

# ADOT Research Center 2020 Program Manual

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Arizona Department of Transportation Research Center





# **Arizona Department of Transportation Research Center 2020 Program Manual**

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## Acronyms

AASHTO	American Association of State Highway Transportation Officials
APL	Approved Products List
APP	Arizona Procurement Portal
ASET	Arizona Strategic Enterprise Technology
BECO	Business Engagement and Development Office
BSR	billing summary and reimbursement
CAR	Comprehensive Agreement Resource
CFR	Code of Federal Regulations
CRO	Civil Rights Office
DBE	disadvantaged business enterprise
FHWA	Federal Highway Administration
IDO	Infrastructure Delivery and Operations Division
IGA	intergovernmental agreement
ITG	Information Technology Group
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
PDF	portable document format
PEC	product evaluation committee
PEP	Product Evaluation Program
PO	purchase order
PM	project manager
RAC	research advisory committee
RiP	Research in Progress
RFP	request for proposal
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

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This manual describes the management and functions 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

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The Research Center manages 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 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 Research Center staff and conducted by consultants 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

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The primary source of funding for ADOT's research and product evaluation programs is the Federal Highway Administration (FHWA). The FHWA regulatory requirements for the use of SPR-B are described in the Code of Federal Regulations ([23 CFR 420.209](#)).

### ***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. 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](#) prohibits discrimination based on race, color, and national origin. 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

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The ADOT Research Center is part of the ADOT [Multimodal Planning Division \(MPD\)](#). Organization charts for ADOT and MPD are available to ADOT staff on the ADOT intranet ([ADOTNet](#)). An organization chart for 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 funds. ADOT policies are available on ADOTNet. MPD practices are established informally through the MPD director. The responsibilities of Research Center personnel are described here.

*Working title:* **Research Center Manager**

*Official position title:* Administrative Services Administrator

*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, 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
- Chairs the ADOT Research Advisory Committee
- Coordinates participation in the FHWA Transportation Pooled Fund program
- Prepares and manages the Research Center budget
- Prepares and maintains the Research Center Program Manual
- Maintains the ResearchTrack database
- Maintains the content of research program webpages

- Serves as Arizona’s representative to the Transportation Research Board (TRB)
- Serves on the Arizona Council for Transportation Innovation
- Serves on the 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 Section Positions***

*Working title:* **Senior Research Project Manager**

*Official position title:* Planning Program Manager 2 (three positions)

*Reports to:* Research Center Manager

*Senior Research Project Manager Duties:*

The Senior Research Project Manager actively manages transportation research studies that are performed by 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 for research studies
- Manages the selection and hiring of research consultants
- Manages consultant work performed under research contracts; monitors consultant 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 ResearchTrack database 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:* Public Information Officer 2

*Reports to:* Research Center 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 and advises consultants and project managers
- Ensures that final reports and other technical documents are clear, logical, consistent, and complete
- Serves as the project manager for editing performed by contract editors
- Updates the Transportation Research Board's Research in Progress database
- Distributes research reports in compliance with federal guidelines
- Coordinates updates to the SPR-B Work Program

### ***Product Evaluation Section Positions***

*Working title:* **Product Evaluation Program Supervisor**

*Official position title:* Planning Program Manager 2

*Reports to:* Research Center Manager

*Product Evaluation Program Supervisor Duties:*

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

- Manages the Product Evaluation Program
- Establishes program processes and guidelines
- Supervises product evaluation engineer/ specialist and student interns
- Manages consultant work performed under contract; monitors consultant budgets and reviews/approves invoices

- Manages the Approved Product List (APL)
- Communicates with internal customers, external stakeholders, and industry representatives
- Maintains the content of Product Evaluation Program web pages
- Develops content in the Research Center Program Manual relevant to the Product Evaluation Program
- Uses, monitors, and maintains operations of AZPEP online product evaluation portal while periodically coordinating updates with software consultant, WizehiveServes on AASHTO's National Transportation Product Evaluation Program (NTPEP)
- Attends ADOT Standards Committee meetings

*Working title:* **Product Evaluation Engineer/Specialist**

*Official position title:* Transportation Engineer 2/Planning Program Manager 1

*Reports to:* Product Evaluation Program Supervisor

*Product Evaluation Engineer/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**

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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 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.





# ADOT RESEARCH STUDIES

## Research Study Development

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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 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 as the *Appendix*.

### ***Research Study Selection and Funding***

Problem statements are presented by the assigned PM at a Research Advisory Committee (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 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 \(TPF\)](#) program is administered by FHWA, the Transportation Research Board (TRB), and the American Association of State Highway and Transportation Officials (AASHTO). 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 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

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### ***Research Project Managers***

All ADOT research studies are managed by a Research Center project manager (PM) (see 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 occasion, 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 consultant responses (proposals) to requests for proposals; review and refine the study work plan (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 consultant, 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 consultants through MPD Contracts and the ADOT Procurement Office in accordance with the MPD Procurement Process Standard of Work, the [Arizona Procurement Code](#) and [2 CFR Part 200](#). Research contracts are awarded to qualified consultants through a competitive process:

- The Research Center manager, serving as the budget owner, assigns and authorizes the procurement using an online tool operated by MPD Contracts.
- The PM prepares an objectives-based scope of work. To the extent possible, the scope does not specify a required method.
  - To comply with requirements of Title VI and the [ADOT Title VI Plan](#), the PM conducts a four-factor [limited English proficiency \(LEP\)](#) analysis to determine if the scope must call for LEP services (e.g., translation of a survey into Spanish). The sponsor and other key stakeholders review to ensure technical accuracy.
  - MPD Contracts reviews to verify compliance with federal programmatic requirements.
- The PM enters required information into the research template developed and administered by MPD Contracts. The information includes the specifications and scope, information about project location and tribal entity involvement, relevance of the Brooks Act, the independent cost estimate, the work category breakdown for DBE goal assessment, and the selection panel, which comprises the PM, the sponsor and/or champion (supervisors and their directly reporting staff cannot serve on a selection panel concurrently), and another member of the TAC. The PM may also identify relevant subject matter experts who may be called upon to answer technical questions during the process of reviewing consultant proposals. The Research Center manager and technical editor serve as subject matter experts on every selection panel.
  - The PM indicates in the research template when a research study includes an information technology (IT) component, such as the development of a model that will be integrated within the ADOT IT environment. In such cases, the [ADOT Information Technology Group](#) (ITG) must review and approve the study request before it can proceed. When the budget of a study with an IT component exceeds \$25,000, ITG forwards the request to the [Arizona Strategic Enterprise Technology \(ASET\) Office](#) for further review and approval.
- MPD Contracts processes and submits the information to ADOT Procurement and submits a disadvantaged business enterprise (DBE) goal request using the online tool administered by the [ADOT Business Engagement and Development Office](#) (BECO). If an applicable and awarded procurement contract exists, such as an on-call contract, MPD Contracts distributes a task assignment or request for quote in compliance with the contract and completes the procurement process.

- If an awarded procurement contract does not exist, ADOT Procurement prepares the solicitation, typically a request for proposals (RFP) using template language agreed upon by the Research Center and MPD Contracts, and completes the procurement processes according to the relevant requirements of the Arizona Procurement Code. Most research study procurements require solicitation as RFPs.

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.

## Monitoring Research Progress

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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 consultant, 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 consultants 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 form, or BSR).

The PM documents consultant 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*.

## Report Preparation

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A final report is required for all completed research. The Research Center develops and maintains the [\*Specifications for Preparing Written Research Deliverables\*](#), which documents the format and editorial standards required for research reports and other research products. The *Specifications* are posted online and referenced in all research contract documents. The PM and technical editor ensure that the consultant is familiar with the *Specifications* at the outset of the study. The PM, technical editor, and key

members of the consultant team (project manager and technical writer) meet at the commencement of each study to discuss expectations for written deliverables.

### ***Deliverable Review Process***

#### *Interim Deliverables*

- The consultant submits an interim deliverable, typically a technical memorandum, to the PM for review and approval.
- The PM distributes the deliverable to the TAC for critical analysis to ensure the document is technically accurate, thoroughly documents the study task, and is clear.
- The PM concurrently reviews the deliverable and, if it is the first deliverable or if there is need for editorial review, distributes it to the technical editor, who
  - Reviews content and organization; provides the PM with comments/guidance to convey to the author.
- The PM compiles their own comments with those from the TAC and, if applicable, the editor, and directs the consultant to revise the document accordingly.
- The PM approves the deliverable following satisfactory revision. While not desired, multiple review cycles may be needed prior to approval.

#### *Draft final report*

- The consultant submits draft final report to the PM for review and approval.
- The PM distributes the report to the TAC for critical analysis to ensure the document is accurate, thorough, and clear, while adhering to Research Center requirements for final reports.
- The PM concurrently reviews the report and distributes it to the technical editor, who
  - Checks for the presence and quality of specific required elements (abstract, reference list, recommendations, etc.)
  - Reviews for clarity, completeness, and organization; provides the PM with comments/guidance to convey to the author.
  - Identifies issues, if any, with the content.
- The PM compiles their own comments with those from the editor and the TAC and directs the consultant to revise the document.
- The PM approves the deliverable following satisfactory revision. While not desired, multiple cycles may be needed prior to approval.
- FHWA review: Following revision and approval of the draft final report, the PM sends a digital copy, accompanied by a transmittal email, to the research liaison at the FHWA Arizona Division office, who either reviews it personally or forwards it to the appropriate FHWA subject matter expert for review and concurrence to complete the report
  - FHWA must respond within 30 days of receipt of the report.
  - If FHWA requires revision of the report, the PM directs the consultant to revise.
  - If the requested revisions are significant, the PM submits the revised report to FHWA, and requests approval within one week.

### ***Final Report Editing and Publication***

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 technical editor determines who will edit the draft report based on report content and editor availability.
- The technical editor initiates a technical editing request for quote with MPD Contracts to assign editing to a contract editor. (The task assignment process may take considerable time and runs concurrently with the wait for FHWA approval.)
- The contract editor, upon receiving the notice to proceed and the draft final report from the technical editor, edits (revises) the draft report and documents unresolved issues that cannot be addressed independently.
- The contract editor returns the edited draft report and documentation of issues to the technical editor.
- The technical editor collaborates with the PM and the consultant to resolve all editing issues in the report. The PM ensures that the consultant answers all questions on content and makes necessary revisions within approximately two weeks.
- Following the PM's approval of all revisions and edits to the report, the technical editor sends the report file to ADOT Creative Services to format in the InDesign template for final research reports.
- Creative Services returns the formatted report to the technical editor.
- The technical editor verifies key quality points, makes necessary final adjustments, and converts to PDF format to post online; the editor sends the PDF document to the PM and the Research Center manager for a final review
- To post online, the technical editor sends a PDF of the final report to the ADOT Web Team for posting on [ADOT research reports](#) and notifies the PM and the Research Center manager.

