



Pavement

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Project Title:

Quieter Pavement Long-term Monitoring

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Task Manager:

Yue Wang
Transportation Engineer
Yue.Wang@dot.ca.gov

Quieter Pavement Long-term Monitoring

This Research monitors the surface characteristics of specific concrete pavements and investigates the 2015 smoothness

WHAT IS THE NEED?

This task is a continuation of the noise performance monitoring for selected quieter pavement test sections including continuously reinforced concrete pavements (CRCP) and grind and groove (GnG) surfaced jointed concrete pavements (JCP). The University of California Pavement Research Center (UCPRC) has previously completed six years of monitoring asphalt surfaced pavements and four years of monitoring concrete surfaced pavements, and developed tire/pavement noise models for different pavement types.

The task further investigate the tire-pavement noise of rigid pavements initiated in 2008, but includes two pavement types not covered in the first study. Pilot sections of a promising concrete rehabilitation technique, grind and groove or longitudinal grooving, were constructed in 2012, and comparisons to adjacent diamond grind sections are only preliminary. In addition, continuously reinforced concrete pavements are increasingly used in the state, and little data exists as to their performance in terms of tire-pavement noise.

This study also investigates the change in the 2015 Caltrans Construction Specifications that now requires the smoothness to be measured on newly constructed surfaces.

WHAT WAS OUR GOAL?

The objective of this study is to continue noise, smoothness, and friction monitoring of a few select grind and groove and continuously reinforced concrete pavement pilot sections for which monitoring began in 2012/13. Additionally, measuring the smoothness of a few concrete pavement maintenance projects constructed in 2014/15.



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WHAT DID WE DO?

Noise and smoothness measurements were taken on existing grind and groove pilot sections and adjacent diamond grind sections for comparison at seven locations in Sacramento, San Joaquin, Yolo, and San Diego Counties. Measurements were taken on five continuously reinforced concrete pavement pilot sections in Imperial, Siskiyou, Kern, and Placer Counties.

Smoothness measurement were taken on twenty-six new concrete surfaces, consisting of diamond grind, continuously reinforced concrete pavement, and jointed plain concrete pavement projects, constructed in 2014 and 2015, from seventeen counties representing all the districts except Districts 1 and 9.

WHAT WAS THE OUTCOME?

Initial results show little change in the surface smoothness of projects completed in 2014 and 2015. Further, the smoothness specification in certain locations was not met. Smoothness testing should be conducted before and after construction to quantify the smoothness benefit of different strategies, with an understanding of the structural capacity of the remaining pavement. All the required data for the task has been collected and analyzed, and the final technical memorandum is in progress.

WHAT IS THE BENEFIT?

The research closes the gap in information regarding two pavement types not covered in previous noise studies, and of significant interest to pavement maintenance engineers.

Understanding the smoothness characteristics of the different concrete pavement types provides

engineers information that directly relates to the road user experience. The smoothness specification was initiated in 2015 and the level of enforcement may vary by location. More information may lead to guidelines that can be tailored to specific conditions.

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