Arizona Department of Transportation Research Center 2023 Program Manual

Contents

Acronyms

AASHTO	American Association of State Highway Transportation Officials
APL	Approved Products List
APP	Arizona Procurement Portal
AZ LTAP	Arizona's Local Technical Assistance Program
BSR	billing summary and reimbursement
CFR	Code of Federal Regulations
CRO	Civil Rights Office
FHWA	Federal Highway Administration
IDO	Infrastructure Delivery and Operations Division
ID/IQ	indefinite delivery/indefinite quantity
IGA	intergovernmental agreement
JPA	joint project agreement
LTAP	Local Technical Assistance Program
MatPEC	Materials Product Evaluation Committee
MPD	Multimodal Planning Division
NCHRP	National Cooperative Highway Research Program
NTPEP	National Transportation Product Evaluation Program
PEP	Product Evaluation Program
PM	project manager
RAC	research advisory committee
RiP	Research in Progress
S&RM	Safety and Risk Management
SCORI	Standing Committee on Research and Innovation
SDS	safety data sheet
SPR	State Planning and Research
TAC	technical advisory committee
TCPEC	Traffic Control Product Evaluation Committee
TPF	Transportation Pooled Fund Program
TRB	Transportation Research Board
TRID	Transportation Research Information Database
USC	United States Code
VPR	vendor performance report

INTRODUCTION

Program Manual Overview

This manual describes the functions and administrative procedures of the Arizona Department of Transportation (ADOT) Research Center. It presents the following information:

- A description of Federal Highway Administration (FHWA) and ADOT program requirements.
- An overview of Research Center administrative procedures.
- Roles of Research Center staff.
- A description of the Research Center's research program.
- A description of the Research Center's product evaluation program.

Research Center Overview

The Research Center manages two distinct program areas: ADOT's research program and its product evaluation program. Both programs are funded by the FHWA State Planning and Research program, Subpart B (SPR-B).

The primary objective of research studies conducted by the Research Center is to produce useful information and recommendations that can be applied by ADOT to improve its processes and products but may also benefit other states, local jurisdictions, and researchers. ADOT research addresses the full range of topics of interest to the department. Studies are managed by the Research Center staff and conducted by contractors from the private sector, public sector, and universities under contract with ADOT.

The product evaluation program develops and maintains the ADOT Approved Products List (APL), which lists products the department has approved, but does not require, for use in construction.

Federal Statutes and Regulations

The primary source of funding for ADOT's research and product evaluation programs is the FHWA. The FHWA regulatory requirements for the use of SPR-B are described in the Code of Federal Regulations (23 CFR 420.209). A 20% match in state funds is required.

FHWA Stewardship Document and Performance Measures

In 2015, FHWA and ADOT jointly signed an updated Stewardship Agreement authorizing ADOT to act on behalf of FHWA and enabling the state's expenditure of federal funds, such as State Planning and Research (SPR). The Stewardship Agreement established performance indicators that are intended to increase accountability and promote continuous improvement.

Title VI of the Civil Rights Act of 1964

Title VI of The Civil Rights Act of 1964 prohibits discrimination based on race, color, and national origin. Section 42 USC 2000d states that "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." The protections afforded under Title VI apply to anyone, regardless of whether the individual is lawfully present in the United States or a citizen of a State within the United States.

ADOT is subject to Title VI on all projects that receive federal funds. As Research Center activities are funded by SPR-B, all work is required to comply with Title VI. The ADOT Civil Rights Office (CRO) provides guidance on the implementation of Title VI and monitors compliance. The Research Center reports relevant activities quarterly to the CRO. A sample Title VI quarterly report is provided in the *Appendix*.

ORGANIZATION

ADOT Research Center

The ADOT Research Center is part of the ADOT [Multimodal Planning Division](#) ([MPD](#)). An agency-wide organization chart is available on the [ADOT website](#), and another organization chart specific to the Research Center is included in the *Appendix*.

Research Center staff are subject to State of Arizona, ADOT, MPD, and Research Center policies and practices, as well as to federal regulations that guide the use of SPR-B funds. MPD practices are established informally through the MPD Director. The responsibilities of the Research Center staff are described here.

Working title: **Research Center Lead (Manager)**
Official position title: Transportation Engineer Manager
Reports to: MPD Director
Manager Duties:
The Research Center manager is responsible for the delivery of all services and products of the research and the product evaluation programs.

- Ensures Research Center compliance with federal, state, department, and division policies and practices
- Supervises research project managers (PMs), the product evaluation supervisor, and the technical editor
- Issues and maintains Research Center guidelines and practices
- Manages the development of the SPR-B Work Program
- Reviews and approves all problem statements, study scopes, and final reports
- Oversees both ADOT internal and external outreach activities and products
- Chairs the ADOT Research Advisory Committee (RAC)
- Coordinates participation in the FHWA Transportation Pooled Fund (TPF) program
- Prepares and manages the Research Center budget
- Prepares and maintains the Research Center Program Manual
- Maintains a database for tracking research studies
- Maintains the content of Research Center webpages
- Serves as Arizona's representative to the Transportation Research Board (TRB)
- Serves on the Arizona Council for Transportation Innovation
- Serves on the American Association of State Highway and Transportation Officials (AASHTO) Research Advisory Committee
- Coordinates the development and submittal of problem statements to the TRB Cooperative Research Programs
- Ensures that ADOT annually scores research problem statements for potential funding by the National Cooperative Highway Research Program (NCHRP) and delivers a completed ballot
- Promotes the implementation of research products from the Research Center and the TRB Cooperative Research Programs

Research Unit

Working title: **Senior Research Project Manager**
Official position title: Planning Program Manager 2 (three positions)
Reports to: Research Center Lead (Manager)
Senior Research Project Manager Duties:
The Senior Research Project Manager actively manages transportation research studies that are performed by experts from consulting firms, public agencies, and universities. Studies focus on producing recommendations that will be implemented at ADOT, and address engineering, planning, communication, social science, and other topics relevant to department stakeholders. The position ensures the delivery of high-quality research by analyzing technical documents, reports, and other work products, and by working effectively with stakeholders.

- Develops research problem statements in response to customer needs
- Assembles and chairs technical advisory committees (TACs) for research studies
- Manages the selection and hiring of research contractors
- Manages contractor work performed under research contracts; monitors contractor budgets and reviews/approves invoices
- Provides technical expertise throughout the research process
- Leads the technical review of study deliverables, including the final report, and ensures that requirements of the study scope, schedule, and budget are met
- Documents study progress in the Research Project Tracking spreadsheet and shared drive files
- As assigned by the Research Center manager, contributes to the development of the SPR-B Work Program, coordinates scoring of the NCHRP ballot, coordinates Arizona's participation in the TRB Minority Fellows program, and performs other tasks

Working title: **Technical Editor**

Official position title: Business Process Analyst
Reports to: Research Center Lead (Manager)
Technical Editor Duties:
The technical editor manages many aspects of quality control for research products.

- Analyzes the presentation, content, and format of research reports, technical memoranda, and research briefs, and advises contractors and PMs accordingly
- Ensures that final reports and other technical documents are clear, logical, consistent, and complete, as well as compliant with Section 508
- Serves as the PM for editing, writing, and Section 508 remediation performed by contract editors and writers
- Updates the TRB's Research in Progress (RiP) database
- Updates the TRB's Transportation Research Information Database (TRID) database
- Distributes research reports in compliance with federal guidelines
- Coordinates biennial updates to the SPR-B Work Program

Product Evaluation Unit

Working title: **Product Evaluation Program Coordinator**
Official position title: Planning Program Manager 2
Reports to: Research Center Lead (Manager)
Product Evaluation Program Coordinator Duties:

The supervisor manages the Product Evaluation Program (PEP); develops, administers, and ensures adherence to processes; and supervises the product evaluation engineer and the product evaluation specialist.

