Practices in Transit Workforce Development* were published in 2008, summarizing two of these international missions.

### **FY 2009 PROGRAM**

In October 2008, the TOPS Committee allocated funds for fiscal year 2009. 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 perform the research programs 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, and so forth). 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**

NO.	REPORT TITLE, PROJECT NO., PAGES, PUBLICATION YEAR
1	Artificial Intelligence for Transit Railcar Diagnostics (Proj. E-2), 64 p. (1994)
2	Applicability of Low-Floor Light Rail Vehicles in North America (Proj. C-2), 174 p. (1995)
3	Workbook for Estimating Demand for Rural Passenger Transportation (Proj. B-3), 124 p. (1995)
4	Aids for Rail Car Side-Door Observation (Proj. A-3), 130 p. (1995)
5	Guidelines for Development of Public Transportation Facilities and Equipment Management Systems (Proj. E-4), 56 p. (1995)
6	Users' Manual for Assessing Service-Delivery Systems for Rural Passenger Transportation (Proj. A-2), 240 p. (1995)
7	Reducing the Visual Impact of Overhead Contact Systems (Proj. D-4), 90 p. (1995)
8	The Quality Journey: A TQM Roadmap for Public Transportation (Proj. F-3), 80 p. (1995)
9	Transit Operations for Individuals with Disabilities (Proj. B-1), 118 p. (1995)
10	Fare Policies, Structures, and Technologies (Proj A-1), 182 p. (1996)
11	Impact of Radio Frequency Refarming on Transit Communications (Proj. C-5), 42 p. (1996)
12	Guidelines for Transit Facility Signing and Graphics (Proj. A-9), 64 p. (1996)
13	Rail Transit Capacity (Proj. A-8), 178 p. (1996)
14	Institutional Barriers to Intermodal Transportation Policies and Planning in Metropolitan Areas (Proj. H-4C), 212 p. (1996)
15	Procurement Specification Guidelines for Mass Transit Vehicle Window Glazing (Proj. C-4), 46 p. (1996)
16	Transit and Urban Form, Volumes 1 and 2 (Proj. H-1), 452 p. (1996)
17	Integration of Light Rail Transit into City Streets (Proj. A-5), 270 p. (1996)
18	A Handbook for Acquiring Demand-Responsive Transit Software (Proj. A-6), 82 p. (1996)
19	Guidelines for the Location and Design of Bus Stops (Proj. A-10), 218 p. (1996)
20	Measuring and Valuing Transit Benefits and Disbenefits (Proj. H-2), 46 p. (1996)
21	Strategies to Assist Local Transportation Agencies in Becoming Mobility Managers (Proj. B-7), 142 p. (1997)
22	The Role of Transit in Creating Livable Metropolitan Communities (Proj. H-4D), 184 p. (1997)

TABLE 4 (continued)

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23	Wheel/Rail Noise Control Manual (Proj. C-3), 212 p., distributed through APTA (1997)
24	Attracting Paratransit Patrons to Fixed-Route Services (Proj. B-5), 392 p. (1997)
25	Bus Operator Workstation Evaluation and Design Guidelines (Proj. F-4), 22 p. (1997)
26	Operational Analysis of Bus Lanes on Arterials (Proj. A-7), 70 p. (1997)
27	Building Transit Ridership (Proj. H-4A), 156 p. (1997)
28	Transit Markets of the Future: The Challenge of Change (Proj. H-4B), 194 p. (1998)
29	Closing the Knowledge Gap for Transit Maintenance Employees: A Systems Approach (Proj. F-5), 56 p. (1998)
30	Transit Scheduling: Basic and Advanced Manuals (Proj. A-11), 148 p. (1998)
31	Funding Strategies for Public Transportation, Volumes 1 and 2 (Proj. H-7), 83 p. (1998)
32	Multipurpose Transit Payment Media (Proj. A-14), 132 p. (1998)
33	Transit-Friendly Streets: Design and Traffic Management Strategies to Support Livable Communities (Proj. H-4D[2]), 72 p., (1998)
34	Assessment of the Economic Impacts of Rural Public Transportation (Proj. H-11), 209 p. (1998)
35	Economic Impact Analysis of Transit Investments: Guidebook for Practitioners (Proj. H-9), 196 p. (1998)
36	A Handbook: Using Market Segmentation to Increase Transit Ridership (Proj. B-9), 194 p. (1998)
37	A Handbook: Integrating Market Research into Transit Management (Proj. B-2), 207 p. (1998)
38	Guidebook for Evaluating, Selecting, and Implementing Fuel Choices for Transit Bus Operations (Proj. C-8), 164 p. (1998)
39	The Costs of Sprawl—Revisited (Proj. H-10), 229 p. (1998)
40	Strategies to Attract Auto Users to Public Transportation (Proj. H-3), 105 p. (1998)
41	New Designs and Operating Experiences with Low-Floor Buses (Proj. C-10C), 103 p. (1998)
42	Consequences of the Interstate Highway System for Transit: Summary of Findings (Proj. H-13A), 64 p. (1998)
43	Understanding and Applying Advanced On-Board Electronics (Proj. C-10A) 102 p. (1999)
44	Demonstration of Artificial Intelligence Technology for Transit Railcar Diagnostics (Proj. E-2A), 72 p. (1999)
45	Passenger Information Services: A Guidebook for Transit Systems (Proj. A-12), 52 p. (1999)
46	The Role of Transit Amenities and Vehicle Characteristics in Building Transit Ridership: Amenities for Transit Handbook and the Transit Design Game Workbook (Proj. B-10), 240 p. (1999)
47	A Handbook for Measuring Customer Satisfaction and Service Quality (Proj. B-11), 212 p. (1999)



TABLE 4 (continued)

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48	Integrated Urban Models for Simulation of Transit and Land Use Policies: Guidelines for Implementation and Use (Proj. H-12), 31 p. (1999)
49	Using Public Transportation to Reduce the Economic, Social, and Human Costs of Personal Immobility (Proj. H-8), 133 p. (1999)
50	A Handbook of Proven Marketing Strategies for Public Transit (Proj. B-13), 182 p. (1999)
51	A Guidebook for Marketing Transit Services to Business (Proj. B-08), 50 p. (1999)
52	Joint Operation of Light Rail Transit or Diesel Multiple Unit Vehicles with Railroads (Proj. A-17), 482 p. (1999)
53	New Paradigms for Local Public Transportation Organizations, Task 1 Report: Forces and Factors That Require Consideration of New Paradigms (Proj. J-8B), 94 p. (1999)
54	Management Toolkit for Rural and Small Urban Transportation Systems (Proj. G-5), 375 p. (1999)
55	Guidelines for Enhancing Suburban Mobility Using Public Transportation (Proj. B-6), 81 p. (1999)
56	Integrating School Bus and Public Transportation Services in Non-Urban Communities (Proj. A-19), 400 p. (1999)
57	Track Design Handbook for Light Rail Transit (Proj. D-6), 352 p. (2000)
58	New Paradigms for Local Public Transportation Organizations (Proj. J-8B), 59 p. (2000)
59	Hybrid-Electric Transit Buses: Status, Issues, and Benefits (Proj. C-10B), 98 p. (2000)
60	Using Geographic Information Systems for Welfare to Work Transportation Planning and Service Delivery (Proj. H-20), 83 p. (2000)
61	Analyzing the Costs of Operating Small Transit Vehicles: User's Guide, STVe (Proj. B-14), 42 p. (2000)
62	Improving Public Transportation Access to Large Airports (Proj. B-18), 148 p. (2000)
63	Enhancing the Visibility and Image of Transit in the United States and Canada (Proj. B-20), 320 p. (2000)
64	Guidebook for Developing Welfare-to-Work Transportation Services (Proj. H-15A), 190 p. (2000)
65	Evaluation of Bus Bulbs (Proj. A-10A), 69 p. (2001)
66	Effective Practices to Reduce Bus Accidents (Proj. A-18), 96 p. (2001)
67	Wheel and Rail Vibration Absorber Testing and Demonstration (Proj. C-3A), 45 p. (2001)
68	Part-Time Transit Operators: The Trends and Impacts (Proj. F-7), 134 p. (2001)
69	Light Rail Service: Pedestrian and Vehicular Safety (Proj. A-13), 141 p. (2001)
70	Guidebook for Change and Innovation at Rural and Small Urban Transit Systems (Proj. A-21), 262 p. (2001)
71	Track-Related Research, Volume 1: Broken Rail Detection, Control of Wheel/Rail Friction, and Wide-Gap Welding Techniques (Proj. D-7, Tasks 1, 3, 4), 108 p. (2001)
71	Track-Related Research, Volume 2: Transit-Switch Design Analysis (Phase I) (Proj. D-7, Task 2), 40 p. (2003)

TABLE 4 (continued)

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71	Track-Related Research, Volume 3: Exothermic Welding of Heavy Electrical Cables to Rail and Applicability of AREMA Track Recommended Practices for Transit Agencies (Proj. D-7, Task 6), 30 p. (2004)
71	Track-Related Research, Volume 4: Friction Control Methods Used by the Transit Industry (Proj. D-7, Task 7), 108 p. (2005)
71	Track-Related Research, Volume 5: Flange Climb Derailment Criteria and Wheel/Rail Profile Management and Maintenance Guidelines for Transit Operations (Proj. D-7, Task 8), 140 p. (2005)
71	Track-Related Research, Volume 6: Direct-Fixation Track Design Specifications, Research, and Related Material (with CRP-CD-61) (Proj. D-7, Task 11), 12 p. (2005)
71	Track-Related Research, Volume 7, pending
72	Simulators and Bus Safety: Guidelines for Acquiring and Using Transit Bus Operator Driving Simulators (Proj. A-22), 60 p. (2001)
73	Characteristics of Urban Travel Demand (Proj. B-15), 56 p. (2002)
74	Costs of Sprawl—2000 (Proj. H-10), 620 p. (2002)
75	The Role of the Private-for-Hire Vehicle Industry in Public Transit (Proj. B-16), 81 p. (2002)
76	Guidebook for Selecting Appropriate Technology Systems for Small Urban and Rural Public Transportation Operators (Proj. B-17), 73 p. (2002)
77	Managing Transit's Workforce in the New Millennium (Proj. F-09), 146 p. (2002)
78	Estimating the Benefits and Costs of Public Transit Projects: A Guidebook for Practitioners (Proj. H-19), 144 p. (2002)
79	Effective Approaches to Meeting Rural Intercity Bus Transportation Needs (Proj. B-21), 184 p. (2002)
80	A Toolkit for Self-Service, Barrier-Free Fare Collection (Proj. A-24), 220 p. (2002)
81	Toolbox for Transit Operator Fatigue (Proj. F-10), 234 p. (2002)
82	Improving Public Transit Options for Older Persons (Proj. B-19), Volume 1: Handbook, 59 p.; Volume 2: Final Report, 204 p. (2002)
83	Strategies for Improving Public Transportation Access to Large Airports (Proj. B-18A), 137 p. (2002)
84	e-Transit: Electronic Business Strategies for Public Transportation, Volume 1: Supply Chain: Parts and Inventory Management (Proj. J-09, Task 1), 31 p. (2002)
84	e-Transit: Electronic Business Strategies for Public Transportation, Volume 2: Application Service Provider Implementation Guidelines (Proj. J-09, Task 3), 34 p. (2002)
84	e-Transit: Electronic Business Strategies for Public Transportation, Volume 3: Using the Internet for Transit Training and Certification (Proj. J-09, Task 6), 10 p. (2003)
84	e-Transit: Electronic Business Strategies for Public Transportation, Volume 4: Advanced Features of Transit Websites (Proj. J-09, Task 4), 10 p. (2003)

