

# **Funding Sources for Transportation Research Competitive Programs**

**December 2008**



FEDERAL	63
Federal Highway Administration (FHWA), U.S. DOT	64
FHWA Surface Transportation Environment and Planning (STEP)	64
FHWA Safety Innovation Deployment Program	67
FHWA Exploratory Advanced Research (EAR) Program	70
Small Business Innovative Research (SBIR) Program	73
Research and Innovation Technology Administration (RITA)	77
RITA Climate Change Program Pending	77
RITA Commercial Remote Sensing and Spatial Technology Program	78
RITA Intelligent Transportation Systems Program	80
Federal Transit Administration (FTA)	83
FTA National Research and Technology Program	84
Federal Aviation Administration Pending	86
National Science Foundation Pending	86
National Institute of Health Pending	86
Department of Energy Pending	86
Department of Homeland Security Pending	86
Department of Education Pending	86
Environmental Protection Agency Pending	86
Department of Agriculture Pending	86
STATE	87
State Planning and Research (SP&R) Funding	87
Transportation Pooled Fund Program	91
UNIVERSITY TRANSPORTATION CENTERS	94
PRIVATE COMPANIES OR FOUNDATIONS Pending	99
INTERNATIONAL RESEARCH PROGRAMS Pending	99
<b>Chapter 4: More about Proposed, Ongoing, and Completed Research</b>	<b>100</b>
<b>Chapter 5: General Advice and Summary</b>	<b>103</b>
<b>Appendix A: Transportation Research Definition</b>	<b>105</b>
<b>Appendix B: How to Write an Effective Research Statement</b>	<b>106</b>
<b>Appendix C: Summary Table of Research Programs</b>	<b>111</b>
<b>Appendix D: Transportation Research Program Additions and Changes and Link to New Program Submittal Form</b>	<b>115</b>

## CONTRIBUTORS

This document is the result of a volunteer effort. Several conversations about the difficulty of proposing research took place during the recent meetings of the TRB Conduct of Research (CoR) and AASHTO Research Advisory Committees (RAC). These conversations led to the creation of an outline for a Transportation Research Brochure, which evolved over the spring of 2008. As the outline took shape, it became apparent that the product would not be a brochure as originally intended, but a much larger document. Transportation professionals from across the country volunteered to write specific sections, which have been merged, formatted, and edited by TRB and WSDOT staff, and the AASHTO RAC and TRB CoR committee volunteers. Table 1 lists the contributors.

**Table 1. Contributing Authors and Others Who Assisted**

Steve Albert, Western Transportation Institute	David Kuehn, FHWA
Stephen Andrle, TRB	Wes Lum, CALTRANS
John Augustine, RITA	Tom Marchessault, RITA
Jason Bittner, University of Wisconsin	John McCracken, FHWA
Michael Bonini, Pennsylvania DOT	Laurie McGinnis, University of Minnesota, Center for Transportation Studies
Nelda Bravo, FHWA	Freda Morgan, TRB
Nancy Chinlund, CALTRANS	Leni Oman, Washington State DOT
Darryll Dockstader, Florida DOT	Katherine Petros, FHWA
Monique Evans, Ohio DOT	Aaron Poor, Washington State University
Kim Fisher, TRB	Barbara Post TRB
Jennifer Fitch, Vermont Agency of Transportation	Cheryl Richter, FHWA
Larry Goldstein, TRB	Susan Sillick, Montana DOT
Barbara Harder, BTH, Inc.	Nanda Srinivasan, TRB
Chris Hedges, TRB	Dawn Tucker, RITA
Erica Interrante, FHWA	Felicia Young, FHWA
Marci Kenney, FHWA – retired	Deborah Walker, FHWA
Mary Kissi, TRB	Jon Williams, TRB
Tim Klein, RITA	
Ray Krammes, FHWA	

# CHAPTER 1

## Introduction

Transportation research needs are numerous and diverse, reaching across different modes and geographic levels and calling for many types of research. Local, state, federal, university, and private organizations sponsor and conduct such research. Some 6 dozen university transportation centers (UTCs) located across the country tackle different transportation themes, augmented by the many university transportation research institutes and centers that are not part of the UTC program. Non-transportation branches of government perform research that is of mutual interest to transportation professionals. A host of international programs produce research that can and should be funded in the United States. However, with all of this diversity and its attendant benefits comes much confusion:

- Where can research statements be submitted to obtain funding?
- Who is performing research in particular areas of interest?
- What are the best places to search for research products of interest?

No resources currently provide comprehensive or exhaustive answers to these questions. The primary purpose of this guide is to identify where to submit research statements to obtain funding. Other questions are addressed, to a limited extent, in Chapter 4. Figure 1 illustrates the range of research programs focused on transportation.

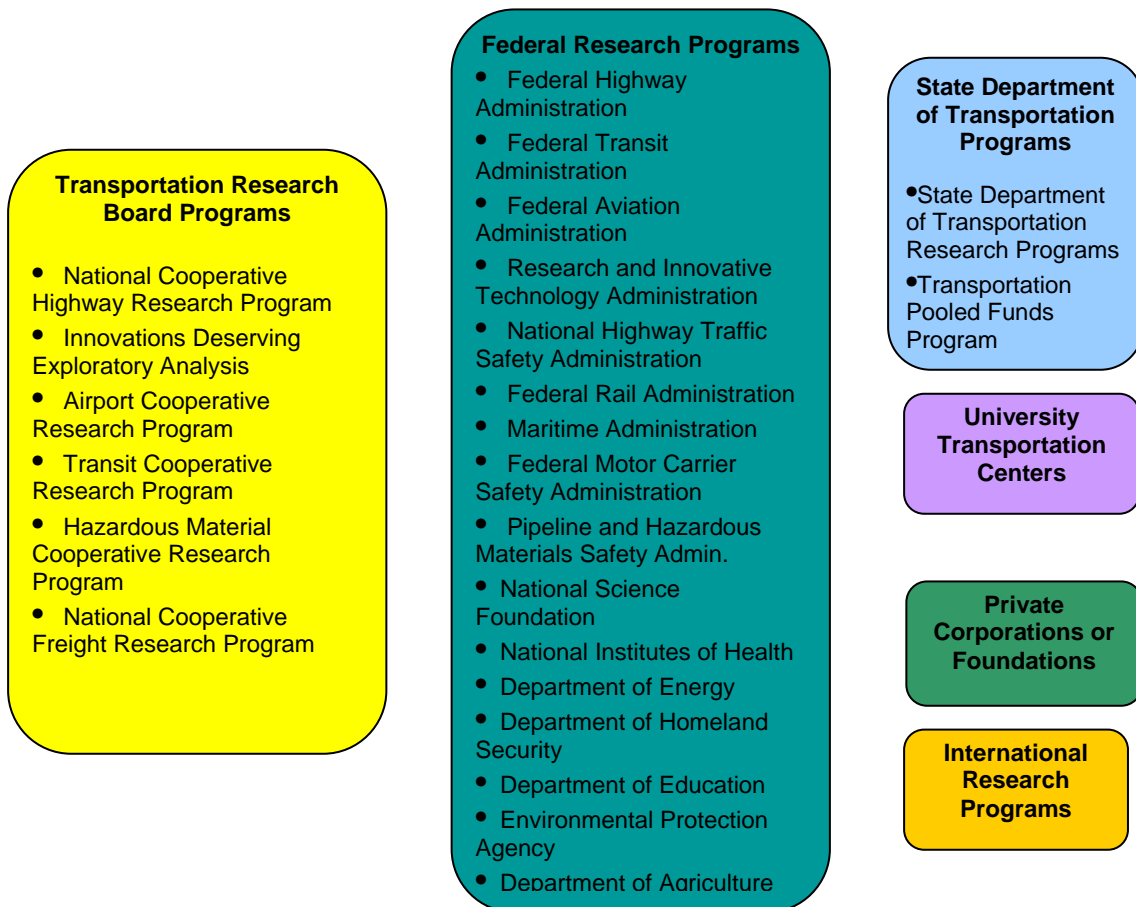


Figure 1 Range of research programs focused on transportation.

The term research is used very broadly in this document (a more formal definition and classification of transportation research is provided in Appendix A). In the transportation profession, various terms express a research need—terms such as research problem, research idea, problem statement, research topic, and research proposal. Within this web-page document, the term **research statement** will be used. Similarly, **research program** will be used to refer to any organization or agency that conducts research or to any cooperative effort to conduct research, and **research product** will be used to refer to any of the broad range of outputs, from new information to new devices, which can result from research.

This web page is intended for transportation professionals who have research needs and are looking for funding or for programs that may be interested in their ideas. In addition to identifying programs to which transportation professionals may submit research statements, it provides information on the preparation of winning research statements tailored to research programs. The web page functions as a guide to **competitive** transportation research programs. A substantial list of these research programs is presented in Chapter 3; it is limited to those programs that accept research statements from a broad community. While some research programs require that statements be submitted by a subset of the transportation community, such as a state department of transportation, they are typically fairly open and may not preclude cooperative efforts.

It should be noted that this is a living document. Not only will it require regular updates as a function of the evolving state of transportation, but it is, in its current state, incomplete, with some sections still being developed. This is the first time a web page with this purpose has been assembled, and it is hoped that it not only provides users with real benefit, but that it may be continuously improved through user feedback. Appendix D contains information on submitting additional programs for inclusion on this web page and provides a link to a submittal form. Suggestions, additions, questions, or corrections may be submitted to Kim Fisher at [kfisher@nas.edu](mailto:kfisher@nas.edu). As a living document, the most recent version will always be available on the TRB website at [www.trb.org/ResearchFunding](http://www.trb.org/ResearchFunding).

## CHAPTER 2

### What Are Characteristics of Research You Would Like Funded?

There are many transportation research programs, each with distinct focus and characteristics. To strengthen your chances of success in being funded, this chapter is intended to help you consider the characteristics of the research statement you would like to see funded. Research characteristics are important for two reasons: 1) they help you identify which research programs are the best fit for your research statement, and 2) clearly addressing these characteristics in your research statement increases your chances of selection. Important characteristics to consider when writing a research statement include geographic relevance, transportation mode or topic, funding required, urgency, type of research needed, and partnership and cost-sharing interests.

#### **Geographic Relevance**

How widespread is the problem you are trying to address? Is it experienced in countries around the world (e.g., intersection design questions or air quality issues)? Is it strictly a problem in the United States (e.g., how to meet U.S. DOT planning requirements)? Is it shared by a region or several organizations (e.g., deicing concerns or design in seismic zones)? Or is it an even more specific problem that exists only in a small number of locations (e.g., specific species or geology)?

Geographic relevance will affect the programs to which you submit your research statement, and will also affect the details that need to be included in the statement. National research programs, such as the National Cooperative Highway Research Program, focus on research statements that address problems experienced in a majority of the states. However, a research statement focused on a more localized problem while explaining how the research product could benefit a national audience can be successful.

#### **Transportation Mode or Topic**

If your research focuses on a specific mode of transportation, your decision about the funding source may be simplified, because many research programs focus on such modes. If, on the other hand, your research need focuses on policy, administration, or other non-modal transportation issues, the appropriate program may be less clear cut. In this case, contacting potential research program staff may be necessary.

In addition, some research programs fund only certain topics. Some examples include the Hazardous Materials Cooperative Research Program and the National Cooperative Freight Research Program.

## **Funding Required**

Research programs vary widely in the maximum amount of money provided for each project. It is important to understand the funding-level guidelines and limitations of a research program when considering a research statement submittal. Proposing a \$400,000 project to a program that funds projects of \$100,000 or less will not get your research statement funded.

## **Urgency**

Research programs vary in their time frame for delivery. Finding a research program that matches the urgency of your research statement is critical. In some programs, it may take up to 3 years from the submission of a research statement to publish a research report. Other programs address needs that can be met within 6 months.

## **Type of Research Needed**

The term research is used very broadly in this web page because the work conducted in the interest of advancing the transportation profession cuts across a number of activities. A more formal definition and classification of transportation research is provided in Appendix A. Transportation research can be as fundamental as testing materials for transportation infrastructure or as detailed as a statistical analysis of large data sets to identify the public's response to rising gas prices. Applied research exists somewhere in the middle of the spectrum, using fundamental research to solve transportation problems.

## **Partnership Offers Opportunities for Cost Sharing**

Some programs require cost sharing or a local match. The selection of your project may require that your research statement include information on where additional funding is available. For other research programs, cost sharing may not be required but could enhance the project's chances for success.



## CHAPTER 3 – WHICH RESEARCH PROGRAM IS THE BEST FIT FOR YOUR RESEARCH STATEMENT?

This chapter contains the details on transportation research programs. Keep in mind only those programs that accept research statements from the transportation community are included in this listing. Suggestions on how to find transportation research products are provided in Chapter 4.

Each research program description in this chapter contains the following information:

- General Description
- Type of Research Funded
- Funding Levels and Project Time Frame
- Schedule
- Project Solicitation and Submission
- Selection Process
- Project Selection Criteria and Tips for Writing Winning Research Statements
- Further Information

Additional information is always available from the program staff. They are able to provide guidance that can either improve the initial submittal or if a submittal is not successful they can provide advice for future funding requests.

Did we miss a research program that should be included? Appendix D contains a form to submit information on additional programs. Alternatively, you can contact Kim Fisher at [kfisher@nas.edu](mailto:kfisher@nas.edu) with corrections, suggestions, questions, or additional information.

Table 2 lists available research programs according to topic, geographic relevance, selection frequency, funding range, funding requirements, and specific research type. A similar table listed by programs can be found in Appendix C.

**Table 2. Research Programs by Category**

<b>Specific Topic</b>	
<b>Transit</b>	NCHRP Quick Response Project for the AASHTO Standing Committee on Public Transportation
	Innovations Deserving Exploratory Analysis (IDEA)
	Transit Cooperative Research Program (TCRP)
	TCRP International Transit Studies Program
	TCRP Synthesis Program
	TCRP Legal Research
<b>Highways</b>	Federal Transit Administration (FTA) National Research and Technology Program
	National Cooperative Highway Research Program (NCHRP) Regular Projects
	Innovations Deserving Exploratory Analysis (IDEA)
	NCHRP Synthesis Program
	NCHRP Legal Research
NCHRP Quick Response Project for the AASHTO Standing Committee on Highways	

<b>Air</b>	Airport Cooperative Research Program (ACRP)	
	ACRP Graduate Research Award	
	ACRP Synthesis Program	
	ACRP Legal Research	
<b>Environment</b>	NCHRP Quick Response Project for the AASHTO Standing Committee on Environment	
	Surface Transportation Environment and Planning Cooperative Research Program (STEP)	
<b>Safety</b>	Safety Innovation Deployment Program	
	Exploratory Advanced Research	
<b>Other</b>	<b>Congestion:</b> Exploratory Advanced Research	
	<b>Freight and rail safety:</b> Innovations Deserving Exploratory Analysis	
	NCHRP Quick Response Project for the AASHTO Standing Committee on Planning	
	Research on Administration of Highway and Transportation Agencies	
	National Cooperative Freight Research Program (NCFRP)	
	Hazardous Materials Cooperative Research Program (HMCRRP)	
	Commercial Truck and Bus Safety Synthesis Program	
	Remote Sensing and Spatial Technology Program	
Intelligent Transportation Systems Program		
<b>Geographic Relevance</b>		
<b>For topics of state or regional interest</b>	State Planning and Research Funds	
	University Transportation Research Centers	
	Transportation Pooled Fund Programs	
<b>Selection Frequency</b>		
<b>Less than one year</b>	NCHRP Quick Response Project for the AASHTO Standing Committee on Planning	Quick response
	<b><i>NCHRP Quick Response Project for the AASHTO Standing Committee on Environment</i></b>	Quick response
	Research on Administration of Highway and Transportation Agencies	Quick response
	NCHRP Quick Response Project for the AASHTO Standing Committee on Highways	Quick response
	NCHRP Quick Response Project for the AASHTO Standing Committee on Public Transportation	Quick response
	TCRP	October selection
<b>Twice yearly submissions</b>	Innovations Deserving Exploratory Analysis for highways and transit	March and September selection
	TCRP International Transit Studies	Spring and fall
	Small Business Innovation Research	April and November
<b>Yearly submissions</b>	NCHRP Regular Projects	September; March selection
	NCHRP International Scans	
	NCHRP Domestic Scans	
	ACRP	April; July selection
	ACRP Graduate Research Award Program	June; September selection

	National Cooperative Freight Research Program	July; fall selection
	Hazardous Material Cooperative Research Program	
	TCRP Synthesis Program	March; May selection
	ACRP Synthesis Program	October; December selection
	NCHRP Synthesis Program	May selection
	STEP Cooperative Research Program	
	Exploratory Advanced Research	May; September selection
<b>Project Funding Range</b>		
<b>Over \$1 million</b>	Intelligent Transportation Systems Program	\$300,000–3,000,000+
	University Transportation Research Centers	\$10,000–2,200,000+
	Exploratory Advanced Research	\$500,000–2,000,000
	Remote Sensing and Spatial Technology Program	\$600,000–1,800,000
	TCRP	\$150,000-500,000
	Transportation Pooled Fund Programs	\$300,000–1,000,000+
	FTA National Research and Technology Program	\$50,000–1,000,000+
	State Planning and Research Funds	\$5,000–1,000,000+
<b>Up to \$1,000,000</b>	Small Business Innovation Research Program	\$100,000–750,000
	STEP Cooperative Research Program	\$20,000–750,000
	NCHRP Regular Projects	\$200,000–600,000
	ACRP	\$150,000–500,000
	National Cooperative Freight Research Program	\$20,000–500,000
	Research on Administration of Highway and Transportation Agencies	\$75,000–367,000
	Hazardous Materials Cooperative Research Program	\$300,000–350,000
	NCHRP International Scans	\$425,000 annually
<b>Less than \$150,000</b>	NCHRP Domestic Scans	\$80,000–150,000
	Innovations Deserving Exploratory Analysis (IDEA)	\$25,000–150,000
	NCHRP Quick Response Project for the AASHTO Standing Committee on Planning	\$50,000–100,000
	NCHRP Quick Response Project for the AASHTO Standing Committee on Environment	\$50,000–100,000
	NCHRP Quick Response Project for the AASHTO Standing Committee on Highways	\$25,000–100,000

	NCHRP Quick Response Project for the AASHTO Standing Committee on Public Transportation	\$25,000–100,000
	NCHRP Legal Research	\$24,000–100,000
	ACRP Legal Research	\$15,000–80,000
	Commercial Truck and Bus Safety Synthesis Program	\$40,000
	TCRP Synthesis Program	\$30,000
	NCHRP Synthesis Program	\$30,000
	ACRP Synthesis Program	\$30,000
	ACRP Graduate Research Award	\$10,000
<b>Funding Requirements</b>		
<b>Require 20% non-federal share</b>	Safety Innovation Deployment Program	
	Exploratory Advanced Research	
	State Planning and Research Funds	
<b>Require 50% non-federal share</b>	STEP Cooperative Research Program	
	Remote Sensing and Spatial Technology Program	
	FTA National Research and Technology Program	
	University Transportation Centers	
<b>Specific Research Type</b>		
<b>Scans and surveys</b>	NCHRP International and Domestic Scans	
	TCRP International Transit Studies Program	
<b>Graduate research</b>	ACRP Graduate Research Award Program	
<b>Synthesis reports</b>	TCRP Synthesis Program	
	NCHRP Synthesis Program	
	ACRP Synthesis Program	
	Commercial Truck and Bus Safety Program	
<b>Legal briefs</b>	TCRP Legal Research	
	ACRP Legal Research	
	NCHRP Legal Research	
<b>For small businesses</b>	Small Business Innovation Research Program	

## TRANSPORTATION RESEARCH BOARD

### What Is the Transportation Research Board?

The Transportation Research Board (TRB) is a division of the National Academies, a private, nonprofit institution that includes the National Academy of Sciences, National Academy of Engineering, Institute of Medicine, and National Research Council. Created as the Highway Research Board in 1920, TRB promotes innovation and progress in transportation through research. Much more information about TRB may be found at [www.trb.org](http://www.trb.org).

### TRB Research Overview

TRB administers a number of major research programs sponsored by other organizations. The oldest and largest of these programs, the National Cooperative Highway Research Program (NCHRP), is sponsored by the state transportation departments in cooperation with the Federal Highway Administration (FHWA). The Transit Cooperative Research Program (TCRP), initiated in 1992, is sponsored by the Federal Transit Administration (FTA). Both are applied research programs in which the potential users of research results have a direct role in project selection. In 2002, TRB began administering the Commercial Truck and Bus Safety Synthesis Program (CTBSSP), which is sponsored by the Federal Motor Carrier Safety Administration. The congressionally requested Airport Cooperative Research Program (ACRP), which began work in 2006, is sponsored by the Federal Aviation Administration (FAA). Two other new programs were initiated in 2006—the Hazardous Materials Cooperative Research Program (HMCRP) and the National Cooperative Freight Research Program (NCFRP), both of which were authorized in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

For all of these programs, TRB organizes panels of experts to provide guidance on technical aspects of the research and to translate the problems into project statements with well-defined objectives. Research proposals are then solicited from private and public research organizations with capability and experience in the problem areas to be studied. The technical panels review the proposals, recommend contract awards, monitor research in progress, provide technical guidance, and determine the acceptability of the final reports. More than 3,000 experienced practitioners and research specialists currently serve on Cooperative Research Program panels. TRB also manages programs of smaller studies focused on synthesizing current practices and analyzing legal issues in the NCHRP, ACRP, and the TCRP programs.

## National Cooperative Highway Research Program (NCHRP)

### NCHRP Regular Projects

Total Annual Funding – \$36.5 million (total annual program funds)

Range of Project Costs – \$200,000–600,000

Statements Due – mid-September

Web Address – <http://www.trb.org/CRP/NCHRP/NCHRP.asp>

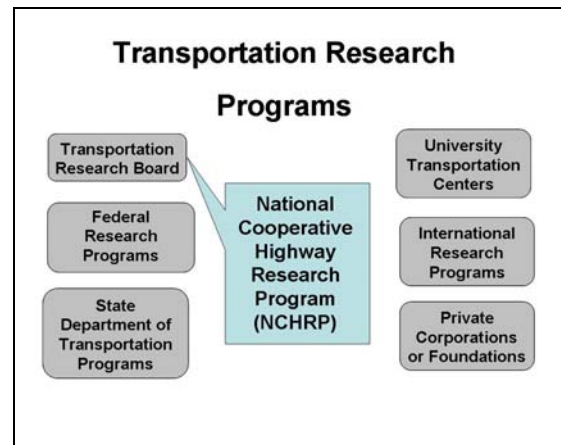
### General Description

Administered by the Transportation Research Board (TRB), the National Cooperative Highway Research Program (NCHRP) was created in 1962 as a means to conduct research in acute problem areas that affect highway planning, design, construction, operation, and maintenance nationwide. NCHRP is sponsored by the state departments of transportation in cooperation with FHWA. Support is voluntary and funds are provided from the states' Federal-Aid Highway apportionment of State Planning and Research (SP&R) funds (information on the SP&R funds

may be found in the state DOT section of this report.) Each state's voluntary contribution amounts to 5.5 percent of its SP&R apportionment, resulting in an annual cooperative pool of \$36.5 million to fund the program's activities (based on 2008 funding levels).

AASHTO committees, state DOTs, and FHWA propose research topics each year, and the AASHTO Standing Committee on Research (SCOR) recommends both the projects to be funded and the levels of funding for those projects subject to approval of the AASHTO Board of Directors. The funds can be spent only for the administration of problems approved by at least two-thirds of the states.

There are several continuing projects that are run under the NCHRP umbrella, with a specific focus and different administrative details; these projects are described in detail below. The "regular" NCHRP problem statements are collected, reviewed and revised, and then judged each year. A technical panel of experts is assembled for each selected project. These technical panels review the problem statements and contractor proposals, recommend contract awards, monitor research in progress, provide technical guidance, and review reports for acceptability and for accomplishment of the agency's research plan. They also provide counsel to TRB staff in matters of overall project administration. TRB solicits research proposals from private and public research organizations that can demonstrate capability and experience in the problem area to be researched. These organizations include universities, nonprofit institutions, consulting and commercial firms, and individual consultants.



### Type of Research Funded

As the program title suggests the focus is on highway research—although as is the case with the transportation community in general, the program is very broad and considers many aspects of transportation (including multi-modal transportation, environment issues, community concerns, etc.). NCHRP does not conduct basic research; instead the program's focus is on solutions that are practical and readily usable. Successful problem statements address issues of critical concern and interest to many states. In addition, the review committee considers whether the problem can be handled effectively in the cooperative research environment supported by NCHRP and will have a high probability of success.

### Funding Levels and Project Time Frame

Each fiscal year the NCHRP program receives approximately \$36.5 million to fund around 20 continuing projects, 37 new projects, and 3 contingency projects. Individual project budgets range from \$200,000 to \$600,000.

### Schedule

- early July – AASHTO Standing Committee on Research (SCOR) solicits problems
- mid-September – Problem statement submission deadline
- December/January – Ballots sent to selection panel (SCOR and Research Advisory Committee (RAC))
- February/March – Ballots compiled
- late March – Projects selected by SCOR
- mid-April – Technical panel nominations requested
- May/June – Final list of projects approved by AASHTO Board of Directors
- June/July – Panels selected
- July/August – First panel meetings

### Project Solicitation and Submission

Each year in early July, the AASHTO Standing Committee on Research (SCOR) solicits problems from three authorized sources: (1) AASHTO member transportation departments, (2) the chairs of AASHTO committees and subcommittees, and (3) the Federal Highway Administration. The membership list of the AASHTO SCOR, RAC, and other committees may be found at [www.transportation.org](http://www.transportation.org) on the committee dropdown list. Problem statements are due by mid-September of the same year. Upon receipt, FHWA and NCHRP evaluations are performed. These evaluations are sent to submitters around mid-November, and submitters have until early December to comment on the evaluations or to withdraw the problem statement. The NCHRP also uses evaluation panels to assess problem statements in some of the more popular subject areas, such as bridge, materials, and traffic and safety. In these cases, the collective thoughts of the panel are conveyed back to the submitter, instead of separate evaluations from FHWA and NCHRP. At the same time that new problem candidates are submitted, NCHRP panels and staff are also working on recommendations for continuations of projects begun in earlier years.

### Selection Process

Late each December, a report on the continuation projects and new problem candidates goes to the SCOR and RAC with a ballot for rating the candidates according to priority.

The ratings are returned to the SCOR Secretary (i.e., the Director of TRB's Cooperative Research Programs) and are translated into priority rankings based on the average ratings of SCOR and RAC. A summary report is sent to the SCOR for review prior to its spring meeting in Washington, D.C., to determine final priorities and formulate a program. This meeting is held annually in late March. Based on the funding expected from the Federal-Aid Highway apportionments for the given fiscal year, SCOR determines which completed or ongoing projects should receive additional funding for further work and which new problem submittals should be programmed.

An Announcement of Research Projects is prepared each year in April. This Announcement details the preliminary scopes of work that will be considered in requests for proposals. A list of these projects is also available at <http://www.trb.org/CRP/UpcomingProjects.asp>.

Once the program is developed, SCOR sends a report to the AASHTO Board of Directors requesting approval of the program. The final program for each year consists of those continuations and new problems that receive a favorable vote by two-thirds or more of the Member Departments. After AASHTO approves the program, it is referred to TRB for administration.

### Project Selection Criteria and Tips for Writing Winning Research Statements

As mentioned earlier, the NCHRP program evaluates problem statements for four basic criteria:

- Does the proposed topic represent a critical research need and is of interest to many states?
- Can the topic be handled effectively under in a cooperative program?
- Are similar efforts already underway or are satisfactory answers already available?
- Is there a high probability of the research producing a well-defined, implementable product?

