

Manual for Thin Asphalt Overlays

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All roads suffer from normal wear and tear on a daily basis. As a result, preservation treatments are regularly required to maintain these roads to meet the public's travel needs. Thin asphalt overlays are one of many preservation treatments for roads that receive light to medium traffic volumes, and sometimes heavy traffic volumes. Thin asphalt overlays are usually placed over existing asphalt concrete pavement by placing a Hot Mix Asphalt (HMA) from 1/2 inch to 1-1/2 inches in thickness, by using a self-propelled asphalt paving machine. The HMA is rolled as soon as possible to ensure

compaction of the mix for its longevity. The authors have developed engineering guidance from project inception through troubleshooting construction problems. The guidance and recommendations are detailed in a new manual, which represents the best practices for the design and construction of thin asphalt overlays.

Study Methods

The researchers conducted a literature review, followed by the development of a detailed manual to help agencies and industry select the right

type of thin asphalt overlay, design and construct the treatment, and provide guidelines for quality assurance. The manual also includes detailed troubleshooting guides in case something goes wrong during construction of the thin asphalt overlay.

Key Findings

The key finding is the development of recommendations for the design and construction of thin asphalt overlays in the State of California. For example, agencies need to understand the steps needed to ensure a quality product including the use of a pre-construction meeting and requiring that the contractor submits a quality control plan including a Job Mix Formula (JMF) and all material sources. The agencies need to provide certified testers and experienced inspectors to ensure the product is placed according to specifications. Both the contractor and the agency need to maintain documentation of the construction with daily diaries, and material testing records. Most of the needed information about thin asphalt overlays in this manual can be easily used by both local agencies and industry. In California, the two main sources of specifications are Caltrans or the Greenbook, which are referenced in this manual.

Following the guidance in this manual will ensure successful and long life thin asphalt overlay projects for agencies and contractors.

Policy Recommendations

This manual, if followed, should prevent most failures in the construction of thin asphalt overlays. It is imperative that specifications be used that fit the agency's needs to ensure long-term performance and reduce the potential for failures.



About the Authors

Lerose Lane, P.E., is a Senior Pavement Preservation Engineer who has worked for the California Pavement Preservation Center since August 2010. Dr. Hicks is currently program manager for the CP2 Center at CSU Chico, and has been working in the areas of pavement engineering for over 50 years. Dr. DingXin (Ding) Cheng is a professor of the department of civil engineering at the California State University, Chico, director of the California Pavement Preservation Center. Erik Updyke is a Senior Pavement Preservation Engineer who started working for the CP2 Center in April, 2020.

To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/research/1906



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