

TRANSPORTATION POOLED FUND PROGRAM
QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): Federal Highway Administration (FHWA)

Instructions:

Project Managers and/or research project investigators should complete a quarterly progress report for each calendar quarter during which the projects are active. Please provide a project schedule status of the research activities tied to each task that is defined in the proposal; a percentage completion of each task; a concise discussion (2 or 3 sentences) of the current status, including accomplishments and problems encountered, if any. List all tasks, even if no work was done during this period.

Transportation Pooled Fund Program Project #TPF-5(478) Note: Obligation transactions must be completed prior to the project end date.	Transportation Pooled Fund Program - Report Period: <input type="checkbox"/> Quarter 1 (January 1 – March 31) <input type="checkbox"/> Quarter 2 (April 1 – June 30) <input checked="" type="checkbox"/> Quarter 3 (July 1 – September 30) <input type="checkbox"/> Quarter 4 (October 1 – December 31)
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Project Title:

Accelerated Implementation and Deployment of Pavement Technologies (AIDPT) Pooled Fund

Pooled Fund Study Description:

Background:

Since 2013, FHWA's Accelerated Implementation and Deployment of Pavement Technologies (AIDPT) Program, in partnership with State Departments of Transportation (DOTs), academia and industry, has identified asphalt and concrete paving advancements and seek to implement effective strategies for rapid deployment of new and promising technologies. Through the leveraging of Federal investments with State DOT partnerships, the AIDPT Pooled Fund study aims to advance deployment of engineering design criteria and specifications for new and efficient practices, products, and materials that support processes of importance to FHWA and State DOT partners.

The AIDPT Pooled Fund Study is an opportunity for participating states to advance deployment of the innovative technologies in interest areas including, but not limited to, Balanced Mix Design (BMD) for asphalt, performance engineered mixture (PEM) for concrete, pavement preservation, sustainability, resiliency or any other pavement management strategy that improves decision-making processes, technical frameworks, education efforts, and stakeholder engagement.

As this pooled fund is designed, FHWA collaborates with each DOT to define the parameters of each state pavement technology project. The above-mentioned topics were identified in the initial

solicitation; however, as noted, other topics are considered when proposed by participating DOTs. The study provides up to \$250,000, up to 100 hours of technical assistance, and resources for developing case study reports and videos for each selected pavement technology project. Additionally, FHWA plans to host a website for publishing case studies and other relevant project documents, as well as peer exchanges for showcasing lessons learned and best practices from the projects. Each state DOT is expected to participate in pooled fund meeting opportunities and actively collaborate with other states and FHWA to advance these initiatives. The state DOT will complete a report documenting the initiative and outcomes of selected state DOT accelerated pavement technologies projects.

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Lead Agency contact: LaToya Johnson	Other Project ID (i.e., contract #) N/A	Project Start Date: September 30, 2021
Original Project End Date: October 30, 2026	Current Project End Date: October 30, 2026	Number of Extensions: N/A

Project schedule status:

☒ On schedule ☐ On revised schedule ☐ Ahead of schedule ☐ Behind schedule

Overall Study Funding:

Table 1: Funding Commitments by Agency

Agency	Commitments					
	2021	2022	2023	2024	2025	2026
FHWA	\$1,504,000.00	\$1,000,000.00	\$1,000,186.000	\$1,035,000.00	\$_____	\$_____
AL		\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
AZ		\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	
CA				\$40,000.00		
CO		\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
CT			\$10,000.00	\$10,000.00	\$10,000.00	
GA	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	
HI	\$10,000.00		\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
ID	\$50,000.00					
IL		\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
IA		\$50,000.00				
LA		\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
ME				\$10,000.00	\$10,000.00	\$10,000.00
MS	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
MO	\$60,000.00					
NY			\$20,000.00	\$10,000.00	\$10,000.00	\$10,000.00
ND		\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	
OK		\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
OR				\$10,000.00	\$20,000.00	\$20,000.00
PA	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	
TN				\$16,666.00	\$16,666.00	\$16,666.00
TX	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	
VT			\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
WI	\$10,000.00	\$10,000.00	\$20,000.00	\$20,000.00		
Totals:	\$170,000.00	\$210,000.00	\$180,000.00	\$170,000.00	\$150,000.00	\$100,000.00