When writing a problem statement for NCHRP, it is helpful to keep several things in mind. First, it is important to remember that the selection panel is composed of state DOT employees and the DOTs are the *only sponsors* of this program. Although the states have very broad responsibilities, it is important to connect your problem to the state DOTs. Use examples of how this problem specifically affects state DOTs and make the case that this is a wide spread phenomenon. Second, those selecting the statements are leaders in their respective DOTs who may not have complete current technical knowledge of every area they are asked to evaluate. Providing sufficient background in non-technical language (without jargon) will help the committee



understand the importance of the problem. Finally, referencing complete and ongoing research in the area makes the case that you have conducted a literature review and know the current research in the topic area. In acknowledging other work, be sure to discuss how your proposal *builds on* that work or why the work does not address your specific concern. Avoid suggesting that the work has already been done or is already underway.

Remember the program is intended to fund projects that result in practical remedies for operational problems. The problem statement should address the *Applicability of Results to Practice*; clearly describe how the anticipated research results can be used to improve practices; and clearly indicate the expected audience for the research results. The writer should present the strongest case possible to convince SCOR that the results of the research will be practical and implementable. Research interests which demonstrate strong support from national experts are favorably considered by SCOR.

One additional suggestion for successfully navigating the selection process would be to compare the selected projects (for example, those selected for 2008 [http://www.trb.org/NotesDocs/NCHRP\\_Announcement.pdf](http://www.trb.org/NotesDocs/NCHRP_Announcement.pdf)) and those that were not selected (those not selected for the 2008 program <http://www.trb.org/NotesDocs/2008Unselected.pdf>.) See if you can find trends in the selection results and learn from successful problems in your area of expertise.

#### Further Information

The NCHRP Web site ([www.trb.org/CRP/NCHRP/NCHRP.asp](http://www.trb.org/CRP/NCHRP/NCHRP.asp)) has up-to-date information about the NCHRP program, how to submit statements, etc. A more detailed description of the NCHRP program may be found at <http://www.trb.org/NotesDocs/NCHRPBrochure.pdf>. For specific questions on NCHRP, please contact:

Crawford Jencks  
Manager  
202-334-2006  
[cjencks@nas.edu](mailto:cjencks@nas.edu).

## **NCHRP International and Domestic Scans**

International Scans (NCHRP 20-36)

Total Annual Funding – \$950,000

Range of Project Costs – \$210,000 apiece for 4 scans

Research Statements Due – Late September

Web Address – <http://www.trb.org/TRBNet/ProjectDisplay.asp?ProjectID=579>

and <http://international.fhwa.dot.gov/scan/>

Domestic Scans (NCHRP 20-68A)

Total Annual Funding – \$500,000

Range of Project Costs – \$80,000–150,000

Research Statements Due – Late November

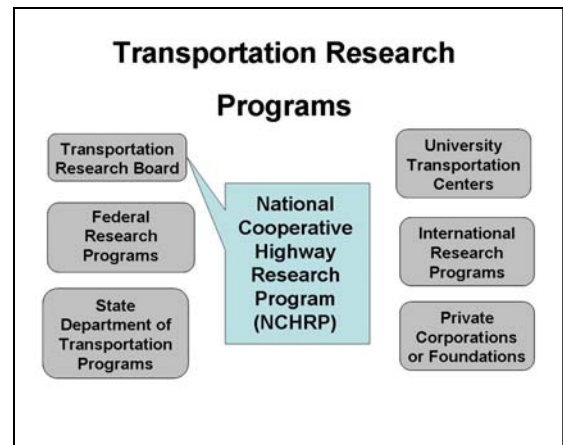
Web Address – <http://www.trb.org/TRBNet/ProjectDisplay.asp?ProjectID=1570>

NCHRP funds may be supplemented by other sponsors for specific scans

## **International Scans**

### General Description

The Highway Research and Technology – International Information Sharing Program serves as a means to access innovative technologies and practices in other countries that could significantly improve highways and highway transportation services in the United States. The program enables innovations to be adapted and put into practice much more efficiently without spending scarce research funds to re-create advances already developed by other countries. Personal domestic and international networking, team dynamics, and the creation of domestic champions for promising foreign ideas are keystones of the scan process.



Since 1991, FHWA, AASHTO, and NCHRP have worked together on the Scanning Program. Currently, the three groups cooperate through joint proposal and selection of topics to be studied, provision of funds, and share of responsibility for U.S. implementation of useful foreign practices and innovations the program identifies.

### Type of Research Funded

The scan process features the formation of expert teams (managers and specialists in a particular discipline) that travel abroad to consult with foreign counterparts in other countries where advances in transportation relevant to the United States are being made. Each scan focuses on a topic of high interest to the domestic transportation community and is led by designated FHWA and AASHTO Co-Chairs. Scan team members typically represent FHWA, State Departments of Transportation, local governments, transportation trade and research groups, the private sector, and

academia. After a scan is completed, the scan team evaluates findings and develops a comprehensive report, which is circulated throughout the U.S. highway transportation community.

#### Funding Levels and Project Time Frame

This project was funded at \$950,000 in 2008 (with some additional funding for specific scans from transportation agencies.) Historically, the program has averaged about four scans per year. The number of scans is a function of budget, subject, and assurance that scan team visits do not overwhelm our international partners. Once scans are completed, teams continue to pursue the program goals by ensuring widespread technology transfer and implementation of key innovations.

#### Schedule

Scan proposals are due in late September. The selection process takes place in December. A scan study typically lasts 15 days, during which four or five countries are visited.

#### Project Solicitation and Submission

Scans may be proposed by FHWA, AASHTO, and the NCHRP Project Panel 20-36 "Highway Research and Technology—International Information Sharing," as detailed below:

- **FHWA** – Scan proposals may be submitted by FHWA Program Offices and the FHWA Resource Center. Proposals originating from other offices (i.e., Division Offices) must be channeled through a Program Office or the Resource Center. FHWA offices that submit scan proposals should plan on funding 25 percent of the total cost of their scan, if it is selected. Proposals may be submitted jointly by two or more Program Offices or by the Resource Centers and a Program Office(s), i.e., cross cutting scan topics.
- **AASHTO** – Scan proposals may be submitted by any AASHTO Committee or Subcommittee dealing with road transportation. Proposals may be submitted jointly by two or more AASHTO committees or subcommittees, i.e., cross cutting scan topics.
- **NCHRP Project Panel 20-36** – Other non-AASHTO or FHWA scan proposals (such as transportation industry associations or academia) may be submitted to NCHRP Project Panel 20-36 (please contact Nanda Srinivasan at: [nsrinivasan@nas.edu](mailto:nsrinivasan@nas.edu)). Project Panel 20-36 will evaluate such proposals and forward promising ones to the relevant AASHTO Committee for consideration in preparing scan proposals.

Submission forms and examples of completed forms may be found at <http://international.fhwa.dot.gov/scan/2010/>

#### Selection Process

Scan proposals are reviewed, evaluated, and selected by a scan selection group based on established criteria. This group is made up of FHWA representatives and NCHRP Project Panel 20-36 members.

## Project Selection Criteria and Tips for Writing Winning Research Statements

Many factors affect project selection, including:

- Support of AASHTO committees,
- Ability to co-fund,
- Significant useful activity in other countries (different than what's being done in the U.S.), and
- Keeping a scan focused, i.e., not cramming too much into a scan.

The following criteria will guide the selection process:

- Does the proposed scan address FHWA and AASHTO strategic goals? (View [FHWA strategic goals](#) and [AASHTO strategic goals](#))
- Is the proposed scan timely and of nation-wide importance?
- Does the proposed scan have the potential to produce technologies and/or practices that the U.S. highway community could adopt/adapt?
- Does the proposal identify the key countries, including specific projects or programs, which have made the most significant advances and/or have had the most experience in the topic to be studied?
- Are similar efforts already underway or potentially duplicative?
- Has the proposed topic already been addressed on previous scans?

### Further Information

For more information contact:

Hana Maier  
Office of International Programs  
FHWA  
202-366-6003  
[hana.maier@dot.gov](mailto:hana.maier@dot.gov)

or

Nanda Srinivasan  
Senior Program Officer  
Transportation Research Board  
Cooperative Research Programs  
202-334-1896  
[nsrinivasan@nas.edu](mailto:nsrinivasan@nas.edu)

### **Domestic Scans**

#### General Description

The domestic scan program is broad and considers innovative practices of high-performing transportation agencies that could be beneficially adopted by other interested agencies. Each scan might span a one- to two-week period and entail visits to two to six sites, possibly geographically dispersed. The program includes annual cycles of topic selection, scans, and documentation. A scan entails four key steps. First,

knowledgeable people identify novel practices in their field of interest. Second, these people assess the likelihood that these new ideas might beneficially be applied in other settings. Third, new practices that offer the most promise are selected and field visits are made to observe the practices, identify pertinent development and application issues, and assess appropriate technology transfer opportunities and methods. Finally, the results of the initial steps are documented for use by those who participated and for others to apply.

Effective scans both supplement and make use of other mechanisms for information exchange such as publications in trade and professional journals, conferences, and peer-to-peer forums. A scan program focuses on face-to-face discussion of current experience, providing opportunities for a uniquely rich exchange of information that is difficult or impossible to replicate through written materials, telephone conversations, and email correspondence. The informal discussions among the group of visitors participating in the scan contribute to the extraction of useful information from the individual members' observations. Executing an effective scan program requires sound understanding of the topic areas to be considered, insightful selection of topics and new ideas to be observed, careful selection of participants who can provide useful insights from their observations, and thoughtful documentation and dissemination of each scan's results. Managing the domestic scan program additionally requires that resources be conserved by not duplicating the information exchange activities of others.

#### Type of Research Funded

The objective of NCHRP Project 20-68A is to plan and manage the execution of domestic technology scans, each addressing a single technical topic. Each scan is planned and conducted with a scan team chair (or co-chairs) and 8 to 10 scan-team members. A subject-matter expert, working with the scan-team chair and members, is responsible for (a) conducting a desk scan; (b) defining the appropriate duration of the scan, its technical structure, and other factors likely to influence planning of the scan; (c) preparing scan technical materials; and (d) preparing a report of the scan. AASHTO and NCHRP identify scan team chairs and members. The management team is responsible for receiving scan-topic descriptions from NCHRP; planning, executing and documenting scans, including securing NCHRP approvals of interim and final products; and preparing an annual report of the domestic scan program's activities. The management team works with scan-team chairs to select subject-matter experts.

#### Funding Levels and Project Time Frame

The project receives \$500,000 per year, with additional funding for specific scans from transportation agencies. NCHRP staff estimates that funds allocated to the program will typically be adequate to support planning and execution of three to five scans each year. The number of scans conducted each year will depend on the estimated costs of specific scans and the availability of funds from NCHRP and other sponsorship; the anticipated ranges of total cost of a one-week scan are \$80,000 to \$100,000 and \$110,000 to \$150,000 for a two-week scan.

#### Schedule

- early fall – AASHTO scan topics
- November – Scan topic submission deadline
- December – Scan topics selected by project panel.

#### Project Solicitation and Submission

In the early fall a call for scan topics goes out to the state DOTs and FHWA staff. AASHTO committees, state DOTs, and FHWA may submit scan research statements for consideration.

#### Selection Process

The research statements are reviewed by the NCHRP Project Panel, which can be found at [http://www.trb.org/directory/comm\\_detail.asp?id=3394](http://www.trb.org/directory/comm_detail.asp?id=3394). The panel has combined multiple proposals into a single scan.

#### Project Selection Criteria and Tips for Writing Winning Research Statements

There is no formal selection criteria established. However the focus of the program is sharing of information critical to the state departments of transportation.

#### Further Information

For more information contact:

Andrew C. Lemer, Ph.D.  
Cooperative Research Programs  
Transportation Research Board  
The National Academies  
500 Fifth Street, N. W.  
Washington, DC 20001  
[alemer@nas.edu](mailto:alemer@nas.edu)

## NCHRP Quick Response Projects

Several multi-year quick response research programs have been established within the larger NCHRP program. These projects are designed to provide small, quick turn around research products for specific transportation topics. Each quick response program is described below.

### **NCHRP 8-36: Research for the AASHTO Standing Committee on Planning**

Total Annual Funding – \$600,000

Range of Project Costs – \$50,000 to \$100,000

Research Statements Due – July

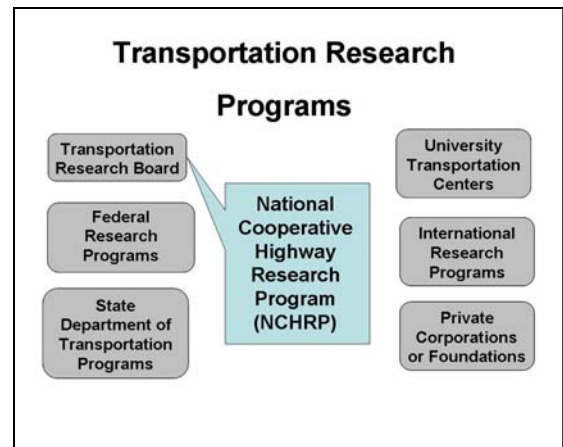
Web Address – <http://www.trb.org/TRBNet/ProjectDisplay.asp?ProjectID=909>

### General Description

This is a quick-response research program for states to address near-term improvements in statewide and metropolitan transportation planning and project development processes.

### Type of Research Funded

NCHRP 8-36 funds research related to statewide or metropolitan planning organization (MPO) transportation planning, economic planning, financing issues, or intermodal issues. Proposed problem statements should discuss the need and application potential for state and MPO practitioners.



### Funding Levels and Project Time Frame

This project is currently funding \$600,000 per year. Approximately 10 projects are funded each year, each costing \$50,000 to \$100,000. The projects are typically one year to 18 months in duration.

### Schedule

- April – Call for topics issued
- July – Proposed topics due
- August – Projects selected
- September – RFPs sent to task order contractors
- December – Selection of task order contractors for each project

### Project Solicitation and Submission

Projects may be submitted by any individual or committee. They should be submitted directly to Lori Sundstrom at the email address below. Please prepare a short (preferably one page) proposal using the following format:

- Title
- Background or Issue
- Research Objectives
- Specific Tasks (if known)
- Cost
- Time Required

### Selection Process

A project panel of state DOT and MPO staff and members from academia review research statements and select winning proposals. The panel roster may be found on the TRB Web site. The selected projects are reviewed and approved by the AASHTO Standing Committee on Planning.

### Project Selection Criteria and Tips for Writing Winning Research Statements

There are no formally stated selection criteria, but the panel looks for:

- projects of national interest,
- research of immediate concern to the transportation planning community,
- research projects that can be achieved with the smaller funding and shorter time frame associated with this project, and
- topics that are not currently covered by other ongoing research projects.

### Further Information

Recent reports can be found at

<http://planning.transportation.org/?siteid=30&pageid=1399>. For more information contact:

Lori L. Sundstrom  
Senior Program Officer  
Transportation Research Board  
202-334-3034  
[lsundstrom@nas.edu](mailto:lsundstrom@nas.edu)



## **NCHRP 25-25: Research for the AASHTO Standing Committee on Environment**

Total Annual Funding – \$600,000

Range of Project Costs – \$50,000–100,000

Research Statements Due – July

Web Address – <http://www.trb.org/TRBNet/ProjectDisplay.asp?ProjectID=761>

### General Description

The objective of Project 25-25 is to provide flexible, ongoing, quick-response research on environmental issues in transportation. This research will be designed to develop improvements to analytical methods, decision support tools, procedures, and techniques employed by practitioners to support statewide and metropolitan transportation planning, programming, and development.

### Type of Research Funded

NCHRP 25-25 funds research project to develop improvements to the analytical methods, decision-support tools, procedures, and techniques employed by practitioners in environmental streamlining, environmental stewardship, statewide and metropolitan environmental transportation planning, program delivery, and project development.

### Funding Levels and Project Time Frame

This project is currently funding \$600,000 per year. Approximately 10 projects are funded each year, each costing \$50,000 to \$100,000. The projects are typically one year to 18 months in duration.

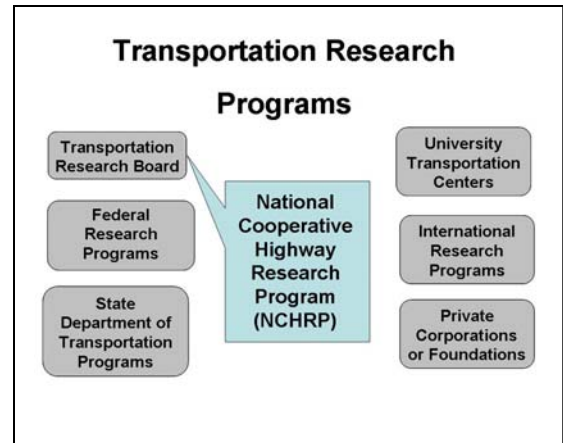
### Schedule

- April – Call for topics issued
- July – Proposed topics due
- September – Projects selected
- January the next year – Proposal requests sent to Task Order Contractors
- April the next year – selection of Task Order Contractors for each project

### Project Solicitation and Submission

Projects may be submitted by any individual or committee. They should be submitted directly to the TERI database at [http://environment.transportation.org/teri\\_database/](http://environment.transportation.org/teri_database/). Please prepare a short (preferably one page) proposal using the following format:

- Title
- Focus Area
- Research Objectives
- Specific Tasks (if known)



- Cost
- Time Required

### Selection Process

A project panel of state DOT draft drawn from AASHTO SCOE review research statements and select winning proposals. The panel roster may be found on the TRB Web site. The selected projects are reviewed and approved by the AASHTO Standing Committee on the Environment.

### Project Selection Criteria and Tips for Writing Winning Research Statements

There are no formally stated selection criteria, but the panel looks for:

- projects of national interest,
- research of immediate concern to the transportation planning community,
- research projects that can be achieved with the smaller funding and shorter time frame associated with this project, and
- topics that are not currently covered by other ongoing research projects.

Cost sharing can leverage investments in research as well as spread the risk inherent in early-stage concept development. For those reasons, all other things being equal, proposals that include cost sharing from other sources may be given some preferences in the evaluations. Several research projects have been jointly funded with FHWA.

### Further Information

For more information contact:

Nanda Srinivasan  
Senior Program Officer  
Transportation Research Board  
Cooperative Research Programs  
202-334-1896  
[nsrinivasan@nas.edu](mailto:nsrinivasan@nas.edu)

## **NCHRP 20-24: Research on Administration of Highway and Transportation Agencies**

Total Annual Funding – \$1 million

Range of Project Costs – \$75,000–350,000

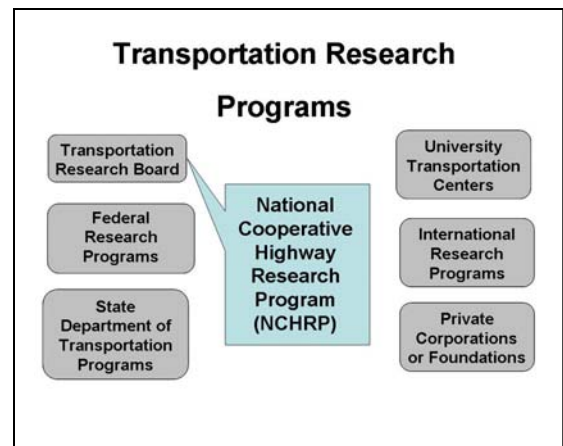
Research Statements Due – Varies

Web Address – <http://www.trb.org/TRBNet/ProjectDisplay.asp?ProjectID=2340>

### General Description

NCHRP Project 20-24 is responsible for conducting research intended to address the specific needs of chief executive officers (CEOs) and other top managers of state departments of transportation (DOTs). The American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Research (SCOR) each year allocates funds to the overall project.

As the program is currently administered, NCHRP 20-24 panel members are appointed from the ranks of senior officials in the state DOTs. Senior members of AASHTO and Transportation Research Board staff serve as liaison members of the panel.



### Type of Research Funded

Program research is intended to address the specific needs of chief executive officers (CEOs) and other top managers of state departments of transportation (DOTs).

### Funding Levels and Project Time Frame

Project 20-24 provides flexible, ongoing, quick-response research. The panel typically meets twice yearly, during AASHTO's annual fall and spring meetings. The group may hold interim meetings or conference calls, or otherwise communicate to consider the Project 20-24 research program or specific projects within that program, review research results, and advise NCHRP staff on the program's administration.

Typically, 4 to 6 topics are selected each year, with study budgets allocated as appropriate to the topic and the constraints of overall program funding (\$1 million annually in each of the past several years).

### Schedule

Spring – Panel members allocate funds for research on proposed topics

NCHRP staff notify task order contractors when proposals are to be solicited.

### Project Solicitation and Submission

Research topics are proposed by panel members, AASHTO staff, and others. Proposals may include continuation or extension of work on topics previously researched. Each year at the NCHRP 20-24 panel's spring meeting, the panel's members allocate funds authorized by SCOR to undertake research on some of the proposed topics. Funds that are not immediately allocated are carried over for future allocation.

### Selection Process

Once a specific topic is selected by the NCHRP 20-24 panel and designated for procurement under the task-order system, the overall principal investigators in these firms are invited to submit specific proposals to undertake research on that topic. Each topic is designated as a distinct NCHRP research activity; a project-specific panel may be designated to oversee the work or the NCHRP 20-24 panel may retain responsibility for some or all of the functions of NCHRP's usual research process. The NCHRP 20-24 panel may determine that research services for particular projects should be procured outside of the NCHRP 20-24A task-order process.

Consultant services for research on designated topics have typically been solicited and procured under NCHRP's usual procedures for issuing requests for proposals (RFPs) and selecting a contractor from among those submitting proposals in response to each specific RFP. Task-order contractors may, at their own discretion, assemble teams or join together in their responses to NCHRP's invitation to submit specific proposals. Descriptions of the background and specific scope envisioned for newly selected projects as well as the selected contractors are posted under each project's number as the responsible NCHRP panel completes its tasks.

### Project Selection Criteria and Tips for Writing Winning Research Statements

#### Further Information

For more information contact:

Andrew C. Lemer  
Senior Program Analyst  
Transportation Research Board  
202-334-3972  
[ALemer@nas.edu](mailto:ALemer@nas.edu)

**NCHRP 20-07: Research for AASHTO Standing Committee on Highways**

Total Annual Funding – \$1,200,000

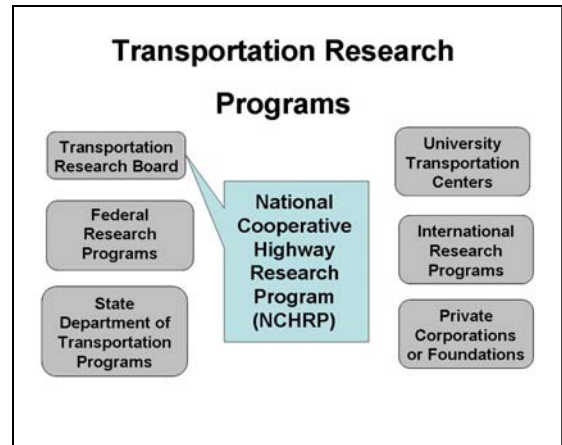
Range of Project Costs – \$25,000-100,000

Research Statements Due – Information in development

Web Address – <http://www.trb.org/TRBNet/ProjectDisplay.asp?ProjectID=509>

General Description

The American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Highways (SCOH) is called upon continually to rule on engineering and operations policies as a guide for State highway transportation departments to follow. The Committee desires to obtain guidance on a reasonably prompt schedule through a continuing research program geared to the needs and wishes of the Committee in the development of guides, standards, policies, and other AASHTO activities.



Type of Research Funded

Develop methods, design criteria, decision support tools, and techniques for all aspects of construction, design, maintenance, materials, operations, traffic engineering, bridges and structures, engineering, and traffic safety.

Funding Levels and Project Time Frame

This project is currently funding \$1,200,000 per year.

Schedule

Two times each year, topics are submitted via AASHTO website at:

<http://www.transportation1.org/nchrp/20-7/>

**Two Cycles Each Year**

<b>CYCLE 1</b>	<b>CYCLE 2</b>
May – Topics Selected	October – Topics selected
August – Panel formed & contracts identified	January – Panel formed & contracts identified
December – Selection of contractors	March - Selection of contractors
January to January – Research	May to May - Research

### Project Solicitation and Submission

Two times each year, topics are submitted via AASHTO website at:  
<http://www.transportation1.org/nchrp/20-7/>

#### **Two Cycles Each Year**

<b>CYCLE 1</b>	<b>CYCLE 2</b>
May – Topics Selected	October – Topics selected
August – Panel formed & contracts identified	January – Panel formed & contracts identified
December – Selection of contractors	March - Selection of contractors
January to January – Research	May to May - Research

### Selection Process

NCHRP 20-7 panel is a special committee under the SCOH.

### Project Selection Criteria and Tips for Writing Winning Research Statements

There are no formally stated selection criteria, but the panel looks for:

- projects of national interest,
- research of immediate concern to the transportation planning community,
- research projects that can be achieved with the smaller funding and shorter time frame associated with this project, and
- topics that are not currently covered by other ongoing research projects.

Cost sharing can leverage investments in research as well as spread the risk inherent in early-stage concept development. For those reasons, all other things being equal, proposals that include cost sharing from other sources may be given some preferences in the evaluations. Several research projects have been jointly funded with FHWA.

### Further Information

For more information contact:

Nanda Srinivasan  
Senior Program Officer  
Transportation Research Board  
Cooperative Research Programs  
202-334-1896  
[nsrinivasan@nas.edu](mailto:nsrinivasan@nas.edu)

## **NCHRP 20-65: Research for AASHTO Standing Committee on Public Transportation**

Total Annual Funding – \$300,000

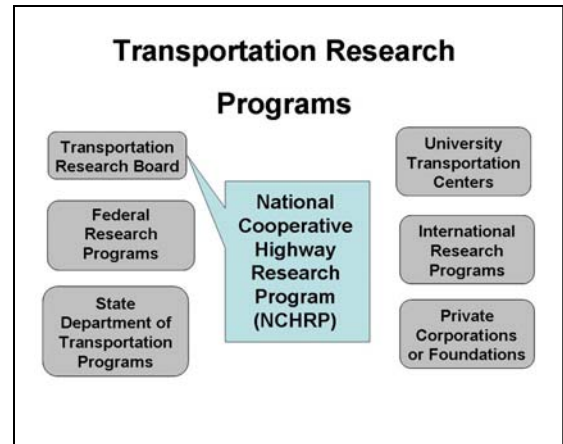
Range of Project Costs – \$25,000–100,000

Research Statements Due – Information in development

Web Address – <http://www.trb.org/TRBNet/ProjectDisplay.asp?ProjectID=650>

### General Description

The AASHTO Standing Committee on Public Transportation (SCOPT) is called upon to provide information for the establishment of policies and positions of the state transportation departments on issues associated with the nation's transportation system. The Committee needs information on a reasonably prompt basis, through a continuing research project geared to its responsibilities. AASHTO member departments require timely information regarding transit planning, operations, transit delivery, and related matters as state involvement in public transportation continues to grow.



### Type of Research Funded

This project comprises a program of quick-response research tasks to assist in the fulfillment of SCOPT and AASHTO responsibilities. Research conducted responds to public transportation issues of importance to SCOPT, AASHTO, and state departments of transportation. For example, when any new or revised federal transportation regulations related to transit are proposed or finalized, research is typically needed to develop new methods, processes, and procedures to ensure their effective and timely implementation.