- Manages the PEP
- Establishes program processes and guidelines
- Supervises the product evaluation specialist, as well as student interns, when applicable
- Manages contractor work performed under contract; monitors contractor budgets and reviews/approves invoices
- Manages the Approved Product List (APL)
- Communicates with internal customers, external stakeholders, and industry representatives
- Maintains the content of PEP web pages
- Develops content in the Research Center Program Manual relevant to the PEP
- Uses, monitors, and maintains operations of AZPEP online product evaluation portal while periodically coordinating updates with software contractor, Wizehive.
- Serves as a non-voting member of the AASHTO National Transportation Product Evaluation Program (NTPEP); the State Materials Engineer serves as ADOT's voting member
- Attends ADOT Standards Committee meetings

Working title: **Product Evaluation Program Specialist**
Official position title: Planning Program Manager 1
Reports to: Product Evaluation Program Coordinator
Product Evaluation Specialist Duties:

- Evaluates product applications for possible product addition to the APL
- Documents evaluation findings in reports and recommends approval to include products on the APL
- Uses the AZPEP product evaluation portal
- Communicates with internal customers, external stakeholders, and industry representatives

ADOT Research Advisory Committee

The ADOT Research Advisory Committee (RAC) comprises staff from the Research Center, various ADOT divisions, and the FHWA Arizona Division. Membership is intended to represent a wide range of fields and interests within the department. With the exception of the FHWA Arizona Division and the ADOT Director, there are no *ex officio* positions.

The RAC meets two times each year to consider ideas for new ADOT research studies. The RAC reviews problem statements that describe potential new research. Each problem statement presents an existing challenge, objectives of the potential new study, anticipated benefits and beneficiaries, and an estimated budget and study duration. The RAC's agreement to recommend funding for new studies is determined by consensus following a detailed discussion; a voting process is conducted if consensus cannot be reached. The recommended new studies are considered programmed following approval of funding by the FHWA Arizona Division.

The RAC also considers requests for the contribution of SPR-B funds to FHWA pooled funds.

ADOT RESEARCH STUDIES

Research Study Development

Research studies begin with the identification of a need for information, a more efficient/effective process, or an improved product. While most ideas originate with ADOT staff, the Research Center encourages others to contact the Research Center manager to discuss ideas for new research. Research staff also initiate meetings with stakeholders internal and external to ADOT to educate them on research processes and products, and to invite them to discuss challenges and information needs that might be addressed by research. The Research Center manager determines whether an identified topic meets basic criteria for an ADOT research study. The idea must be:

- Understood as applied research according to commonly accepted definitions. According to CFR 23 420.203,

  > *Applied research* means the study of phenomena to gain knowledge or understanding necessary for determining the means by which a recognized need may be met; the primary purpose of this kind of research is to answer a question or solve a problem.

- Focused on developing recommendations that address an ADOT problem and may potentially be implemented by ADOT and/or identifying opportunities for ADOT's consideration.
- Not restricted to the use of specific products or methods, unless the research is intended to evaluate such products or methods.

The Research Center manager assigns each viable idea to a project manager (PM), who identifies ADOT stakeholders relevant to the topic. The key stakeholder is the *sponsor*, the ADOT staff member with the authority to implement the recommendations of the potential study, and a *champion*, a stakeholder who supports the study and is committed to actively contributing expertise. The PM works closely with these key stakeholders to clearly define the existing problem. This process also determines if the sponsor is conceptually committed to the implementation of the eventual research recommendations.

If all of these conditions are met, the PM develops a research problem statement that clearly defines the existing issues or challenges faced by ADOT, the objectives that would be met by the proposed research, anticipated benefits and beneficiaries, and an estimated budget and study duration. A problem statement does not prescribe research methodology or include a scope of work. A problem statement template is included in the *Appendix*.

Research Study Selection and Funding

Problem statements are presented by the assigned PM at a RAC meeting. Committee members discuss each statement thoroughly from a holistic, rather than competitive, perspective — *What is good for ADOT?* The objective of RAC discussions is to reach informed consensus on whether the proposed research should be recommended to FHWA for funding. To achieve consensus, the Research Center may modify the problem statement in response to input from the RAC. Minor modifications are generally accepted without additional discussion. If modifications are significant, the PM will present the revised problem statement at the next RAC meeting.

Following each RAC meeting, the Research Center manager notifies MPD Finance of the studies approved by the RAC and requests an amendment to the currently approved Work Program. MPD Finance then requests approval of the amendment from the research liaison at the FHWA Arizona

Division. Upon receiving this approval, the Research Center manager assigns an SPR number (a unique sequential project identification number) to each new study.

A problem statement that does not receive RAC consensus is not included in the SPR work program. Rejected problem statements are stored in an electronic format for possible future consideration, should interest arise.

Pooled Fund Studies

The [Transportation Pooled Fund](TPF) ([TPF](TPF)) program is administered by FHWA. Under the program, research studies that address transportation issues of significant and widespread interest are jointly funded by multiple federal, state, regional, and/or local transportation agencies, along with possible combinations of academic institutions, foundations, and private firms.

The TPF program manager distributes announcements on the solicitation of funds for new or continuing pooled funds to AASHTO Research Advisory Committee members, including the Research Center manager. The Research Center manager determines who would be the relevant ADOT group manager based on the fund's subject matter and shares with them the solicitation and instructions to follow if they are interested in participating. SPR-B funds are eligible for contribution to most pooled funds. Pooled funds that are not considered research (e.g., those that only collect data) cannot accept SPR-B. This will be noted in the pooled fund's solicitation. In such cases, funds from sources such as SPR-A (planning) funds are typically accepted.

ADOT managers and other staff may also initiate requests for contributions by contacting the Research Center manager. The Research Center manager works with the initiating employee to identify a sponsor, an ADOT manager/director who supports participation in the pooled fund and has the authority to determine that the pooled fund would benefit the relevant technical area.

The sponsor, or their representative, presents the request to the RAC at a regularly scheduled meeting. The RAC considers the request and, as with problem statements, discusses the request thoroughly with the objective of reaching informed consensus regarding a recommendation for funding.

Following the RAC's approval of the contribution of funding to a pooled fund study, the Research Center manager notifies MPD Finance. MPD Finance then contacts the FHWA Arizona Division to request an amendment to the currently approved *Work Program*. Upon the granting of this approval, the Research Center manager enters the commitment on the pooled fund website. MPD Finance coordinates with the FHWA Arizona Division to amend the existing SPR-B Work Program and to ensure the transfer of SPR-B funds from the Research Center budget to the designated pooled fund.

When the RAC and FHWA approve a contribution of SPR-B funds to a pooled fund study, a representative from ADOT is selected to participate on the study's advisory panel. The representative periodically informs the Research Center and the RAC of the study's progress.

Research Study Management

Research Project Managers

All ADOT research studies are managed by a Research Center PM (refer to Standard Work for Research Study Development, Research Problem Statements).

Sponsors and Champions

All Research Center studies must have a sponsor and a champion (see *Research Project Development*, *Research Problem Statements*). The sponsor is an ADOT staff member with the authority to implement the recommendations of a specific research study, and the champion is a key stakeholder who supports the study and is committed to actively contributing technical expertise throughout the study process. Both serve on the study's technical advisory committee. Research studies may have sponsors and champions representing multiple ADOT groups or, on rare occasions, an agency outside of ADOT.

Technical Advisory Committees

Each research study's technical advisory committee (TAC) assists the Research Center PM in the review and approval of the research process and deliverables. Each study must have a TAC. The PM consults with the study sponsor and champion to identify appropriate members from among ADOT staff to be on the TAC. The sponsor and champion, who also serve on the TAC, may invite, when relevant, staff from other public sector agencies to serve as TAC members. FHWA is invited to assign a representative, as well. The PM submits the list of recommended TAC members to the Research Center manager for review and approval before the start of a study.

The TAC's functions are summarized below:

- Review and evaluate contractor responses (proposals) to requests for proposals; review and refine the study work plan. Note that these tasks are performed by a subset of the TAC, typically the sponsor and/or champion and others.
- Provide data and information, such as contacts and resources, to the contractor, as needed.
- Regularly attend and participate in TAC meetings.
- Critically review and comment on interim and final deliverables in a prompt manner, with a focus on the review of technical content for which the members have subject matter expertise.
- Inform colleagues and managers in their ADOT work groups about the study.
- Support and offer input on potential implementation of study results.

Procurement of Consultants and Approval of the Work Plan

The Research Center procures contractors through MPD Contracts and the ADOT Procurement Office in accordance with the MPD Procurement Process Standard Work, the Arizona Procurement Code and 2 CFR Part 200. Research contracts are awarded to qualified contractors through a competitive process employing, in most cases, a request for proposals.

