



## MINUTES

### Clear Roads 2019 Technical Advisory Committee Fall Meeting:

Pooled Fund Project #TPF-5(353)

**Tuesday - Thursday, September 24-26, 2019 Double Tree, Burlington, VT**

#### Attendees:

Durval Avila, California DOT	Patti Caswell, Oregon DOT
John DeCastro, Connecticut DOT	Joe Bucci, Rhode Island, DOT
Steve Spoor, Idaho TD	Dan Varilek, South Dakota DOT
Craig Bargfrede, Iowa DOT	Blair Johnson, Texas DOT
Clay Adams, Kansas DOT	Kendall Draney, Utah DOT
Brian Burne, Maine DOT	Todd Law, Vermont AOT
Paul Richardson, Maryland, DOT	James Morin, Washington State DOT
Melissa Longworth, Michigan DOT	Jeff Pifer, West Virginia DOT
Tom Peters, Minnesota DOT	Allan Johnson, Wisconsin DOT
Todd Miller, Missouri DOT	Vincent Birkle, Wyoming DOT
Jasmine Dondlinger, Nebraska DOT	Kevin Hensley, APWA
John Angel, Nevada DOT	Rick Nelson, SICOP
David Gray, New Hampshire DOT	Øystein Larsen, Norway
Joe Thompson, New York DOT	Kai Rune Lysbakken, Norway
Brad Darr, North Dakota DOT	Greg Waidley, CTC & Associates
Scott Lucas, Ohio DOT	

#### Materials Distributed:

Agenda	TAC Contact List
Attendees List	2019 Research Proposals (electronically with RFPs)
Clear Roads Budget Overview	Project Subcommittee Members
	Research in Progress

### Tuesday, September 24, 2019

#### Welcome

Wayne Symonds, Chief Engineer, VTRANS, provided opening remarks and a welcome to Vermont.

#### Introductions and Meeting Objectives

Chairperson James Morin kicked off the day with introductions of all the attendees, a brief re-cap of the updates to TAC membership since the spring meeting, and a review of the objectives for day 1, including the goals of the fall meeting and Clear Roads needed focus on dissemination and implementation of research outcomes.

#### New members

- John Angel, Nevada
- Durval Avila, Caltrans

#### Attending in place of permanent members

- Vincent Birkle, Wyoming
- Jasmine Dondlinger, Nevada
- Kendall Draney, Utah
- Blair Johnson, Texas
- Paul Richardson, Maryland

### Not able to attend

- Mark Bloome, Illinois
- Jon Fleming, Pennsylvania
- Tom Renninger, Alaska
- Mark Trennepohl, Arizona
- Anne Margaret White, Virginia
- Roemer Alfelor, FHWA

### **TAC Discussions of the Proposals to the FY 2019 RFPs**

12 proposals were submitted in response to the 5 RFPs posted by MnDOT. See below for the RFP titles and responses received.

*There was a request that all research proposals include the breakdown of hours per person on the research team.*

*Brooks Act is a federal law that requires that the cost element be considered separately from the technical elements of proposals.*

- 19-03: Comparison of Performance of Traditional Chain Conveyor Spreader and Auger-Driven Spreader for Distributing Prewet Salt
  - No proposals submitted
  - The purpose of this proposal was to determine which configuration is best to properly prewet salt and apply it to the road so that it stays in place.
  - MnDOT has a process for single source contracting up to a specified dollar amount.
  - Does MnDOT have a process for obtaining information from potential proposers to refine the scope of work, such as an RFI process? – Would need to look into this.
  - Does MnDOT's RFP process include opportunities for Q&A? – yes, they do.
  - This project is set up to be done by states since consultants don't have the equipment to test. This project will have to be a collaborative effort with states.
  - Is this research only serving to substantiate what the states already believe?
  - PIARC report (Rick Nelson) – that addresses this topic. Will forward to TAC.
  - Need to know what specification we want to achieve and test the equipment to see if that is possible with various prewet configurations.
- 19-01: Expanding Application Rate Guidance for Salt Brine Blends for Direct Liquid Application and Anti-Icing
  - Stonebrooke
  - UW-Madison
  - Univ. of Waterloo
  - Washington State Univ.
  - Other comments:
    - A state shouldn't be excluded even if they don't have the ability to test friction.
    - Need strong technical point of contact for each testing site location otherwise data collection effort could fail and thus the research project will fail.
- 19-02: Recruitment and Retention of Highway Maintenance Workers
  - Virginia Tech
  - WTI
  - Other comments:
    - See NCHRP 30-25 (?).
- 19-04: Measuring the Efficiencies of Tow Plows and Wing Plows
  - Extend-a-plow was incorrectly removed from the project scope and needs to be included again. Would it be appropriate to include a component of safety into the final work plan?
  - Craig:
    - Lawrence Univ.
    - Roadtech
    - UC-Davis

- 19-05: Synthesis of Technical Requirements and Considerations for an Automated Snowplow Route Optimization RFP Template
  - Axiomatic
  - Graef
  - University of Vermont
  - Other comments:
    - Did any proposals address AADT? – no.

