



MINUTES

Clear Roads 2012 Technical Advisory Committee Fall Meeting:

Pooled Fund Project #TPF-5(218)

Tuesday- Wednesday, September 25-26, 2012

Courtyard Marriott Hotel – Saratoga Springs, New York

Attendees:

David Frame, California DOT	Tim Chojnacki, Missouri DOT	George McCool, Vermont AOT
David Wieder, Colorado DOT	Dave Hand, Montana DOT	Allen Williams, Virginia DOT
Ron Wright, Idaho DOT	Mike Mattison, Nebraska DOT	Monty Mills, Washington DOT
Tim Peters, Illinois DOT	Mike Lashmet, New York DOT	Kyle Stollings, West Virginia DOT
Annette Dunn, Iowa DOT	Caleb Dobbins, New Hampshire DOT	Mike Sproul, Wisconsin DOT
Troy Whitworth, Kansas DOT	Brad Darr, North Dakota DOT	Cliff Spoonemore, Wyoming DOT
Randy Gray, Maine DOT	Scott Lucas, Ohio DOT	Joe Doherty, New York DOT/Aurora
Paul Brown, Massachusetts DOT	Daryl St. Clair, Pennsylvania DOT	John Scharffbillig, APWA
Justin Droste, Michigan DOT	Paul Pusyka, Rhode Island, DOT	Rudy Persaud, FHWA
Tom Peters, Minnesota DOT	Lynn Bernhard, Utah DOT	Colleen Bos, CTC & Assoc.

Materials Distributed

Clear Roads Budget Overview
Clear Roads Operating Procedures
Objectives: True Cost of Snow and Ice Control
Scope of Work: Training for Supervisors and Operators
Scope of Work: Understanding the Chemical and Mechanical Performance of Snow and Ice Control
Agents on Porous or Permeable Pavements
Scope of Work: Establishing Effective Anti-icing and Deicing Application Rates
Clear Roads Projects Implementation Status
Agenda for the Selection Committee Session
Ranking Sheets (Blackburn and Assoc., Thompson Engineering and WTI)
Peer Exchange Problem Statements: Unmet Needs
2013 Peer Exchange Draft Agenda
Product Experience Feedback
Clear Roads Web Site Analytics
Western States Contracting Alliance: Collective Purchasing Strategies

September 25 - 26, 2012

Introductions and Meeting Objectives

Chairperson Cliff Spoonemore kicked off the day with introductions of all attendees and a review of objectives:

- To get updated on current Clear Roads research and
- To select researchers for projects approved for 2012 funding.

Welcome

New York State DOT Assistant Commissioner Rod Sechrist welcomed Clear Roads. He has a background in transportation maintenance and snow and ice control and indicated his appreciation for the Clear Roads mission. He is currently the Assistant Commissioner for operations and asset management.

- He shared information on the size and scope of their highway system and snow and ice control operations.
- He described New York's interest in pursuing new methodologies and techniques for optimizing salt usage.
- He also shared Governor Cuomo's two missions: to maintain and operate the highway system and to deliver a capital program that supports the highway system.

Research in Progress

Understanding the True Costs of Snow and Ice Control

Paul Brown provided an update on this project, which attempts to assess the true costs of winter maintenance operations.

- A related project to develop weather severity maps is complete.
- This project has had some adjustments due to the lack of available data, but Parsons Brinkerhoff has been very agile in finding ways to use the available data to provide a tool for analyzing costs.
- Paul indicates it is progressing well and will be completed by September 2013.

Cost-Benefit Toolkit: Phase II

Paul Brown reported on this project, which addresses issues with the Phase I toolkit and also adds more items for cost-benefit analysis to the tool:

- Comparing flexible blades to traditional blades
- Pre-wetting at the spreader
- Slurries
- Plow guards
- Spreader calibration
- Tow plows
- Open vs. closed loop spreader controls
- Laser guides
- Abrasives (sand/aggregates in different types or weights/sizes)
- Remote cameras for monitoring remote sites locations
- Contracted truck (private or municipal) versus a state-owned truck
- Tailgate vs. hopper spreaders

Paul indicated this project is progressing on schedule and will be completed in February 2013.

Determining the Toxicity of Deicing Materials

David Wieder and Ron Wright provided an update on this project.