### Funding Levels and Project Time Frame

This project is currently funding \$300,000 per year.

### Schedule

Information in development.

### Project Solicitation and Submission

Information in development.

### Selection Process

Information in development.

Project Selection Criteria and Tips for Writing Winning Research Statements  
Information in development.

Further Information

For more information contact:

Gwen Chisholm Smith  
Senior Program Officer  
Transportation Research Board  
202-334-3246  
[gsmith@nas.edu](mailto:gsmith@nas.edu)



## **Innovations Deserving Exploratory Analysis (IDEA)**

Total Annual Funding – Information in development

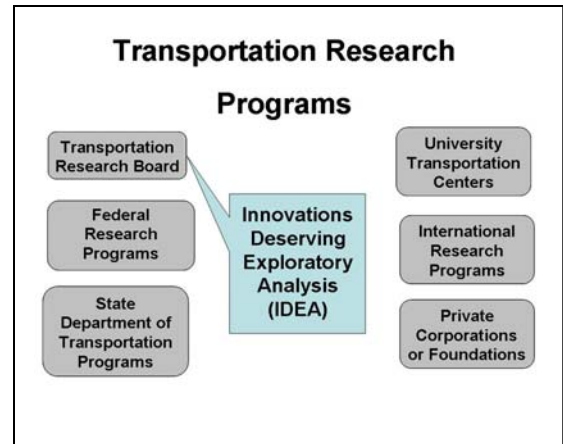
Range of Project Costs – \$25,000–100,000; \$25,000–150,000 for highways research

Statements Due – March 1 and September 1; March 1 only for Safety Program

Web Address – <http://www.trb.org/Studies/Programs/IDEA.asp>

### General Description

The IDEA program funds research in promising but unproven innovations for highways, transportation safety, and transit. Investigators may submit research statements in March or September of each year to be considered for funding. AASHTO and the following agencies of the U.S. Department of Transportation (U.S. DOT) invest in the potential of innovative concepts by funding the Innovations Deserving Exploratory Analysis (IDEA) programs.



- Highway IDEA – Through the National Cooperative Highway Research Program (NCHRP), AASHTO funds the NCHRP Highway IDEA program to foster innovative concepts and search for advances in design, construction, safety, maintenance, operations, and management of highway systems;
- Safety IDEA – The Federal Motor Carrier Safety Administration (FMCSA) and the Federal Railroad Administration (FRA) jointly fund the Safety IDEA program to promote innovative approaches to reducing fatalities and injuries by improving truck safety and railroad safety; and
- Transit IDEA – Through the Transit Cooperative Research Program (TCRP), the Federal Transit Administration (FTA) funds the Transit IDEA program to support innovations to improve the efficiency, safety, security, and ridership of transit systems.

The Transportation Research Board (TRB) administers the IDEA programs on behalf of their sponsoring agencies. A senior staff officer supports the work of committees and panels of unpaid experts who volunteer their time to review proposals, select projects for funding, and offer guidance on the conduct of investigations.

### Type of Research Funded

There are two project types: Type 1 projects are concept explorations that demonstrate the validity of unproven concepts, and Type 2 projects develop and test prototypes of proven concepts.

### Funding Levels and Project Time Frame

Funding for Type 1 projects typically ranges from \$25,000 to \$100,000, and contracts may cover 3 to 18 months. Type 2 projects more often range from \$50,000 to \$100,000 and contracts may range from 6 to 24 months. The NCHRP Highway IDEA program has an upper limit of \$150,000 for both project types. The other IDEA programs cannot consider proposals for above \$100,000. Within these funding constraints, award amounts are based on the extent of the investigation required for the project.

### Schedule

- NCHRP-IDEA Program:
  - March 1, 2009: Proposals due
  - June 2009: Proposals selected
  - September 1, 2009: Proposals due
  - November 2009: Proposals selected
- Transit IDEA Program:
  - March 1, 2009: Proposals due
  - July 2009: Proposals selected
  - September 1, 2009: Proposals due
  - December 2009: Proposals selected
- Safety IDEA Program:
  - March 1, 2009: Proposals due
  - July 2009: Proposals selected

### Project Solicitation and Submission

The annual [Program Announcement](#) provides information about the programs and includes instructions and forms for submitting proposals. Annual progress reports that describe current and completed projects are published for each program. Detailed directions for preparing research statements, contracts and budgets may be found in the IDEA program announcement at [http://onlinepubs.trb.org/onlinepubs/sp/IDEA\\_announcement.pdf](http://onlinepubs.trb.org/onlinepubs/sp/IDEA_announcement.pdf).

### Selection Process

Proposals are reviewed by technical experts in the program area who are selected from industry, academia, and state and federal transportation agencies to serve on IDEA committees.

### Project Selection Criteria and Tips for Writing Winning Research Statements

In evaluating proposals, committee members require clear, concise answers in three areas:

- **Quality of Innovation** – Is this a credible technical concept, and would it produce a significant advance for the state of the art or the practice?
- **Potential Payoff** – Is this an important problem that the IDEA program should investigate, and would the product have potential for application?
- **Research Approach** – Would the proposed investigative approach rigorously assess the concept and the application?

Complete proposals that follow the Guidelines for Preparing IDEA Proposals will be further evaluated according to their strength in those and the following areas:

- What are the expected benefits to transportation agencies? Is there potential to produce a breakthrough or a major advance in some portion of transportation practice?
- Does the concept have scientific and technical merit?
- Is the research plan sound, and does it have a realistic scope?
- What are the qualifications of the investigating team, and what facilities are available to them?
- How practical are the plans for product implementation or commercialization?
- Have potential users of the ultimate product agreed to participate in the project?

Cost sharing can leverage an agency's investment in research as well as spread the risk inherent in early-stage concept development. For those reasons, all other things being equal, proposals that include cost sharing from other sources may be given some preference in the evaluations. TRB may recommend technical or budget modifications to the project after a proposal has been selected for funding but before a contract is awarded. For example, investigators may be asked to clarify project details, revise the work plan, or reestimate the cost to perform the project.

Winning proposals emphasize innovation. Effective proposals clearly identify what is being done differently. A proposal that shows an awareness of what has been done in the past makes a positive impression on reviewers. Similarity to existing or past work is one of the reasons proposals are not selected. Potential innovators can also improve their chances of selection by talking with to potential users of the concept. Asking users for help to develop or test the concept as part of the work plan. Sometimes a letter of commitment from a potential user to participate in the project can add strength to the proposal. Also, follow the guidelines for preparing a proposal. Reviewers do not want to miss a good idea because they couldn't understand it in a poorly prepared proposal.

#### Further Information

Contact the IDEA office by telephone at 202-334-3310 or by fax at 202-334-3471. The IDEA program staff includes:

Harvey Berlin, Senior Program Officer for Transit IDEA and Safety IDEA  
Inam Jawed, Senior Program Officer for NCHRP Highway IDEA  
Chuck Taylor, Senior Program Officer for Rail IDEA

Web sites:

Highway IDEA: <http://www.trb.org/Studies/Programs/IDEAHighway.asp>

Safety IDEA: <http://www.trb.org/Studies/Programs/IDEASafety.asp>

Transit IDEA: <http://www.trb.org/Studies/Programs/IDEATransit.asp>

## Airport Cooperative Research Program (ACRP)

### ACRP Regular Projects

Total Annual Funding – \$10 million

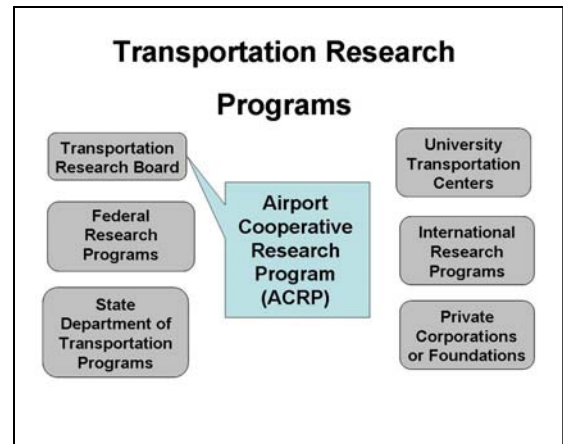
Range of Project Costs – \$300,000–500,000

Statements Due – April 30

Web Address - <http://www.trb.org/CRP/ACRP/ACRP.asp>

### General Description

The Airport Cooperative Research Program (ACRP) was authorized as part of the Vision 100-Century of Aviation Reauthorization Act. In October 2005, the Federal Aviation Administration (FAA) executed a contract with the National Academies, acting through its Transportation Research Board (TRB), to serve as manager of the ACRP. Program oversight and governance are provided by representatives of airport operating agencies. The Airport Cooperative Research Program (ACRP) carries out applied research on problems that are shared by airport operating agencies and are not being adequately addressed by existing federal research programs. The ACRP undertakes research and other technical activities in a variety of airport subject areas including design, construction, maintenance, operations, safety, security, policy, planning, human resources, and administration.



### Type of Research Funded

ACRP seeks practical remedies for operational problems by performing applied research on problems shared by airport operating agencies that are not adequately addressed by existing federal research programs. The ACRP undertakes research and other technical activities in a variety of airport subject areas including design, construction, maintenance, operations, safety, security, policy, planning, human resources, and administration.

### Funding Levels and Project Time Frame

The ACRP is authorized at \$10 million per year. Annual ACRP funding is determined by the annual federal appropriation process. ACRP projects typically take one to two years to complete.

### Schedule

- Early February – Problem statements for the next fiscal year are requested
- end of April – Next fiscal year's problem statement submission deadline
- mid-July – Projects selected for next year

- August – Panel nominations requested
- October – Panels selected
- November – First panel meetings

#### Project Solicitation and Submission

Research problem statements for ACRP are solicited periodically but may be submitted to TRB by anyone at any time. It is the responsibility of the ACRP governing board to formulate the research program by identifying the highest priority projects and defining funding levels and expected products.

#### Selection Process

The primary participants of the ACRP are (a) the ACRP Oversight Committee (AOC) an independent governing board established by the Secretary of U.S. Department Transportation with representation from airport operating agencies, other stakeholders, and relevant industry organizations such as the Airports Council International–North America (ACI-NA), American Association of Airport Executives (AAAE), National Association of State Aviation Officials (NASAO), and the Air Transport Association (ATA) as vital links to the airport community. The roster for the AOC may be found at [http://www.trb.org/NotesDocs/AOC\\_Roster.pdf](http://www.trb.org/NotesDocs/AOC_Roster.pdf).

#### Project Selection Criteria and Tips for Writing Winning Research Statements

Selected projects are relevant to a broad range of airports—those of many sizes, different types of airports, and a range of geographic locations. It is very important to explain the relevance for the airport audience. It is not important to provide detail on the specific research approach, the project panel and consultants will work out those details. It is important to clearly spell out the objectives of the research statement.

#### Further Information

For more information contact:

Michael R. Salamone  
Manager, ACRP  
Transportation Research Board  
202-334-1268  
[msalamone@nas.edu](mailto:msalamone@nas.edu)

## ACRP Graduate Research Award Program

Total Annual Funding – \$100,000

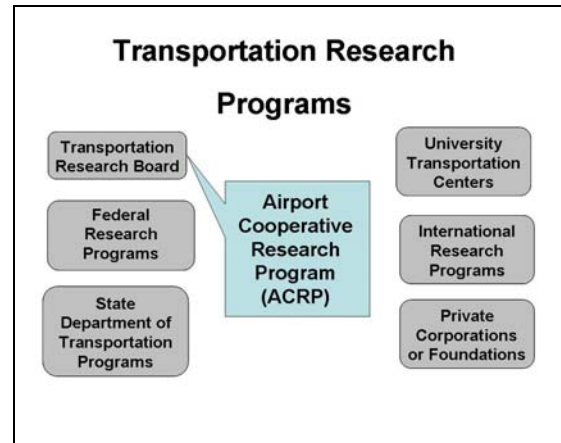
Range of Project Costs – \$10,000 per Student up to 10 Students

Applications Due – May 15<sup>th</sup>

Web Address – <http://www.trb.org/CRP/ACRP/AwardProgram.asp>

### General Description

The purpose of the Graduate Research Award Program is to encourage applied research on airport and related aviation system issues and to foster the next generation of aviation community leaders. The program is intended to stimulate thought, discussion, and research by those who may become the future airport managers, operators, designers, and policy makers in aviation. The focus of this research program is on applied research to help the public sector continue to improve the quality, reliability, safety, and security of the U.S. civil aviation system well into the foreseeable future.



Under the program, the applicant selects the topic to be researched with supervision by a faculty member at his or her institution. Appropriate topics may be drawn from a wide range of subjects of interest to the U.S. public sector aviation community.

### Type of Research Funded

The Graduate Research Award Program on Public-Sector Aviation Issues offers awards to research papers on subjects chosen by the applicants within the framework of the program's purpose.

### Funding Levels and Project Time Frame

This award program is funded for \$100,000 for each academic year and up to ten students receive a \$10,000 stipend for completion of the research paper during the academic year. Payments are divided into four installments during the research, with the final payment contingent on completion and acceptance of the paper by the panel.

### Schedule

- May 15<sup>th</sup> – Applications due
- early September – Contracts awarded to recipients
- early October – First scoping discussion/meeting and review of draft work plan with mentor, advisor, and research grant recipient
- late August – Research papers due
- following January – Papers presented at TRB's annual meeting, published as part of the Compendium of Papers for the meeting, and considered for publication in *Transportation Research Record*



### Project Solicitation and Submission

Notification of the solicitation is sent to a large number of universities and other organizations interested in aviation research. The project is also announced in the TRB e-newsletter. Application forms are available online at <http://www.trb.org/CRP/ACRP/AwardProgram.asp>.

### Selection Process

Applicants for awards will be judged on a number of factors, including academic qualifications (academic accomplishments, references, and experience), career goals, and proposed research (quality of concept, approach, and potential value to the public sector aviation community). Final selection of candidates for awards will be made by a panel of experts from aviation and the academic community appointed by the ACRP. The roster for this committee is available on the TRB Web site.

### Project Selection Criteria and Tips for Writing Winning Research Statements

Applications will be judged on the following criteria:

- Quality and completeness of the application and the research proposal,
- Relevance to the purpose of the research program,
- Résumé, including academic and work experience,
- References (including at least one academic reference) available to contact in support of the application,
- Commitment of a faculty advisor, and
- Writing sample submitted with the application.

The selection committee looks for creative research ideas that have a high potential for success. Research should also be of interest to the practitioner community.

### Further Information

For more information contact:

Lawrence D. Goldstein  
Senior Program Officer  
Airport Cooperative Research Program  
Transportation Research Board  
500 Fifth Street, NW  
Washington, DC 20001

## Transit Cooperative Research Program (TCRP)

### TCRP Regular Projects

Total Annual Funding – \$9 million

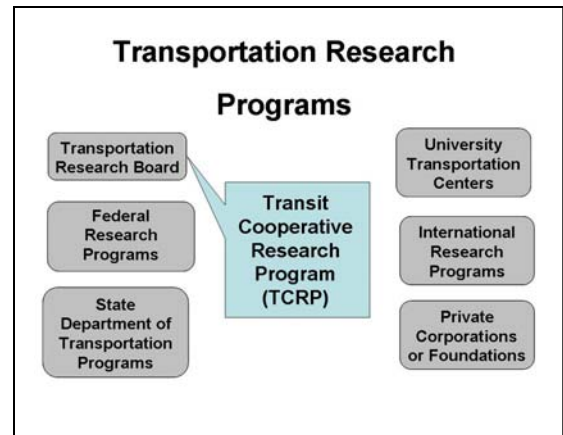
Range of Project Costs \$200,000–500,000

Statements Due – Accepted anytime; annual solicitation due June 15

Web Address – <http://www.trb.org/CRP/TCRP/TCRP.asp>

### General Description

The Transit Cooperative Research Program (TCRP) was established under Federal Transit Administration (FTA) sponsorship in July 1992. TCRP was authorized as part of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and reauthorized by the Transportation Equity Act for the 21st Century (TEA 21) and the Safe, Accountable, Flexible, and 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 Academy of Sciences, acting through the Transportation Research Board (TRB); and the Transit Development Corporation, Inc. (TDC), a nonprofit educational and research organization established by the American Public Transportation Association (APTA). An updated memorandum agreement was executed on January 12, 1999.



### Type of Research Funded

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

### Funding Levels and Project Time Frame

Information in development.

### Schedule

- January 2009 Panel nominations due for FY 2009 projects
- January 2009 Solicitation for FY 2010 problem statements issued
- March 2009 First panel meetings for FY 2009 projects to develop RFPs
- June 2009 Topic submission deadline for FY 2010 program
- November 2009 Projects selected for FY 2010 program
- November 2009 Panel nomination request issued
- January 2010 Panels selected for FY 2010 projects



### Project Solicitation and Submission

Research problem statements for TCRP are solicited annually but may be submitted to TRB by anyone at anytime. Approximately 2,100 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, consultants, and industry.

### Selection Process

The selection process begins with FTA reviewing the problem statements and submitting comments. One of the criteria used by the FTA in the review 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:

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

Next a screening workshop is conducted to evaluate candidate problem statements and to recommend problems for consideration by the TCRP Oversight and Project Selection (TOPS) Committee. The screening panel considers, in addition to the FTA strategic initiatives, five strategic priorities adopted in the TCRP strategic plan:

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

Next 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.

Finally the technical merits of the problems that survive the workshop screening 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 projects for the next program year.

### Project Selection Criteria and Tips for Writing Winning Research Statements Information in development.

### Further Information

For more information contact:

Christopher W. Jenks, Director  
Cooperative Research Programs

Transportation Research Board  
(202)334-3089  
[cjenks@nas.edu](mailto:cjenks@nas.edu)

## TCRP International Transit Studies Program

Total Annual Funding – \$500,000 funds two international missions

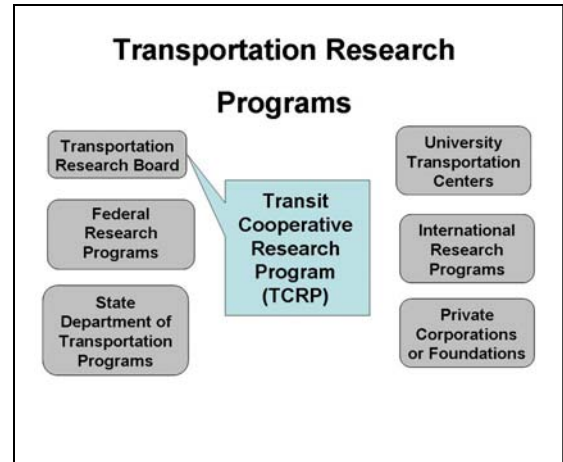
Statements Due – Nominees selected twice yearly for spring and fall missions

Web Address – <http://www.trb.org/TRBNet/ProjectDisplay.asp?ProjectID=1168>

### General Description

The International Transit Studies Program (ITSP) is part of the Transit Cooperative Research Program (TCRP). The ITSP is managed by Harrington-Husher & Associates under contract to the National Academies.

The ITSP is designed to assist in the professional development of transit managers, public officials, planners, and others charged with public transportation responsibilities in the United States. The program accomplishes this objective by providing opportunities for participants to learn from foreign experience, while expanding their network of domestic and international contacts for addressing public transport problems and issues.



### Type of Research Funded

The program arranges study missions in which teams of public transportation professionals visit exemplary transit operations in other countries. Each study mission focuses on a central theme that encompasses issues of concern in public transportation. Cities and transit systems to be visited are selected on the basis of their ability to demonstrate new ideas or unique approaches to handling public transportation challenges reflected in the study mission's theme. Each study team begins with a briefing before departing on an intensive, 2-week mission. After this professional interaction, study team members return home with ideas for possible application in their own communities. Team members are encouraged to share their international experience and findings with peers in the public transportation community throughout the United States. Study mission experience also helps to evaluate current and proposed transit improvements and can serve to identify potential public transportation research topics.

Study missions normally are conducted in the spring and fall of each year. Study teams consist of up to 15 individuals, including a senior official designated as the group's spokesperson. Transit agencies are contacted directly and asked to nominate candidates for participation. Nominees are selected by a committee of transit officials, and the TCRP Project J-3 Oversight Panel endorses the selection.

### Funding Levels and Project Time Frame

Information in development.

Schedule

Information in development.

Project Solicitation and Submission

Information in development.

Selection Process

Information in development.

Project Selection Criteria and Tips for Writing Winning Research Statements

Information in development.

Further Information

For more information contact:

Gwen Chisholm Smith  
Senior Program Officer  
[Transportation Research Board](#)  
Cooperative Research Programs  
202-334-3246  
gsmith@nas.edu

## **National Cooperative Freight Research Program (NCFRP)**

Total Annual Funding – \$3.75 million

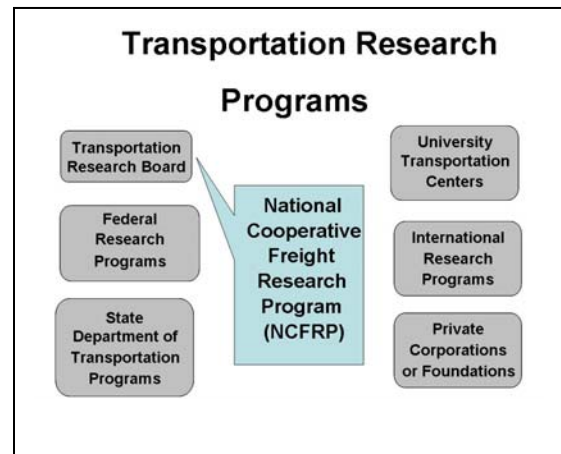
Range of Project Costs – \$20,000–500,000

Statements Due – July

Web Address – <http://www.trb.org/CRP/NCFRP/NCFRP.asp>

### General Description

The National Cooperative Freight Research Program (NCFRP) was authorized in the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The NCFRP is sponsored by the US Department of Transportation's Research and Innovative Technology Administration (RITA) and managed by the National Academies, acting through its Transportation Research Board (TRB), with program governance provided by an Oversight Committee including a representative cross section of freight stakeholders. A contract to begin work on the NCFRP has been executed between RITA and the National Academies and became effective on September 6, 2006.



### Type of Research Funded

The National Cooperative Freight Research Program (NCFRP) is directed to carry out applied research on problems facing the freight industry that are not being adequately addressed by existing research programs. SAFETEA-LU, in authorizing the NCFRP, called for development of a national research agenda addressing freight transportation and for implementation of a multi-year strategic plan to achieve it. The act also states that "the national research agenda shall . . . include research in the following areas:

1. Techniques for estimating and quantifying public benefits derived from freight transportation projects,
2. Alternative approaches to calculating the contribution of truck and rail traffic to congestion on specific highway segments,
3. The feasibility of consolidating origins and destinations for freight movement,
4. Methods for incorporating estimates of international trade into landside transportation planning,
5. The use of technology applications to increase capacity of highway lanes dedicated to truck-only traffic,
6. Development of physical and policy alternatives for separating car and truck traffic,

7. Ways to synchronize infrastructure improvements with freight transportation demand,
8. The effects of changing patterns of freight movement on transportation planning decisions relating to rest areas,
9. Other research areas to identify and address emerging and future research needs related to freight transportation by all modes."

The NCFRP covers a broad range of issues related to the objective of improving the efficiency, reliability, safety, and security of the nation's freight transportation system.

#### Funding Levels and Project Time Frame

SAFETEA-LU authorized \$3.75 million per year for the NCFRP in Fiscal Years 2006 through 2009. NCFRP funding is determined by the annual federal appropriation process. The total available in FY 2008 is approximately \$2.9 million.

#### Schedule

This program has not been authorized past 2009. Information will be provided as soon as it becomes available.

#### Project Solicitation and Submission

Information in development.

#### Selection Process

The NCFRP Oversight Committee formulates the research program by identifying the highest priority projects and defines funding levels and expected products. Research problem statements, recommending research needs for consideration by the Oversight Committee, are solicited periodically but may be submitted to TRB at any time.

#### Project Selection Criteria and Tips for Writing Winning Research Statements

Information in development.

#### Further Information

For more information contact:

Crawford F. Jencks, Manager  
National Cooperative Freight Research Program  
Transportation Research Board  
(202) 334-2379  
[cjencks@nas.edu](mailto:cjencks@nas.edu)

## **Hazardous Materials Cooperative Research Program (HMCRP)**

Total Annual Funding – \$880,000

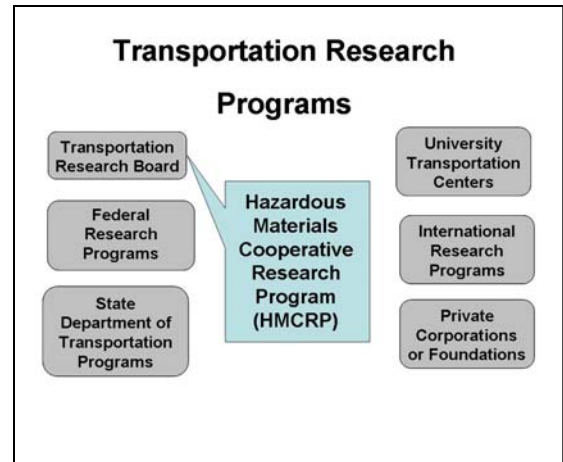
Range of Project Costs – \$300,000–350,000

Statements Due – Information in development

Web Address – <http://www.trb.org/CRP/HMCRP/HMCRP.asp>

### General Description

A pilot cooperative research program focused on hazardous materials transportation was authorized in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The Hazardous Materials Cooperative Research Program (HMCRP) is sponsored by the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) and managed by the National Academies, acting through its Transportation Research Board (TRB). A contract to begin work on the HMCRP pilot has been executed between PHMSA and the National Academies and became effective on September 1, 2006.



The HMCRP is intended to complement other U.S. DOT research programs as a stakeholder-driven, problem-solving program, researching real-world, day-to-day operational issues with near- to mid-term time frames. In the current pilot stage of the HMCRP, the TRB will carry out applied research projects to improve the information used in managing risk associated with the transportation of hazardous materials. The TRB will use procedures similar to those employed in the existing NCHRP, TCRP, and Airport Cooperative Research Program (ACRP) to provide for competitive, merit-based selection of research institutions, research project oversight, and dissemination of research results. Using the funding provided by the U.S. DOT each year, this new program will conduct studies intended to advance current knowledge and practice relating to hazardous materials transportation.

### Type of Research Funded

Information in development.

### Funding Levels and Project Time Frame

SAFETEA-LU authorized \$1.25 million per year for the HMCRP in Fiscal Years 2006 through 2009. HMCRP funding is determined by the annual federal appropriation process. The total available in FY 2009 is about \$880,000.

### Schedule

This program has not been authorized past 2009. Information will be provided as soon as it becomes available.

### Project Solicitation and Submission

Information in development.

### Selection Process

The HMCRP Technical Oversight Panel formulates the research program by identifying the highest-priority projects and defines funding levels and expected products.

SAFETEA-LU, in authorizing the HMCRP, referred to nine examples of topics to be considered for HMCRP research. The Oversight Panel will prioritize studies within the scope of these nine examples. The roster for the Oversight Panel may be found at [http://www.trb.org/NotesDocs/HMCRP\\_Roster.pdf](http://www.trb.org/NotesDocs/HMCRP_Roster.pdf).

### Project Selection Criteria and Tips for Writing Winning Research Statements

Information in development.