Table 2: Project Proposals by Agency

Agency	Project Proposals	Project Topics	Allocations				
			2021	2022	2023	2024	2025
AL	Finalized – Funding allocated (returned)	Asphalt - Balance Mix Design		\$250,000			
AZ	Finalized – Funding allocated	Resilience	\$200,000	\$50,000			
CA	Not Submitted yet	To be determined					
CO	Finalized – Funding allocated	Sustainability	\$250,000				
CT	Finalized – Funding allocated	Asphalt - Balance Mix Design			\$250,000		
GA	Submitted – Not active (to be removed)	Preservation					
HI	Finalized – Funding not yet allocated	Asphalt - Balance Mix Design					
ID	Not Submitted yet	To be determined					
IL	Finalized – Funding not requested	Performance					\$175,000
IA	Finalized – Funding allocated	Foundations		\$250,000			
LA	Finalized – Funding not yet allocated	Asphalt - Balance Mix Design				\$75,000	
ME	Finalized – Funding not yet allocated	Asphalt - Balance Mix Design					
MS	Not Submitted yet	To be determined					
MO	Finalized – Funding not yet allocated	Asphalt - Balance Mix Design			\$250,000		
NY	Finalized – Funding allocated	Asphalt – performance tests			\$136,000		
ND	Finalized – Funding transferred	Asphalt - Balance Mix Design			\$350,000		
OK	Not Submitted yet	To be determined					
OR	Finalized – Funding not yet allocated	Asphalt - Balance Mix Design				\$250,000	
PA	Not Submitted yet	To be determined					
TN	Finalized – Funding not yet allocated	Field Validation – Balance Mix Design				\$250,000	
TX	Finalized – Funding allocated	Asphalt - Balance Mix Design		\$250,000			(250,000)
VT	Finalized – Funding not yet allocated	Asphalt - Balance Mix Design				\$200,000	
WI	Finalized – Funding not yet allocated	Asphalt - Balance Mix Design				\$250,000	
Totals:			\$450,000	\$800,000	\$986,000	\$1,025,000	

Note: Pooled fund study project funding is sent to participating agencies via allocation memos. Allocation memos are sent to the DOT once project proposals have been submitted and finalized. Project proposals are typically in one of the following statuses: Not Submitted yet, Submitted-In review, Finalized – Funding not yet allocated, Finalized – Funding allocated. Additional project information is included in this report for agencies that have finalized project proposals and receive funding allocations, as provided with the project summaries included.

Table 3: Funding Transfers by Agency

Agency	Transfers				
	2021	2022	2023	2024	2025
AL		\$50,000			
AZ		\$10,000	\$10,000		
CA			\$10,000	\$40,000	
CO		\$10,000	\$10,000		
CT			\$10,000	\$10,000	
GA	\$10,000	\$10,000	\$10,000	\$10,000	
HI	\$10,000		\$10,000		
ID	\$50,000				
IL		\$10,000	\$10,000	\$10,000	
IA		\$50,000			
LA					
ME			\$10,000	\$10,000	
MS	\$10,000	\$10,000	\$10,000	\$10,000	
MO	\$60,000				
NY			\$30,000		
ND		\$10,000	\$10,000	\$10,000	
OK		\$20,000		\$10,000	
OR					
PA	\$10,000	\$10,000	\$10,000	\$10,000	
TX	\$10,000	\$10,000	\$10,000		
VT			\$20,000		
WI	\$10,000	\$10,000	\$20,000		
Totals:	\$170,000	\$210,000	\$190,000	\$120,000	

State Project Updates

Alabama: Alabama Department of Transportation (ALDOT)

Title: Balanced Mixture Design Pilot and Field Sections, Long term field evaluation of BMD test section benchmarking and determination of performance testing variability during production

Progress this Quarter:

- Mixes tested by ALDOT completed Q3. Mixes tested by NCAT are 80-90% complete.

Key Project Milestones:

- Mix designs are completed and approved. Construction has finished. Testing of mixes is to be finished next.

Anticipated Work Next Quarter:

- NCAT testing will be completed in Q4 2024.

Significant Results:

- There are no results to report currently.

Potential Implementation:

- We do not have sufficient information for this.

Quarterly Project Statistics:

State	Total Project Budget	Total Cost to Date for Project this Quarter	Percentage of Work Completed to Date
AL:	\$250,000.00	\$10,000.00	(TBD for Q3)
Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended	Total Percentage of Time Used to Date	
\$0.00	(TBD for Q3)	0	

Circumstance affecting project or budget:

- None provided

Colorado: Colorado Department of Transportation (CDOT)

Progress this Quarter:

- Continued work on benchmarking analysis of data in an effort to set future GWP thresholds – primary focus was on concrete but outline methodology on asphalt mixtures.
- Met with the Colorado concrete and asphalt industries to discuss benchmarking methodology proposed for establishing regional GWP benchmarks and reference limits to be used for future reporting on GHG reduction efforts over time.

