

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 2017

PARTICIPATING AGENCIES: Minnesota Department of Transportation

PROJECT MANAGER: Tom Peters

SP&R PROJECT NO:
02337

PROJECT IS:

LEAD AGENCY: MnDOT

Planning
 Research &
Development

PRINCIPAL INVESTIGATOR:
CTC & Associates LLC

PROJECT BUDGET:
\$743,730.00

PROJECT EXPENDITURES TO DATE:
\$639,466.11

WORK COMPLETED:

TAC Meetings

- Completed the minutes for the 2017 fall face-to-face meeting and posted them on the Clear Roads website.
- Commenced planning for the logistical aspects of the 2018 spring face-to-face meeting, which will be held in Phoenix, AZ, April 24 to 26. Drafted and sent out the agenda for spring meeting to TAC membership.

Administration and Marketing

- Assisted one of our Clear Roads members with a PowerPoint and handout for presentation at two committee meetings at the 2018 TRB Annual Meeting.
- 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 2017.
- Supported efforts of TAC members, including changes in state representation. The total number of members remains at 35 members.

Information Services

- Wrote an article for publication in the February 2018 issue of *Roads & Bridges* based on the outcomes of the project, Snowplow Operator and Supervisor Training.
- Researched and wrote content for the December Winter Maintenance E-Newsletter.
- Completed the 2016-2017 Product Experience Survey and posted on the Clear Roads website.
- Commenced work on the 2017 synthesis projects.
 - Accuracy of Salt Application Equipment.
 - Use of Solid Materials for Roadway Anti-icing.
 - Effective Practices for Activating Snow and Ice Personnel and Equipment for Winter Storms.
 - Clear Roads Subject-based Web Pages
- Continued work on the synthesis project entitled, Maximizing the Conspicuity of Maintenance Vehicles.
- Completed work on the 2016-2017 State Winter Maintenance Survey, which is the third year of this effort. The survey results and interactive map were posted on the Clear Roads website.
- Recorded and posted closeout webinars for the following projects:
 - Quantifying the Impact that New Capital Projects will have on Roadway Snow and Ice Control Operations.

- Identification and Recommendations for Correction of Equipment Factors Causing Fatigue in Snowplow Operators.
- Began work on two briefs for publication next quarter.
 - Quantifying the Impact of New Capital Projects will have on Roadway Snow and Ice Control Operations.
 - Identification and Recommendations for Correction of Equipment Factors Causing Fatigue in Snowplow Operators.

Research Support

New projects

- Commenced coordination with the project PIs and the subcommittees to finalize and submit to MnDOT revised versions of the work plans and budgets for three new FY2017 projects.
 - Integrating Advanced Technologies into Winter Operations.
 - Standard Specifications for Carbide Inserts.
 - Aftermarket Cameras in Winter Maintenance Vehicles.
- Coordinated with the TAC, who decided to cancel the RFP on the project, A Comprehensive Guide to Pre-Wet. Project will be re-scoped as a synthesis and proposed for re-funding at the 2018 spring meeting.
- Coordinated with MnDOT and MnIT to post an RFP for the project, Winter Preparedness Website.
- Assisted MnDOT and MnIT with contract completion and coordinated the kickoff meeting for the project, Test Bed Software to Qualify Plug and Play Technology.

Research in progress

- Continued coordination with the PI and subcommittee to schedule check-in teleconferences and facilitate the review of deliverables for:
 - Understanding the Chemical and Mechanical Performance of Snow and Ice Control Agents on Porous or Permeable Pavements.
 - Developing a Training Video and Manual for Best Practices and Techniques in Clearing Different Interchange Configurations and Other Geometric Layouts.
 - Synthesis of Material Application Methodologies for Winter Operations.
 - Utilization of AVL/GPS Technology: Case Studies.
 - Standards and Guidance for Using Mobile Sensor Technology to Assess Winter Road Conditions.
 - Emergency Operations Methodology for Extreme Winter Storm Events.
 - Weather Event Reconstruction and Analysis Tool.
 - Training Video for the Implementation of Liquid-Only Plow Routes.
- Worked with the PI and subcommittee to facilitate review of final deliverables and close out the following projects:
 - Snowplow Operator and Supervisor Training.
 - Quantifying the Impact that New Capital Projects Will Have on Roadway Snow and Ice Control Operations.
 - Identification and Recommendations for Correction of Equipment Factors Causing Fatigue in Snowplow Operators.

Implementation

- Developed a brief report requested by MnDOT that captures the implementation opportunities and impacts for each Clear Roads research project.
- Continued to monitor data regarding Clear Roads website traffic, YouTube hits, and Research Use Surveys.

SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:

- Develop materials and continue logistical planning for the spring face-to-face meeting in Phoenix, AZ.
- Complete the following synthesis projects:
 - Clear Roads Maintenance Vehicle Conspicuity.
 - Accuracy of Salt Application Equipment.
 - Use of Solid Materials for Roadway Anti-icing.
 - Effective Practices for Activating Snow and Ice Personnel and Equipment for Winter Storms.
 - Clear Roads Subject-based Web Pages.
- Kick off the following Clear Roads projects:
 - Integrating Advanced Technologies into Winter Operations.
 - Standard Specifications for Carbide Inserts.
 - Aftermarket Cameras in Winter Maintenance Vehicles.
- Continue to update the Clear Roads website with both project and administrative information.
- Assist with the coordinating and tracking funding transfers to the pooled fund TPF-5(353).
- Research, write, and publish the March Winter Maintenance E-Newsletter.
- Use Constant Contact to distribute the Winter Maintenance Newsletter, completed research results, and other information.
- Solicit equipment to be tested for, and commence, the 2017-2018 Product Experience Survey.
- Conduct an Implementation Survey of the TAC for all completed Clear Roads research projects.
- Produce briefs of completed research projects.

- Compile a list of papers related to winter maintenance from the 2018 TRB Annual Meeting and post on the website.
- 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 current contract completion date is July 7, 2018.