Research studies that are performed by another state agency or a local agency require the establishment of an intergovernmental or interagency agreement (IGA), or a joint project agreement (JPA), depending on the nature of the parties and the study. The IGA or JPA serves as the contractual document between the agency and the State. To initiate an IGA/JPA, the PM submits required information through the online tool operated by MPD Contracts. MPD Contracts then develops the IGA/JPA and secures the signatures of the necessary parties.

The process for procuring contractors is documented in standard work.

Monitoring Research Progress

The PM monitors the progress of each study that they are managing. This process includes holding TAC meetings to assess study progress and maintaining regular communication with the contractor, the sponsor, and the TAC.

A key component of monitoring research progress is the critical analysis of study deliverables. The PM, with TAC input, is responsible for closely reviewing all deliverables; analyzing the technical content for completeness, accuracy, logic, and organization; and, when necessary, providing contractors with clear direction regarding improvements to meet Research Center expectations.

Study monitoring also includes tracking the study schedule and expenditures against the awarded work plan and budget. The PM ensures and documents that expenditures correlate with the approval of completed research work products (deliverables) as specified in the study contract. The PM reviews and either approves or rejects each invoice associated with their studies. The PM notes the reason for any rejection on the invoice (i.e., billing summary and reimbursement (BSR) form).

The PM documents contractor performance in the vendor performance report (VPR). For each ongoing study, the PM submits a VPR at the time each invoice is approved. A VPR may also be submitted at any other time during the life of a study.

A sample BSR and VPR are included in the *Appendix*.

Research Documentation

A final report is required for all completed research. The Research Center develops and maintains the ADOT Research Center Style Guide, which documents the format and editorial standards required for research reports and other research products. The *Style Guide* is posted online and referenced in all research contract documents. The PM and technical editor ensure that the contractor is familiar with the *Style Guide* at the outset of the study. The PM, technical editor, and key members of the contractor team (contractor PM and technical writer) meet at the commencement of each study to discuss expectations for written deliverables. A draft final report proceeds to editing after its technical content is approved by the PM. Most reports are edited by an editor selected from the research on-call contract. (On rare occasions, the Research Center's technical editor will edit the report.) While FHWA's approval is pending, the Research Center's technical editor initiates the editing process.

The process for preparing final deliverables is documented in standard work.

Report Distribution and Public Access

The technical editor distributes electronic versions in accordance with 23 CFR 420.119(e); the distribution template and list of recipients are included in the *Appendix*. The technical editor may also periodically announce the publication of research reports to subscribers to ADOT's GovDelivery service.

The technical editor also uploads the final report, technical memoranda, and study data to AZGeo, a publicly accessible repository operated by the Arizona State Land Department. The editor also enters metadata associated with the uploaded files.

The PM notifies the TAC that the report has been posted to AZGeo and provides a link to the online documents.

The processes for report distribution and uploading to AZGeo are documented in standard work.

Study Documentation

Research Project Tracking (Google Sheets)

As the State of Arizona and ADOT switched from Microsoft applications to Google, the previously used MS Access-based tool called *ResearchTrack* has been phased out. A Google Sheet was designed by Research Center staff for all research tracking purposes.

The tracking sheet includes key data and information:

- Project number, title, and related information
- A brief overview of study background and objectives
- Budget and expenditures
- Consultant contact information
- The study sponsor, champion, and technical advisory committee members
- The status and dates of the research, editing, publication, and implementation processes

The PMs are responsible for maintaining current information in the research database throughout the life of each study they manage. The technical editor is responsible for maintaining current information on the editing of the final report for each study.

Google Shared Drive Project Files

PMs file all study-related final documents (e.g., problem statement, work plan, meeting notes, deliverables) in the Research Center shared Google Drive. For each research study, MPD Finance maintains official financial records, which are reconciled periodically with the PM's records of expenditures.

Research in Progress Database

The [Research in Progress](#) ([RiP](#)) database, operated by the [TRB](#), maintains key information on transportation research funded primarily by the U.S. Department of Transportation and state departments of transportation. States are asked to document progress on all ongoing research and to update records annually at a minimum.

After FHWA approves the funding of a new research study (i.e., is programmed), the Research Center technical editor creates a record for the study in RiP.

Transportation Research Information Database

The [Transportation Research Information Database](#) ([TRID](#)), also operated by TRB, is a comprehensive bibliographic resource on transportation research information. When an ADOT research study concludes and the final report is posted online, the technical editor completes and closes the study's record in RiP. This action, along with the editor's distribution of the report to TRID, triggers the librarians with the U.S. Department of Transportation's [National Transportation Library](#) to create a TRID entry for the study.

Research Implementation

One measure of the success of a research program is the extent to which the recommendations developed by its studies are used in practice. Thus, implementation is an important consideration from the development of the initial research problem statement through completion of the study.

Requests for proposals for all research studies require the prospective contractors to address the proposed implementation of the anticipated research results. At six-month intervals during the 18 months following the conclusion of a research study, the PM contacts study sponsors to inquire on the implementation of recommendations, and to identify reasons for why implementation is successful or not. The PM documents these inquiries in the Research Project Tracking spreadsheet.

Periodically, the Research Center engages in a comprehensive, multi-year investigation into the extent to which ADOT has implemented the recommendations resulting from ADOT research studies. The first of such investigations is documented in the final report for [SPR-727, Implementation of Research at the Arizona Department of Transportation](#). An update covering the implementation of research recommendations developed between 2012 and 2022 began in FY 2022.

FHWA STATE PLANNING AND RESEARCH WORK PROGRAM

Requirements

23 CFR 420 requires that recipients of federal SPR-A (planning) and SPR-B (research) funds prepare a *Work Program* that documents how funds were used in the prior fiscal year and that presents how funds are anticipated to be used. In 2019, the FHWA Arizona Division gave ADOT MPD approval to develop a biennial W*ork Program* to be submitted in odd-numbered years. The biennial *Work Program* submitted by the Research Center includes all active studies, as well as all programmed studies – those approved by the RAC and FHWA during the prior fiscal year and not yet under contract with a contractor. It also documents contributions of SPR-B funds to FHWA pooled fund studies. An example of a *Work Program* page summarizing a research study is included in the *Appendix*.

To allow the Research Center to promptly respond to the needs of research customers, FHWA allows the Research Center to amend its approved *Work Program* at any time. Thus, when the *Work Program* is submitted to FHWA, it does not include all research studies that will be programmed over the following two years. After the RAC recommends new studies for funding and contributions to pooled funds (refer to the [Research Advisory Committee](#)), the Research Center manager emails a request to MPD Finance staff, who then contact the FHWA research liaison requesting approval of an amendment to add the new studies to the *Work Program*. Through email, FHWA notifies the manager of approval or rejection.

The approximate dates for development of the SPR *Work Program* are shown in Table 1.

Table 1: FHWA State Planning and Research *Work Program* Approval Cycle

APPROXIMATE DATES*	ACTIVITY
Year-round	The Research Center accepts viable ideas for new studies, and PMs prepare problem statements. The RAC meets two or three times annually to discuss problem statements and consider approval for funding. Amendments to the *Work Program (SPR-B)* are made for problem statements approved by FHWA for funding.
January–March	The Research Center prepares the updated draft *Work Program (SPR-B)*.
March–April	The Research Center notifies MPD that the draft *Work Program (SPR-B)* is complete. MPD prepares a letter to FHWA authorizing program funds. The MPD director presents the draft *SPR Work Program* to FHWA.
June	MPD Finance submits to FHWA the draft *State Planning and Research Work Program*, the study authorization request, and a letter signed by the MPD director requesting funds and approval.

*For years when the biennial work program is submitted.

The process for updating the SPR-B Biennial Work Program is documented in standard work.

Funding Documentation and Modifications

New studies in the *Work Program* and those included through amendment throughout the year commence after FHWA's approval and authorization of the program funds.

Approval of New Studies

At each of its meetings, the RAC typically recommends the funding of new studies, as described in problem statements, and may also recommend contributions of SPR-B to FHWA pooled fund studies. Following each meeting, the Research Center manager assigns a tentative SPR study number to each newly recommended study and informs MPD Finance of RAC's recommendations. MPD Finance contacts the FHWA Arizona Division research liaison to request approval to amend the *Work Program* to include the new studies and pooled fund contributions. Upon FHWA's approval and confirmation from MPD Finance that an official "study number" has been established for the new study, the SPR number is finalized and the PMs may begin the research process.

