



Project Summary

Texas Department of Transportation

0-6388: Synthesis Study on Innovative Contract Techniques for Routine and Preventive Maintenance Contracts

Background

For the past decades, shortages of in-house resources—including expertise, equipment, and experienced personnel—have caused many state highway agencies to outsource a significant amount of their maintenance work. Some states have experimented with innovative contracting strategies in order to complete maintenance tasks efficiently using outsourced personnel and equipment. Similarly, the Texas Department of Transportation (TxDOT) is being challenged to expand their maintenance outsourcing options to find more efficient methods for achieving its maintenance goals and requirements. Previous studies have presented conflicting results about the effectiveness of innovative maintenance contracting strategies, creating confusion within TxDOT about the factors that contribute to success or how to align maintenance outsourcing goals with an appropriate contracting strategy. As a result, TxDOT, in conjunction with The University of Texas at Austin, investigated maintenance contracting strategies that are being used nationwide in order to identify efficient strategies that might be implemented to achieve maintenance outsourcing goals and accommodate a variety of maintenance circumstances.

What the Researchers Did

The researchers defined the three components of maintenance contracting strategy as the *delivery method*, *type of contract specification*, and *pricing strategy*, and through a comprehensive literature review, the researchers identified delivery methods that are used nationally and internationally. Furthermore, interviews were conducted with TxDOT maintenance experts to identify delivery methods used in TxDOT. Consequently, thirteen delivery methods were identified to study in this research project, and these delivery methods were used to develop an on-line questionnaire that was distributed to all twenty-five TxDOT districts and state highway agencies within the other forty-nine states. The questionnaire sought to identify which types of delivery methods, contract specifications, and pricing strategies were used throughout the country.

To learn more about the implementation and success of the innovative contracting strategies, six TxDOT districts (Dallas, Houston, Lubbock, Lufkin, Pharr, and Waco) and five state DOTs (Florida, Kentucky, Maine, North Carolina, and Pennsylvania) were interviewed. The typical questions asked in the interview included: (1) why the DOT chose a particular contracting strategy, (2) how it was implemented, (3) whether it was implemented successfully, (4) how the DOT evaluated its effectiveness, and (5) best practices, and lessons learned.

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What They Found

The researchers created a decision tree to assist decision-makers in selecting appropriate contracting strategies for a variety of maintenance activities. The decision tree is called the *Maintenance Contracting Strategy Selection Framework*. Maintenance personnel can use it to select an appropriate contracting strategy for different types or combinations of maintenance activities by following each decision path until potential contracting strategies have been identified. The researchers also developed a selection guide to provide more information about contracting strategy selection and implementation, where each delivery method is discussed from six aspects: description of the delivery method, conditions for appropriate implementation, selecting a type of specification, pricing strategy options, selecting an award strategy, and additional information and references. Furthermore, eleven case studies were developed from the interviews that enable maintenance personnel to further investigate the implementation, best practices, and lessons learned for innovative contracting strategies.

What This Means

While a large number of maintenance contracting strategies are being used worldwide, maintenance directors often make their selections based on contracting practices they have used successfully in the past rather than by examining all possible methods and choosing an appropriate contracting strategy that meets specific selection criteria. This study has investigated current maintenance contracting practices in TxDOT and other state DOTs and identified those innovative contracting strategies that may be appropriate for TxDOT to implement. This study has also created a decision aid to assist maintenance personnel in selecting appropriate contracting strategies to achieve their maintenance outsourcing goals. It is also recommended that the Maintenance Contracting Strategy Selection Framework, Selection Guide and Case Studies be used jointly in selecting and implementing appropriate contracting strategies for various types of maintenance activities.

For More Information:

0-6388-1 Synthesis of Innovative Contracting Strategies for Routine and Preventive Maintenance Contracts

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