

# WSDOT Research Procedures Manual

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*February 2017*

## **FOREWORD**

### **February 2017**

The WSDOT Office of Research and Library Services (RLS) oversees WSDOT's transportation research program. This research program addresses specific needs, problems and questions that improve the agency's ability to deliver transportation projects and operate a safe and efficient system. The following policies instruct the identification of priority research needs, the procurement and management of research projects and the implementation and sharing of relevant results. This manual fulfills the Federal Highway Administration (FHWA) requirement (23 CFR 420.205g) that each state DOT certify that their research program conforms to a pre-approved management process.

## ORGANIZATION OF THE DOCUMENT

**Section One: Overview** – Explains what constitutes WSDOT’s Research Program.

**Section Two: Roles and Responsibilities** – Describes research project participation and research staff roles and responsibilities in carrying out WSDOT research activities.

**Section Three: Procedures for Research Management** – Describes specific procedures and protocols to assist WSDOT staff, Federal Highway Administration (FHWA) staff, Principal Investigators and other interested parties with the directions they need to participate in a particular research program or aspect of a research project.

**Section Four: Research Implementation** – Identifies the specific project requirements, from proposal development to final reporting, that promote implementation of relevant findings on completion of the research project.

**Section Five: Research Reports** – Defines the WSDOT requirements for preparing research reports funded by WSDOT.

**Section Six: Research Program Review** – Describes the ways the WSDOT Research Program is externally monitored and reported.

**Section Seven: Research Resources** – Provides a quick reference for accessing ongoing and published research.

## ***Acronym List for WSDOT Research Procedures Manual***

AID	Accelerated Innovation Deployment
AASHTO	American Association of State Highway and Transportation Officials
ACRP	Airport Cooperative Research Program
CFO	Chief Financial Officer
CFR	Code of Federal Regulations
CMAQ	Congestion Mitigation and Air Quality
COTR	Contracting Officer's Technical Representative
CRP	Cooperative Research Program
CSR	Client Sponsored Research
DCERO	WSDOT Deputy Chief Engineer for Regional Operations
DELPHI	FHWA's Financial System
EDC	Every Day Counts
FAPA	Federal Aid Project Authorization
FFY	Federal Fiscal Year
FHWA	Federal Highway Administration
FMIS	FHWA's Funds Management Information System
FTA	Federal Transit Administration
GCA	Governmental Contract
HSIP	Highway Safety Improvement Program
IDEA	Innovations Deserving of Exploratory Analysis
IM	Interstate Maintenance
ITRD	International Transport Research Documentation
MG	Minimum Guarantee
NCHRP	National Cooperative Highway Research Program
NHS	National Highway System
NTIS	National Technical Information Service

NTL	National Transportation Library
OCLC	On-Line Computer Library Center
OFM	Office of Financial Management (State)
OMB	Office of Management and Budget (Federal)
PacTrans	Pacific Northwest Transportation Consortium (Region 10 UTC)
PI	Principal Investigator
PS&E	Plans, Specifications, and Estimates
QR	Quick Response Research
RAC	AASHTO Research Advisory Committee
RDT	Research, Development and Technology
RFP	Request for Proposals
RFQ	Request for Qualifications
RiP	Research in Progress
RLS	WSDOT Research and Library Services
RNS	Research Needs Statements
RPMD	Research Project Management Database
SCOR	Standing Committee on Research
SHRP2	Second Strategic Highway Research Program
SPR	State Planning and Research
STIC	State Transportation Innovation Council
STP	Surface Transportation Program
TAC	Technical Advisory Committee
TCRP	Transit Cooperative Research Program
TPF	Transportation Pooled Fund
TRAC	Washington State Transportation Center
TRB	Transportation Research Board
TRIS	Transportation Research Information Services
USDOT	United States Department of Transportation
UTC	University Transportation Center

UW	University of Washington
WA-RD	Washington Research Document
WASHTO	Washington Association of State Highway and Transportation Officials
WSDOT	Washington State Department of Transportation
WSU	Washington State University

## **SECTION ONE: OVERVIEW**

Research and Library Services (RLS) houses WSDOT's Research Program which conducts research and development projects to better understand why certain problems occur and how to prevent or correct them through improved information, technology, or processes. The program uses systematic inquiry to improve the agency's ability to deliver transportation projects and operate a safe and efficient transportation system.

The WSDOT Research Program includes:

- State Planning and Research (SPR) funded projects
- Quick Response (QR) Research
- Client Sponsored Research (CSR)
- Research Intern Program
- Research Project Management Database (RPMD)
- Transportation Pooled Fund (TPF) Studies
- Research Project Management Database (RPMD)
- Research and Customer Service Surveys
- Experimental Features
- Federal Discretionary Funds
- Cooperative Research Program (CRP) activities
- FHWA Center for Accelerating Innovation (CAI)
- Every Day Counts (EDC)
- State Transportation Innovation Council (STIC)
- Technology and Innovation Deployment Program (TIDP)
- Second Strategic Highway Research Program (SHRP2)
- Accelerated Innovation Deployment (AID)
- Synthesis Programs
- Innovations Deserving of Exploratory Analysis (IDEA) activities
- University Transportation Centers (UTC)
- UTC Small Project Match
- Pacific Northwest Transportation Consortium (PacTrans)
- Transportation Research Board (TRB) Technical Committees

## **RESEARCH PROGRAM OVERVIEW**

A variety of transportation research programs are available to help transportation agencies address their research needs. Programs vary by intent, geographic coverage, and the degree of competitiveness.

WSDOT intends to use each of the programs for the maximum benefit to the agency. This section summarizes the programs that WSDOT uses to fund transportation research.

### ***State Planning and Research (SPR)***

Title 23, U.S. Code Section 505 (b) (1) requires at least 25% of the SPR apportionment (or its equivalent from other authorized sources) be used for research activities. A 20% state match is required. The state match is provided from the Motor Vehicle Fund and the Multimodal Fund.

The SPR research funding can be used for research, development, and technology transfer activities. The funding is managed by the Director of Research and Library Services. Projects are selected on a biennial basis in the fall of even years.

States set aside 2 percent of the apportionments they receive from the Interstate Maintenance (IM), National Highway System (NHS), Surface Transportation Program (STP), Congestion Mitigation and Air Quality Improvement (CMAQ), Bridge programs, and the Highway Safety Improvement Program (HSIP) as the Base Minimum Guarantee to fund the SPR Program.

### ***Quick Response (QR) Research***

The Quick Response Research program is a small set aside of the SPR program that is intended to address high-priority, opportunistic or emergent research needs as they arise outside of the biennial SPR project selection schedule. Projects are expected to be completed within approximately one year and are typically \$20,000 or less.

### ***Client Sponsored Research (CSR) Projects***

Some WSDOT Programs, Divisions, and Project Offices conduct research and experimental activities in addition to research funded by the SPR program. These projects are administered by the Research Office upon request, are referred to as Client Sponsored Research (CSR) projects, and can be funded by various federal, state or local funding sources.

### ***Research Intern Program***

The Research Intern Program is a small set aside of the SPR program that provides funding for WSDOT programs to hire college/university students that are interested in the transportation field. These are 3 to 5 month appointments. The interns support WSDOT managers statewide with small scale, short term research projects that involve collecting and analyzing data, conducting field surveys, assessing data to determine an outcome or results, and reporting findings and conclusions. A final presentation to WSDOT staff is also a requirement.

### ***Transportation Pooled Fund (TPF) Program***

The Federal Highway Administration (FHWA) facilitates the management of the Transportation Pooled Fund Program as a means for interested States, FHWA, and other organizations to partner when significant or widespread interest is shown in solving transportation-related problems. Partners may pool funds, including SPR funding, and when approved by FHWA SPR funds may be used without matching state funds. One partner state, identified as the Lead State, is responsible for coordinating all financial, contracting, and administrative duties related to managing the Pooled Fund. Activities may include research, planning, or technology transfer activities and may be jointly funded by several federal, state,



regional, and local transportation agencies, academic institutions, foundations, or private firms as a pooled fund study.

WSDOT estimates that for each dollar it contributes to TPF Studies, approximately ten dollars are gained from other contributors. More information about the Transportation Pooled Fund Program may be found at [Turner Fairbanks](#) or the [Pooled Fund](#) websites.

### ***Research Project Management Database (RPMD)***

The RPMD is a database used to track and monitor research projects. It includes all project related information, such as problem statements, budgets, expenditures, contracts and agreements, research reports, and implementation status. It also has a reporting module that enables the development of standard reports for management use.

### ***Research and Customer Service Surveys***

RLS offers surveys of other state DOTs and AASHTO member agencies and affiliates. The surveys are intended to support WSDOT customers of RLS by providing information about state of the practice in other state DOTs.

If a more robust survey effort is needed, we contract these services through our academic partners.

### ***Experimental Features Program***

The Experimental Features program is sponsored by FHWA to allow state departments of transportation to evaluate new or innovative highway technology or alternative standard technology under actual construction and operating conditions. An experimental feature can include the use of materials, processes, methods, equipment items, traffic operational devices, or other features that have not sufficiently been tested under actual service conditions or needs to be compared to an alternative for determining cost-effectiveness. Experimental Features are incorporated into federal-aid highway construction projects to determine the suitability of the features as regular construction items. More information can be found at FHWA's [Experimental Features](#) website.

### ***Federal Discretionary Funds***

Research activities may also be funded through federal discretionary programs, more commonly known as “earmarks” that are identified and approved by Congress. These projects are sponsored by one or more members of Congress and may be research oriented. Requests for possible earmarks may be made at the beginning of each year. Requests for Congressional support of proposed earmarks are approved by Executive Management prior to being submitted to individual Congressional members. Other transportation partners, such as the state’s universities, may also request federal earmarks for research.