Purchase Orders

Contract work is established through procurement and contracting activities, either as a new procurement through ADOT Procurement, or through use of an indefinite delivery/indefinite quantity contract, such as an on-call contract.

The process for establishing purchase orders is documented in standard work.

Invoices and Payments

Invoices are submitted and paid as a fixed price by deliverable following the completion of a research task, as listed in the PO, and the PM's approval.

The process for invoices and payments is documented in standard work.

Budget Modifications

Modifications to research study budgets are rare, and they are considered only for changes permissible within the approved research contract scope (as presented in the study's solicitation documents and awarded contractor proposal) and determined by the sponsor and the PM as necessary to meet study objectives and permissible under 2 CFR 200 and the Arizona Procurement Code.

A contractor may occasionally revise the study schedule or make a change to their project team. In such cases the process is the same, excluding the funding approval submission by MPD Finance. Changes to the fixed prices assigned to deliverables or tasks may require a contract modification, even if there is no change to the overall budget.

The process for budget modifications is documented in standard work.

Study Cancellation

A study may be canceled at any stage. Funds may or may not have been expended at the time of cancellation. Reasons for cancellation generally fall into two categories:

- The study is fulfilling its intended objectives, but the study sponsor believes that changing circumstances will not enable the implementation of anticipated recommendations (i.e., the study is no longer relevant).
- The study is not fulfilling its intended objectives and problems cannot be resolved.

The process for study cancellation is documented in standard work.

NATIONAL RESEARCH PROGRAMS AND ACTIVITIES

Peer Exchanges

Research peer exchanges are required by 23 CFR 420.209(a), which states in part:

> (a)   As a condition for approval of FHWA planning and research funds for RD&T activities, a State DOT [department of transportation] must develop, establish, and implement a management process that identifies and results in implementation of RD&T activities expected to address high priority transportation issues. The management process must include: . . .
>
> . . . (7) Participation in peer exchanges of its RD&T management process and of other State DOTs' programs on a periodic basis.

FHWA clarified this requirement in a 2010 guideline memorandum that stated peer exchanges should be held once every five years.

FHWA regulation 23 CFR 420.203 defines peer exchange as:

> . . . a periodic review of a State DOT's RD&T program, or portion thereof, by representatives of other State DOT's, for the purpose of exchange of information or best practices. The State DOT may also invite the participation of the FHWA, and other Federal, State, regional or local transportation agencies, the Transportation Research Board, academic institutions, foundations or private firms that support transportation research, development or technology transfer activities.

The ADOT Research Center held research peer exchanges in 1998, 2002, 2005, 2013, and 2019. The next peer exchange on product evaluation is being planned for 2024.

AASHTO

The [American Association of State Highway Transportation Officials](#) ([AASHTO](#)) is a nonprofit, nonpartisan association representing transportation departments in the 50 states, the District of Columbia, and Puerto Rico. It represents multiple transportation modes: air, highways, public transportation, rail, and water. Its primary goal is to foster the development, operation, and maintenance of a coordinated national transportation system.

AASHTO works to educate the public and key decision makers about the role that transportation plays in a sound economy. It serves as a liaison between state departments of transportation and the federal government. AASHTO sets technical standards for all phases of highway system development — design, construction of highways and bridges, materials, and many other technical areas.

AASHTO Research Advisory Committee

AASHTO established the Standing Committee on Research (SCOR), the predecessor to the current Standing Committee on Research and Innovation (SCORI), after its 1987 annual meeting. AASHTO directed SCOR to create a [Research Advisory Committee](#) ([RAC](#)) at the national level with each member DOT is entitled to representation. The RAC supports the activities of SCORI, promotes excellence in research, and advances the application of research findings to improve state transportation systems.

The ADOT director appoints the Research Center manager as the department's representative on the AASHTO RAC. The appointment is forwarded to the AASHTO President for concurrence. Only appointments signed by the ADOT director are considered official.

The RAC is divided into four regions; ADOT is a member of RAC Region 4 (Western Region). The National RAC, as well as each regional RAC, has a chair and a vice-chair.

The AASHTO RAC meets twice each year. One meeting is held during the TRB Annual Meeting each January and is typically held jointly with the TRB/State Representatives' annual meeting. During the summer the AASHTO RAC meets for three days in a location rotated among the four regions.

Each RAC region may communicate or meet at additional times. RAC Region 4 currently holds a teleconference approximately six times per year.

Transportation Research Board

The [Transportation Research Board](TRB) is a program unit of the National Academies of Sciences, Engineering, and Medicine. The mission of TRB is to promote innovation and progress in transportation through research, with an emphasis on the implementation of research results. ADOT, among other AASHTO member departments (state DOTs), contributes SPR-B funding annually to the financial support of TRB. The transfer of funds is conducted by MPD Finance and is documented by the Research Center in the *Work Program*.

The Research Center Lead (manager) serves as Arizona's [TRB state representative](), a role defined by TRB as follows:

> The principal continuing link between the state highway or transportation department (DOT) and the Transportation Research Board (TRB) is the TRB representative from the department. The representative is appointed by TRB upon the recommendation of the DOT Chief Executive Officer. It is through this link that the state is kept informed of TRB activities and/or research in progress elsewhere. Equally, it is this link by which TRB is kept informed of issues and problems facing the state DOT and of the state's research activities.

As the TRB state representative, the Research Center manager disseminates TRB information to ADOT, encourages ADOT participation on TRB committees and research project panels, and coordinates the annual visit to ADOT from TRB staff, among other activities.

Cooperative Research Programs

The [Cooperative Research Programs]() Division of TRB administers a number of major research programs sponsored by state DOTs and other organizations. The ADOT Research Center informs ADOT staff of opportunities to contribute ideas for future studies and to serve on project panels that provide input to the studies. Research Center staff members are available to assist in the development and submission of research problem statements for these programs.

National Cooperative Highway Research Program

The National Cooperative Highway Research Program (NCHRP) conducts research on problems affecting highway planning, design, construction, operation, and maintenance at a national level. NCHRP is supported through annual contributions of SPR-B funds by AASHTO member departments.

Each fiscal year, NCHRP solicits FHWA, AASHTO committees, and state departments of transportation (DOTs) for ideas for new research. NCHRP sends the ADOT Research Center manager, as the state's TRB representative and member of the AASHTO RAC, information on the annual solicitation. The Manager distributes the information to members of the ADOT RAC, and requests that they forward the solicitation to their staff.

Each state DOT plays a role in selecting the topics that will be funded as research studies. ADOT participates as follows:

- NCHRP sends the annual ballot of submitted ideas (in the form of research problem statements) to the Research Center manager.
- The Research Center manager assigns a PM to manage the scoring of each proposed idea.
- The PM distributes the ballot to members of the ADOT RAC, who are assigned to score problem statements in their areas of expertise.
- The PM collects and organizes the scores and submits them to NCHRP.

Each state's scores are considered by the AASHTO SCORI, which makes the final decision on research study funding. *The process for administering the NCHRP ballot is documented in standard work.*

Other Cooperative Research Programs

The ADOT Research Center encourages ADOT employees to prepare problem statements for prospective research to be conducted under other programs administered by TRB. They are:

- Transit Cooperative Research Program (TCRP)
- Airport Cooperative Research Program (ARCP)
- Behavioral Traffic Safety Cooperative Research Program (BTSCRP)

Minority Student Fellows Program

Each year ADOT sponsors fellowships for three students from the eligible Arizona universities for the [TRB Minority Student Fellows Program](). Arizona State University (ASU), Northern Arizona University (NAU), and the University of Arizona (UA) each nominate a student to the Program and sponsorship. If any of the universities is not able to nominate a student, ADOT may consider sponsoring additional students from the other two schools, for a maximum of three students sponsored per year. The Research Center uses SPR-B funds to support the sponsorship.

Undergraduate students (juniors and seniors) and graduate students (masters or doctorate) pursuing transportation-related degrees and who plan to enter the transportation profession upon completing their degrees are eligible for consideration.

