



MINUTES

Clear Roads 2014 Technical Advisory Committee Fall Meeting:

Pooled Fund Project #TPF-5(218)

Tuesday – Wednesday, September 9-10, 2014

Hotel Phillips – Kansas City, MO

Attendees:

David Frame, California DOT	Jesse Skinner, Missouri DOT	Joe Baker, Rhode Island, DOT
David Wieder, Colorado DOT	Griffin Smith, Missouri DOT	George McCool, Vermont AOT
John DeCastro, Connecticut DOT	Scott Townsend, Missouri DOT	Allen Williams, Virginia DOT
Ron Wright, Idaho DOT	Michael Middleton, Missouri DOT	Monty Mills, Washington DOT
Tim Peters, Illinois DOT	Justun Juelfs, Montana DOT	Jeff Pifer, West Virginia DOT
Craig Bargfrede, Iowa DOT	Tom Renninger, Nebraska DOT	Mike Sproul, Wisconsin DOT
Clay Adams, Kansas DOT	Caleb Dobbins, New Hampshire DOT	Cliff Spoonemore, Wyoming DOT
Jim Frye, Kansas DOT	Mike Lashmet, New York DOT	Colleen Bos, CTC & Assoc.
Brian Burne, Maine DOT	Larry Gangl, North Dakota DOT	Pat Casey, CTC & Assoc.
Sam Salfity, Massachusetts DOT	Scott Lucas, Ohio DOT	Chris Kline, CTC & Assoc.
Tom Peters, Minnesota DOT	Patti Caswell, Oregon DOT	Lee Smithson, AASHTO/SICOP
Tim Chojnacki, Missouri DOT	Rich Roman, Pennsylvania DOT	Rick Nelson, AASHTO/ SICOP

Materials Distributed

Clear Roads Budget Overview
Product Experience Survey Results
Scope of Work: Snow Removal Performance Metrics
Aurora Knowledge Base Proposal
CTC Information Services Report
Ohio DOT Research Implementation Plan
Ohio DOT Research Implementation Questions

Welcome and Meeting Objectives

Chairperson David Wieder kicked off the day with introductions of all attendees and a review of objectives:

- To review proposals received for new research projects;
- To update each other on the status of research and partnership projects.

Dan Niec district engineer of Kansas City for the Missouri DOT welcomed Clear Roads to Missouri and shared some details on the scale and scope of the winter maintenance operations in Missouri. Tim Chojnacki provided a fun introduction by sharing facts about Missouri transportation.

Proposal Discussions

Clear Roads received proposals for the follow 4 projects. The group discussed the pros and cons of all the proposals to help the subcommittee prepare for their formal evaluation of the proposals:

1. Synthesis on GPS/AVL Equipment Used for Winter Maintenance
 - Responses from Iteris and SRF Consulting Group.
2. Quantifying the Impact that New Capital Projects Will Have on Roadway Snow and Ice Control (RSIC) Operations
 - Responses from Washington State University and University of Vermont.

3. Use Of Equipment Lighting During Snowplow Operations
 - Response from WTI.
4. Weather Severity Mapping Enhancement
 - Responses from Houston Engineering, Iteris, SRF Consulting Group and Resource Data Incorporated.

Update on Projects in Progress

The project champions for the Clear Roads projects in progress provided an update regarding the status of each project:

Best Practices for the Prevention of Corrosion to DOT Equipment: A User's Manual

- This project is meant to build on the Phase 1 project Identification and Laboratory Assessment of Best Practices to Protect DOT Equipment from the Corrosive Effect of Chemical Deicers conducted by WTI. The goal was to develop a user-friendly manual to convey the best practices identified in the study.
- The initial tasks are complete and Clear Roads is waiting on the manual itself.
- Xianming Shi moved from WTI to WSU and Laura Fay is now managing the project.

Snow and Ice Control Environmental Best Management Practices Manual

- The goal of this project is to develop a national snow and ice control environmental best management practices manual that will provide the most up-to-date recommendations, based on a foundation of leading research and resources nationwide.
- WTI has completed the literature search and the survey.
- They are beginning the analysis and the development of the manual itself.

