



**MINUTES**

**Clear Roads 2024 Fall Technical Advisory Committee Meeting**  
 Pooled Fund Project TPF-5(479)

**Tuesday, September 17 to Thursday, September 19, 2024 (Kalispell, Montana)**

**Attendees (In-person)**

<p><u>Members</u>          Marcus Zimmerman, Alaska          Anthony Johnson, California          Mike Chapman, Colorado          Aidan Neely, Connecticut          Ty Winther, Idaho          Brian Galloway, Illinois          Craig Bargfrede, Iowa (Chair)          Clay Adams, Kansas          Randi Feltner, Kentucky          Keith Thomas, Maryland          Mark Goldstein, Massachusetts          Justin Droste, Michigan          Carl Fedders, Michigan          Joe Huneke, Minnesota (Lead State)          Paul Denkler, Missouri          Doug McBroom, Montana (Vice Chair)          Jason Allen, Montana          Justin Juelfs, Montana          Trevor Patterson, Montana          Pete Servel, Montana          Jasmine Dondlinger, Nebraska (Chemist)          Mike Mattison, Nebraska          Andrew Lawrence, Nevada          David Gray, New Hampshire</p>	<p>Anthony Ennas, New Jersey          Joe Thompson, New York          Aaron Murra, North Dakota          Dean Alatsis, Ohio          Patti Caswell, Oregon          Dan Whetzel, Pennsylvania          Matthew Ouellette, Rhode Island          Dan Varilek, South Dakota          Matthew Heinze, Texas          Jessica Andrews, Utah          Todd Law, Vermont          AJ Younes, Virginia          James Morin, Washington State          Jeff Pifer, West Virginia          Emil Juni, Wisconsin          Chris Romo, Wyoming          Wayne Shenefelt, Wyoming</p> <p><u>Partners</u>          Kevin Hensley, APWA          Jeremy McGuffey, FHWA</p> <p><u>Consultants</u>          Kirsten Seeber, CTC &amp; Associates          Greg Waidley, CTC &amp; Associates</p>
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**Materials Posted**

- Agenda
- Attendees List
- Research In-Progress Update
- Synthesis Update: CR 23-s1
- Synthesis Update: CR 23-s2
- Synthesis Update: CR 23-s3

- Budget
- Communications Report
- Montana DOT Van Schedules
- Hotel Confirmation Numbers
- Expense Report and Guidance
- PDH Certificate

**September 17, 2024**

### **Introductions and Meeting Objectives**

- Clear Roads chair, Craig Bargfrede, facilitated member introductions and reviewed the meeting agenda.
- Chris Dorrington, MDT Director, provided opening remarks and a welcome to Montana.

### **Update on Projects in Progress**

#### **22-01: Comprehensive Guide to Pre-wetting Application Rates and Methods**

- **Subcommittee Members:** James Morin, Patti Caswell, Nick Evans, Aidan Neely, Doug McBroom, Joe Thompson, Dan Varilek, Randi Feltner, Dan Whetzel, Joe Huneke, Shannon McIntyre, and Tom Peters
- **Current End Date:** March 2025 (Contract cancelled)
- **Status:** The literature review, survey, and initial synthesis are complete. Task 4 (Experimental Design) is 90% complete, but not approved by the project subcommittee. The PI (Xianming Shi) is moving from WSU to the University of Miami. He requested a change of PI. The subcommittee met on 8/13 and decided to cancel the current contract effective immediately. Need to meet with subcommittee to scope and repost an RFP.

#### **22-06: pH Waiver for Deicing Products and the QPL**

- **Subcommittee Members:** Patti Caswell, Doug McBroom, James Morin, Mike Chapman, Ty Winther, Jasmine Dondlinger, David Gray, Joe Thompson, AJ Younes, and Tom Peters
- **Current End Date:** April 2025 (Contract cancelled)
- **Status:** The research team needed to add a survey to the literature review to identify deicing products of a certain pH range. A Letter to File was submitted on the research team's behalf. The research team is having trouble obtaining samples to test. Task 1 is 100% complete. Task 2 (Developing the Test Plan) is 40% complete. The PI (Xianming Shi) is moving from WSU to the University of Miami. He requested a change of PI. The subcommittee met on 8/5 and decided to cancel the current contract effective immediately. Need to meet with subcommittee to scope and repost an RFP.