## Dissemination and Implementation Activities

- Regional conferences – could piggy back on other conferences.
  - APWA snow show and Expo (Kevin) has been trying to get on their agendas.
  - Send report briefs to Kevin Clark (APWA Chief Editor) as part of the APWA Reporter. Could include a portion of the report brief comments in the form of a side bar.
- Modify PI presentation PPTs that are used for final project closeout webinars as they are too long / wordy. Know your audiences. Too often CR updates are not project-specific. Each project dissemination plan should include various audiences and have a presentation for each audience.
- Every CR meeting we start scheduling CR members to attend various conferences at least a year out.
- Poster sessions at TRB (similar to what we did in 2019, which was spearheaded by James Bryant).
- Include dissemination ideas on PI proposal forms.
- SICOP podcasts.
- Budget set-a-side for dissemination (PI and project champion at conferences). Would be much easier to track and administer if there was a distinct project with MnDOT contract number.
- Project dissemination / implementation plans: Doug McBroom will send along MDOT's implementation plan.
- Short videos are extra valuable.
- The PI provides value on dissemination opportunities, but the TAC can provide more value on opportunities / plans for implementation.
- Make use of LTAPs to connect with cities and counties.

## Clear Roads Budget

CTC presented the Clear Roads budget [TPF-5(353)] as of September 2019. This included a total anticipated income of \$2,734,914, and expenses of \$2,249,446, for a balance of \$489,798, after accounting for Nevada's contributions.

## Montana State Report

Doug McBroom (see CR website – members only)

## Idaho State Report

Steve Spoor (see CR website – members only)

## Wednesday, September 25, 2019

### Research In-Progress Project Updates

For each active project, the TAC reviewed subcommittee members and assigned new members as necessary. Non-TAC members will be kept on the list, but names will include an asterisk. They will still receive project communications at their DOT emails, as appropriate.

### 16-05 Weather Event Reconstruction & Analysis Tool

Investigator: The Narwhal Group

Subcommittee: Brian Burne, Patti Caswell, Alastair Probert, Todd Miller, Tom Pennington, Jeff Pifer, Joe Bucci, Tom Peters

Expected Completion Date: December 2019

Current Status: The Tool is complete and has been posted on the project page of the Clear Roads website. We have them under contract for technical support until December 31, 2019. Need to decide what to do regarding continued support.

**MOTION:** Brian Burne motions for up to \$15,000 for one year for a maintenance contract with an additional one year option to amend pending approval in fall 2020. Craig Bargfrede seconds. **Motion passes.**

### **17-01 Integrating Advanced Technologies into Winter Operations Decisions**

Investigator: SRF Consulting

Subcommittee: Kyle Lester, Jon Fleming, Scott Simons, Todd Law, John DeCastro, Melissa Longworth, Tom Peters

Expected Completion Date: June 2020

Current Status: The Literature Review and been completed and approved. The survey has been completed and the survey results have been distributed to the subcommittee for review. The next steps are to conduct an interim presentation of the survey results and then move onto the follow up interviews.

### **17-02 Standard Specifications for Plow Blades with Carbide Inserts**

Investigator: SRF Consulting

Subcommittee: Cliff Spoonemore, Brian Burne, Clay Adams, Dan Varilek, Mindy Heinkel

Expected Completion Date: October 2019

Current Status: The research team is currently working on assembling the draft specifications (Task 4). However, due to medical issues with one of their team members, they are running behind. An amendment request for a no cost time extension is being drafted by the research team and will need to be reviewed and approved by the subcommittee prior to processing.

Specs could be sent to NASBO for inclusion in their purchasing process.

### **17-03 Aftermarket Cameras in Winter Maintenance Vehicles**

Investigator: SRF Consulting

Subcommittee: Todd Miller, Dan Varilek, Alastair Probert, Craig Bargfrede, Tom Peters, Kevin Hensley\*

Expected Completion Date: June 2020

Current Status: The outcomes from Task 4, Follow-up Interviews, have been drafted and sent to the project committee in late August for their review. The next step is to reach out to vendors to obtain detailed product information, specifications, installation guidance, and testing data before drafting recommendations, pilot deployment, and a final report.

