

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 2016

PARTICIPATING AGENCIES: Minnesota Department of Transportation

PROJECT MANAGER: Tom Peters

SP&R PROJECT NO:

PROJECT IS:

02337

Planning
 Research &
Development

LEAD AGENCY: MnDOT

PRINCIPAL INVESTIGATOR:

CTC & Associates LLC

PROJECT BUDGET:

\$573,560.00

PROJECT EXPENDITURES TO DATE:

\$499,484.78

WORK COMPLETED:

TAC Meetings

- Completed the minutes for the 2016 Fall face-to-face meeting and posted them on the Clear Roads website.
- Continued planning for the logistical aspects of the 2017 spring face-to-face meeting, which will be held in Anchorage, Alaska on April 25 to 27. Drafted and sent out the agenda to TAC membership.
- Continued to assist with the planning efforts for the 2017 National Winter Maintenance Peer Exchange, which will take place in Pittsburgh, Pennsylvania in September 2017.

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 2016.
- Supported efforts of TAC members in shifting state representation and recruiting new members, resulting in the addition of Maryland as a new member state. Total number of member states is now 34.

Information Services

- Researched and wrote content for the November Winter Maintenance E-Newsletter.
- Used Constant Contact to distribute the Winter Maintenance Newsletter, completed research and synthesis project results, and the following two articles:
 - *Roads & Bridges* article on the Winter Data Statistics synthesis project.
 - *APWA Reporter* article based on the project, Roadway Salt Best Management Practices.
- Completed the 2015-2016 Product Experience Survey.
- Completed work on the synthesis projects.
 - Snowplow Truck Washing Practices
 - Annual Survey of State Winter Maintenance Data (year 2).
- Continued work on the following synthesis project, Monitoring Stockpiles of Solid Winter Maintenance Materials.
- Commenced work on the synthesis project entitled, Clear Roads Maintenance Vehicle Conspicuity.
- Recorded and posted closeout webinars for the following projects:
 - Plug and Play, Phase 2
 - Identifying Best Practices for Snowplow Route Optimization

- North American Study on Contracting Snow and Ice Response

Research Support

New projects

- Coordinated with the project PIs and the subcommittees to finalize and submit to MnDOT revised versions of the work plans and budgets for the five new FY2016 projects.
 - Utilization of AVL/GPS Technology: Case Studies
 - Standards and Guidance for Using Sensor Technology to Assess Winter Road Conditions
 - Emergency Operations Methodology for Extreme Winter Storm Events
 - Weather Event Reconstruction & Analysis Tool
 - Training Video for the Implementation of Liquid-Only Plow Routes
- Continued to coordinate with MnDOT and MnIT personnel to get the Test Bed Software project to contract.

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
 - Snowplow Operator and Supervisor Training
 - Quantifying the Impact that New Capital Projects Will Have on Roadway Snow and Ice Control Operations
 - Developing a Training Video and Manual for Best Practices and Techniques in Clearing Different Interchange Configurations and Other Geometric Layouts
 - Plug and Play, Phase 2
 - Snow Removal Performance Metrics
 - Synthesis of Material Application Methodologies for Winter Operations
 - Identification and Recommendations for Correction of Equipment Factors Causing Fatigue in Snowplow Operators
 - North American Study on Contracting Snow and Ice Response
- Worked with the PI and subcommittee to facilitate review of final deliverables and close out the following project:
 - Identifying Best Practices for Snowplow Route Optimization

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 Anchorage, AK.
- Continue to assist with the planning efforts for the fall 2017 Winter Maintenance Peer Exchange in Pittsburgh, PA.
- Complete the following synthesis projects.
 - Monitoring Stockpiles of Solid Winter Maintenance Materials.
 - Clear Roads Maintenance Vehicle Conspicuity.
- Kick off the following Clear Roads projects.
 - Developing Test Bed Software to Qualify Plug and Play Technology
 - 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 & Analysis Tool
 - Training Video for the Implementation of Liquid-Only Plow Routes
- 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(218) and TPF-5(353).
- Research, write, and publish the February 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 2016-2017 Product Experience Survey.
- Produce briefs of completed research projects.
- Compile a list of papers related to winter maintenance from the 2017 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 September 30, 2017.