#### **20-06: Salt Shed Design Template**

- **Contractor:** Wilfred Nixon and Associates
- **Subcommittee Members:** James Morin, Chris Romo, Dan Varilek, Craig Bargfrede, Paul Denkler, Matthew Ouellette, Alastair Probert, Mike Mattison, Pat Jeffrey, and Tom Peters
- **Current End Date:** December 2024
- **Status:** The project has been tied up in contract amendments in the first half of 2024. The PI is working on taking what he's provided for the Scalable Designs (Task 4) and expanding it into a Design Guide, while also providing the recommendations (should have been included in T3, Analysis) in the Design Guide or Final Report. The Task 4 deliverable should be provided to the subcommittee by the end of August / beginning of September.

#### **21-01: Grip Sensor Technology and Salt Applications**

- **Contractor:** Western Transportation Institute, Montana State University
- **Subcommittee Members:** Mike Mattison, Mark Goldstein, James Morin, Nick Evans, Patti Caswell, Emil Juni, Matthew Heinze, Carl Fedders, James Roath, and Tom Peters
- **Current End Date:** February 2025

- **Status:** The literature review, survey, and case studies are complete. Colorado DOT's 2022-2023 RWIS data was provided. Task 4 (Algorithm / Decision Matrix) efforts continued using the Feb. 2023 data to test and refine models. On June 10, 2024, the research team received the 2023-2024 GeoTab data (AVL data from CDOT trucks that is paired with Teconer data) and they have begun the QA/QC process of the data. Anticipate completion of Task 4 by end of October.

#### **21-07: Determining the Migration of Chloride-Based Deicers through Different Soil Types**

- **Contractor:** Washington State University
- **Subcommittee Members:** Aidan Neely, Doug McBroom, Mark Goldstein, James Morin, Patti Caswell, Joe Thompson, Nick Evans, Matt Kraushar, and Tom Peters
- **Current End Date:** October 2024 (Extending contract through April 2025)
- **Status:** The research team is significantly behind schedule in the execution of the laboratory experimental plan, due to underestimated complexity of soil column tests, unexpected delay in reconfiguring the horizontal column tests, and delays in fabricating additional soil columns (to greatly increase the number of soil column tests we could run concurrently, because each test needs 5 replicates). With the addition of new soil columns, they estimate that it would take another six months before they can conclude all the laboratory tests. To accelerate the lab testing, **they're seeking approval from the project subcommittee to proceed with Task 4 (Additional Lab Testing)** without waiting for the completion of Task 3, i.e., additional lab testing using the beet juice/salt brine blend.

#### **22-02: Best Management Practices for Liquid Chloride Storage and Pumping Systems**

- **Contractor:** Western Transportation Institute, Montana State University
- **Subcommittee Members:** Chris Landry, Mark Goldstein, Clay Adams, Nathan Morian, Andrew Lawrence, Dan Whetzel, Mike Chapman, Matthew Heinze, Scott Simons, Patti Caswell, Marcus Zimmerman, Alastair Prober, and Tom Peters
- **Current End Date:** December 2024
- **Status:** The agency and vendor surveys are complete as are the in-depth interviews. As of 9/10, the Task 4 Liquid Deicer Storage and Pump System Equipment and Best Practices Manual has been submitted and posted on the members page for subcommittee review.

#### **22-03: Effects of Additives in Deicing Salts at Lower Temperatures**

- **Contractor:** Western Transportation Institute, Montana State University
- **Subcommittee Members:** Jessica Andrews, Patti Caswell, Mike Mattison, Jasmine Dondlinger, Nick Evans, Doug McBroom, Ty Winther, Dean Alatsis, and Tom Peters
- **Current End Date:** February 2025
- **Status:** The revised Testing Plan was submitted on January 17. The research team has acquired deicing additives and brines and has been testing through the latter stages of winter and through the summer. Anticipate receiving the testing results for review this fall.

