

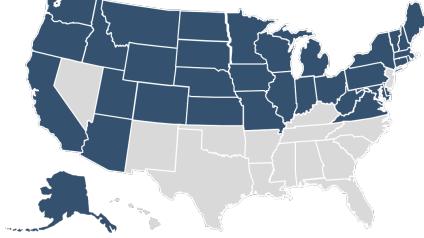
m DEPARTMENT OF
TRANSPORTATION



Putting Clear Roads Research to Work
2017 Road Salt Symposium

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Clear Roads Pooled Fund Membership
34 States



General Types of Clear Roads Research Projects

Primary Focus

- Evaluating winter maintenance materials, equipment and methods under real-world conditions.
- Developing and comparing specifications and making recommendations.
- Studying and promoting innovative techniques and technologies that will save agencies money, improve safety and increase efficiency.
- Supporting technology transfer by developing practical field guides and training curriculum to promote the results of research projects.

Clear Roads Research Project Examples

- Snow and Ice Control Environmental Best Management Practices Manual
- Roadway Salt Best Management Practices
- Cost-Benefit Analysis Toolkit (Phase II)
- Developing a Training Video for Field Testing of Deicing Materials
- Annual Survey of State Winter Maintenance Data

Snow and Ice Control Environmental Best Management Practices Manual

Need: Extensive research existed but practitioners needed this information synthesized into a practical guide



One of the most important environmental practices for winter maintenance is calibrating salt spreaders so that they dispense only the intended amount of salt.

Snow and Ice Control Environmental Best Management Practices Manual

Results:

- Manual that shows proactive strategies, detailing their effectiveness and limitations. The manual also includes at-a-glance tables for snow and ice control products that show environmental impacts, performance characteristics and best practices for using them.
- Researchers also identified several key practices including (a) Effective application strategies, (b) Equipment calibration, (c) Facilities management, (d) Training operators and (e) Keeping records & monitoring trends.

Roadway Salt Best Management Practices

Need: Very challenging 2013-2014 winter season in the Northeastern and Midwestern U.S. Project investigated and analyzed issues related to deicing chemical supplies.



Conveyor systems that fill a salt storage facility from its highest point maximize the capacity of the facility and are safer than simply pushing salt into a stockpile.

Roadway Salt Best Management Practices

Results:
Project investigated and analyzed issues related to deicing chemical supplies with the primary focus on salt.
A manual of best practices for procurement, storage, and use of salt that agencies could use in the future.

Snow and Ice Control Environmental Best Management Practices Manual - <http://clearroads.org/project/snow-and-ice-control-environmental-best-management-practices-manual/>

Cost-Benefit Analysis Toolkit (Phase II)

Need: Many winter highway maintenance managers were increasingly needing to justify the costs of new materials and equipment in the face of frequent budget cuts.
The original Cost-Benefit Analysis Toolkit did not possess many of practices, equipment options and operational strategies that were commonly used.

Initial Costs Worksheet - Spreaders					
Items	Unit rate	# of units	Unit	Amount (\$)	Notes
Salt spreader generator cost	\$				Specific quotes should be entered, but price range between \$7500 and \$9500 per vehicle
Installation cost (additional time)	\$				
Other 1 (define)	\$				
Other 2 (define)	\$				
Salvage cost per spreader	\$				
Total initial expenditure	\$				

Pop-up information boxes within the toolkit provide guidance to users about what data to enter and how to find it.

Cost-Benefit Analysis Toolkit (Phase II)

Results:

- Options to analyze more winter maintenance materials, equipment and methods.
- Ability to run on more versions of Internet browsers.
- Reporting in additional formats (such as Microsoft Word) for easier manipulation for presentation.
- Ability to save multiple scenarios and revisit them.

Developing a Training Video for Field Testing of Deicing Materials

Need: State DOTs spend millions of dollars per year on snow removal and deicing activities. In order to meet level of service requirements under increasing budget and environmental constraints, DOTs need to be able to determine the “best value” for both chemical and mechanical snow/ice removal practices.



Developing a Training Video for Field Testing of Deicing Materials

Results:

- A step-by-step Field Guide for Testing Deicing Chemicals (previous Clear Roads project)
- An instructional video to accompany it that would demonstrate the three levels of field testing that can be performed to determine the effectiveness of a deicing chemical.

Video: <https://www.youtube.com/watch?v=clPTRCXRBDM>

Annual Survey of State Winter Maintenance Data

- Need: Since winter maintenance managers have reached out to peers in other states to compare salt use and salt prices, compare winter costs, and identify ways to save money the opportunity existed to build on past data-gathering efforts and establish a formal mechanism for annually compiling a range of winter maintenance data.



Annual Survey of State Winter Maintenance Data

Results:

- All state DOTs were invited to participate in a survey about resource use, material use and costs for the 2014-2015 winter season (35 states participated) and repeated for the 2015-2016 winter season (34 states participated).
- The surveys have been compiled into an interactive map that allows users to compare metrics (such as salt price per ton) and identify trends.
- The format provides a foundation for expanded data gathering, analysis and reporting opportunities in the future.

For more information on Clear Roads Research

<http://clearroads.org>



Thank you

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