

## 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 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:**  
\$573,560.00

**PROJECT EXPENDITURES TO DATE:**  
\$569,499.37

### WORK COMPLETED:

#### TAC Meetings

- Attended and supported the 2017 spring face-to-face meeting, which was held at the Clarion Suites Hotel in Anchorage, Alaska on April 25-27. Completed: preparing meeting materials, travel coordination and logistics communications, assistance with facilitation, meeting minutes, and expense reimbursement coordination.
- Continued to assist with the planning efforts for the 2017 National Winter Maintenance Peer Exchange, which will take place in Pittsburgh, Pennsylvania the week of September 11<sup>th</sup>, 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 2017.
- Supported efforts of TAC members, including shifting state representation and recruiting new members. Texas has joined Clear Roads - total membership is now 35.

#### Information Services

- Assisted TAC members from Colorado and Kansas as they prepared to give Clear Roads updates at the Road Weather Management Stakeholder Meeting in Minneapolis, the SICOP meeting prior to SCOM and the AASHTO Subcommittee on Maintenance itself.
- Researched and wrote content for the May Winter Maintenance E-Newsletter.
- Used Constant Contact to distribute the Winter Maintenance Newsletter, news about the five new research projects, and new Clear Roads leadership.
- Finalized the list of products to be tested for the 2016-2017 Product Experience Survey.
- Continued work on the synthesis project entitled, Clear Roads Maintenance Vehicle Conspicuity.
- Worked on a two-page brief for the following project:
  - Snow Removal Performance Metrics
- Coordinated with TRIS Manager to get all completed Clear Roads projects listed on TRB's TRID database.
- Researched and wrote literature searches for new research projects in advance of the RFP scoping meetings.
- Began planning for a feature article on the project, Snowplow Operator and Supervisor Training.

#### Research Support

##### *New projects*

- Facilitated meetings of the project subcommittees – for the following five new FY2017 projects selected during the spring meeting – and drafted scopes for subcommittee review prior to inclusion in MnDOT Request for Proposals.

- A Comprehensive Guide to Pre-Wetting
- Developing a Winter Preparedness Website
- Integrating Advanced Technologies into Winter Operations Decisions
- Standard Specification for Plow Blades with Carbide Inserts
- Aftermarket Cameras in Winter Maintenance Vehicles
- The following new synthesis projects were selected during the spring meeting.
  - Accuracy of Salt Application Equipment
  - Use of Solid Materials for Anti-icing/Pre-treatment
  - Effective Snow and Ice Personnel and Equipment Storm Activation
  - Website Search Function/Website Re-Organization
  - Annual Survey of State Winter Maintenance Data (2016-2017)
- Continued to coordinate with MnDOT on the contracting of the Test Bed Software project. Contract was sent to Parsons for review and signature.

*Research in progress*

- Continued coordination with the PI and subcommittee to coordinate 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
  - 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
  - Synthesis of Material Application Methodologies for Winter Operations
  - Identification and Recommendations for Correction of Equipment Factors Causing Fatigue in Snowplow Operators
  - Utilization of AVL/GPS Technology: Case Studies
  - Standards and Guidance for Using Mobile Sensor Technology to Assess Winter Roads 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
  - Snow Removal Performance Metrics

*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:**

- Finalize materials and logistical planning for the fall meeting and National Winter Maintenance Peer Exchange at the Double Tree by Hilton Hotel in Suites in Downtown Pittsburgh, PA on September 11-14, 2017. Attend and support the meeting, draft meeting minutes.
- Coordinate and support the RFP development and posting process for the new projects.
- Kickoff and conduct the synthesis projects selected at the spring meeting.
- Complete the following synthesis projects.
  - Clear Roads Maintenance Vehicle Conspicuity.
- Kick off the project, Developing Test Bed Software to Qualify Plug and Play Technology.
- 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 August Winter Maintenance E-Newsletter.
- Use Constant Contact to distribute the Winter Maintenance Newsletter, completed research results, and other information.
- Conduct the 2016-2017 Product Experience Survey.
- Assist MnDOT with the bid process for the 2018 Spring Meeting in Flagstaff, Arizona.
- Write feature article based on the project, Snowplow Operator and Supervisor Training.
- 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 current contract completion date is September 30, 2017. An amendment is in process, which will extend the contract to July 7, 2018.