

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: July through September 2025

PARTICIPATING AGENCIES: Minnesota Department of Transportation

PROJECT MANAGER: Sheila Johnson

SP&R PROJECT NO:
1053038

PROJECT IS:

LEAD AGENCY: MnDOT

☐ Planning
☒ Research &
Development

PRINCIPAL INVESTIGATOR:
CTC & Associates LLC

PROJECT BUDGET:
\$1,130,075.18

PROJECT EXPENDITURES TO DATE:
\$765,458.99

WORK COMPLETED:

TAC Meetings

- Attended and supported the 2025 fall meeting and Clear Roads / Aurora / AASHOT Winter Weather Management TSP Joint Meeting in Bloomington, MN on September 16-18. Prepared agenda, budget, other meeting materials, and minutes and provided them to the TAC by posting them on the website. Provided a virtual meeting platform and technology for those attending remotely.

Administration and Marketing

- Updated the Clear Roads website with current project status, project deliverables, webinars, administrative documents, and modifications to the home page.
- Continued to update the Webinars and Other Videos page with Final Project Webinars and Implementation Webinars.
- Continued to work with the Qualified Products List subcommittee providing technical support to the online Vendor Submission Form.
- 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 continue to facilitate transfers for fiscal year 2025. All 2025 funds have been transferred to, or contracted with, MnDOT.
- 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 synthesis project, Management of Video Recordings and Images taken from Truck-mounted Cameras.
- Continued work on the projects:
 - Snow & Ice, 2030
 - Best Practices for Research Implementation
- Commenced work on the following synthesis projects:
 - Predictive Methods to Update Road Condition Reporting
 - Update on the Status of AVL/GPS for Winter Operations
- Completed work on the research brief for the project, Salt Shed Design Template.
- Recorded and posted the final project webinar, Grip Sensor Technology and Salt Applications.
- Began collecting responses for the 2024-2025 Annual Survey of State Winter Maintenance Data.
- Coordinated with the subcommittee and vendors to renew / update / add deicer products to the Qualified Products List.
- Coordinated with the editor, drafted, obtained review / approval, and submitted an article entitled, *It Began with a Martini Shaker*. Article was published in the APWA Reporter's October 2025 issue.

Research Support

New projects

- Awaiting MnDOT to post the following as RFPs. Once posted, will coordinate with the Clear Roads TAC to schedule an online meeting to review the proposals received in response to the RFPs.

- Developing a National Road Condition Standard Legend
- A Benefit-Cost Analysis of Implementing and Operating AVL/GPS Technology Systems
- Updated Techniques in Clearing Different Interchange Configurations and Other Geometric Layouts
- Materials and Guidance to Maximize the Value of a Weather Services Contract
- Snowplow Truck Washing Facility Designs and RFP Templates
- Comprehensive Guide to Prewetting Application Rates and Methods
- pH Waiver for Deicing Products on the Qualified Products List
- Coordinated with MnDOT, project PI, and Clear Roads to kick off the 2024 project, Effective Pretreatment Methods for Events Beginning as Rain.

Research in progress

- Continued coordination with the PIs and subcommittees to schedule check-in teleconferences and facilitate the review of deliverables for:
 - Determining the Migration of Chloride-based Deicers through Different Soil Types
 - Evaluation of Direct Liquid Application of Salt Brine vs Granular Salt as Measured through Various Performance and Safety Metrics
 - Development of a Public Service Announcement Library
 - Quantifying the Economic Value of Snow and Ice Operations Success
 - Updating the Impact of Capital Projects Decision Support Tool
 - Using Vegetation Management Practices Near Roads to Leverage the Benefits of Solar Radiation
 - Toxicity Standards for the Qualified Products List
 - Salt Management Training for Non-DOT End Users
- Coordinated with the PI and subcommittee to facilitate the review of final deliverables and closeout the following project:
 - Grip Sensor Technology and Salt Applications

Implementation

- Developed a brief report that captures the implementation opportunities and impacts for each research project.
- Continued to provide access (415 agencies / entities) to the training modules developed by the Clear Roads project, Snowplow Operator and Supervisor Training.
- Provided access (1,5 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.
- Facilitated and posted an Implementation Webinar entitled, Montana DOT's Implementation of the Clear Roads Defensive Driving Training.

SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:

- Select a hotel, and sign MOU, for the fall 2026 meeting in Portland, Maine.
- Provide support to MnDOT in responding to questions related to the 2025 RFPs.
- Conduct an online meeting of Clear Roads to review and discuss proposals in response to the 2025 RFPs.
- Collect the final responses, analyze, and post the 2024-2025 Annual Survey of State Winter Maintenance Data.
- Complete and publish the following synthesis projects:
 - Snow & Ice, 2030
 - Best Practices for Research Implementation
- Continue work on the following synthesis projects:
 - Predictive Methods to Update Road Condition Reporting
 - Update on the Status of AVL/GPS for Winter Operations
- Work with PIs to finalize the following projects including gaining approval of final deliverables, conducting project closeout webinars and drafting the research briefs.
 - Evaluation of Direct Liquid Application of Salt Brine vs Granular Salt as Measured through Various Performance and Safety Metrics
 - Quantifying the Economic Value of Snow and Ice Operations Success
- Publish the research brief for the project, Grip Sensor Technology and Salt Applications.
- Continue collecting responses to the 2024-2025 Annual Survey of State Winter Maintenance Data.
- Coordinate with Clear Roads members to facilitate, record, and post one of the Implementation Webinar proposed during the fall meeting.
- Continue to update the Clear Roads website with both project and administrative information.
- Assist with coordinating and tracking funding transfers to TPF-5(479).
- 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 provide design and administrative support for the Qualified Products List.
- Continue to conduct project closeout and implementation webinars. Post them on the Clear Roads website.
- Continue to coordinate the completion of project closeout forms.
- Continue to respond to requests for Clear Roads training materials.

STATUS AND COMPLETION DATE:

The contract tasks are progressing as planned. The completion date is June 30, 2026.