TABLE 4 (continued)

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84	e-Transit: Electronic Business Strategies for Public Transportation, Volume 5: Concept for an e-Transit Reference Enterprise Architecture (Proj. J-09/Task 8), 44 p. (2004)
84	e-Transit: Electronic Business Strategies for Public Transportation, Volume 6: Strategies to Expand and Improve Deployment of ITS in Rural Transit Systems (Proj. J-9, Task 10), 20 p. (2005)
84	e-Transit: Electronic Business Strategies for Public Transportation, Volume 7: The Successful Adoption of Web-Based Collaborative Software (Proj. J-9, Task 9), 66 p. (2005)
84	e-Transit: Electronic Business Strategies for Public Transportation, Volume 8: Improving Public Transportation Technology Implementations and Anticipating Emerging Technologies (Proj. J-9, Task 12), 76 p. (2008)
85	Public Transit Board Governance Guidebook (Proj. H-24), 30 p. (2002)
86	Public Transportation Security, Volume 1: Communication of Threats: A Guide (Proj. J-10B, Task 4), 42 p. (2002)
86	Public Transportation Security, Volume 2: K9 Units in Public Transportation: A Guide for Decision Makers (Proj. J-10B, Task 5), 120 p. (2002)
86	Public Transportation Security, Volume 3: Robotic Devices: A Guide for the Transit Environment (Proj. J-10B, Task 3), 23 p. (2003)
86	Public Transportation Security, Volume 4: Intrusion Detection for Public Transportation Facilities Handbook (Proj. J-10A, Task 3), 162 p. (2003)
86	Public Transportation Security, Volume 5: Security-Related Customer Communications and Training for Public Transportation Providers, (with CRP-CD-43) (Proj. J-10A, Task 2), 8 p. (2004)
86	Public Transportation Security, Volume 6: Applicability of Portable Explosive Detection Devices in Transit Environments (Proj. J-10A, Task 2), 36 p. (2004)
86	Public Transportation Security, Volume 7: Public Transportation Emergency Mobilization and Emergency Operations Guide (Proj. J-10B, Task 1), 126 p. (2005)
86	Public Transportation Security, Volume 8: Continuity of Operations Planning Guidelines (Proj. J-10F), 84 p. (2005)
86	Public Transportation Security, Volume 9: Guidelines for Transportation Emergency Training Exercises (joint report with NCHRP Report 525, Vol. 9 (Proj. J-10C), 146 p. (2006)
86	Public Transportation Security, Volume 10: Hazard and Security Plan Workshop: Instructor Guide (with CRP-CD-64) (Proj. J-10D), 200 p. (2006)
86	Public Transportation Security, Volume 11: Security Measures for Ferry Systems (with MS Excel tool online) (Proj. J-10H), 62 p. (2006)
86	Public Transportation Security, Volume 12: Making Transportation Tunnels Safe and Secure (joint report with NCHRP 525, Volume 12) (Proj. J-10G), 168 p. (2006)
86	Public Transportation Security, Volume 13: Public Transportation Passenger Security Inspections: A Guide for Policy Decision Makers (with TCRP Web-Only Document 38) (Proj. J-10J), 68 p. (2007)
86	Public Transportation Security, Volume 14 (joint report with NCHRP) (Proj. J-10E), pending

TABLE 4 (continued)

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87	Strategies for Increasing the Effectiveness of Commuter Benefits Programs (Proj. H-25), 70 p. (2002)
88	A Guidebook for Developing a Transit Performance-Measurement System (Proj. G-6), 368 p. (2003)
89	Financing Capital Investment: A Primer for the Transit Practitioner (Proj. J-6, Task 29), 172 p. (2003)
90	Bus Rapid Transit (Proj. A-23), Volume 1: Case Studies in Bus Rapid Transit, 54 p.; Volume 2: Implementation Guidelines, 224 p. (2003)
91	Economic Benefits of Coordinating Human Service Transportation and Transit Services (Proj. H-26), 171 p. (2003)
92	Strategies for Improved Traveler Information (Proj. A-20A, Task 2), 112 p. (2003)
93	Travel Matters: Mitigating Climate Change with Sustainable Surface Transportation (Proj. H-21), 79 p. (2003)
94	Fare Policies, Structures and Technologies: Update (Proj. A-25), 232 p. (2003)
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 1: Introduction (with Appendixes A and B) (Proj. B-12A), pending
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 2: HOV Facilities (Proj. B-12A), 127 p. (2006)
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 3: Park-and-Ride/Pool (Proj. B-12A), 96 p. (2004)
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 4: Busways, BRT, and Express Bus (Proj. B-12A), 96 p., pending
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 5: Vanpools and Buspools (Proj. B-12A), 55 p. (2005)
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 6: Demand Responsive/ADA (Proj. B-12A), 52 p. (2004)
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 7: Light Rail Transit (Proj. B-12A), pending
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 8: Commuter Rail (Proj. B-12A), pending
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 9: Transit Scheduling and Frequency (Proj. B-12A), 41 p. (2003)
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 10: Bus Routing and Coverage (Proj. B-12A), 74 p. (2004)
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 11: Transit Information and Promotion (Proj. B-12A), 71 p. (2003)
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 12: Transit Pricing and Fares (Proj. B-12A), 59 p. (2004)

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95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 13: Parking Pricing and Fees (Proj. B-12A), 60 p. (2005)
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 14: Road Value Pricing (Proj. B-12A), 67 p. (2003)
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 15: Land Use and Site Design (Proj. B-12A), 140 p. (2003)
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 16: Pedestrian and Bicycle Facilities (Proj. B-12A), pending
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 17: Transit Oriented Development (Proj. B-12A), 136 p. (2007)
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 18: Parking Management and Supply (Proj. B-12A), 86 p. (2003)
95	Traveler Response to Transportation System Changes, 3rd Edition (19-Chapter Series) Chapter 19: Employer and Institutional TDM Strategies (Proj. B-12A), in editing for 2009
96	Determining Training for New Technologies: A Decision Game and Facilitation Guide (Proj. A-20B, Task 2), 44 p. (2003)
97	Emerging New Paradigms: A Guide to Fundamental Change in Local Public Transportation Organizations (Proj. J-8B/C), 110 p. (2003)
98	Resource Requirements for Demand-Responsive Transportation Services (Proj. B-23), 42 p. (2003)
99	Embracing Change in a Changing World: Case Studies Applying New Paradigms for Rural and Small Urban Transit Service Delivery (Proj. B-22A), 27 p. (2004)
100	Transit Capacity and Quality of Service Manual, 2nd Edition (Proj. A-15A), 600 p. (2003)
101	Toolkit for Rural Community Coordinated Transportation Services, (with brochure) (Proj. B-24), 448 p. (2004)
102	Transit-Oriented Development in the United States: Experiences, Challenges, and Prospects (Proj. H-27), 552 p. (2004)
103	Public Transportation Operating Agencies as Employers of Choice, (with CRP-CD-45) (Proj. F-11), 12 p. (2004)
104	Public Transportation Board Effectiveness: A Self-Assessment Handbook (Proj. H-24A), 46 p. (2004)
105	Strategies to Increase Coordination of Transportation Services for the Transportation Disadvantaged (+ CD-51) (Proj. H-30), Strategies to Increase Coordination of Transportation Services for the Transportation Disadvantaged (Proj. H-30A), 80 p. (2005)
106	Practitioner's Handbook: From Handshake to Compact—Guidance to Foster Collaborative, Multimodal Decision Making (with CRP-CD-52) (Proj. H-29A), 68 p. (2005)
107	Analyzing the Effectiveness of Commuter Benefits Programs (+ TCRP Web-Only Document 27) (Proj. H-25A), 74 p. (2005)
108	Car-Sharing: Where and How It Succeeds (with CRP-CD-60) (Proj. B-26), 266 p. (2005)

TABLE 4 (continued)

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109	Guidebook for Developing and Sharing Transit Bus Maintenance Practices (Proj. E-5), 120 p. (2005)
110	Commuting in America III (joint report with NCHRP Report 550) (Proj. J-6, Task 55), 196 p. (2006)
111	Elements Needed to Create High-Ridership Transit Systems (with TCRP Web-Only Document 32 and CRP-CD-66) (Proj. H-32), 136 p. (2007)
112	Improving Pedestrian Safety at Unsignalized Crossings (joint report with NCHRP Report 562, with TCRP Web-Only Document 30/NCHRP Web-Only Document 91) (Proj. D-8), 99 p. (2006)
113	Using Archived AVL-APC Data to Improve Transit Performance and Management (with TCRP Web-Only Document 23 and MS Excel files online) (Proj. H-28), 83 p. (2006)
114	Center Truck Performance on Low-Floor Light Rail Vehicles (Proj. C-16), 76 p. (2006)
115	Smart Card Interoperability Issues for the Transit Industry (Proj. A-26), 99 p. (2006)
116	Guidebook for Evaluating, Selecting, and Implementing Suburban Transit Services (with TCRP Web-Only Document 34) (Proj. B-25), 34 p. (2006)
117	Design, Operation, and Safety of At-Grade Crossings of Exclusive Busways (with TCRP Web-Only Document 36) (Proj. D-11), 40 p. (2007)
118	Bus Rapid Transit Practitioner's Guide (with TCRP Web-Only Document 39) (Proj. A-23A), 242 p. (2007)
119	Improving ADA Complementary Paratransit Demand Estimation (Proj. B-28), 104 p. (2007)
120	Racial and Gender Diversity in State DOTs and Transit Agencies (Proj. J-6, Task 59) (joint report with NCHRP Report 585), 52 p. (2007)
121	Toolkit for Integrating Non-Dedicated Vehicles in Paratransit Service (Proj. B-30), 59 p. (2008)
122	Understanding How to Motivate Communities to Support and Ride Public Transportation (Proj. B-32), 81 p. (2008)
123	Understanding How Individuals Make Travel and Location Decisions: Implications for Public Transportation (Proj. H-31), 137 p. (2008)
124	Guidebook for Measuring, Assessing, and Improving Performance of Demand-Response Transportation (Proj. B-31), 123 p. (2008)
125	Guidebook for Mitigating Fixed-Route Bus-and-Pedestrian Collisions (Proj. A-28), 65 p. (2008)
126	Leveraging ITS Data for Transit Market Research: A Practitioner's Guidebook (Proj. B-29), 82 p. (2008)
127	Employee Compensation Guidelines for Transit Providers in Rural and Small Urban Areas (Proj. F-12), 204 p. (2008)
128	Effects of TOD on Housing, Parking, and Travel (Proj. H-27A), 64 p. (2008)
129	Local and Regional Funding Mechanisms for Public Transportation (Proj. H-34), pending