Cost Benefit Analysis of Various Winter Maintenance Strategies

- The objective of this project is to assess the costs and benefits of various types of winter maintenance strategies.
- The literature review is mostly complete.
- WTI is developing the survey and the subcommittee is concerned about the length and considering whether there would be an advantage to breaking it up into multiple smaller surveys.
- The group agreed that due to the length, there needs to be a way to save the survey, exit it and return to where you left off.
- CTC will have one of their staff who is knowledgeable about Survey Monkey take the survey and offer feedback.

Understanding the Effectiveness of Non-Chloride Liquid Agricultural By-Products and Solid Complex Chloride

- WTI is leading this project to better understand how agricultural and mineral by-products work and to develop recommended specifications based on that knowledge.
- The literature search and survey are completed.
- 10 products were selected for lab testing, which is now underway.

Establishing Effective Salt and Anti-icing Application Rates

- Blackburn & Associates are working on this project to update TE-28 with new products and updated guidelines.
- They have completed the literature search and surveys, but are behind schedule and have requested an 8-month extension.
- They are nearly finished with drafting the revised guide.

Understanding the Chemical and Mechanical Performance of Snow and Ice Control Agents on Porous and Permeable Pavements

- WTI is working on this project to better understand different types of porous and permeable pavements.
- The literature search, categorization of pavements and the interviews are complete.
- They have identified the following categories of pavement to study:
 - Dense graded pavements

- Open graded pavements
- Ultrathin Friction Course
- They are in the process of conducting the lab experiments now.

Comparison of Materials Distribution Systems

- Thompson Engineering is nearly finished with this project and the draft comparison guide looks good.
- Thompson has sent a letter requesting additional guidance on what Clear Roads would like to see in the testing recommendations in the final report.

Pacific Northwest Snowfighters

- Ron continues adding new categories and products to the QPL list.
- PNS still has funding available for additional testing, but may need to put in a request for additional funding in 2015.
- Ron suggested that if Clear Roads members are using products on the list and doing testing, then let PNS know so they don't need to focus on testing that product further. Other less-used products may need to be retested from time to time.

Training for Supervisors and Operators

- Clear Roads just held the kick-off teleconference for this project.
- The selected vendor is from the University of Minnesota seems very enthusiastic and well-suited to the project.

>>Action Items

- CTC & Associates: Have a staff person knowledgeable about Survey Monkey take the survey and offer feedback.
- CTC & Associates: Remind Blackburn that NCHRP 526 had some rounding errors in order that should not be extended into the revised guidelines.

Update on Funded Projects Not Yet Under Contract

Snow Removal Performance Metrics – Phase I: Synthesis

- This project is scoped out and will look at DOT practice rather than theoretical concepts for how to measure performance.
- There is a related NCHRP study that will be more theoretical. Members of the Clear Roads TAC are on the panel for that study, so we can ensure that they aren't redundant.
- Colleen will make the final revisions to the scope based on this discussion and send it to MnDOT to get posted as an RFP.

Plug and Play Phase II

- The goal of this project is to develop recommendations regarding transmission methods and protocols for the transmission of data for winter operations.
- It has been scoped by the subcommittee and is about to be posted by MnDOT as an RFP.

Snowplow Route Optimization

- The intent of this project was to identify the best practices at state agencies for route optimization and facility placement, including the use of Commercial Off-The-Shelf (COTS) software.
- It has been scoped by the subcommittee and is about to be posted by MnDOT as an RFP.

Developing a Training Video and Manual for Best Practices and Techniques in Clearing Different Interchange Configurations and Other Geometric Layouts

- The goal of this project is to create a training video that provides operators with information on the best ways to plow different interchange configurations.
- It has been scoped by the subcommittee and is about to be posted by MnDOT as an RFP.

Developing Plug and Play Test Bed Software (David Wieder)

- This project would develop test bed software that will validate and certify candidate Spreader Controllers and AVL Equipment for compliance with the current Clear Roads Universal In-Cab Performance Specification and Communications Protocol.
- The subcommittee needs to make one final decision regarding the scope of work and whether it will include software maintenance. Then the project will be ready to send to MnDOT to post as an RFP.

