

Snow and ice control—one storm at a time

Experienced snowplow drivers often hit on the right snow and ice control practices for each winter storm. But in the past, state DOTs lacked standard guidelines, based on solid research, to help field supervisors and drivers of all experience levels choose the most appropriate strategy for different locations and conditions.

That changed in 2004, when NCHRP published *Report 526: Snow and Ice Control: Guidelines for Materials and Methods*. The guide helps agencies choose winter maintenance strategies to meet level-of-service objectives and pavement condition goals for different highway types—ensuring that materials are used cost-effectively and waste is minimized.

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To create the guide, investigators conducted extensive fieldwork, working with 24 agencies to evaluate five combinations of snow removal tactics and anti-icing and deicing strategies. They studied these methods over three winters to assess their effectiveness in different climate, site, and traffic conditions.

“We conducted rigorous field testing across dozens of state and local agencies,” says principal investigator Bob Blackburn, formerly of the Midwest Research Institute. “The states invested a lot of effort to collect data for us.”

The result was a set of detailed guidelines that gave state DOTs and local agencies a scientific methodology for addressing



Weather station data shape appropriate storm response.

complex challenges, such as how to design a salt application rate to account for dilution caused by precipitation, traffic, and accumulated snow and ice on the road surface. The guidelines codified the experiences of field personnel across the country.

“Core winter maintenance solutions such as anti-icing, prewetting, and Road Weather Information Systems were defined and developed through the 1980s and 1990s,” says Paul Pisano, team leader for road weather management at FHWA. “But as we refined and improved our use of these approaches over time, we needed updated guidance that reflected those changes. *Report 526* brought it all together.”

The report includes a step-by-step procedure that field supervisors can use to determine the best treatment plan for a variety of conditions. Project panel member Joe Doherty of New York State DOT says targeting the guidelines to field staff was key.

“Often guidelines are written for the top DOT engineering staff,” Doherty says, “but the field supervisors are the people who really call the shots during the storms. So the more you can target them, the more effective you can be at improving practices.”

To make the guidelines even more accessible to field personnel, AASHTO incorporated portions of *Report 526* into its computer-based training modules on snow and ice control.

“Computer-based training lends itself so well to technology transfer for research,” says Lee Smithson, who helped develop the training module through AASHTO’s Snow and Ice



The correct salt application rate saves money.

Pooled Fund Cooperative Program. “It takes solid research and puts it in the language of the people who are using it out in the field.”

“It’s a critical way to get the message out there,” Pisano agrees.

“This NCHRP research has made a difference.”

The benefits of the training continue long after the instruction is complete: Field personnel can use the software during winter weather events to compute salt application rates and design treatment plans.

“This NCHRP research has made a difference,” Smithson says. “Once you get tech transfer on it, it does work.”

NCHRP Report 526 is available online at http://www.trb.org/news/blurb_detail.asp?id=4355. Hard copies may be purchased from the TRB Bookstore at www.trb.org/bookstore.

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