- The range-finding tests are complete and most corresponded with the expected targets, except for the glycerin.
- Some additional testing would be beneficial, but additional funding may be required.
- Clear Roads is waiting to hear back from Barr regarding the costs of the additional testing, compared with the savings because we tested fewer products than expected.
- The group voted unanimously to approve up to \$30,000 in funding if needed for the additional testing.
- Connie Fortin, a subcontractor on the project, would like to have Clear Roads present at the Minnesota Salt Symposium. The group agreed that Tom Peters and Keith Barr could present on behalf of Clear Roads at that meeting.

>>Action Items

- *CTC & Associates:* Let Connie Fortin know that Tom Peters and Keith Barr can present on behalf of Clear Roads at that meeting.

Snow Removal at Extreme Temperatures

Mike Sproul described the goal of this project, which was to identify cost-effective strategies for dealing with snow removal at extremely cold temperatures.

- WTI conducted a literature search and surveys, but it really did not uncover any promising techniques.
- Clear Roads is ending the project, since it doesn't appear that it will yield the expected results.

Developing a Totally Automated Spreading System

Cliff Spoonemore provided an update on this project, which seeks to identify ways to automate material spreading.

- Thompson Engineering has finished the literature search, and there are products out there that seem like they could address the goals of the research project.
- Thompson is about to release surveys to gather additional information.
- Each Clear Roads member state is asked to ensure that their agency responds.

Environmental Factors Causing Fatigue

Colleen Bos provided an update on behalf of Allen Williams for this project, which uses a cross-disciplinary approach for assessing ways to address factors that cause fatigue in snowplow drivers.

- This project is just getting underway.
- Allen Williams has been successful in coordinating the use of VDOT trucks and drivers for testing this coming winter season.

Research Projects to Award

2012 New Awards - Proposal Evaluations

Ashley Duran from the Minnesota DOT Consultant Services Section joined this segment of the meeting via teleconference. Prior to this meeting, each TAC member had received, reviewed and tentatively scored proposals submitted in response to a Clear Roads RFP issued this year. Ashley led a discussion of the scores, giving TAC members an opportunity to adjust their scores if desired.

- Comparison of Material Spreader Systems
 - Western Transportation Institute (WTI), Blackburn and Associates, and Thompson Engineering submitted proposals.
 - Thompson Engineering received the highest score and was selected for the project.
- Improving Snowplow Design RFP.
 - WTI submitted the only proposal, and the group did not feel that the proposal would yield the desired results.
 - The TAC agreed to cancel this project since this was the second Clear Roads RFP posted for this project.

2012 New Awards RFPs in Progress

Colleen Bos provided an update on the status of three additional projects that had been funded for 2012:

- Training for Supervisors and Operators: The subcommittee for this project developed a scope but has not posted an RFP yet, because they are evaluating the APWA training materials and investigating ways to leverage and partner with APWA.
- Understanding the Chemical and Mechanical Performance of Snow and Ice Control Agents on Porous/Permeable Pavements: This project was been fully scoped, and the RFP was posted on 9/24/12.
- Establishing Effective Anti-icing and Deicing Application Rates: This project was been fully scoped, and the RFP was posted on 9/24/12.

Project Budgets in RFPs

The TAC discussed approaches to sharing budget information in RFPs that are posted. The options included providing the exact budget, providing a budget range or providing no budget information. Many views were expressed without gaining consensus, so the discussion was tabled until the next meeting.

Completed Research

Project Implementation

Colleen Bos reviewed a list of completed Clear Roads projects, and the group discussed implementation activities.