### ***Cooperative Research Program***

The Cooperative Research Programs are managed by the Transportation Research Board (TRB) and are applied, contract research programs that develop near-term, practical solutions to problems facing transportation agencies. WSDOT may recommend problem statements for study and nominate employees for oversight panels. Cooperative Research Programs include:

- Airport Cooperative Research Program (ACRP) problem statements are solicited periodically but may be submitted to TRB by anyone at any time.

- National Cooperative Highway Research Program (NCHRP) problem statements are due October 15 of each year.
- Transit Cooperative Research Program (TCRP) problem statements are solicited periodically but may be submitted to TRB by anyone at any time.

All [Cooperative Research Programs](#) are managed by the Transportation Research Board (TRB).

### ***FHWA Center for Accelerating Innovation (CAI)***

In April 2012, the FHWA established the [Center for Accelerating Innovation \(CAI\)](#) to serve as the focal point for coordination of internal and external efforts to identify and prioritize innovations by developing, launching, and administering strategic innovation deployment programs such as [Every Day Counts \(EDC\)](#). In the administration of these cross-cutting programs, the CAI is responsible for developing a national network for innovation deployment and for stakeholder collaboration within the highway transportation community, most notably through the [State Transportation Innovation Council \(STIC\)](#) network.

### ***Every Day Counts (EDC)***

The Federal Highway Administration (FHWA) launched Every Day Counts (EDC) in cooperation with the [American Association of State Highway and Transportation Officials \(AASHTO\)](#) to speed up the delivery of highway projects and to address the challenges presented by limited budgets. EDC is a state-based model to identify and rapidly deploy proven but underutilized innovations to shorten the project delivery process, enhance roadway safety and durability of roads and bridges, reduce congestion and improve environmental sustainability. Through the EDC model, FHWA works with state and local transportation agencies and industry stakeholders to identify a new collection of innovations to champion every two years. Innovations are selected collaboratively by stakeholders, taking into consideration market readiness, impacts, benefits and ease of adoption of the innovation.

### ***State Transportation Innovation Council (STIC)***

The Federal Highway Administration (FHWA) State Transportation Innovation Council (STIC) Incentive program provides resources to help STICs foster a culture for innovation and make innovations standard practice in their States. A STIC brings public and private transportation stakeholders together to evaluate innovations and spearhead deployment in their state. This puts each state's transportation community in the driver's seat when it comes to selecting innovations that best fit their program needs and then putting those innovations into practice quickly.

The STIC Incentive program offers federal funding of up to \$100,000 per state, per federal fiscal year to support or offset some of the costs of standardizing innovative practices in a state transportation agency or other public-sector STIC stakeholder. Funding is administered by the FHWA Center for Accelerating Innovation through the Technology and Innovation Deployment Program (TIDP). STIC incentive funds for eligible projects provide the federal share of 80 percent. The 20 percent non-federal match may come from project sponsors or other allowable funding sources.

STIC Incentive funding may be used to conduct internal assessments; build capacity; develop guidance, standards, and specifications; implement system process changes; organize peer exchanges; offset implementation costs; or conduct other activities the STIC identifies to address TIDP goals and to foster a culture for innovation or to make an innovation a standard practice in the STA or other public sector STIC stakeholder.

## ***Technology and Innovation Deployment Program (TIDP)***

The cross-cutting innovation deployment programs administered by the CAI are funded through the FHWA's [TIDP](#). The TIDP funds efforts to accelerate the implementation and delivery of new innovations and technologies that result from highway research and development to benefit all aspects of highway transportation. The TIDP includes three initiatives: accelerated innovation deployment (AID), second strategic highway research program ([SHRP2](#)), and accelerated implementation and deployment of pavement technologies. The TIDP relates to all aspects of highway transportation including planning, financing, operation, structures, materials, pavements, environment, and construction.

## ***Accelerated Innovation Deployment (AID) Demonstration Program***

The AID Demonstration program provides funding as an incentive for eligible entities to accelerate the implementation and adoption of innovation in highway transportation. The AID Demonstration program is one initiative under the multi-faceted Technology and Innovation Deployment Program (TIDP) approach providing funding and other resources to offset the risk of trying an innovation. The AID Demonstration funds are available for highway transportation projects in any phase between project planning and project delivery including: planning, financing, operation, structures, materials, pavements, environment, and construction. Projects eligible for funding shall include proven innovative practices or technologies such as those included in the EDC initiative. Eligible entities include state departments of transportation (DOT), Federal Land Management Agencies, and tribal governments as well as metropolitan planning organizations (MPOs) and local governments which apply through the state DOT as sub recipients. WSDOT has successfully applied for and received awards under this program.

## ***Second Strategic Highway Research Program (SHRP2)***

[SHRP2](#) is a targeted, short-term, results-oriented program of strategic highway research designed to advance highway performance and safety for U.S. highway users. SHRP2 focuses on applied research in four areas in order to meet the following goals:

- **[Safety](#)**: Significantly improve highway safety by understanding driving behavior in a study of unprecedented scale
- **[Renewal](#)**: Develop design and construction methods that cause minimal disruption and produce long-lived facilities to renew the aging highway infrastructure
- **[Reliability](#)**: Reduce congestion and improve travel time through incident management, response, and mitigation
- **[Capacity](#)**: Integrate mobility, economic, environmental, and community needs into the planning and design of new transportation capacity

The Expert Task Groups (ETGs) prepare the proposals which are then posted for solicitation on the website. WSDOT may nominate employees to serve on the ETGs. The SHRP2 Program is ending after the current Round 7 projects are completed in the 2017-19 biennium.

## ***Synthesis Programs***

The Synthesis Programs prepare summaries of current practice in three areas of transportation:

- Airport Cooperative Research Program ([ACRP](#))
- National Cooperative Highway Research Program ([NCHRP](#))

- Transit Cooperative Research Program ([TCRP](#))

Synthesis topics can be proposed at any time via each of the program's websites. The reports are prepared under the guidance of a technical panel, with the assistance of an expert in the topic area who serves as the project consultant.

WSDOT may submit proposals for synthesis studies and nominate employees for oversight panels.

### ***Innovations Deserving Exploratory Analysis***

Innovations Deserving Exploratory Analysis ([IDEA](#)) is a TRB program to fund investigations of promising but unproven innovations in highway and intermodal surface transportation systems.

- [NCHRP Highway-IDEA](#) –The program nurtures new concepts for technologies, methods, and processes for application to highway systems in broad technical areas such as highway design and construction, materials, operations, and maintenance.
- Rail [Safety-IDEA](#) –The program focuses on innovative technologies to improve railroad safety and operations.
- [Transit-IDEA](#) – The program focuses on products and results for transit practice in support of the Transit Cooperative Research Program (TCRP).

WSDOT may submit proposals for each of these areas. For proposal deadlines go to: [trb.org/IDEAProgram/IDEAProgram.aspx](http://trb.org/IDEAProgram/IDEAProgram.aspx) .

### ***University Transportation Centers (UTCs)***

The United States Department of Transportation (USDOT) provides funding 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. These UTCs each facilitate a program of research in a theme area. As a result of the FAST Act, signed by President Obama on December 4, 2015, USDOT hosted a grant competition which resulted in the announcement of 32 UTCs (5 national UTCs at \$2.8 million each; 7 regional UTCs at \$2.57 million each; and 20 tier 1 UTCs at \$1.4 million each), on December 5, 2016.

These UTCs (encompassing over 100 institutions of higher education nationally) will work with regional, state, and local transportation agencies and private sector partners to help find solutions to challenges that directly impact their communities and affect the efficiency of the nation's transportation system, as well as to educate the next generation of transportation leaders.

It may be possible for WSDOT staff to partner with a university professor to submit a research problem statement for funding to any University Transportation Center ([UTC](#)). If successful, match funding will likely need to be provided. To determine if your research idea is appropriate for a UTC, please contact the Research Manager responsible for research in your area of interest.

### ***The Pacific Northwest Transportation Consortium (PacTrans)***

The Pacific Northwest Transportation Consortium ([PacTrans](#)) is the Region 10 University Transportation Center (UTC) and the primary UTC WSDOT collaborates with on transportation research. PacTrans is a coalition of transportation professionals and educators from Oregon State University (OSU), the University of Alaska, Fairbanks (UAF), University of Idaho (UI), University of Washington (UW), Washington State University (WSU), Gonzaga University and Boise State University. With its focus area

of improving mobility of people and goods, PacTrans serves as an engine and showcase for transportation research, education, and workforce development in the Pacific Northwest.

### ***UTC Small Project Match***

The UTC Small Project Match program is a small set aside of the SPR program that is intended to provide cash match (\$40K or less) for small UTC research projects that are considered of high value to WSDOT.

### ***Transportation Research Board Technical Standing Committees***

The Transportation Research Board ([TRB](#)) is a division of the National Research Council — a private, nonprofit institution that is the principal operating agency of the National Academies in providing services to the government, the public, and the scientific and engineering communities. The National Research Council is jointly administered by the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The Transportation Research Board’s mission is to provide leadership in transportation innovation and progress through research and information exchange, conducted within a setting that is objective, interdisciplinary, and multimodal.

