

Pavement

MAY 2025

Project Title:

Partnered Pavement Research Center (PPRC) 23: Mechanistic-Empirical Design

Task Number: 4226

Start Date: November 8, 2023

Completion Date: September 30, 2026

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Piloting of Cold Recycling and New Asphalt Base Designs and Interlayers for Concrete Pavements

Developing sustainable asphalt bases and interlayers for concrete pavements.

WHAT IS THE NEED?

Jointed plain concrete pavement (JPCP) and continuously reinforced concrete pavement (CRCP) require durable, cost-effective base designs. Incorporating high recycled asphalt pavement (RAP) content and recycled tire rubber into hot mix asphalt (HMA) bases and interlayers can boost sustainability, lower life-cycle costs, and improve pavement performance. Caltrans is piloting these innovations to inform statewide design recommendations.

WHAT ARE WE DOING?

The scope of work includes:

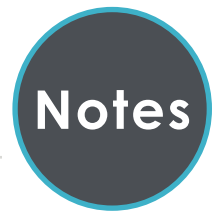
- Monitoring a specialized concrete slab test track to evaluate interlayer behavior under traffic.
- Completing laboratory tests on standard concrete pavement base mixtures.
- Designing and testing enhanced base materials and interlayers incorporating high RAP content and rubber modifiers.
- Preparing for a field pilot to validate these new HMA base and interlayer designs under real-world conditions.

WHAT IS OUR GOAL?

The main goal of this task is to produce clear, data-driven recommendations for sustainable HMA base and interlayer designs, optimizing mixtures with recycled materials, verifying performance, and guiding California Department of Transportation's (Caltrans) specifications for concrete pavement systems.



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WHAT IS THE BENEFIT?

New base and interlayer designs will extend pavement life, reduce maintenance needs, and lower material costs by using recycled content. They will also enhance ride quality and safety, decrease environmental impacts, and support Caltrans' commitment to sustainable infrastructure.

WHAT IS THE PROGRESS TO DATE?

- Ongoing monitoring of the concrete slab test track ("Interlayers Test Track") continues to yield performance data under live traffic conditions.
- Laboratory testing of standard pavement base mixtures is complete, providing baseline performance metrics.
- Initial design work for improved base materials and interlayers has begun, with limited lab testing underway pending resource availability.
- Preparation for the field pilot is in progress; site selection and logistical planning will follow once testing resources are secured.