- For the recently closed Mapping Weather Severity Zones and all future projects:
 - Clear Roads should share the results with Aurora, SICOP, Paul Pisano and his road weather stakeholders group, AASHTO SCOM safety and reliability group, WASHTO and other regional groups, APWA Snow and Ice Committee and the regional LTAP contacts.
 - Colleen will gather the LTAP and other contacts identified above.
 - The group also discussed the value of creating videos for most projects to communicate project results.
- Developing a Training Video for Field Testing of Deicing Materials: The TAC would like to send copies of the video to all the new attendees who have joined Clear Roads and also resend the You Tube link to Clear Roads members. Colleen will also send 20 or 30 copies of the video to John Scharffbillig to distribute at APWA meetings.
- Identifying the Parameters for Effective Implementation of Liquid-only Plow Routes: The TAC thinks a 5-minute video explaining the results could be valuable. Lynn Bernhard volunteered to write up a project proposal for consideration at the spring meeting.
- Cost-Benefit Analysis Toolkit: Once the Phase II is complete, it would make sense to write up a case study using Annette's experience in Iowa to demonstrate how to use the tool. A video version of the case study should also be considered.
- Development of Standardized Test Procedures for Carbide Insert Snowplow Blade Wear: A second phase may be needed to build on the results of this project. Illinois and Utah are both doing testing right now that may be useful. The TAC will assess additional efforts once the results of the states' testing are complete.
- Winter Safety Campaign: Colleen will ask Clear Roads members to send links or copies of their latest Winter Safety Campaign materials and update the website.
- Development of Interface Specifications for Mobile Data Platforms on DOT Vehicles: The Plug and Play Initiative is implementing the results of this project and is going well.
- Calibration Accuracy of Manual and Ground-Speed-Control Spreaders: The TAC thinks there should be a follow-up project to develop a video to help illustrate the Calibration Guide. Paul Brown volunteered to write up a project proposal for consideration at the spring meeting.

>>Action Items

- *CTC & Associates*: Add to the current Clear Roads distribution list with the following contacts: Aurora members, SICOP members, Paul Pisano and his road weather stakeholders group, AASHTO SCOM safety and reliability group, WASHTO and other regional groups, APWA Snow and Ice Committee and the regional LTAP contacts.
- *CTC & Associates*: Send copies of the Deicing Testing Video to all the new attendees who have joined Clear Roads and resend the You Tube link to Clear Roads members. Also, send 20 or 30 copies of the video to John Scharffbillig to distribute at APWA meetings.
- *CTC & Associates*: Ask Clear Roads members to send links or copies of their latest Winter Safety Campaign materials and update the website.
- *Lynn Bernhard*: Write up a project proposal to develop a video for the Identifying the Parameters for Effective Implementation of Liquid-only Plow Routes project for consideration at the spring meeting.

- *Paul Brown*: Write up a project proposal to develop a video for the Calibration Accuracy of Manual and Ground-Speed-Control Spreaders project for consideration at the spring meeting.

Partnership Projects

Wiki-style Knowledge Base

Paul Brown reminded the group of the wiki-style knowledge base for road weather information and winter operations, which is a collaboration between Clear Roads and Aurora.

- Colleen Bos has been gathering Clear Roads discussion threads and sending them to Aurora to be posted in the knowledge base.
- The group discussed how to get the message out to the winter maintenance community about this resource and agreed that it should be promoted in Clear Roads News and Updates, the Clear Roads LinkedIn page, in the APWA Reporter and at the 2013 Winter Maintenance Peer Exchange.
- John Scharffbillig will request time on the agenda at the APWA North American Snow Conference in Charlotte, North Carolina for Clear Roads to present on the Knowledge Base.

>>Action Items

- *CTC & Associates*: Promote the Knowledge Base in Clear Roads News and Updates and the Clear Roads LinkedIn page. Work with the APWA and the 2013 Peer Exchange Planning Committee to promote it in the APWA Reporter and at the 2013 Winter Maintenance Peer Exchange.
- *John Scharffbillig*: Request time on the agenda at the APWA North American Snow Conference in Charlotte, North Carolina for Clear Roads to present on the Knowledge Base.

PNS

Monty Mills and Ron Wright provided an update on Clear Roads funding for the Pacific Northwest Snowfighters.

- Minnesota DOT transferred \$30,000 on behalf of Clear Roads to the PNS pooled fund.
- PNS posted an RFP for website updates, and the project was awarded to CTC & Associates. They are now updating and populating the website.
- New product testing for the year is getting underway. Idaho DOT is doing some testing in house, but also conducting some tests at an outside lab. Some older products on the list will also need to be re-qualified.
- The group discussed how to address having Clear Roads at-large members attend the PNS meetings. Reimbursement would be through PNS via the Washington DOT. Colleen will email the TAC to find out who is interested and could get approval to attend those meetings and then will work with the leadership of Clear Roads and PNS to find an equitable way to give interested members opportunities to attend.

>>Action Items

- *CTC & Associates*: Email the TAC to find out who is interested and could get approval to travel to those meetings and then will work with the leadership of Clear Roads and PNS to find an equitable way to give interested members opportunities to attend.

Peer Exchange 2013

Annette Dunn provided an update on plans for the 2013 Winter Maintenance Peer Exchange.