### ***Report Distribution***

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

The technical editor prepares a transmittal letter for the Research Center manager's signature for distribution to the FHWA Arizona Division Administrator and the FHWA research liaison. The technical editor sends the letter with two print copies of the report. A sample transmittal letter is included in the *Appendix*. The technical editor arranges for report printing and binding with the print shop at the Arizona Department of Education and distributes to external collections either print copies or electronic links to the online report according to their requests. A list of all report recipients is provided in the *Appendix*. The list of electronic recipients is in accordance with the directive to AASHTO from a 2015 FHWA letter

([https://www.fhwa.dot.gov/publications/research/general/revision\\_to\\_spr\\_report\\_distribution.pdf](https://www.fhwa.dot.gov/publications/research/general/revision_to_spr_report_distribution.pdf)).

The technical editor keeps two print copies for the Research Center archives.

The technical editor periodically announces the publication of research reports to subscribers to ADOT's GovDelivery service.

## ***Study Documentation***

### *ResearchTrack*

Since 2012, the Research Center has maintained a Microsoft Access database called ResearchTrack to document essential information on research studies. Studies completed prior to 2012 are documented in a Microsoft Access database called ProjectTrack. However, Arizona state agencies will no longer have access in Microsoft products beginning in mid- to late-2020. Research studies will be documented in an as-yet-unidentified format after that time.

The database is designed to accommodate information that includes:

- 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 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.

Historically, the PMs file all study-related final documents (e.g., problem statement, work plan, meeting notes, deliverables) in the Research Center shared Windows drive. Following the transition from Microsoft products, study files will be stored in a 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 [Transportation Research Board](#) (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 consultants 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 database.

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 2020 is under way.

# FHWA STATE PLANNING AND RESEARCH WORK PROGRAM

## Requirements

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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 *Work 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 consultant. 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 (see 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.

## Schedule

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The technical editor and the PMs update information in the *Work Program* throughout each year, as described below, in the work program file that is saved on the common drive (Microsoft Word file) or in the cloud (Google Docs file).

### **After new research studies have been approved by the Research Advisory Committee and FHWA:**

- The Research Center manager notifies the technical editor.
- The editor inserts a new study description page in the work program in chronological order by SPR number and adds:
  - Study title (from the problem statement)
  - SPR number (from the Research Center manager)
  - PM and sponsor names (from the problem statement)
  - Footnote the table with estimated budget amount (from the RAC meeting)
  - Study description (condensed problem statement)
- The editor adds the study title and SPR number to the financial data table at the end of the work program.

**When a consultant is placed under contract for a new research study:**

- The study's research PM updates the study status spreadsheet that is shared through the ADOT Google Drive.
- The editor adds the new information to the study description page:
  - Name of the consultant firm and principle investigator
  - Contracted budget amount (remove footnote with estimated budget amount)
  - Percentage of the project's completion (0%)
  - Expected completion date

**When a study is completed (posted or not):**

- The editor updates study information throughout the work program:
  - To the study description page, adds "Completed Study" above the study title, updates the budget details with information collected from the PM, and revises the text to note the study's completion.
  - Adds study information to the table of completed studies at the front of the work program.
  - Removes the study from the financial data table at the end of the work program.

**When a study is cancelled:**

- The study's research PM notifies the editor of the cancellation.
- The editor updates study information throughout the work program:
  - To the study description page, adds "Cancelled Study" above the study title, updates the budget details with information collected from the PM, and revises the text to note the study's cancellation.
  - Removes the study from the financial data table at the end of the work program.

In the year that the biennial *Work Program* is submitted to FHWA (odd-numbered years), Research Center staff update it according to the schedule below:

**Late January:**

- The Research Center manager and editor initiate the update of the work program by explaining the update process and expectations to PMs at a staff meeting.
- Using the ADOT Google Drive, the editor shares with the PMs a copy of the study description page for each study that they manage, and informs them that their updated pages are due to the editor by a date in mid-February.

**Mid-to-Late February:**

- After the PMs submit hard copies of their updated study description pages, the editor:
  - Updates each study description page using information from the PMs.
  - Updates budget information in the financial data table at the end of the work program.

- Reconciles data in the financial data table with data in the study description pages.
- The Research Center manager updates and submits to the editor the pooled fund study table, the budget overview table, and text (outside of study descriptions).
- The editor formats the work program and paginates correctly.

**March:**

- The Research Center manager reviews and approves the work program, and submits it to the MPD division director by the March deadline.

The approximate dates for development of the State Planning and Research *Work Program* are shown in Table 1.

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

APPROXIMATE DATES*	ACTIVITY
Year-round	Research Center accepts viable ideas for new studies, and project managers prepare problem statements.  Research Advisory Committee meets two or three times annually to discuss problem statements and consider approval for funding. Amendments to the <i>Work Program (SPR-B)</i> are made for problem statements approved by FHWA for funding.
February - March	Research Center prepares the draft updated <i>Work Program (SPR-B)</i> .
March - April	The draft <i>Work Program (SPR-B)</i> is submitted to MPD for inclusion in <i>State Planning and Research Work Program</i> , which addresses Subparts A (planning) and B.  MPD prepares a letter to FHWA authorizing program funds.  The MPD director presents the draft <i>State Planning and Research Work Program</i> to FHWA.
June	MPD Finance submits to FHWA the draft <i>State Planning and Research Work Program</i> , 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.

## Funding Documentation and Modifications

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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.