In addition to SHRP2 and the Cooperative Research Programs, TRB manages over 200 Technical [Standing Committees](#) on topics covering all modes and aspects of the transportation industry. WSDOT employees may volunteer to serve on any of the committees. The committees:

- Provide for a mutual exchange of information among committee and task force members on socioeconomic and technological developments
- Identify research needs
- Stimulate needed research
- Advise on research priorities and procedures
- Evaluate and interpret research findings
- Review papers for presentation at TRB meetings and for publication
- Encourage the adoption of appropriate research findings into practice
- Arrange special programs, conferences, and workshops

## **SECTION TWO: ROLES AND RESPONSIBILITIES**

Research and Library Services (RLS) relies on subject matter experts and research workshops for the development of a strategic, multi-modal program of research activities. Anyone within the agency may submit a research problem statement to the Director of RLS. Roles are described for:

- Research and Library Services
- Technical Advisory Committee
- Director of Research and Library Services
- TRB State Representative
- Research Managers
- Subject Matter Experts
- Principal Investigators
- Librarians
- Business Manager and Fiscal Analyst
- Technology Transfer Manager
- Research Partners

### ***WSDOT Research and Library Services (RLS)***

Research and Library Services provides specialized research, information and innovative solutions to support Results WSDOT. RLS manages two program functions known as the Research Office and the WSDOT Library.

The Research Office organizes, manages, and disseminates the results of research conducted within the Department. It coordinates the process for identifying, selecting, and managing research projects funded through the federal state planning and research program. It helps develop and manage research funded by other agency programs or by legislative direction.

The WSDOT Library supports staff, consultants and contractors by finding information on a topic, developing search strategies, conducting literature searches, locating facts and statistics, identifying information and additional sources, and obtaining articles and books through a state and national library network.

Some of the key functions that RLS performs are: maintaining master agreements with research institutions, giving approvals for new projects and research task agreements, making revisions to the program's projects, funding or schedules, helping to identify and foster research partnerships, setting priorities for research, and tracking implementation activities for research results.

### ***Technical Advisory Committees (TAC)***

In most cases, each project will form a TAC to provide additional perspective and advice for the research project. TAC members may include the Subject Matter Expert, the Research Manager responsible for the subject area, agency representatives from other offices with a vested interest, FHWA representatives, and regional/local/or Tribal governments. Technical Advisory Committees will:

1. Finalize the project scope of work
2. Receive updates on project progress

3. Provide technical and policy guidance for the projects
4. Recommend implementation of research results if appropriate

The Technical Advisory Committees are maintained for the life of the project. Meetings are scheduled to provide assistance at strategic milestones in the project.

### ***Director of Research and Library Services (RLS)***

The Director of RLS is responsible for the day-to-day operations. Research management includes developing and conducting research activities within the strategic objectives and policies of the Department, developing policy and procedures, initiating specific projects, participating in research sponsored from non-WSDOT funding sources, providing liaison with executive, university and legislative personnel, and communicating the value of research findings.

The Director of RLS approves all research budgets and ensures that research activities are conducted within the constraints of available resources. The Director of RLS also approves all revisions to approved research projects and any extensions required to complete the research within the limits of the approved work program. A budget change that involves an increase in the total federal funds authorized for the work program requires prior FHWA approval and authorization. The work program is prepared and submitted to FHWA once every two years and is updated every six months in compliance with Title 23 CFR 420.

### ***Research Managers (RMs)***

Research Managers (RMs) report to the Director of RLS. Each Research Manager is responsible for:

1. Developing, administering, and marketing the research programs in his/her functional area.
2. Maintaining knowledge of and understanding research activities and needs in the functional areas assigned, including monitoring of national and international research for potential application within WSDOT.
3. Working with the Subject Matter Expert to develop research problem statements for identified research needs.
4. Helping identify researchers with appropriate skills to conduct research.
5. Acting as a liaison between the Subject Matter Expert and the Principal Investigator on contracts.
6. Facilitating development of a scope of work and task agreement/contract for the research project.
7. Maintaining contact with the Principal Investigator and Subject Matter Expert to ensure that project milestones are met and documented.
8. Reviewing and approving research project invoices.
9. Managing research projects to ensure scope, schedule and budgets are adhered to.
10. Approves all contractual changes related to project scope, budget, and time extensions.
11. Coordinates meetings of technical advisory committees.
12. Reviews and comments on draft final reports and other products of the research.
13. Collaborates with the Subject Matter Expert to formulate strategies for implementing research results.
14. May or may not conduct or assist in research activities.

## ***Subject Matter Experts (SMEs)***

Subject Matter Experts (SMEs) are WSDOT staff with technical knowledge of the research subject. The SME ensures that the research project addresses WSDOT business needs. Each SME:

1. Develops, in coordination with the Research Manager, research problem statements for identified research needs.
2. Reviews and comments on the scope of work for the research project.
3. Identifies intended implementation outcomes of the research project.
4. Identifies and provides a list to the Research Manager, before the scope is finalized, of WSDOT Offices and Regions that will be users of research findings, if appropriate, or will be affected by changes as a result of research findings.
5. Establishes and maintains communication with representatives of these user and customer groups to ensure research products achieve the most comprehensive outcome possible for the resources provided.
6. Remains in contact with the Principal Investigator and Research Manager throughout the project. Notifies the Principal Investigator and Research Manager of questions or concerns regarding project scope or work methods. This may include pre-proposal meetings with prospective PI(s), a project meeting soon after the official start, and in-progress reviews conducted on an as needed basis.
7. Provides a list to the Research Manager of users and customers that should be invited to Progress and Final Review Meetings.
8. Reviews and comments on interim, draft final and final reports and other products of the research.
9. Drafts a summary statement of how the research project findings will/could affect WSDOT business processes.
10. Advises WSDOT managers on implementation of research recommendations or results.

## ***Principal Investigators (PIs)***

The Principal Investigator (PI) is a university professor, a consultant, or agency employee with expertise in the subject area to be studied. The Principal Investigator manages the activity of the research project.

1. Develops a scope of work and a work plan for the project.
2. Identifies/hires staff to perform the research.
3. Provides progress and final reports to WSDOT.
4. Manages the project budget and schedule.
5. Maintains contact with the Subject Matter Expert, Technical Advisory Committee, TRAC Director (if applicable), and Research Program Manager.
6. Participates in outreach activities such as publication, presentation, and summary document development.
7. Prepares final report and supporting documentation.



## ***Librarians***

The WSDOT Library supports agency staff, consultants and contractors with a variety of services. Librarians find information on a topic, develop search strategies, answer reference questions, conduct literature searches, locate facts and statistics, identify pertinent information sources and obtain articles and books through inter-library borrowing.

## ***Business Manager and Fiscal Analyst***

The Business Manager, with the assistance of the Fiscal Analyst, performs the actions necessary to:

1. Prepare, execute and close research contracts.
2. Maintain research project accounts in compliance with standard audit and accounting practices including equipment purchases.
3. Develop the RLS biennial budget and federal aid work program, including modification, if necessary, during the biennium.
4. Serve as a resource to other RLS staff regarding WSDOT fiscal and contract procedures and maintain up to date records on all RLS expenditures.
5. Ensure timely payment of all project invoices.
6. Manage and update the Research Program Management Database (RPMD) for all research projects.
7. Manage, coordinate, and monitor the fiscal aspects of the Transportation Pooled Fund Program.

## **RESEARCH PARTNERS**

### ***Washington State Transportation Center (TRAC)***

[TRAC](#) is a cooperative transportation research partnership. Its members include the University of Washington, Washington State University and the WSDOT. The WSDOT Director of RLS serves as the Executive Director of TRAC and Directors are appointed by each university. Member organizations support TRAC to coordinate transportation research efforts and to develop research opportunities nationally and locally.

TRAC provides a link between WSDOT, university researchers and the private sector. Much of TRAC's research is funded by WSDOT. TRAC acts as a liaison, connecting those who need applied research at WSDOT with those best suited for conducting it at the universities. From its offices at the University of Washington in Seattle and Washington State University in Pullman, TRAC coordinates resources for the research, serves as a focal point for student involvement in transportation research, and provides resources such as report editing and graphics.

### ***University Transportation Centers (UTCs)***

See page 12 for description

### ***The Pacific Northwest Transportation Consortium (PacTrans)***

See page 12 for description

### ***Transportation Research Board (TRB)***

The Transportation Research Board ([TRB](#)) is a division of the National Research Council, which serves as an independent adviser to the federal government and others on scientific and technical questions of national importance. The mission of the TRB is to provide leadership in transportation innovation and progress through research and information exchange, conducted within a setting that is objective, interdisciplinary, and multimodal. The Director serves as the TRB State Representative and acts as a liaison to represent interests of WSDOT.

### ***AASHTO Standing Committee on Research (SCOR) and Research Advisory Committee (RAC)***

The AASHTO Standing Committee on Research ([SCOR](#)) provides oversight to the transportation research community and develops research priorities for the National Cooperative Highway Research Program (NCHRP). The AASHTO Research Advisory Committee (RAC) includes research managers from each state department of transportation and provides input on research needs and priorities. In addition, RAC facilitates surveys that support research and provides a link between Research Directors across the country. The Director of RLS serves on the AASHTO RAC.

### ***Other Partners in Research***

Other organizations that WSDOT partners with on research includes: research institutions (including universities and other government research labs); state and federal agencies; local and tribal governments; non-profit organizations; private companies; and private consultants and colleges. These partnerships currently occur on a project-by-project basis but may become programmatic partnerships on an as needed basis.

## SECTION THREE: PROCEDURES FOR RESEARCH MANAGEMENT

The process of developing the research program involves the collection of research needs and potential solutions from many sources including WSDOT employees, FHWA, FTA, university researchers, local agencies and members of private industry. This subsection outlines the specific actions that make up this process.

### RESEARCH PROGRAM DEVELOPMENT

The conceptual research needs and problem statements will be prioritized by WSDOT Senior Managers. The Director of RLS will approve a final list of problem statements to be funded. Once priority problems are identified, Research Managers and Subject Matter Experts will work with principal investigators to develop scopes of work for each project.

