



Project Summary

Texas Department of Transportation

0-6664: Peer State Review of TxDOT Maintenance Practices

Background

The objective of this project was to provide the Texas Department of Transportation (TxDOT) with an assessment of their maintenance program and practices based on a review by maintenance directors from peer states. This information will be used by TxDOT to assess current maintenance program management and practices to identify areas for improvement and areas that are working well.

What the Researchers Did

The research team worked with TxDOT to identify 6 peer state maintenance directors to participate in a 3-day workshop and road rally. The 6 peer states included California, Washington State, Kansas, Missouri, Georgia, and North Carolina. In addition, the researchers and TxDOT identified 15 key questions regarding the TxDOT maintenance management program and maintenance practices which the peer states were to answer during the workshop and road rally. The questions were organized according to 5 topic areas including the:

- maintenance planning process,
- 4-year pavement management plan,
- maintenance performance reporting and measuring,
- funding allocation, and
- overall maintenance operations.

The peer participants were asked to rank the effectiveness of TxDOT's current program on a 4-point scale ranging from 'Not Effective' to 'Very Effective'.

The 3-day workshop was held at The University of Texas at Austin's Center for Transportation Research (CTR) and the Austin District's North Travis Area Office. During the workshop TxDOT subject matter experts presented information on the 5 topic areas. The peer state representatives were provided ample opportunities to ask questions and discuss ideas regarding areas for improvement in a round-table discussion format.

A road rally was conducted, which provided the 6 peer state and 18 TxDOT participants to rate maintenance conditions on 34 one-mile test sections while traveling in 6 vans. Each participant was requested to rate the pavement, roadside, and traffic operations maintenance conditions of the one-mile section on a survey form. The surveys were evaluated to compare peer state with TxDOT personnel ratings and to compare different participant groups to the Texas Maintenance Assessment Program (TxMAP) ratings conducted on each section.

In addition, the peer participants visited the North Travis Area Office to tour maintenance facilities; view Pavement Management data collection and maintenance equipment demonstrations; and discuss training, staffing, and maintenance operations.

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What They Found

During the course of the 3-day workshop, each peer state participant completed the questionnaire, which was returned to the researchers on the last day. In addition, the peer participants provided consensus answers for each of the 15 questions, which were recorded in a separate questionnaire.

The peer state participants identified a number of maintenance program areas that worked well and other areas that could be improved. Based on the findings of the workshop and road rally several key strengths of the TxDOT maintenance program were identified. The following 5 strengths are given as examples:

1. excellent communication with the personnel working in the field,
2. the centrally-managed TxMAP and TxTAP systems,
3. TxDOT's (maintenance) funding allocation process is easily repeatable and reportable,
4. TxDOT's staff is knowledgeable and composed of people who take pride in their work, and
5. TxDOT's willingness to evaluate and improve their program is a significant strength in and of itself.

Weaknesses in TxDOT's maintenance program were also identified, the following 5 weaknesses are given as examples:

1. a focus on district-wide rather than statewide needs,
2. statistical unreliability of the sample size used for maintenance evaluations,
3. lack of a (performance based) connection between funding and pavement condition,
4. the program should strive to be more proactive—many decisions are based on historical and cultural factors rather than the real needs of the system, and
5. the lack of pavement layer data and treatment history.

What This Means

The peer state review workshop and road rally provided valuable information about strengths and weaknesses of TxDOT's maintenance management program and practices. Based on these findings the researchers suggest that further studies regarding future improvements to TxDOT's maintenance management program could include the following:

- conduct a statistical evaluation of the current TxMAP rating section selection and rating processes,
- develop methods to consider the impact of pavement routine maintenance activities on short- and long-term pavement conditions,
- evaluate methods to incorporate both district and statewide performance and goals in funding allocation formulae,
- evaluate methods to capture and use pavement treatment history data in both PMIS and routine maintenance management processes,
- evaluate enhanced pay scales and other reward systems for maintenance employees, and
- develop processes to capture and retain institutional knowledge, insights, and rules-of-thumb which are used by experienced maintenance supervisors and employees, but not currently documented.

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