TABLE 4 (continued)

<b>RESEARCH RESULTS DIGEST</b>	
NO.	TITLE, PROJECT NO., PAGES, PUBLICATION YEAR
1	Transit Operations for Individuals with Disabilities (Proj. B-1), 4 p. (1994)
2	Synthesis of Information Related to Transit Problems (Proj. J-7), 4 p. (1994) (out of print)
3	Total Quality Management in Public Transportation (Proj. F-3), 40 p. (1994)
4	Transit Ridership Initiative (Proj. J-6, Task 2), 48 p. (1995)
5	Electronic On-Vehicle Passenger Information Displays (Visual and Audible) (Proj. A-4), 6 p. (1995)
6	Research Agenda for Increasing Transit Ridership (Proj. H-5), 16 p. (1995)
7	An Evaluation of the Relationships Between Transit and Urban Form (Proj. H-1), 56 p. (1995)
8	Synthesis of Information Related to Transit Problems (Proj. J-7), 6 p. (1995)
9	Responding to Vandalism of Transit Bus and Rail Vehicle Passenger Windows (Proj. C-4), 5 p. (1996)
10	Integrating Americans with Disabilities Act Paratransit Services and Health and Human Services Transportation (Proj. J-6, Task 6), 13 p. (1997)
11	Guidelines for the Consistent Collection, Categorization, and Dissemination of Bus Transit Loss Data (Proj. G-3), 9 p. (1996)
12	<i>Transit Risk Manager</i> : Risk Management Software for Bus Transit Systems (Proj. G-3), 4 p. (1996)
13	Leveraging Information for Better Transit Maintenance (Proj. E-1), 21 p. (1996)
14	Coordinated Intermodal Transportation Pricing and Funding Strategies (Proj. H-6), 30 p. (1997)
15	Derailment of Transit Vehicles in Special Trackwork (Proj. D-2), 4 p. (1997)
16	Multipurpose Fare Media: Developments and Issues (Proj. A-14), 56 p. (1997)
17	Improved Methods for Increasing Wheel/Rail Adhesion in the Presence of Natural Contaminants (Proj. C-6), 6 p. (1997)
18	Public Agency Guidance on Employer-Based TDM Programs (Proj. B-4), 4 p. (1997)
19	Wheel/Rail Noise Mitigation (Proj. C-3), 4 p. (1997)
20	International Transit Studies Program (Proj. J-3), 22 p. (1997)
21	Consequences of the Development of the Interstate Highway System for Transit (Proj. H-13A), 22 p. (1997)
22	International Transit Studies Program: Urban and Regional Bus Operations in Smaller European Cities (Proj. J-3), 36 p. (1997)
23	Coordinating Public Transportation with Other Federal Programs (Proj. J-6, Task 6), 11 p. (1998)
24	Creating a New Future for Public Transportation: TCRP's Strategic Road Map (Proj. J-8A), 15 p. (1998)

TABLE 4 (continued)

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25	Technology Assessment of Refueling-Connection Devices for CNG, LNG, and Propane (Proj. C-7), 46 p. (1998)
26	Rail Corrugation Mitigation in Transit (Proj. D-1), 33 p. (1998)
27	International Transit Studies Program: Public-Private Partnerships and Innovative Transit Technologies in Scandinavia (Proj. J-3), 31 p. (1998)
28	A Desk Guide for Inventory Managers in the Transit Industry (Proj. E-3), 26 p. (1998)
29	Continuing Examination of Successful Transit Ridership Initiatives (Proj. J-6, Task 19), 106 p. (1998)
30	Trends in Single-Occupant Vehicle and Vehicle Miles of Travel Growth in the United States (Proj. H-13B), 4 p. (1998)
31	International Transit Studies Program: Applications of Intelligent Transportation Systems to Public Transit in Europe (Proj. J-3), 18 p. (1998)
32	Accessibility of Automated Fare Vending and Collection for Customers with Disabilities (Proj. J-7, Topic SA-9A), 12 p. (1998)
33	International Transit Studies Program: Private Urban Transit Systems and Low-Cost Mobility Solutions in Major Latin American Cities (Proj. J-3), 40 p. (1999)
34	Light Rail Service: Vehicular and Pedestrian Safety (Proj. A-13), 56 p. (1999)
35	Highlights of the Transit Capacity and Quality of Service Manual: First Edition (Proj. A-15), 36 p. (1999)
36	International Transit Studies Program: Revitalizing Urban Public Transport in Australia and New Zealand (Proj. J-3), 21 p. (1999)
37	Synthesis of Information Related to Transit Problems (Proj. J-7), 8 p. (2000)
38	Operational Analysis of Bus Lanes on Arterials: Application and Refinement (Proj. A-7A), 52 p. (2000)
39	Alternative-Fuel Transit Bus Hazard Assessment Model (Proj. C-11), 7 p. (2000)
40	Revised Inventory Management Desk Guide (Proj. E-3A), 42 p. (2000)
41	Guidelines for Collecting, Analyzing, and Reporting Transit Crime Data (Proj. F-6A), 20 p. (2001)
42	International Transit Studies Program (Proj. J-3), 34 p. (2001)
43	Supplementing and Updating TCRP Report 52 (Proj. A-17A), 60 p. (2001)
44	Consensus Standards for the Rail Transit Industry (Proj. G-4A), 30 p. (2001)
45	Identification of the Critical Workforce Development Issues in the Transit Industry (Proj. J-6, Task 38), 23 p. (2001)
46	Supplemental Analysis of National Survey on Contracting Transit Services (Proj. J-6, Task 39), 35 p. (2002)
47	International Transit Studies Program: Germany's Track-Sharing Experience (Proj. J-3), 40 p. (2002)
48	Synthesis of Information Related to Transit Problems (Proj. J-7), 7 p. (2002)



TABLE 4 (continued)

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49	International Transit Studies Program: Excellence in Transit Operations in Small and Medium European Cities (Proj. J-3), 29 p. (2002)
50	Legal Aspects of Transit and Intermodal Transportation Programs (Proj. J-5), 3 p. (2002)
51	Second Train Coming Warning Sign: Demonstration Projects (Proj. A-5A), 68 p. (2002)
52	Transit-Oriented Development and Joint Development in the United States: A Literature Review (Proj. H-27), 144 p. (2002)
53	International Transit Studies Program: Design-Build Transit Infrastructure Projects in Asia and Australia (Proj. J-3), 31 p. (2002)
54	International Transit Studies Program: Emerging Trends in European Public Transport (Proj. J-3), 35 p. (2002)
55	Support for Fundamental Change in Public Transportation (Proj. J-8B), 13 p. (2002)
56	A Summary of TCRP Report 88: A Guidebook for Developing a Transit Performance-Measurement System (Proj. G-6), 25 p. (2003)
57	Developing a Recommended Standard for Automated Fare Collection for Transit: Scoping Study—Regional Fare Management Programs (Proj. J-6, Task 42), 26 p. (2003)
58	International Transit Studies Program: Safety and Security Issues at All-Bus Systems in Small- to Medium-Sized Cities in Western Europe (Proj. J-3), 25 p. (2003)
59	A Guide to Public Transportation Security Resources (Proj. J-10, Task 3), 20 p. (2003)
60	Characteristics of State Funding for Public Transportation—2002 (Proj. J-6, Task 46), 125 p. (2003)
61	Traveler Response to Transportation System Changes: An Interim Introduction to the Handbook (Proj. B-12), 23 p. (2003)
62	International Transit Studies Program: Transit Operations in Central and Eastern Europe (Proj. J-3), 44 p. (2003)
63	Synthesis Information Related to Transit Problems (Proj. J-7), 7 p. (2003)
64	International Transit Studies Program: Excellence in Customer Service in Transit Operations in Small to Medium-Sized Cities in Western Europe (Proj. J-3), 26 p. (2003)
65	A New Vision of Mobility: Guidance to Foster Collaborative Multimodal Decision Making (Proj. H-29), 12 p. (2004)
66	International Transit Studies Program: Transit Design, Construction, and Operations in the Mediterranean Region (Proj. J-3), 28 p. (2004)
67	Synthesis of Information Related to Transit Problems (Proj. J-7), 8 p. (2004)
68	International Transit Studies Program: Vehicle Design Standards and Procurement Practices in Europe (Proj. J-3), 26 p. (2004)
69	Evaluation of Recent Ridership Increases (Proj. J-6), 40 p. (2005)

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70	International Transit Studies Program: Innovations in Bus, Rail, and Specialized Transit Operations in Latin America (Proj. J-3), 20 p. (2005)
71	International Transit Studies Program: New Technologies in Maintenance Systems and Departments in Europe (Proj. J-3), 20 p. (2005)
72	Guidelines for a New Transit Switch Design (Proj. D-7, Task 5), 6 p. (2005)
73	Synthesis of Information Related to Transit Problems (Proj. J-7), 10 p. (2005)
74	Train Door Systems Analysis (with TCRP Web-Only Document 28) (Proj. J-6), 16 p. (2006)
75	Executive Summary: Cost-Benefit Analysis of Providing Non-Emergency Medical Transportation (with TCRP Web-Only Document 29) (Proj. B-27), 8 p. (2006)
76	Acoustic Rail-Break Detection Demonstration at MTA–New York City Transit (Proj. D-7, Task 10), 8 p. (2006)
77	International Transit Studies Program: Innovative Techniques in the Planning and Financing of Public Transportation Projects (Proj. J-3), 20 p. (2006)
78	Managing Capital Costs of Major Federally Funded Public Transportation Projects (with TCRP Web-Only Document 31) (Proj. G-7), 11 p. (2006)
79	Design of Track Transitions (Proj. D-7, Task 15), 40 p. (2006)
80	Synthesis of Information Related to Transit Problems (Proj. J-7), 10 p. (2006)
81	International Transit Studies Program: Coordinated Approaches to Expanding Access to Public Transportation (Proj. J-3), 24 p. (2007)
82	Use of Guard/Girder/Restraining Rails (Proj. D-7, Task 12), 38 p. (2007)
83	Performance and Testing Requirements for Portable Track Geometry Inspection Systems (Proj. D-7, Task 13), 20 p. (2007)
84	Audible Signals for Pedestrian Safety in LRT Environments (Proj. D-10), 22 p. (2007)
85	International Transit Studies Program: Rail Passenger Safety: Equipment and Technologies (Proj. J-3), 40 p. (2007)
86	Synthesis of Information Related to Transit Practices (J-7), 10 p. (2007)
87	International Transit Studies Program: Emergency Preparedness, Response, and Recovery in the Transit Industry (Proj. J-3), 38 p. (2008)
88	International Transit Studies Program: Innovative Practices in Transit Workforce Development (Proj. J-3), 36 p. (2008)