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. When a consultant is selected for a specific study:

- MPD Contracts processes the procurement documents and requisition through the state procurement system, the [Arizona Procurement Portal \(APP\)](#).
- ADOT Procurement reviews the requisition and, after its approval, APP generates a purchase order (PO) that serves as the notice to proceed. The PO specifies each invoiceable task/deliverable and the associated fee as presented in the approved study budget.
- MPD Contracts issues an email to the consultant and the ADOT PM confirming the notice to proceed.
- MPD Contracts maintains a work project record and a procurement record that contains all federally-required documentation. ADOT Procurement maintains the contracting record for solicitations in APP.
- ADOT Procurement stores in APP all award documents, which may be downloaded.

### ***Invoices and Payments***

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

- The consultant submits the invoice, using the MPD Billing Summary and Reimbursement (BSR) form, to MPD Finance at [MPDInvoice@azdot.gov](mailto:MPDInvoice@azdot.gov).
- MPD Finance reviews the invoice and notes whether the following elements are complete:
  - All required fields on the BSR are populated (vendor name, accurate PO number, ADOT PM name, vendor contact information, invoice number, period of performance, invoice date, etc.).
  - The dollar amounts on the BSR (for budget award, change award, total award, prior payments, discounts, invoice amount due, award balance) are identical to the amounts stated on the purchase order.

- All calculations on the BSR are accurate.
- Travel expenses comply with the Arizona state travel policy.
- Required supporting documents (travel receipts, expense ledger, etc.) are included.
- If it is a final invoice, the required DBE information (a copy of the email message from BECO to the consultant that confirms BECO's receipt of the required DBE forms) is included.
- MPD Finance, after confirming that the invoice is complete, logs receipt of the invoice and forwards it to the appropriate PM. If the invoice is deemed incomplete, MPD Finance returns it to the consultant with the deficiencies noted; the invoice is not logged in and the PM is not notified.
- The PM approves/rejects the invoice through DocuSign after ensuring that the work for which ADOT is being invoiced has/has not been completed to the department's satisfaction. To determine this, the PM verifies that work for which ADOT is being invoiced is complete and meets the requirements of the awarded work plan. The PMs also review the information already checked by MPD Finance to ensure no problems have been overlooked.
  - The consultant's contract requires invoicing and payment as a fixed price by task/deliverable according to the approved work plan. However, to help ensure compliance with federal regulations, the consultant submits an itemization of hourly labor for each member of the consultant team. The hours are expected to reflect effort, are not required to align with the contracted fixed price, and do not affect the fixed price.
- The PM completes the VPR form that accompanies each BSR, noting the consultant's performance in terms of meeting the expectations of the work plan's scope, schedule, and budget.
- To close out the study, after the PM completes the final invoice, MPD Finance sends the MPD project completion/close-out form to the consultant. The consultant completes the form and submits it to MPD Finance.

## ***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. The process follows.

- The PM submits the modification details into the online tool operated by MPD Contracts.
- MPD Contracts reviews the requested modification for federal and state permissibility before authorizing the change.
- MPD Finance requests FHWA approval for the budget change and, following receipt of that approval, transfers funds from the appropriate account into the study budget.
- MPD Contracts submits documentations to the procurement contract's assigned ADOT procurement officer if a contract amendment is required.
- MPD Contracts completes the APP requisition, which may result in either a new purchase order or a change order to an existing purchase order.
- ADOT Procurement reviews the requisition and, after approving, APP generates a PO.
- MPD Contracts generates a confirmation email to the consultant and PM.
- MPD Contracts maintains the procurement record for such modifications.

A consultant may occasionally request a modification that does not require a change to the overall budget (e.g., adjusting the budget across study tasks but leaving the overall budget unchanged). In such cases the process is the same, excluding the funding approval submission by MPD Finance.

## **Study Cancellation Procedure**

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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 cancellation process is as follows:

- The PM or a key stakeholder identifies an issue that may warrant cancellation.
- The PM reviews the study status with the sponsor, the primary customer for the research, with potential input from other key stakeholders.
- If the sponsor believes that the study should be canceled, the PM submits the written rationale and recommendation to the Research Center manager.
- Following the approval of the action and documentation by the Research Center manager, the PM sends a letter to FHWA recommending study cancellation and briefly stating the reason.
- If FHWA concurs, it notifies the Research Center by letter, which is kept on file.

- The Research Center forwards a cancellation request, the FHWA concurrence letter, a VPR, and other relevant documentation to MPD Contracts.
- For studies awarded on an off-contract (e.g., through an RFP process) purchase order:
  - MPD Contracts issues a Stop Work Order to the consultant and requests final invoicing.
  - MPD Contracts works with MPD Finance to ensure the final payment is issued.
  - Following payment, MPD Contracts closes the purchase order in APP.
- For studies awarded on an on-contract (e.g., through an on-call contract) purchase order:
  - MPD Contracts assembles and forwards the necessary documentation to ADOT Procurement.
  - ADOT Procurement issues a Stop Work Order to the consultant and requests final invoicing.
  - MPD Contracts works with MPD Finance to ensure that final payment is issued.
  - Following payment, MPD Contracts closes the purchase order in APP.
- For studies under an IGA or JPA:
  - MPD Contracts issues a Stop Work Order and requests final invoicing.
  - MPD Contracts works with MPD Finance to ensure final payment is issued.
  - Once paid, MPD Contracts closes the agreement in the Comprehensive Agreement Resource (CAR) database.
- MPD Finance transfers any remaining funds in the study budget to the general research account.



## NATIONAL RESEARCH PROGRAMS AND ACTIVITIES

### Peer Exchanges

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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.

