

DRISI

CALTRANS DIVISION OF RESEARCH,
INNOVATION AND SYSTEM INFORMATION

Research

Notes

Pavement

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Project Title:
Monitoring Performance of
Concrete Overlay Projects

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Monitoring Performance of Concrete Overlay Projects

Monitoring the performance of Thin Bonded Concrete Overlay on asphalt projects.

WHAT IS THE NEED?

Although Bonded Concrete Overlay on Asphalt (BCOA) technology has steadily improved since the mid-1990s and is now regarded as a mature technology, key gaps in knowledge still exist that require further research. Among the gaps in knowledge are the unknown role and performance of the concrete–asphalt interface, the mechanics of the asphalt base, and the role of the environmental conditions on BCOA performance.

None of the projects in other states have included the use of high early-strength concrete which is expected to be used on a majority of the projects in California. Further research is also needed to determine which are the optimal designs for California, since differences exist among U.S. states regarding important design features of thin BCOA. Differences include: slab dimensions, shoulder types, and the need for asphalt milling before placing the overlay.

WHAT ARE WE DOING?

The California Department of Transportation (Caltrans) funded the Partnered Pavement Research Program Strategic Plan Element (PPRC SPE) 4.58B, "Development of Improved Guidelines and Designs for Thin Whitetopping," with the primary goal to develop recommendations and guidance on the use of thin BCOA as a rehabilitation alternative for California. Recommendations and guidance are based on the adoption of and improvements to the technology developed in other U.S. states. Because of Caltrans' interest in thin BCOA, a pilot was built on State Route (SR) 113, in District 3 in Woodland. The evaluation of this pilot project constitutes the main goal of this study.



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WHAT IS OUR GOAL?

The primary goal of this project is to evaluate the implementation and early field performance of BCOA pilot projects in order to identify how well this treatment works under different climate and traffic and existing site conditions.

Additionally, the project will identify best practices and standards applicable to California's climate, materials, and construction work zone practices.

WHAT IS THE BENEFIT?

Appropriate construction practices developed with this research, combined with the earlier developed mix designs will give Caltrans an additional pavement rehabilitation alternative as it works to maintain the transportation network.

WHAT IS THE PROGRESS TO DATE?

As of December 2023, the research team has made the following progress:

- Completed monitoring the YOL-113 project.
- Completed evaluation of the condition of other concrete overlay projects in California.
- Completed monitoring of the construction and initial performance of new concrete overlay projects.
- Completed preparation of a research report.