



Project Summary

Texas Department of Transportation

0-5799: Synthesis Study of Programs Used to Reduce the Need for Inspection Personnel

Background

The Texas Department of Transportation (TxDOT) faces significant workforce challenges, particularly in the districts, where the testing and inspection workload is increasing. TxDOT is looking for more effective ways to manage their testing, inspection, and measurement workload. Other states are facing similar challenges and have taken actions to implement procedures to reduce their workload. Such procedures include increasing contractor testing and inspection responsibilities, outsourcing testing and inspection to third parties, creating extensive training and certification programs, and modifying their specifications to minimize time intensive testing and measurement. Accordingly, there is a need to summarize the best practices from those DOTs that have already instituted successful programs to reduce the inspection workload. The results could potentially aid TxDOT in addressing their specific workload challenges.

What the Researchers Did

At the onset of this study, the researchers met with four high level inspectors from the Inspector Development Program (IDP). The IDP team discussed testing, inspection, and measurement challenges faced by inspectors within TxDOT. An initial list of workload challenges was developed, and these challenges were used to structure subsequent interviews. In-person and phone interviews were conducted with five TxDOT experts on concrete, hot mix asphalt, soils and bases, testing and materials, and striping. Directors of Construction from eight districts, both urban and rural, were also interviewed to identify challenges unique to various districts. Concurrently, telephone interviews were conducted with eight state DOTs, including Arizona, California, Florida, Indiana, South Carolina, Virginia, Washington, and Wisconsin. The purpose of these interviews was to identify potential workload reduction strategies that other states had successfully implemented to reduce their workload challenges.

After the interviews were completed, the researchers compiled the data and identified over 100 workload reduction strategies that were recommended by TxDOT and other states. The researchers and Project Monitoring Committee (PMC) consolidated the strategies to thirty-one. These strategies were used to conduct a workshop during which fourteen TxDOT subject-matter experts and district personnel ranked each strategy. The final results were analyzed and each strategy was rank ordered from 1-31.

Research Performed by:

Center for Transportation Research (CTR),
The University of Texas at Austin

Research Supervisor:

Cindy L. Menches, CTR

Researchers:

Carlos Caldas, CTR
Chelsea Cohen, CTR
Jim O'Connor, CTR

Project Completed: 8-31-08

What They Found

An implementation guide was developed for the top ten workload reduction strategies in addition to two specialty strategies (SP 1 and SP 2) per the PMC's request. The implementation guide is a summary of each strategy, including benefits, costs, and conditions for successful implementation. Table 1 is a list of the recommended workload reduction strategies 1 to 10 and also includes specialty strategies SP 1 and SP 2. Originally, the research team thought there would be heavy emphasis on outsourcing of inspection activities because it is an emerging trend in other state DOTs. However, the strategy was not ranked in the top strategies by the workshop participants.

Table 1: Recommended Workload Reduction Strategies

Strategy Rank Order	Workload Reduction Strategy Description
1	Create checklists for selected pay items that help inspectors prioritize inspection elements and direct them to relevant inspection documents.
2	Use Lump Sum or Plan Quantity approach to payment where the contractor certifies compliance so that TxDOT does not have to measure.
3	Make the contractor responsible for collecting quantity tickets and delivering them to TxDOT on a daily basis.
4	Reduce the number of specifications and combine items and quantities for payment.
5	Use equipment technology for the measurement of temperature and segregation in HMA.
6	Increase or improve <i>SiteManager</i> system training to reduce double data entry and reduce time spent on paperwork.
7	Convert inspector training courses to Computer-Based Training Courses as much as possible to make training easier to obtain.
8	Standardize information provided to contractors for input into GPS controlled construction machinery.
9	Use off-the-shelf shared-access software system for contractors to submit required inspection data and reports.
10	Modify specification to allow the replacement of density measurement with stiffness in order to encourage the use of high-tech "Intelligent Compactors".
SP 1	Completely outsource entire projects to consultants to manage and inspect all aspects of the project.
SP 2	Require the contractor to provide independent consultant QA services.

What This Means

TxDOT and other state DOTs are experiencing inspection workforce shortages that can be addressed by implementing creative workload reduction strategies. The strategies identified by this research project could help TxDOT more effectively manage their inspection workload while maintaining quality. In particular, the PMC felt that strategies 1, 2, 4, 7, SP 1 and SP 2 were especially promising.

For More Information:

0-5799-1 Synthesis of Workload Reduction Strategies for Construction Inspection

Research Engineer - German Claros, TxDOT, 512-465-7403

Project Director - Tom Hunter, TxDOT, 936-633-4454

Research Supervisor - Cindy L. Menches, CTR, 512-471-6982

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