#### *Schedule*

##### *Even year*

April	Research needs solicitation initiated by the Director of RLS
May to August	Functional areas may hold workshops with interested parties to identify research needs
October	Functional area problem statements, prioritized by the submitting senior manager, are submitted to RLS
October/November	Research Managers work with senior managers and staff to develop a recommended program of funded projects
December	Director of RLS approves final project list

##### *Odd year*

January	Research institutions identified and Principal Investigators selected
February to June	Project scopes developed and start dates established
July to December	Establish project contracts for new projects

The research needs gathered through this process provide possible topics for other research programs in addition to the WSDOT research program. This includes University Transportation Centers, National Cooperative Highway Research Program (NCHRP), Transit Cooperative Research Program (TCRP), Transportation Pooled Funds, Federal earmarks, Every Day Counts, Innovations Deserving Exploratory Analysis (IDEA), and others.

#### *Identifying Research Needs*

Any WSDOT staff person identifying research needs must ensure that they align with identified agency and state strategic directions and have the support of their division manager. It is up to the staff person to define how they identify needs but it is anticipated that they may hold a research workshop with interested parties (regions, modes, universities, federal and local partners, etc.) to identify research needs. Solicitations for input are to be inclusive.

## ***From Research Need to Proposed Research Project***

Research problem statements will be developed for research needs by functional areas (Maintenance, Bridge and Structures, etc.). Input on priorities for funding will be identified by the WSDOT Senior Manager responsible for that function. Recommended Principal Investigators may be identified but no commitment will be made to the Principal Investigator at this time and Research Managers and Subject Matter Experts are encouraged to discuss research needs with both the University of Washington and Washington State University professors. Research Managers and TRAC Directors will help identify appropriate professors to contact if assistance is needed.

Out of these efforts, each WSDOT Senior Manager responsible for their functional area will propose no more than five fully developed and prioritized research problem statements to the Director of RLS every even year. Each problem statement will identify the lead office and other offices with an interest in the topic and a proposed Subject Matter Expert. If the project is funded, a technical advisory committee will be formed with the interested offices.

## ***Role of the Universities and Consultants***

Researchers are invited to the functional area research workshops and contribute to the discussion of needs and innovations that may be of interest to WSDOT. Every attempt should be made to have representatives from both WSU and UW involved. Research Managers, working with the Washington Transportation Center (TRAC) Directors, will help functional area managers identify appropriate members to invite.

## ***Establishing the SPR Research Work Program***

WSDOT Executive Management retains final approval of the WSDOT Research Program. The Director of RLS compiles the prioritized and budget constrained problem statements and presents the recommended program to WSDOT Executive Management for final approval.

In selecting projects for funding, the Director of RLS will also review the recommended Principal Investigators and assist in balancing the program between the UW, WSU and other institutions.

Items that may be taken into consideration as a final research plan is prepared include:

- WSDOT Senior Manager priorities
- Costs for proposed projects
- Balance of the program across functional areas
- Reasonable workloads
- Expertise of researcher(s)
- How research activities support agency strategic goals
- Urgency for results

An informational copy of approved research problem statements is furnished to FHWA following Program approval. The Research Work Program includes SPR Research and SPR funded Transportation Pooled Fund projects. Research funded from sources other than SPR, experimental features, federal earmarks and cooperative research program participation are not included in the Work Program.

## **RESEARCH MANAGEMENT**

Research Management provides direct management and supervision of specific research projects under the approved research program, including both SPR funded research projects and research projects contracted through RLS using other funding sources. Research Managers are responsible for coordinating

the development of proposals to conduct research with Principal Investigators, Subject Matter Experts, Technical Advisory Committees, and the Business Manager.

Research Managers administer the conduct of the research by facilitating the proposal development; communicating regularly with the Principal Investigator, Subject Matter Expert, and Technical Advisory Committee; approving invoices; tracking project progress; reviewing and approving progress reports; conducting on-site visits; coordinating a review of the research, the final product, and/or report; supporting the role of the Subject Matter Expert in implementing the research results where appropriate; and coordinating the reporting of project results.

Each research project is assigned a Principal Investigator, Subject Matter Expert and Research Manager.

### ***SPR Research Projects***

The Director of RLS notifies Research Managers when the research program is approved and assigns a Research Manager to each specific research task or project.

### **Identifying Subject Matter Experts**

The office that is the most direct potential beneficiary or user of the research findings assigns the Subject Matter Expert. The Subject Matter Expert will be provided information on their responsibilities and project contacts. Should other work duties prevent timely support of the research project, the Subject Matter Expert will notify the Research Manager and request a replacement.

### **Selecting Principal Investigators**

After the research project list is finalized:

A. Continuing projects will continue with the same Principal Investigator unless the Subject Matter Expert requests otherwise.

B. Principal Investigators approved by the Director of RLS may proceed to project development.

C. For all other projects:

1. A Request for Qualifications (RFQ) will be distributed. The RFQ will request the qualifications, resources, and a brief statement of research approach from interested parties. RFQs will be distributed in early January and be due within 2-3 weeks.
2. Research Managers and Subject Matter Experts will rate the proposals for: experience, qualifications (credentials), resources, and research approach and select the principal investigators.
3. A letter will be sent by the Director of RLS to the selected PI notifying them of their selection, the earliest start date possible, and providing contact information for the Research Manager and Subject Matter Expert as well as requesting a full proposal.
4. E-mails will also be sent to the proposers not selected.

### **Developing Contract Scopes of Work**

The selected Principal Investigator, in cooperation with the Subject Matter Expert, prepares a draft contract scope of work according to the Research Scope of Work Preparation Guide. The draft contract scope of work is forwarded to the assigned Research Manager. In some cases, a pre-proposal meeting is held with the Research Manager, the Principal Investigator and the Subject Matter Expert to determine the research approach, define the objectives of the draft contract scope of work, and create a Technical Advisory Committee.

Once the Principal Investigator, Subject Matter Expert and Research Manager agree on the draft proposal, an electronic version of the document is submitted to the TRAC Office at their university or, for

organizations not in TRAC, to the Director of RLS. If the document is submitted to the university TRAC office, it is reviewed and forwarded to the Director of RLS.

### **Contract Scope of Work Review**

The Research Manager coordinates the review, modification and approval of the draft contract scope of work.

The Research Manager works with the Subject Matter Expert to determine the appropriate technical review required to evaluate the draft proposal. It is intended that the affected offices within WSDOT will be provided the opportunity to review the proposal.

The Research Manager distributes the draft proposal to the Subject Matter Expert and other appropriate reviewers, including the appropriate local federal office if the project includes federal funds. Proposal reviewers return their comments to the Research Manager by the date indicated. The Research Manager consolidates the review comments and provides them to the Principal Investigator.

The Principal Investigator incorporates the appropriate review comments into the draft proposal and submits a final proposal to the Director of RLS (an electronic version and two unbound paper copies). The final proposal is maintained by the Business Manager, while copies of the final proposal are provided to the Research Manager to complete the review process. If the changes to the draft proposal were extensive, the Research Manager may elect to have the proposal reviewed again.

The Research Manager determines that the final proposal is ready for contract. The Research Manager sends the proposal and relevant information to the Business Manager to prepare the contract documentation. The proposal documents and research contract are approved by the Director of RLS. The Business Manager obtains WSDOT Contract Office and Attorney General review and approval for all new contracts and contract modifications that amend the scope of work. For no-cost time extensions, only the WSDOT Contract Office review is necessary.

### ***SPR Project Management***

The Research Manager is the main point of contact for the Principal Investigator. The Research Manager strives to enhance the value of the research project by encouraging and, when necessary, facilitating open and meaningful communication between the Principal Investigator and the Subject Matter Expert from the functional area.

Research Managers provide direction and oversight for all active research projects. This requires continuous interaction between the Principal Investigator, Subject Matter Expert, and Research Manager.

The Research Manager ensures that the Principal Investigator is in compliance with all contract terms. High standards of excellence in the conduct of research are encouraged by the Research Manager.

Close project supervision is maintained with the Principal Investigator by the Research Manager to ensure that appropriate research techniques and methodologies are used, time schedules are met and that progress reports are received and reviewed. Meetings and on-site visits with Principal Investigators and Subject Matter Experts are encouraged and may be arranged by the Research Manager. There is a minimum of one meeting for short-term projects (nine months or less). Long-term project meetings are conducted every six to nine months, or more often, if needed.

The following items may be reviewed by the Research Manager and Subject Matter Expert at any meeting with the Principal Investigator or during the review of the Research Project Status Reports:

1. Project Status
2. Project Objectives

3. Project Scope
4. Personnel
5. Problems
6. Schedules
7. Equipment
8. Funding
9. Products
10. Findings
11. Travel/presentations
12. Safety
13. Research Result Expectations/Implementation

The Research Manager, in conjunction with the Subject Matter Expert, maintains an on-going dialog with appropriate WSDOT offices, regions and other constituents to ensure that the research project is meeting identified needs.

### **Changes to Research Project Scope, Schedule and Budget**

The Research Manager is responsible for managing the delivery of the projects assigned to them according to the contracted scope, schedule and budget. However, adjustments to the projects are sometimes required. If, through review, the Research Manager, the Subject Matter Expert, and/or the Principal Investigator determine that there is a need to make changes to the research project scope, schedule or budget, the Principal Investigator must submit a modification to the Research Manager in writing.

### **Project Completion**

On completion of a research project, the Research Manager coordinates the review of the products and research results and works with the Principal Investigator, Subject Matter Expert, Business Manager and the Director of RLS to ensure that all required contractual terms and financial matters are completed.

Research projects are conducted according to the terms specified in the research contract. The following subsection outlines the process for completing a project.