### **18-01 Defensive Driving for Snowplow Operators**

Investigator: Virginia Tech

Subcommittee: Doug McBroom, Clay Adams, James Stevenson, Brian Burne, Steve Spoor, Mark Trennepohl, Larry Gangl, Marv Hayes

Expected Completion Date: August 2020

Current Status: The literature review and survey are now complete. The research team is moving forward with the follow up interviews (Task 5) before the analysis and recommendations (Task 6). The research team will then develop training modules, videos, and write a final report.

## **18-02 High Performance Blade Evaluation**

Investigator: University of Akron

Subcommittee: Craig Bargfrede, James Morin, Joe Bucci, Scott Lucas, Melissa Longworth, John DeCastro, ~~Tom Renninger~~, David Gray, Mindy Heinkel

Expected Completion Date: July 2020

Current Status: The literature review is complete and the survey questions were approved. The survey is now underway. Due to the timing of procuring blades for testing this winter, the project committee has been working with the research team to determine the blades to be tested and sites to test them this winter.

It will be vitally important that the research team provides detailed and clear instructions for how to set up plows and collect the data.

## **18-03 Evaluation of SSI and WSI Variables**

Investigator: The Narwhal Group

Subcommittee: Todd Miller, James Morin, Jeremy McGuffey, James Stevenson, Todd Law, David Gray, Mark Goldstein, Tom Peters

Expected Completion Date: October 2020

Current Status: The literature review and survey are complete. The research team is ready to move forward with follow up interviews before conducting an analysis of the data and making recommendations.

## **18-04 Review and Summary of Pre-wet Methods and Procedures**

Investigator: Washington State University

Subcommittee: James Morin, Patti Caswell, Todd Law, Alastair Probert, Cliff Spoonemore, Doug McBroom, Mark Goldstein, Tom Peters

Expected Completion Date: September 2020

Current Status: Weeks after the project contract was executed, the PI informed Clear Roads that a key researcher on his team left the University. The project was put on hold while a replacement was found and a revised work plan could be presented to the project committee for review and approval. That has been done and MnDOT is now processing the contract amendment.

## **18-05 Alternative Methods for Deicing**

Investigator: Western Transportation Institute, Montana State University

Subcommittee: Joe Bucci, James Morin, Jon Fleming, John DeCastro, Patti Caswell, Joe Thompson, Tom Peters, Rick Nelson\*, Kai Rune Lysbakken\*

Expected Completion Date: January 2020

Current Status: The literature review is complete. The survey has been conducted and a summary is currently being reviewed by the project committee. The next step is for the research team to conduct interviews and write up case studies before providing recommendations and writing a final report.

## CTC Synthesis Projects

Greg Waidley

Three synthesis projects outstanding.

- 18-S1: Mechanic/Operator Training and Training Needs for Winter Maintenance Equipment
  - Subcommittee Members: Larry Gangl-Brad Darr, Jeff Pifer, Alastair Probert, Kyle Lester, Steve Spoor, Brad Burge, Chris Volkert (CO)\*, Tim Cunningham\* (KS; AASHTO's EMTSP Panel)
- 19-S1: Inventory and Use of Salt Spreading Systems
  - Subcommittee Members: Jon Fleming, Patti Caswell, James Morin, and Tom Peters.
- 19-S2: Benefits of Hiring a Meteorologist
  - Subcommittee Members: Jeremy McGuffey, Scott Lucas, Joe Bucci, Jon Fleming, and Tom Peters.

## SICOP and FHWA Reports

Rick Nelson (See CR website – members only)

## Clear Roads QPL

Patti Caswell

Process for future vendor submittals.

1. Get the samples off the desk ASAP and get them shipped to Eric Frasier @ Montana Department of Transportation, 2701 Prospect Avenue, Helena, MT 59602-1002 get the back log out
2. Put a banner on our web page that is a Mea Copa to vendors
3. For Submittals in the future,
  - a. have the vendors send the paper work into a centralized email that goes out to the entire subcommittee
  - b. determine a person who will track the submission (what was received, when and by whom it will get reviewed)
    1. Could reach out to a lab to do that work
    2. An email is sent to the vendor that we are in receipt of the submission
  - c. Once paper work is reviewed by the appropriate person (Chemist) for completeness and passing the specs a sample is requested
  - d. A series of random tests should be performed
4. At a specified time the QPL is updated
5. Discuss retraining vendors

## Recently Completed Projects

### ***15-01: Synthesis of Material Application Methodologies for Winter Operations***

Jeff Pifer (See CR website – members only)