### Further Information

For more information contact:

Crawford F. Jencks, Deputy Director, CRP  
Hazardous Materials Cooperative Research Program  
Transportation Research Board  
202-334-2379  
[cjencks@nas.edu](mailto:cjencks@nas.edu)



## TRB Cross-Cutting Cooperative Research Program Special Projects

The TRB Cooperative Research Program funds two sets of programs—the Synthesis Programs and the Legal Research Program that cut across the modes. These two programs are described in greater detail below.

## TRB Cooperative Research Program Special Projects – Synthesis Study Programs

State-of-the-practice reports called syntheses are currently developed under the Airport Cooperative Research Program (ACRP), National Cooperative Highway Research Program (NCHRP), the Transit Cooperative Research Program (TCRP), and the Commercial Truck and Bus Safety Synthesis Program (CTBSSP).

### TRB Cooperative Research Program Special Projects: TCRP Synthesis Study Programs

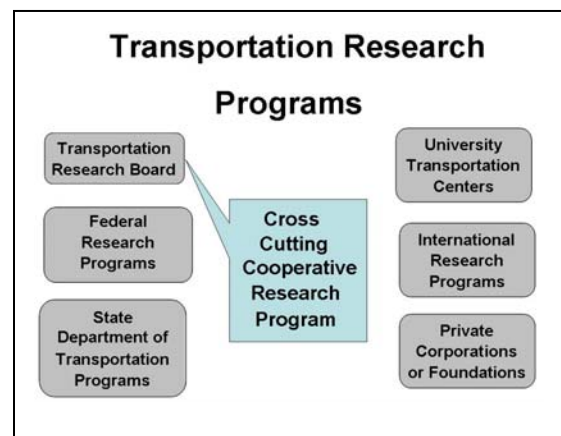
Total Annual Funding/Range of Project Costs – 6 projects at \$35,000

Statements Due – March 31

Web Address – <http://www.trb.org/Studies/Synthesis/SynthesesTCRP.asp>

### General Description

The Transit Cooperative Research Program (TCRP) Synthesis Study Program funds state-of-the-practice reports prepared under contract by outside individuals or firms. Syntheses are oriented toward practical solutions of specific transit problems. The specific objectives of a synthesis are 1) to locate and assemble information; 2) to learn what practice has been used; 3) to identify ongoing and recently completed research; 4) to learn what problems remain largely unsolved; and 5) to organize, evaluate, and document the useful information acquired.



### Type of Research Funded

The aim of a synthesis, first and foremost, is to document the state of the practice. In addition to documenting facts, the synthesis provides a basis for making conclusions or assessments about:

- Performance resulting from current practices, including new and unusual practices,
- Current practices that are at odds with research findings,
- Current practices that appear to be working well and those that are not working well, and
- Critical knowledge gaps that could be filled by additional research.

The reports, however, stay clear of policy recommendations or statements on sensitive issues that would go beyond the purpose of the synthesis series and compromise the fact-finding/technical assessment mission of these reports.

#### Funding Levels and Project Time Frame

In 2008, the TCRP synthesis study's consultant work will be funded at a level of \$30,000 for each study, with an additional bonus of \$5,000 for timely delivery of acceptable products. Public agencies have chosen to augment the consultant funding for specific studies.

#### Schedule

- March 31 – New topic statement submission deadline
- May – Projects selected
- August – First panel meetings begin

#### Project Solicitation and Submission

Research statements may be submitted by anyone. An on-line form is available to submit statements at <http://www.trb.org/Studies/Synthesis/SynthesesSubmittal.asp>.

#### Selection Process

TCRP Project Committee J-7 meets each year to select topics for study using funds from the upcoming fiscal year. Current funding allows for initiation of about four syntheses per year.

#### Project Selection Criteria and Tips for Writing Winning Research Statements

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

- The topic should address a problem that is widespread enough to generate broad interest.
- The topic should be timely and critical with respect to the needs of the industry or society.
- The topic may be appropriate if current practice is not uniform or is inconsistent from agency to agency, or if the validity of some practices appears to be questionable.
- There is a sufficient amount of useful, available information to gather and synthesize into a meaningful report.
- There is no ongoing or completed research or other that will render the synthesis obsolete after completion.
- The work proposed does not require research or cost substantially more than the available resources.
- The proposal is a concise, well-written statement of the need, and work to be performed to meet that need.

Endorsements from a TRB committee, AASHTO committee, state DOT, or transit property help make the case for selecting a particular topic.

Further Information

For more information contact:

Donna L. Vlasak  
Senior Program Officer  
[Transportation Research Board](#)  
Studies and Special Programs (Division B)  
202-334-2974  
[dvlasak@nas.edu](mailto:dvlasak@nas.edu)

## TRB Cooperative Research Program Special Projects: NCHRP Synthesis Study Programs

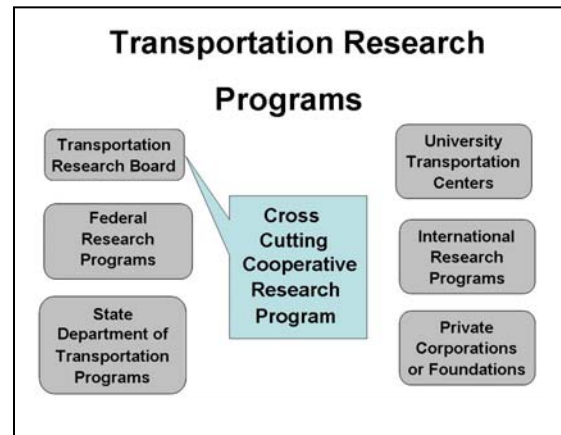
Total Annual Funding/Range of Project Costs – 12 projects at \$35,000

Statements Due – February 8

Web Address – <http://www.trb.org/Studies/Synthesis/SynthesesNCHRP.asp>

### General Description

The National Cooperative Highway Research Program (NCHRP) Synthesis Study Program funds state-of-the-practice reports prepared under contract by outside individuals or firms. Syntheses are oriented toward practical solutions of specific transit problems. The specific objectives of a synthesis are 1) to locate and assemble information; 2) to learn what practice has been used; 3) to identify ongoing and recently completed research; 4) to learn what problems remain largely unsolved; and 5) to organize, evaluate, and document the useful information acquired.



### Type of Research Funded

The aim of a synthesis, first and foremost, is to document the state of the practice. In addition to documenting facts, the synthesis provides a basis for making conclusions or assessments about:

- Performance resulting from current practices, including new and unusual practices,
- Current practices that are at odds with research findings,
- Current practices that appear to be working well and those that are not working well, and
- Critical knowledge gaps that could be filled by additional research.

The reports, however, stay clear of policy recommendations or statements on sensitive issues that would go beyond the purpose of the synthesis series and compromise the fact-finding/technical assessment mission of these reports.

### Funding Levels and Project Time Frame

In 2008, the NCHRP synthesis study's consultant work will be funded at a level of \$30,000 for each study, with an additional bonus of \$5,000 for timely delivery of acceptable products. Public agencies have chosen to augment the consultant funding for specific studies.

### Schedule

- February 8 – New topic statement submission deadline
- May – Projects selected
- August – First panel meetings begin

### Project Solicitation and Submission

Research statements may be submitted by anyone. An on-line form is available to submit statements at <http://www.trb.org/Studies/Synthesis/SynthesesSubmittal.asp>.

### Selection Process

NCHRP Project Committee SP20-05 meets each year to select topics for study using funds from the upcoming fiscal year. Current funding allows for initiation of about 12 syntheses per year. This number, plus some alternate topics, is selected by the committee at its annual project meeting.

### Project Selection Criteria and Tips for Writing Winning Research Statements

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

- The topic should address a problem that is widespread enough to generate broad interest.
- The topic should be timely and critical with respect to the needs of the industry or society.
- The topic may be appropriate if current practice is not uniform or is inconsistent from agency to agency, or if the validity of some practices appears to be questionable.
- There is a sufficient amount of useful, available information to gather and synthesize into a meaningful report.
- There is no ongoing or completed research or other that will render the synthesis obsolete after completion.
- The work proposed does not require research or cost substantially more than the available resources.
- The proposal is a concise, well-written statement of the need, and work to be performed to meet that need.

Endorsements from a TRB committee, AASHTO committee, or state DOT help make the case for selecting a particular topic.

### Further Information

For more information contact:

Jon M. Williams

Program Director for IDEA and Synthesis Studies

[Transportation Research Board](#)

Studies and Special Programs (Division B)

202-334-3245

[jwilliams@nas.edu](mailto:jwilliams@nas.edu)

## TRB Cooperative Research Program Special Projects: ACRP Synthesis Study Programs

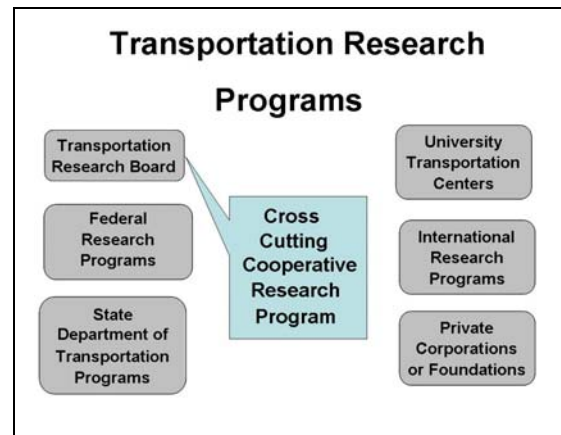
Total Annual Funding/Range of Project Costs – 5 projects at \$35,000

Statements Due – October

Web Address – <http://www.trb.org/Studies/Synthesis/SynthesesACRP.asp>

### General Description

The Airport Cooperative Research Program (ACRP) Synthesis Study Program funds state-of-the-practice reports prepared under contract by outside individuals or firms. Syntheses are oriented toward practical solutions of specific transit problems. The specific objectives of a synthesis are 1) to locate and assemble information; 2) to learn what practice has been used; 3) to identify ongoing and recently completed research; 4) to learn what problems remain largely unsolved; and 5) to organize, evaluate, and document the useful information acquired.



### Type of Research Funded

The aim of a synthesis, first and foremost, is to document the state of the practice. In addition to documenting facts, the synthesis provides a basis for making conclusions or assessments about:

- Performance resulting from current practices, including new and unusual practices,
- Current practices that are at odds with research findings,
- Current practices that appear to be working well and those that are not working well, and
- Critical knowledge gaps that could be filled by additional research.

The reports, however, stay clear of policy recommendations or statements on sensitive issues that would go beyond the purpose of the synthesis series and compromise the fact-finding/technical assessment mission of these reports.

### Funding Levels and Project Time Frame

In 2008, the ACRP synthesis study's consultant work will be funded at a level of \$30,000 for each study, with an additional bonus of \$5,000 for timely delivery of acceptable products. Public agencies have chosen to augment the consultant funding for specific studies.

### Schedule

Typically 5 projects are programmed each year, according to the following:

- October – New topic statement submission deadline
- December – Projects selected
- March – First panel meetings begin

### Project Solicitation and Submission

Research statements may be submitted by anyone. An on-line form is available to submit statements at <http://www.trb.org/Studies/Synthesis/SynthesesSubmittal.asp>.

### Selection Process

ACRP Project Committee 11-03 meets each year to select topics for study using funds from the upcoming fiscal year. Current funding allows for initiation of about five syntheses per year. This number, plus some alternate topics, is selected by the committee at its annual project meeting.

### Project Selection Criteria and Tips for Writing Winning Research Statements

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

- The topic should address a problem that is widespread enough to generate broad interest.
- The topic should be timely and critical with respect to the needs of the industry or society.
- The topic may be appropriate if current practice is not uniform or is inconsistent from agency to agency, or if the validity of some practices appears to be questionable.
- There is a sufficient amount of useful, available information to gather and synthesize into a meaningful report.
- There is no ongoing or completed research or other that will render the synthesis obsolete after completion.
- The work proposed does not require research or cost substantially more than the available resources.
- The proposal is a concise, well-written statement of the need, and work to be performed to meet that need.

Endorsements from a TRB committee, state DOT, or airport authority help make the case for selecting a particular topic.

### Further Information

For more information contact:

Gail R. Staba

Synthesis Program Consultant

[Transportation Research Board](#)

Studies and Special Programs (Division B)

202-536-5856

[gstaba@nas.edu](mailto:gstaba@nas.edu)



## **TRB Cooperative Research Program Special Project: Commercial Truck and Bus Safety Synthesis Program**

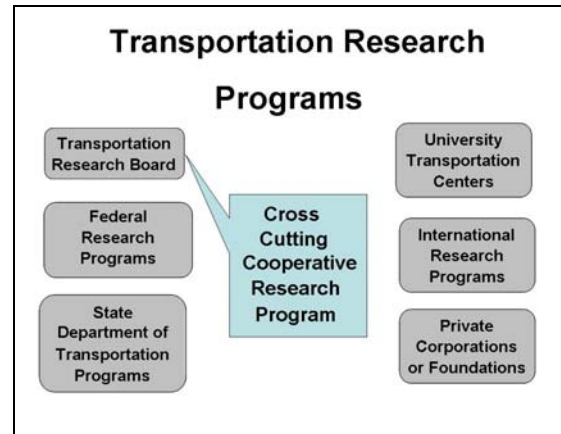
Total Annual Funding/Range of Project Costs – at least 2 projects at \$40,000

Statements Due – Projects may be submitted at any time

Web Address – <http://www.trb.org/CRP/CTBSSP/CTBSSP.asp>

### General Description

The Commercial Truck and Bus Safety Synthesis Program (CTBSSP) Synthesis Study Program funds state-of-the-practice reports prepared under contract by outside individuals or firms. Syntheses are oriented toward practical solutions of specific transit problems. The specific objectives of a synthesis are 1) to locate and assemble information; 2) to learn what practice has been used; 3) to identify ongoing and recently completed research; 4) to learn what problems remain largely unsolved; and 5) to organize, evaluate, and document the useful information acquired.



### Type of Research Funded

The aim of a synthesis, first and foremost, is to document the state of the practice. In addition to documenting facts, the synthesis provides a basis for making conclusions or assessments about:

- Performance resulting from current practices, including new and unusual practices,
- Current practices that are at odds with research findings,
- Current practices that appear to be working well and those that are not working well, and
- Critical knowledge gaps that could be filled by additional research.

The reports, however, stay clear of policy recommendations or statements on sensitive issues that would go beyond the purpose of the synthesis series and compromise the fact-finding/technical assessment mission of these reports.

### Funding Levels and Project Time Frame

In 2008, CTBSSP consultants receive \$40,000 for each study. Public agencies have chosen to augment the consultant funding for specific studies.

### Schedule

Information in development.



### Project Solicitation and Submission

Research statements may be submitted by anyone. A research project submission form may be found on the program web site <http://www.trb.org/CRP/CTBSSP/CTBSSP.asp>.

### Selection Process

A program oversight panel governs the CTBSSP. Major responsibilities of the panel are to (1) provide general oversight of the CTBSSP and its procedures, (2) annually select synthesis topics based on an industry-wide solicitation, (3) refine synthesis scopes, (4) select researchers to prepare each synthesis, (5) review products, and (6) make publication recommendations.

### Project Selection Criteria and Tips for Writing Winning Research Statements

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

- The topic should address a problem that is widespread enough to generate broad interest.
- The topic should be timely and critical with respect to the needs of the industry or society.
- The topic may be appropriate if current practice is not uniform or is inconsistent from agency to agency, or if the validity of some practices appears to be questionable.
- There is a sufficient amount of useful, available information to gather and synthesize into a meaningful report.
- There is no ongoing or completed research or other that will render the synthesis obsolete after completion.
- The work proposed does not require research or cost substantially more than the available resources.
- The proposal is a concise, well-written statement of the need, and work to be performed to meet that need.

Endorsements from a TRB committee, AASHTO committee, state DOT, or transit property help make the case for selecting a particular topic.

### Further Information

For more information contact:

Donna L. Vlasak  
Senior Program Officer  
[Transportation Research Board](#)  
Studies and Special Programs (Division B)  
202-334-2974  
[dvlasak@nas.edu](mailto:dvlasak@nas.edu)

## TRB Legal Resources Program

The TRB Legal Research Program is comprised of three continuing legal research programs under the National Cooperative Highway Research Program (NCHRP), Transit Cooperative Research Program (TCRP), and Airport Cooperative Research Program (ACRP).

### TCRP J-05: Legal Aspects of Transit and Intermodal Transportation

Total Annual Funding – \$250,000

Range of Project Costs – Information in development

Statements Due – Information in development

Web Address – <http://www.trb.org/TRBNet/ProjectDisplay.asp?ProjectID=1171>

### General Description

The Transit Cooperative Research Program (TCRP) Legal Research Digest series reports on legal issues associated with transit and intermodal law. Each document is intended to provide transit attorneys with authoritative, well-researched, specific information that is limited in scope. The studies focus on legal issues and problems having national significance to the transit industry. The Legal Research Digest provides transit-related legal research on a wide variety of legal topics including:

- Environmental standards and requirements;
- Construction and procurement contract procedures and administration;
- Civil rights and labor standards;
- Tort liability, risk management, and system safety.

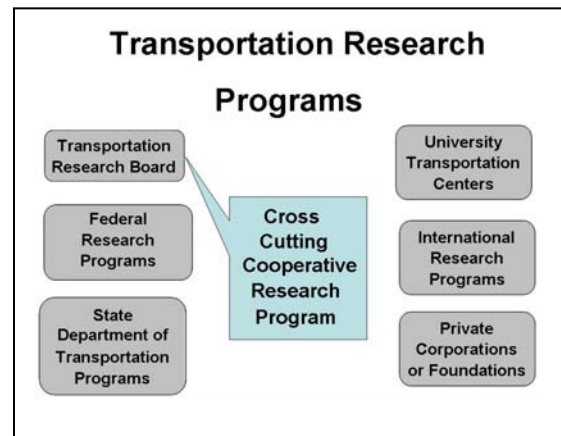
In other areas of the law, transit programs may involve legal problems and issues that are not shared with other modes; as, for example, compliance with transit-equipment and operations guidelines, FTA financing initiatives, private sector programs, and labor or environmental standards relating to transit operations. Emphasis would be on research of current importance and applicability to transit and intermodal operations and programs.

### Type of Research Funded

Information in development.

### Funding Levels and Project Time Frame

Information in development.



Schedule

Information in development.

Project Solicitation and Submission

Information in development.

Selection Process

Information in development.

Project Selection Criteria and Tips for Writing Winning Research Statements

Information in development.

Further Information

For more information contact:

Gwen Chisholm Smith  
Senior Program Officer  
[Transportation Research Board](#)  
Cooperative Research Programs  
202-334-3246  
[gsmith@nas.edu](mailto:gsmith@nas.edu)

## **ACRP 11-01: Legal Aspects of Airport Projects**

Total Annual Funding – Information in development

Range of Project Costs – \$15,000–80,000

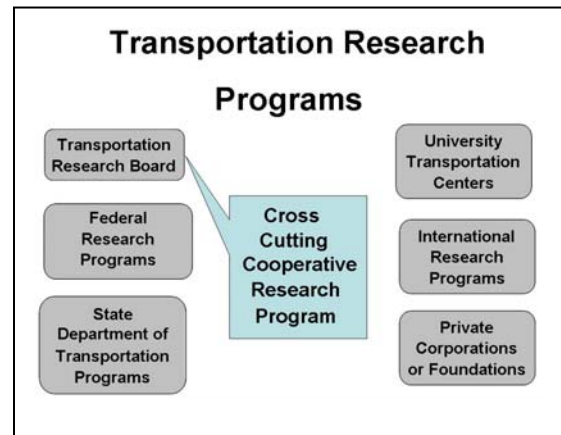
Statements Due – Information in development

Web Address – <http://www.trb.org/TRBNet/ProjectDisplay.asp?ProjectID=126>

### General Description

The objective of this project is to provide legal research on topics of interest to the airport legal community based on periodic solicitations of potential topics. The project would produce an Airport Cooperative Research Program (ACRP) Legal Research Digest series of reports on legal issues associated with airport-related law. Each document would be intended to provide airport attorneys with authoritative, well-researched, specific information that is limited in scope. The studies would focus on legal issues and problems having national

significance to the airport industry. Each year, numerous attorneys nationwide are involved in airport-related work; yet, there is no centralized collection of information on which they can depend. The ACRP Legal Research Digest series will provide airport-related legal research on a wide variety of legal topics.



### Type of Research Funded

Information in development.

### Funding Levels and Project Time Frame

Information in development.

### Schedule

Information in development.

### Project Solicitation and Submission

Information in development.

### Selection Process

Information in development.

### Project Selection Criteria and Tips for Writing Winning Research Statements

Information in development.

Further Information

For more information contact:

Gwen Chisholm Smith  
Senior Program Officer  
[Transportation Research Board](#)  
Cooperative Research Programs  
202-334-3246  
[gsmith@nas.edu](mailto:gsmith@nas.edu)

## **NCHRP 20-06: Legal Problems Arising out of Highway Programs**

Total Annual Funding – \$100,000

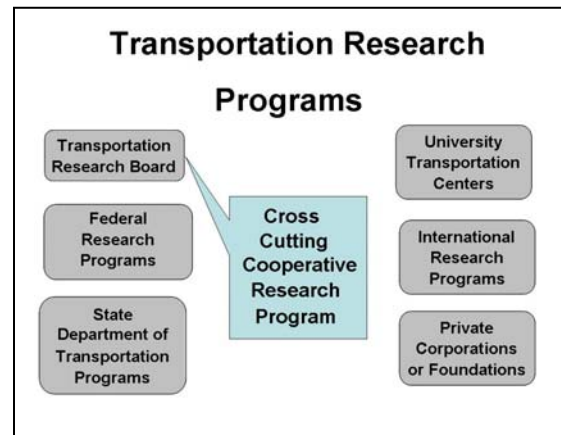
Range of Project Costs – \$24,000–100,000

Statements Due – Information in development

Web Address – <http://www.trb.org/TRBNet/ProjectDisplay.asp?ProjectID=508>

### General Description

A major and continuing need of state highway and transportation departments involves assembling, analyzing, and evaluating operating practices, administrative procedures, and legal issues associated with highway and transportation projects. Individual state legal experiences need to be compared and made available for possible wider application. Research to identify and evaluate legal options facilitates the handling of both immediate and long-range needs of engineering, planning, and administrative aspects of transportation programs.



National Cooperative Highway Research Program (NCHRP) Project 20-6 was established in 1968 to meet these needs. It is a continuing project under the direction of the TRB staff Counsel for Legal Research.

### Type of Research Funded

Information in development.

### Funding Levels and Project Time Frame

Information in development.

### Schedule

Information in development.

### Project Solicitation and Submission

Information in development.

### Selection Process

Information in development.

### Project Selection Criteria and Tips for Writing Winning Research Statements

Information in development.

Further Information

For more information contact:

Crawford F. Jencks  
Deputy Director, Cooperative Research Programs  
Transportation Research Board  
Cooperative Research Programs  
202-334-2379  
[cjencks@nas.edu](mailto:cjencks@nas.edu)

## **Federal**

Federal research focuses on national priorities in areas authorized by law and delegated under executive authority. Federal research programs related to transportation are scattered among many different agencies and offices. Research program priorities and research project selection reflect these limits. The following sections are a first attempt to summarize Federal research programs. Other federal research programs will be added over the next few months.

## **U.S. Department of Transportation**

U.S. Department of Transportation (U.S. DOT) Research, Development, and Technology (RD&T) is established to foster innovations leading to effective, integrated, and intermodal transportation solutions. Research activities are funded through administrations listed below. Some activities provide funding for competitive programs managed by other organizations, such as the Airport Cooperative Research Program funded through the Aviation Act and managed by TRB. Other activities support research conducted by department employees. Some funding is provided for competitive research programs such as the Surface Transportation Environment and Planning Cooperative Research Program (STEP). This document describes U.S. DOT funding programs that provide competitive opportunity either directly through a U.S. DOT administration program and those funded through U.S. DOT and managed by other organizations.

- Federal Aviation Administration (FAA)
- Federal Highway Administration (FHWA)
- Federal Motor Carrier Safety Administration (FMCSA)
- Federal Railroad Administration (FRA)
- Federal Transit Administration (FTA)
- National Highway Traffic Safety Administration (NHTSA)
- Office of the Secretary of Transportation (OST)
- Pipeline and Hazardous Materials Safety Administration (PHMSA)
- Research and Innovative Technology Administration (RITA)

The following sections summarize programs accepting outside research proposals.



## Federal Highway Administration (FHWA), U.S. DOT

The Federal Highway Administration manages many competitive transportation research programs.

### **FHWA Surface Transportation Environment and Planning (STEP)**

Total Annual Funding – approximately \$12 million

Range of Project Costs – \$20,000–750,000 for FY 2008

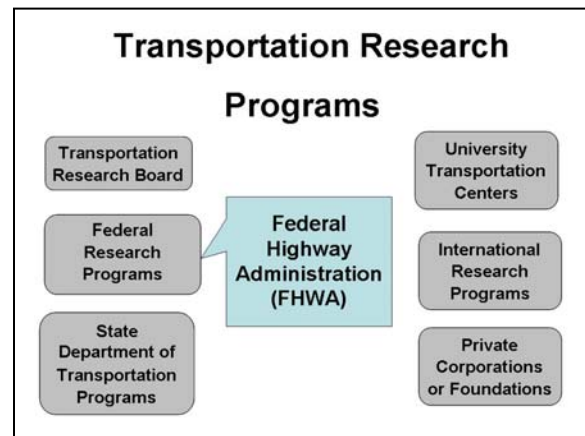
Statements Due – announced yearly in Federal Register

Web Address – <http://www.fhwa.dot.gov/hep/step/>

### General Description

The Surface Transportation Environment and Planning Cooperative Research Program (STEP) is a federally administered nationally oriented research program authorized in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) to improve the understanding of the relationship between surface transportation and the environment. STEP implements a national research agenda that is reflective of priorities established in TRB Special Report 268

(these include: human health, ecology and natural systems, environmental and social justice, emerging technologies, land use, and planning and performance measures); and the U.S. Department of Transportation (DOT) Transportation Research and Development Strategic Plan.



### Type of Research Funded

Funds are used to identify, address and reassess national research priorities for planning, environment, and realty related to the implementation of the Federal Aid Highway Program under Chapter 1 of Title 23 United States Code. These research efforts also help achieve national objectives for streamlining, congestion reduction, safety and security. In addition, STEP is the Federal Highway Administration's (FHWA) authorized source of funding for surface transportation environmental and planning research. It funds ongoing and new nationally focused applied and basic research.

### Funding Levels and Project Time Frame

SAFETEA-LU authorized \$16.875 million per year for FY2006-FY2009 to implement this new program. However, due to obligation limitations, rescissions and the over-designation of Title V Research in SAFETEA-LU, approximately \$12 million of the \$16.875 million authorized is expected to be available each year. In addition, Congress mandated that there be a 20 percent non-Federal match for research funded under Title V of SAFETEA-LU, including STEP. This "non-federal match" requirement does not apply to funds that are awarded via contracts or Federal Interagency Agreements.

## Schedule

- Winter – Implement current fiscal year STEP plan via appropriate procurement methods, agreements and partnerships (May shift depending on appropriations)  
STEP emphasis area contacts lead implementation of STEP research within their emphasis area. They work with staff and other partners to implement the research projects and ensure coordination between projects funded in previous fiscal years.
- Spring – Refine STEP implementation strategy/goals/emphasis areas  
FHWA solicits feedback on next fiscal year through a *Federal Register* notice and updated Web site information.  
Conduct outreach for next fiscal year by emphasis area, review research needs and identify gaps.
- Spring/Fall – Analyze feedback and develop priorities for and fund critical research  
Develop next draft fiscal year STEP Plan that reflects results of the outreach and stakeholder feedback.
- Fall/Winter – The associate administrator for the Office of Planning, Environment and Realty approves the annual STEP Plan  
Post current fiscal year plan on STEP Web site. (May shift depending on appropriations.)