- It will take place after Labor Day next year.
- The tentative location is Vancouver, Washington.
- The invitations will target the director level, although additional discussion is needed to define what that level means for each state.

- Map 21 and its performance measures will be a central theme of the exchange.

The TAC provided feedback on the plans:

- There is some concern about the travel time required to get to the west coast, and the TAC suggested that a central location in the Midwest should be considered.
- The TAC expressed some concerns about the value of targeting a director level, rather than focusing on hands-on personnel who will implement the research. The group agreed that each state may be different and the right “level” for attendees should be identified on a state-by-state basis.
- The group suggested that more case studies from Aurora and Clear Roads would be useful for technology transfer.
- The TAC would also like to see more breakout sessions.

The TAC unanimously voted in favor of approving up to \$35,000 for Peer Exchange funding.

2009 and 2011 Peer Exchange Research Needs

Colleen Bos presented a list of 2009 and 2011 Peer Exchange research needs that were assigned to Clear Roads but had not been addressed. The group agreed on the following actions:

- MDSS Minimum Data Elements: Mike Mattison will ask Meridian to report on this. It should be reassigned to the MDSS pooled fund.
- Granular Flow Monitor: Mike Sproul will request a synthesis report from the Wisconsin DOT research office.

>>Action Items

- *Mike Mattison:* Ask Meridian to report on this. It should be reassigned to the MDSS pooled fund.
- *Mike Sproul:* Request a synthesis report from the Wisconsin DOT research office.

Collective Purchasing Strategies

Lynn Bernhard led a discussion on using cooperative contracts to order plow blades or other items via a national contract to obtain lower prices for all states.

- Lynn would like to explore the use of contracts via the Western States Contracting Alliance for key winter maintenance items.
- The TAC unanimously voted in support of Lynn investigating this possibility further, and he will report back at the next meeting.

>>Action Items

- *Lynn Bernhard:* Explore the use of contracts via the Western States Contracting Alliance for key winter maintenance items and report back at the next meeting.

FHWA Mapping Presentation

Rudy Persaud presented on Mapping Technology Assessment for Connected Vehicle Highway Network Applications.

- FHWA collected field test data for mapping. Automated sensor-based mapping is necessary for nationwide lane-level map production.
- This project task developed software and demonstrated that automated sensor-based mapping is feasible with centimeter-level accuracy.
- Two lane-level applications built on the foundation of lane-level maps were demonstrated using decimeter-level positioning techniques.

State Activity Reports

Wisconsin DOT Report

Mike Sproul shared an overview of his agency's activity for the last year. Highlights included:

- Wisconsin DOT (WisDOT) contracts out winter maintenance to its counties. Their contracts specify funding and outcomes, not methods.
- WisDOT uses performance metrics such as crew reaction time and time to bare wet pavement.
- They developed their own severity index to help compare counties and salt usage and other costs track well with the severity.
- Recent changes and innovations included:
 - Establishing some state owned salt sheds
 - Rewarding counties with extra money for equipment if they are willing to embrace new technologies
 - Continued with MDSS but backed off from everyone having a forecast due to expense
 - Began AVL implementation using federal ITS funds
- In the upcoming season, WisDOT will continue testing new methods and technologies, including:
 - Alternative prewetted salts
 - Receiving AVL/GPS data via Wi-Fi
 - MDSS training
 - Precise training
 - Route Optimization
 - Tow Plows

Minnesota DOT Report

Tom Peters shared an overview of his agency's activity for the last year. Highlights included:

- Minnesota DOT (MnDOT) had lighter snow than is typical, but that allowed them to do more roadside maintenance, such as rail repairs.
- MnDOT allows regional autonomy in the use of materials
- Recent research and innovations included:
 - Slurry auger
 - Salt moisture tester
 - Aerator to help with wetlands and lakes near the highway
 - Road Condition Monitor (RCM) 411
 - A snow plow blade study
 - LED warning lights on Tow Plows
- Program goals for 2012-13 include:
 - Fleet standards, including targets and measurement
 - Salt handling practices
 - State patrol dispatch consolidation
 - MDSS/AVL implementation
 - Snow plow simulator training

Iowa DOT Report

Annette Dunn shared an overview of her agency's activity for the last year. Highlights included:

- Iowa DOT has had some challenges with salt contracts.
- Their recent investments and innovations include:
 - Tracking of salt usage based on RWIS
 - Outfitting 680 snowplows with GPS by the end of the year
 - Conducting GPS cost-benefit analysis that shows agency benefits at 6.4 and total benefits at 17.3 per dollar spent
 - Managing their fleet using AVL/GPS
 - Developing dashboards that help managers manage
- Iowa's plans for the 2012-13 winter season include:
 - Integrating GPS data to a Resource Management System

- Custom reports and portal
- Calibration of spreaders, temperature sensors, other sensors
- More robust database architecture for warehousing and processing of GPS data
- Dynamic traffic speed model for winter maintenance performance measurement
- A forecasted salt model map for predicting the amount of salt and resources needed for upcoming weather events

Nebraska DOR Report

Mike Mattison shared an overview of his agency's activity for the last year. Nebraska Department of Roads (NDOR) has focused on the following innovations:

- NDOR developed a Highway Maintenance Materials System (HMMS) to track material usage.
- They redeployed MDSS, consolidating to three districts rather than seven.
- NDOR continued evaluating the Shaker Test research for measuring deicer performance, which may be useful for comparison of chemicals and quality assurance testing.
- They established the Envirotech Field Research Partnership to evaluate the effectiveness of Ice Slicer compared with other treatment options.
- NDOR contracted with a new vendor for RWIS maintenance, and they are getting new equipment installed for the 2012-13 winter season.
- They have had four Fixed Anti-icing Spray Technology (FAST) Systems in place for several years and are planning to add several installations in the next 2-3 years

Kansas DOT Report

Troy Whitworth shared an overview of his agency's activity for the last year. Highlights included:

- Kansas DOT (KDOT) has struggled to generate interest within their agency about tow plows despite the positive reports from other states.
- KDOT replaces trucks approximately every 11 years, and they are updating how trucks are equipped:
 - Stainless steel beds on trucks doing liquid application
 - Snow drift sprayers with 30 to 40 foot effective ranges
 - Pre-wet tanks
- They have developed a new movable mesh design for the bulkheads in their salt storage sheds.
- KDOT is using RWIS sites with ITS cameras associated.
- They have switched their communications from landlines to wireless.
- KDOT is also using Televent DTN weather forecasts.

West Virginia DOT Report

Kyle Stollings shared an overview of his agency's activity for the last year. Highlights included:

- West Virginia DOT (WVDOT) is encouraging more use of liquids for pre-wetting.
- WVDOT is also using sodium chloride brine in one of their districts.
- They have purchased Hino Single Axle Dump Trucks and are identifying good cost savings.
- They have been tracking Snow Removal and Ice Control (SRIC) expenditures online so anyone within WVDOT can review them.
- For the upcoming season, their plans include:
 - Continuing to use more salt brine
 - Reducing the use of granular salt and abrasives
 - Getting wireless spreader downloads

Administration and Communication

Clear Roads Budget

Colleen Bos provided an overview of the Clear Roads budget, including amounts committed and obligated, amounts contracted, and estimated planned expenses.

Communicating the Value of Clear Roads

The TAC discussed the need to develop some cost-benefit analysis to help communicate the value of Clear Roads.

- They would like to share results of that analysis at the 2013 Peer Exchange.
- The group formed a subcommittee to work on the analysis: David Wieder, Mike Mattison, Monty Mills, Tom Peters, and Ron Wright.

>>Action Items

- *David Wieder, Mike Mattison, Monty Mills, Tom Peters, and Ron Wright:* Serve on a subcommittee to develop cost-benefit analysis to help communicate the value of Clear Roads.

Social Media

Colleen Bos reviewed some statistics on the impact of social media on website traffic. The TAC would like to maintain the Clear Roads LinkedIn page, and each member is encouraged to post items directly to the LinkedIn page.

Contract for Administrative Services

Tom Peters reported to the TAC that the contract for administrative services has grown to the point where it can no longer be covered through the MnDOT Transportation Research Assistance Program (TRAP). The current contract ends in July 2012, and Clear Roads will need to post an RFP to obtain bids for the next contract.

Travel Policy

The TAC discussed whether changes were required for the travel policy, which funds one representative for each state. The group voted unanimously to maintain the current policy.

Future Meetings

The spring 2013 meeting will take place in Jackson Hole, Wyoming on May 7-9, 2013. The fall meeting will take place in conjunction with the 2013 Winter Maintenance Peer Exchange. The location is still being determined.