Crossroads

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TRANSPORTATION Information Center

University of Wisconsin–Madison

New tools for winter road maintenance

Truck-mounted pavement temperature sensors are one of the promising new tools WisDOT tested last winter in their Winter Maintenance Initiative program. Zero-velocity salt spreaders, on-board prewetting systems, and ground-oriented speed control units which also help make salting more efficient were also deployed. Many counties who tried out the new state-purchased equipment last winter found it very effective in helping reduce the salt required. WisDOT is looking into buying more state-of-the-art equipment.

"Traffic volumes are increasing, and so are drivers' expectations. It's a challenge to keep the same level of service. And at the same time we're concerned about the amount of salt we're using," says Tom Martinelli, WisDOT's regional maintenance engineer. New equipment and new techniques are helping meet that goal. The Winter Maintenance Initiative will invest again this year in equipment, salt sheds, and public education to better maintain the state's roads in winter.

County crews who maintain state highways are anxious to use the mobile pavement temperature sensors. Mounted on a supervisor's car or a patrol truck, they help supervisors determine when it is most effective to call for salting. "We've had requests to buy about 77 additional units for next year," says Martinelli, who expects they'll actually order just a few of the $2000 units to try in a pilot program.

"I think the sensors produced substantial cost savings," says Roger Kolb, Brown County Highway Commissioner. "With a five or six degree difference between air and pavement temperature, it can be difficult to gauge when to begin salting. We've found pavements are often warmer than we expected so we can send crews out later." The mobile sensors were accurate when tested against stationary pavement temperature sensors, Kolb reports, and much handier than returning to the office to dial up computer reports.

Anti-icing clears pavements sooner

The sensors also help with *anti-icing* technology, the preemptive approach designed to keep snow and ice from bonding to pavements. "We had some good luck preventing binding last year," says Ed Kazik, a Brown County Patrol Supervisor whose vehicle carries one of the sensors. "You know when the temperature is right to give the pavements a light shot of salt to prevent icing."

This truck is fitted with new snow and ice fighting equipment: a zero-velocity spreader and pre-wetting system.

Anti-icing studies show that in snow-fighting "an ounce of prevention is worth a pound of cure." Preventing the ice-pavement bond saves a significant amount of salt.

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New salting equipment may be needed, however. The WisDOT program will be exploring new multi-purpose equipment that combines pre-wetting systems by using both salt spinners and spray bars. As pavement temperatures drop and snow accumulates, a truck with this equipment could quickly switch from anti-icing with a light brine solution to de-icing with pre-wetted salt. Another anti-icing technique under study is to apply a finer gradation of pre-wetted salt with zero velocity spreaders.

Zero velocity application means more deicing material stays on the road than with a conventional spinner.

Share WisDOT's equipment buying power

You can invest in this new winter maintenance technology with relative ease. Through the state's cooperative purchasing agreements with vendors any municipality (county, city, village, town) can order the same new equipment being used by counties.

According to Tom Lorfeld, who is familiar with WisDOT's winter equipment purchasing effort, local municipalities are welcome to buy equipment under the state's contract. He has detailed equipment specs and vendor information. WisDOT is considering buying some of the following equipment types. (These 1995 prices are for equipment only, not installation):

Infrared pavement temperature sensors	**$2000 to $2500**
Zero-velocity spreaders	**$8990**
Ground speed oriented spreader controls	**$2550**
3000 gallon calcium chloride storage tanks	**$7150**
5000 gallon tanks	**$8050**
On-board prewetting systems	**$2350 to $4745**
(depending on truck type, hydraulic capacity, configuration, etc.)	

For equipment specs, vendor names, and contract information, call Tom Lorfeld at 608/267-3149.

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