

# Dept of Transportation: New research reaffirms salt brine effectively clears Wisconsin highways

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*Salt brine used between 40% and 72% less salt than traditional rock salt application*

The Wisconsin Department of Transportation (WisDOT) is sharing results from a recent university-led research project that reinforces the effectiveness of salt brine applications in winter highway maintenance compared to traditional granular salt. For decades, Wisconsin counties have used salt brine to help clear highways faster, provide better friction on roads and reduce overall salt use. Salt brine is a mixture of granular salt and water used to keep roads clear before or during winter weather.

“As we continue to enhance winter maintenance practices statewide, it’s critical that we base our strategies on sound research,” WisDOT Secretary Kristina Boardman said. “This Clear Roads project provides valuable data that confirms what our teams and county partners have observed for years – salt brine is an effective tool to improve safety on our roads, reduce material use and environmental impact and optimize available resources.”

Field testing evaluated operational and safety performance on parallel routes in two Wisconsin counties. Salt brine was applied in one direction and traditional granular rock-salt was applied in the opposite direction with friction data collected during winter storms. Results showed nearly equal road performance between the salt brine and rock salt highway sections. Further, salt brine achieved similar traction and road conditions while using between 40% and 72% less salt than dry application, demonstrating it as an effective and more efficient alternative.

The [Clear Roads findings](#) support WisDOT's continued drive for counties to use salt brine as a core component of its winter maintenance program. WisDOT maintains winter maintenance data, offers guidance on anti-icing and deicing practices and regularly evaluates innovations to improve safety and environmental outcomes. The research project was led by the Traffic Operations and Safety Laboratory (TOPS Lab) at UW-Madison. The research study involved literature review, and field data collection and evaluation.

"This study confirms that salt brine can deliver the same level of roadway safety while using substantially less material," said Andrea Bill, associate director of the TOPS Lab, housed in the UW-Madison College of Engineering. "By pairing real-world field testing with rigorous analysis, we were able to quantify what many winter maintenance professionals have seen in practice - brine is an effective, efficient and responsible tool for Wisconsin winters."

WisDOT contracts with the state's 72 county highway departments for [winter maintenance efforts](#), including snow plowing, salting and applying salt brine. All Wisconsin counties track some use of salt brine to help stretch budgets and optimize use of salt in fighting winter storms. According to WisDOT data, about \$1,000 of road salt covers nearly 70 lane miles when applied as traditional rock salt, but covers more than 175 lane miles when mixed with salt brine. Wetting roads with salt brine before storms helps prevent the bond of snow and ice to the road. Applying brine to granular salt allows the product to better adhere to the road and activates the chemical reaction that melts snow and ice.

## **Background on Clear Roads**

Clear Roads is a pooled-fund winter maintenance research initiative involving state departments of transportation and industry partners. The program sponsors research projects designed to provide practical, data-driven winter maintenance solutions for transportation agencies nationwide. WisDOT staff and the TOPS Lab collaborated on this research project.