The Program promotes the participation of minorities in transportation careers by enabling the fellows to attend the TRB Annual Meeting, giving them the opportunity to:

- Present their transportation research in a poster or lectern session, or at a committee meeting;
- Hone research writing skills and experience the peer review process;
- Observe the relationship between classroom theory and real-world transportation problems;
- Gain exposure to a range of transportation careers;
- Network with leaders in the transportation field;
- Develop a relationship with a mentor in the student's desired career path; and
- Become involved with TRB through affiliation with its standing committees.

Local Technical Assistance Program

FHWA's Local Technical Assistance Program (LTAP) is designed to provide information and training to local governments and agencies responsible for roads and bridges in the United States. The mission of LTAP is to foster a safe, efficient, and environmentally sound surface transportation system by improving skills and increasing knowledge of the transportation workforce and decision makers.

LTAP is composed of a network of centers, with one in every state. Arizona's Local Technical Assistance Program (AZ LTAP) is administered by ADOT's Infrastructure Delivery and Operations (IDO) Division. AZ LTAP provides local transportation agencies and public works officials with training and technical assistance related to road construction and maintenance, as well as on administrative topics.

The Research Center's annual budget includes a transfer of funds to LTAP.

ADOT PRODUCT EVALUATION PROGRAM (PEP)

Introduction

The ADOT Product Evaluation Program (PEP) is operated by the Research Center and funded by the U.S. Department of Transportation Federal Highway Administration's (FHWA) State Planning & Research (SPR) Subpart-B funding program. PEP coordinates the review and acceptance of highway construction products for possible use by ADOT and maintains the Approved Products List (APL). The APL is a list of categorized products that have been determined to meet the requirements of ADOT's Standard and Stored Specifications and/or Standard Drawings and have been approved for potential use on roadway construction projects. The APL is a resource for ADOT staff, local public agencies, and private industry; ADOT is not obligated to use any products listed on the APL. The program develops and administers all aspects of the product evaluation process.

All PEP processes are documented in standard work.

Staff

PEP is a unit within the Research Center in the ADOT Multimodal Planning Division—refer to the organizational chart in the *Appendix*. Positions and responsibilities are listed on Pages 5 and 6.

Product Evaluation Committees

PEP works closely with four ADOT committees: the Bridge Product Evaluation Committee, the Materials Product Evaluation Committee, the Roadway Product Evaluation Committee, and the Traffic Product Evaluation Committee. Bridge is chaired by the State Standards Engineer, Materials is chaired by the State Materials Engineer (i.e., Assistant State Engineer, Materials Group), Roadway is chaired by the Roadway Standards Engineer, and Traffic is chaired by the State Traffic Engineer (i.e., Assistant State Engineer, Traffic Group). All four committees work within the ADOT Infrastructure Delivery and Operations Division (IDO).

Membership

The Bridge, Materials, Roadway, and Traffic Product Evaluation Committees each consist of no fewer than seven members. Members are subject matter experts (SMEs) primarily drawn from the following groups that reside within IDO and the Transportation System Management and Operations (TSMO) Divisions: Materials, Pavement Management, Traffic, Construction, Roadway, and Bridge. FHWA is also represented on each committee. Only ADOT employees are voting members.

All four evaluation committees and ADOT's industrial hygienists meet regularly with PEP staff to discuss product applications. These discussions cover problematic applications as well as new or updated products that no longer adhere to ADOT's specifications but which ADOT has expressed interest in utilizing.

Responsibilities

Each committee member is responsible for reviewing the evaluation reports prepared by PEP. A PEP report documents the evaluation of a product application in terms of compliance with the relevant ADOT specification. If the evaluation determines that the product complies, PEP prepares the report and recommends the acceptance of the product to the APL.

At least five ADOT committee members must approve a product for it to be included on the APL. However, in the case of any denial votes, members will investigate and discuss the evaluation report and reach a decision either by consensus or a second round of voting.

Applying to the APL

Application Process

A product must be evaluated to be considered for the APL. In 2020, PEP adopted an online submissions portal, AZPEP, which is available under the *Application* heading on the PEP webpage. To apply to the APL, product vendors and manufacturers (applicants) must create an account at AZPEP and follow the instructions provided.

- The applicant completes the digital application and submits through the AZPEP portal. The applicant is required to provide basic contact and product information and list applicable APL categories, product literature files, independent laboratory data, and laboratory certifications—the American Association of State Highway and Transportation Officials' (AASHTO's) Product Evaluation & Audit Solutions (formerly National Transportation Product Evaluation Program (NTPEP)) testing is also acceptable and, if applicable, so are safety data sheets (SDS).
- PEP staff will determine whether the application will proceed to evaluation. These criteria must all be met:
    - o ADOT must have an APL category for the product type.
    - o If the product is already on the APL, then the application must be submitted no earlier than six months before expiring.
    - o The product's use must apply to ADOT's needs as defined by the responsible ADOT group.
    - o The application must be complete.
- If the application has not met these criteria, the PEP staff will withdraw the application from further consideration.
- PEP staff will notify the applicant whether the application will proceed to evaluation or if it was withdrawn. If the application was withdrawn, staff will state the reasons for withdrawal. Withdrawn applications will require reapplication if the applicant desires to have the product considered again in the future.

Evaluation Process

PEP staff evaluate the majority of product applications and assign the remainder to ADOT SMEs and external contractors. All evaluators follow a standard process that ensures transparency, consistency, and objectivity. After PEP receives an application, staff review the product information and determine whether the APL contains a category for the product type. If this is confirmed, PEP staff evaluate the application by following these steps:

- PEP staff identify the ADOT specification or standard drawing associated with the product's compatible APL category and then determine if any data are still required for the evaluation.
- Staff request by email that the applicant submit any missing data resulting from the specified laboratory testing, a technical data sheet for the product, and, if not already uploaded, an SDS for products with a chemical formulation. The testing must have been performed by an independent laboratory, the test data must be current—meaning that testing was completed within the previous five years of the completed application submission—and the results must be either signed by the laboratory manager or signed and sealed by a Professional Engineer; AASHTO Product Evaluation & Audit Solutions (formerly NTPEP) data are also allowed.
- The applicant submits the requested information by uploading files through AZPEP.
  - o If the submittal is complete and delivered within 14 days, staff continue the evaluation process.
  - o If the submittal is incomplete and/or delivered late, staff withdraw the application and notify the applicant.
- Staff forward the SDS to the industrial hygienists at ADOT's Enterprise Safety and Business Continuity (ESBC) group to review before beginning the product evaluation. ESBC verifies conformance with the following criteria before approval:
  - o All 16 sections of the SDS are completed in accordance with OSHA's Hazardous Communication Program.
  - o The SDS confirms that quantities of chemicals in the product (in expected usage) are within the permissible exposure limits and recommended occupational exposure limits.
  - o The SDS includes information to determine that the hazards can be mitigated through standard engineering controls and/or personal protective equipment.
  - o The SDS describes the product use and ensures that the use of the product aligns with all applicable ESBC policies.
- Staff compare the provided test data to the criteria in the relevant ADOT specifications and/or standard drawings.
  - o If the test data meet the ADOT specification, staff prepare an evaluation report recommending adding the product to the APL. The evaluation report form is in the Appendix.
  - o If the test data do not meet the ADOT specification, staff notify the applicant that the product is denied.
  - o The evaluation process typically takes less than 60 days.

Product Approval or Denial Process

After the evaluation, a product is added to the APL according to the following process:

- PEP staff distribute the evaluation report to the members of the appropriate committee and administer the voting process through the AZPEP Voting Portal.
- Committee members review the evaluation report and vote whether to approve the product onto the APL, allowing for 10 business days to complete reviews and voting, also through AZPEP.
  - When the committee votes approval, the applicant will be notified by an automated email, which is generated by the AZPEP portal. The email includes the decision, the approval date, and the expiration date (five years after approval).
    - The applicant is responsible for maintaining accurate contact information to help ensure proper communication over the five-year period.
  - When the committee votes denial, PEP staff notify the applicant by email.

Product Expiration

Approved products remain on the APL for five years. The applicant is responsible for monitoring the product's expiration date and, to be considered for continued inclusion on the APL, must submit a new application for the product to be re-evaluated. A product's prior listing on the APL does not guarantee that the product will remain on the list.

Removing Products from the APL

Product Expires

PEP staff remove a product from the APL if, after expiration, the applicant fails to submit a new application or, upon re-evaluation, the product fails to meet ADOT standards.