#### **22-04: Evaluation of Direct Liquid Application of Salt Brine vs Granular Salt as Measured Through Various Performance and Safety Metrics**

- **Contractor:** University of Wisconsin – Madison
- **Subcommittee Members:** Emil Juni, Matthew Heinze, AJ Johnson, Carl Fedders, Joe Thompson, Jeff Pifer, Paul Denkler, Joe Huneke, and Tom Peters
- **Current End Date:** December 2024 (Extending contract through December 2025)
- **Status:** Literature Review and Survey are complete. Project team met in December 2023 and the subcommittee gave their official approval to move onto Part II (data collection and analysis) of this project. Since the research team struggled with a lack of data collection testing sites during

the 2023-2024 winter season, Clear Roads provided them with an additional year for data collection. Data collection will continue through the spring of 2025.

#### 22-05: Use of Dashboards for Winter Operations

- **Contractor:** AECOM Technical Services
- **Subcommittee Members:** Doug McBroom, David Gray, Jessica Andrews, Emil Juni, Aidan Neely, Mike Mattison, Craig Bargfrede, Joe Thompson, Todd Law, Paul Denkler, AJ Younes, Alastair Probert, Aaron Murra, Dean Alatsis, and Tom Peters
- **Current End Date:** December 2024
- **Status:** The literature review, survey, and case study interviews are complete. The case study reports have been drafted and are undergoing AECOM's QA/QC in late August. The case studies will be provided to the subcommittee for review in early September. The final report has been drafted and awaiting feedback regarding the case studies to be updated accordingly.

#### 23-01: Development of a Public Service Announcement Library

- **Contractor:** Western Transportation Institute, Montana State University
- **Subcommittee Members:** David Gray, Dan Varilek, Julie Stevenson (PIO; SD), Ty Winther, Ellen Mattila (PIO; ID), Emil Juni, Jeff Pifer, Randi Feltner, Wayne Shenefeld, and Tom Peters
- **Current End Date:** March 2025
- **Status:** Survey (Task 2) and Review of Existing Materials (Task 3) are complete. The project team met on 8/19 to review the draft Communications Package (Task 4). The research team is revising that deliverable based on the subcommittee's comments.
- **ACTION ITEM:** Greg W will check to see if Clear Roads can release the official logo prior to this winter season.

#### 23-02: Quantifying the Economic Value of Snow and Ice Operational Success

- **Contractor:** AECOM Technical Services
- **Subcommittee Members:** Mark Goldstein, AJ Younes, Doug McBroom, Randi Feltner, Emil Juni, Joe Thompson, Marcus Zimmerman, Ty Winther, Matthew Heinze, Paul Denkler, and Tom Peters
- **Current End Date:** June 2025
- **Status:** The project team met on 6/21 to discuss the draft Literature Review (Task 2) and Survey Questions (part of Task 3). Revised Literature Review is approved. Survey was distributed in mid-August.

#### 23-03: Updating the Impact of Capital Projects Decision Support Tool

- **Contractor:** University of Vermont
- **Subcommittee Members:** Todd Law, Emil Juni, AJ Younes, Joe Thompson, Chris Landry, Paul Denkler, Mark Goldstein, Matthew Oullette, and Tom Peters
- **Current End Date:** December 2025
- **Status:** The project team met on 8/16 to review the survey responses and discuss a draft mockup of the decision support tool dashboard. The research team will continue to collect data sources and begin development of a draft decision support tool for testing.

### 23-04: Solar Radiation Benefits / Chloride Reduction Potential Associated with the Use of Vegetation Management Practices Near Roads

- **Contractor:** Bolton & Menk, Inc.
- **Subcommittee Members:** Aidan Neely, Jessica Andrews, James Morin, Doug McBroom, Joe Thompson, David Gray, Dan Whetzel, Joe Huneke, Rick Nelson, and Tom Peters
- **Current End Date:** January 2026
- **Status:** Project team met on 8/9 to discuss the draft Literature Search, Survey Questions, and discuss monitoring site analysis. Identify sites for monitoring and begin data collection.

