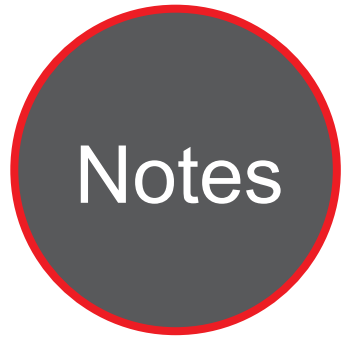


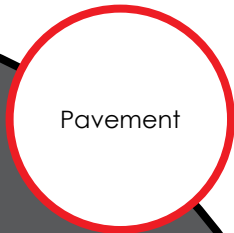


Caltrans Division of Research,
Innovation and System Information

Research



Notes



Pavement

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Project Title:
Cold In-Place Recycling Guidance

Task Number: 3196

Start Date: July 1, 2017

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2020

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Cold In-Place Recycling Guidance

Workplan for developing guidelines for project selection and mechanistic-empirical design of cold in-place recycled pavements in California

WHAT IS THE NEED?

The California Department of Transportation (Caltrans) employs a variety of strategies and materials in maintaining and rehabilitating the state highway system's pavements, a necessary approach given the varying characteristics of the pavements in use and their diverse properties.

Partial depth reclamation (PDR) using cold in-place recycling (CIR) is a pavement rehabilitation alternative that has been used by Caltrans since 2005. Current practice is primarily based on contractor experience, which is not supported by any long-term performance monitoring, or comprehensive comparative laboratory testing. Caltrans is interested in developing a comprehensive guideline for the rehabilitation design of pavement using CIR techniques.

WHAT ARE WE DOING?

Caltrans, in partnership with the University of California Pavement Research Center (UCPRC), will be monitoring and testing a selection of PDR projects.

For new projects, construction will be monitored to assess construction factors that may influence later performance. The test sections will be designed and constructed at the UCPRC



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research facility to collect performance data on PDR layers stabilized with foamed asphalt and asphalt emulsion. Laboratory testing will be undertaken to characterize materials. Cores and beams will be sampled from the UCPRC test track and PDR pilot studies and evaluated in the laboratory to develop performance predictions.

The research team will also update life cycle assessment (LCA) and life cycle cost analysis (LCCA) parameters for PDR projects. The data collected will be analyzed in detail using a range of approaches and a series of simulations to develop mechanistic-empirical (ME) design parameters for PDR projects. The data and findings will also be used to revise project selection and ME design guidelines.

WHAT IS OUR GOAL?

The goal of this project is to develop a comprehensive guideline for the rehabilitation design of pavement using in-place recycling techniques.

WHAT IS THE BENEFIT?

Proposed guideline for PDR can guide design engineers, contractors, and project specification writers on how to decide on the optimal PDR procedure. The guideline can lead to an additional pavement rehabilitation strategy in Caltrans' toolbox and be used to update standard, plans, and specifications. The study result can also be used for project selection in pavement management system.

WHAT IS THE PROGRESS TO DATE?

Researchers continued literature review with focus on mix design, ME pavement design, and long-term performance.

The study continued identifying CIR projects for long-term field performance monitoring and laboratory testing. Performance of selected CIR with foamed asphalt projects was monitored.

Test track construction was completed. The research team prepared heavy vehicle simulator and data acquisition equipment for testing.