PEP staff notify applicants quarterly, via email, within 6 months of upcoming expirations.

Product Deemed Unacceptable

ADOT practitioners may determine that a product is unacceptable for use and request that it be removed from the APL.

Practitioners may also determine that an APL category is no longer relevant and request that it be removed from the APL; in such cases, all associated products are also removed.

PEP staff will notify the appropriate committee, which discusses the case and reaches a decision on removal of the product or category, as appropriate. PEP staff will notify the applicant by email.

Product Modification, Formulation Changes, or Name Changes

The applicant is responsible for informing PEP staff of any changes to a product's formulation or name. If the product's formulation—or, in some cases, the name—has changed, PEP staff will direct the applicant to reapply to the APL for a full evaluation.

Changes to ADOT Standards

If ADOT revises the specification or standard drawing related to a product on the APL, the product will need to be reevaluated in order to remain on the APL. Staff will notify the applicant with requirements for next steps.

PEP staff will attend Standards Committee meetings and suggest updates via the Standards Committee Request process, as suggested by the Product Evaluation Committees.

PEP staff will attend Standards Subcommittee meetings to assist with updates, contacts, and technical information.

National Transportation Product Evaluation Program

The AASHTO Product Evaluation & Audit Solutions (formerly NTPEP) is a partnership between public agencies and private-sector manufacturers. Its primary service is single-source testing of products manufactured to AASHTO standards and commonly used by state DOTs. The ADOT PEP Coordinator and other key ADOT staff are members of the AASHTO Product Evaluation & Audit Solutions group and its various technical committees.

APPENDIX

Research Center Organizational Chart

```
                    ADOT Director
                         |
          Deputy Director for Transportation /
                  State Engineer
                         |
           Multimodal Planning Division
                    Director
                         |
             Research Center Lead (Manager)
                         |
   +---------+---------+---------+---------+
 Senior    Senior    Senior   Technical  Product
Research  Research  Research   Editor    Evaluation
Project   Project   Project              Program
Manager   Manager   Manager             Coordinator
                                             |
                                          Product
                                        Evaluation
                                          Program
                                         Specialist
```
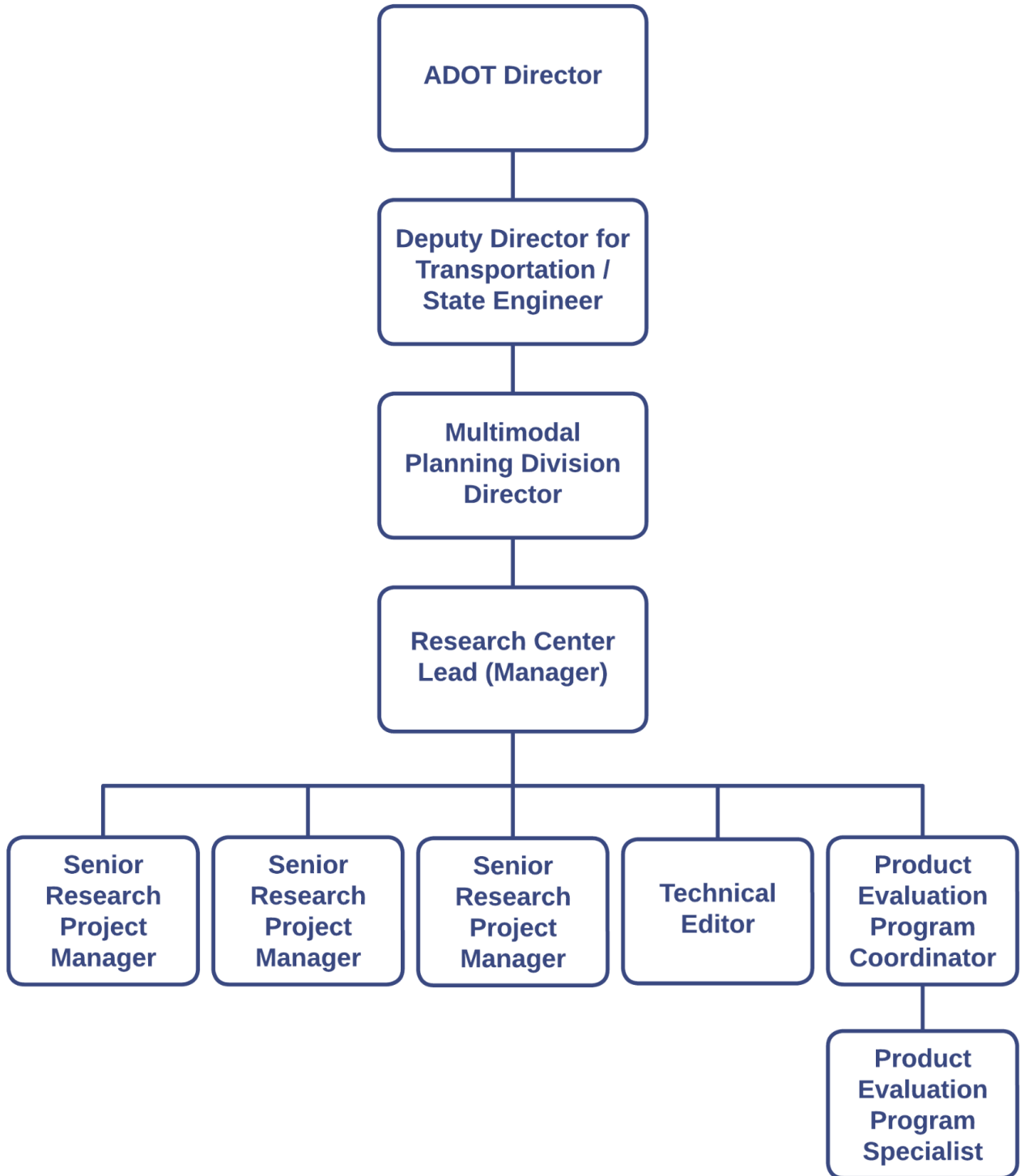
ADOT Research Center

Research Request

The ADOT Research Center solicits research problems and potential ideas year-round. An Idea Submission Form is available on the Research Program website and can be used to submit any request. Research Center staff will review and take the next steps following current standard work. The form requires the following information:

1. Name
2. Organization/Affiliation
3. Email
4. Phone Number
5. Problem or Idea
6. Published References (if any)
7. Web link or publication details

Research Problem Statement Template

[The problem statement has a two-page limit.]

ADOT Research Center
RESEARCH PROBLEM STATEMENT

Title of Suggested Study

Date:

Project Sponsor: [name], [title], [work unit] an ADOT employee with authority to implement research

Project Champion: [name], [title], [work unit] an ADOT employee (or other public sector staff) who supports the study and assists the PM

Research Center Budget: $
Other Budget: [if applies]
Funding Source: [if applies]
Estimated Project Duration: [xx] months

Problem Description:
[Provide background and summarize key issues to be addressed by the research. Quantify (in terms of cost, time, etc.) the baseline condition that would be improved by the implementation of anticipated research recommendations.]

Research Objectives:
[Clearly state what the research will accomplish and/or what type of information it will provide.]

Affected Groups and Anticipated Impacts:
[Summarize the entities at ADOT that would benefit from the research and/or that must be involved in the research process. Discuss the potential impacts of this research to ADOT — to enhance safety, to save costs, to expend resources, etc. — as well as to other agencies that might be potentially affected.]

Expected Implementation:
[Describe how the research recommendations will be applied at ADOT and, potentially, other agencies. Describe the anticipated improvements that will result from the research. If possible, compare the anticipated results with the baseline condition quantified in the Problem Description.]

Sample Research Report Transmittal Letter to FHWA

[To be emailed to all contacts on the Report Distribution List]
[email subject to read: "AZDOT Research Center: ~~SPR-# "Title"~~ *now published"*

January 5, 2024

To: Karla S. Petty, P.E.

Division Administrator

Federal Highway Administration

Dear Ms. Petty:

The State of Arizona Department of Transportation Research Center has recently published *~~SPR# "Title"~~*.
Please find the PDF attached to this email. The report is also available to download at AZGeo *[include hyperlink to report]*.