Project Highlights:

- Milestone #1 – specification in place to require EPD submittals – met.
- Milestone #2 – year 2 EPD submittal requirements for additional materials – met, incorporated requirements for EPD submittals for structural steel and precast concrete products.

Anticipated Work Next Quarter:

- No changes from initial.

Significant Results:

- Began data analyzation and outlined methodology for establishing reference limits and GWP limits for concrete and asphalt materials.

Potential Implementation:

- Establishment of draft GWP materials thresholds limits based on Colorado materials/specification requirements.

Quarterly Project Statistics:

State	Total Project Budget	Total Cost to Date for Project this Quarter	Percentage of Work Completed to Date
CO:	\$312,000.00	\$129,794.00	28.7% (money only)
Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended	Total Percentage of Time Used to Date	
\$40,159.00 - \$4,172.00 (since May 2023)		100%	

Circumstance affecting project or budget:

- None, proceeding as planned. Will shift to Climate challenge funding when TPF Demonstration Project funds are exhausted.

Connecticut: Connecticut Department of Transportation (CTDOT)

Progress this Quarter:

- Auto saw shipped, not received. Blade received and paid.
- HWT initial training complete, testing ongoing, resource PSP complete with acceptable ratings.
- Other equipment in works.

Project Highlights:

- Performance test, testing equipment procurement, training and round robin testing, shadow projects, specification development and initial implementation (pilot project)

Anticipated Work Next Quarter:

- MOU CAP Lab approved. CAP Lab started shadow/pilot project scope.
- Discussions if two projects different scope makes sense.

Significant Results:

- In this quarter, IDEAL-CT, IDEAL-RT, HWT testing weekly, building data base.

Potential Implementation:

- Shadow projects 2025-2026
- First pilot project targeted for 2026.

Quarterly Project Statistics:

State	Total Project Budget	Total Cost to Date for Project this Quarter	Percentage of Work Completed to Date
CT:	\$312,500.00		
Total Project Expenses and Percentage This Quarter		Total Amount of Funds Expended	Total Percentage of Time Used to Date
\$1,836.90			43.75%

Circumstance affecting project or budget:

- None

Louisiana: Louisiana Department of Transportation (LADOT)**Progress this Quarter:**

- Collected field mixture for Madden Construction Company

Project Highlights:

- Developed project proposal
- Initiated Task 1: Conduct literature review
- Initiated Task 2: Identify field projects and collect mixtures

Anticipated Work Next Quarter:

- Schedule progress is on time.

Significant Results:

- None during this reporting period

Potential Implementation:

- Testing is on-going to collect data to facilitate the development of implementation of BMD framework for QC/QA

Quarterly Project Statistics:

State	Total Project Budget	Total Cost to Date for Project this Quarter	Percentage of Work Completed to Date
LA:	\$342,866.00		
Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended	Total Percentage of Time Used to Date	
\$75,000.00			

Circumstance affecting project or budget:

- None

Missouri: Missouri Department of Transportation (MODOT)

Title: Developing and Refining QA Testing Protocols for BMD Performance Testing Subject Matter.

Progress this Quarter:

- Hired a consultant and began testing for R-Value and used the R-Value to correlate to resilient modulus. Completed 16 R-Value tests out of 100 budgeted.

Project Highlights:

- Fall 2023/Winter 2024 - Purchase BMD equipment for 3 of the 7 MoDOT Districts and train those districts to use the equipment. Develop a QA testing protocol for sampling, handling, aging, and testing specimens for Ideal CT and Ideal RT.
- July 1st 2024 - Purchase BMD equipment for the remaining 4 MoDOT Districts and train those districts to use the equipment.
- Winter 2025 - Purchase a Hamburg wheel tracking test, a gyratory compactor, and 3 additional load frames to complete the needed BMD equipment.
- Winter 2025 – Conduct additional BMD training for all inspectors.
- Spring 2025 – Conduct BMD Round Robin testing between all districts
- Spring 2025- Analyze results and final report drafted.
- Spring 2025 – Integrate QA BMD Training for MoDOT Materials Inspectors

Anticipated Work Next Quarter:

- Winter of 2025 – Train remaining districts on QA testing protocol for sampling, handling, aging and testing specimens for Ideal CT and Ideal RT.
- Winter 2025 – Purchase 3 additional load frames for Districts with higher volume of paving and anticipating more BMD testing than other Districts
- Winter 2025 – Purchase a Hamburg Wheel Tracking Tester and gyratory compactor for the central lab.
- Spring 2025 – Incorporate BMD training with MoDOT's current SuperPave Certification Course
- Spring 2025 – Fabricate pucks from Central Lab to be sent to all district for round robin testing.
- Spring 2025 – Complete report of round robin testing between districts.