### ***16-03: Identification of Mobile Technologies for the Assessment of Winter Road Conditions***

Kyle Lester (See CR website – members only)

## APWA Report

Kevin Hensley (See CR website – members only)

## Subject-based Webpages, Phase 3

Brian Burne

**MOTION:** Provide approval for Clear Roads to pursue phase 3 with CTC which will include...

- Additional subject-based pages to include:
  - Equipment – plow trucks.
  - Planning – Weather, Resource Allocation, and Performance Metrics.
- Propose moving the Topics tab from its current location to the Research Projects tab. We propose deleting Completed Research from the drop down menu. We also propose moving In-Progress Synthesis projects to In-Progress Research
- New research suggestion / idea compilation on Topics page.

**Motion passes.**

## Clear Roads Membership

James Morin

Per James' April 26<sup>th</sup> email:

*Dear Clear Roads Members:*

*With consideration of the past two Norway presentations at the last two meetings, it has become apparent that Clear Roads has much in common with the NPRA (Norwegian Public Road Administration). We are interested in many of the same topics and are developing similar research and struggling with similar issues. It is my belief that this shared interest and the development of a formal relationship can greatly benefit both groups. Therefore, I would like to propose that we offer an invitation to the NPRA to be a Clear Roads Partner. This would be a similar relationship to our other partners, FHWA, AASHTO SICOP, and APWA. As a partner, they would not be a voting member and would be responsible for their own expenses, but would be included in our future meetings with a half hour slot to discuss what's going on in the Nordic countries (and possibly Europe). I think having international involvement in our group can help expand the applicability and credibility of the Clear Roads research moving forward.*

*As you heard in this past presentation from Norway, they are currently part of a Nordic region research group called NVF (Nordic Road Association), which includes winter research as well as all other types of highway maintenance. However, they are currently considering spinning-off the winter portion and developing something similar to Clear Roads in Europe. So, regardless of whether this group expands to include Europe or simply continues to represent the Nordic countries we would be formalizing a partnership that should be mutually beneficial.*

*So, here's the motion: Do you support sending an invitation to the NPRA to become an international partner to Clear Roads, with the understanding that they will be acting on behalf of either a Nordic or Nordic-European winter research group (either NVF or otherwise) that they will further clarify in their response?*

### **The following discussion is in response to the above motion.**

CB – does a member from the NVF then have the chance to hold office within Clear Roads?

JM – clarifies that this would be a non-voting member and that would not be able to hold office. This would be a similar partnership that Clear Roads holds with APWA.

BB – important for Clear Roads to grow to new areas that add value. This group can provide one person to our meetings to share knowledge from a number of countries in Europe (NVF includes Norway, Sweden, Denmark, and Finland). Not a lot of other entities if we're considering larger snow and ice groups that add value to Clear Roads. CRs is after research that's innovative and informed. This partnership will allow us to do research that is supportive and not duplicative. This proposal adds to his credibility when going in front of legislators in terms of his ability to access innovative research.

SL – noted that the international participants at the table at TRB's Winter Maintenance and Road Weather committees tend to be the Nordic countries, Canada, U.S., China, and Japan.

CB – what was the original charter for this group? Share knowledge, research, and best practices amongst the group. If we add additional members then we

DG – prefers

JM – clarifies that he proposes that to add them as a non-voting member, who cannot hold office.

KL – Max Perchanok used to have a "seat at the table." The more access to info, the better.

PC – APWA (Kevin Hensley) represents municipalities as we wouldn't want to open up to what could be a huge number of participants.

KL – then perhaps we put allow non-voting participants to sit in on meeting but create rules on how many are allowed to attend.

PC – notes that the attendees from Norway are bringing their own research to the table, and therefore, are a benefit to Clear Roads.

TP – agrees with this notion and believes consideration needs to be given to non-voting attendees that are "Givers" vs. "Receivers."

CA – now believes that including a Nordic group of countries (a group similar to Clear Roads) at the table is beneficial to us. Doesn't want this to turn into a 200-person conference.

MG – Any issues with receiving funds from a foreign country? – Yes, there are some but it is doable.

KL – is this a business meeting or a conference? – business meeting. Then what does this mean for attendees, membership, and the agenda?

Suggestion that we should document this in the Clear Roads Operating Procedures. Currently, the Operating Procedures reads, "Although membership in Clear Roads is limited to state DOTs, Clear Roads reserves the right to

invite other non-member states or government organizations (foreign or domestic) to either of their meetings. These invitations need to be approved in advance by the TAC." FHWA, SICOP, and APWA are standing invitations. Standing invitations need to be documented. In the Operating Procedures, leadership and membership are well defined. However, partnership is not well defined.