## Selection Process

Projects are selected using a rolling, yearly process. Each fiscal year, an announcement is published in the *Federal Register* requesting suggested lines of research. Stakeholders submit feedback regarding research. This feedback is used by the contact persons identified for each research emphasis area to coordinate and develop the annual STEP Plan. Cost sharing can leverage investments in research as well as spread the risk inherent in early-stage concept development. For those reasons, all other things being equal, proposals that include cost sharing from other sources may be given some preference in the evaluations. The FHWA Associate Administrator for the Office of Planning, Environment and Realty makes final funding decisions and approves the annual STEP Plan. The annual STEP Plan can be found on the Web site at [www.fhwa.dot.gov/hep/step/index.htm](http://www.fhwa.dot.gov/hep/step/index.htm).

Once the annual STEP Plan is approved, Stakeholders are involved in a variety of ways:

- Outreach and stakeholder input/feedback are on-going and are used to refine and implement this national research agenda. These outreach activities include: national workshops, annual community of practice conferences, program advisory groups, etc.
- Partnerships are formed to leverage funds with other sources including: Federal, State and Local agencies, National Cooperative Highway Research Program,

Future Strategic Highway Research Program, pooled funds, foreign jurisdictions, etc.

- Peer reviews are utilized to solicit input from partners and stakeholders in the development of projects and in the review of selected reports and publications.
- Technical working groups or other informal stakeholder groups (including Federal as well as State partners) are utilized to identify and follow specific projects and to review results related to several initiatives including: climate change, travel model improvements, Eco-Logical grants, traffic noise model development, transportation planning capacity building, bi-national border activities, and outdoor advertising control.
- Stakeholders are also encouraged to distribute and publicize procurement solicitations as well as research results.

Emphasis area contacts lead implementation of STEP research within an emphasis area. They work with staff and other partners to develop and implement specific projects and initiatives.

#### Project Selection Criteria and Tips for Writing Winning Research Statements

A variety of procurement mechanisms are used to award STEP funds including indefinite quantities contracts, grants, cooperative agreements, small purchase contracts, interagency agreements, etc. Information regarding requests for proposals is posted on the STEP Web site as it becomes available.

STEP funds can be awarded to the same entities that are eligible for other Federal Aid funds including:

- State governments (departments of transportation, resource agencies, etc.)
- Metropolitan planning organizations
- Local governments
- Universities
- Federal agencies
- Private sector

#### Further Information

Information regarding the STEP is available at:

<http://www.fhwa.dot.gov/hep/step/index.htm>. Contact persons for each research emphasis areas are also listed on the STEP Web site. These contact persons are the best source of information regarding the status of research in a particular area. STEP's primary contact is:

Felicia Young  
FHWA  
202-366-1263  
[Felicia.Young@fhwa.dot.gov](mailto:Felicia.Young@fhwa.dot.gov)

## **FHWA Safety Innovation Deployment Program**

Total Annual Funding – approximately \$12 million

Range of Project Costs – Information in development

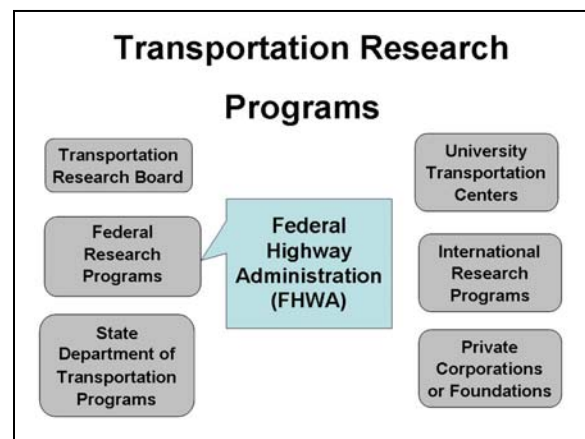
Statements Due – Information in development

Web Address – <http://safety.fhwa.dot.gov/research.htm>

### General Information

Section 5203(c) of SAFETEA-LU established the Safety Innovation Deployment Program, with the goals of the program to include: “(A) the deployment and evaluation of safety technologies and innovations at State and local levels; and (B) the deployment of best practices in training, management, design, and planning.” These goals may be accomplished through “grants to, and cooperative agreements and contracts with, States, other Federal agencies, universities and colleges, private sector entities, and

nonprofit organizations for research, development, and technology transfer for innovative safety technologies.” There is also an emphasis on ensuring that “the information and technology resulting from research conducted . . . is made available to State and local transportation departments and other interested parties.” SAFETEA-LU Title V matching requirements apply to this program.



The program funds the Federal Highway Administration’s (FHWA) highway safety research, development, and technology deployment activities. FHWA manages the Safety Innovation Deployment Program in a manner consistent with SAFETEA-LU Title V basic principles governing research and technology investments, and FHWA guiding principles and agency commitments laid out in the Corporate Master Plan for Research and Deployment of Technology and Innovation (<http://www.fhwa.dot.gov/legsregs/directives/policy/cmp/03077.htm>).

### Types of Research Funded

The FHWA’s mission for the program is to help reduce highway crashes and related fatalities and injuries by developing and implementing a program of nationally coordinated research and technology safety innovations. The program is guided by the four E’s of highway safety: engineering, education, enforcement, and emergency response. The FHWA Office of Safety and Office of Safety Research and Development coordinate to conduct research and development activities and develop products and guidance for practitioners.

The program has five focus areas:

- Roadway departure crash prevention and severity mitigation,

- Intersection safety,
- Pedestrian safety,
- Speed management, and
- Strategic approach to safety through improved data and data processes, decision making tools and processes, and evaluation.

The program also conducts work in the following crosscutting areas:

- Professional capacity building,
- Communications and outreach,
- Local roads,
- ITS and safety,
- Motorcycle safety,
- Visibility,
- Work zones, and
- Human factors.

#### Funding Levels and Project Time Frame

Section 5203(c) of SAFETEA-LU established the Safety Innovation Deployment Program authorizing \$12.75 million for each of fiscal years 2006 through 2009, for a total authorization of \$51 million.

#### Schedule

The Safety Innovation Deployment Program is in effect for the duration of SAFETEA-LU.

#### Project Solicitation and Submission

The Federal Highway Administration Safety Program maintains roadmaps (or multi-year program plans) for each of its programs and identifies projects that will be funded each year. FHWA publishes an annual procurement forecast at <http://www.fhwa.dot.gov/aaa/forecast.htm> that identifies major planned procurements in all programs, including the Safety Innovation Deployment Program. Requests for proposals on individual projects are posted throughout the year at <http://www.FedBizOpps.gov>.

#### Selection Process

FHWA coordinates closely with stakeholders in administering the program. Stakeholders include other federal agencies with a safety mission, such as the National Highway Traffic Safety Administration (NHTSA) and Federal Motor Carrier Safety Administration (FMCSA); state and local government agencies; and associations representing the full range of safety constituencies, such as enforcement, motor vehicle administrators, governors' highway safety representatives, and industries supplying safety technology and services.

The program is coordinated with the Transportation Pooled-Fund Program (TPF), the National Cooperative Highway Research Program (NCHRP), the Strategic Highway Research Program (SHRP2), the Small Business Innovative Research Program (SBIR), and the Exploratory Advanced Research Program (EAR).

The FHWA Safety Program maintains research road maps. Selection of research projects for funding come from the road maps.

Further Information

Products of the Safety Innovation Deployment Program can be found at <http://safety.fhwa.dot.gov>. For more information contact:

Ewa Flom

Safety Research and Technology Program Coordinator

Federal Highway Administration, Office of Safety

202-366-2169

[Ewa.Flom@fhwa.dot.gov](mailto:Ewa.Flom@fhwa.dot.gov)



## FHWA Exploratory Advanced Research (EAR) Program

Total Annual Funding – Approximately \$10-11 million

Range of Project Costs – about \$500,000–2,000,000

Statements Due – may be submitted year round

Web Address – <http://www.fhwa.dot.gov/advancedresearch/index.cfm>

### General Description

The Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users (SAFETEA-LU) establishes an exploratory advanced research (EAR) Program that addresses longer term and higher risk breakthrough research with the potential for dramatic long term improvements to plan, build, renew and operate safe, congestion-free, and environmentally sound transportation systems.

### Type of Research Funded

The EAR Program funds exploratory advanced research across the range of issues that are critical to the transportation industry including:

- Predicting societal and complex natural systems,
- Next generation solutions to build, maintain and manage future highways,
- Next generation solutions for system operations and reducing congestion, and
- Next generation pedestrian and driver safety.

Research may include foundational work that anticipates the questions and future needs in applied research or the application of

innovations from other industries to the transportation sector. An example of the former is a project entitled “Increased Understanding of Driver Visibility Requirements” that is attempting to develop a rational theoretical framework for determining the quantity and quality of visual information needed by drivers to navigate the roadway safely and effectively, which will assist in future safety research. An example of the latter is a project entitled “Intelligent Multi-Sensor Measurements to Enhance Vehicle Navigation

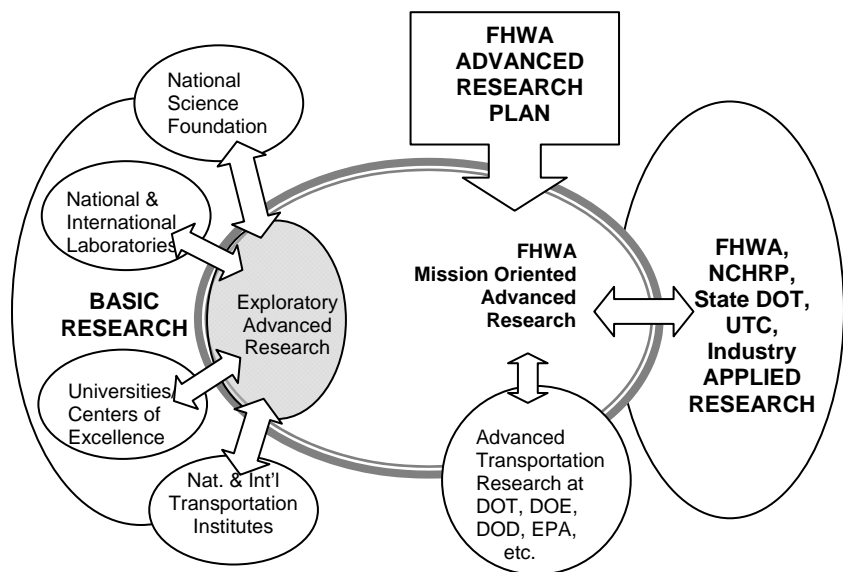
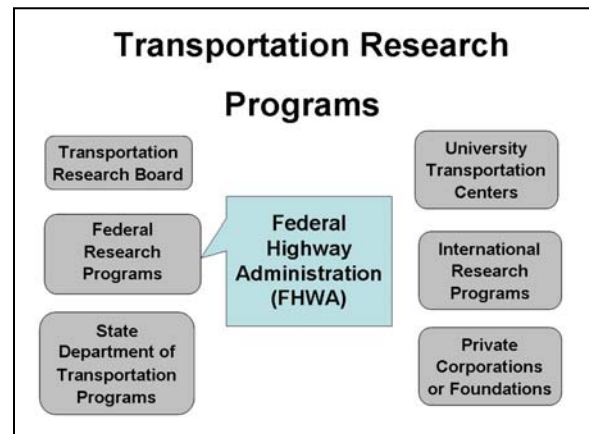


Figure 2. EAR network

and Safety Systems” that aims to develop an accurate, robust, and reliable vehicle positioning system capable of providing accurate high-update-rate lane-level measurements for future navigation and control (safety) systems by applying technology developed and tested in other industries including aerospace.

#### Funding Levels and Project Time Frame

Projects in the first two rounds of funding have ranged from around \$500,000 to \$2,000,000 of program funding. Projects have had a substantial amount of non-federal matching funds leading to a total work value that has ranged from around \$1,000,000 to \$3,800,000.

#### Schedule

The first round of projects included a full and open solicitation in January 2007 with awards made starting in September 2007. The second round of projects included a solicitation in May 2008 and anticipates awards starting in September 2008. Future rounds may be announced in fall or winter of each federal fiscal year (October 1 to September 30) with awards the following September.

#### Project Solicitation and Submission

The EAR Program conducts initial stage research activities such as convening and works with Stakeholders to identify research areas that have the potential for high-impact, long-term results.

#### Selection Process

In order to ensure the highest technical merit, FHWA has and plans to continue to use peer review panels to evaluate solicitations. The panels have been (and will continue to be) comprised of federal, state, academic, and international scientific and engineering experts and are vetted to avoid conflicts of interest. The panels frequently include multiple disciplines to better assess cross-applications and novel approaches to research. In addition to the peer review, a multi-disciplinary management group also assesses the mission focus and overall balance of projects within a round of research funding.



### Projects Selection Criteria and Tips for Writing Winning Research Statements

In the first two rounds of research, criteria included in descending order of relative importance:

- Quality and Technical Merit – Overall scientific and technical merit of the proposal including plans to objectively measure the value and potential impact of the research,
- Partnership – Degree to which the proposal develops partnerships with public and private sector entities,
- Capabilities and Experience – Overall capabilities including the qualifications, capabilities, and experience of the proposed principal investigator, team leader, and key personnel who are critical in achieving the proposal objective, and
- Total Cost and Cost Realism – Proposed cost to the federal government and cost realism.

FHWA anticipates using similar criteria in the future rounds of research.

#### Further Information

The EAR Program Web site located at

<http://www.fhwa.dot.gov/advancedresearch/index.cfm> has up-to-date information about the Program including current research and current solicitations. For more information contact:

David Kuehn, Team Director

Office of Corporate Research, Technology, and Innovative Management

202-493-3414

[David.Kuehn@fhwa.dot.gov](mailto:David.Kuehn@fhwa.dot.gov)

### [FHWA Highways for LIFE Technology Partnerships Program](#)

Total 2009 Funding – \$2,000,000 million

Range of awards – up to \$500,000

Solicitation for proposals will be published the latter half of August, 2009

#### **General Description**

The purpose of the Technology Partnership Program is to work with the highway construction industry to accelerate the adoption of promising innovations. Innovations is an inclusive term used by HfL to convey all of the following, but is not limited to: technologies, materials, tools, equipment, procedures, specifications, methodologies, processes, or practices used in the financing, design, or construction of roads or highways. This component of the Highways for LIFE Program is intended to provide the financial impetus to adapt a proven non-highway related innovation or to refine or improve existing equipment, materials, practices, or processes that have been demonstrated but not become adopted as routine or common practice in the highway industry.

#### **Type of Research Funded**

The innovations must make a significant contribution to one of the Highways for LIFE goals and be late-stage developed prototypes needing final testing and evaluation under real-world conditions before they can be commercialized. FHWA looks for innovative approaches and technologies that will improve work zone safety, reduce congestion due to construction, improve quality or accelerate construction.

Previous grants have helped the development of temporary wet reflective pavement markings to make work zones more easily seen under rainy conditions; equipment that installs pavement markers quickly, reducing time and risk for workers who treat the highways; and a device that tells at what temperature asphalt binders crack.

#### **Funding Levels and Project Time Frame**

In the two previous solicitations, grants between \$200,000 and \$500,000 have been awarded for up to 2 years. Previous awards have had a minimum of twenty percent non-federal matching funds.

#### **Schedule**

FHWA intends to issue a solicitation for proposals in the latter part of August, 2009.

#### **Eligibility and Submission**

Both for-profit, private companies and industries, and non-profit domestic and international organizations can apply. FHWA encourages partnership with state and local governments and academic institutions.

## Selection Process

FHWA plans to continue to use peer review panels comprised of federal, state and local engineering experts to evaluate proposals.

### Award Selection Criteria

In the 2008 solicitation criteria included:

- **Significance of Innovation**— Does the application meet the HfL program objectives and **at least one of the HfL** goals? Will the innovation produce a significant advancement to conventional practice? Is there a demonstrated market need? Will the innovation benefit the transportation industry nationally?
- **Technical Merit** – Is the innovation a significant refinement of an existing innovation or is the innovation a non-highway related innovation that *has been successfully used* either domestically or internationally and has demonstrated clear potential for success? Does the application demonstrate that the technology is a prototype in late-stage development and the proof of concept is well established?
- **Meets Program Objectives** – Is the project management plan accomplishable within 2 years? Is there potential for successful deployment after 2 years?

FHWA anticipates using similar criteria in the future solicitations.

### Further Information

For more information on previous awardees, see <http://www.fhwa.dot.gov/hfl/tech.cfm>. To sign up to receive an email notification when the 2009 solicitation is published, go to <http://www.fhwa.dot.gov/hfl/partnerships/notify.cfm>.

Julie Zirlin, Technology Partnerships Program Manager  
Highways for LIFE  
202-366-9105

## **Research and Innovation Technology Administration (RITA)**

The Research and Innovative Technology Administration (RITA) coordinates the U.S. Department of Transportation's (U.S. DOT) research programs and is charged with advancing the deployment of cross-cutting technologies to improve our Nation's transportation system. As directed by Congress in its founding legislation, RITA leads U.S. DOT in:

- Coordinating, facilitating and reviewing the U.S. DOT's research and development programs and activities;
- Advancing innovative technologies, including intelligent transportation systems;
- Performing comprehensive transportation statistics research, analysis and reporting; and
- Providing education and training in transportation and transportation-related fields.

RITA brings together important data, research and technology transfer assets of the Department of Transportation. RITA also provides strategic direction and oversight of U.S. DOT's Intelligent Transportation Systems Program. Much of RITA's coordinating function within U.S. DOT is overseen by the Research, Development and Technology (RD&T) Planning Council, an advisory board made up of all of U.S. DOT's modal Administrators and chaired by the RITA Administrator. While U.S. DOT's individual operating administrations continue to conduct research based on their unique agency missions, mandates and stakeholder needs, the Council's work ensures that U.S. DOT's research and technology programs are integrated and that they fully support U.S. DOT's strategic objectives.

RITA's University Transportation Centers program has been placed under its own heading, because project selection occurs at the university level.

### **RITA Climate Change Program**

Total Annual Funding –  
Range of Project Costs –  
Statements Due –  
Web Address –

Information in Development

## **RITA Commercial Remote Sensing and Spatial Technology Program**

Total Annual Funding – about \$8 million

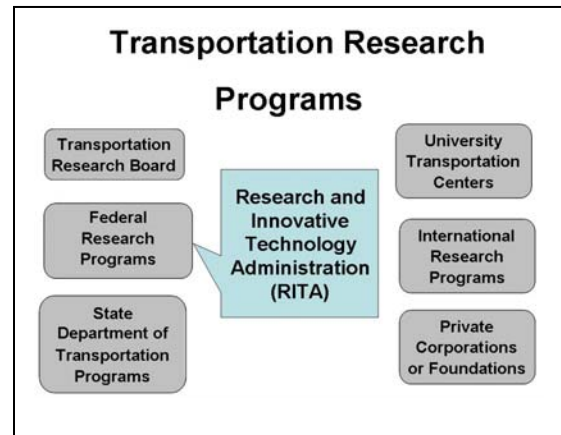
Range of Project Costs – \$600,000–1,800,000

Statements Due – In 2008, September

Web Address – [http://www.rita.dot.gov/ordt/intermodal\\_research.html](http://www.rita.dot.gov/ordt/intermodal_research.html)

### General Description

Public Law 109-59 § 5506: The Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), authorizes the U. S. Department of Transportation to establish and carry out a program to validate Commercial Remote Sensing and Spatial Information (CRS&SI) technologies for application to national transportation infrastructure development and construction.



### Type of Research Funded

The CRS&SI Program is intended to fund applied research towards finding solutions and validating commercially available remote sensing and spatial information technology applications related to transportation infrastructure development and construction. In doing so, the Program:

- Establishes and carries out a program to validate CRS&SI technologies,
- Provide products and applications to national transportation infrastructure development and construction,
- Establishes and maintains a national policy for the use of CRS&SI technology and products in transportation,
- Validates new applications, and
- Collaborates with a consortium of university research centers.

A specific research focus area is in infrastructure development, planning and decision making process. Two specific objectives of this research are (1) validation of the application of CRS&SI technologies to collect data and provide a framework for analysis in studies and projects related to infrastructure development planning and (2) application of advances in space-based technology application to increase efficiency, reduce congestion and shorten the time required to develop multimodal transportation options.

Another focus of research is geared towards validating new methods, tools and systems for cost effectively monitoring the quality of construction and condition of the physical transportation infrastructure. Two specific objectives of this research are (1) validation of new applications of CRS&SI technologies for monitoring the quality of infrastructure

construction and (2) application of CRS&SI technology integration and products to monitor the condition of constructed infrastructure systems.

#### Funding Levels and Project Time Frame

Funding varies from project to project depending on individual project scope and scale. The Program was formulated into two distinct phases of two-year execution period for each phase. Funding for each phase is approximately \$8 million with individual projects ranging from \$600,000 to \$1,800,000.

#### Schedule

Individual projects may have varying start dates of execution but the overall time for completion is two years per project.

#### Project Solicitation and Submission

Project solicitation is carried out by publishing a statement of needs in the form of a Broad Agency Announcement published in the Federal Business Opportunities Web site ([www.fbo.gov](http://www.fbo.gov)). Prospective proposers are required to submit White Papers for research consideration of the proposed topic.

#### Selection Process

Sufficient information is required to be included in the White Papers for a successful evaluation of factors such as concept, technical approach, background, partnerships and costs. A final list of proposers is selected by a technical panel for further consideration. Subsequently, detailed cost and technical proposals are solicited from the proposers for final consideration.

#### Project Selection Criteria and Tips for Writing Winning Research Statements Information in development.

#### Further Information

For general questions regarding the CRS&SI program, contact:

Caesar Singh, P.E.  
Research and Innovative Technology Administration (RITA)  
202-366-3252  
[caesar.singh@dot.gov](mailto:caesar.singh@dot.gov)

## RITA Intelligent Transportation Systems Program

Total Annual Funding – \$110 million

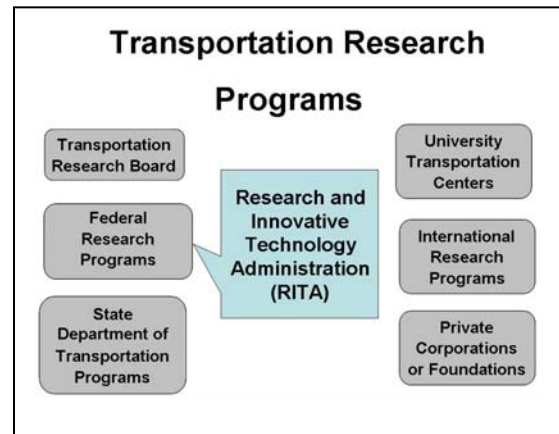
Range of Project Costs – a few hundred thousand to several million dollars

Statements Due – solicitations posted as necessary; selection often takes several months

Web Address – [www.its.dot.gov](http://www.its.dot.gov)

### General Description

The U.S. Department of Transportation's (U.S. DOT) Intelligent Transportation Systems (ITS) Program focuses on intelligent vehicles, intelligent infrastructure, and the creation of an intelligent transportation system through integration with and between these two components. The federal ITS program supports the overall advancement of ITS through investments in major initiatives, exploratory studies and a deployment support program. Increasingly, the federal investments are directed at targets of opportunity—major initiatives—that have the potential for significant payoff in improving safety, mobility, and productivity.



The ITS Joint Program Office (JPO) is managed by a corporate-style board of directors—the ITS Management Council. The ITS Management Council develops and directs Federal ITS policy and ensures the effectiveness of the ITS program. The ITS Management Council is chaired by the Administrator of the Research and Innovative Technology Administration. Advising the ITS Management Council is the ITS Strategic Planning Group. Membership is generally at the Associate Administrator and office director level, and is chaired by the ITS program manager. The ITS program director leads the ITS JPO, which is composed of program managers and coordinators of the U.S. DOT's multimodal ITS initiatives. In addition, individual staff members manage technology transfer functions, such as National ITS Architecture development and maintenance, Standards development, professional capacity building, and program assessment. The Administrator of the Research and Innovative Technology Administration oversees the ITS Program. The JPO has Department-wide authority in coordinating the ITS program and initiatives among FHWA, FMCSA, FTA, FRA, NHTSA, and MARAD.

Lastly, the ITS Program Advisory Committee (ITSPAC) was established pursuant to the Federal Advisory Committee Act (FACA) to act solely in an advisory capacity to the Secretary of Transportation on all matters relating to the study, development, and implementation of intelligent transportation systems. Through its sponsor, the ITS Joint Program Office, the ITSPAC makes recommendations to the Secretary regarding ITS program needs, objectives, plans, approaches, content, and progress. All ITSPAC

meetings are open to the public and will be announced in the Federal Register. Non-committee members wishing to present oral statements at an ITSPAC meeting or to submit written comments to the ITSPAC are requested to notify the Committee Management Officer listed in the “ITSPAC U.S. DOT Contacts.”

### Type of Research Funded

The ITS Management Council reorganized the functions of the ITS program to focus on eleven particular high payoff areas. Milestones have been designated in each initiative area, at which point the Management Council evaluates progress. Each major initiative is multimodal, public-private sector involved and aims to improve safety, mobility and/or productivity.

The major initiatives ([www.its.dot.gov/newinit\\_index.htm](http://www.its.dot.gov/newinit_index.htm)) are:

- Vehicle Infrastructure Integration (VII) ([www.its.dot.gov/vii/index.htm](http://www.its.dot.gov/vii/index.htm))
- Next Generation 9-1-1 ([www.its.dot.gov/ng911/index.htm](http://www.its.dot.gov/ng911/index.htm))
- Cooperative Intersection Collision Avoidance Systems ([www.its.dot.gov/cicas/index.htm](http://www.its.dot.gov/cicas/index.htm))
- Integrated Vehicle Based Safety Systems ([www.its.dot.gov/ivbss/index.htm](http://www.its.dot.gov/ivbss/index.htm))
- ITS Operational Testing Program to Mitigate Congestion ([www.its.dot.gov/congestion/index.htm](http://www.its.dot.gov/congestion/index.htm))
- Integrated Corridor Management Systems ([www.its.dot.gov/icms/index.htm](http://www.its.dot.gov/icms/index.htm))
- Clarus ([www.its.dot.gov/clarus/index.htm](http://www.its.dot.gov/clarus/index.htm))
- Emergency Transportation Operations ([www.its.dot.gov/eto/index.htm](http://www.its.dot.gov/eto/index.htm))
- Mobility Services for All Americans ([www.its.dot.gov/msaa/index.htm](http://www.its.dot.gov/msaa/index.htm))
- Electronic Freight Management ([www.its.dot.gov/efm/index.htm](http://www.its.dot.gov/efm/index.htm))
- Congestion Initiative ([www.fightgridlocknow.gov/initiatives.htm](http://www.fightgridlocknow.gov/initiatives.htm))
- Rural Safety Initiative ([www.its.dot.gov/affairs/ruralsafety/ruralsafetyinitiativeplan.htm](http://www.its.dot.gov/affairs/ruralsafety/ruralsafetyinitiativeplan.htm))

Other major activities within the federal ITS program are:

- 511 Travel Information ([ops.fhwa.dot.gov/travelinfo/about/about511.htm](http://ops.fhwa.dot.gov/travelinfo/about/about511.htm))
- ITS Architecture Implementation ([ops.fhwa.dot.gov/its\\_arch\\_imp/index.htm](http://ops.fhwa.dot.gov/its_arch_imp/index.htm))
- ITS Standards Development ([www.standards.its.dot.gov/default.asp](http://www.standards.its.dot.gov/default.asp))
- Professional Capacity Building ([www.pcb.its.dot.gov](http://www.pcb.its.dot.gov))
- Program Assessment and Evaluation

### Funding and Project Scale

Funding for ITS research projects ranges from a few hundred thousand dollars to several million.

