

# State Planning and Research Program Quarterly Report

**PROJECT TITLE:** 2013-2015 Clear Roads Administration 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 2016

**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:**  
\$448,490.00

**PROJECT EXPENDITURES TO DATE:**  
\$421,171.45

## **WORK COMPLETED:**

### **TAC Meetings**

- Attended and supported the 2016 spring face-to-face meeting, which was held in Warwick, Rhode Island at the Radisson Hotel Providence Airport on April 12-14<sup>th</sup>. Meeting materials prep, travel coordination and logistics communications, assistance with facilitation, meeting minutes, expense reimbursement coordination.
- Continued the planning efforts for the 2016 fall meeting. The bid process was completed, and the Magnolia Hotel in Omaha, NE will be the location of the fall meeting, which will occur on September 20-21, 2016.

### **Administration and Marketing**

- Updated the Clear Roads website with current project status, project deliverables, 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.
- Coordinated with MnDOT on the process for transitioning to a new Transportation Pooled Fund number. Assisted with drafting a proposal for the new Clear Roads pooled fund for submitting to FHWA.
- Supported efforts of all TAC members.

### **Information Services**

- Assisted TAC members as they prepared to give Clear Roads updates at the SICOP meeting and the Maintenance Operations Working Group of SCOM in July.
- Researched and wrote content for the May Winter Maintenance E-Newsletter.
- Used Constant Contact to distribute the Winter Maintenance Newsletter, completed research results, and a list of the five projects selected at the Spring Face-to-Face meeting that will be posted as RFPs.
- Completed literature searches for the five new FY2016 research projects to assist the project subcommittees as they began the process of scoping out the RFPs.
- Made modifications to the interactive map, calculated statistics tab, and developed a user-generated map for the Winter Data Statistics project. The results of the first winter season survey and interactive map were posted on the website.

- Began drafting an article for *Roads & Bridges* on the Winter Data Statistics synthesis project.
- Drafted an article for the *APWA Reporter* based on the findings from the project, Roadway Salt Best Management Practices.
- Began preparations for the next round of the Product Experience Survey.

## Research Support

### *New projects*

- Facilitated meetings of the project subcommittees for the following five new FY2016 projects to develop scopes of work for inclusion in MnDOT Request for Proposals.
  - 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
- Awaiting contract negotiations for Developing Testbed Software to Qualify Plug and Play Technology
  - Due to higher cost, MnDOT and MnIT are gaining necessary approvals and coordinating efforts to assign a project management team for this project.
- Coordinated with the project subcommittees and MnDOT to establish contracts with the selected vendors for the following projects:
  - Synthesis of Material Application Methodologies for Winter Operations
    - Commenced contracted work on project on 4/19/2016. Kickoff meeting occurred on 5/6/2016.
  - Identification and Recommendations for Correction of Equipment Factors Causing Fatigue in Snowplow Operators
    - Commenced contracted work on project on 5/18/2016. Kickoff meeting occurred on 6/10/2016.
- Began work on the following synthesis projects selected during the spring meeting.
  - Monitoring Stockpiles of Solid Winter Maintenance Materials
  - Snowplow Truck Washing Practices

### *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
  - Synthesis on GPS/AVL Equipment Used for Winter Maintenance
  - 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
  - Identifying Best Practices for Snowplow Route Optimization
  - North American Study on Contracting Snow and Ice Response

### *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 and YouTube hits. Will report findings prior to the fall meeting.
- Reported out on the completion of post-project close out forms for the following projects and presented those results at the spring meeting. Will post the forms on the members-only portion of the website.
  - Understanding the Effectiveness of Non-Chloride Liquid Agricultural By-Products and Solid Complex Chloride/Mineral Products
  - Benefit-Cost of Various Winter Maintenance Strategies
  - Best Practices for the Prevention of Corrosion to DOT Equipment: A User's Manual
  - Roadway Salt Best Management Practices
- Conducted research use surveys for the following projects. Reported the results of the surveys to the TAC at the spring meeting. Began developing ideas for what to do with the results.
  - Understanding the True Costs of Snow and Ice Control
  - Developing a Totally Automated Spreading System
  - Environmental Factors Causing Fatigue in Snowplow Operators

**SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:**

- Finalize materials and logistics for the Fall Meeting at the Magnolia Hotel in Omaha, NE on September 20-21, 2016. Attend and support the meeting, draft meeting minutes.
- Coordinate and support the RFP development and posting process for the new projects.
- Conduct the 2015-2016 winter season survey for the Winter Maintenance Data Statistics project.
- Complete the synthesis projects (Measuring Materials Stockpiles and Truck Washing Practices) which were selected at the spring meeting.
- Assist MnDOT staff in the transition to a new TPF number.
- Kick off the Clear Roads Test Bed Software project once the contract is in place.
- 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).
- Research, write, and publish the August Winter Maintenance E-Newsletter.
- Conduct the 2015-2016 Product Experience Survey.
- Assist MnDOT with the bid process for the 2017 Spring Meeting in Flagstaff, Arizona.
- 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 August 31, 2016. An amendment is in process, which will extend the contract by one more year.