

# 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:** January through March 2018

**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:**  
\$768,658.00

**PROJECT EXPENDITURES TO DATE:**  
\$683,179.61

## WORK COMPLETED:

### TAC Meetings

- Continued planning for the 2018 spring face-to-face meeting, which will be held in Phoenix, AZ on April 24-26. This included working with the hotel to ensure all rooms were booked and confirmed, meeting space and catering are in place. Prepared agenda and meeting materials and provided them to the TAC membership.
- Commenced planning for the logistical aspects of the 2018 fall face-to-face meeting, which will be held in Des Moines, IA, September 11 - 12. The bid has gone out and a hotel has been awarded.

### Administration and Marketing

- Prepared Clear Roads update for presentation at the No Boundaries meeting in April.
- 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 2018.
- Submitted an amendment to conduct the project, Winter Preparedness Microsite.
- Supported efforts of TAC members, including modifications to membership. With the addition of Nevada, the total number of member states is now 36.

### Information Services

- Researched and wrote content for the February Winter Maintenance E-Newsletter.
- Used Constant Contact to distribute the Winter Maintenance E-Newsletter and completed research.
- Continued 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
- Completed and posted the synthesis project entitled, Maximizing the Conspicuity of Maintenance Vehicles.
- Commenced work on the project, Winter Preparedness Microsite.
- Completed briefs for the following projects.
  - 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.

- Completed and posted the compendium of papers on winter maintenance from the 2018 TRB Annual Meeting.

## **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 three new FY2017 projects.
  - AWSSI Enhancements in Support of Winter Road Maintenance (FY2016 project).
  - Integrating Advanced Technologies into Winter Operations.
  - Aftermarket Cameras in Winter Maintenance Vehicles.
- Coordinated with MnDOT and the TAC to cancel the RFP for the project, Winter Preparedness Website, since the TAC decided it'd prefer to have CTC conduct this project.
- Coordinated with the project subcommittees and MnDOT to establish a contract with the selected vendor for the following FY2017 project.
  - Standard Specifications for Plow Blades with Carbide Inserts.
    - Commenced contract work on 2/20/2018. Kickoff meeting will occur on 4/20/2018 due to the time needed for the contactor to set up a sub award with the subcontractor.

### *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 Test Bed Software to Qualify Plug and Play Technology.
  - 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.

### *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.
- Commenced work on creating a Clear Roads Implementation Survey for all completed projects to date.
- Collected and posted data on three internal TAC surveys:
  - AVL Vendors
  - Road Salt Contract Terms
  - Tandem Plowing Distances

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

- Attend and provide support for the spring face-to-face meeting in Phoenix, AZ. Draft meeting minutes and begin addressing action items.
- Complete literature searches and assist the TAC in developing scopes of work for the new projects selected for funding at the spring meeting.
- Coordinate and support the RFP development and posting process for the new projects.
- Kick off the following synthesis projects selected for funding at the spring meeting.
  - Subject-based Web Pages (year 2)
  - Annual Survey of State Winter Maintenance Data (year 4)
- Complete the following 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.
- Kick off the following Clear Roads projects:
  - Integrating Advanced Technologies into Winter Operations.
  - 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 May 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.
- 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.