### AASHTO

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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 \(RAC\)](#) with each member DOT 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 Transportation Research Board Annual Meeting each January, and is typically held jointly with the Transportation Research Board/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

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The [Transportation Research Board \(TRB\)](#) is a program unit of the National Academies of Sciences, Engineering, and Medicine, which provide independent, objective analysis and advice to the nation and conduct other activities to solve complex problems and inform public policy decisions.

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 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 Research Advisory Committee, 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 ideas that to 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 Standing Committee on Research and Innovation, which makes the final decision on research study funding.

### ***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)

## **Local Technical Assistance Program**

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[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

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The [ADOT Product Evaluation Program](#) (PEP), which is operated by the Research Center and funded by SPR-B, 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 ADOT's [Standard and Stored Specifications](#), 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.

## Staff

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PEP is a section within the Research Center in the ADOT [Multimodal Planning Division \(MPD\)](#). See the organization chart in the *Appendix*. Positions and responsibilities are listed on pages 5 and 6.

## Product Evaluation Committees

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PEP established and works closely with two ADOT committees, the Materials Product Evaluation Committee (MatPEC) and the Traffic Control Product Evaluation Committee (TCPEC). MatPEC is chaired by the State Materials Engineer (Assistant State Engineer, Materials Group), while TCPEC is chaired by the State Traffic Engineer (Assistant State Engineer, Traffic Group). Both assistant state engineers work in the Infrastructure Delivery and Operations Division (IDO).

### **Membership**

MatPEC and TCPEC each consist of no fewer than seven members. Members are subject matter experts primarily drawn from the following groups of the ADOT Infrastructure Delivery and Operations Division and the ADOT Transportation System Management and Operations Division: Materials, Pavement Management, Traffic, Construction, Roadway, and Bridge. FHWA is also represented on each committee. Only ADOT employees are voting members.

### **Responsibilities**

Each committee member is responsible for reviewing the evaluation of each recommended product and determining whether it is to be accepted to the APL. At least five ADOT members must approve a product for it to be included on the APL. However, in the case of any negative votes, members will investigate and discuss the evaluation report and reach a decision by consensus or a second round of voting.

## **Subcommittees**

Either PEC may form a subcommittee to review the evaluation of specialty products or to address specific issues. Subcommittees are headed by a member of the PEC. The subcommittee reports the findings and recommendations to the originating PEC for decision.

## **Applying to the APL**

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### ***Initial Application Process***

A product must be evaluated to be considered for the Approved Products List (APL). In 2020, PEP adopted an online submissions portal, AZPEP, which is available under the Application heading on the [ADOT Product Evaluation Program](#) web page. 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 application requires the applicant to provide basic contact and product information, list applicable APL categories, and upload product literature files, including safety data sheets (SDS).
- PEP staff determine whether the application will proceed to evaluation. These criteria must all be met:
  - ADOT must have an APL category for the product type;
  - The product's use must apply to ADOT's needs as defined by the responsible ADOT group; and
  - The application must be complete.
- If the application has not met the above criteria, staff will *withdraw* the application from further consideration.
- PEP staff will notify the applicant whether the application will proceed to evaluation or if it had to be 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 in the future.

### ***Evaluation Process***

The next step is evaluation. PEP staff evaluate the majority of product applications and assign the remainder to ADOT subject matter experts and external consultants. 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 the types of test data required for the evaluation.
- Staff request by email that the applicant upload through AZPEP the data resulting from the specified laboratory testing, a technical data sheet for the product, and, if not already uploaded, a SDS for products with a chemical formulation. The testing must have been performed by an

independent laboratory, and the results signed by the laboratory manager or signed and sealed by a Professional Engineer.

- The applicant submits the requested information by uploading files through AZPEP.
  - If the submittal is complete and delivered by the stated deadline, staff continue the evaluation process.
  - If the submittal is incomplete and/or delivered late, staff withdraw the application and notify the applicant.
- Staff forward the SDS to Safety and Risk Management (S&RM) to review before beginning the product evaluation. S&RM verifies conformance with the following criteria before approval:
  - All 16 sections of the SDS are completed in accordance with OSHA's Hazardous Communication Program.
  - The SDS confirms that quantities of chemicals in the product (in expected usage) are within the permissible exposure limits and recommended occupational exposure limits.
  - The SDS includes information to determine that the hazards can be mitigated through standard engineering controls and/or personal protective equipment.
  - The SDS describes the product use, and use of this product must align with all applicable S&RM policies.
- Staff compare the provided test data to the criteria in the relevant ADOT specifications and/or standard drawings.
  - 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.
  - If the test data do not meet the ADOT specification, staff notify the applicant that the product is *denied*.

### ***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 PEC and administer the voting process by email or at a committee meeting.
- PEC members review the evaluation report and vote whether to approve the product onto the APL.
  - When the PEC votes approval, PEP staff notify the applicant by email. 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 PEC votes denial, PEP staff notify the applicant by email.

## Product Renewal

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Products approved for the APL typically remain on the list for five years. Three months prior to a product's expiration, PEP staff will send a courtesy reminder to the contact person on record. Before the product expires, product applicants must submit updated product information by email to PEP and apply to renew the product's APL status through the AZPEP portal. The following must be submitted as part of the renewal:

- Whether the product name has changed and list the new name
- Whether the product has been changed, reformulated, or altered and how
- Uploaded files of:
  - product literature describing the product
  - current technical data sheets
  - current SDS for products with chemical formulation
  - testing results reflecting adherence to current ADOT standards

PEP staff review the incoming product information to ensure that the product still adheres to the applicable ADOT standards. If it does, the product is renewed for another five-year period.

