

Pavement

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Project Title:

Partnered Pavement Research
Center (PPRC) 23: Recycling

Task Number: 4391

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Completion Date: June 30, 2026

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Use of Cold Recycling as Base for Concrete Pavement

Evaluate and implement cold recycled materials in rigid pavement bases.

WHAT IS THE NEED?

There is an urgent need for the California Department of Transportation (Caltrans) to preserve and enhance dimensioning California's pavement resources and investments. Caltrans aims to expand the application of cold recycling techniques and improve the performance of concrete overlays while achieving its benefits. This includes reduction of natural resource depletion, cost-saving benefit, and improved environmental impact due to pavement construction and maintenance. This task addresses the need for evaluating and implementing cold recycled materials as the base for rigid pavements. This task aligns with Caltrans' mission to enhance the sustainability and effectiveness of transportation infrastructure in the state of California.

WHAT ARE WE DOING?

The study involves the evaluation and implementation of cold recycled materials as the base for rigid pavements. This will be achieved through the following four tasks:

- Task 1: Identification of Laboratory Testing Procedure
- Task 2: Laboratory Testing of Reference Materials
- Task 3: Design and Testing of Optimized Cold Recycled Materials
- Task 4: Pilot Implementation in the Field

WHAT IS OUR GOAL?

This research study aims to:

- Evaluate and implement cold recycled materials as base for rigid pavements.
- Develop guidelines based on research findings.



DRISI provides solutions and knowledge that improves California's transportation system.

- Conduct pilot implementations in the field.
- Expand the use of cold recycling techniques.
- Improve performance of concrete overlays.
- Achieve overall benefits for Caltrans, including economic savings and reduced environmental impact in pavement construction and maintenance.

WHAT IS THE BENEFIT?

This task benefits Caltrans by promoting sustainability using cold recycled materials, resulting in significant savings, improved concrete overlay pavement performance, standardized guidelines, and reduced environmental impact associated with pavement construction and maintenance.

WHAT IS THE PROGRESS TO DATE?

To date, an estimated 20 percent of the study has been completed.

The laboratory testing procedure under task 1 of this study has been completed.

The mix design of Cold Central Plant Recycling with Foamed Asphalt (CCPR-FA) and Cold Central Plant Recycling with Emulsified Asphalt (CCPR-EA) layers for the test track to assess cold recycled base layers under Jointed Plain Concrete Pavement (JPCP) is thirty percent complete.

The construction of the test track to assess cold recycled base layers under JPCP has started, with twenty percent of the work completed.

Next quarter, the research team plans to continue designing reference materials, including Cold Central Plant Recycling with Portland (CCPR-C), for the test track to assess cold recycled layers under JPCP, and to resume construction of the test track.