### Schedule

Usually, ITS research projects are competitively awarded through standard federal procurement processes. This may involve the issuance of a Request for Information (RFI) to the general public to solicit stakeholder, public, and private industry feedback. After an analysis of responses, a Requests for Proposal (RFP) or Requests for Application (RFA) is then developed and posted to the Web site for a standard period of



time. A formal evaluation team will then evaluate submitted proposals against a set of criteria. Selected proposals or applications are then funded. This entire procurement process can take normally several months from time of release of RFP or RFA to final award.

#### Selection Process

The ITS JPO follows all FHWA procurement processes and regulations.

#### Project Selection Criteria and Tips for Writing Winning Proposals

If a RFP is issued or proposals are solicited in another way, make sure you understand the requirements and meet the requirements by the deadline. Keep in mind the proposal selection panel will evaluate proposals against the formal requirements listed in the RFP or RFA.

#### Further Information

Additional information can be found at the ITS Web site: [www.its.dot.gov](http://www.its.dot.gov). For specific questions regarding the ITS Joint Program Office, please contact:

Valerie Briggs  
VII Program Policy Manager  
202-366-5015  
[Valerie.Briggs@dot.gov](mailto:Valerie.Briggs@dot.gov).

## **Federal Transit Administration (FTA)**

FTA is one of 11 operating administrations within the U.S. Department of Transportation (U.S. DOT) with 517 employees located in Washington, D.C., and 10 regional offices across the nation. Headed by an administrator who is appointed by the President of the United States, FTA provides stewardship of combined formula and discretionary programs totaling more than \$10 billion to support a variety of locally planned, constructed, and operated public transportation systems throughout the U.S., including buses, subways, light rail, commuter rail, streetcars, monorail, passenger ferry boats, inclined railways, and people movers. FTA performs core functions aimed at serving different customer groups through State and local transit authorities. These core functions include providing:

- grants for construction, facilities and in some cases operation,
- technical assistance,
- program management and oversight to ensure projects are built on time and within budget,
- transit policy and guidance to customers; and by proposing to Congress legislative initiatives, and
- ideas and strategies to improve operations, promote state of good repair and introduce new technologies and innovation.

FTA engages in research to provide the transit industry and policy makers with the information and skills to make good business decisions about transit technology, operational, and capital investments; to share research results that identify best practices and, to show a range of outcomes that help chart the course of future investments.

## FTA National Research and Technology Program

Total Annual Funding – from 2006–2009 \$78.28 million authorized

Range of Project Costs – \$50,000–1,000,000+; typically \$200,000-500,000

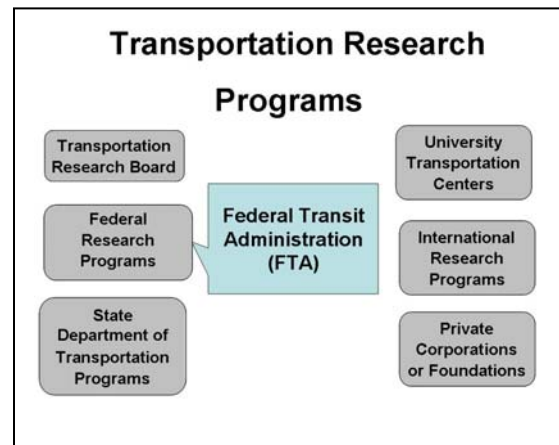
Statements Due – Posted by project

Web Address – [http://www.fta.dot.gov/funding/grants/grants\\_financing\\_5484.html](http://www.fta.dot.gov/funding/grants/grants_financing_5484.html)

### General Description

The Federal Transit Administration's (FTA) National Research and Technology Program (NRTP) is designed to deliver solutions that improve public transportation. A total funding amount of \$208.65 million was authorized for NRTP through the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) from 2005 to 2009. Of this amount, from 2006 to 2009, SAFETEA-LU funded \$78.28 million towards specific projects (earmarks) and purposes (designations).

Additional amounts have been earmarked by Congress in the annual Appropriation Bills. The NRTP is funded out of FTA's Research and University Research Centers account, using General Funds.



The NRTP is guided by FTA's Strategic Transit Research Plan that sets forth three goals for the program:

- provide national transit research leadership,
- support increasing transit's market share, and
- support improving the conditions of transit operations and systems.

Each year FTA develops a multi-year research program plan to help guide the next five year term of research investments.

### Type of Research Funded

In general, FTA makes grants, cooperative agreements, and other agreements for research, development, demonstration, and deployment projects, and evaluation of technology of national significance to public transportation that will help improve public transportation service or improve public transportation efficiency.

NRTP funds are programmed by FTA. Research typically consists of applied research and demonstrations. Research activities may include application of new technologies, and what is commonly known as technology transfer, which is the process that encourages the implementation of successful research findings through demonstrations, training, and information dissemination.

### Funding Levels and Project Time Frame

Funds and project scale vary greatly from project to project. Funding for individual projects can run from about \$50,000 to over \$1,000,000. Typical project funding ranges from about \$200,000 to \$500,000.

### Schedule

FTA programs funds based on the President's Budget Request to Congress. This occurs after Congress appropriates funds for a fiscal year, which in recent years has varied from November to as late as February. Once funds are programmed by FTA, solicitations are posted on a project-by-project basis throughout the year.

### Project Solicitation and Submission

Solicitation recipients, topics, and schedule vary from project to project, as well as submission schedule. Some projects are awarded as contracts, others are awarded to other government agencies—such as the U.S. DOT Volpe Center, others are awarded as grants open to any interested party. Grant opportunities for specific research areas are posted throughout the year on [grants.gov](https://www.grants.gov). Parties can subscribe on [grants.gov](https://www.grants.gov) to receive all solicitations from NRTP using the Catalogue of Federal Domestic Assistance (CFDA) Number 20.514. Contract opportunities are posted on [fedbizopps.gov](https://www.fedbizopps.gov). FTA generally does not have sufficient funding to fund unsolicited proposals.

### Selection Process

FTA establishes criteria for project selection in each solicitation. Applicants should refer to the solicitation for specific selection criteria.

### Project Selection Criteria and Tips for Writing Winning Proposals

A key to success in obtaining funds for a research project using NRTP dollars is matching your interests with FTA's Strategic Research Plan. Talk with the technical staff in your area of expertise and with transit agencies or suppliers to make sure your proposed project is of national significance and would benefit public transportation. Also, speak with research staff to make sure you understand the process. As with all research, make sure the research hasn't been done already or isn't in progress.

### Further Information

For general questions regarding the NRTP program, along with FTA's latest Multi-Year Research Program Plan can be found at: [www.fta.dot.gov/research](https://www.fta.dot.gov/research) or contact:

Bruce Robinson  
Federal Transit Administration  
202-366-4209  
[bruce.robinson@dot.gov](mailto:bruce.robinson@dot.gov)

Additional information about application and program requirements can be found in FTA Circular 6100.1C, Transit Research and Technology Programs: Application Instructions and Program Management Guidelines at:

[http://www.fta.dot.gov/laws/circulars/leg\\_reg\\_4121.html](http://www.fta.dot.gov/laws/circulars/leg_reg_4121.html).

**These other federal programs will be completed over the coming months.**

**Section 3.2.4  
Federal Aviation Administration**

**Section 3.2.4  
National Science Foundation**

**Section 3.2.5  
National Institute of Health**

**Section 3.2.6  
Department of Energy**

**Section 3.2.7  
Department of Homeland Security**

**Section 3.2.8  
Department of Education**

**Section 3.2.9  
Environmental Protection Agency**

**Department of Agriculture**

## STATE

### State Planning and Research (SP&R) Funding

Total Annual Funding – from 2005–2009 about \$700 million authorized

Range of Project Costs – \$50,000–1,000,000+, typically \$100,000–300,000

Statements Due – Varies by state

Web Address – <http://www.tfrc.gov/services/state/stateplan.htm>

### General Description

A total funding amount of \$180.2 billion was authorized for primarily surface transportation programs through our nation's current Federal Transportation Act, SAFETEA-LU from 2005 to 2009. Of this amount, approximately 1 percent, or \$3.2 billion, is allotted for research and is divided among federal and state programs, universities, and national organizations involved in transportation research (Figure 3).

Approximately 30 percent of the total amount of dollars allotted for research is spent on research activities that are state-directed through state departments of transportation (state DOTs) through dollars that come out of State Planning and Research (SP&R) funds.

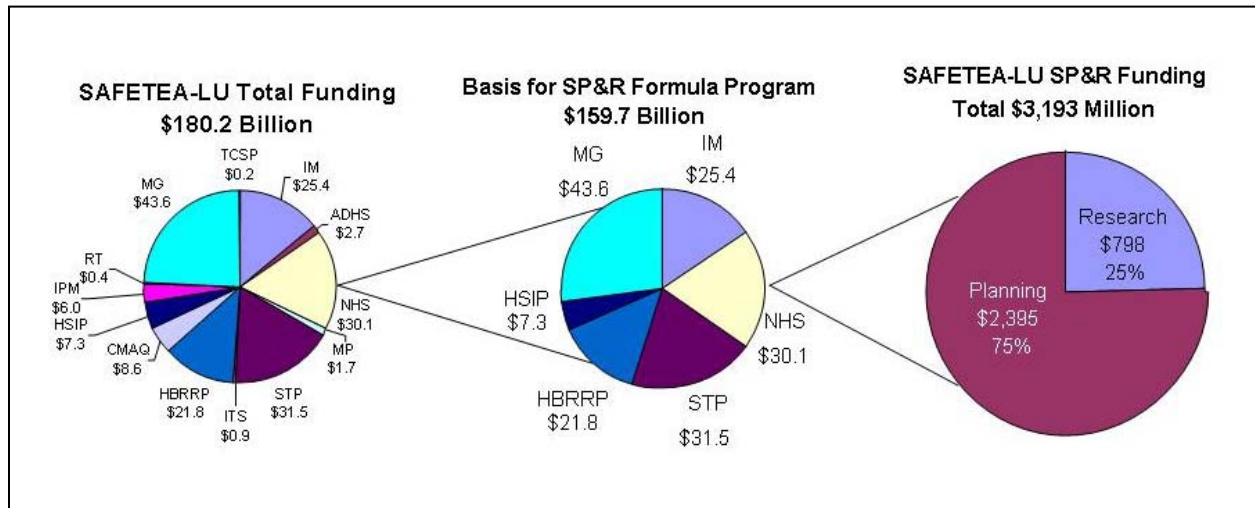
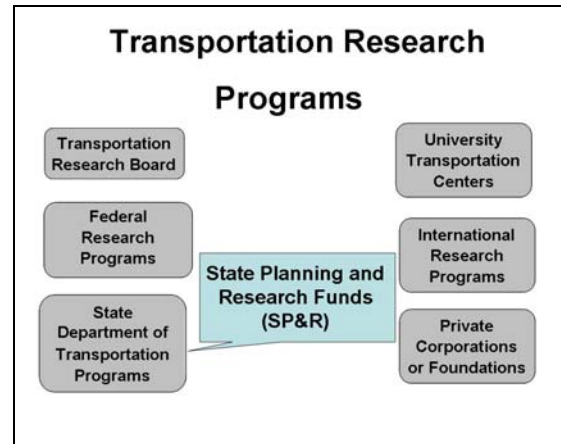


Figure 3. SP&R funding from 2005 to 2009

SP&R funds are derived from a mandatory 2 percent of every state's total apportionment of dollars under certain programs (after deductions) from the Highway Trust Fund. The specific programs under which states must set aside 2 percent of their total dollars apportioned include the following: Interstate Management (IM), National

Highway System (NHS), Surface Transportation Program (STP), Congestion Mitigation and Air Quality (CMAQ), Highway Bridge Replacement and Rehabilitation Program (HBRRP), and the Highway Safety Improvement Program (HSIP). Of the 2 percent set-aside from each of these programs, one-quarter of these funds must be spent on research-related activities; however, states can spend more than 25 percent of their SP&R funds on research if they so desire.

### Type of Research Funded

The SP&R Program is intended to direct research towards finding solutions to local, regional, and statewide problems and issues. State DOT research is typically applied research programs. Research activities may include application of new technologies, and what is commonly known as technology transfer, which is the process to encourage the implementation of successful research findings through demonstrations, training, and information dissemination. Some states may fund basic research, but to a limited extent.

On a national level, state DOTs also use their SP&R funding to contribute to research programs and organizations to help coordinate research activities. For example, states contribute to pooled fund studies (<http://www.pooledfund.org/>). Also, states annually contribute 5.5 percent of their SP&R funds to the National Cooperative Highway Research Program (NCHRP) to support research that addresses problems common to many states. In addition, state DOTs provide more than half of the total funding needed to support core activities of the Transportation Research Board (TRB), such as the TRB Annual Meeting held each January, as well as manage the Transportation Research Information Services (TRIS) and Research in Progress (RIP) databases, and provide support for more than 200 TRB standing committees. States may use SP&R funds to match Local Technical Assistance Program (LTAP) funding.

The 25 percent of SP&R funds allotted towards research is referred to as SP&R Part 2, with the remainder being SP&R Part 1. Part 1 funding may be used for:

- Engineering and economic surveys and investigations;
- The planning of future highway programs and local public transportation systems and the planning of the financing of such programs and systems (including MPOs and statewide planning);
- Development and implementation of management systems;
- Studies of the economy, safety, and convenience of surface transportation systems and the desirable regulation and equitable taxation of such systems;
- Research, development, and technology transfer activities necessary in connection with the planning, design, construction, management, and maintenance of highway, public transportation, and intermodal transportation systems; and
- Study, research, and training on the engineering standards and construction materials for transportation systems including the evaluation and accreditation of inspection and testing and the regulation and taxation of their use.

### Funding Levels and Project Time Frame

Funds and project scale vary greatly from state to state and project to project. Funding for individual projects can run from about \$5,000 to over \$1,000,000. Typical project funding ranges from about \$100,000 to \$300,000.

### Schedule

Each state has a different schedule and process for project solicitation, prioritization, and selection. The AASHTO Standing Committee on Research maintains a Web site with links to state DOT research programs

(<http://cms.transportation.org/?siteid=55&pageid=873>).

### Project Solicitation and Submission

Solicitation recipients, topics, and schedule vary from state to state, as well as submission schedule. Some states solicit research topics from anyone; some only solicit research topics from within their DOT; and others solicit topics from partner groups, such as in-state universities, FHWA, and local governments. In addition, some states have workshops/brainstorming sessions or committees chose topics for which they will solicit research ideas; other states solicit for research ideas on any topic. Most states solicit for research ideas once a year, although the timing of this solicitation varies from state to state. A few states solicit biennially or more than once in any given year and at least one state doesn't solicit for research topics, but accepts topics throughout the year. Also, most states accept research ideas outside of their formal solicitation process; however, there may be limits, such as the size of the project. Of those states that accept research ideas outside of their formal solicitation cycle, some will move those ideas forward at that time and some states consider the ideas during the next solicitation cycle.

### Selection Process

Again, each state has a different process for project selection. Some states have a high level committee; some states have topical committees; and some states use a combination of committees. Some states have a numerical or voting system to prioritize research topics; and some states use a combination numerical/voting prioritization system.

### Project Selection Criteria and Tips for Writing Winning Proposals

Key to success in obtaining funds for a research project using SP&R dollars is matching your interests with the interests of a particular state. Talk with the technical staff in your area of expertise and interest in the DOTs; make sure you are meeting a need of the state. Also, speak with research staff to make sure you understand the process. If more than one state is interested in the topic, it may be an appropriate pooled-fund study. As with all research, make sure the research hasn't been done already or isn't in progress.



### Further Information

For general questions regarding the SP&R program, contact:

William Zaccagnino  
Federal Highway Administration  
202-493-3183  
[William.Zaccagnino@fhwa.dot.gov](mailto:William.Zaccagnino@fhwa.dot.gov)

For information regarding specific projects funded through SP&R, contact the individual FHWA Division Office (<http://www.fhwa.dot.gov/field.html>) or state DOT (<http://cms.transportation.org/?siteid=55&pageid=873> or <http://cms.transportation.org/?siteid=55&pageid=871>).

## Transportation Pooled Fund Program

Total Annual Funding – \$75.7 million allotted in FY 2008

Range of Project Costs – about \$300,000–\$1,000,000+

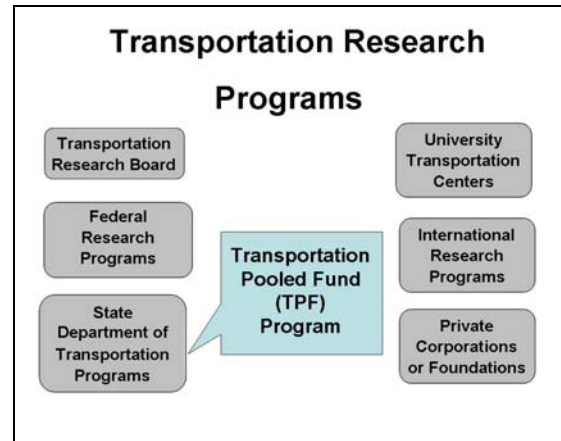
Statements Due – Posted by project

Web Address – <http://www.pooledfund.org>

### General Description

The Transportation Pooled Fund (TPF) Program is a mechanism for interested States, the Federal Highway Administration (FHWA), and other organizations to partner when significant or widespread interest is shown in solving transportation-related problems. Partners may pool funds and other resources together to solve these problems through research, planning, and technology transfer activities. Collaboration efforts enable participating sponsors to fund a smaller portion of the overall project costs through leveraging

funds from other interested partners. Collaboration through the TPF Program also benefits the larger transportation community by reducing duplication of research efforts, addressing issues that may be of regional and/or national interest, allowing for broader dissemination of results, and involving a greater diversity of experts. Private partners can participate as long as the study is led by a state or FHWA



The goal of the program is to allow states to leverage limited funds, thereby enhancing the value of the many successful state-run research programs. One of the offshoots that has made the pooled-fund program such a success for participating organizations is that by creating partnerships, they create a customer base for the ultimate product that will come out of the study. It's important to note that what is good for one state may also be good for others. The core idea is that if one state has developed, or is currently developing, a research study, then another state (or other partners) may choose to join in with their resources to help further the research and take advantage of the study's benefits.

Since 2000, the TPF program has been restructured to be more accessible to the transportation industry and the general public through the development of an interactive Web site located at <http://www.pooledfund.org>. A number of activities are managed through the Web site which has enabled all interested partners to keep up-to-date with the latest program and project level information. Some of these activities include:

- Posting a pooled fund study proposal,
- Enabling partners to make solicitations for funding support,
- Posting commitments from interested partners,
- Reviewing financial commitments,

- Communicating with study partners, and
- Providing reports and project updates.

### Type of Research Funded

A pooled fund study may only be initiated by a federal, state, or local transportation agency. Private businesses, non-profit organizations, colleges and universities may partner with the sponsoring agencies to conduct the pooled fund studies; however, the lead agency in any pooled fund study must be a federal, state, or local transportation agency. To qualify as a pooled fund, the lead agency must have at least one other partner willing to commit funds or other resources to the project.

Problems requiring immediate attention are generally not appropriate as pooled fund studies, as it can take over a year to initiate pooled fund studies. Projects can cover any mode or topical area; however, they typically focus on the highway mode, but can also be inter- or multimodal. If a subject has been studied previously, the new study should provide new information that will complement or advance previous investigations of the subject matter.

### Funding Levels and Project Time Frame

Funding for TPF studies ranges from a few hundred thousand to over a million dollars.

### Schedule

Initially, TPF studies are posted to the Web site for a three-month period. During that time, a study is open for potential partners to commit funds. At the end of this initial three months, the sponsor has a number of options: 1) extend the posting for another three months to allow more time for the commitment of funds, 2) revise and repost the solicitation for interest, 3) cancel the posting and forego the research, or 4) cancel the posting and submit to another funding organization. The schedule varies quite a bit. States vary in the times that they commit funds to TPF studies. Some states approve funding on a monthly basis; others approve funding only once a year. Given this, it can take over a year to obtain funding for a particular pooled fund study.

### Selection Process

Once each project has enough funding committed to cover the project cost, FHWA clears the project. At that time, contributors are asked to obligate funds. Following the appropriation of funds, a technical advisory committee, composed of contributing organizations, is convened to discuss scope. Procurement regulations for the lead entity (typically a state or FHWA, though potentially a locally agency) are followed. Projects may be contracted in a number of ways (e.g., the lead organization may contract directly public entity, such as a university, or via the request for proposal (RFP) process to any research institution) depending, again, on the lead organization's procurement requirements.

### Project Selection Criteria and Tips for Writing Winning Proposals

Make yourself or your organization aware of project solicitations posted to the TPF Web site. For projects in your area of expertise, discuss the project with the project lead to

find out how the project will be contracted. If a RFP is issued or proposals are solicited in another way, make sure you understand the requirements and meet the requirements by the deadline. Keep in mind the proposal selection panel will be the technical advisory committee, representing all contributors. Typically, this committee is composed of state DOT and FHWA staff. Contacting subject-area experts or other potential partners prior to solicitation helps gain support for a project and reduces the time necessary to meet sufficient funding.

#### Further Information

The TPF Program Web site (<http://www.pooledfund.org>) has up-to-date information about the program, current projects, etc. For specific questions regarding the TPF Program, contact:

Lisa Williams  
Federal Highway Administration  
202-493-3375  
[Lisa.Williams@fhwa.dot.gov](mailto:Lisa.Williams@fhwa.dot.gov)

## University Transportation Centers

Total Annual Funding – \$76.7 million authorized

Range of Project Costs – \$10,000–2,200,000+

Statements Due – Varies by center

Web Address – [http://utc.dot.gov/utc\\_about.html](http://utc.dot.gov/utc_about.html)

### General Description

The University Transportation Centers (UTC) program was established in 1987 for the purpose of establishing federally funded university-based transportation centers for research, education, and training/outreach programs. Under the program, UTCs receive grant funds from the U.S. Department of Transportation (U.S. DOT) to educate the future transportation workforce and to conduct research to advance the field of transportation.

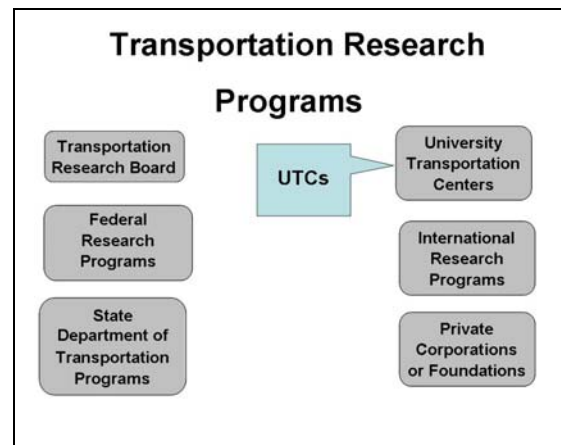
The program is currently authorized and funded from Title V and Title III of SAFETEA-LU and is administered by the U.S. DOT's Research and Innovative Technology Administration (RITA). The grants issued under Title V generally require a one-for-one non-federal match. Universities are encouraged to find local sources of match from state, local government, Tribal, or private sector partners (such as industry or non-profit

organizations). However, certain federal funds authorized in SAFETEA-LU may be used as a matching source. Centers funded under Title III do not have a match requirement.

The mission of the UTC program is to advance U.S. technology and expertise in the many disciplines comprising transportation through the mechanisms of education, research, and technology transfer at university-based centers of excellence.



The ultimate product of the centers is a research program that reflects each individual institution's thematic area, but also education and outreach (including continuing education and outreach responsibilities). Centers can choose to pursue a wide range of opportunities within the program. A complete synopsis of the Centers and their thematic areas is available at [http://utc.dot.gov/utc\\_safetea-lu.html](http://utc.dot.gov/utc_safetea-lu.html).



Overall program goals within the UTC Program's legislated mission are established by U.S. DOT RITA in six key areas—each of which includes submission of annual performance measurement data dictated by the program guidelines. The six goals are human resources, education, research performance, research selection, diversity, and technology transfer. Centers prepare strategic plans at the beginning of a grant to describe how they will accomplish the six program goals. These strategic plans are reviewed by multimodal teams from the U.S. DOT and after they are approved the plans become the primary guiding document of each UTC during its grant.

Several documents have been developed to highlight the results of UTC funded research. These include a monthly UTC Spotlight Newsletter, an annual Spotlight Conference with the Transportation Research Board, and beginning in fall of 2008 a "Points of Pride" report on the highlights from the past year. In addition, several National centers have collaborated previously on the publication of a laboratory and resource guide describing the facilities available for transportation research and education at those UTCs. UTC directors participate in the Council of University Transportation Centers (CUTC), a private organization established to promote transportation research and education on a national basis.

Each Center operates on a grant year established by the institution. Under its strategic plan, each University Transportation Center has established its own procedures for selecting and administering research activities. These processes, by design and program guidance, all include significant peer review of research topics and ultimate reports. Each center also prepares an annual report detailing its activities. The U.S. DOT also provides ongoing management and oversight through routine site visits, review of reporting requirements, and regular participation in CUTC meetings and sponsored activities. There are currently 60 UTCs in 41 of the 50 states.

The University Transportation Centers (UTC) program, initiated in 1987 under the Surface Transportation and Uniform Relocation Assistance Act, authorized the establishment and operation of transportation centers in each of the 10 standard federal regions. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) reauthorized the UTCs for an additional six years and added four national centers and six University Research Institutes (URI). The mission of the 14 UTCs was to advance U.S. expertise and technology transfer. The six URIs each had a specific transportation research and development mandate.

In 1998 the Transportation Equity Act for the 21st Century (TEA-21) reauthorized the UTC Program for an additional six years and increased the total number of Centers to 33. In addition to the ten regional Centers, which were to be selected competitively, TEA-21 created 23 other Centers at institutions named in the Act. TEA-21 established education as one of the primary objectives of a University Transportation Center and institutionalized the use of strategic planning in university grant management. SAFETEA-LU brought with it a noteworthy expansion of the University Transportation Centers Program. From just over 30 operating centers under TEA-21, SAFETEA-LU created 60 centers in a variety of funding levels and scopes. National, Regional, Tier I,

and Tier II centers were established. An additional eight centers were funded under Title III of the authorization bill.

Forty centers (national, Tier II, and Tier III) were designated to specific institutions and twenty (regional and Tier I) were awarded through competitions that were held in 2006. Many of the programs operate with consortia agreements, bringing the total number of universities involved to over 100.

Type of Research Funded

As previously mentioned, each university transportation center is required to establish its own procedures for identifying, selecting and performing research tasks within the guidance provided by the U.S. DOT. In many cases, due to the matching requirements, the research programs are focused on applied research of value to specific state departments of transportation providing the necessary matching funding.

The National centers are tasked with the responsibility to outline the key national trends and collaborations around their selected research focus areas. Research in the regional centers is to be of value to the region, while the Tier I, Tier II, and Title III centers are expected to perform research according to their strategic plans.

Funding Levels and Project Time Frame

Centers are funded at a variety of levels. Tier II centers have an annual operating budget of approximately \$500,000 plus an equal amount of matching funds, while national centers operate at authorized amounts of \$7 million including Federal plus matching funds.