Under certain circumstances when a product is due for renewal, PEP staff may determine the need for a full re-evaluation, which requires that a new application be submitted through the AZPEP portal. Staff will notify the contact person on record of the determination.

## Removing Products from the APL

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### ***Product Expires***

PEP staff may remove a product from the APL for multiple reasons. One circumstance for removal is if a product expires after the five-year period and the applicant fails to submit a renewal. Or the applicant submits a renewal, and the product fails to meet ADOT standards.

### ***Product Deemed Unacceptable***

On occasion, ADOT practitioners identify that a product is unacceptable for use and request that it be removed from the APL. Or ADOT practitioners may deem that an APL category is no longer necessary, and request that it be removed from the APL, in which case, all the associated products are removed as well. Staff will notify the appropriate PEC, which discusses the case and reaches a decision on removal of either the product or category.

### ***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. Determination is made on a case-by-case basis, and adjustments may be made to the APL's product listing. In some cases, PEP staff may remove the changed product from the APL. In that situation, an



applicant who desires that the changed product be added back to the APL must apply for a full evaluation by submitting a new application through the AZPEP online portal.

### **Changes to ADOT Standards**

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

### **National Transportation Product Evaluation Program**

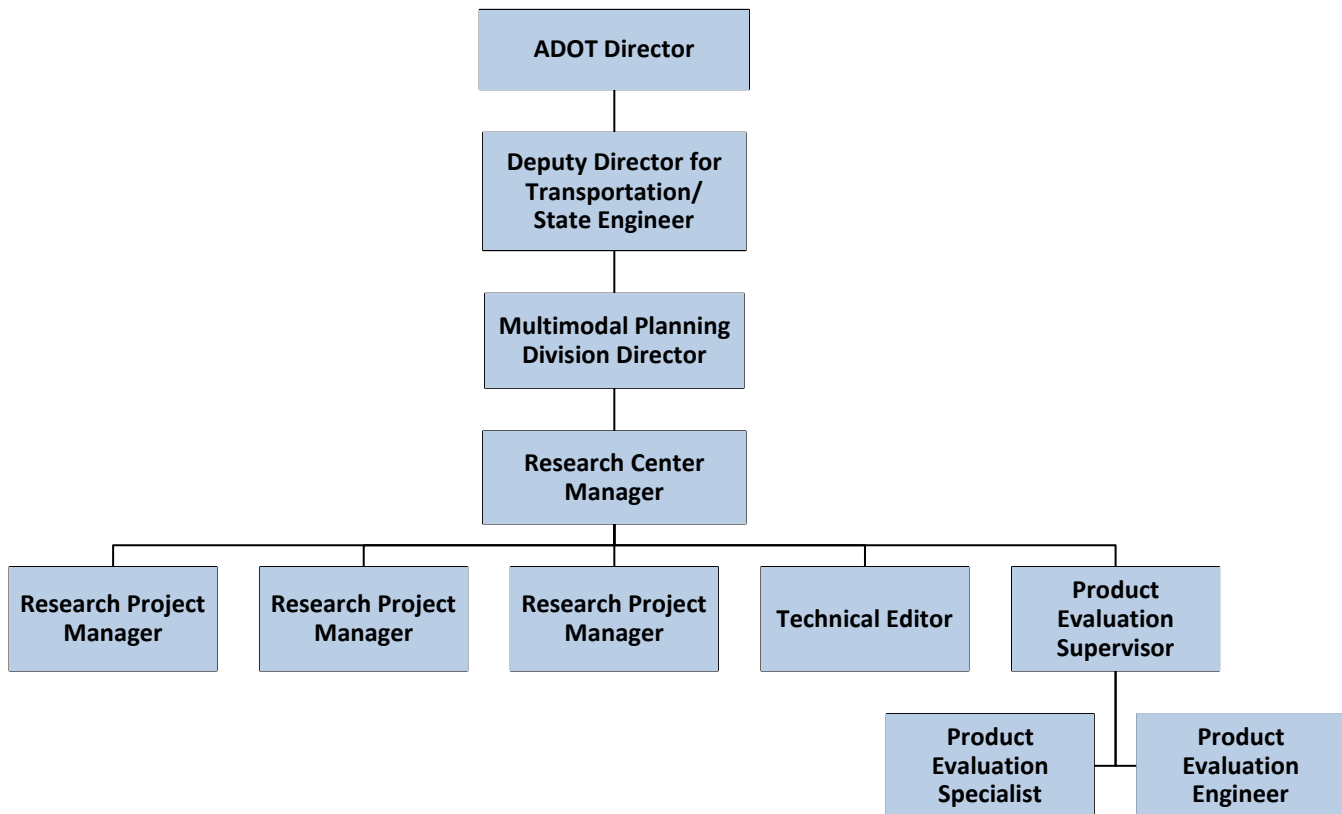
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The AASHTO National Transportation Product Evaluation Program (NTPEP) is a partnership between public agencies and private sector manufacturers. Its primary service is single-source testing of products manufactured to AASHTO standards and commonly used by state DOTs. The ADOT Product Evaluation program supervisor and other key ADOT staff are members of NTPEP and its various technical committees.

## APPENDIX

## Research Center Organizational Chart 2020

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## Research Request Template

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### ADOT Research Center

#### Research Request

Date:

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#### *Contact information*

Name:

Position:

Group:

Email:

Telephone:

---

The Research Center helps ADOT solve problems. Research studies may provide the information staff need to improve processes and products.

**What problem or challenge are you currently facing?** Briefly describe. The Research Center will contact you to discuss further.

