

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: January through March 2023

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:
\$1,118,388.91

WORK COMPLETED:

TAC Meetings

- Continued planning for the 2023 spring meeting in Austin, TX on April 18-20.
- Began researching hotels for the 2023 fall meeting in Salt Lake City, UT.
- Began researching hotels for the 2024 spring meeting in Annapolis, MD.

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 2023.
- Supported efforts of TAC members, including changes in state representation. With the addition of New Jersey, the total number of members is now 39.

Information Services

- Used Constant Contact to distribute 6 Clear Roads news posts.
- Compiled a compendium of winter maintenance-related papers, presentations, and posters from the 2023 TRB Annual Meeting.
- Completed the research brief for the following project:
 - High Performance Blade Evaluation
- Continued work on a research brief for the following project:
 - Evaluation of EVT 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 EVT Technologies and Alternative Fuels for Winter Operations
- Continued work on the 2023 version of the Clear Roads Research Implementation Survey.
- Requested / collected products for inclusion in the 2022-2023 Clear Roads Product Experience Survey.
- Coordinated with the Clear Roads TAC and the editor for the APWA Reporter for a feature article on the QPL.
- Finalizing 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 subcommittees to kick off the following FY2022 projects:
 - Comprehensive Guide to Pre-Wetting Application Rates and Methods
 - Effects of Additives in Deicing Salts at Lower Temperatures

- Use of Dashboards for Winter Operations
- Continued to assist as necessary to get the FY2022 projects below under contract.
 - Best Management Practices for Liquid Chloride Storage and Pumping Systems
 - Evaluation of Direct Liquid Application of Salt Brine Versus Granular Salt as Measured Through Various Performance and Safety Metrics
- Finalized scope of work and provided to MnDOT to post the RFP for the following FY2022 project:
 - pH Waiver for Deicing Products and the Qualified Products List
- Facilitated research development group meetings in January, February, and March 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
 - 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 project:
 - Evaluation of Electric Vehicle Technologies and Alternative Fuels for Winter Operations

Implementation

- Developed a brief report that captures the implementation opportunities and impacts for each research project.
- Continued to provide access (313 agencies / entities) to the training modules developed by the Clear Roads project, Snowplow Operator and Supervisor Training.
- Provided access (1068 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.
- Posted and began collecting responses for the 2023 version of the Clear Roads Research Implementation Survey.
- Requested / collected products for inclusion in the 2022-2023 Clear Roads Product Experience Survey.
- Began coordination of the second Clear Roads Research Implementation Webinar focused on AWSSI.
- Continued to assist Iowa State University and FHWA with coordination of their second forum on Adaptive Route Optimization, which is scheduled for April 2023.

SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:

- Attend and provide support for the spring meeting in Austin, TX.
- Submit details to MnDOT for development of RFBs for both the 2023 fall meeting in Salt Lake City, UT and the 2024 spring meeting in Annapolis, MD.
- Coordinate the process of finalizing the remaining 2022 research work plans once the PIs are awarded.
- Coordinate development of scopes of work for 2023 research projects selected as part of the spring meeting. Send them to MnDOT to be processed into RFPs and posted for investigator response.
- Finalize the following research briefs:
 - Evaluation of Electric Vehicle Technologies and Alternative Fuels for Winter Operations
- Update the Clear Roads generic presentation for use by members.
- Continue to send draft dissemination plans to subcommittees for their review and comment.
- Collect equipment and administer the survey for the 2022-2023 Product Experience Survey.
- Follow up with states to complete the first survey for the Clear Roads Snow and Ice Equipment Online Database.
- Continue to update the Clear Roads website with both project and administrative information.
- Assist with coordinating and tracking funding transfers to TPF-5(479) and TPF-5(353).
- 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.
- Complete the Clear Roads Research 2023 Implementation Survey.
- Begin drafting the 2023 feature article on the QPL for the APWA Reporter.

STATUS AND COMPLETION DATE:

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