Individual research or education project activities can range from \$10,000–15,000 to larger multi-year projects awarded at over \$2.2 million. The projects all follow the research selection process identified in each center’s strategic plan and the timeline of the adopted grant year.

The following chart shows the authorized funding levels for National, Regional, Tier I, and Tier II Centers. The remaining eight Tier III centers are funded at varying levels and time frames.

<b>Type</b>	<b>Authorized Funding Level (FY05–FY09)</b>
National	\$2.0 million (FY05), \$3.5 million (FY06–09)
Regional	\$1.0 million (FY05), \$2.0 million (FY06–08), \$2.25 million (FY09)
Tier I	\$1.0million (FY05–09)
Tier II	\$500,000 (FY06–09)

The specific federal programs that are eligible matching sources are:

- Title 23 Sec. 503 – Technology Deployment
- Title 23 Sec. 504(b) – Local Technical Assistance Program (LTAP)
- Title 23 Sec. 505 – State Planning and Research (SP&R)

A Transportation Pooled Fund (TPF) study is one of the most efficient ways for a state to support projects at a UTC, especially if the UTC is in another state.

### Schedule

Schedules vary by center. Some operate on a federal fiscal year, others correspond to state fiscal years, and others operate on calendar years. Provided for an example is the schedule for the National Center for Freight and Infrastructure Research and Education (CFIRE) at the University of Wisconsin.

- August – Call for pre-proposals and RFPs submitted
- October–November – Project pre-proposals submitted to Signature Area Technical Review Group chairs for peer review, prioritization, and recommendation to Advisory Committee
- December – Advisory Committee meets to invite full proposals; Advisory Committee is given estimated budgets for each signature area based on leveraged funds
- January–February – Invited researchers; prepare full proposals
- March – Full proposals submitted for review by project committees and approval of contracts
- July – Executive Committee Meeting to update signature areas and generate ideas for RFPs
- July 1 or October 1 – Projects start (progress monitored by quarterly teleconference)

### Project Solicitation and Submission

As noted previously, each individual center has its own procedures for soliciting research ideas and selecting research activities. Project solicitation is expected to follow a center's strategic plan and is required to reflect the thematic area of the center.

### Selection Process

Each individual center has a unique selection process, with the ability to award research typically residing in the Director of the center or a center advisory board. In nearly all cases, an advisory committee is established to provide input to the Director.

Each project proposal must be subjected to peer review. The process for peer review varies from center to center. The selection process also includes at least one individual from U.S. DOT.

### Projects Selection Criteria and Tips for Writing Winning Research Statements

Centers establish their own criteria for review. In many cases, only principal investigators from the participating consortium institutions are eligible for project awards.

Following selection, research summaries are required. These summaries are posted on the center Web site and distributed to the RITA program administration. At project completion, the final report must also be posted on the program Web site.



### Further Information

The UTC Web site (<http://utc.dot.gov>) has up-to-date information about the UTC program, links to each of the center Web sites, and identifies the focuses of the 60 UTCs.

Each center Web site—a requirement of the program—contains information related to the completed projects, the ongoing activities, and past annual reports. Each center is required to put its research information into the TRB Research in Progress database and the Transportation Research Information Service database.

The Council of University Transportation Centers (<http://cutc.tamu.edu>) hosts additional information related to university-based transportation research, including members of the UTC program. For more information on the UTC program, contact:

Curtis Tompkins  
Director of the UTC program for the U.S. DOT  
[curtis.tompkins@dot.gov](mailto:curtis.tompkins@dot.gov)

**Section 3.5**  
**Private companies or foundations**  
**– Information Pending**

**Section 3.6**  
**International Research Programs**  
**- Information Pending**

## CHAPTER 4 – TO LEARN MORE ABOUT PROPOSED, ONGOING, AND COMPLETED RESEARCH

Funding for transportation research is limited, so we need to make the best use of the funding available. Prior to initiating research, it is important to search databases of research needs and ongoing and completed research. This facilitates the formation of partnerships and collaborations, allows transportation research to be coordinated, facilitates the identification of champions, prevents the duplication of efforts, and saves time and money.

### Proposed Research

There are two databases and a number of Web sites containing transportation research needs:

- **RNS:** The Research Needs Statement (RNS) Database (<http://rns.trb.org>) is a searchable database of high priority research needs developed and vetted by TRB's technical committees covering all modes of transportation.
- **TERI:** AASHTO's Transportation and Environment Research Ideas (TERI) database ([environment.transportation.org/teri\\_database/](http://environment.transportation.org/teri_database/)) contains environmental research needs.
- **Web sites:** Unfunded Cooperative Research Program (CRP) problem statements can be accessed on <http://trb.org/CRP/About/DivD.asp>. PDF files are posted for the National Cooperative Highway Research Program (NCHRP) for each year beginning in 2003. PDF files for the Airport Cooperative Research Program (ACRP) and Transit Cooperative Research Program (TCRP) are posted for each program, each year beginning 2008. In addition, states, consortium and other organizations may post unfunded research needs. In an effort to develop a "One-Stop Shop" for research needs, the AASHTO Research Advisory Committee (RAC) and the TRB Conduct of Research (CoR) Committee have created a Google Transportation Research Needs Meta Search (<http://www.google.com/coop/cse?cx=006511338351663161139%3Avblegi9v2au&hl=en>). This search tool simultaneously searches RNS, TERI, and unfunded pooled-fund studies and CRP problem statements. This search tool is updated as new sources of research needs are identified.

Recently, TRB and AASHTO have agreed to coordinate research ideas. All RNS environmental research ideas will be searchable in the TERI database. Also, all TERI entries will be reviewed for possible vetting by the appropriate TRB committee. Those that are vetted by these committees will be added to the TRB RNS database

### Ongoing Research

- **RiP:** TRB's Research in Progress (RiP) Database (<http://rip.trb.org>) contains over 10,000 current or recently completed research projects from the state departments of transportation, the U.S. Department of Transportation, University Transportation Centers, TRB, and international organizations. The RiP Web site allows users to search and locate organizations and individuals conducting research on topics of

interest. The RiP database provides contact information for agencies and individuals involved with research, facilitating the networking and sharing of research information and preventing duplication.

- **Web sites:** A number of individual Web sites can also be searched for ongoing research, including those of state DOTs, universities, and other organizations. However, the RiP database is intended to be the “One-Stop Shop” for ongoing transportation research. State DOT research and development Web sites can be accessed via the AASHTO Standing Committee on Research and RAC Web site ([cms.transportation.org/?siteid=55&pageid=873](http://cms.transportation.org/?siteid=55&pageid=873)).

### Completed Research

- **TRIS:** The Transportation Research Information Services (TRIS) Database was developed in the 1960s. Today TRIS contains over 700,000 records of published transportation covering all modes and disciplines making it the largest resource on published transportation research. Articles from over 500 journal titles are indexed into TRIS along with conference papers, technical reports, and books. TRIS is a cooperative database: receives records from the transportation libraries at Northwestern University and University of California, Berkeley, the Transportation Association of Canada, and the ITRD database in Europe. Last year a database of Environmental Impact Statements from Northwestern University’s Transportation Library and records of thesis and dissertations were added to TRIS. TRIS contains links from the TRIS records to the full text of the document or direct ordering information when available. Recently, links were added to aid users in finding a library that owns the document. Since 2000, all of TRIS except for the ITRD records is available on the Web as TRIS Online (<http://ntl.bts.gov/tris>) through a cooperative agreement with National Transportation Library at the U.S. Department of Transportation. TRIS is also available through two commercial vendors—TRANSPORT from Ovid and TRIS on Dialog. For further information on TRIS, visit the TRIS Web site at <http://tris.trb.org/about/>.

Links for TRIS records may provide full text of research documents or direct ordering information when available. Recently, links were added to aid users in finding a library that owns the document. Since 2000, all of TRIS except for the ITRD records is available on the Web as TRIS Online (<http://ntl.bts.gov/tris>) through a cooperative agreement with National Transportation Library at the U.S. Department of Transportation. TRIS is also available through two commercial vendors—TRANSPORT from Ovid and TRIS on Dialog. For further information on TRIS, visit the TRIS Web site at <http://tris.trb.org/about/>.

- **WorldCat:** The largest database of library collections in the world is WorldCat. TLCat (<http://firstsearch.oclc.org/WebZ/FSPrefs?entityjsdetect=:javascript=true:screensize=large:sessionid=fsapp3-55767-fk2mzwnwi-2jgpc8:entitypagenum=1:0>) is a subset of WorldCat, which searches over 20 transportation libraries (public and private) for published material. WorldCat is maintained by the Online Computer Library Center (OCLC) ([www.oclc.org/us/en/global/default.htm](http://www.oclc.org/us/en/global/default.htm)).

- **NTL:** The National Transportation Library (NTL) provides an integrated search tool (<http://ntlsearch.bts.gov/tris/index.do>) to search TRIS Online, NTL catalog, NTL Digital Repository, and other Web sites either individually or together. The NTL offers other resources for transportation information on the home page (<http://ntl.bts.gov/>): including, topical bibliographies, rural and agricultural transportation resources, transportation statistics, and legislative and regulatory resources.
- **Web sites:** Various Web sites exist to search completed research, including those of state DOTs and universities.

## CHAPTER 5 – GENERAL ADVICE AND SUMMARY

Transportation professionals across the world are facing very difficult challenges. They are asked to provide improved transportation systems with limited funding, answer increasingly sophisticated questions, and consider an ever-increasing number of factors in their decision making. The transportation community is, therefore, putting an increased emphasis on basic research, policy studies, and case studies. Because funding for transportation research has not kept up with this demand, existing research programs are very competitive. When submitting a research statement, keep the following things in mind to maximize the chance of success:

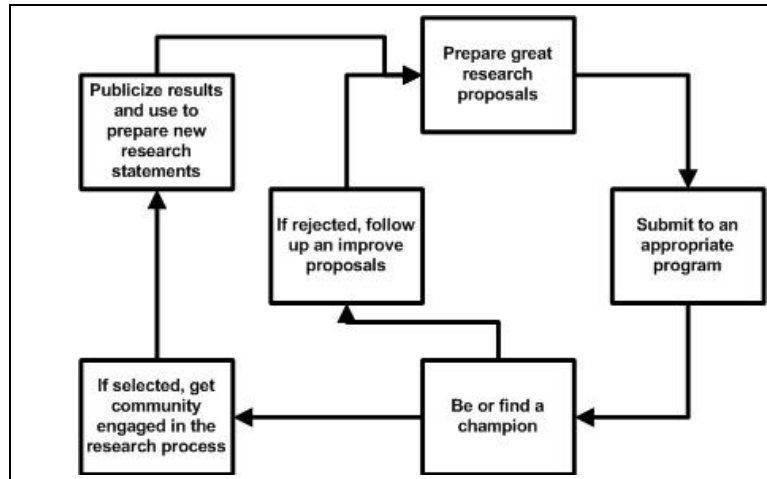
- **Identify Clear Needs:** In many programs your research statement will compete with research needs in a wide variety of topics such as environmental considerations, materials and construction, traffic and mobility, bridges and structures, policy, and finance. Given the competitiveness, it is important to identify your research need as clearly as you can, as well as the impacts of taking no action and the potential benefits.
- **Do Your Homework:** Project proponents who don't do their homework don't fare well. Provide background information, appropriate context, and a summary and discussion of completed and ongoing research, so reviewers are assured that you are aware of related work and understand the scope and intent of the funding program.
- **Discuss the Idea with Peers:** It's important to use your peers to build an interested and supportive constituency and to help improve the definition of the research statement.
- **Plan for Implementing Results:** Much of the research conducted in the transportation field is applied. It is helpful to consider how research results will be used and communicate the uses early in the research statement development process. Is particular software necessary as an analytical tool? What details must be known to incorporate a change into a design manual? What information could drive a policy change? Who will make such changes and therefore needs to be aware of your project and ownership of the results?

In addition to these items, a lengthier discussion on writing effective research statements can be found in Appendix B.

After writing and submitting the best statement you can, your work is not over. You must be a champion for the research statement and shepherd it through the submittal and selection process. If you can find another champion on the selection panel, contact them, offer to provide additional information if they need it, and generally emphasize the importance of the topic. Figure 4 illustrates the importance of following up with research.

If the project is not selected, follow up with the program staff to learn how to improve either the same topic or future topics you might submit. Often the program staff can provide comments for the selection panel.

If the project is selected, you are still not “home free.” Any help you can provide the program staff, oversight panel, or consultants will improve the final product. Help can take many forms and is largely dependent on the type of research being conducted. For case studies or syntheses of practices, you might be able to provide contacts with agencies or individuals that have experience in the area, or you could encourage the community to respond to surveys or questionnaires.



**Figure 4. Following up on research proposals**

In closing, this “living document” will only be as strong as the community involvement in its continued update and improvement. Appendix D contains a form to submit information on additional programs. If you have any suggestions, additions, or corrections please contact Kim Fisher, with the Transportation Research Board, at [kfisher@nas.edu](mailto:kfisher@nas.edu).

## **APPENDIX A – TRANSPORTATION RESEARCH DEFINITION**

### What Is Research?

The Code of Federal Regulations (23 CFR 420) provides the following description of research:

Research means a systematic controlled inquiry involving analytical and experimental activities which primarily seek to increase the understanding of underlying phenomena. Research can be basic or applied.

Applied research means the study of phenomena relating to a specific known need in connection with the functional characteristics of a system; the primary purpose of this kind of research is to answer a question or solve a problem.

Basic research means the study of phenomena whose specific application has not been identified; the primary purpose of this kind of research is to increase knowledge.

Research Development and Technology activity means a basic or applied research, development, or technology transfer project or study.



## APPENDIX B – HOW TO WRITE AN EFFECTIVE RESEARCH STATEMENT

Writing an effective research statement is not a simple matter, even to transportation practitioners who face serious problems and challenges on a daily basis. The research needed might be obvious to them but difficult to describe to non-specialists. They may not have thought about how to quantify it or how to justify the needed research with respect to other agency or national priorities. A serious problem to them might not even be on a decision-maker's radar screen.

This document was written to provide some guidance on developing research statements for funding consideration. The categories below are based on those of the National Cooperative Highway Research Program, but they should be adaptable to any research funding program.

### Title

The research statement title should briefly and immediately convey to the reader what the proposed study is about. It does not have to capture every element, nuance, and expected task of the research problem. It is like the title of a book—it should attract your attention, quickly convey the subject, draw you in, and make you want to read what's inside.

Here's a general rule: the more deeply you are involved in a particular subject, the harder it is for you to step back and see the big picture. You may be tempted to title your research statement something like this . . .

Collection, analysis, and compilation of current best practices for the design of roundabouts for U.S. roadways and how those design elements will impact safety, capacity, and contribute to effective traffic management objectives . . .

rather than this . . .

Design guide for roundabouts.

The first alternative might be a good title for a PhD thesis; the second title is a far better choice for a research statement.

How will a title reflect on the research statement? Can it really have an impact on whether or not it is funded? The answer is yes, for at least three reasons:

- branding is important—a good title will help the reviewer establish a connection with your proposal,
- a negative first impression will likely linger with the reviewer while reading the rest of the research statement, and
- if the title is confusing, chances are the rest of the research statement will be just as hard to understand.

A good title is like a good sound bite—people will remember it.

*Hint: Look at every word in your title and ask yourself if it's necessary.*

## Background

The background statement is your opportunity to convince the reviewer that this research statement addresses a serious issue and merits funding. It should set the context and relate this particular issue to larger national or regional goals and objectives. If the research statement is about some new technology that can reduce the severity of vehicle crashes, begin with statements about the overall importance of road safety. Talk about the economic and societal costs of crashes. Talk about national goals to improve road safety. Then describe how the particular subject of this research statement relates to those national or agency needs.

Similarly, if you are proposing a study that will reduce congestion on urban streets, describe the extent of the problem. How much time is lost due to congestion nationally? How much does it impact air quality? How does your particular problem contribute to the solution? If your research statement describes a method or practice that will improve efficiencies in your agency procedures, how much time is wasted by current methods?

Do your homework. As best you can, estimate how much time, money, or lives are lost as a result of this specific problem you want to address. Think about it: if you can't do that, why should you expect your project to be funded?

Don't be parochial. Demonstrating that something is a serious problem in your state doesn't make it a national issue. If you know that this problem is affecting other regions or states, name them in your research statement. The more people affected, the greater the payoff if the problem is solved. Involve others and garner support. If you can get other agencies or committees to endorse your research statement, you're doing a better job of demonstrating that the effort warrants funding.

*Hint: When writing the background section, keep thinking "Why should my CEO care about this problem?"*

## Objective

Describe in very brief terms what the expected product of this research will be. The objective should be short, concise, and accurate. Don't put details in the objective related to how the study will be done unless some new or innovative research methodology is the key element of the research. The details will be in the research plan and reflected in the final product. If your objective is "to produce a new fuel-efficient vehicle," say so. Don't say that the objective is "to produce a new fuel-efficient vehicle, including the design, construction, testing, and installation of all necessary components including body, frame, power train, tires, wheels, seats, mirrors, and other appurtenances to be determined through a survey of user needs, performance

measures, and financial constraints.” If those things need to be done to accomplish the objective, put them in task statements.

*Hint: Go back and read the advice above on titling your research statement. A very reasonable objective statement is “...to develop (insert your title)”.*

### Potential Benefits

This is where you need to justify the funding of your research statement. If the program can only fund 20 projects from a pool of 50 good research statements, why should yours be picked? You need to be specific and provide as much detail as you can on the potential benefits of your project. What are the consequences of *not* doing this work? How will it affect productivity, budget, customers’ quality of life? Here are some examples of compelling statements, *if* they are justifiable:

“Streamlining the review process could cut 6 months off average project delivery times.”

“Sixty-five percent of road users indicate that this is a major problem. Resolving this issue could result in a significant increase in customer satisfaction.”

“If this project is brought to a successful conclusion and the results implemented, and could produce only a 2 percent increase in pavement life, the savings to highway agencies and road users could be in excess of \$5 million a year.”

“This project is a necessary step in the development of an overall safety plan that could save thousands of lives every year.”

*Hint: Be positive but honest. Use real numbers if you can measure or estimate them.*

### Relationship to the Existing Body of Knowledge

The first time a reviewer reads your research statement, it will probably remind them of other projects they’ve heard about on the same or similar topics. They may believe that your research is duplicative of work that has already been done. You need to anticipate this and explain how your project is different—how it builds on the existing body of research, how your proposed study takes a different approach, how it uses new methodologies or expanded data sets, or how it pulls together all the existing work into an implementable product. Describe any shortcomings or deficiencies in the current body of research, and how your project will address them.

Base your comments on a thorough review of the relevant literature and ongoing research. The places to start in the transportation sector are TRIS (Transportation Research Information Services) Online and the Research in Progress (RIP) databases. If you need help, contact your librarian or information specialist. If you don’t have one, contact a major reference library, or the TRB information services. If your research statement fails to find or identify a high profile project on the same or similar topic, your credibility will be suspect.

*Hint: Be specific in describing the research statement's relationship to the existing body of knowledge. Reference the most significant related studies by name and discuss how your project will advance the state of knowledge and yield new or additional practical benefits.*

### Tasks

If you have identified specific tasks that absolutely have to be part of the project workplan, include them in the research statement. However, don't let your own biases determine the research plan. Focus your attention on providing a full and accurate description of the final product. To the extent possible, give the proposing research team the flexibility to describe a research plan that they feel will accomplish the project objectives.

*Hint: The more detail you include in the task statements, the less opportunity a researcher has to show initiative and innovation, and the more every proposal will come in looking the same. Don't be prescriptive.*

### Follow-on and Implementation Activities

Good research advances the state of knowledge in transportation. For long-term, strategic research, several phases of research may be needed to achieve an implementable solution. Address follow-on research as well as implementation in your research statement to demonstrate that you are aware of the scale and scope of the research, the potential barriers and impediments to implementation, and the activities and champions needed to support the end work. This increases the comfort level of the funding agency that the results of the research project have a good chance of finding their way into practice and hence yield the benefits to their fullest potential. If you are developing a product that will require ongoing maintenance (like software or a Web site clearinghouse), make sure you identify who will take responsibility for it.

*Hint: If you are aware of a specific national body that will need to take ownership of the project results, identify them in your research statement. It may be an AASHTO committee representing the stakeholders in this particular subject area in all 50 states. Make sure this group is aware and supportive of your research statement.*

### Estimated Funding Requirements

This may be the most difficult part of the research statement, if you do not have research experience in the academic or private sector. How can you possibly estimate how much money will be needed to achieve the project objectives? Here are some general guidelines.

What kind of tasks do you anticipate? What is a reasonable amount of time to accomplish these tasks. Personnel time will most likely make up the majority of the

budget. Will the tasks be labor intensive, require specialized equipment or a specific software? If field or laboratory testing will be required, it will be more expensive than “desk-based analysis.” If specialized equipment or software must be purchased or developed, the costs can escalate quickly.

Get familiar with the charge-out rates of academics and private consultants. You are not just paying the researchers’ salary, you are paying for their overhead, benefits, administrative costs, and all direct expenses. Bear this in mind when estimating the total cost for each person-year of work on the project. A private consulting firm will add a fixed fee as their profit margin.

Some programs leave the budget estimate to the research statement submitter; the statements need to identify the funds needed and provide a budget, and cost is one of the evaluation criteria. In other programs, like the NCHRP, a fixed amount is provided by the funding body. If submitting to an existing program, take a look at other projects funded by the same program and determine the typical funding range. If you propose an amount well beyond this, you had better be prepared to back it up with a high estimated payoff. On the other hand, don’t lowball the figure. If you can’t achieve the project objectives with the amount you requested, the funding body is not likely to be receptive when you come back and ask for more.

*Hint: If you work with consultants or academics on TRB or other committees, talk to them about the level of resources needed to undertake the work. They are in a position to review the project objectives and help you come up with a reasonable budget estimate.*

### Concluding Comments and Tips

There are many different research funding programs out there. If you can identify the most appropriate program for your research statement, then you can tailor it for the best chance of success.

For the most part, research projects will be selected for funding by “educated generalists”—managers and executives who are not subject experts (or at least not experts in every subject). That is the audience for whom you need to write. Ask someone you know and trust from outside your own field of expertise to review your research statement. If he or she doesn’t understand something in it, chances are many of the reviewers will have the same reaction.

Get as much support as possible for your research statement before you submit it. Show it to your colleagues, other experts, and managers in your organization to get their advice. Modify the statement if necessary to address their ideas. Don’t forget to review the research statement for correct spelling and grammar.

If at first you don’t succeed, don’t give up. If your research statement is not selected, find out why. If possible, get the reviewers’ comments. Did the reviewers understand the

research statement? If not, what could you have done to make it more clear? Was it considered a good statement but not a top priority or have a high potential payoff? If so, did you do a sufficient job estimating and describing the potential benefits?

*Hint: Don't be discouraged or embarrassed by constructive reviews; they are the best guidance you will ever get for writing better research statements.*

Good Luck!

## APPENDIX C – SUMMARY TABLE OF RESEARCH PROGRAMS

**Table C1. Summary of Research Programs**

	<b>Geographic Relevance</b>	<b>Mode or Topic</b>	<b>Immediacy</b>	<b>Recent Funding Range</b>	<b>Partnering</b>	<b>Project Type</b>
<b>National Cooperative Highway Research Program (NCHRP) Regular Projects</b>	National	Highways, general	Yearly: September submission; March selection	\$200,000– 600,000	Not available	Standard
<b>NCHRP International Scans</b>	National	General	Yearly	\$850,000 annually for about 4 scans	Ability to co-fund is a selection factor; FHWA offices that submit proposals must fund 25%	Scan of international research
<b>NCHRP Domestic Scans</b>	National	General	Yearly	\$80,000– 150,000	Not available	Scan
<b>NCHRP Quick Response Project for the AASHTO Planning Committee</b>	National	Highways	Quick response	\$50,000– 100,000		Quick Response (Task Order Projects)
<b>NCHRP Quick Response Project for the AASHTO Environmental Committee</b>	National	Environment	Quick response	\$50,000– 100,000		Quick Response (Task Order Projects)
<b>Research on Administration of Highway and Transportation Agencies</b>	National	Administration of state DOTs	Quick response	\$75,000– 350,000	Not available	Quick Response (Task Order Projects)

	<b>Geographic Relevance</b>	<b>Mode or Topic</b>	<b>Immediacy</b>	<b>Recent Funding Range</b>	<b>Partnering</b>	<b>Project Type</b>
<b>NCHRP Quick Response Project for the AASHTO Highways Committee</b>	National	Highways; engineering and operations guides, standards, and policies	Quick response	\$25,000–100,000	Not available	Quick Response (Task Order Projects)
<b>NCHRP Quick Response Project for the AASHTO Public Transportation Committee</b>	National	Transit	Quick response	\$25,000–100,000	Not available	Quick Response (Task Order Projects)
<b>Innovations Deserving Exploratory Analysis (IDEA)</b>	National	Highways, freight and rail safety, transit	Twice yearly for highways and transit: March and September; yearly for safety: March	\$25,000–100,000; \$25,000–150,000 for Highway Program		Standard
<b>Airport Cooperative Research Program (ACRP)</b>	National	Air	Yearly: April submission; July selection	\$150,000–500,000	Not available	Standard
<b>ACRP Graduate Research Award Program</b>	National	Air	Yearly: June submission; September selection	\$10,000	Not available	Graduate research
<b>Transit Cooperative Research Program (TCRP)</b>	National	Transit	Yearly: June submission October selection	\$150,000–\$500,000 million	Not available	Standard
<b>TCRP International Transit Studies Program</b>	National	Transit	Twice yearly: missions in spring and fall	\$500,000 annually	Not available	International missions
<b>National Cooperative Freight Research Program</b>	National	Freight	Yearly: July submission; fall award	\$20,000–500,000	Not available	Standard



	<b>Geographic Relevance</b>	<b>Mode or Topic</b>	<b>Immediacy</b>	<b>Recent Funding Range</b>	<b>Partnering</b>	<b>Project Type</b>
<b>Hazardous Material Cooperative Research Program</b>	National	Hazardous material transportation	Yearly: Oversight committee meets in November	\$300,000–350,000	Not available	Standard
<b>TCRP Synthesis Program</b>	National	Transit	Yearly: March submission; May selection	\$30,000	In some cases, agencies augment consultant funding	Synthesis report
<b>NCHRP Synthesis Program</b>	National	Highways	Yearly; February submission; May selection	\$30,000	In some cases, agencies augment consultant funding	Synthesis report
<b>ACRP Synthesis Program</b>	National	Airports	Yearly: October submission; December selection	\$30,000	In some cases, agencies augment consultant funding	Synthesis report
<b>Commercial Truck and Bus Safety Synthesis Program</b>	National	Commercial truck and bus safety	Not available	\$40,000	In some cases, agencies augment consultant funding	Synthesis report
<b>TCRP Legal Research</b>	National	Transit and intermodal legal issues	Not available	Not available	Not available	Brief of legal issues
<b>ACRP Legal Research</b>	National	Airport legal issues	Not available	\$15,000–80,000	Not available	Brief of legal issues
<b>NCHRP Legal Research</b>	National	Highway legal issues	Not available	\$24,000–100,000	Not available	Brief of legal issues

	<b>Geographic Relevance</b>	<b>Mode or Topic</b>	<b>Immediacy</b>	<b>Recent Funding Range</b>	<b>Partnering</b>	<b>Project Type</b>
<b>Surface Transportation Environment and Planning Cooperative Research Program</b>	National	Environment	Yearly	\$20,000–750,000	Requires 50% non-federal match; proposals including cost sharing may receive preference	Standard
<b>Safety Innovation Deployment Program</b>	National	Safety	Not available	Annual budget of about \$12 million	Requires 20% non-federal match	Standard
<b>Exploratory Advanced Research</b>	National	Safety, environment, congestion	Yearly: May submission; September award	\$500,000–2,000,000	Requires 20% non-federal match	Standard
<b>Small Business Innovation Research Program</b>	National	General	Twice yearly: April and November submissions	\$100,000–750,000	Not available	For small businesses
<b>Remote Sensing and Spatial Technology Program</b>	National	Remote sensing, spatial information	Not available	\$600,000–1,800,000	Requires 50% non-federal match	Standard
<b>Intelligent Transportation Systems Program</b>	National	Intelligent vehicles and infrastructure	Posted by project; selection may take several months	\$300,000–3,000,000+	Not available	Standard
<b>Federal Transit Administration National Research and Technology Program</b>	National	Transit technology	Posted by project	\$50,000–1,000,000+	Requires 50% non-federal match	Standard
<b>State Planning and Research Funds</b>	State or national	General	Varies by state	\$5,000–1,000,000+	Requires 20% non-federal match	Typically applied research

	<b>Geographic Relevance</b>	<b>Mode or Topic</b>	<b>Immediacy</b>	<b>Recent Funding Range</b>	<b>Partnering</b>	<b>Project Type</b>
<b>Transportation Pooled Fund Programs</b>	Regional or national	General	May take over a year to initiate	\$300,000–1,000,000+	Not available	Standard
<b>University Transportation Research Centers</b>	State or national	General	Varies by center	\$10,000–2,200,000+	Requires 50% non-federal match	Standard

## APPENDIX D – ADDITIONAL TRANSPORTATION RESEARCH PROGRAM – SUBMITTAL FORM

To submit changes, corrections, updates, or additional information on programs already included on the webpage please email Kim Fisher at [kfisher@nas.edu](mailto:kfisher@nas.edu). General suggestions to improve the web page may also be sent to Kim.