1. Notification: When the draft final report for a research project is received by the Research Manager, they notify the Business Manager who notifies other WSDOT personnel as required by the type of contract.
2. Final Presentation: The Research Manager will arrange a final conference with the Principal Investigator, Subject Matter Expert, WSDOT Technical Staff, and other interested parties.
3. Final Invoice: On receipt of the Final Report, the Research Manager notifies the Principal Investigator that final invoices should be submitted as soon as possible. The Research Manager notifies the Business Manager, Director of RLS and TRAC Directors that the project is complete. When the final invoice has been paid, the Research Manager notifies the Principal Investigator that the project is complete.

## **Quarterly Reviews**

Research projects will be reviewed by the Research Managers on at least a quarterly basis. Principal Investigators, Research Managers and Subject Matter Experts will exchange information on the status of the projects. The project review may include:

1. Status of the project:
  - a. Is it under contract?
  - b. Is it on schedule?
  - c. Have any problems surfaced?
2. If the project has not started:
  - a. Is the planned start date passed and, if so, what is the cause of the delay?
  - b. Is the planned start date still feasible and if not what is the reason?
  - c. Has a similar project been funded through another source that is addressing, or potentially addressing, the needs identified in the problem statement?
  - d. Has a scope for the project been developed?
  - e. Is there an active project proponent/Subject Matter Expert?
  - f. Are the resources (data, prequel reports or activities) anticipated to be provided so the project can begin soon?
  - g. Are researchers still available to conduct the work in a timely fashion?
  - h. Is the funding amount still appropriate?

The Director of RLS can opt to withdraw funding from a project that has not yet begun. If a project is dropped, the funding for that project will be used by the Director of RLS to:

- Initiate another project from the list of biennial problem statements
- Solicit new problem statements from the functional area of the dropped project
- Or use funding for other high priority activities such as Quick Response Research, the Student Intern Program, or Transportation Pooled Fund contributions.

## ***QUICK RESPONSE (QR) RESEARCH***

Quick Response Research projects are initiated by contacting the appropriate Research Manager. If funding is available and the research need is appropriate for the Quick Response Research Program, the Research Manager will forward a request for funding to the Director of RLS. This request should include:

- a) What the funding will be used for (project title and objective);
- b) How much funding is required;
- c) The date by which an outcome is needed;
- d) Who is requested to conduct the work;
- e) Why this is time sensitive and should be conducted as quick response;
- f) How this project helps the agency address a strategic goal or business need; and
- g) Who supports it.

The Director of RLS approves requests for Quick Response funding.



## ***CLIENT SPONSORED RESEARCH (CSR) PROJECTS***

### **Program Development and Project Procedures**

WSDOT Program and Project Offices develop research projects to address specific issues confronting them in their work. These projects are intended to address specific questions. Offices should notify the Research Manager for their functional area of interest regarding research and experimental activities.

If offices seek external funding (such as FHWA Research Funds), they should notify the appropriate Research Manager with a copy of the request for funding and verify when funds are received or not.

Offices conducting research projects or operational activities may request support for project administration from RLS. The office requesting support must notify their Research Manager and provide needed information to clarify the level of contract management, project oversight and reporting requested. When project oversight is requested, the procedures will be the same as those described under SPR RESEARCH PROJECTS.

### **Federal Discretionary Funds Program Development and Project Procedures**

Federal funding may be requested to address priority research projects. Project proposals will be developed to address priority research needs of the department.

When federal earmarks are received for research, RLS may administer the funds and provide project oversight. Procedures for projects funded with Federal Discretionary Funds are the same as those described under SPR RESEARCH PROJECTS.

## ***SURVEY SUPPORT***

The RLS can assist in conducting simple surveys, to gather information about other DOTs, by distributing questions through the AASHTO Research Advisory Committee or Standing Committee on Highways list serves. These surveys gather state of the practice information.

If interested, WSDOT staff must provide the following information to the Research Manager responsible for your functional area to get started.

- A brief paragraph describing the need;
- The questions to be answered;
- Who the responses should be sent to;
- The appropriate contact information for the individual who can answer questions and receive responses; and
- The deadline for information.

After the deadline, and unless otherwise discussed, a summary of the survey results will be posted on the AASHTO's Standing Committee on Research/Research Advisory Committee [website](#).

## ***TRANSPORTATION POOLED FUND (TPF) PROGRAM***

To qualify as a pooled fund study, two state transportation agencies or a transportation agency and the Federal Highway Administration (FHWA) must find the subject important enough to commit funds or other resources.

FHWA or a state transportation agency may initiate pooled fund studies. Private companies, foundations, and colleges/universities may partner with any or all of the sponsoring agencies to conduct pooled fund projects.

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.

The Federal Highway Administration maintains a Transportation Pooled Fund ([TPF](http://www.pooledfund.org)) website that enables the states to commit to pooled fund projects, enter state-led pooled fund project information, and check the status of all the active pooled fund projects. The site also contains additional information regarding the TPF program, as well as detailed information on TPF projects. For more information, go to [www.pooledfund.org](http://www.pooledfund.org).

## **Definitions**

There are three common words that have very specific meaning within the TPF Program. They are:

*Commitment* – A commitment is made when an agency posts an *intent* to provide funding for a specific project. At this time the contributing fund source may not be identified. Commitments may be made for one or more years. An agency commitment means the agency intends to provide funding, whether from their research office or another office within the DOT.

*Cleared* – A TPF Project is cleared after sufficient commitments have been made to meet the required funding level set for the project. (Prior to that time, the proposal is in *Solicitation* status). After the project is cleared, funds can be obligated to the project and the project can begin. It is important to note that a multi-year project should consider setting the required level of funding to cover initial tasks rather than the whole project. Because the process for determining which project to fund varies substantially between organizations and some may only plan to make one year commitments, a phased project may allow the project to get underway sooner.

*Obligation* – Once a commitment is made to a TPF Project and that project is cleared, the participating partners may transfer the Obligation Authority(O/A) to the lead state. The lead state will then obligate funds to the project, making the funds available to be expended by the TPF Project.

## **Pooled Fund Program Management**

The FHWA administers the Transportation Pooled Fund Program on behalf of the states. The TPF website enables users to initiate a new pooled fund project, commit funds to a specific project, and check the status of all pooled fund projects. Within WSDOT, funding sources are either from RLS or the office interested in the project. No matter the source of the funds, WSDOT's participation in the Transportation Pooled Fund Program is managed by the Research Office. Research Managers may provide project tracking and management of Transportation Pooled Fund projects, if requested by the funding office. Project management for Pooled Fund projects is coordinated by the lead state. When participating as a contributing state, WSDOT may or may not be asked to serve on the technical advisory committee for the project.

### ***Pooled Fund Project Funding***

During each year, WSDOT Offices may request RLS to contribute SPR funds to TPF projects. The requests are made to the Research Managers, and will be forwarded to the Director of RLS for consideration in the next Federal Fiscal Year (FFY). RLS usually sets aside some funding for pooled fund participation.

In addition, any WSDOT office may wish to participate in a TPF project utilizing their own program funds. Interested offices should contact their Research Manager to coordinate the commitment and contribution process.

### ***Procedures to Create a New Pooled Fund Project to be Led by WSDOT***

If a WSDOT Office desires to create and lead a pooled fund project, the procedures listed below describe the process that is to be followed. See FHWA's Research Pooled Fund Checklist (below), the [TPF website](#), and the [Procedures Manual](#) posted to that website, for more detailed information.

TPF Project Development and Management for WSDOT-led TPF Projects:

1. *Project Proposal Developed*: A problem statement is developed and includes a project title, project description, budget, project goal, estimated project duration, deliverables, and sponsor contact for further information. The project proposal is submitted to the responsible Research Manager for review. The final approval for submission of a Pooled Fund Solicitation is made by the Director of RLS.
2. *Contributions by Pooled Fund Project Partners*: The RLS Business Manager will track the project contributions from other states. Authority to expend contributions will be through a federal appropriation in the state biennial budget. ***No agreement to conduct research can begin without sufficient budget authority. When processing such an agreement the value of the agreement cannot exceed the amount of funding approved.***
3. *Quarterly reporting*: The Research Manager will assure that Quarterly Reports are posted to the Pooled Fund Website and a Final Report is posted once the project is completed.
4. *TPF Swaps (Internal to WSDOT)*: When a WSDOT Program/Division wishes to contribute to a Transportation Pooled Fund, and the Program/Division does not have federal funds to contribute to the TPF, RLS can assist in making the contribution occur, either through coordinating a state funds payment directly to the TPF lead state, or by utilizing the WSDOT TPF Swap process. In this case, the program will set up a budgeted work order (W/O) for the amount of the contribution, RLS transfers appropriate existing research project expenditures to that W/O, and then RLS transfers RLS SPF O/A to the TPF. In order for this to have a net-zero effect on the ORLS budget and federal/state funds split, expenditures are then JV between RLS work orders funded through state-only funds and 80%/20% split to complete the process.

Following is FHWA's Research Pooled Fund Checklist – Steps in the Process document:

- The Lead State DOT will make a request to the local FHWA Division Office to establish a new Pooled Fund Project. The FHWA Division Office will check for SPR2 compliance. If FHWA led, send the request to the Pooled Fund Manager.
- The Lead State will assign a Lead State Contact for the project. If FHWA led, the program office will assign the Lead Contact.
- The Lead State Contact and FHWA Division Research Liaison will ensure that the project is in the **State's Research Work Program** (this is a must).
- The Lead State Contact will enter the Solicitation into the Pooled Fund Website.
- The Lead State Contact will submit, to the FHWA Division Office, a **Waiver Request Letter**, from the State DOT Director of Research, requesting the use of 100% SPR2 funds. The FHWA Division Office Research Liaison will obtain Division approval and forward the request and the

Division's approval in an e-mail to the Pooled Fund Manager. Include the Solicitation number on the Waiver Request Letter.

