

## How Does the USA Stack up to Others Maintenance-Wise?

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It's really easy to get so laser focused on the tasks at hand that we often forget to look around and see just how others are dealing with the same issues you are. When you do get a chance sometimes you end up inspired by the solutions someone else has come up with and sometimes you discover that you're leading the pack.

Snow, and clearing it off the roadways, isn't anything new and folks have been working on this for a long time. You'd think that with all these years of snow fighting experience under our belts and the evolution of technologies and equipment to deal with winter weather, we would all be approaching this exercise the same way. Not so. Back in 1993 a group of folks from agencies around the United States made a scanning tour of European and Nordic countries to study how they approached winter maintenance. While there were some similarities in snow removal techniques, there were some technologies and strategies that hadn't made it into the winter maintenance programs in the US. It was evident that we had some catching up to do. There were differences in equipment and spreaders and the gradation of the salt was different, but the two major areas that showed the most promise was their use of road weather information systems (RWIS) and road weather forecasting and using liquid chemicals as a preventative action or in an anti-icing capacity.



When the scanning team returned to the United States and finished writing up their recommendations, the American Association of State Highway and Transportation Association (AASHTO) formed the Snow and Ice Cooperative Program (SICOP) in 1994 to help coordinate and promote research and implementation efforts to advance winter maintenance and close the gap in how we were achieving our winter maintenance mission. The Federal Highway Administration began working on RWIS technologies and winter maintenance issues through the newly created Road Weather Management program and so began the push in the United States to advance the state of the practice in road weather and winter maintenance.

Just after the scanning tour the Strategic Highway Research Program, a five year applied research program funded by congress was getting started, elements of winter maintenance

research into a variety of topics and the first large scale multi-state winter maintenance research program into RWIS and anti-icing were included in the program. When that program was completed, implementation continued through the efforts of SICOP and FHWA through their Lead State Program. In addition to those programs groups of states pooled funds to develop projects in specialized areas of investigation. The Clear Roads pooled fund study was created to investigate winter maintenance materials, equipment, and strategies. The Aurora pooled fund study was created to address RWIS and road weather research implementation. The Maintenance Decision Support System (MDSS) pooled fund study was formed to develop and implement these systems built on the foundation laid by the FHWA's work through the National Laboratories to develop the foundational technologies of this expert system that recommends treatment strategies based on weather forecasts and the guidelines developed in previous research.

One of the challenges in trying to implement new technologies or strategies is overcoming the "not invented here" mentality along with "our snow is different than theirs". Conducting those national field tests showed that, in fact, RWIS, the use of liquids and anti-icing strategies do in fact work and you can see them widely implemented here in the US.



Since that first international scanning tour, SICOP has been active in collaborating with the various groups on their research and implementation efforts as well as maintaining connections with the World Road Association's Winter Maintenance Technical Committee. Staying plugged into the international winter maintenance community expanded the pool of knowledge and accelerated the development of new techniques and technologies.

One of the major differences between maintenance in the United States and Europe today is that the vast majority of agencies in the US self-perform maintenance activities while in other countries maintenance is contracted out, usually with long term contracts. Anyone who has been involved with contracting knows there are two basic rules; you get just what actually is required as part of the contract, not what you intended to be in the contract, and secondly, any changes to the contract will cost you more money. That said, some contractors are very innovative and given the appropriate flexibility in meeting the terms of the contract they have definitely developed, and deployed, advancements in winter maintenance technologies.

As we see more and more agencies move towards contracting either as a political mandate or as a way to address the critical personnel shortages, we have to be sure the terms of the contracts don't limit the ability to innovate.

We filled in the gaps in technology and techniques pretty quick but there is more work to be done. Two topics for future work that need attention revolve around environmental and sustainability issues and the other is the influence of connected and automated vehicles on winter maintenance practice.

SICOP produces a podcast called SICOP Talks Winter Ops (<http://www.sicopTalksWinterOps.com>) where you can listen to conversations with experts in winter maintenance and stay up to date on the state of the practice.

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