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**LEGAL RESEARCH DIGEST**

NO.	TITLE, PROJECT NO., PAGES, PUBLICATION YEAR
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1	Strategies to Facilitate Acquisition and Use of Railroad Right of Way by Transit Providers (Proj. J-5, Topic 1-06), 16 p. (1994)
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2	Successful Risk Management for Rideshare and Carpool-Matching Programs (Proj. J-5, Topic 1-07), 24 p. (1994)
3	State Limitations on Tort Liability of Public Transit Operations (Proj. J-5, Topic 1-04), 18 p. (1994)
4	Transit Labor Protection—A Guide to Section 13(c) Federal Transit Act (Proj. J-5, Topic 1-01), 32 p. (1996)
5	Legal Issues Associated with Intermodalism (Proj. J-5, Topic 1-03), 22 p. (1996)
6	Requirements That Impact the Acquisition of Capital-Intensive Long-Lead Items, Rights of Way, and Land for Transit (Proj. J-5, Topic 1-05), 24 p. (1996)
7	The Impact of Civil Rights Litigation Under Title VI and Related Laws on Transit Decision Making (Proj. J-5, Topic 3-02), 24 p. (1997)
8	Transportation Service Agreements: A Preparation and Reference Guide for Transit Attorneys (Proj. J-5, Topic 1-02), 40 p. (1997)
9	Strategies to Minimize Liability under Federal and State Environmental Laws (Proj. J-5, Topic 3-05), 20 p. (1998)
10	Restrictions on Speech and Expressive Activities in Transit Terminals and Facilities (Proj. J-5, Topic 2-01), 36 p. (1998)
11	Potential Tort Liability for Transit Agencies Arising Out of the Americans with Disabilities Act (Proj. J-5, Topic 2-02), 40 p. (1998)
12	The Zoning and Real Estate Implications of Transit-Oriented Development (Proj. J-5, Topic 3-03), 50 p. (1999)
13	Report on Innovative Financing Techniques for Transit Agencies (Proj. J-5, Topic 3-01), 41 p. (1999)
14	Treatment of Privacy Issues in the Public Transportation Industry (Proj. J-5, Topic 4-02), 29 p. (2000)
15	Impact of the Family and Medical Leave Act of 1993 on the Transit Industry (Proj. J-5, Topic 4-01), 39 p. (2000)
16	Drug and Alcohol Testing—A Survey of Labor-Management Relations (Proj. J-5, Topic 3-04), 60 p. (2001)
17	Guide to Federal Buy America Requirements (Proj. J-5, Topic 5-03), 29 p. (2001)
18	Federal and State Licensing and Other Safety Requirements for Commercial Motor Vehicle Operators and Equipment (Proj. J-5, Topic 5-01), 90 p. (2001)
19	Impact of the Americans with Disabilities Act on Transit Operations (Proj. J-5, Topic 6-02), 43 p. (2003)
20	Transit Passengers and Civil Rights (Proj. J-5, Topic 7-1), 68 p. (2005)
21	Trademarking and Licensing for Transit Providers (Proj. J-5, Topic 8-01), 30 p. (2005)
22	The Case for Searches on Public Transportation (Proj. J-6, Task 60), 82 p. (2005)
23	The Americans with Disabilities Act: The Federal Transit Administration's Letters of Findings and Compliance Assessments (with CRP-CD-65) (Proj. J-5, Topic 8-4), 106 p. (2007)
24	Transit Bus Stops: Ownership, Liability, and Access (Proj. J-5, Topic 9-05), 61 p. (2008)

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25	Privacy Issues with the Use of Smart Cards (Proj. J-5, Topic 9-01), 25 p. (2008)
26	Resources for Legal Issues Associated with Bus Maintenance (Proj. J-5, Topic 9-06), 75 p. (2008)
27	Civil Rights Implications of the Allocation of Funds Between Bus and Rail (Proj. J-5, Topic 9-04), 36 p. (2008)
28	Use of Fees or Alternatives to Fund Transit (Proj. J-05, Topic 9-02), 38 p. (2008)

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**SYNTHESIS**

NO.	TITLE, PROJ. NO., PAGES, PUBLICATION YEAR
1	Safe Operating Procedures for Alternative Fuel Buses (Proj. J-7, Topic SC-1), 48 p. (1993)
2	Low-Floor Transit Buses (Proj. J-7, Topic SC-3), 44 p. (1994)
3	Incentive Programs to Improve Transit Employee Performance (Proj. J-7, Topic SF-2), 46 p. (1994)
4	Integration of Bicycles and Transit (Proj. J-7, Topic SB-1), 54 p. (1994)
5	Management Information Systems (Proj. J-7, Topic SG-3), 78 p. (1994)
6	The Role of Performance-Based Measures in Allocating Funding for Transit Operations (Proj. J-7, Topic SG-4), 52 p. (1994)
7	Regulatory Impacts of Design and Retrofit of Bus Maintenance Facilities (Proj. J-7, Topic SD-1), 50 p. (1994)
8	Retrofit of Buses to Meet Clean Air Regulations (Proj. J-7, Topic SC-4), 48 p. (1994)
9	Waste Control Practices at Bus Maintenance Facilities (Proj. J-7, Topic SC-2), 26 p. (1995)
10	Bus Route Evaluation Standards (Proj. J-7, Topic SA-1), 54 p. (1995)
11	System-Specific Spare Bus Ratios (Proj. J-7, Topic SA-2), 46 p. (1995)
12	Transit Bus Service Line and Cleaning Functions (Proj. J-7, Topic SE-1), 48 p. (1995)
13	Risk Management for Small and Medium Transit Agencies (Proj. J-7, Topic SG-1), 32 p. (1995)
14	Innovative Suburb-to-Suburb Transit Practices (Proj. J-7, Topic SB-2), 50 p. (1995)
15	System-Specific Spare Rail Vehicle Ratios (Proj. J-7, Topic SA-3), 44 p. (1995)
16	Changing Roles and Practices of Bus Field Supervisors (Proj. J-7, Topic SA-7), 46 p. (1996)
17	Customer Information at Bus Stops (Proj. J-7, Topic SA-5), 64 p. (1996)
18	Bus Occupant Safety (Proj. J-7, Topic SF-1) 56 p. (1996)
19	Passenger Transfer System Review (Proj. J-7, Topic SA-6), 37 p. (1996)
20	Transit-Focused Development (Proj. J-7, Topic SH-1), 55 p. (1997)
21	Improving Transit Security (Proj. J-7, Topic SF-3), 35 p. (1997)
22	Monitoring Bus Maintenance Performance (Proj. J-7, Topic SF-4), 48 p. (1997)

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23	Inspection Policy and Procedures for Rail Transit Tunnels and Underground Structures (Proj. J-7, Topic SD-2), 95 p. (1997)
24	AVL Systems for Bus Transit (Proj. J-7, Topic SA-4), 47 p. (1997)
25	Light Rail Vehicle Compression Requirements (Proj. J-7, Topic SC-5), 34 p. (1997)
26	Bus Transit Fare Collection Practices (Proj. J-7, Topic SA-8), 29 p. (1997)
27	Emergency Preparedness for Transit Terrorism (Proj. J-7, Topic SF-5), 73 p. (1997)
28	Managing Transit Construction Contract Claims (Proj. J-7, Topic SG-5), 50 p. (1997)
29	Passenger Counting Technologies and Procedures (Proj. J-7, Topic SA-9), 50 p. (1998)
30	ADA Paratransit Eligibility Certification Practices (Proj. J-7, Topic SB-3), 38 p. (1998)
31	Paratransit Contracting and Service Delivery Methods (Proj. J-7, Topic SG-6), 35 p. (1998)
32	Transit Advertising Revenue: Traditional and New Sources and Structures (Proj. J-7, Topic SB-4), 58 p. (1998)
33	Practices in Assuring Employee Availability (Proj. J-7, Topic SF-6), 75 p. (1999)
34	Data Analysis for Bus Planning and Monitoring (Proj. J-7, Topic SA-10), 68 p. (2000)
35	Information Technology Update for Transit (Proj. J-7, Topic SG-8), 106 p. (2000)
36	Identifying and Reducing Fraudulent Third Party Tort Claims Against Public Transit Agencies (Proj. J-7, Topic SG-7), 58 p. (2000)
37	Communicating with Persons with Disabilities in a Multimodal Transit Environment (Proj. J-7, Topic SB-05), 48 p. (2001)
38	Electronic Surveillance Technology on Transit Vehicles (Proj. J-7, Topic SA-12), 57 p. (2001)
39	Transportation on College and University Campuses (Proj. J-7, Topic SA-11), 62 p. (2001)
40	A Challenged Employment System: Hiring, Training, Performance Evaluation, and Retention of Bus Operators (Proj. J-7, Topic SF-7), 72 p. (2001)
41	The Use of Small Buses in Transit Service (Proj. J-7, Topic SB-6 ), 71 p. (2002)
42	Use of Flexible Funds for Transit Under ISTEA and TEA-21 (Proj. J-7, Topic SH-2), 40 p. (2002)
43	Effective Use of Transit Websites (Proj. J-7, Topic SB-8), 79 p. (2002)
44	Training for On-Board Bus Electronics (Proj. J-7, Topic SF-9 ), 63 p. (2002)
45	Customer-Focused Transit (Proj. J-7, Topic SB-7), 100 p. (2002)
46	Diversity Training Initiatives (Proj. J-7, Topic SF-8), 59 p. (2003)
47	Corporate Culture as the Driver of Transit Leadership Practices (Proj. J-7, Topic SF-10), 91 p. (2003)
48	Real-Time Bus Arrival Information Systems (Proj. J-7, Topic SA-14), 61 p. (2003)

