

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: April through June 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:
\$1,172,087.48

WORK COMPLETED:

TAC Meetings

- Attended and supported the 2023 spring meeting in Austin, TX on April 18-20. Prepared agenda, budget, meeting materials, and minutes and provided them to the TAC by posting them on the website.
- Submitted details to MnDOT for an RFB for the 2023 fall meeting in Salt Lake City, UT.
- Submitted details to MnDOT for an RFB 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. The total number of members remains 39.

Information Services

- Used Constant Contact to distribute 6 Clear Roads news posts.
- Continued to collect responses to the Clear Roads Equipment Online Database.
- Completed the research brief for the following project:
 - 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.
- Commenced drafting article on the QPL for the APWA Reporter.
- Finalized revisions based on Beta Testing of the improved Qualified Products List vendors online deicer product submission form and back-end management system.

Research Support

New projects

- 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
 - pH Waiver for Deicing Products and the Qualified Products List
- Facilitated meetings of the project subcommittees for the following four new FY2023 projects selected during the spring meeting, drafted scopes, submitted them as requisition forms to MnDOT for posting as RFPs.
 - 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

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
 - 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
 - Comprehensive Guide to Pre-wetting Application Rates and Methods
 - Effects of Additives in Deicing Salts at Lower Temperatures
 - 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 (317 agencies / entities) to the training modules developed by the Clear Roads project, Snowplow Operator and Supervisor Training.
- Provided access (1,114 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 collect the final responses for the 2023 version of the Clear Roads Research Implementation Survey.
- Continued to coordinate 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 we conducted on day 3 of our April meeting.

SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:

- Finalize materials for, and attend / support, the fall meeting in Salt Lake City, UT.
- Assist MnDOT as necessary with the RFBs for both the 2024 spring meeting in Annapolis, MN and the 2024 fall meeting in Kalispell, MT.
- Provide support to MnDOT in responding to questions related to the 2023 RFPs.
- Coordinate review of the responses to the 2023 RFPs.
- Work with PI to finalize the following projects including gaining approval of final deliverables, conducting project closeout webinars, and drafting research briefs.
 - Using GIS to Highlight Highway Segments Sensitive to Deicing Materials
 - Efficacy, Cost, and Impacts of Non-Chloride Deicers
- Finalize and post the 2022-2023 Product Experience Survey results.
- Coordinate a complete set of responses to 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.
- Complete and post the Clear Roads Research 2023 Implementation Survey.
- Continue drafting the 2023 feature article on the QPL for the APWA Reporter.

STATUS AND COMPLETION DATE:

The contract tasks were completed as planned. The completion date was June 30, 2023.