Winter Driver Education Materials

- This project has two parts: 1) Work with NHTSA to incorporate safe navigation around snowplows into their safety materials. 2) Work with driver education professionals to incorporate training materials for safe winter driving into their curriculums.
- Clear Roads has provided NHTSA with the information they need and are waiting to hear back from them on the right contacts in the national driver education community.

Roadway Salt Best Management Practices

- This project was funded by FHWA with matching funds from MnDOT. The goals are to investigate and analyze issues related to deicing chemical supplies during the winter of 2013-2014 and identify best practices of salt users and suppliers to provide guidance for future seasons.
- It has been scoped by the subcommittee and is about to be posted by MnDOT as an RFP.

>>Action Items

- CTC & Associates: Colleen will make final revisions to the scope for the Snow Removal Performance Metrics project based on the discussion.
- CTC & Associates: Colleen will set up a teleconference for the Plug and Play Initiative subcommittee to determine whether or not to include maintenance in the scope of work.

Clear Roads Budget

Colleen Bos provided an overview of the Clear Roads budget, including amounts committed and obligated, amounts contracted, and estimated planned expenses. Clear Roads has an available balance of \$72,219 going into 2015.

Status of Implementation and Technology Transfer Efforts

Scott Lucas and Tim Peters reviewed ideas for how to improve implementation and technology transfer.

Some of the ideas presented were:

- Hosting project solicitation webinars to help engage researchers.
- Guarding against “scope creep” to ensure that the original objectives of the study are met.
- Holding project start-up meetings that focus on what Clear Roads expects to get out of the research.
- Identifying measures for success of a project at the start.
- Planning from the beginning regarding how to implement findings.
- Implementing project closeout meetings.
- Having the project champion report on implementation efforts after a project closes.
- Gathering information on members who have had implementation successes with closed projects.
- Adding information on implementation experiences to the closed projects pages.
- Encouraging people to talk about Clear Roads with APWA, LTAP and other local groups.
- Developing a business card, promotional flash-drive or something else to direct people to the Clear Roads website.

The group needs to learn from past research projects by asking the following questions about completed projects:

- What did we get out of the research (cost savings, times savings, knowledge) and what will we do differently?
- Was the project successful?
- If you had it to do over, would you reinvest in the project?

- Is there a potential for additional research?

Pat Casey also offered some thoughts on Clear Roads research and implementation efforts:

- The Clear Roads research budget is now similar to a modest-sized DOT, so it's not surprising that implementation is becoming a focus.
- The recent trend in transportation research is to emphasize implementation and try to measure the impact of research.
- Implementation is an intensive effort that requires time, money and repeated communication via many channels to be successful.

After Scott, Tim and Pat spoke, some additional ideas resulted from the group discussion:

- Consider surveying the winter maintenance community for feedback on completed research.
- Hold webinars open to the winter maintenance community to share research results. We could record the webinars that we do currently and promote those to a broader audience. We could engage Ben Dow (APWA), Greg Parker (NACE) and SICOP to help us reach out to the broader audience.
- Clear Roads will start to do annual surveys on the impact of our research.
- Clear Roads will begin to identify a co-champion for projects who can take over in the event that a champion is not available or retires. We will discuss this within each subcommittee at the next project conference call.
- Also try to emphasize implementation more up front at the research proposal stage. People submitting research ideas need to provide more details on what results will look like and how they can be implemented.
- Consider collecting data regarding YouTube hits and website traffic as a performance measure in order to help demonstrate the impact of Clear Roads research.

The group agreed that the Implementation and Technology Transfer subcommittee will develop recommendations based on the discussion today and some implementation approaches that Ohio DOT uses and will review those recommendations at the Spring Meeting.

The subcommittee needed additional members, so Dave Wieder, Justin Droste and Tom Peters will be added to assist Tim Peters and Scott Lucas.

>>Action Item

- CTC & Associates: Colleen will set up a teleconference call of the expanded Implementation and Technology subcommittee so they can begin developing recommendations for the Spring Meeting.

2015 Peer Exchange

Planning is underway for a 2015 Peer Exchange. The planned location is Minneapolis, Minnesota. Invitations have been drafted and will include a brief survey to find out what potential attendees are interested in and what they have to share in terms of their agency's innovative practices. The agenda will focus on state innovations, research updates and performance measures.

