



RESEARCH PROJECT CAPSULE [20-1B]

November 2019

TECHNOLOGY TRANSFER PROGRAM

Evaluation of Performance and Life-Cycle Cost of Asphalt (8/18 Specifications)

JUST THE FACTS:

Start Date:

August 19, 2019

Duration:

36 months

End Date:

August 18, 2022

Funding:

SPR: TT-Fed/TT-Reg

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Sponsored jointly by the Louisiana
Department of Transportation and
Development and Louisiana State
University

POINTS OF INTEREST:

Problem Addressed / Objective of
Research / Methodology Used /
Implementation Potential

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PROBLEM

The Louisiana Department of Transportation and Development (DOTD) has constructed many of its roadways with hot mix asphalt, relying on control of volumetric properties to ensure pavement performance. Due to increased traffic, along with sole reliance on volumetric properties for quality, more frequent premature failures have occurred on these roadways.

In an effort to improve the performance and value of its asphalt roadways, DOTD has implemented performance-based specifications, including the Loaded Wheel Tracking and Semi-Circular Bend laboratory tests, as well as a revision to the volumetric and compaction criteria used during the design process.

These requirements were included in the 2016 DOTD *Standard Specifications for Roads and Bridges* and subsequent special provision 8/18. A thorough evaluation of the performance and life-cycle costs for the asphalt pavements constructed since implementation of these "new" specifications is needed.

OBJECTIVE

The objective of this research is to analyze and compare the performance of asphalt pavements constructed using criteria from the 2016 standard specifications and/or special provision 8/18 to the performance of pavements constructed with prior specifications. This project will evaluate density, volumetric, and performance data for various roadways. A life-cycle cost analysis will be performed to determine if the specification changes have led to increased value.

METHODOLOGY

Researchers will obtain volumetric data for the roadways constructed with the 2016 standard specifications and/or special provision 8/18 from LaPave, DOTD's online pave-



Figure 1
Hamburg Loaded Wheel Tester

ment management system. Similar information for pavements constructed with prior specifications will be obtained from DOTD laboratory engineers throughout the state.

Performance data will be obtained from DOTD's pavement management system and its Visiweb Roadway Program. The long-term performance of the more recently paved roadways will have to be forecast based on current assessments.

Comparison of the data and life-cycle-cost analyses will be performed. Assessment of benefits and costs will help to establish the degree of increased value resulting from the specification changes.

IMPLEMENTATION POTENTIAL

The revised specifications have already been implemented. This research is an attempt to evaluate their cost effectiveness, with potential recommendations for further improvement.



Figure 2
SCB test setup



Figure 3
Setup for LTRC |E*| test