## Research Problem Statement Template

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[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

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*[on Multimodal Planning Division letterhead]*

June 19, 2018

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

Subject: SPR-577, Arizona Quiet Pavement Pilot Program: Comprehensive Report

Dear Ms. Petty:

Enclosed are two copies of the subject final report. The report is also available on the internet at <http://azdot.gov/planning/research-center/research/research-reports>. Submittal of this report fulfills our obligation for this research study. Please let us know if you need additional copies.

Sincerely,

Dianne Kresich  
Research Center Manager  
Arizona Department of Transportation  
206 South 17th Avenue, MD 310B  
Phoenix, AZ 85007

Enclosures

(2) SPR-577, Arizona Quiet Pavement Pilot Program: Comprehensive Report (final report)

## Sample Research Report Cancellation Letter to FHWA

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*[on Multimodal Planning Division letterhead]*

July 3, 2018

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

Attn: Romare Truely

Dear Ms. Petty:

The ADOT Research Center has cancelled 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,

Dianne Kresich  
Research Center Manager

## Research Report Distribution List

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### PRINT COPY RECIPIENTS

State Documents (2 copies)  
 Arizona Library, Archives & Public Records  
 1919 W. Jefferson St.  
 Phoenix, AZ 85007

Ms. Karla Petty (2 copies)  
 Division Administrator  
 Federal Highway Administration  
 4000 N. Central Ave., Suite 1500  
 Phoenix, AZ 85012

Transportation Center Library (1 copy)  
 Northwestern University Library  
 1970 Campus Drive  
 Evanston, IL 60208-2300

Research Center Collection (2 copies)  
 Arizona Department of Transportation  
 206 S. 17th Ave.  
 Phoenix, AZ 85007

### ELECTRONIC RECIPIENTS

<b>Federal Highway Administration (FHWA) Research Library</b>	Turner-Fairbank Highway Research Center 6300 Georgetown Pike McLean, VA 22101-2296 <a href="mailto:fhwalibrary@dot.gov">fhwalibrary@dot.gov</a>
<b>FHWA, Office of Corporate Research, Technology, and Innovation Management, HRTM-10</b>	Turner-Fairbank Highway Research Center, Room T-305 6300 Georgetown Pike McLean, VA 22101-2296 <a href="mailto:john.moulden@dot.gov">john.moulden@dot.gov</a>
<b>National Transportation Library (NTL)</b>	NTL Headquarters, W12-300 1200 New Jersey Avenue SE Washington DC 20590 <a href="mailto:NTLDigitalSubmissions@dot.gov">NTLDigitalSubmissions@dot.gov</a>
<b>National Technical Information Services (NTIS)</b>	U.S. Department of Commerce 5301 Shawnee Rd Alexandria, VA 22312 <a href="mailto:input@ntis.gov">input@ntis.gov</a>
<b>Transportation Research Board (TRB)</b>	Transportation Research Board Library (TRID) 500 Fifth Street, NW Washington, DC 20001 <a href="http://trid.trb.org/submit.aspx">http://trid.trb.org/submit.aspx</a>
<b>Northwestern University Transportation Library</b>	1935 Sheridan Road Evanston, IL 60208 <a href="mailto:r-sarmiento@northwestern.edu">r-sarmiento@northwestern.edu</a>
<b>State of Arizona Research Library</b>	State Publications Librarian State of Arizona Research Library 1919 W. Jefferson, Phoenix, AZ 85009 <a href="mailto:reports@azlibrary.gov">reports@azlibrary.gov</a>



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

Consultant:		Jeff Gagnon, Arizona Game and Fish Department	
		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	Bernadette Phelan
Percent Complete	40%	Project Sponsor	Paul O'Brien

^ Includes expenses from the remainder of FY20 and all of FY21.

**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		MPO Tracking Number (Use Format: MPOmmmyyNTR use "MPOmmmyy") (yy = last 2 digits of the State Fiscal Year (July 1 - June 30))										
Agency Name					Master Procurement Contract Number										
Agency PM Name / Email (Nodify Reimbursement / Request / Paid)					Purchase Order Number										
Invoice Number		Invoice Status (Select from List)		Invoice Date		Project Title (For Research Project add SPR Number)									
Vendor Comment (Optional)				Billing Period		Federal Funding Agency (Select from List)									
Remit Payment to (Select from List)						Funding Program (Select from List)									
Entry required in field E3						Entry required in fields E2 and N6									
						Race Conscious DBE Goal % (Vendors who are AZ Certified DBEs, enter 100)									
SUMMARY OF WORK FOR WHICH PAYMENT IS REQUESTED															
Project Task No	PQ 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. Penalties, Set-Asides, 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				Please Leave Blank				Please Leave Blank			
<p>Submitter Certification required pursuant to 2 CFR 200.411: 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)</p> <p>I confirm No Race Conscious DBE Goal was Assessed for the Project(s) and No AZ DBE Firms Participated.</p>															
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.		Travel charges are in accordance with State/ADOT Policy		Status		Reason for Rejection		ADOT PM Signature Required							
		Progress toward Scope aligns with Awarded Requirements		Invoice Approved		Invoice Rejected									
		Invoking 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									
Not FTA Funded - Please leave section below blank															
Please Leave Blank				Please Leave Blank				Please Leave Blank				Please Leave Blank			
Please Leave Blank				Please Leave Blank				Please Leave Blank				Please Leave Blank			
Color Key															
Pink with Red Text = Entry/Correction Required															
White field = Field Data Processed = 100% Documentation															
White Field = Entry in Field Permitted															
Pale Orange = Form Calculated field															
Teal = Vendor/Customer Generated															
Grey = Disregard Field															