Lee will follow up with Chris Albrecht on hotels and meeting dates. Colleen will set up a teleconference so we can finalize dates and locations.

>>Action Items

- Lee Smithson: Lee will follow up with Chris Albrecht on hotels and meeting dates.
- CTC & Associates: Colleen will set up a teleconference call for the Peer Exchange Planning Committee.

Travel Policies

David Wieder raised a couple of questions related to travel and meeting attendance policies.

Is Clear Roads willing to pay to send project champions to meetings to present on Clear Roads research results.

The group agreed on the following:

- For a general Clear Roads presentation, any member should be able to do that and therefore anyone attending or anyone located close by to any given meeting could be the presenter.
- However for specific research projects that attract interest, the project champion should be the one to present the results, because not everyone is familiar enough with all the projects.
- It would be the responsibility of project champions to identify opportunities to promote specific research projects.
- Clear Roads needs a process for how to apply for travel funding and a budget.
- Implementation and Technology Transfer subcommittee will develop a proposal for consideration at the next meeting,
- The group agreed to allocate \$5000 discretionary funds for travel between now and the next meeting in case a good opportunity arises.

Should Clear Roads allow more than one person from each state to attend meetings?

The operating procedures are clear that each state will only get travel funding for one person, but typically the host state has sent additional attendees. And for this meeting, there was interest from four neighboring states in sending additional staff. There is some concern that too many people could negatively impact the informal discussion style and decision making of Clear Roads. However, states find great value in allowing additional staff to hear the information presented. The group agreed to the following:

- Limit additional attendees to the host and border states, who can send as many attendees as they would like.
- We will have voting members at the table and additional attendees will be asked to sit outside the central meeting table along the sides or back.

>>Action Item

- CTC & Associates: Colleen will make sure that travel funding process and policy are on the agenda for the next teleconference held with the Implementation and Technology Transfer subcommittee.

Plug and Play Initiative

David Wieder provided an update on this project, which continues to make good progress:

- The AVL and spreader vendors have collaborated together very effectively.
- The protocol was just posted for a second public comment period, and Clear Roads is about to post the RFP for Test Bed Software to verify the compatibility of products.
- The group discussed whether the Test Bed software project should include maintenance on the software developed and agreed that the subcommittee should discuss it and make a final determination.

Information Services Update

Pat Casey reviewed the information services delivered by CTC over the past year, including:

- Magazine articles
- Project webinars
- Website redesign
- Research briefs
- Literature searches
- TRB summaries
- Newsletters
- Presentations and handouts for meetings

Colleen Bos also reviewed the Product Experience Feedback survey conducted for the 2013-14 winter season and highlighted some of the latest results. This will be posted online shortly, and a new survey will be developed for the 2014-15 season.

Clear Roads Website

Colleen reviewed some highlights of the newly redesigned Clear Roads website. Feedback was very positive.

The group discussed access to the Members Only page and agreed that it makes sense to maintain the same policy of providing access to any interested party from a member agency or close partner. One change is that the TAC would like to update the login and password once per year.

>>Action Item

- CTC & Associates: Colleen will work with the webmaster to update the login and password once per year.

Aurora Wiki Knowledge Base

David Wieder led a discussion regarding the Aurora Knowledge Base. There is a proposal to provide additional funding to support it. The goal of the discussion was to find out how many people are currently using it and how they are using it to determine if additional funding makes sense.

The consensus was that most members are not using it currently. Instead of accessing Clear Roads discussions that were documented there, members are most likely to send out an email to the group to get quick, up-to-date feedback. For more formal research projects, the TRID database is more comprehensive and updated. Some members are not familiar with the best ways to search TRID, but it may be possible to save standard searches of interest on the Members Only page of the website.

The group agreed that with Knowledge Base subcommittee should talk to Aurora about Clear Roads' lack of traffic on the site and review ideas about how to move forward.

>>Action Item

- CTC & Associates: Colleen will work set up a teleconference with the Wiki Knowledge Base subcommittee to discuss next steps.

Future Meeting

The group discussed the next Clear Roads meeting. Idaho has been selected for the location, and Colleen will look for options in Cour d'Alene and Boise the week of March 16-20, 2015. The prior week will be the back up if there are not locations available during the preferred dates.