JM – **MOTION:** nominate that NPRA becomes a non-voting participant to Clear Roads to represent the Nordic Countries. Second by Jeremy McGuffey. Votes: Yes (27), No (2), Abstain (1). **Motion passes.**

TP – Minnesota has been lead state since 2010. At the Phoenix meeting, Brian Burne (chair at the time) noted that Minnesota spends a lot of time and effort supporting Clear Roads. Therefore, he proposed that Minnesota be allowed to participate in Clear Roads via a contribution of in-kind services, as opposed to the \$25k per year. The motion was passed. However, MnDOT staff (and FHWA division office) determined that Minnesota could not do this. Instead, TP is proposing that MN be allowed one additional attendee (someone from operations) to the Clear Roads meetings. This would be beneficial as Tom is not the expert in many winter maintenance topics due to the structure of MnDOT. The voting would not be altered as MN would still only be allowed one vote. This would help to justify MN as a lead state.

**MOTION:** Clay Adams proposes that the Clear Roads Lead Agency be allowed to have a non-voting participant attend Clear Roads face-to-face meetings and teleconferences and receive documents with full travel expenses reimbursed. Jeremy McGuffey seconds. **Motion passes.**

**ACTION ITEM:** CTC will update the operating procedures to reflect the membership changes discussed above.

## **Thursday, September 26, 2019**

### **Future Meetings**

#### Spring 2020

Madison, WI; April 21-23.

- Meeting is Tuesday, Wednesday and Thursday. Travel days of Monday and Friday.
- Backup is Rapid City, SD.

#### Fall 2020 (2020 International Road Weather and Winter Maintenance Conference and Peer Exchange)

Atlanta, Georgia. Week of September 21.

#### Spring 2021

- Target location is Salt Lake City, UT (or Park City).
- Date: week of 4/19.
- Backup is Boise, ID.

### **Norway Report (Norwegian Salting Guidelines)**

Kai Rune Lysbakken (See CR website – members only)

### **Selection of Research Development Groups for FY2020 Research**

The following are the teams that will be developing the 2020 research proposals. The proposals coming out of this process will be considered for funding at the spring 2020 meeting in Madison, WI.

Group 1 ND, CA, MI, OH, IA, RI, IL

Group 2 WV, MN, CO, WY, WA, DE, MO

Group 3 IN, AZ, VT, MD, TX, KS, WI

Group 4 NH, NE, UT, AK, NV, SD, CT,

Group 5 ME, MT, MA, OR, ID, VA, PA, NY

#### Recommendations for Teams

- 3 to 6 proposals per team
- Meetings to occur in January, February, and March (if needed).
- Come to the table for the first meeting with at least one idea.
- CTC will start scheduling meetings for each team in December.



## **Roundtable Discussions**

The following are the topics raised and briefly discussed...

### **Truck Fleet Plans**

Clay asked that if you responded to Cliff's email with your states staffing plans, please send to Clay. How do you justify the number of trucks you have in your fleet?

### **Equipment Operator Certification**

If you have a formalized training program, please send to Clay and information will be shared with the group. ITD has a Snow and Ice 101, 102, 103, and 104 that provides training for operators on how chemicals interact with snow and ice.

### **New York State DOT Programs**

Spring Wash Incentive Program; Weather Trail Advisory Warning; GIS-Route Mapping.

### **North Dakota**

Looking for information other states may have on rural Transportation Management Centers.  
Inexpensive innovations for salt applications.

### **Salt Pricing and Storage**

States discussed the prices paid for salt, where the sources of that salt reside, and the location of amount of their salt storage inventories.

### **Notification about Pre-Treatment**

Including a discussion of FHWA's Pathfinder system. SICOP's survey of pre-winter public service announcements.

### **Brine Makers**

Maryland DOT purchased new brine makers but may not be up and running by winter. What are other states doing to acquire brine?

### **New Hampshire DOT**

State Police are ticketing Salt Delivery Vendors for exceeding overweight limits (per axle).

DMV entry-level driver training (CDL) delayed to 2/7/22?

Med cards – if less than 2 years... are states handling this different than those with 2 year medical cards? FMCSA may conflict with HIPPA concerns.

### **BEET 55**

Montana asked if anyone using BEET 55 and what application rates are they using? Complaints from the public, in particular related to discoloration? Montana is using cost per application rate mile as opposed to cost per gallon for inhibitors.

### **Cycle Times**

Do any states have a "dashboard" as part of their AVL system that tracks cycle times?

### **Ohio DOT**

What states have crane training programs?

How do states rank their priority routes?