

# 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 2024

**PARTICIPATING AGENCIES:** Minnesota Department of Transportation

**PROJECT MANAGER:** Tom Peters

**SP&R PROJECT NO:**  
1053038

**PROJECT IS:**

**LEAD AGENCY:** MnDOT

Planning  
 Research &  
Development

**PRINCIPAL INVESTIGATOR:**  
CTC & Associates LLC

**PROJECT BUDGET:**  
\$680,096.02

**PROJECT EXPENDITURES TO DATE:**  
\$158,414.54

## WORK COMPLETED:

### TAC Meetings

- Continued planning for the 2024 spring meeting in Annapolis, MD on April 16-18.
- Coordinated with TAC and lead state to process an amendment to the CTC Admin contract to allow CTC to contract with hotels beginning with the fall 2024 meeting.
- Began reaching out to hotels in Montana that were identified by the Clear Roads member from Montana.

### 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 continue to facilitate transfers for fiscal year 2024.
- Supported efforts of TAC members, including changes in state representation. The total number of members remains 39.
- Along with the Clear Roads member from Kentucky and the Chair, initiated discussion with Tennessee about attending a future Clear Roads meeting. Tennessee will likely attend the 2024 fall meeting.

### Information Services

- Used Constant Contact to distribute 6 Clear Roads news posts.
- Compiled a compendium of winter maintenance-related papers, presentations, and posters from the 2024 TRB Annual Meeting.
- Drafting research briefs for the following projects:
  - Standard Test Procedures for Ice Melting Capacity of Deicers
  - Using GIS to Highlight Highway Segments Sensitive to Deicing Materials
  - Calculating Plow Cycle Times from AVL Data
- Conducted project closeout webinars for the following projects:
  - Standard Test Procedures for Ice Melting Capacity of Deicers
  - Using GIS to Highlight Highway Segments Sensitive to Deicing Materials
  - Calculating Plow Cycle Times from AVL Data
- Completed / posted the 2022-2023 responses to the Clear Roads Product Experience Survey

### Research Support

#### *New projects*

- Coordinated with MnDOT, project PIs, and Clear Roads to kick off the following 2023 projects:
  - Development of a Public Service Announcement Library
  - Quantifying the Economic Value of Snow and Ice Operations Success
  - Updating the Impact of Capital Projects Decision Support Tool
  - Using Vegetation Management Practices Near Roads to Leverage the Benefits of Solar Radiation

### *Research in progress*

- Continued coordination with the PIs and subcommittees to schedule check-in teleconferences and facilitate the review of deliverables for:
  - Salt Shed Design Template
  - Grip Sensor Technology and Salt Applications
  - Update to CR 13-04: Best Practices for Protecting DOT Equipment from the Corrosion Effect of Chemical Deicers
  - Training Module Development for Evaluation of Storm Severity Index and Winter Severity Index Variables
  - Determining the Migration of Chloride-based Deicers through Different Soil Types
  - Comprehensive Guide to Pre-wetting Application Rates and Methods
  - Best Management Practices for Liquid Chloride Storage and Pumping Systems
  - Effects of Additives in Deicing Salts at Lower Temperatures
  - Evaluation of Direct Liquid Application of Salt Brine vs Granular Salt as Measured through Various Performance and Safety Metrics
  - Use of Dashboards for Winter Operations
  - pH Waiver for Deicing Products and the Qualified Products List
- Coordinated with PIs and Clear Roads to facilitate the review of final deliverables and closeout the following projects:
  - Standard Test Procedures for Ice Melting Capacity of Deicers
  - Using GIS to Highlight Highway Segments Sensitive to Deicing Materials
  - Calculating Plow Cycle Times from AVL Data

### *Implementation*

- Developed a brief report that captures the implementation opportunities and impacts for each research project.
- Continued to provide access (361 agencies / entities) to the training modules developed by the Clear Roads project, Snowplow Operator and Supervisor Training.
- Provided access (1,314 agencies / entities) to the training modules developed by the Clear Roads project, Entry-Level Driver Training (CDL) for Maintenance Equipment Operators.
- Coordinated the completion of project closeout forms for recently completed projects.
- Continued to facilitate implementation discussions (at the program and project level) during regular project and face-to-face meetings as appropriate.
- Continued to coordinate Clear Roads Research Implementation Webinars focused on AWSSI (Maine) and Indoor Stockpile Monitoring (Virginia).
- Continued to assist FHWA and Aurora with coordination of the review of deliverables for their project on Adaptive Route Optimization by Clear Roads.

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

- Attend and provide support for the spring meeting in Annapolis, MD.
- Decide on / and contract with a facility for the 2024 fall meeting in Kalispell, MT.
- Administer and post the 2023-2024 Product Experience Survey.
- Scope / and begin work on the following 2023 synthesis projects.
  - CR 23-S1 Management of Video Recordings and Images Taken from Truck-Mounted Cameras
  - CR 23-S2 Brine-Making Practices
  - CR 23-S3 UAV Uses for Winter Operations
- Draft scopes of work, generate requisition forms, and submit to MnDOT for the following projects.
  - CR 24-01 Toxicity Standards for the Qualified Products List
  - CR 24-02 Effective Pretreatment Methods for Events Beginning as Rain
  - CR 24-03 Salt Management Training for Non-DOT End Users
- Coordinate development of scopes of work for 2024 research projects selected as part of the spring meeting. Send them to MnDOT to be processed into RFPs and posted for investigator response.
- Assuming no delays in deliverables, begin drafting research briefs for the following projects:
  - Salt Shed Design Template
  - Training Module Development for Evaluation of Storm Severity Index and Winter Severity Index Variables
- Conduct project closeout webinars for the following projects:
  - Salt Shed Design Template
  - Training Module Development for Evaluation of Storm Severity Index and Winter Severity Index Variables
- Update the Clear Roads generic presentation for use by members.
- Work with TAC to obtain more responses to the Clear Roads Equipment Online Database.
- Continue to update the Clear Roads website with both project and administrative information.
- Assist with coordinating and tracking funding transfers to TPF-5(479).
- Complete and submit the final report for TPF-5(218).
- Research, write, and publish winter maintenance news posts.
- Use Constant Contact to distribute the winter maintenance news posts, completed research results, and other information.
- Continue to coordinate with investigators and the Clear Roads subcommittees on projects in progress.
- Continue to coordinate the completion of post project closeout forms.
- Begin drafting the 2023 feature article.

**STATUS AND COMPLETION DATE:**

The contract tasks are progressing as planned. The completion date was June 30, 2025.