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

Research Notes

Equipment

May 2026

Project Title: PPRC23: Pavement Management System

Task Number: 4209

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Tri-Annual Performance Model Update

Update performance models based upon new pavement survey data.

WHAT IS THE NEED?

The California Department of Transportation (Caltrans) manages its pavements with a new and modern pavement management system, PaveM. One key component to the system is deterioration models for the various types of pavement types, locations and traffic. The accuracy of these models is continually improved by evaluating them against actual performance as measured by the automatic pavement condition survey (APCS). By 2026 Caltrans will have collected four additional years of APCS data which are not included in the current performance models.

WHAT ARE WE DOING?

The 1978-2022 PMS performance database, which is two orders of magnitude larger than the national LTPP database, is a critical component in many areas of UCPRC research, including performance model for PaveM, calibration of CalME and Pavement ME and follow up studies of various kinds (such as smoothness specifications or SuperPave mix design). By 2026 Caltrans will have collected at least three additional years of APCS data which are not included in the current performance models. In addition, there are required updates to the as-builts, traffic, and other parts of the performance database. This project will use these new data, along with any improved processing on the old data, to improve on the performance models in PaveM.

WHAT IS OUR GOAL?

An updated performance database, models, and any improvements in PaveM needed to use them.

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WHAT IS THE BENEFIT?

Better performance models will allow for more accurate predictions of pavement performance. Caltrans can be more proactive in maintaining its pavements and thus reduce maintenance costs and create savings by maintaining longer lasting pavements.

WHAT IS THE PROGRESS TO DATE?

Worked on scripted models for asphalt cracking. Identified historical WIM lane configuration changes and analyzed lane distribution patterns by vehicle classes across WIM sites. (65% of work is completed).