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49	Yield to Bus—State of the Practice (Proj. J-7, Topic SA-13), 78 p. (2003)
50	Use of Rear-Facing Position for Common Wheelchairs on Transit Buses (Proj. J-7, Topic SC-6), 42 p. (2003)
51	Transit Advertising Sales Agreements (Proj. J-7, Topic SB-10), 99 p. (2004)
52	Transit Operator Health and Wellness Programs (Proj. J-7, Topic SF-11), 80 p. (2004)
53	Operation Experiences with Flexible Transit Services (Proj. J-7, Topic SB-9), 58 p. (2004)
54	Maintenance Productivity Practices (Proj. J-7, Topic SE-2), 92 p. (2004)
55	Geographic Information System Applications in Transit (Proj. J-7, Topic SH-3), 66 p. (2004)
56	Performance-Based Measures in Transit Fund Allocation (Proj. J-7, Topic SG-10), 74 p. (2004)
57	Use of Computer-Aided Scheduling and Dispatch for Demand-Responsive Transit Services (Proj. J-7, Topic SA-15), 80 p. (2004)
58	Emergency Response Procedures for Natural Gas Transit Vehicles (Proj. J-7, Topic SC-7), 54 p. (2005)
59	Strategic Planning and Management in Transit Agencies (Proj. J-7, Topic SH-4), 44 p. (2005)
60	Practices in No-Show and Late Cancellation Policies for ADA Paratransit (Proj. J-7, Topic B-11), 50 p. (2005)
61	Maintenance Staffing Levels for Light Rail Transit (Proj. J-7, Topic SE-03), 42 p. (2005)
62	Integration of Bicycles and Transit (Proj. J-7, Topic SB-12), 70 p. (2005)
63	On-Board and Intercept Transit Survey Techniques (Proj. J-7, Topic SH-05), 92 p. (2005)
64	Bus Use of Shoulders (Proj. J-7, Topic SD-03), 91 p. (2006)
65	Transit Agency Participation in Medicaid Transportation Programs (Proj. J-7, Topic SB-13), 48 p. (2006)
66	Fixed-Route Bus Transit Ridership Forecasting and Service Planning Methods (Proj. J-7, Topic SH-06), 51 p. (2006)
67	Bus Transit Service in Land Development Planning (Proj. J-7, Topic SH-08), 62 p. (2006)
68	Methods of Rider Communication (Proj. J-7, Topic SB-14), 95 p. (2006)
69	Web-Based Survey Techniques (Proj. J-7, Topic SH-07), 104 p. (2006)
70	Mobile Data Terminals (Proj. J-7, Topic SC-08), 150 p. (2007)
71	Paratransit Managers' Skills, Qualifications, and Needs (Proj. J-7, Topic SB-15), 52 p. (2007)
72	Use of Biodiesel in a Transit Fleet (Proj. J-7, Topic SC-09), 61 p. (2008)
73	AVL Systems for Bus Transit: Update (Proj. J-7, Topic SA-17), 104 p. (2008)
74	Policies and Practices for Effectively and Efficiently Meeting ADA Paratransit Demand, (Proj. J-7, Topic SB-15), 54 p. (2008)

TABLE 4 (continued)

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75	Uses of Higher Capacity Buses in Transit Service (Proj. J-7, Topic SA-16), 72 p. (2008)
76	Integration of Paratransit and Fixed-Route Transit Services (Proj. J-7, Topic SB-16), 48 p. (2008)
77	Passenger Counting Systems (Proj. J-7, Topic SA-18), pending
78	Transit Systems in College and University Systems (Proj. J-7, Topic SA-19), 88 p. (2008)
79	Light Rail Vehicle Collisions with Vehicles at Signalized Intersections (Proj. J-7, Topic SA-20), pending
80	Track Maintenance Costs on Rail Transit Properties (Proj. J-7, Topic SE-04), pending
81	Transit Security Update (Proj. J-7, Topic SF-13), pending

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NO.	<b>TRANSIT IDEA (TCRP PROJECT J-4, TITLE</b>
	New Ideas for Transit: Annual Progress Report of the Transit IDEA Program
1	Customer Satisfaction Index for the Mass Transit Industry
2	Adaptive Diagnostic System Project
3	Automatic Rail-Wheel Inspection Station
4	Management Information Benefits of Integrating Electronic Fareboxes with Other On-board Equipment
5	Improved Passenger Counter and Classifier System for Transit Operations
7	Pneumatically Operated and Flexible Wheelchair Restraint System
8	Real-Time Transit Data Broadcast
9	Independent Transportation Network: Alternative Transportation for the Elderly
10	Automatic Data Collection on Transit Users via Radio Frequency Identification
11	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)
13	Self Paced PC-Based Track Safety Training System
14	Market Study and Operational Test Results for the Instant Rent-A-Car (IRAC) Station Field Tests
15	Internet Information Sharing for Transit Maintenance
16	A Public Transit-Compatible Restraint System for Wheelchair Users
17	Operational Evaluation of a Rail-Based Wheel Gauge Inspection System
18	Pilot Testing Innovative Payment Operations for Independent Transportation for the Elderly
19	Field Testing and Evaluation of the Transit Integrated Monitoring System

TABLE 4 (continued)

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20	Non-Contact Sensor for Improved Passenger Counting and Classification System for Transit and Rail Application
21	Smart Parking Lot with Just-in-Time Shuttle
22	Sleeved Column System for Crashworthiness of Light Rail Vehicles
23	Optimizing Travel Paths for People with Disabilities
24	Operational Testing of Intelligent Rail Lubrication System
28	Transit Scratchitti Removal
29	Fare Machine Tactile/Audio Instruction System
31	A Tool for Evaluating and Optimizing Bus Stop Location Decisions
32	Simulation and Animation Model for Planning and Designing Transit Facilities
33	Community Visualization in Design of Light Rail Transit-Oriented Development
35	Innovative Bioterrorism Detection Technology for Transit Security
36	Cleaning Device for Electrified Third Rail Insulators
37	Bandwidth Expansion and Real-Time Surveillance for Security on Transit Buses
38	Assessment of Rear-Facing Wheelchair Accommodation on BRT
39	Dynamic Timetable Generator from Schedule Data
40	Counter Terrorism Chemical Detector for Rail Transit Vehicles
41	Track Geometry/Design Testing for Transit Applications
42	Detection of Radioactivity in Transit Stations
44	Cleaning and Recoating Electrified Third Rail Cover Boards
45	Chemical and Biological Decontamination System for Rail Transit Facilities
47	Cleaning Device for Electrified Third Rail Insulators—Phase 2
49	Smart Sander Enhancement for Commuter Rail
53	Ultraviolet Germicidal Irradiation for Transit Buses
55	Warning Device for Rail Rapid Transit Personnel for Approaching Trains

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**WEB-ONLY DOCUMENTS**

NO.	TITLE, PROJECT NO., PAGES, PUBLICATION YEAR
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- |   |   |
|---|---|
| 1 | Bus Operator Workstation Evaluation and Design Guidelines: Final Report (Proj. F-4) 694 p. (1997) |
| 2 | Evaluating Transit Operations for Individuals with Disabilities (Proj. B-1) 366 p. (1997)         |



TABLE 4 (continued)

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3	Directions: A Simple Guidebook for Integrating Market and Customer Research into Transit Decision-Making to Become Customer Oriented (Proj. B-2) 30 p. (1998)
4	Inventory Management for Bus and Rail Public Transit Systems: Final Report (Proj. E-3) 114 p. (1998)
5	Trends in Single Occupant Vehicle and Vehicle Miles of Travel Growth in the United States: Final Report (Proj. H-13B) 100 p. (1998)
6	Transit Capacity and Quality of Service Manual, First Edition (Proj. A-15) 426 p. (1999)
7	Using Public Transportation to Reduce the Economic, Social and Human Costs of Personal Immobility (Proj. H-8) 322 p. (1999)
8	Marketing Transit Services to Business (Proj. B-8) 242 p. (1999)
9	Integrated Urban Models for Simulation of Transit and Land-Use Policies: Final Report (Proj. H-12) 252 p. (1999)
10	Bar Coding in Mass Transit Operations and Maintenance—Application Guide Book (Proj. G-2) 84 p. (1999)
11	Integrating School Bus and Public Transportation Services in Non-Urban Communities—Implementation Guide (Proj. A-19) 160 p. (1999)
12	Traveler Response to Transportation System Changes, Interim Handbook (Proj. B-12) 446 p. (2000)
13	Cost of Meeting Accessibility Requirements for Over-the-Road Buses (Proj. J-6, Task 33) 130 p. (2000)
14	Using Geographic Information Systems for Welfare to Work Transportation Planning and Service Delivery—Case Studies (Proj. H-20) 76 p. (2000)
15	Guidelines for the Effective Use of Uniformed Transit Police and Security Personnel (Proj. F-6) 312 p. (2001)
16	Welfare to Work: Integration and Coordination of Transportation and Social Services (Proj. H-15A) 214 p. (2001)
17	Applications for Improved Inventory Management for Public Transit Systems (Proj. E-3A) 104 p. (2001)
18	Developing Useful Transit-Related Crime and Incident Data (Proj. F-6A) 76 p. (2001)
19	An Evaluation of Bus Bulbs on Transit, Traffic, and Pedestrian Operations (Proj. A-10A) 162 p. (2001)
20	Advanced Public Transportation Systems for Rural Areas (Proj. B-17) 200 p. (2002)
21	Public Transit System Policy Boards: Organization and Characteristics (Proj. H-24), 200 p. (2002)
22	Public Agency Guidance on Employer-Based TDM Programs and Employer Technical Memorandum Characteristics of Effective TDM Programs (Proj. B-4), 229 p. (2003)
23	Uses of Archived AVL-APC Data to Improve Transit Performance and Management: Review and Potential (Proj. H-28), 167 p. (2003)
24	The Public Transportation Board Effectiveness Study (contractor's final report) (Proj. H-24A), 44 p. (2004)
25	Public Transportation Emergency Mobilization and Emergency Operations Guide: Appendix B—Survey of U.S. Public Transportation Systems (Proj. J-10B[1]), 41 p. (2005)

TABLE 4 (continued)

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26	TravelMatters: Mitigating Climate Change with Sustainable Surface Transportation (Proj. H-21A), 53 p. (2005)
27	Appendixes to TCRP Report 107: Analyzing the Effectiveness of Commuter Benefit Programs (Proj. H-25A), 97 p. (2005)
28	Train Door systems Analysis: Appendixes (Proj. J-6), 64 p. (2006)
29	Cost-Benefit Analysis of Providing Non-Emergency Medical Transportation (Proj. B-27), 208 p. (2006)
30	Improving Pedestrian Safety at Unsignalized Crossings: Appendixes B to O (Joint NCHRP Web-Only Document 91 and TCRP Report 112/NCHRP Report 562) (Proj. D-8), 270 p. (2006)
31	Managing Capital Costs of Major Federally Funded Public Transportation Projects (with TCRP Research Results Digest 78) (Proj. G-7), 297 p. (2006)
32	Elements Needed to Create High Ridership Transit Systems: Interim Guidebook (Proj. H-32), 237 p. (2006)
33	The Federal Transit Act, as Amended through August 10, 2005, and Related Laws (Proj. J-5), 317 p. (2007)
34	Developing Guidelines for Evaluating, Selecting, and Implementing Suburban Transit Services (contractor's final report) (Proj. B-25), 250 p. (2006)
35	Appendixes to TCRP RRD 84: Audible Signals for Pedestrian Safety in LRT Environments (Proj. D-10), 147 p. (2007)
36	Appendixes to TCRP Report 117: Design, Operation, and Safety of At-Grade Crossings of Exclusive Busways (Proj. D-11), 155 p. (2007)
37	Rail Base Corrosion Detection and Prevention (Proj. D-7, Task 14), 129 p. (2007)
38	Appendixes to TCRP Report 86: Public Transportation Security, Volume 13: Public Transportation Passenger Security Inspections: A Guide for Decision Makers (Proj. J-10J), 77 p. (2007)
39	Appendixes to TCRP Report 118: Bus Rapid Transit Practitioner's Guide, (Proj. A-23A) 50 p. (2007)
40	Development of Crash Energy Management Performance Requirements for Light-Rail Vehicles (Proj. C-17), 154 p. (2008)