To provide information on new programs to be added to the web page please go to **ZOOMERANGE SITE ADDRESS** to submit the program details. You will need to provide the following information –

1. Program Title and Agency
2. General Description
3. Type of Research Funded
4. Funding Levels and Project Time Frame
5. Schedule
6. Project Solicitation and Submission
7. Selection Process
8. Project Selection Criteria and Tips for Writing Winning Research Statements
9. Further Information (Web address and contact information)

***Please remember that only programs that accept research statements from the larger transportation community will be included on this web page.*** If you have any questions please email Kim before starting.

## CHAPTER 4

### ***More about Proposed, Ongoing, and Completed Research***

Funding for transportation research is limited, so we need to make the best use of the funding available. Prior to initiating research, it is important to search databases of research needs and ongoing and completed research. This facilitates the formation of partnerships and collaborations, allows transportation research to be coordinated, facilitates the identification of champions, prevents the duplication of efforts, and saves time and money.

#### **Proposed Research**

There are two databases and a number of websites containing transportation research needs:

- **RNS:** The Research Needs Statement (RNS) Database (<http://rns.trb.org>) is a searchable database of high priority research needs developed and vetted by TRB's technical committees covering all modes of transportation.
- **TERI:** AASHTO's Transportation and Environment Research Ideas (TERI) database ([environment.transportation.org/teri\\_database/](http://environment.transportation.org/teri_database/)) contains information about environmental research needs.
- **Websites:** Unfunded Cooperative Research Program (CRP) problem statements can be accessed on <http://trb.org/CRP/About/DivD.asp>. PDF files are posted for the National Cooperative Highway Research Program (NCHRP) for each year, beginning with 2003. PDF files for the Airport Cooperative Research Program (ACRP) and Transit Cooperative Research Program (TCRP) are posted for each program, each year, beginning with 2008. In addition, states, consortium, and other organizations may post unfunded research needs. In an effort to develop a "one-stop shop" for research needs, the AASHTO Research Advisory and TRB Conduct of Research (CoR) Committees have created a Google Transportation Research Needs Meta Search (<http://www.google.com/coop/cse?cx=006511338351663161139%3Avblegi9v2au&hl=en>). This search tool simultaneously searches RNS, TERI, and unfunded pooled-fund studies and CRP problem statements. This search tool is updated as new sources of research needs are identified.

Recently, TRB and AASHTO have agreed to coordinate research ideas. All RNS environmental research ideas will be searchable in the TERI database. Also, all TERI entries will be reviewed for possible vetting by the appropriate TRB committee. Those vetted will be added to the TRB RNS database

#### **Ongoing Research**

- **RiP:** TRB's Research in Progress (RiP) Database (<http://rip.trb.org>) contains more than 10,000 current or recently completed research projects from the state departments of transportation, the U.S. Department of Transportation, University

Transportation Centers, TRB, and international organizations. The RiP website allows users to search and locate organizations and individuals conducting research on topics of interest. The RiP Database provides contact information for agencies and individuals involved in research, thereby facilitating the networking and sharing of research information and preventing duplication.

- **Websites:** A number of individual websites may also be searched for ongoing research, including those of state DOTs, universities, and other organizations. However, the RiP Database is intended to be the one-stop shop for ongoing transportation research. State DOT research and development websites can be accessed via the AASHTO Standing Committee on Research and the RAC website ([cms.transportation.org/?siteid=55&pageid=873](http://cms.transportation.org/?siteid=55&pageid=873)).

### Completed Research

- **TRIS:** The Transportation Research Information Services (TRIS) Database was developed in the 1960s. Today TRIS contains more than 700,000 records of published transportation research covering all modes and disciplines, making it the largest resource on published transportation research. Articles from more than 500 journal titles are indexed into TRIS along with conference papers, technical reports, and books. TRIS is a cooperative database, receiving records from the transportation libraries at Northwestern University and the University of California, Berkeley; the Transportation Association of Canada; and the International Transport Research Documentation (ITRD) database in Europe. Last year a database of environmental impact statements from Northwestern University's Transportation Library and records of theses and dissertations were added to TRIS. TRIS contains links from the TRIS records to the full text of documents or direct ordering information when available. Recently, links were added to aid users in finding a library that owns the document. Since 2000, all of TRIS except the ITRD records have been available on the web as TRIS Online (<http://ntl.bts.gov/tris>) through a cooperative agreement with the National Transportation Library at the U.S. Department of Transportation. TRIS is also available through two commercial vendors—TRANSPORT, from Ovid; and TRIS, on Dialog. For further information on TRIS, visit the TRIS website at <http://tris.trb.org/about/>.
- **WorldCat:** The largest database of library collections in the world is WorldCat. TLCat (<http://firstsearch.oclc.org/WebZ/FSPrefs?entityjsdetect=:javascript=true:screenize=large:sessionid=fsapp3-55767-fk2mznwi-2jgpc8:entitypagenum=1:0>) is a subset of WorldCat, which searches more than 20 transportation libraries (public and private) for published material. WorldCat is maintained by the Online Computer Library Center (OCLC) ([www.oclc.org/us/en/global/default.htm](http://www.oclc.org/us/en/global/default.htm)).
- **NTL:** The National Transportation Library (NTL) provides an integrated search tool (<http://ntlsearch.bts.gov/tris/index.do>) to search TRIS Online, NTL catalog, NTL Digital Repository, and other websites, either individually or together. The NTL offers other resources for transportation information on the home page (<http://ntl.bts.gov/>):

including topical bibliographies, rural and agricultural transportation resources, transportation statistics, and legislative and regulatory resources.

- **Websites:** Various websites that exist to search completed research include those of state DOTs and universities.

## CHAPTER 5

### General Advice and Summary

Transportation professionals across the world are facing very difficult challenges. They are asked to provide improved transportation systems with limited funding, answer increasingly sophisticated questions, and consider an ever-increasing number of factors in their decision making. The transportation community is, therefore, putting an increased emphasis on basic research, policy studies, and case studies. Because funding for transportation research has not kept up with this demand, existing research programs are very competitive. When submitting a research statement, the following things should be kept in mind to maximize the chance of success:

- **Identify Clear Needs:** In many programs your research statement will compete with research needs in a wide variety of topics such as environmental considerations, materials and construction, traffic and mobility, bridges and structures, policy, and finance. Given the competitiveness, it is important to identify your research need as clearly as you can, as well as the impacts of taking no action and the potential benefits.
- **Do Your Homework:** Project proponents who fail to do their homework do not fare well. Provide background information, appropriate context, and a summary and discussion of completed and ongoing research so that reviewers are assured that you are aware of related work and understand the scope and intent of the funding program.
- **Discuss the Idea with Peers:** It's important to use your peers to build an interested and supportive constituency and to help improve the definition of the research statement.
- **Plan for Implementing Results:** Much of the research conducted in the transportation field is applied. It is helpful to consider how research results will be used and communicate the uses early in the research statement development process. Is particular software necessary as an analytical tool? What details must be known to incorporate a change into a design manual? What information could drive a policy change? Who will make such changes and therefore needs to be aware of your project and ownership of the results?

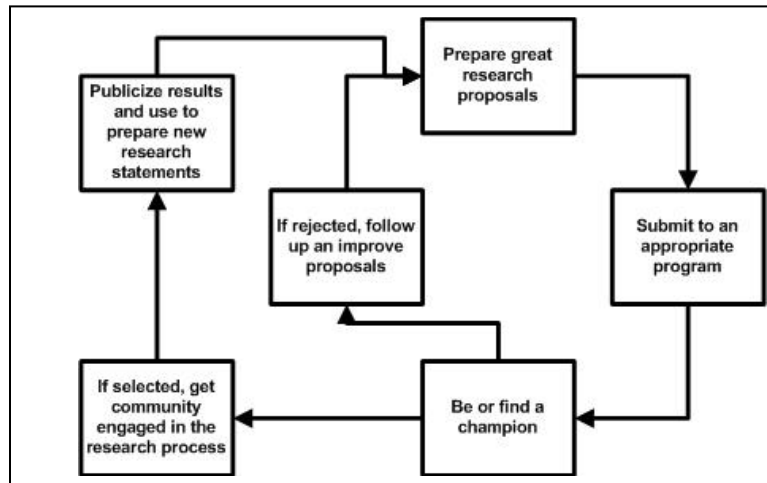
In addition to these suggestions, a lengthier discussion on writing effective research statements can be found in Appendix B.

After writing and submitting the best statement you can, your work is not over. You must be a champion for the research statement and shepherd it through the submittal and selection process. If you can find another champion on the selection panel, make contact and offer to provide additional information if needed and generally emphasize the importance of the topic. Figure 4 illustrates the importance to research proposals of following up.



If the project is not selected, follow up with the program staff to learn how to improve either the same topic or future topics you might submit. Often the program staff can provide comments for the selection panel.

If the project is selected, you are still not “home free.” Any help you can provide the program staff, oversight panel, or consultants will improve the final product. Help can take many forms and is largely dependent on the type of research being conducted. For case studies or syntheses of practices, you might be able to provide contacts with agencies or individuals that have experience in the area, or you could encourage the community to respond to surveys or questionnaires.



**Figure 4. Following up on research proposals.**

In closing, as a living document, this funding source guide website will only be as strong as the community involvement in its continued update and improvement. Appendix D contains a form to submit information on additional programs. If you have any suggestions, additions, or corrections, please contact Kim Fisher at the Transportation Research Board, [kfisher@nas.edu](mailto:kfisher@nas.edu).

## **APPENDIX A**

### **How to Write an Effective Research Statement**

Writing an effective research statement is not a simple matter, even to transportation practitioners who face serious problems and challenges on a daily basis. The research needed might be obvious to them but difficult to describe to non-specialists. They may not have thought about how to quantify it or how to justify the needed research with respect to other agency or national priorities. A serious problem to them might not even be on a decision maker's radar screen.

This document was written to provide some guidance on developing research statements for funding consideration. The categories below are based on those of the National Cooperative Highway Research Program, but they should be adaptable to any research funding program.

#### **Title**

The research statement title should briefly and immediately convey to the reader what the proposed study is about. It does not have to capture every element, nuance, and expected task of the research problem. It is like the title of a book—it should attract your attention, quickly convey the subject, draw you in, and make you want to read what's inside.

Here's a general rule: the more deeply you are involved in a particular subject, the harder it is for you to step back and see the big picture. You may be tempted to title your research statement something like this . . .

Collection, analysis, and compilation of current best practices for the design of roundabouts for U.S. roadways and how those design elements will impact safety, capacity, and contribute to effective traffic management objectives . . .

rather than this . . .

Design guide for roundabouts.

The first alternative might be a good title for a PhD thesis; the second title is a far better choice for a research statement.

How will a title reflect on the research statement? Can it really have an impact on whether or not it is funded? The answer is yes, for at least three reasons:

- Branding is important—a good title will help the reviewer establish a connection with your proposal;
- A negative first impression is likely to linger as the reviewer reads the rest of the research statement; and

- If the title is confusing, chances are the rest of the research statement will be just as hard to understand.

A good title is like a good sound bite—people will remember it.

*Hint: Look at every word in your title and ask yourself if it's necessary.*

## **Background**

The background statement is your opportunity to convince the reviewer that the research statement addresses a serious issue and merits funding. It should set the context and relate the particular issue to larger national or regional goals and objectives. If the research statement is about some new technology that can reduce the severity of vehicle crashes, begin with statements about the overall importance of road safety. Talk about the economic and societal costs of crashes. Talk about national goals to improve road safety. Then describe how the particular subject of your research statement relates to those national or agency needs.

Similarly, if you are proposing a study that will reduce congestion on urban streets, describe the extent of the problem. How much time is lost due to congestion nationally? How much does it impact air quality? How does your particular problem contribute to the solution? If your research statement describes a method or practice that will improve efficiencies in your agency procedures, how much time is wasted by current methods?

Do your homework. As best you can, estimate how much time, money, or lives are lost as a result of this specific problem you want to address. Think about it: If you can't estimate that, why should you expect your project to be funded?

Don't be parochial. Demonstrating that something is a serious problem in your state doesn't make it a national issue. If you know that this problem is affecting other regions or states, name them in your research statement. The more people affected, the greater the payoff if the problem is solved. Involve others and garner support. If you can get other agencies or committees to endorse your research statement, you're doing a better job of demonstrating that the effort warrants funding.

*Hint: When writing the background section, keep thinking "Why should my CEO care about this problem?"*

## **Objective**

Describe in very brief terms what the expected product of this research will be. The objective should be short, concise, and accurate. Don't put details in the objective related to how the study will be done unless some new or innovative research methodology is the key element of the research. The details will be in the research plan and reflected in the final product. If your objective is "to produce a new fuel-efficient vehicle," say so. Don't say that the objective is "to produce a new fuel-efficient vehicle,

including the design, construction, testing, and installation of all necessary components including body, frame, power train, tires, wheels, seats, mirrors, and other appurtenances to be determined through a survey of user needs, performance measures, and financial constraints.” If those things need to be done to accomplish the objective, put them in task statements.

*Hint: Go back and read the advice above on titling your research statement. A very reasonable objective statement is “...to develop (insert your title).”*

## **Potential Benefits**

This is where you need to justify the funding of your research statement. If the program can only fund 20 projects from a pool of 50 good research statements, why should yours be picked? You need to be specific and provide as much detail as you can on the potential benefits of your project. What are the consequences of *not* doing this work? How will it affect productivity, budget, and customers’ quality of life? Here are some examples of compelling statements, *if* they are justifiable:

“Streamlining the review process could cut 6 months off average project delivery times.”

“Sixty-five percent of road users indicate that this is a major problem. Resolving this issue could result in a significant increase in customer satisfaction.”

“If this project is brought to a successful conclusion with the results implemented, and can produce only a 2 percent increase in pavement life, the savings to highway agencies and road users could be in excess of \$5 million a year.”

“This project is a necessary step in the development of an overall safety plan that could save thousands of lives every year.”

*Hint: Be positive but honest. Use real numbers if you can measure or estimate them.*

## **Relationship to the Existing Body of Knowledge**

The first time a reviewer reads your research statement, it will probably remind them of other projects they’ve heard about on the same or similar topics. They may believe that your research is duplicative of work that has already been done. You need to anticipate this and explain how your project is different—how it builds on the existing body of research, how your proposed study takes a different approach, how it uses new methodologies or expanded data sets, or how it pulls together all the existing work into an implementable product. Describe any shortcomings or deficiencies in the current body of research and show how your project will address them.

Base your comments on a thorough review of the relevant literature and ongoing research. The places to start in the transportation sector are TRIS (Transportation Research Information Services) Online and the Research in Progress (RIP) databases. If you need help, contact your librarian or information specialist. If you don’t have one,

contact a major reference library or the TRB information services. If your research statement fails to find or identify a high profile project on the same or similar topic, your credibility will be suspect.

*Hint: Be specific in describing the research statement's relationship to the existing body of knowledge. Reference the most significant related studies by name and discuss how your project will advance the state of knowledge and yield new or additional practical benefits.*

## **Tasks**

If you have identified specific tasks that absolutely have to be part of the project work plan, include them in the research statement. However, don't let your own biases determine the research plan. Focus your attention on providing a full and accurate description of the final product. To the extent possible, give the proposing research team the flexibility to describe a research plan that they feel will accomplish the project objectives.

*Hint: The more detail you include in the task statements, the less opportunity a researcher has to show initiative and innovation, and the more every proposal will come in looking the same. Don't be prescriptive.*

## **Follow-on and Implementation Activities**

Good research advances the state of knowledge in transportation. For long-term, strategic research, several phases of research may be needed to achieve an implementable solution. Address follow-on research as well as implementation in your research statement to demonstrate that you are aware of the scale and scope of the research, the potential barriers and impediments to implementation, and the activities and champions needed to support the end work. This increases the comfort level of the funding agency in believing that the results of the research project have a good chance of finding their way into practice and hence yield the benefits to their fullest potential. If you are developing a product that will require ongoing maintenance (like software or a website clearinghouse), make sure you identify who will take responsibility for it.

*Hint: If you are aware of a specific national body that will need to take ownership of the project results, identify them in your research statement. It may be an AASHTO committee representing the stakeholders in this particular subject area in all 50 states. Make sure this group is aware and supportive of your research statement.*

## **Estimated Funding Requirements**

This may be the most difficult part of the research statement if you do not have research experience in the academic or private sector. How can you possibly estimate how much money will be needed to achieve the project objectives? Here are some general guidelines.

What kind of tasks do you anticipate? What is a reasonable amount of time to accomplish these tasks? Personnel time will most likely make up the majority of the budget. Will the tasks be labor intensive, require specialized equipment, or a specific software? If field or laboratory testing will be required, it will be more expensive than “desk-based analysis.” If specialized equipment or software must be purchased or developed, the costs can escalate quickly.

Get familiar with the charge-out rates of academics and private consultants. You are not simply paying the researchers’ salaries; you are also paying for their overhead, benefits, administrative costs, and all direct expenses. Bear this in mind when estimating the total cost for each person-year of work on the project. A private consulting firm will add a fixed fee as their profit margin.

Some programs leave the budget estimate to the research statement submitter; statements should identify the funds needed and provide a budget, and cost is one of the evaluation criteria. In other programs, like the NCHRP, a fixed amount is provided by the funding body. If submitting to an existing program, take a look at other projects funded by the same program and determine the typical funding range. If you propose an amount well beyond this, you had better be prepared to back it up with a high estimated payoff. On the other hand, don’t lowball the figure. If you can’t achieve the project objectives with the amount you requested, the funding body is not likely to be receptive when you come back and ask for more.

*Hint: If you work with consultants or academics on TRB or other committees, talk with them about the level of resources needed to undertake the work. They are in a position to review the project objectives and help you come up with a reasonable budget estimate.*

## **Concluding Comments and Tips**

There are many different research funding programs out there. If you can identify the most appropriate program for your research statement, you can tailor it for the best chance of success.

For the most part, research projects will be selected for funding by “educated generalists”—managers and executives who are not subject experts (or at least not experts in *every* subject). That is the audience for whom you need to write. Ask someone you know and trust from outside your own field of expertise to review your research statement. If he or she doesn’t understand something in it, chances are many of the reviewers will have the same reaction.

Get as much support as possible for your research statement before you submit it. Show it to your colleagues, other experts, and managers in your organization to get their advice. Modify the statement if necessary to address their ideas. Don’t forget to review the research statement for correct spelling and grammar.

If at first you don't succeed, don't give up. If your research statement is not selected, find out why. If possible, get the reviewers' comments. Did the reviewers understand the research statement? If not, what could you have done to make it more understandable? Was it considered a good statement but not a top priority or not a high potential payoff? If so, did you do a sufficient job estimating and describing the potential benefits?

*Hint: Don't be discouraged or embarrassed by constructive reviews; they are the best guidance you will ever get for writing better research statements.*

Good Luck!

## APPENDIX B

### Summary Table of Research Programs

**Table C1. Summary of Research Programs**

	<b>Geographic Relevance</b>	<b>Mode or Topic</b>	<b>Immediacy</b>	<b>Recent Funding Range</b>	<b>Partnering</b>	<b>Project Type</b>
<b>National Cooperative Highway Research Program (NCHRP) Regular Projects</b>	National	Highways, general	Yearly: September submission; May/June award	\$200,000–600,000	Not available	Standard
<b>NCHRP International Scans</b>	National	General	Yearly	\$850,000 annually for about 4 scans	Ability to co-fund is a selection factor; FHWA offices that submit proposals must fund 25%	Scan of international research
<b>NCHRP Domestic Scans</b>	National	General	Yearly	\$80,000–150,000	Not available	Scan
<b>NCHRP Quick Response Project for the AASHTO Planning Committee</b>	National	Highways	Quick response	\$50,000–100,000	Proposals including cost sharing may receive preference	Standard
<b>NCHRP Quick Response Project for the AASHTO Environmental Committee</b>	National	Environment	Quick response	\$50,000–100,000	Proposals including cost sharing may receive preference	Standard
<b>Research on Administration of Highway and Transportation Agencies</b>	National	Administration of state DOTs	Quick response	\$75,000–367,000	Not available	Often awarded to task-order contractors



	<b>Geographic Relevance</b>	<b>Mode or Topic</b>	<b>Immediacy</b>	<b>Recent Funding Range</b>	<b>Partnering</b>	<b>Project Type</b>
<b>NCHRP Quick Response Project for the AASHTO Highways Committee</b>	National	Highways; engineering and operations guides, standards, and policies	Quick response	\$25,000–100,000	Not available	Standard
<b>NCHRP Quick Response Project for the AASHTO Public Transportation Committee</b>	National	Transit	Quick response	\$25,000–100,000	Not available	Standard
<b>Innovations Deserving Exploratory Analysis (IDEA)</b>	National	Highways, freight and rail safety, transit	Twice yearly for highways and transit: March and September; yearly for safety: March	\$25,000–100,000; \$25,000–150,000 for Highway Program	Cost-sharing may enhance consideration of a proposal	Standard
<b>Airport Cooperative Research Program (ACRP)</b>	National	Air	Yearly: April submission; July award	\$150,000–500,000	Not available	Standard
<b>ACRP Graduate Research Award Program</b>	National	Air	Yearly: June submission; September award	\$10,000	Not available	Graduate research
<b>Transit Cooperative Research Program (TCRP)</b>	National	Transit	Always open; solicitations vary	Up to \$1.3 million	Not available	Standard
<b>TCRP International Transit Studies Program</b>	National	Transit	Twice yearly: surveys in spring and fall	\$425,000 annually	Not available	International survey
<b>National Cooperative Freight Research Program</b>	National	Freight	Yearly: July submission; fall award	\$20,000–500,000	Not available	Standard

	<b>Geographic Relevance</b>	<b>Mode or Topic</b>	<b>Immediacy</b>	<b>Recent Funding Range</b>	<b>Partnering</b>	<b>Project Type</b>
<b>Hazardous Material Cooperative Research Program</b>	National	Hazardous material transportation	Yearly: Oversight committee meets in November	\$300,000–350,000	Not available	Standard
<b>TCRP Synthesis Program</b>	National	Transit	Yearly: March submission; May award	\$30,000	In some cases, agencies augment consultant funding	Synthesis report
<b>NCHRP Synthesis Program</b>	National	Highways	Yearly: February submission; May award	\$30,000	In some cases, agencies augment consultant funding	Synthesis report
<b>ACRP Synthesis Program</b>	National	Airports	Yearly: October submission; December award	\$30,000	In some cases, agencies augment consultant funding	Synthesis report
<b>Commercial Truck and Bus Safety Synthesis Program</b>	National	Commercial truck and bus safety	Not available	\$40,000	In some cases, agencies augment consultant funding	Synthesis report
<b>TCRP Legal Research</b>	National	Transit and intermodal legal issues	Not available	Not available	Not available	Brief of legal issues
<b>ACRP Legal Research</b>	National	Airport legal issues	Not available	\$15,000–80,000	Not available	Brief of legal issues
<b>NCHRP Legal Research</b>	National	Highway legal issues	Not available	\$24,000–100,000	Not available	Brief of legal issues
<b>Surface Transportation Environment and Planning Cooperative Research Program</b>	National	Environment	Yearly	\$20,000–750,000	Requires 50% nonfederal match; proposals including cost sharing may receive preference	Standard
<b>Safety Innovation Deployment Program</b>	National	Safety	Not available	Annual budget of about \$12 million	Requires 20% nonfederal match	Standard

	<b>Geographic Relevance</b>	<b>Mode or Topic</b>	<b>Immediacy</b>	<b>Recent Funding Range</b>	<b>Partnering</b>	<b>Project Type</b>
<b>Exploratory Advanced Research</b>	National	Safety, environment, congestion	Yearly: May submission; September award	\$500,000–2,000,000	Requires 20% nonfederal match	Standard
<b>Small Business Innovation Research Program</b>	National	General	Twice yearly: April and November submissions	\$100,000–750,000	Not available	For small businesses
<b>Remote Sensing and Spatial Technology Program</b>	National	Remote sensing, spatial information	Not available	\$600,000–1,800,000	Requires 50% nonfederal match	Standard
<b>Intelligent Transportation Systems Program</b>	National	Intelligent vehicles and infrastructure	Posted by project; selection may take several months	\$300,000–3,000,000+	Not available	Standard
<b>Federal Transit Administration National Research and Technology Program</b>	National	Transit technology	Posted by project	\$50,000–1,000,000+	Requires 50% nonfederal match	Standard
<b>State Planning and Research Funds</b>	State or national	General	Varies by state	\$5,000–1,000,000+	Requires 20% nonfederal match	Typically applied research
<b>Transportation Pooled Fund Programs</b>	Regional or national	General	May take over a year to initiate	\$300,000–1,000,000+	Not available	Standard
<b>University Transportation Research Centers</b>	State or national	General	Varies by center	\$10,000–2,200,000+	Requires 50% nonfederal match	Standard

## APPENDIX C

### Transportation Research Program Additions and Changes and Link to New Program Submittal Form

To submit changes, corrections, updates, or additional information on programs already included on the web page, please email Kim Fisher at [kfisher@nas.edu](mailto:kfisher@nas.edu). General suggestions to improve the web page may also be sent to Kim.

To provide information on new programs to be added to the web page, please go to **ZOOMERANGE SITE ADDRESS** to submit the program details. You will need to provide the following information:

10. Program Title and Agency
11. General Description
12. Type of Research Funded
13. Funding Levels and Project Time Frame
14. Schedule
15. Project Solicitation and Submission
16. Selection Process
17. Project Selection Criteria and Tips for Writing Winning Research Statements
18. Further Information (web address and contact information)

***Please remember that only programs that accept research statements from the larger transportation community will be included on this web page.*** If you have any questions please email Kim before starting.