- Partner States and/or Agencies will go to the Solicitation on the Pooled Fund Website and make their commitments. At this stage, the commitment is just a pledge to transfer funds once the "Funding Level" is met, not an actual obligation of funds.
- When the "Funding Level" is met, the Lead State Contact will check the **"YES"** Box next to the **"Sufficient Commitments Received"** tab on the Pooled Fund Website. The Pooled Fund Manager will then clear the solicitation and assign a Pooled Fund Project Number.
- The Lead State Contact will set up a Technical Advisory Committee (TAC) to give technical support to the project. Usually, each contributing partner will provide a TAC representative/member. FHWA will assign a Technical Liaison to the project (Identified in the Waiver Approval Letter).
- The State DOT Director of Research will prepare an **Acceptance Letter** agreeing to accept fund transfers from partner states, and send the Acceptance Letter, along with a blank **Form 1575 (State Led) or Form 1576 (FHWA Lead)** to partner states to be used to transfer funds to the Lead State or FHWA. Copy Pooled Fund Manager on Acceptance Letter. If the project is FHWA led, the program manager will prepare and submit the letter and include the **FHWA Program Office Code** on the blank 1576.
- Partner States, in conjunction with the FHWA Division Office Finance Manager, will ensure that funds are available and complete the transfer form. The FHWA Division Office Finance Manager, for each state, will e-mail the completed Form 1575 or 1576 transfer, along with the Acceptance Letter, to the FHWA Chief Financial Officer's (CFO) Office at [FHWA\\_Transfers@dot.gov](mailto:FHWA_Transfers@dot.gov)
- The CFO's Office will transfer the funds from the partner states to the Lead State in the FHWA Financial Management Information System (FMIS)...transferred into the FHWA Delphi system if FHWA led. The Lead State now has the funds to use for the project just as if they were their own Research Funds.
- The Lead State Contact is now responsible for seeing that contracts are awarded, funds obligated, contract invoices paid, and funds tracked; to ensure proper accountability and balancing of Obligations, Expenditures, and Fund Balances.
- The Lead State Contact will ensure that Quarterly and Annual Project Reports are posted to the Pooled Fund Website and a Final Report posted once the project is completed.
- At the end of the project, the Lead State Contact will ensure that all contract requirements have been completed, all claims have been settled, all payments have been made, and all awards have been closed.
- The Lead State Contact will complete and submit, to the Pooled Fund Manager, the **Closeout Funding Spreadsheet** to account for all Obligations, Expenditures, and any Undelivered Orders (UDO).

- The Pooled Fund Office will then prepare and send out a Closeout Letter, and the Closeout Funding Spreadsheet, to all partners, the Lead State DOT and FHWA offices of the Lead State and partner states. At this time the project can be closed in FMIS.
- **The Lead State Contact will complete Form 1575 or 1576 and submit to the FHWA Division Office to “transfer back” to participant states and partners any leftover funds (UDOs) based on their contribution percentage.**

If you have any questions, please contact:

**David Pamplin**  
**Research Pooled Fund Program Manager**  
**Turner-Fairbank Highway Research Center**  
**(202) 493-3166 or david.pamplin@dot.gov**

### ***TPF Project Management***

1. *Establish Technical Advisory Committee:* Each contributing partner may appoint a technical expert to serve on the technical advisory committee (TAC). The TAC will serve for the duration of the project. The roles of the committee include drafting and approving the project work statement, selecting the best qualified researchers to conduct the project, review of project progress and annual reports, acceptance of project deliverables and final reports, and completing implementation activities. TAC members should expect to participate in all project-related meetings and briefings.
2. *Work Statement Development:* The lead state will work with the TAC to develop a work statement. The work statement will be incorporated into a plan of work that should include the following elements: list of partners, statement of problem, work statement, research requirements, project performance timeline, estimated budget, project communications requirements, deliverables, and implementation plan.
3. *Investigator/Contractor Selection:* The lead state will use the plan of work to initiate the investigator selection process. The contracting laws and regulations of the lead state will drive and govern the actual selection process. The TAC member input will be considered to the greatest extent possible in the selection of the successful investigator.

Upon the successful selection of the best-qualified investigator, the project is initiated. The lead state will usually include the members of the TAC in a project kick-off meeting.

4. *Quarterly Reports:* The lead state and/or the investigator will provide project status and progress reports quarterly. If necessary, the lead State or the TAC may request that these reports are issued more frequently. The quarterly reports are posted online at the TPF website. If they are not posted, then payment is delayed.
5. *Project Payments State-led Projects:* Invoicing occurs through the normal WSDOT approved process for federal billing. The quarterly reports must be posted on the website and up-to-date for the determination of satisfactory project progress so that payment will be made by the FHWA.

### ***TPF Project Completion***

1. *Deliverables Received:* The lead state, working with the TAC members, needs to ensure that the plan of work includes the delivery of useful and usable products. The investigator is expected to deliver these products. The TAC approves the acceptance of the project

deliverables. Deliverables may include reports, models, recommendations, software, new/improved products, etc. Where applicable, technology innovation sessions should be scheduled for the investigator to demonstrate, explain, or provide instruction on the project deliverables. Opportunities to showcase the project findings, recommendations and conclusions should be pursued by the TAC members.

2. *Final Report and Summary:* A final report of work processes, findings, and recommendations will be required for each project. An executive summary will accompany each final report and should provide concise and useful information on the study. The lead state and TAC members, consistent with the project plan of work, may request additional elements.
3. *Final Invoice Payment:* Based on the delivery and acceptance of the products and reports included in the plan of work, the final invoice will be paid to the investigator. FHWA will reimburse the lead state for the remaining costs of the project up to the obligation limits of the project. At the discretion of the lead state, an After Action Review may be conducted with the investigator to measure the projects processes and outcomes.
4. *Closing the Project:* The lead state Project Manager informs the FHWA Division Office of the completion of the project and provides written documentation that all bills have been paid and the project can be closed. Additionally, the status of the project needs to be updated on the TPF website to indicate that the project is completed. If there are funds remaining once the project is closed, the lead state will coordinate with the partner states and FHWA to return obligation authority.
5. *Report and Summary Distribution:* States are encouraged to distribute the project report and all or some of the project deliverables to TRIS, NTIS, and interested organizations the project partners.

### ***Cooperative Research Programs (CRP)***

WSDOT participates in research projects sponsored by the TRB's [Cooperative Research Program](#) (CRP). These projects are of national scope and interest. Problem statements are submitted annually as noted in Section 1. The process for TRB's Cooperative Research Programs is very similar. However, selection committees vary.

The National Cooperative Highway Research Program (NCHRP) project selection process is largely directed by the state departments of transportation as the sole sponsors of the program. Support is voluntary and funds are drawn from the state's Federal Aid Highway apportionment of the State Planning and Research funds. Each state's allocation amounts to 5.5% of its SPR apportionment. Funds can only be spent for projects approved by at least two-thirds of the states.

Research findings of the Cooperative Research Program are published by TRB and are available to WSDOT employees through the WSDOT Library. If an office copy is needed it may be requested through the Library. Copies are currently free to employees of sponsoring agencies.

#### ***Submitting Problem Statements***

Each year RLS distributes the solicitation to WSDOT Senior Managers and their staff with an invitation to submit problem statements. The timing of the solicitation varies for each program. WSDOT proposed problem statements are submitted to RLS. Projects are reviewed and recommendations may be made to strengthen the proposal and merge topics. WSDOT supported problem statements may also be submitted through the AASHTO Committees. RLS appreciates a copy of these proposals in order to document the WSDOT interest in the project. In addition, research problem statements may be developed by a TRB

Committee. These projects require a state DOT, AASHTO Committee, or FHWA sponsor for submittal so, if WSDOT employees are members of TRB Committees that have developed proposals, it is beneficial to submit the proposal to the Director of RLS and to note whether WSDOT is willing to sponsor the project or not.

The CRPs are very competitive programs and only about one in five projects are selected for funding. To improve the probability of success, problem statements should clearly state:

1. The *national* need for this research.
2. The problem including the national scope and consequences of no action.
3. Related work and how this request augments it. Check related literature through [TRISOnline](#) and on-going research through [Research in Progress](#). You can also request a literature review from the WSDOT [Library](#).
4. The specific objective and schedule of work requested. For example: The product of this research is anticipated to result in X. The study will be conducted in # of phases (list what they are expected to be). This request is for phase 3. This helps reviewers understand the context and avoids the perception that outcomes are never achieved.
5. Support by other states and organizations. In addition, it is helpful to have the interest and even joint sponsorship of other states and transportation organizations. AASHTO and TRB Committees are an excellent way to solicit interest. RLS can help identify contacts.
6. Particular program requirements. Some CRPs have unique requirements. For example, the TCRP requires a tie to the Federal Transit Authority's strategic goals.

The solicitation notice will include current forms and procedures. However, the format for agency problem statements closely parallels the CRP process and can be used to begin shaping problem statements.

### ***Response to Comments***

Once TRB receives the problem statements, they are reviewed and comments are sent to the author. Authors may choose how to respond to the comments and are offered the opportunity to submit an updated proposal.

### ***Rating Problem Statements***

Each CRP is reviewed by committees of technical experts. The membership of the committees varies for each CRP program. State DOTs rate the NCHRP problem statements. The other CRP problem statements are not distributed to state DOTs for ratings. Additional information can be found on the TRB [CRP](#) website.