With regards,

Kohinoor Kar, Ph.D., P.E., PTOE

Research Center Lead

Arizona Department of Transportation

Sample Research Report Cancellation Letter to FHWA

[on Multimodal Planning Division letterhead]

January 5, 2024

Karla S. Petty, P.E.
Division Administrator
Federal Highway Administration
4000 North Central Avenue, Suite 1500
Phoenix, Arizona 85012

Dear Ms. Petty:

The ADOT Research Center has canceled SPR-746, *Evolving Arizona's Project Delivery Methods*, at the request of the project's sponsor. The unused funds in the project budget will be returned to the general research budget.

Sincerely,
Kohinoor Kar, Ph.D., P.E., PTOE
Research Center Lead

Research Report Distribution List

Electronic Recipients

Local Recipients	Delivery Email
State Document Collection Attn: Holly Henly, State Librarian Arizona Library, Archives, and Public Records 1919 W. Jefferson St. Phoenix, AZ 85009	hhenley@azlibrary.gov reports@azlibrary.gov
Romare Truely* FHWA Arizona Division 4000 N. Central Ave., Suite 1500 Phoenix, AZ 85012	romare.truely@dot.gov *
Electronic Delivery for Archiving	
Federal Highway Administration Research Library Turner-Fairbank Highway Research Center 6300 Georgetown Pike McLean, VA 22101-2296	fhwalibrary@dot.gov
Office of Corporate Research, Technology and Innovation Management, HRTM-10 Turner-Fairbank Highway Research Center Room T-306 6300 Georgetown Pike McLean, VA 22101-2296	jill.stark@dot.gov
National Transportation Library (NTL) NTL Headquarters, W12-300 1200 New Jersey Avenue SE Washington D.C. 20590	NTLDigitalSubmissions@dot.gov
National Technical Information Service (NTIS) U.S. Department of Commerce 5301 Shawnee Rd. Alexandria, VA 22312	input@ntis.gov
Transportation Research Board (TRB) TRB Library (TRID) 500 Fifth Street NW Washington D.C. 20001	tris-trb@nas.edu
Transportation Research Board (TRB) Library Electronic Submission Webpage	http://trid.trb.org/submit Go to the URL and enter per directions Do not add ".asp" to the URL, as it will give an error message

*Replacement pending

State Planning and Research Biennial Work Program Sample Project Page

SPR-729, *Effectiveness of Wildlife Crossing Guards and Right-of-Way Escape Mechanisms*

Consultant:	xxxxxxxx		
		FY Authorization	2015
Original Contract Amt	$235,000	Contract Date (NTP)	1/20/2015
Current Contract Amt	$293,750	Original Completion Date	6/30/2019
Expenditures to Date	$132,016	Adjusted Completion Date	6/20/2020
*Est. FY21 Expenses^*	*$100,700*		
Est. FY22 Expenses	*$61,034*		
Available Amount	$161,734	Current Project Manager	xxxxx
Percent Complete	40%	Project Sponsor	xxxxx

^ Includes expenses from the remainder of FY20 and all of FY21. Numbers are representative examples.

PROBLEM STATEMENT

Collisions with large ungulates (deer, elk, and bighorn sheep) pose a safety concern on Arizona highways. To reduce such collisions, ADOT installs fencing that limits access to the right-of-way (ROW). Wildlife crossing guards (WCGs) let vehicles cross the ROW while limiting wildlife entry. Arizona uses double-deep cattle guards and sometimes electrified mats, neither of which has been confirmed as more effective than other types.

If large ungulates do gain access to the ROW, they need an exit. The fencing has escape mechanisms to allow wildlife to leave: one-way gates, slope jumps, and jump-outs. Jump-outs cost less, but little is known about appropriate designs for different species. Now that several types of jump-outs have been installed throughout Arizona in areas with elk, deer, and bighorn sheep, more research can determine effective heights and designs for the different species.

RESEARCH OBJECTIVES

The five-year study will evaluate the effectiveness of various WCGs in deterring ungulates from ROW access and of various types of escape mechanisms in allowing different ungulate species to exit the ROW while preventing entry by others. Study results will identify the ideal WCGs and escape mechanisms to be installed at appropriate locations where ungulate-vehicle collisions are a problem.

Billing Summary/Reimbursement and Vendor Performance Report Template

Arizona Department of Transportation Multimodal Planning Division
Billing Summary / Reimbursement Request

Subrecipient or Vendor? {Select from List}	Vendor	ADOT PM Name		MPD Tracking Number {Use Format: MPDnnnn-yy; RTAP use "MPDRTAP-yy"} {yy = last 2 digits of the State Fiscal Year (July 1 - June 30)}	
Agency Name				Master Procurement Contract Number	
Agency PM Name / Email (Notify if Unaccepted / Rejected / Paid)				Purchase Order Number	
Invoice Number	Invoice Status	Invoice Date		Project Title (For Research Project add SPR Number)	
Vendor Comment (Optional)	Billing Period			Federal Funding Agency {Select from List}	
				Funding Program {Select from List}	
Remit Payment to {Select from List}				Entry required in fields E2 and N6	
Entry required in field E8				Race Conscious DBE Goal % {Vendors who are AZ Certified DBEs, enter 100}	

SUMMARY OF WORK FOR WHICH PAYMENT IS REQUESTED

Project Task No	PO Line No	Please Leave Blank	Please Leave Blank	Task or Deliverable Description	Originally Awarded Budget Amount	Approved Changes (Cardinal Changes Prohibited)	Total Awarded Budget	$ (Net Amount) Invoiced Previously	Balance (Total Budget - Previously Invoiced)	Billing for This Invoice Prior to Reductions	Other Reductions (e.g. Fares, BECO Sanctions, Disallowed)	Retainage % to Apply to this Invoice	Retainage $ Applied to this Line	Net Amount Due for This Invoice	Balance After This Invoice
							$ -	$ -					$ -	$ -	$ -
							$ -	$ -					$ -	$ -	$ -
							$ -	$ -					$ -	$ -	$ -
Click Button to Insert Line				TOTALS	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -	$ -

This section is only applicable to the FINAL reimbursement request submission - Please leave blank.

The fields completed on this page indicate this is the Final Invoice Reimbursement Request and that there was NO Race Conscious Goal On this Project.

Please Leave Blank		Please Leave Blank		Please Leave Blank
Please Leave Blank	Please Leave Blank			Please Leave Blank

Submitter Certification required pursuant to 2 CFR 200.415: By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and objectives set forth in the terms and conditions of the Federal award. I am aware that any false, fictitious, or fraudulent information, or the omission of any material fact, may subject me to criminal, civil or administrative penalties for fraud, false statements, false claims or otherwise. (U.S. Code Title 18, Section 1001 and Title 31, Sections 3729-3730 and 3801-3812).

I Confirm No Race Conscious DBE Goal was Assessed for the Project(s) and No AZ DBE Firms Participated.

Submitter - Authorized Signatory	I certify that my typed signature is a legally-binding signature	Date Signed	Optional - 2nd Authorized Signatory	I certify that my typed signature is a legally-binding signature.	Date Signed

Please Leave Blank

Please Leave Blank		Please Leave Blank	Please Leave Blank	Please Leave Blank

ADOT PROGRAM/PROJECT MANAGER REVIEW

The ADOT Project Manager is required to review for each of these items. By approving this invoice, you certify these requirements are met.		Status		Reason for Rejection	ADOT PM Signature Required
	Travel charges are in accordance with State/ADOT Policy	Invoice Approved	Invoice Rejected		
	Progress toward Scope aligns with Awarded Requirements				
	Invoicing aligns with Progress and Awarded Budget / Pricing				
	Support Documents align to Invoice and adequately supports costs				
	Confirmed: BECO required DBE Forms are attached.				

FMS PROCESSING

Status	Warrant / Check / ACH Payment No and Date	Date	A/P or C/A Processed By		Color Key
					nk with Red Text = Entry/Correction Requir
					White Label = Field Data Provided in ADOT Documentation
Not FTA Funded - Please leave section below blank					White Field = Entry in Field Permitted
Please Leave Blank	Please Leave Blank		Please Leave Blank	Please Leave Blank	Pale Orange = Form Calculated field
Please Leave Blank					Teal = Vendor/Customer Generated
					Grey = Disregard Field

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Vendor Performance Report

ADOT Procurement

Documenting positive or negative performance and
procurement actions, as requested

Reporting Contact Information

Contact	Test	Division/Unit	
Title		Location Address	
Email		Telephone	

Reporting Contact Information

Supplier Name		Supplier Contact	
Contract No.		Purchase Order #	
Date		Invoice #	

Services, Goods or Equipment:	

Describe the performance issue. Be accurate, complete and factual. Use an attachment if necessary.