TABLE 4 (continued)

NO.	TCRP CD-ROMS PROJECT NO.	TITLE
<b>CRP-CD-2</b>	TCRP A-15	Transit Capacity and Quality of Service Manual: First Edition
<b>CRP-CD-3</b>	TCRP D-5	Performance of Direct-Fixation Track Software: Design Guidelines and Software
<b>CRP-CD-4</b>	TCRP C-11	Alternative-Fuel Transit Bus Hazard Assessment Model
<b>CRP-CD-13</b>	TCRP G-03	Transit Risk Manager for Bus Services (Contractor's CD)
<b>CRP-CD-16</b>	TCRP B-16	Multimedia Presentation: Role of Private-for-Hire Vehicle Industry in Public Transit (TCRP Report 75)
<b>CRP-CD-17</b>	TCRP B-15	Supporting Material for TCRP Report 73: Characteristics of Urban Travel Demand
<b>CRP-CD-18</b>	TCRP H-19	Estimating and Presenting the Benefits and Costs of Public Transit Projects: Guidebook for Practitioners (TCRP Report 78)
<b>CRP-CD-19</b>	TCRP A-24	A Toolkit for Self-Service Barrier-Free Fare Collection (TCRP Report 80)
<b>CRP-CD-20</b>	TCRP J-5	Selected Studies in Transportation Law: Volumes 1, 3, 4, 5, 6, 7, and 8 are published as of 2007. Volume 2 is pending for 2009.
<b>CRP-CD-21</b>	TCRP F-10	Toolbox for Transit Operator Fatigue (with TCRP Report 81)
<b>CRP-CD-25</b>	TCRP G-6	Guidebook for Developing a Transit Performance-Measure System and Supplementary Material (with TCRP Report 88)
<b>CRP-CD-27</b>	TCRP J-9(6)	TCRP Report 84, Volume 3: Using the Internet for Transit Training and Certification
<b>CRP-CD-31</b>	TCRP A-23	Supporting Material for TCRP Report 90, Volume 1, BRT Case Studies
<b>CRP-CD-34</b>	TCRP J-9(4)	Supporting Material for TCRP Report 84, Volume 4: Advanced Features of Transit Websites
<b>CRP-CD-40</b>	TCRP B-23	Supporting Material for TCRP Report 98 (NU DRT Software, User's Manual, and Supplementary Documents)
<b>CRP-CD-42</b>	TCRP A-15A	TCRP Report 100 (TCQSM) and Supplemental Material
<b>CRP-CD-43</b>	TCRP	Supporting Material for TCRP Report 86: Public Transportation Security; Vol. 5,

TABLE 4 (continued)

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	J-10A-2	Security-Related Customer Communications and Training for Public Transportation Providers
<b>CRP-CD-45</b>	TCRP F-11	Public Transportation Operating Agencies as Employers of Choice: Toolkit
<b>CRP-CD-51</b>	TCRP H-30	Appendix Material for TCRP Report 105
<b>CRP-CD-52</b>	TCRP H-29A	Appendix Material for TCRP Report 106
<b>CRP-CD-60</b>	TCRP B-26	Appendix Material for TCRP Report 108
<b>CRP-CD-61</b>	TCRP D-7 (11)	Direct-Fixation Track Design Specifications, Research, and Related Material (TCRP Report 71, Vol. 6)
<b>CRP-CD-64</b>	TCRP J-10D	TCRP Report 86: Public Transportation Security, Volume 10: Hazard and Security Plan Workshop: Instructor Guide—Appendixes (with TCRP Report 86, Vol. 10)
<b>CRP-CD-65</b>	TCRP J-5 (8-4)	The Americans with Disabilities Act: The Federal Transit Administration's Letters of Findings and Compliance Assessments (with TCRP LRD 23)
<b>CRP-CD-66</b>	TCRP H-32	Building and Retaining Transit Ridership: The Keys to Success—An Interactive CD (with TCRP Report 111)

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**TABLE 5 SUMMARY OF PROJECT STATUS THROUGH DECEMBER 31, 2008**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
<b>A : OPERATIONS</b>									
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		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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		
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	Kittelson and Assoc	11/1/1996	1/31/1999	Completed - Published as RRD 35; Web Document 6; and as CRP-CD-2		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
A-15A	Transit Capacity and Quality of Service Manual: Second Edition	\$300,000	\$300,000	Kittelson 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	Kittelson and Assoc	9/10/2003	3/31/2004	Completed - Forwarded to HCM Committee		
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) A-19A(2)	Scoping Study for Project A-19A(2)	\$9,000	\$8,059	Multisystems	4/1/2001	12/31/2001	Completed		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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		
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	Kittelson & 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		



**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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-FRA-Compliant Public Transit Rail Vehicles	\$200,000	\$198,564	Booz-Allen & Hamilton	8/31/2005	9/30/2008	Completed - Publication Pending	V. Pindiprolu J. Fisher	G. Chisholm
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		
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	12/30/2008	Completed - Publication Pending	V. Pindiprolu	G. Chisholm
A-30	Improving Pedestrian and Motorist Safety Along Light Rail Transit Alignments	\$300,000	\$300,000	iTrans Consulting, Ltd.	9/8/2006	2/1/2009	Research in Progress	J. Powers T. Williams	G. Chisholm
A-31	Transit Call Centers and 511: A Guide for Decision Makers	\$250,000	\$250,000	Battelle	12/15/2006	4/30/2009	Research in Progress	R. Boneau	L. Goldstein
A-32	Operation of Light Rail Transit through Ungated Crossings at Speeds Over 35 mph	\$295,000	\$294,924	Science Applications International Corporation	11/7/2008	11/7/2011	Research in Progress	R. Chen K. Nguyen	L. Goldstein

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
<b>B : SERVICE CONFIGURATION</b>									
B-01	Transit Operations for Individuals with Disabilities	\$200,000 (92) \$145,000 (95)	\$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		
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		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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	12/31/2009	Research in Progress -	E. Pihl	S. Parker
B-12B	Traveler Response to	\$75,000					Chapters 2, 3, 5, 6, 9, 10,		
B-12C	Transportation Systems Changes Handbook	\$81,600					11, 12, 13, 14, 15, 17 & 18 Published in Report 95 series		
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		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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	Wirthin 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		
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		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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	Nelson\Nygaard	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	Nelson\Nygaard	8/24/2004	3/31/2007	Completed - Published as Report 119		
B-28A	Improving ADA Complementary Paratransit Demand Estimation - Phase II: Regional Travel Demand Forecasting	\$330,000	\$330,000	Nelson\Nygaard	5/15/2008	5/4/2010	Research in Progress	D. Knight E. Pihl M. Winter	D. Schwager
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	Nelson\Nygaard	9/1/2004	10/1/2007	Completed - Published as Report 121		
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		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
B-31A	Guidebook for Measuring, Assessing, and Improving Performance of Rural Demand-Response Transportation	\$150,000	\$150,000	KFH Group	9/30/2007	10/30/2008	Completed - Publication Pending	K. Gates	D. Schwager
B-32	Understanding How to Motivate Communities to Support and Ride Public Transportation	\$300,000 \$25,000 (CUTA)	\$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	1/31/2009	Research in Progress	P. Marx	G. Chisholm
B-34	Guidebook for Comingling ADA- Eligible and Other Passengers on ADA- Complementary Paratransit Services	\$300,000	\$300,000	TransSystems, Inc.	8/30/2006	10/31/2009	Research in Progress	R. Collins B. Graves B. Helfer	D. Schwager
B-35	A Guide for Planning and Operating Flexible Public Transportation Services	\$300,000	\$300,000	DMP Group	8/16/2007	2/15/2009	Research in Progress	D. Birnie	G. Chisholm
B-36	Methods for Estimating Demand and Quantifying Need for Rural Passenger Transportation	\$300,000	\$299,180	Vanesse Hangen Brustlin, Inc.	12/4/2007	8/3/2009	Research in Progress	R. Hammon	S. Parker
B-37	Estimation of Demand for Rural Intercity Bus Services	\$200,000	\$199,411	KFH Group, Inc.	12/11/2007	6/30/2009	Research in Progress	C. Nutaker T. Souvandara	S. Parker
B-38	Guidelines for Providing Access to Public Transportation Stations	\$500,000	\$350,000	Kittleson & Assoc	9/17/2008	3/16/2010	Research in Progress	J. Stolfus C. Wilder	D. Schwager

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
<b>C : ENGINEERING OF VEHICLES AND EQUIPMENT</b>									
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		
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.		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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		
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	9/14/2000	6/30/2002	Completed - Specifications Published by APTA		



