DRISI
CALTRANS DIVISION OF RESEARCH, INNOVATION AND SYSTEM INFORMATION
TRANSFORMING IDEAS INTO SOLUTIONS

Research Notes

PAV TPF 1542: Advance New Pavement Technologies, TPF-5(478)

Testing innovative technologies related to asphalt and concrete paving in partnership with the Federal Highway Administration (FHWA).

Pavement

May 2026

Project Title:
PAV TPF 1542: Advance New Pavement Technologies, TPF-5(478)

Task Number: 4186

Start Date: September 30, 2021

Completion Date: October 30, 2026

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WHAT IS THE NEED?

TPF-5(478) is important to test innovative technologies related to asphalt and concrete paving in partnership with the FHWA Accelerated Implementation and Deployment of Technologies Pavement Technologies Program (AIDPT) established in 2013.

WHAT ARE WE DOING?

This project will allow to demonstrate and eventually adopt promising and innovative technologies for asphalt and concrete paving. Some potential technologies to be tested are balance mix design for asphalt and real time curing for concrete pavements.

WHAT IS OUR GOAL?

The study goal is to showcase the implementation of innovative pavement technologies, products, and processes in partnership with FHWA and other State Departments of Transportation (DOTs).

WHAT IS THE BENEFIT?

With a small contribution of $10,000 per year for 5 years, Caltrans will be able to partner with FHWA to test new technologies and receive up to $250,000, up to 100 hours of technical assistance, and resources for developing case study reports and videos for each selected demonstration project. As FHWA will be contributing $2,000,000 per year for 5 years. In addition to the financial support, FHWA will host peer exchanges for showcasing lessons learned and best practices from the projects, in which we will be able to collaborate with other State DOT and FHWA to advance initiatives we find important.

Caltrans

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WHAT IS THE PROGRESS TO DATE?

- Alabama: Mixes tested by Alabama Department of Transportation (ALDOT) completed Q3. Mixes tested by National Center for Asphalt Technology (NCAT) are 80-90% complete.
- Connecticut:
  - Auto saw shipped, not received. Blade received and paid.
  - Hamburg Wheel Tracking (HWT) initial training complete, testing ongoing, resource Performance-Related Specifications Program (PSP) complete with acceptable ratings.
  - Other equipment in works.
- Colorado:
  - Continued work on benchmarking analysis of data in an effort to set future Global Warming Potential (GWP). thresholds
  - primary focus was on concreate but outline methodology on asphalt mixtures.
  - Met with the Colorado concreate and asphalt industries to discuss benchmarking methodology proposed for establishing regional GWP benchmarks and reference limits to be used for future reporting on Greenhouse Gas (GHG) reduction efforts over time.
- North Dakota: Project 2: Balanced Mix Design (BMD) validation project
  - 8 test sections were constructed in September 2024. NCAT and NDDOT did BMD testing for the validation project sections.
- Texas: Construction and characterization of two Texas Department of Transportation (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: Comparing NCAT Test Track performance with Indirect Tensile Asphalt Cracking Test (IDEAL-CT), HWT and Overlay Test (OT) results. 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.
- Missouri: 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.