

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 2021

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:
\$1,037,155.52

PROJECT EXPENDITURES TO DATE:
\$758,940.65

WORK COMPLETED:

TAC Meetings

- Attended and supported the 2021 fall hybrid meeting on September 21-23. Prepared agenda, budget, meeting materials, and minutes and provided them to the TAC.

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 2021.
- Continued work on an improved online deicer product submission form for vendors on the Qualified Products List webpage.
- Supported efforts of TAC members, including changes in state representation. Total number of members remains at 36.

Information Services

- Used Constant Contact to distribute 7 Clear Roads news posts.
- Continued work on:
 - Clear Roads Snow and Ice Equipment Online Database
- Upon Chair's request, updated the Clear Roads Generic Presentation to include state affiliations for members identified in presentation.
- Completed research briefs on the following projects:
 - Recruitment and Retention of Highway Maintenance Workers
- Continued work on the following research briefs:
 - Aftermarket Cameras in Winter Maintenance Vehicles
 - AWSSI Enhancements
- Conducted project closeout webinars for the following projects:
 - Recruitment and Retention of Highway Maintenance Workers
 - Entry-Level Driver Training (CDL) for Maintenance Equipment Operators
- Completed work on drafting an article on the defensive driving / safe driving modules. Article was posted in the October 2021 issue of the APWA Reporter.
- Completed and posted the 2020-2021 version of the Clear Roads Product Experience Survey.
- Administered the survey for the 2020-2021 Annual Survey of State Winter Maintenance Data. This is the seventh year of this Clear Roads effort.

Research Support

New projects

- Received proposals for the following six FY2021 projects. Posted them on the member's only page of the website.
 - Grip Sensor Technology and Salt Applications
 - Update to CR 13-04 Best Practices for Protecting DOT Equipment from the Corrosive Effects of Chemical Deicers
 - Training Module Development for CR 18-03 Evaluation of SSI/WSI Variables
 - Evaluation of Electric Vehicle Technologies for Winter Operations
 - Calculated Plow Cycle Times from AVL Data
 - Determining the Migration of Chloride-based Deicers through Different Soil Types Adjacent to Chloride-treated Roadways
- Did not receive any proposals for the following project. Will be re-posting in November.
 - The Efficacy and Environmental Impact of Non-Chloride Deicers

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
 - Expanding Application Rate Guidance for Salt Brine Blends for Direct Liquid Application and Anti-icing
 - Measuring the Efficiencies of Tow Plows and Wing Plows
 - Synthesis of Technical Requirements and Considerations for an Automated Snowplow Route Optimization RFP Template
 - Understanding the NaCl Phase Diagram
 - Evaluation of Indoor Automated Stockpile Measurement Systems
 - Expanded Use of AVL/GPS Technology
 - Using GIS to Highlight Highway Segments Sensitive to Deicing Materials
 - Salt Shed Design Template
- Worked with the PI and subcommittee to facilitate review of final deliverables and closeout the following projects:
 - Recruitment and Retention of Highway Maintenance Workers
 - Entry-Level Driver Training for Maintenance Equipment Operators
 - AWSSI Enhancements, Phase 2

Implementation

- Developed a brief report that captures the implementation opportunities and impacts for each research project.
- Continued to provide access (233 agencies / entities) to the training modules developed by the Clear Roads project, Snowplow Operator and Supervisor Training.
- Collected and posted data on an internal TAC survey:
 - Weather Forecasting Services
- Sent draft dissemination plans to project subcommittees for their review and comment.

SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:

- Finalize meeting minutes for the fall meeting and post materials on the website.
- Coordinate the process of finalizing the 2021 research proposals (work plans) once PIs are awarded.
- Send out call for research problem statements from academia. This is a new effort that will precede the 2022 research development process.
- Continue work on the Clear Roads Snow and Ice Equipment Online Database.
- Commence work on the following research briefs:
 - Recruitment and Retention of Highway Maintenance Workers
 - Entry-Level Driver Training (CDL) for Maintenance Equipment Operators
- Complete work on the following research briefs:
 - Aftermarket Cameras in Winter Maintenance Vehicles
 - AWSSI Enhancements
- 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.
- Coordinate and track final funding transfers to TPF-5(353) and initiate the first transfers for 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.
- Produce briefs of completed research projects.
- Continue to coordinate with investigators and the Clear Roads subcommittees on projects in progress.
- Continue to coordinate the completion of post project closeout forms and research use surveys.

STATUS AND COMPLETION DATE:

The contract tasks are progressing as planned. The contract was amended this quarter, so the current contract completion date is now June 30, 2022.