

Development of Warranty Requirements in State Contracts for Highway Construction

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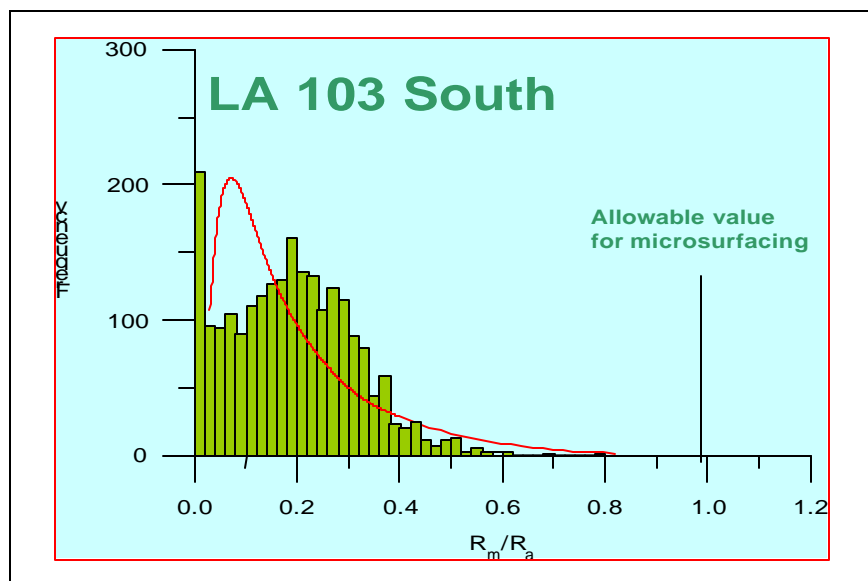
Problem

In 1997, the Louisiana House of Representatives passed HB 1698, which addressed warranties in state contracts for highway construction. The bill states that every contract for constructing or improving highways will include a warranty by the contractor which, basically, assures that the constructed item shall be free of defects in materials and workmanship for a three-year period from the project initial acceptance date.

The House has asked the Louisiana Department of Transportation and Development (DOTD) to promulgate

rules and regulations to effectuate the purpose of warranties and submit such to the Joint Legislative Committee on Transportation, Highways, and Public Works for approval.

In order to respond to the legislature, DOTD has formed a committee to supervise the development of such warranties. The committee consists of representatives from DOTD, FHWA, and contractor organizations. Together, the members have experience in a wide range of areas including pavements, asphalt, concrete, specifications, construction, materials, management systems, and maintenance.



Shown is the statistical analysis of the mean rut depth at state route LA 103. The study aims to contribute to longer lasting roads at a long-term cost savings to the state.

The committee will conduct a comprehensive evaluation of warranties and their impact on contracts and construction of Louisiana highways.

Special provisions for specifications are currently under development at the Louisiana Transportation Research Center to account for warranties in state contracts for highway construction. However, the nature of warranties is complex, and pilot research studies are necessary to evaluate warranty requirements and their impact on highway construction.

Comprehensive evaluation of warranty requirements will be conducted through systematic monitoring of the performance of recently constructed items, less than three years old; on different projects of similar composition such as cross-section design in highways; and environmental conditions such as traffic loading. This will lead to development of performance/distress database for each selected construction item. Analyses will be conducted on the collected data to investigate the reliability of developed warranty requirements (acceptable limits of distresses within items) and to propose revisions for these requirements in future state contracts. The collected database will be useful to evaluate/propose remedial actions to correct problems when distresses exceed allowable limits. Finally, it is essential to evaluate the implementation of warranties and their impact on the performance of construction items, the contractor and contracting practice, and DOTD.

Objectives

The aim of this research project is to empirically develop the warranty requirements for state highway infrastructure construction projects and to assess their impact on the construction practices of DOTD. The scope of this research project will include field investigation of the asphaltic concrete pavements, Portland cement concrete pavements, and traffic striping and pavement markings.

The following specific objectives will be achieved under this study:

1. Determine the reliability and the applicability of current warranty requirements in state contracts for highway construction
2. Evaluate the implementation of warranty requirements and their impact on the construction of highways, contractors, and DOTD.

Description

The following tasks are identified for completion of the research project:

1. Comprehensive literature search on warranties and performance based specifications and their implementation in highway construction.
2. Development of diagnostic evaluation of distresses of selected highway construction features. Projects that have been constructed in the past three to four years will be identified. A minimum of five projects that share similar construction type, cross-sectional characteristics, loading conditions, etc., will be selected and grouped. Performance evaluation

plan will be conducted to determine/quantify the distresses within each group of selected projects. This will provide the current performance state for each group three to four years after construction.

3. Comprehensive analyses of distresses and development of warranty requirements. A comprehensive analysis scheme will be conducted to evaluate the data collected from selected projects. Statistical analysis will be utilized to compare the distresses monitored from projects of similar construction items. Results will be used to revise the developed warranty requirements in state contracts for highway construction.
4. Assessment of the impact of implementation of warranties on highway construction. Implementation of warranties will have impact on the following: (a) the quality and performance of the constructed facility, (b) the contractor and contracting practices, such as quality control, cost, etc, and (c) DOTD practices involving cost/benefit, quality assurance, systematic monitoring of pavements, etc.
5. Prepare and submit a final report.

Implementation Potential

The results of this research will be used to develop and revise warranty requirements for highway construction. The warranties in state contracts for highway construction will be implemented as soon as warranties are developed and approved by the designated authorities of DOTD.