MPD Tracking Number		Project Title		
Describe Compliance with Invoicing Requirements:				
Describe Project Delivery Compared with Schedule:				
Describe Project Outcomes Compared with Objectives:				
Describe Vendor Performance				

☐ Reporting incident, no action requested.

☐ Requesting action:

_____   _____
Signature of Agency Representative   **Date**

Submit an electronic copy of the completed form to the ADOT Procurement Office at Procurement@azdot.gov.

PROCUREMENT ACTION

Procurement Officer		Email		Date	

Describe details of the action taken:

ADOT
Civil Rights Office

Clear

Reporting Period	Due Date	
1/1 - 3/31	May 1st	❏
4/1 - 6/30	August 1st	❏
7/1 - 9/30	November 1st	❏
10/1 - 12/31	February 1st	❏

TITLE VI
QUARTERLY REPORT

Please submit to the ADOT Civil Rights Office via email: civilrightsoffice@azdot.gov.
If additional space is needed for any question(s) please send attachment(s) along with the Quarterly Report.
Please complete all sections of the report.

In compliance with ADOT's Title VI Nondiscrimination Implementation plan a quarterly report is required to be submitted by the designated Title VI liaison for each program area. The Title VI liaison for each program area is required to ensure that ADOT's respective areas, programs, and subrecipients comply with Title VI regulations and assurances, collect and analyze demographic data of participants/beneficiaries of programs, and meet the objectives of the Title VI Plan. Data collected through the Title VI Liaison Program representatives will be used to create ADOT's Annual Goals and Accomplishment report to meet federal and state reporting requirements.

I. Division/Program Area Information

Division/Program Area: _____

Title VI Liaison: _____   Official Title: _____

Date Submitted: _____

Mailing Address:

_____   Phone: (   ) _____

_____   Fax: (   ) _____

_____   Email: _____

II. Policy Updates

1. Were any manuals, policies or procedures updated this quarter?

    Yes ❏   No ❏

If so, please briefly describe which Title VI requirements were considered in the update (s):

[ ]

III. Description of the Service Area Demographics

1. How many projects were conducted this quarter? _____

Please submit tables or charts to the Civil Rights Office.

Awarded Project Information			Highest Limited English Proficient (LEP) language in project area	
PROJECT TITLE	TRACS No.	PROJECT LOCATION	Language	Percentage

2. What method(s) does your office use to collect demographic and LEP data?

IV. Dissemination of Title VI Information

1. In accordance with USDOT Order 1050.2A did all request for proposals/solicitations for bids and consultant agreements/ construction contracts include Title VI related language (Appendix A &E)?

Yes ❑   No ❑

If not, please briefly explain why:

2. Were any public meetings conducted this quarter? (Public meetings include any ADOT hosted events for the public or external customer(s).)

        Yes ❐   No ❐

If so, please briefly explain the projects and how they were advertised:

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3. Did all of your public advertisements contain ADA and Title VI Nondiscrimination language?

        Yes   ❐   No ❐   Did not have any public advertisements ❐

4. Were Title VI summary reports provided to the Civil Rights Office for all public meetings?

        Yes   ❐   No ❐   Did not have any public meetings ❐

5. Are current copies of the ADOT ADA and Title VI Nondiscrimination notice available and accessible to your division/office and any off site location?

        Yes   ❐   No ❐

If so, please briefly explain where they are located (including project sites):

```

```

6. Do you have Title VI material available in languages other than English?

        Yes ❐   No ❐

If so, please briefly explain who they were disseminated to and how:

```

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7. Is information about Title VI disseminated to your consultants?

        Yes ☐   No ☐   We do not have consultants ☐

If yes, please explain how:

☐ In person training ☐ Web based training ☐ Other

V. Affected Populations

1. Were any Title VI Populations affected this quarter?

        Yes ☐   No ☐

If so, please briefly describe what groups were affected and what efforts were made to minimize and mitigate adverse effects.

VI. Limited English Proficiency (LEP) Requirements:

1. Was there a four factor analysis conducted for each project listed in Section III? Please list the project name, TRACS number, and if the analysis was approved by the Civil Rights Office (CRO). If more space is needed please attach the additional page(s).

PROJECT TITLE	TRACS No.	Reviewed by CRO

2. What steps are taken to ensure "meaningful" access to LEP individuals?

3. Please explain the LEP services that were provided this quarter:

```
┌────────────────────────────────────────────────────────────────────┐
│                                                                    │
│                                                                    │
│                                                                    │
│                                                                    │
│                                                                    │
└────────────────────────────────────────────────────────────────────┘
```

4. How many LEP services were requested this quarter? _____

5. Cost of LEP services provided this quarter? _____

VII. <u>Complaint Information</u>

1. List any complaints of discrimination filed with your division/program area for the reporting period to include: Date of complaint, name of person who filed the complaint, and nature of the complaint (brief statement).

```
┌──────────────────────────────────┬──────────────────────────────────┐
│ Date: _____   │ Date: _____   │
│                                  │                                  │
│ Name: _____   │ Name: _____   │
│                                  │                                  │
│ Nature: _____   │ Nature: _____   │
│                                  │                                  │
│         _____   │         _____   │
│                                  │                                  │
│         _____   │         _____   │
│                                  │                                  │
└──────────────────────────────────┴──────────────────────────────────┘
```

   b. No complaints filed against this division/office for this reporting period ❑

VIII. <u>Training</u>

1. Has the Title VI Liaison received Title VI training within the last two years?

      Yes   ❑   No ❑

If so, please briefly describe who conducted the training and when it was conducted:

```
┌────────────────────────────────────────────────────────────────────┐
│                                                                    │
│                                                                    │
│                                                                    │
│                                                                    │
│                                                                    │
└────────────────────────────────────────────────────────────────────┘
```

2. Has the program area received Title VI training within the last two years?

Yes ☐   No ☐

If so, please briefly describe who conducted the training and when it was conducted:

```



```

3. Does the program area have a Title VI training request?

Yes ☐   No ☐

If so, please briefly describe the need:

```



```

IX. <u>Major Accomplishments</u>

Please list and provide a summary of activities and accomplishments within your division/program area relative to any or all of the following (please send attachment if more space is needed):

1. Promoting and providing diversity in the decision-making process; addressing/mitigating any possible adverse impacts on minority communities.

```



```

2. List any efforts your program area has made to your processes towards compliance with Title VI.

```



```

Please submit documents to the Civil Right Office.

ADOT

Product Evaluation Program (PEP)
Product Evaluation Report

Mm DD, YYYY

PEP ID	
Product	
Manufacturer	
APL Category	

The evaluation has been completed for the above product according to the criteria for the applicable APL category. The results are reported below.

APL Recommendation	Pass or Fail
Recommendation Notes	(If Applicable)

Report prepared by:

Product Evaluation Program (PEP) — ADOT Research

Center 206 S. 17th Avenue, Mail Drop 310B

Phoenix, AZ 85007

Product Evaluation Program (PEP)
Product Evaluation Report

General Information

PEP ID	
Product	
Manufacturer	
Applicant	Enter Applicant Name Enter Address Enter City, State, Zip Code Enter Website Enter Contact Person Name Enter Contact Person Number Enter Contact Person Email
Product Description	
ADOT APL Category	
ADOT Standard Specifications	
ADOT Stored Specifications	
ADOT Standard Drawings	
Safety Data Sheet (SDS)	
Testing Laboratory	
AASHTO Product Evaluation & Audit Solutions (formerly NTPEP)	
APL Note	If a product is recommended for the APL, provide brief guidance for usage.

Product Evaluation Program (PEP)
Product Evaluation Report

Evaluation Results

APL Category:

ADOT Specification:

ADOT Stored Specifications:

ADOT Standard Drawings:

Material Property	Specification / Test Method	Requirements	Results	PASS / FAIL

Add additional row(s) for each material property.

Last Modified: MM/DD/YYYY