The group also discussed the Fall 2015 meeting and agreed that it would be held in conjunction with the Winter Maintenance Peer Exchange in Minneapolis, MN. Ideally Clear Roads will meet on two back-to-back days that week (either Monday and Tuesday with the Peer Exchange taking place on Wednesday and Thursday or vice versa).

State Reports

Illinois State Report

Tim Peters shared an overview of his agency's activity for the last year and plans for the coming season.

Highlights included:

- Human resource challenges finding operators in urban areas and handling the differences between union vs. non-union positions.
- Illinois had a harsh winter and had particularly heavy salt usage and some difficulties getting salt at the rate they needed. Tarped salt from the previous winter was very important to helping them get through the season.
- They have some new initiatives, such as:
 - Replacing their MMIS (maintenance management information system).
 - Salt reduction training developed by Wilf Nixon that will be available on their website for other states to access.
- They are also interested in GPS/AVL, but no funding available at the current time.

Massachusetts State Report

Sam Salfity shared an overview of his agency's activity for the last year and plans for the coming season.

Highlights included:

- Massachusetts DOT is about 90% privatized. Most of the direct hires supervise contractors.
- There are inspections for contractors to ensure that they have good quality equipment, and the DOT is not paying for junk. The goal is to reward reliability.
- They have some new initiatives including:
 - Implementing GPS/AVL
 - Adding more RWIS stations
 - Establishing friction sensors in sensitive areas
 - Requiring vendors to pre-wet all materials and have close loop spreader systems
 - New salt brine plants in Sagamore, Springfield and Andover
 - Using more wing plows
 - Setting a goal to reduce salt usage by 10 to 15%

Vermont State Report

George McCool shared an overview of his agency's activity for the last year and plans for the coming season.

Highlights included:

- They have been struggling with a lot of turnover.
- They have some new initiatives including:
 - More PSAs
 - New brine facilities
 - Using solar panels to supply a majority of their own power
 - 2 more towplows

Wisconsin State Report

Mike Sproul shared an overview of his agency's activity for the last year and plans for the coming season.

Highlights included:

- Wisconsin is unique in that winter maintenance activity is contracted out to counties.
- Wisconsin uses an LOS Model for budgeting based on lane miles, statewide activities, highway class, and average winter storms.
- WisDOT had some new initiatives in 2013-14:
 - They reviewed and updated their salt stockpile and shed inspection process.
 - They are in the process of changing their payment process to set up performance-based contracts rather than pay for actual costs with the counties. They will be paying more and expecting more. If one county is not performing, then another county might bid and take over the other county's work.
 - AVL/GPS implementation is well underway. Most counties have it or are planning to implement soon.
- Their goals for the upcoming season include:
 - Emphasizing Best Management Practices such as anti-icing, prewetting, ground speed controllers, AVL/GPS and MDSS
 - Optimizing routes using Spatial Matters
 - Piloting alternate pre-wetted salts
 - Continuing to try to use and assess the TowPlow

Kansas State Report

Clay Adams shared an overview of his agency's activity for the last year and plans for the coming season.

Highlights included:

- KDOT allocates staff based on weighted lane mile measures, based on average annual daily traffic.
- They are addressing staffing short falls by using supervisors to plow roads. They use some engineering techs as well, although mostly during daylight hours.
- Some new initiatives at KDOT include:

- Implementing the use of the TowPlow
- Switching to Vaisala sensors
- Partnering with the Kansas Turnpike Association to share facilities and leadership
- Moving towards using straight salt rather than a sand/salt mix
- Building new remote chemical storage bunkers and new equipment storage sheds using KDOT labor

West Virginia State Report

Jeff Pifer shared an overview of his agency's activity for the last year and plans for the coming season.

Highlights included:

- WVDOT has the sixth largest state-owned highway system in the US.
- Mining in West Virginia is having a huge impact on their roads. They are trying to work with the mining companies to get them to invest in the roads.
- There is also interest from their management in switching to Compressed Natural Gas trucks.
- They are using more brine and installing two brine makers, while working to get all the districts to buy in.
- They have had some challenges in dealing with the aftermath of hurricane Sandy.