RLS facilitates the rating of NCHRP problem statements by WSDOT employees. Final NCHRP problem statements are distributed to the AASHTO Standing Committee on Research (SCOR) and the AASHTO Research Advisory Committee for rating. The problem statements are received by the RLS in January and distributed to subject area experts in the agency for rating. Ratings are compiled and submitted. The NCHRP staff compiles ratings from all states, organizes them into a ranked list, and forwards this information to AASHTO SCOR. These meetings are held annually in late March. SCOR reviews the list, identifies priorities and formulates a recommended program that meets the constraints of the anticipated NCHRP revenue. The recommended program is submitted to the AASHTO Board of Directors for final approval. At least two thirds of the state DOTs must approve a problem statement for funding.

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 and can be found on the [CRP website](#).

## **CRP Project Management**

Each CRP project is assigned to a panel, appointed by the Transportation Research Board, which provides technical guidance and counsel throughout the life of the project. Panels include experienced practitioners and research specialists; heavy emphasis is placed on including members representing the intended consumers of the research product. The panels prepare project statements and select contractors based on evaluation of the proposals received. As in other TRB activities, CRP project panels serve voluntarily without compensation.

### ***Technical Panel Formation, Solicitation of Proposals, and Selection of Contractors***

Once projects are selected, the Cooperative Research Program solicits nominations for individuals to participate in technical panels that provide oversight to the selected CRP projects. Individuals may be self-nominated or nominated by co-workers or managers. Nominations are to be sent to the RLS to be compiled and submitted to the Cooperative Research Program staff. Nominations are also made by AASHTO Committees and individuals. The ORLS appreciates notice of WSDOT nominees in order to help endorse employee participants and to track agency interest and involvement.

The author of the problem statement or their designated Project Monitor is typically asked to participate in the panel but not as the Chair of the panel. Panel composition usually includes representatives from public agencies, academia, and private industry.

If employees are selected to participate in a panel, travel costs will be covered by the CRP project. Employees should submit standard agency Travel Request forms for sponsored trips. Panels typically meet three times over the life of the project.

### ***Selecting the Researcher***

For each funded problem statement, 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. WSDOT may send letters of support for a proposal or be identified as a technical resource within a proposal. However, WSDOT staff must be alert for potential conflict of interest when determining what part they would like to play in a project. They cannot be both a panel member and a participant in the proposal. They can contact the Director of RLS if they would like additional information.

## ***Synthesis Programs***

### **Synthesis Program Management**

TRB manages Synthesis Studies for four programs:

- Airport Cooperative Research Program ([ACRP](#))
- Commercial Truck and Bus Safety Synthesis Program ([CTBSSP](#))
- National Cooperative Highway Research Program ([NCHRP](#))
- Transit Cooperative Research Program ([TCRP](#))



The programs prepare syntheses of current practice in the aviation, commercial truck and bus, highway, and transit fields. The Cooperative Research Program of the Transportation Research Board solicits for synthesis topics. Synthesis suggestions may be submitted via the [Synthesis Suggestion](#) website.

## **Synthesis Project Management**

Synthesis projects are assigned a panel, appointed by the Transportation Research Board, which provides technical guidance and counsel throughout the life of the project. The Cooperative Research Program does not formally solicit for panel members for Synthesis projects. WSDOT employees interested in participating in a Synthesis project panel should contact the Director of RLS.

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

Innovations Deserving Exploratory Analysis ([IDEA](#)) is a TRB program to fund investigations of promising but unproven innovations for highways, transportation safety, and transit. Information about each program, including program goals, proposal format, and selection criteria are found at their corresponding websites.

- [NCHRP-IDEA](#) – seeks proposals with potential to advance the construction, safety, maintenance, and management of highway systems. The program nurtures new concepts for technologies, methods, and processes for application to highway systems in broad technical areas such as highway design and construction, materials, operations, and maintenance.
- [Safety-IDEA](#) – provides funding for projects that promote innovative approaches to improving intercity bus, truck, or railroad safety. The program encompasses vehicle improvements, operator performance, and alertness improvements; operational practices; and hazard reduction, among other interest areas.
- [Transit-IDEA](#) – seeks proposals on (1) increasing transit ridership, (2) improving transit safety, security, and emergency preparedness, (3) improving transit capital and operating efficiencies, and (4) protecting the environment and promoting energy independence.

WSDOT may submit proposals for innovations to study. IDEA proposals are reviewed in March and September of each year.

## ***Experimental Features***

The [Experimental Features](#) program is sponsored by FHWA to allow state highway/transportation departments to use innovative or new highway technology, or alternative standard technology, under actual construction and operating conditions. An experimental feature is defined as a material, process, method, equipment item, traffic operation device, or other feature that meets the following criteria:

1. Has not been sufficiently tested under actual service conditions to merit acceptance without reservation for normal transportation construction; or
2. Has already been accepted but needs to be compared with alternative acceptable features for determining their relative merits and cost-effectiveness.

Experimental Features are incorporated into federal-aid highway construction projects to determine the suitability of the features as regular construction items.

## Experimental Features Project Management

Headquarters or Regions originate an experimental features project by deciding to construct, install, or otherwise incorporate an experimental feature into an existing construction contract. The initiating Region or Headquarters office notifies Program Management of its intent to develop such a project.

1. The Research Manager works with the Regional or Headquarters office manager to develop a work plan for the proposed experimental feature. The work plan should include the following items:
  - Introduction
  - Study Plan
  - Scope of Work
  - Layout (includes Control Section and Experimental Feature)
  - Staffing
  - Testing
  - Reporting
  - Cost Estimate
  - Schedule
2. The Region or Headquarters office submits a final work plan to the Research Manager.
3. The Research Manager submits the work plan to FHWA for approval. FHWA will not approve plans, specifications, or estimates (PS&E) for a project that incorporates an experimental feature until a work plan is submitted and approved. The Research Manager assigns and includes the Experimental Feature number in the letter requesting approval.
4. Construction project funds are used for incorporating an experimental feature into a Federal-aid highway construction project. SPR funds cannot be used for constructing experimental features.
5. The Principal Investigator is responsible for all inspections and reporting requirements as set forth in the approved work plan during the active phase of the experimental project.
6. The Research Manager may request the FHWA Division Administrator to terminate a project if it becomes evident that no additional valuable information is likely to develop. The FHWA may also terminate a project for this reason or for failure to submit a final report.

## SECTION FOUR: IMPLEMENTATION MANAGEMENT

The objective of the WSDOT research program is to produce findings that significantly enhance the operations of the Department. In many cases, research reports include specific recommendations for altering the procedures or methods of a functional area. In other cases, the findings contribute to the body of knowledge that serves as the basis for daily operational decisions, planning decisions and/or the prioritizing of future research options. In any case, the research process is not complete until the implementation of applicable results has been accomplished.

### Responsibility

Research Manager: Each Research Manager is responsible for working with the Principal Investigators and Subject Matter Experts to support appropriate implementation of research results from SPR projects in their subject area. Research Managers will document implementation for each completed SPR project in the Research Project Management Database (RPMD). This information will be collected and regularly reported by RLS.

Subject Matter Expert: Because successful implementation is dependent on relevant findings, preparation for implementation begins with the research problem statement and the proposal. The probability of relevant findings increases greatly when the users are involved in the research process. As a representative of the functional area, it is the Subject Matter Expert's responsibility to ensure that the research project team continuously considers the unique requirements of the functional area throughout the active stages of a project. The Subject Matter Expert is also responsible for communicating intended uses of research results and helping to manage the research to meet those needs. This is not to be construed with presupposing the outcome of research but is intended to include such fundamental issues as agency information technology requirements (if applicable to the project).

Principal Investigator: While the Principal Investigator will not be responsible for implementation of research results, the research approach and products influence the ability to implement the findings of a research project. Therefore, Principal Investigators are encouraged to understand how research results are intended to be used at the completion of the project. For example: will the results be incorporated into an agency policy, procedure, manual or existing data system? Will the product be used by agency staff in one program only, throughout the agency, or by users outside of WSDOT? The Principal Investigator will work with the Subject Matter Expert to understand these intended uses and prepare recommendations for appropriate use of research results at the completion of the project.

### Procedures for Implementation

#### *Guidelines*

The role of the Subject Matter Expert and the implementation approach will depend greatly upon the nature of the research project. To help direct the research project, the following items should be considered when developing the research proposal.

1. Think about the end results: Know what you hope to gain from your project when you're done. Work with your committee to spell it out in concrete terms.
2. Understand the environment: No project exists in a vacuum. Gather as much information as possible about steps that will need to be taken to implement results. Ask questions such as: Will the project require specialized computer software or hardware? Who has to approve a decision to implement a result? What will the costs of implementation be?

3. Describe the potential benefits: Work with the Technical Advisory Committee established for the project to identify the potential benefits and how this will help address the need.
4. Know the customers: List everyone who might benefit from the project and include others who may influence those who benefit. Divide the list into two categories – those who benefit most and others. You'll want to spend more time reaching out to the first category.
5. Involve the right players: Don't go too far without making sure that you've got the right team. You'll want to have representatives of the groups who benefit the most helping you plan your course of action. If they aren't on your committee, you might want to expand your group, or figure out another way to gather their ideas.
6. Explore the most appropriate method for technology transfer: The methods of technology transfer may include the development of formal training programs, workshops, publications and one-on-one outreach efforts. Steps 1-5 help you in gathering information about what tool might be most effective for the project.
7. Define implementation: Be specific. As much as possible, write down your expectations of how you anticipate using research results, which documents a finding might need to be included in, whether software deployment will be needed, etc. Define what needs to happen to get there, how it will happen, when it will happen, and who will be involved.