		<h3 style="text-align: center;">Vendor Performance Report</h3> <p style="text-align: center; font-size: small;">This document should be used to document positive or negative performance by a contractor and to state whether corrective action is required. Please complete &amp; return to ADOT Procurement.</p>		Arizona Department of Transportation Procurement Group 1739 W. Jackson Street, 100P Phoenix, AZ 85007 Facsimile: 602.712.3717	
<b>PART 1</b>			<b>AGENCY REPORT</b>		
Agency/ORG     Arizona Department of Transportation / Multimodal Planning Division			Agency Address     Mail Drop 310B, 206 S. 17th Avenue, Phoenix, AZ 85007		
ADOT Contact		Telephone	Contact Address		
Vendor     0			Vendor Contact     0		
Contract No.     0	PO Number     0		Date	Invoice     0	Date     0
Describe the performance issue. Be accurate, complete and factual. Use an attachment if necessary.					
MPD Tracking Number     0	Project Title     0				<b>Interim YPR</b>
Describe Compliance with Invoicing Requirements:					
Describe Project Delivery Compared with Schedule:					
Describe Project Outcome Compared with Objectives:					
<input type="checkbox"/> Reporting incident, no action requested. <input type="checkbox"/> Specific action requested:					
Signature of Agency Representative				Date	
<b>PART 2 - ADOT PROCUREMENT ACTION</b>					
Date of Action		Action Taken:			
Contract Officer				Date	

## Sample Title VI Quarterly Report



Reporting Period	Due Date	
1/1 - 3/31	May 1 <sup>st</sup>	<input checked="" type="checkbox"/>
4/1 - 6/30	August 1 <sup>st</sup>	<input type="checkbox"/>
7/1 - 9/30	November 1 <sup>st</sup>	<input type="checkbox"/>
10/1 - 12/31	February 1 <sup>st</sup>	<input type="checkbox"/>

### TITLE VI QUARTERLY REPORT

Please submit to the ADOT Civil Rights Office via email: [civilrightsoffice@azdot.gov](mailto: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: MPD Research Center

Title VI Liaison: Dianne Kresich

Official Title: Research Center Manager

Date Submitted: 01/24/2018

Mailing Address:

206 S. 17th Avenue

Phone: ( 602 ) 712-3134

MD 310B

Fax: (    )

Phoenix, AZ 85007

Email: dkresich@azdot.gov

#### **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? 25 projects are programmed or active

Please upload any additional tables or charts here:

Awarded Project Information			Highest Limited English Proficient (LEP) language in project area	
PROJECT TITLE	TRACS No.	PROJECT LOCATION	Language	Percentage
Evaluation of ADOT Messaging in Public Involvement		Statewide	Spanish	

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

A detailed work plan and research method are developed for each study. For studies that require the collection of demographic and LEP data, study consultants use reliable sources of information and document their findings in deliverables. When surveys are conducted to collect data, demographic information is typically requested from the survey respondent.

### 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:

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):

The notices are posted inside the Research Center next to the door. At public meetings, notices are displayed at meeting room entrances.

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:

The Title VI material provided by ADOT, which includes a translation into Spanish, is displayed at public meetings conducted during the research process. No public meetings were conducted during the past quarter.

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 We refer consultants to information sources. Task assignments include information, as well.

#### **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
Evaluation of ADOT Messaging in Public Involvement		Yes

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

We conduct four-factor analyses to determine appropriate language services. If such services are needed, this would be noted in the project scope and accommodated in the budget. The selected consultant would typically provide these services.

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

None this quarter.

4. How many LEP services were requested this quarter? 0 \_\_\_\_\_

5. Cost of LEP services provided this quarter? 0 \_\_\_\_\_

**VII. Complaint Information**

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. Training**

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:

FHWA training, November 2016.  
Quarterly liaison meetings.  
Training to Research Center staff, March 2018.



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:

The Research Center manager received FHWA training in November 2016. CRO providing training to Research Center staff in March 2018.

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

Yes ☐ No ☒

If so, please briefly describe the need:

**IX. Major Accomplishments**

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.

When relevant, the Research Center considers potential adverse impacts on minority communities when conducting research studies.

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

The Research Center manager informs staff on Title VI requirements and tries to ensure compliance.

If you need to attach any additional documents, please upload here:

Submit

Page 6 of 6  
15-0506 R05/17

## Product Evaluation Program: Product Evaluation Report Template

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### Product Evaluation Program (PEP) Product Evaluation Report

<Date>

PEP ID	#xxxxx
Manufacturer Name	
Product Name	
APL Category/Subcategory	

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

<b>Meets APL Category Criteria</b>	<b>Yes</b>		<b>No</b>	
<b>Product Recommended for Approval to APL</b>	<b>Yes</b>		<b>No</b>	

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	# <del>XXXXX</del>
Product Name	
Applicant information: Company name, address, phone number, email address, and website address. Contact name, phone number, email address.	
Manufacturer	
ADOT APL Category/Subcategory	
Codes/ Specifications Mentioned	
Safety Data Sheet (SDS)	
Testing Lab name, location, and Certification status	
National Transportation Product Evaluation Program (NTPEP) Data	
Additional Application Information	
Primary Use	
APL Note	If product is recommended for the APL, provide brief guidance for usage.

**Product Evaluation Program (PEP)**  
**Product Evaluation Report**

**Evaluation Results**

**APL Category/Subcategory:**

**ADOT Specification:**

Material Property	Test Method	ADOT Test Requirement	Product Test Results	PASS or FAIL

Add additional row(s) for each material property.