



Project Summary

Texas Department of Transportation

0-6669: Best Practices for Emergency Operations

Background

Weather threatens transportation nationwide and particularly impacts roadway safety, mobility, and productivity. Weather affects roadway safety through increased crash risk, as well as exposure to weather-related hazards. Weather impacts roadway mobility by increasing travel time delay, reducing traffic volumes and speeds, increasing speed variance (i.e., a measure of speed uniformity), and decreasing roadway capacity (i.e., maximum rate at which vehicles can travel). Weather events influence productivity by disrupting access to road networks and increasing road operating and maintenance costs.

Accurate weather information is a critical element in the daily lives of most people. In many cases, weather information helps determine when and if to take a trip, the route, and expected travel time. It guides the actions of state Departments of Transportation (DOTs) that maintain the interstates and state highways. In recognition of a growing need to identify actionable practices relative to winter weather operations, it has become increasingly important to ensure that these practices can be effectively employed as well as protect the health and safety of employees working in extreme conditions.

To assist the Texas Department of Transportation (TxDOT) in this effort, this research:

- Developed a winter weather response guide that can be used by TxDOT districts vulnerable to weather related emergencies.
- Developed a bilingual statewide Playbook for Winter Storms in Texas, which will be used for general public awareness of winter storm operations.

What the Researchers Did

Initially, an extensive literature and state of the practice review of existing resources on transferable best practices related to winter weather operations was conducted and synthesized for use in the winter weather response guide.

Next, researchers conducted site visits to the 25 TxDOT districts to review all aspects of the internal policies and procedures related to winter weather operations in order to establish a procedural baseline, obtain information regarding the history of snowfall and ice weather trends, document the assets required to respond to storm events, and review any multidistrict or metropolitan operational plans in order to address the management of winter weather operations and resources from a regional and large metropolitan area perspective.

Research Performed by:

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Project Completed: 10-31-11

In the final phase of the project, researchers examined practices that focused on a proactive approach to snow and ice control across the state. This information could be disseminated by TxDOT to raise their awareness and understanding of important information needed to protect the safety of the motorists as well as aid maintenance personnel in developing the best snow and ice control strategies.

What They Found

Findings from this research project provided state of the practice information to TxDOT staff to leverage improvements to procedures used in winter weather operations. The winter weather response guide and playbook provide all districts with concepts to consider implementing within their regions to better protect the health and safety of employees who must work in extreme weather emergencies.

What This Means

Each state often has its own guidelines and policies that govern their operations during winter weather. In Texas, snow and ice control procedures are defined generally on a statewide basis, and select districts have developed and maintain more detailed procedures. The products of this research provide guidelines that are no longer borne from tradition, but rather from recent advances and science-driven decision-making.

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