**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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	1/31/2009	Research in Progress	J. Bell C. Garay	L. Goldstein
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		
C-18	Industry Assessment of Radio Frequency and Wireless Data Systems	\$225,000	\$224,970	Science Applications International Corp.	10/22/2008	10/21/2009	Research in Progress	K. Nguyen R. Wagley	S. Parker
C-19	Guidebook for Evaluating Fuel Choices for Post-2010 Transit Bus Procurements: Update of TCRP Report 38	\$150,000	\$150,000	Science Applications International Corporation	11/15/2007	2/15/2009	Research in Progress	C. Gikakis	S. Parker
<b>D : ENGINEERING OF FIXED FACILITIES</b>									
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		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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		
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)	\$950,000	Transportation Technology Center, Inc.	10/28/1999	12/31/2008	Continuing Project - See D-7 Table	T. Williams	S. Parker
D-07A									
D-07B									
D-07C									
D-07D									
D-07E									
D-07F									
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 - Will be Published by AASHTO		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
D-10	Audible Signals for Pedestrian Safety in Light Rail Transit Environments	\$400,000	\$400,000	Korve 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	4/30/2009	Research in Progress	A. Marner	S. Parker
D-13	A Guide for Implementing Bus-on-Shoulder (BOS) Systems	\$200,000	\$200,000	Wilbur Smith Associates, Inc.	9/15/2006	1/31/2009	Research in Progress	J. Bell I. Chambers M. Molloy	S. Parker
<b>E : MAINTENANCE</b>									
E-01	Leveraging Information for Better Transit Maintenance	\$350,000 (92) \$150,000 (94)	\$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		
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		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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	6/30/2009	Research in Progress - 7 of 10 ASE Tests Now Offered		C. Jenks
E-07	Initiating a National Transit Industry Rail Vehicle Technician Certification Program: Building for Success	\$400,000	\$400,000	Transportation Learning Center	7/18/2008	10/17/2009	Research in Progress	R. Chen C. Garay	C. Jenks
E-08	Extending and Deepening National Transit Training Standards	\$250,000	\$250,000	Transportation Learning Center	7/14/2008	10/13/2009	Research in Progress	R. Chen M. Flanigan	C. Jenks
<b>F : HUMAN RESOURCES</b>									
F-01	Fitness-for-Duty Testing in the Transit Workplace	\$300,000 (92) \$500,000 (94)	\$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		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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		
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	McGlothlin 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		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
F-13	Vehicle Operator Recruitment, Retention and Performance in ADA Complementary Paratransit Services	\$300,000	\$300,000	TranSystems	9/4/2007	3/2/2009	Research in Progress	D. Knight	G. Chisholm
F-14	Addressing Critical Shortfalls: Recruitment, Development, and Retention of High-Quality Managers for Public Transportation Systems	\$250,000	\$249,998	ICF, Inc.	9/12/2008	12/11/2009	Research in Progress	D. Birnie S. Clark	D. Schwager
F-15	A Practical Guide for Recruiting Minorities for Chief Executive Officers at Public Transportation Agencies	\$250,000	\$249,945	Generator Group, LLC	12/15/2008	6/15/2010	Research in Progress	A. Herd R. Owens	G. Chisholm
<b>G : ADMINISTRATION</b>									
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	11/15/1993	9/14/1995	Completed - Published as Web Document 10		
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		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
G-04A	Developing Standards for System and Subsystem Interfaces in Electric Rail Passenger Vehicles - Extension	\$275,000	\$755,148	Thomas J McGean	9/1/1997	2/28/2002	Completed - Published as RRD 44		
G-04B		\$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	9/30/2008	Completed - Publication Pending	S. Herre V. Pindiprolu	G. Chisholm
G-09	Human Services Transportation Cost Reporting Guidelines	\$250,000	\$250,000	Westat	10/15/2006	7/31/2009	Research in Progress	D. Birnie T. Hodges	L. Goldstein
G-10	Guidebook for Estimating "Soft Costs" for Major Public Transportation Capital Infrastructure Projects	\$300,000	\$300,000	AECOM Consult	8/24/2007	2/23/2009	Research in Progress	S. Herre M. O'Conner	D. Schwager

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
G-11	Methodology for Performance Measurement and Peer Comparison in the Public Transportation Industry	\$300,000	\$300,000	Kittleson & Associates	11/1/2007	7/31/2009	Research in Progress	F. Williams	D. Schwager
<b>H : POLICY AND PLANNING</b>									
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		
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		



**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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		
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		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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		
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	TranSystems	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	TranSystems	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	TranSystems	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		
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		

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
H-34	Local and Regional Funding Mechanisms for Public Transportation	\$250,000	\$250,000	Cambridge Systematics	8/8/2006	9/15/2008	Completed - Publication Pending	M. Ahmad L. Colbert E. Day	D. Schwager
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		
H-36	Reinventing the Interstate: A "New Paradigm" for Multimodal Transportation Facilities	\$400,000	\$349,984	Dowling Associates	10/26/2007	4/25/2009	Research in Progress	B. Goldberg R. Owens	D. Schwager
H-37	Characteristics of Premium Transit Services that Affect Choice of Mode	\$375,000	\$375,000	RSG, Inc.	12/28/2007	10/1/2010	Research in Progress	J. Ryan N. Islam	D. Schwager
H-38	Developing, Enhancing and Sustaining Tribal Transit Services	\$400,000	\$399,366	LSC Transportation Consultants, Inc.	9/30/2008	9/30/2010	Research in Progress	C. Monroe L. Wilson	S. Parker
H-39	Methodology for Determining the Economic Development Impacts of Transit Investments	\$400,000	\$400,000	Rutgers University	11/15/2008	5/14/2010	Research in Progress	R. Steinmann K. Gates S. Workman	L. Goldstein
H-40	Guidelines for Ferry Transportation Services - A National Overview	\$200,000	\$199,286	Arup	11/15/2008	5/14/2010	Research in Progress	M. Gordan N. Solkowski	L. Goldstein

TABLE 5 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
<b>J : SPECIAL PROJECTS</b>									
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)	\$50,000	American Public Transportation Assoc	2/15/1993		Continuing Project	L. Colbert M. Drancsak	D. Schwager
J-02	TCRP Strategic Planning Process and Strategic Plan	\$50,000	\$50,000	Various	10/28/1992	12/31/1996	Completed		
J-03/3A	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)		Eno Transportation Foundation	2/1/1994		Continuing Project; Publications - RRDs 20, 22, 27, 31, 33, 36, 42, 47, 49, 53, 54, 58, 62, 64, 66, 68, 70, 71, 77, 81, 85, 87, and 88	R. Dagouillard R. Boenau	G. Chisholm

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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) \$ -0- (98) \$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)		Transportation Research Board	12/1/1992		Continuing Project; See J-4 Table	W. Kulyk	S. Parker
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) \$ -0- (98) \$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)		Transportation Research Board	3/1/1993		Continuing Project; See J-5 Table - RRD 50	R. Maristch	G. Chisholm



**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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)	Various	1/1/1994	Continuing Project; See J-6 Table	L. Colbert	C. Jenks		
J-07	Synthesis of Information Related to Transit Practices	\$700,000 (92) \$625,000 (93) \$475,000 (94) \$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)	Transportation Research Board	12/1/1992	Continuing Project; See J-7 Table; Publications - RRDs 2, 8, 37, 48, 63, 67, 73, 80, and 86	L. Colbert	G. Chisholm		
J-08	New Paradigms for Public Transit	\$171,000 (96)	Various		Completed				
J-08A	New Paradigms for Public Transportation: A Scoping Study	\$154,000 (96)	Eno Transportation Foundation	2/25/1997	2/24/1998	Completed - Future Search Held May 1997; Published as RRD 24			

**TABLE 5 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FTA Liaison(s)	Staff Officer
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)					Continuing Project - See J-9 Table	M. Ahmad M. Baltes	G. Chisholm
J-10	Public Transportation Security Research	\$2,000,000 (02) \$400,000 (03) \$350,000 (04)					Special Project - See J-10 Table	Various	S. Parker
J-11	Quick Response Research on Long-Term Strategic Issues	\$300,000 (07) \$300,000 (08)					Continuing Project - See J-11 Table	L. Colbert	D. Schwager

**TABLE 6 SUMMARY OF TCRP PROJECT D-7 STATUS THROUGH DECEMBER 31, 2008**  
**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	Development of Direct-Fixation Fastener Specifications and Related Materials	\$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 Study	\$74,110	TTCI	10/25/2005	3/15/2007	Completed - Published as Web Document 37	

**TABLE 6 (continued)**

No.	Title	Contract Amount	Contractor	Start Date	End Date	Status	Staff Officer
15	Design of Track Transitions	\$34,383	TTCI	10/25/2005	6/30/2006	Completed - Published as RRD 79	
16	Guard/Restraining Rail Study, Phase 2	\$63,500	TTCI	4/11/2008	12/10/2008	Completed - Publication Pending	S. Parker
17	Rail Base Corrosion Study, Phase 2	\$80,500	TTCI	4/11/2008	11/10/2008	Completed - Publication Pending	S. Parker

**TABLE 7 SUMMARY OF TCRP PROJECT J-4 STATUS THROUGH DECEMBER 31, 2008  
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	

**TABLE 7 (continued)**

No.	Title	Contractor	Start Date	End Date	Status	Staff Officer
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	Kieman Transit Associates	9/1/1996	12/15/1997	Completed	
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	System, 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	

**TABLE 7 (continued)**

No.	Title	Contractor	Start Date	End Date	Status	Staff Officer
IDEA 28	Transit Scratchhiti 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	
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	

**TABLE 7 (continued)**

No.	Title	Contractor	Start Date	End Date	Status	Staff Officer
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	
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	4/28/2009	Research in Progress	H. Berlin
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	5/25/2009	Research in Progress	H. Berlin
IDEA 51	Bioterrorism Detection Technology for Transit Security - Phase 2	Science Applications International Corporation	10/20/2006	4/30/2009	Research in Progress	H. Berlin
IDEA 52	Travel Assist Device (TAD) to Help Transit Riders	University of South Florida	3/20/2007	3/31/2009	Research in Progress	H. Berlin
IDEA 53	Ultraviolet Germicidal Irradiation for Transit Buses	JKA Company	5/29/2007	11/30/2008	Completed	
IDEA 54	Detection of Radioactivity in Transit Stations - Phase II	Advanced Fuel Research, Inc.	6/25/2007	4/30/2009	Research in Progress	H. Berlin



**TABLE 7 (continued)**

No.	Title	Contractor	Start Date	End Date	Status	Staff Officer
IDEA 55	Warning Device for Rail Rapid Transit Personnel for Approaching Subway Trains	ProTran 1	6/29/2007	11/30/2008	Completed	
IDEA 56	Detection of Explosives and Weapons in Transit Systems	Systems Micro Technologies (Kirsen) Inc.	3/7/2008	5/7/2009	Research in Progress	H. Berlin
IDEA 57	Independent Wheelchair Securement	Oregon State University	3/12/2008	3/12/2009	Research in Progress	H. Berlin
IDEA 58	Google Transit Data Tool for Small Transit Agencies	PEMCO, Inc.	12/15/2008	12/15/2009	Research in Progress	H. Berlin
IDEA 59	Recoating Electrified Third Rail Cover Boards - Phase 2	Arun Vohra	9/22/2008	9/22/2009	Research in Progress	H. Berlin
IDEA 60	TCIP Traveler Information Pilot	Ayers Electronic Systems, LLC	12/15/2008	1/15/2010	Research in Progress	H. Berlin
IDEA 61	Flexible Carpooling to Transit Stations	Trip Convergence Ltd.	12/22/2008	1/22/2009	Research in Progress	H. Berlin

**TABLE 8 SUMMARY OF TCRP PROJECT J-5 STATUS THROUGH DECEMBER 31, 2008**  
**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	

