

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 2022

PARTICIPATING AGENCIES: Minnesota Department of Transportation

PROJECT MANAGER: Tom Peters

SP&R PROJECT NO:
1030951

PROJECT IS:

LEAD AGENCY: MnDOT

Planning
 Research &
Development

PRINCIPAL INVESTIGATOR:
CTC & Associates LLC

PROJECT BUDGET:
\$1,238,595.97

PROJECT EXPENDITURES TO DATE:
\$1,065,925.03

WORK COMPLETED:

TAC Meetings

- Completed minutes for the 2022 fall in-person meeting and posted them on the Clear Roads website. Also posted state and partner reports from the fall meeting to the members only page.
- Coordinated with MnDOT to process a request for bid for the 2023 spring in-person meeting in Austin, TX.
- Participated in a planning meeting for the next National Winter Maintenance Peer Exchange – targeting fall 2023.

Administration and Marketing

- Updated the Clear Roads website with current project status, project deliverables, webinars, administrative documents, and modifications to the home page.
- 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 2022.
- Supported efforts of TAC members, including changes in state representation. Total number of members remains at 38.

Information Services

- Used Constant Contact to distribute 7 Clear Roads news posts.
- Updated the 2022 Generic Clear Roads presentation to include 22-06, which was added during the fall meeting.
- Completed research briefs on the following projects:
 - Evaluation of Indoor Automated Stockpile Measurement Systems
 - Expanded Use of AVL/GPS Technology
- Conducted a project closeout webinar for the following project:
 - Standard Test Procedures for Ice Melting Capacity of Deicers
- Completed the project, Evaluation of Indoor Automated Stockpile Measurement Systems.
- Completed the synthesis project entitled, Corrosion and Connectors Don't Mix.
- Commenced work on the 2023 version of the Clear Roads Research Implementation Survey.
- Requested products for inclusion in the 2022-2023 Clear Roads Product Experience Survey.
- Completed and posted responses from the 2021-2022 Annual Survey of State Winter Maintenance Data.
- Continued to assist with program revisions based on Beta Testing of the improved Qualified Products List vendors online deicer product submission form.

Research Support

New projects

- Coordinated with MnDOT, project PIs, and Clear Roads project subcommittees to finalize work plans and budgets in order to get the FY2022 projects below under contract.
 - Comprehensive Guide to Pre-Wetting Application Rates and Methods
 - Evaluation of Direct Liquid Application of Salt Brine Versus Granular Salt as Measured Through Various Performance and Safety Metrics

- Use of Dashboards for Winter Operations
- Coordinated with MnDOT and Clear Roads leadership to re-post the following RFPs.
 - Best Management Practices for Liquid Chloride Storage and Pumping Systems
 - Effects of Additives in Lowering the Freezing Point of Deicing Salts
- Began scoping efforts for the following new project selected for funding during the 2022 fall meeting.
 - pH Waiver for Deicing Products and the Qualified Products List
- Sent out call for 2023 research problem statements to the broader winter maintenance community, including academia.
- Began scheduling research development group meetings for January to discuss 2023 research agenda.

Research in progress

- Continued coordination with the PIs and subcommittees to schedule check-in teleconferences and facilitate the review of deliverables for:
 - High Performance Blade Evaluation
 - 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
 - Efficacy, Cost, and Impacts of Non-Chloride Deicers
 - Training Module Development for Evaluation of Storm Severity Index and Winter Severity Index Variables
 - Evaluation of Electric Vehicle Technologies and Alternative Fuels for Winter Operations
 - Calculating Plow Cycle Times from AVL Data
 - Determining the Migration of Chloride-based Deicers through Different Soil Types
- Coordinated with the PI and subcommittee to facilitate review of final deliverables and closeout the following projects:
 - Evaluation of Indoor Automated Stockpile Measurement Systems (conducting this CTC & Associates project)
 - Expanded Use of AVL/GPS Technology
 - Corrosion and Connectors Don't Mix

Implementation

- Developed a brief report that captures the implementation opportunities and impacts for each research project.
- Continued to provide access (306 agencies / entities) to the training modules developed by the Clear Roads project, Snowplow Operator and Supervisor Training.
- Provided access (931 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.
- Commenced drafting the survey for the 2023 version of the Clear Roads Research Implementation Survey.
- Facilitated the first Clear Roads Research Implementation Webinar focused on ELDT on November 16.
- Assisted Iowa State University and FHWA with setting up their forum on Adaptive Route Optimization, which is scheduled for January 2023.

SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:

- Plan and develop materials for the 2023 spring meeting in Austin, TX.
- Coordinate the process of finalizing the remaining 2022 research work plans once the PIs are awarded.
- Coordinate with MnDOT to get the RFP posted for the final 2022 project entitled, pH Waiver for Deicing Products and the Qualified Products List, as well as coordinating response to any proposer questions to the RFP.
- Draft the following research briefs:
 - High Performance Blade Evaluation
 - Evaluation of Electric Vehicle Technologies and Alternative Fuels for Winter Operations
- Conducted project closeout webinars for the following projects:
 - High Performance Blade Evaluation
 - Expanded Use of AVL/GPS Technology
 - Evaluation of Electric Vehicle Technologies and Alternative Fuels for Winter Operations
- Coordinate with the subcommittee to finalize a scope of work for the project to investigate pH waivers for the QPL.
- Continue to send draft dissemination plans to subcommittees for their review and comment.
- 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.
- Commence the Clear Roads Research Implementation Survey.
- Compile and post on the website the winter maintenance-related technical sessions at the 2023 TRB Annual Meeting.

STATUS AND COMPLETION DATE:

The contract tasks are progressing as planned. The current completion date is June 30, 2023.