

State Planning and Research Program Quarterly Report

PROJECT TITLE: Clear Roads Administration, Research Support, and Information Services

OBJECTIVES: Clear Roads is a pooled fund research project aimed at rigorous testing of winter maintenance materials, equipment, and methods for use by highway maintenance crews. The Clear Roads Technical Advisory Committee (TAC) contracted with CTC & Associates LLC to perform the administrative functions associated with maintaining the pooled fund project as well as information services that support technology transfer. This report summarizes activities conducted under this contract over the last three months.

PERIOD COVERED: October through December 2023

PARTICIPATING AGENCIES: Minnesota Department of Transportation

PROJECT MANAGER: Tom Peters

SP&R PROJECT NO:
1053038

PROJECT IS:

LEAD AGENCY: MnDOT

Planning
 Research &
Development

PRINCIPAL INVESTIGATOR:
CTC & Associates LLC

PROJECT BUDGET:
\$499,983.92

PROJECT EXPENDITURES TO DATE:
\$102,600.49

WORK COMPLETED:

TAC Meetings

- Completed minutes for the 2023 fall in-person meeting and posted them on the Clear Roads website. Also posted state and industry partner reports from the fall meeting to the members only page.
- Continued to coordinate with MnDOT and hotels in Annapolis, MD to facilitate the selection of a hotel to host the spring 2024 in-person meeting.
- Participated in meeting planning for the 2025 National Winter Maintenance Peer Exchange.

Administration and Marketing

- Updated the Clear Roads website with current project status, project deliverables, webinars, administrative documents, and modifications to the home page.
- Performed an update to the Wordpress software that CTC uses to administer the Clear Roads website, providing a platform that will be more secure and easier to update moving forward.
- Maintained and updated commitments, transfers, and overall budget information for the pooled fund in coordination with MnDOT. Communicated with TAC members and their appropriate pooled fund personnel to facilitate transfers for fiscal year 2024.
- Supported efforts of TAC members, including changes in state representation. The total number of members remains 39.

Information Services

- Used Constant Contact to distribute 5 Clear Roads news posts.
- Completed the research brief for the following project:
 - Efficacy, Cost, and Impacts of Non-Chloride Deicers
- Completed collecting responses for the 2022-2023 Annual Survey of State Winter Maintenance Data.

Research Support

New projects

- Coordinated with MnDOT, project investigators, and Clear Roads project subcommittees to finalize work plans and budgets to get the FY2023 projects below under contract.
 - Development of a Public Service Announcement Library
 - Quantifying the Economic Value of Snow and Ice Operational Success
 - Updating the Impact of Capital Projects Decision Support Tool
 - Solar Radiation Benefits / Chloride Reduction Potential Associated with the Use of Vegetation Management Practices Near Roads
- Kicked off the following project:
 - pH Waiver for Deicing Products and the Qualified Products List

Research in progress

- Continued coordination with the PIs and subcommittees to schedule check-in teleconferences and facilitate the review of deliverables for:

- Standard Test Procedures for Ice Melting Capacity of Deicers
- Using GIS to Highlight Highway Segments Sensitive to Deicing Materials
- Salt Shed Design Template
- Grip Sensor Technology and Salt Applications
- Update to CR 13-04: Best Practices for Protecting DOT Equipment from the Corrosion Effect of Chemical Deicers
- Training Module Development for Evaluation of Storm Severity Index and Winter Severity Index Variables
- Calculating Plow Cycle Times from AVL Data
- Determining the Migration of Chloride-based Deicers through Different Soil Types
- Comprehensive Guide to Pre-wetting Application Rates and Methods
- Best Management Practices for Liquid Chloride Storage and Pumping Systems
- Effects of Additives in Deicing Salts at Lower Temperatures
- Evaluation of Direct Liquid Application of Salt Brine vs Granular Salt as Measured through Various Performance and Safety Metrics
- Use of Dashboards for Winter Operations

Implementation

- Developed a brief report that captures the implementation opportunities and impacts for each research project.
- Continued to provide access (346 agencies / entities) to the training modules developed by the Clear Roads project, Snowplow Operator and Supervisor Training.
- Provided access (1,222 agencies / entities) to the training modules developed by the Clear Roads project, Entry-Level Driver Training (CDL) for Maintenance Equipment Operators.
- Coordinated the completion of project closeout forms for recently completed projects.
- Continued to facilitate implementation discussions (at the program and project level) during regular project and face-to-face meetings as appropriate.
- Continued to coordinate Clear Roads Research Implementation Webinars focused on AWSSI, Snowplow Operator and Supervisor Training, and another idea generated by Virginia.
- Generated a 2-page fact sheet highlighting the results of the 2023 Research Implementation Survey.

SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:

- Plan and develop materials for the 2024 spring meeting in Annapolis, MD.
- Assist as necessary as MnDOT executes the contracts for the 2023 research projects.
- Assist MnDOT as necessary with the 2024 fall meeting in Kalispell, MT.
- Administer and post the 2022-2023 Product Experience Survey.
- Collect responses to the Online Equipment Database.
- Assuming no delays in deliverables, begin drafting research briefs for the following projects:
 - Standard Test Procedures for Ice Melting Capacity of Deicers
 - Using GIS to Highlight Highway Segments Sensitive to Deicing Materials
 - Salt Shed Design Template
 - Training Module Development for Evaluation of Storm Severity Index and Winter Severity Index Variables
 - Calculating Plow Cycle Times from AVL Data
- Conduct project closeout webinars for the following projects:
 - Standard Test Procedures for Ice Melting Capacity of Deicers
 - Using GIS to Highlight Highway Segments Sensitive to Deicing Materials
 - Salt Shed Design Template
 - Training Module Development for Evaluation of Storm Severity Index and Winter Severity Index Variables
- Continue to update the Clear Roads website with both project and administrative information.
- Assist with coordinating and tracking funding transfers to TPF-5(479).
- Complete and submit the final report for TPF-5(218).
- Research, write, and publish winter maintenance news posts.
- Use Constant Contact to distribute the winter maintenance news posts, completed research results, and other information.
- Continue to coordinate with investigators and the Clear Roads subcommittees on projects in progress.
- Continue to coordinate the completion of post project closeout forms.
- Conduct the first round of Research Development Group meetings to develop research ideas for FY2024.
- Compile and post on the website the winter maintenance-related technical sessions at the 2024 TRB Annual Meeting.

STATUS AND COMPLETION DATE:

The contract tasks are progressing as planned. The completion date was June 30, 2025.