**TABLE 8 (continued)**

No.	Title	Consultant	Start Date	Estimated Completion Date	Staff Officer
03-04	Drug and Alcohol Testing - A Survey of Labor-Management Relations	Robert Hirsch, Esq., Krukowski & Costello	June 1996	Completed - Published as LRD 16	
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	

**TABLE 8 (continued)**

No.	Title	Consultant	Start Date	Estimated Completion Date	Staff Officer
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	
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 Abilities Testing to Current Workforce of Transit Agencies	Gary Rischitelli	September 2006	February 2009	J. McDaniel
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	Sidewalks and Subways-Legal Distinctions between City Streets and Mass Transit Facilities as Public Forums	Ames, Miller & Van Eaton	July 2007	June 2009	J. McDaniel
10-02	Avoiding Public Outrage and Legal Challenges from Transit Advertising	Jason Bezis & Jack Faucett	June 2007	June 2009	J. McDaniel

**TABLE 8 (continued)**

No.	Title	Consultant	Start Date	Estimated Completion Date	Staff Officer
10-03	Competitive Bid Requirements Intersection with the Need for Confidentiality of Specifications for Security Purposes	Jocelyn Waite	December 2008	December 2009	J. McDaniel
10-04	Procurement - Competition Requirements of Design-Build, Construction Manager at Risk, and Other Contracts that May Have Indeterminate Prices at Award	Anthony Songer	November 2007	June 2009	J. McDaniel
11-01	Legal Handbook for the New Starts Process	Daniel Duff, Thompson, Coburn	July 2008	July 2009	J. McDaniel
11-02	Transit Oriented Development & Joint Development Case Studies and Legal Issues	The TOD Group	July 2008	July 2009	J. McDaniel
11-03	Transit Agencies Compliance with Title VI, Limited English Proficiency Requirements	Diaz, Hughes & Rissetto Associates	November 2008	April 2010	J. McDaniel

**TABLE 9 SUMMARY OF TCRP PROJECT J-6 STATUS THROUGH DECEMBER 31, 2008**  
**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	

**TABLE 9 (continued)**

No.	Title	Consultant	Start Date	Estimated Completion Date	Staff Officer
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	
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	Open	D. Schwager
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	

**TABLE 9 (continued)**

No.	Title	Consultant	Start Date	Estimated Completion Date	Staff Officer
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	
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	



**TABLE 9 (continued)**

No.	Title	Consultant	Start Date	Estimated Completion Date	Staff Officer
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	
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	

**TABLE 9 (continued)**

No.	Title	Consultant	Start Date	Estimated Completion Date	Staff Officer
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	
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	

**TABLE 9 (continued)**

No.	Title	Consultant	Start Date	Estimated Completion Date	Staff Officer
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	
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	January 2009	D. Schwager
Task 72	Developing a Professional Certification and Credentialing Program for the Transit Industry			In Development	G. Chisholm
Task 73	Bus Fleet Management in an Era of Increasing Technical Complexity	Eagle Harbor Group, LLC	October 2008	March 2009	S. Parker

**TABLE 10 SUMMARY OF TCRP PROJECT J-7 STATUS THROUGH DECEMBER 31, 2008**  
**Synthesis of Information Related to Transit Practices**

No.	Title	Topic Consultant	Start Date	Status	FTA Liaison(s)	Staff Officer
<b>A : OPERATIONS</b>						
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		

**TABLE 10 (continued)**

No.	Title	Topic Consultant	Start Date	Status	FTA Liaison(s)	Staff Officer
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		
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 Technologies and Procedures: Update	Daniel Boyle	October 2007	Completed - Published as Synthesis 77		
SA-19	Public Transportation on College and University Campuses: Update	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 - Publication Pending	H. Nejako	D. Vlasak
SA-21	Inventory of Operating Agreements Between Passenger Rail and Freight Railroads			Cancelled		
SA-22	Bus Arterial and Light Rail Transit Preferential Treatments	Alan Danaher PB Americas, Inc.	November 2008	November 2009	S. Mortensen	D. Vlasak

**TABLE 10 (continued)**

No.	Title	Topic Consultant	Start Date	Status	FTA Liaison(s)	Staff Officer
<b>B : SERVICE CONFIGURATION</b>						
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		
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 Hernily, 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		

**TABLE 10 (continued)**

No.	Title	Topic Consultant	Start Date	Status	FTA Liaison(s)	Staff Officer
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, TransSystems 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		
SB-17	Innovative Rural Transit Routes	Pat Piras	November 2007	February 2009	C. Wilder	D. Vlasak
<b>C : ENGINEERING OF VEHICLES AND EQUIPMENT</b>						
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		
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		

**TABLE 10 (continued)**

No.	Title	Topic Consultant	Start Date	Status	FTA Liaison(s)	Staff Officer
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		
<b>D : ENGINEERING OF FIXED FACILITIES</b>						
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		
<b>E : MAINTENANCE</b>						
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		
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 - Publication Pending	D. Bell	D. Vlasak
SE-05	Preventive Maintenance Intervals for Transit Buses	John J. Schiavone	November 2008	November 2009	M. Belanger	D. Vlasak



**TABLE 10 (continued)**

No.	Title	Topic Consultant	Start Date	Status	FTA Liaison(s)	Staff Officer
<b>F : HUMAN RESOURCES</b>						
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		
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		

**TABLE 10 (continued)**

No.	Title	Topic Consultant	Start Date	Status	FTA Liaison(s)	Staff Officer
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, Nakanishi Research & Consulting	October 2007	Completed - Publication Pending	R. Gerhart	D. Vlasak
<b>G : ADMINISTRATION</b>						
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		
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		

**TABLE 10 (continued)**

No.	Title	Topic Consultant	Start Date	Status	FTA Liaison(s)	Staff Officer
<b>H : POLICY AND PLANNING</b>						
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		
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	Greenhouse Gas Emissions Savings from Transit	Michael Grant, ICF International	November 2008	November 2009	T. Hodges	D. Vlasak
SH-10	Effective Use of Citizen Advisory Committees for Transportation Planning and Design	Kristin Hull, CH2MHILL	November 2008	November 2009	C. Goodman	D. Vlasak
SH-11	Pass Fare Arrangements for Public Employees	Dan Boyle	November 2008	December 2009	A. Cihon	D. Vlasak

**TABLE 10 (continued)**

No.	Title	Topic Consultant	Start Date	Status	FTA Liaison(s)	Staff Officer
SH-12	Impact of Streetcars and Trolleys on Land Development			In Development	S. Lewis- Workman S. Pugh S. Herre	D. Vlasak

**TABLE 11 SUMMARY OF TCRP PROJECT J-9 STATUS THROUGH DECEMBER 31, 2008**  
**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	EG&G Technical Services	September 2005	December 2009	G. Chisholm
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	March 2010	G. Chisholm

**TABLE 12 SUMMARY OF TCRP PROJECT J-10 STATUS THROUGH DECEMBER 31, 2008**  
**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	

**TABLE 12 (continued)**

No.	Title	Contract Amount	Contractor	Start Date	End Date	Staff Officer
J-10B(04)	Communication of Threats: A Guide	\$20,000	McCormick Taylor	March 2002	Completed - Published as Report 86, Volume 1	
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	January 2009	S. Parker
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, 2008  
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	IFC 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	January 2009	D. Schwager
Task 07	Economic Impact of Transit (Update of 1999 APTA Report)	Cambridge Systematics	December 2008	June 2009	D. Schwager
Task 08	Implications of an Aging Population on Public Transportation			In Development	D. Schwager



**TABLE 14 NEW PROJECTS AND CONTINUATIONS  
TCRP FY 2009 PROGRAM (Tentative)**

<b>Project Number</b>	<b>Title</b>	<b>Allocation (\$)</b>
<b>NEW PROJECTS</b>		
A-33	Emergency Preparedness and Recovery Outreach and Communications to Vulnerable Populations	\$350,000
A-34	Enhancing Rail and Bus Transit Operating Rule Compliance: Lessons from Commercial Aviation and Other Relevant Industries	\$350,000
B-39	Research to Increase Transit Advertising Revenues	\$350,000
D-14	Update of <i>TCRP Report 57: Track Design Handbook For Light Rail Transit</i>	\$300,000
G-12	Fuel Purchasing Strategies for Public Transit Agencies	\$300,000
H-41	Methodology for Comparing the Environmental Benefits of Transit Projects	\$400,000
	<b>Total New Studies</b>	<b>\$2,050,000</b>
<b>CONTINUATIONS</b>		
C-19	Guidebook for Evaluating Fuel Choices for Post-2010 Transit Bus Procurements: Update of <i>TCRP Report 38</i>	\$150,000
D-07	Joint Rail Transit Research with the Association of American Railroads/Transportation Technology Center, Inc.	\$200,000
E-07	Initiating a National Joint Transit Industry Rail Vehicle Technician Certification Program: Building for Success	\$400,000
	<b>Total Continuations</b>	<b>\$750,000</b>

<b>Project Number</b>	<b>Title</b>	<b>Allocation (\$)</b>
	<b>SPECIAL PROJECTS</b>	
J-1	Dissemination and Implementation of Research Findings	\$756,000
J-3	International Transit Studies Program	\$500,000
J-4	Innovations Deserving Exploratory Analysis: The Transit IDEA Program	\$560,000
J-5	Legal Aspects of Transit and Intermodal Transportation Programs	\$250,000
J-6	Quick Response for Special Needs	\$250,000
J-7	Synthesis of Information Related to Transit Problems	\$700,000
J-11	Quick-Response Research on Long-Term Strategic Issues	\$300,000
	<b>Total Special Projects</b>	<b>\$3,316,000</b>
	<b>GRAND TOTAL</b>	<b>\$6,116,000</b>

### **J-6 QUICK-RESPONSE REQUEST**

<b>Project Number</b>	<b>Title</b>	<b>Allocation (\$)</b>
	<b>APPROVED J-6 QUICK-RESPONSE PROJECT (covered From J-6 Fund Balance)</b>	
J-6/Task 74	Issues in Coordination of Transportation for Veterans	\$100,000
J-6/Task 75	Guiding the Selection and Application of Wayside Energy Storage Technologies for Rail Transit and Electric Utilities	\$75,000

## NOTICE TO READERS

Information about project status and detailed project write-ups are available on the TCRP website: [www.trb.org/CRP/TCRP/TCRP.asp](http://www.trb.org/CRP/TCRP/TCRP.asp).

### HOW TO ORDER TCRP PUBLICATIONS FROM TRB

TCRP publications are listed in Table 4.

TCRP reports, syntheses, research results digests, and legal research digests can be ordered with a credit card through the online TRB bookstore (<http://trb.org/bookstore>), by telephone (202-334-3213), or by fax (202-334-2519). We accept Visa, MasterCard, or 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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Payment must accompany all orders. Payments made by international check or money order must be payable in U.S. funds drawn on a U.S. bank. All taxes and duty are the responsibility of the customer.