Significant Results:

- None during this reporting period

Potential Implementation:

- Districts will immediately start using the equipment for BMD pilot projects.
- A QA testing protocol will be developed for sampling, handling, aging and testing specimens for Ideal CT and Ideal RT

Quarterly Project Statistics:

State	Total Project Budget	Total Cost to Date for Project this Quarter	Percentage of Work Completed to Date
MO:	\$250,000.00		
Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended	Total Percentage of Time Used to Date	
\$106,779.50		75%	

Circumstance affecting project or budget:

- Current QA for intelligent compaction through the dirtmate is not practical at this time. Therefore, dirtmates will not be purchased. MoDOT has determined to focus on fully supplying the districts and central lab with BMD testing equipment that will be required for fully implementing BMD. This will not leave any money left to purchase FLIR cameras for PMTP QA but MoDOT believes this is in the best interest of the study, as well as MoDOT.

North Dakota: North Dakota Department of Transportation (NDDOT)

Title: Project #2, Benchmarking, Field Validation, Shadow Projects, Pilot Projects, Implementation.

Progress this Quarter:

- BMD validation project – 8 test sections were constructed in September 2024. NCAT and NDDOT did BMD testing for the validation project sections.

Project Highlights:

- Benchmarking, field validation, shadow projects, pilot projects and implementation

Anticipated Work Next Quarter:

- Assembling test results from the validation project and NCAT writing a summary report.
- Developing specifications for shadow projects in 2025 and 2026.

Significant Results:

- BMD Benchmarking Results. Construction of BMD Field Validation Project.

Potential Implementation:

- Using BMD Performance tests in our mix design and construction process through specifications developed through this program.

Quarterly Project Statistics:

State	Total Project Budget	Total Cost to Date for Project this Quarter	Percentage of Work Completed to Date
ND:	\$350,000.00	\$54,779.00	
Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended	Total Percentage of Time Used to Date	
\$30,000.00		40%	

Circumstance affecting project or budget:

- None

Texas: Texas Department of Transportation (TXDOT)

Title: Documentation of Balanced Mix Design Performance in Texas Comparison of BMD sections to control sections

Progress this Quarter:

- Construction and characterization of two TxDOT BMD multi-day shadow field projects to monitor construction variability.
- Independent validation of selected mixture tests using field performance data from two Accelerated Pavement Testing (APT) facilities by:
 - o Comparing NCAT Test Track performance with IDEAL-CT, HWT and OT results
 - o Fabricating specimens from original WesTrack materials, conducting IDEAL-CT and IDEAL-RT tests, and comparing against performance
- Completion of annual performance monitoring of 7 TxDOT BMD filed projects (28 sections) constructed 2019-2022.

Project Highlights:

- Annual performance test validation through tie to field performance

Anticipated Work Next Quarter:

- Construction of one TxDOT BMD multi-day shadow field project
- Coordination for possible 1-2 additional TxDOT BMD multi-day shadow field projects (approximately 2 sections each)
- Continuation of validation effort and analysis with:
 - o Coring of four TxDOT BMD multi-day shadow projects constructed 2024
 - o Commencement of annual performance monitoring and coring of 9 TxDot BMD field projects constructed 2019-2022

Significant Results:

- IDEAL-RT shows promising correlations within and across field projects
- IDEAL-CT and OT show good reliability within field projects and across projects with similar gradations
- These results were highlighted in presentations completed at:
 - o TxAPA masters 7/24/2024
 - o BMD IWG 8/21/24 – 8/22/24
 - o Public Works Roundup 8/22/24

Potential Implementation:

- Revision of TxDOT Special Specification XXXX within revised 2024 specifications to include IDEAL-CT and IDEAL-RT and associated thresholds tied to field performance for mix design and possibly during production for acceptance.

Quarterly Project Statistics:

State	Total Project Budget	Total Cost to Date for Project this Quarter	Percentage of Work Completed to Date
TX:	\$250,000.00		
Total Project Expenses and Percentage This Quarter		Total Amount of Funds Expended	Total Percentage of Time Used to Date
\$9,710.00			60%

Circumstance affecting project or budget:

- None