



Caltrans Division of Research,  
Innovation and System Information

# Research

# Notes

Pavement

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Project Title:  
Improved Guidance And  
Specifications For Full-Depth  
Reclamation

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## Improved Guidance And Specifications For Full-Depth Reclamation

Continued development of guidelines for project selection and mechanistic-empirical design of full-depth reclaimed pavement 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.

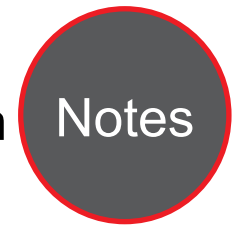
Existing full- and partial-depth reclamation of distressed pavements is of growing interest in the United States and internationally. It provides a rapid rehabilitation solution with minimal disruption to traffic while recycling in-place materials with only limited additional virgin materials. Caltrans has been using full-depth reclamation (FDR) as a rehabilitation strategy since 2001, and is seeking to develop detailed guidance on mix design and pavement design for FDR projects.

### WHAT ARE WE DOING?

Caltrans, in partnership with the University of California Pavement Research Center (UCPRC), is developing a draft FDR guideline. The research team will continue long-term performance monitoring of existing and new field experiments. Laboratory testing on FDR stabilized with asphalt emulsion (FDR-AE), which had not been fully characterized, will continue to be evaluated for a range of performance and mechanistic parameters.



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The study will update life cycle assessment (LCA) and life cycle cost analysis (LCCA) parameters for FDR-AE. A comprehensive report summarizing the laboratory test factorial, test methods, test results, mix design procedures, and proposed mechanistic design and performance model parameters will be prepared.

## WHAT IS OUR GOAL?

The goal of this project is to develop a comprehensive guideline for the rehabilitation design of pavements using all full-depth reclamation techniques.

## WHAT IS THE BENEFIT?

Proposed guideline for FDR can guide design engineers, contractors, and project specification writers on how to decide on the optimal FDR procedure. The guideline will guide engineers to the appropriate pavement rehabilitation strategy for the situation 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?

The research team continued literature review and preparation of guideline document. The team also continued test track data analysis for mechanistic-empirical (ME) design parameters and conducted visual assessments on select past FDR projects.

The study will continue processing and batching FDR materials and specimen preparation. Researchers will prepare guidance for doing LCCA and LCA for FDR projects. Development of ME design parameters will be documented.