## SECTION FIVE: RESEARCH REPORTS

Research project reports are required from all Principal Investigators conducting SPR and WSDOT-led Pooled Fund research projects with few exceptions. Each Principal Investigator of an SPR project will be required to submit Monthly or Semi-Annual Progress Reports and will be required to submit Draft Reports and Final Reports. Final Reports are published as Washington Research Documents (WA-RD). Additional information on reporting requirements is specified in the research contract.

Client Sponsored Research projects are encouraged to produce reports. At the discretion of the project sponsor, they may or may not be published as WA-RD reports.

### *Monthly Project Progress Reports*

Principal Investigators conducting research projects that will be completed within a nine-month term may be required to submit Monthly Progress Reports to the Research Manager. The reporting requirements for short-term research projects are specified in the research contract.

### *Semi-Annual Project Status Reports*

Research projects with a term of more than nine months may require Semi-Annual Project Progress Reports. WSDOT seeks to manage projects within the planned time, scope and budget. These reports document the status of the project and deviations from the contracted scope or work plan. The progress reports are one of the tools WSDOT uses to manage projects and to anticipate necessary changes to scope, schedule and budget. Principal Investigators should include information relevant to potential changes in order to minimize unexpected contract extensions.

If required, these web-based reports are due on January 31 and July 31 of every year. The Progress Report will include:

1. *Project Progress* – describe concisely, the work accomplished on work tasks planned for the reporting period. The progress report will also include actual expenditures to date compared with planned expenditures to date.
2. *New Period Proposed Activity* – identify tasks elements planned for the next reporting period and any proposed changes in the scope and schedule.
3. *Problems/Changes* – describe concisely problems encountered and those that will affect scope, schedule, and budget.

### *Draft and Final Research Reports*

Principal Investigators submit a draft and final report upon completing a research project. Approved final reports must be submitted before the contract end date. Final invoices will not be paid until completion of final reports. All research reports shall be prepared using the Research Report Guidelines.

1. The responsible TRAC Office or the Research Manager requests a WA-RD report number from the WSDOT Librarian and submits an electronic version and/or paper copy of the draft final report to the Research Manager. Project schedules should include two months between submission of the Draft Report and Final Report to accommodate review and editing.
2. The Research Manager distributes the draft report to the RLS Director, Subject Matter Experts, and other interested parties for comment. For projects funded with federal funds, the appropriate federal agency(ies) is included in the review process.

3. Report reviewers return their comments on the draft to the Research Manager by the completion date provided.
4. A meeting may be scheduled by the Research Manager with the Principal Investigator to discuss the comments received by the report reviewers. At the meeting, or if no meeting is required, the Research Manager furnishes the comments to the Principal Investigator by email documenting the completion of the review.
5. The Principal Investigator incorporates the appropriate review comments and provides a final report in electronic format to the Research Manager with a completed Technical Report Standard Page. The Research Manager reviews the final report to ensure that the review comments have been addressed. If comments have not been adequately addressed, the Research Manager will contact the Principal Investigator for additional editing.
6. The Research Manager fills out the Final WSDOT Research Report Checklist and submits it to the WSDOT Librarian for distribution.

#### *Report Distribution*

Distribution of the final report is electronic only and is posted on the WSDOT RLS [website](#). You may [sign up](#) (click on E-mail updates) to receive these electronic reports.

All final Research Reports are distributed electronically to project participants, the UW TRAC Office, the WSDOT Library, the Washington State Library, the Transportation Research Information Service, the National Technical Information Service, federal and state transportation libraries, and others as identified by the Research Manager.

## **SECTION SIX: RESEARCH PROGRAM REVIEW**

RLS is responsible for monitoring the progress of WSDOT research activities and evaluating the effectiveness of the research program. The following reports and forums provide a summary of program performance.

### **Federal Review**

The FHWA Division Administrator is required (23CFR 420.111) to periodically review the State DOT's management process to determine if the State is in compliance with federal requirements for research, development, and technology transfer. The FHWA Division Office must also approve the State's Research Procedures Manual and may conduct a compliance review. Normally, however, program compliance will be evaluated through routine involvement and report reviews (23 CFR 209(d)).

The FHWA Division Administrator also reviews and approves the State Planning and Research Work Program. The Work Program is produced at the beginning of each biennium and provides a summary of administrative and project activities of RLS. It is updated every six months.

### **Peer Exchange**

State transportation agencies are required to conduct periodic peer exchanges of their research programs. Exchanges are to be held at least once every five years. Peer exchanges are intended to examine and evaluate the research program or elements of the program through a collaborative team of peers, experts, and persons involved in the process. Peer exchanges may be hosted by one or multiple states. Virtual peer exchanges may be held but not consecutively. The outcome of the peer exchange is intended to foster vision, ideas, and best practices for the host agency(ies) to benefit their program as well as the programs of the participants.

The peer exchange panel includes representatives from the host and other state DOT research programs as well as stakeholders and customers who can provide input on the topic of the exchange. States are encouraged to include a representative from FHWA.

It is the State's responsibility to initiate its peer exchange. The composition of the peer exchange team, the breadth of the issues covered, the duration of the peer exchange, and other issues are at the States' discretion.

Guidance for conducting Peer Exchanges can be found on the AASHTO SCOR/RAC [website](#). Additional information can be found in [23 CFR 420.203](#).

## SECTION SEVEN: RESEARCH RESOURCES

### Transportation Research Resources

It is important to use existing knowledge when planning research activities. The information listed below provides resources where you can find out about ongoing and published research.

#### *WSDOT Research Website*

The WSDOT Research [website](#) provides information on:

- WSDOT research reports
- Research results and future research needs
- Current research projects
- Research funding sources
- Search tools for national research projects and reports
- Research partners
- List serve

#### *WSDOT Library*

The [WSDOT Library](#) holds the largest collection of Washington state transportation-related information in the state. The WSDOT Library supports staff, consultants and contractors by finding information on a topic, developing search strategies, conducting literature searches, locating facts and statistics, identifying additional information sources and obtaining articles and books through inter-library borrowing. Portions of the collection that are particularly relevant to researchers include:

- WSDOT publications, including research reports and project documents
- Transportation Research Board Publications
- Selected publications from other state DOTs, USDOT, and FHWA.
- Online resources. Access to these resources can vary. Some are freely available via the Internet, while some require access through the WSDOT network; a few are accessed by librarians only. Contact the WSDOT Library for details.

The [WSDOT Library Catalog](#) is part of the Washington State Library Online Catalog. In addition, the WSDOT Library networks with transportation libraries throughout the nation and may be able to access other relevant information.

#### *Online Research Citation Databases*

##### *TRID*

[TRID](#) is an integrated database that combines the records from TRB's Transportation Research Information Services ([TRIS](#)) Database and the OECD's Joint Transport Research Centre's International Transport Research Documentation ([ITRD](#)) Database. TRID is the world's largest and most comprehensive bibliographic database of transportation research information, providing access to more than one million records of transportation research worldwide published in journal articles, technical reports, conference proceedings and books. The database is produced and maintained by the



Transportation Research Board of the US National Academies, with sponsorship from State Departments of Transportation, including WSDOT, and other organizations.

TRID covers all modes of transportation, although highways and surface transportation are the strongest areas. Citations and/or abstracts comprise the majority of the TRID database records, but an increasing number of recent publications cited have links to full text, particularly TRB publications. TRID is freely available on the Internet at <https://trid.trb.org/>.

### ***Research in Progress***

The Research in Progress ([RiP](#)) database contains thousands of records documenting current or recently completed transportation research projects. While most projects represented are those funded by Federal and State Departments of Transportation, university transportation research is also included. The RiP database serves as the clearinghouse for ongoing research by University Transportation Centers. Records for international research projects are included in the RiP database as well, from the ITRD Database and the Canadian Surface Transportation Research Database.

The database can be searched by subject area, by organization conducting the research, by persons involved in conducting the research, and a number of other ways. Current research projects can be submitted to the database, and you can subscribe to receive subject-specific monthly e-mails on new RiP records.

### ***Research Needs Statements***

The Research Needs Statements ([RNS](#)) database is another resource produced by TRB, in support of stimulating research that addresses issues, concerns and problems confronting the transportation community. TRB's Technical Activities standing committees develop research needs statements for use by practitioners, researchers and others. Database users can search by keywords and subject terms to see if a research needs statement exists for a particular issue of interest. Retrieved records offer detailed descriptions of research that is needed, and why, and also provide contact information should users want to follow up with the RNS developer, or share information about the topic. This can be a way to locate research partners.

Contact the [WSDOT Library](#) for assistance with any database or information access issue. The library can be reached via e-mail at [library@wsdot.wa.gov](mailto:library@wsdot.wa.gov).

For more information, contact Research and Library Services at 360-705-7961.

**Americans with Disabilities Act (ADA) Information:** Individuals requiring reasonable accommodations may request written materials in alternate formats, sign language interpreters, physical accessibility accommodations, or other reasonable accommodations by contacting the event sponsor (enter name of event sponsor and phone number), by (insert date-usually two weeks advance notice). Persons who are deaf or hard of hearing may contact the event sponsor through the Washington Relay Service at 7-1-1.

**Title VI Statement to Public:** It is the Washington State Department of Transportation's (WSDOT) policy to assure that no person shall, on the grounds of race, color, national origin and sex, as provided by Title VI of the Civil Rights Act of 1964, be excluded from participation in, be denied the benefits of, or be otherwise discriminated against under any of its federally funded programs and activities. Any person who believes his/her Title VI protection has been violated, may file a complaint with WSDOT's Office of Equal Opportunity (OEO). For Title VI complaint forms and advice, please contact OEO's Title VI Coordinator at (360) 705-7098.