### 23-s1: Synthesis: Management of Video Recordings and Images taken from Truck-mounted Cameras

- **Contractor:** CTC & Associates
- **Subcommittee Members:** Joe Thompson, Clay Adams, Matthew Ouellette, Carl Fedders, Dan Whetzel, Aidan Neely, Tom Peters
- **Expected Completion:** November / December 2024
- **Status:** Survey was sent out for response in late July / early August. The survey went out and received 34 responses. Half the responses are recording and managing videos. The current due date for survey responses is 8/30.

### 23-s2: Synthesis: Brine-making Practices

- **Contractor:** CTC & Associates
- **Subcommittee Members:** Patti Caswell, Marcus Zimmerman, Emil Juni, Chris Landry, Craig Bargfrede, Clay Adams, Tom Peters
- **Expected Completion:** November / December 2024
- **Status:** Survey was sent out for response in early August. 27 responses from 19 agencies. The current due date for survey responses is 8/30.

### 23-s3: Synthesis: UAV Uses for Winter Maintenance

- **Contractor:** CTC & Associates
- **Subcommittee Members:** Doug McBroom, Chris Romo, Aidan Neely, Craig Bargfrede, Todd Law, Marcus Zimmerman, Dan Varilek, Mike Kuni, Ryan Sodd, Tom Peters
- **Expected Completion:** November / December 2024
- **Status:** Survey was sent out for response in early August. The current due date for survey responses is 8/23. 36 total responses.

### **Budget**

- Income: \$2,825,000.00
- Expenses: \$2,824,987.16
- All 39 states have transferred their contributions for FFY 2024 by the fall meeting.

### **FHWA Partner Report**

- See Jeremy McGuffey's presentation posted on the members' page.

### **APWA Partner Report**

- See Kevin Hensley's presentation posted on the members' page.

### **Business Roundtable**

- 2024 Proposals Review Meeting - Tuesday, October 22 at 10 am to Noon CDT.

- Annual Survey of State Winter Maintenance Data.
  - Needs to be a 100% response rate. 19 states have responded as of the fall meeting.

### **Montana State Report**

- See Doug McBroom's presentation posted on the members' page under TAC Meeting Presentations.

### **September 18, 2024**

#### **Member State Current Research**

- James Morin presented WashDOT's project on maintenance of active transportation.
- See presentation posted on the members' page under TAC Meeting Presentations.

#### **Recently Completed Project Report**

21-02 Update to CR 13-04: Best Practices for Protecting DOT Equip. from the Corrosion Effect of Chemical Deicers

- Project Chair: Todd Law
- See presentation posted on the members' page under TAC Meeting Presentations.

#### **Kentucky State Report**

- See Randi Feltner's presentation posted on the members' page under TAC Meeting Presentations.

#### **Recently Completed Project Report**

21-04 Training Module Development for Evaluation of Storm Severity Index and Winter Severity Index Variables

- Project Chair: James Morin
- See presentation posted on the members' page under TAC Meeting Presentations.

#### **Business Roundtable**

- Electric vehicles assigned to DOT staff. (David Gray)
- FEMA claims complicated by citizen involvement. (Todd Law)
- National Winter Maintenance Peer Exchange pre-discussion. Will discuss more during Future Meetings on day 3. (Mike Mattison)
- Debris from downed trees. (Matthew Heinze)
- AVL Forum. (Joe Huneke)
- Access to and use of AVL data. (Joe Huneke)
- Use of safety scores for DOT drivers. (Paul Denkler)
- Questions related to vendors / products. (Various)

#### **California State Report**

- See Anthony Johnson's presentation posted on the members' page under TAC Meeting Presentations.

#### **Vermont State Report**

- See Todd Law's presentation posted on the members' page under TAC Meeting Presentations.

## **Wisconsin State Report**

- See Emil Juni's presentation posted on the members' page under TAC Meeting Presentations.

## **Wyoming State Report**

- See Chris Romo's presentation posted on the members' page under TAC Meeting Presentations.

## **September 19, 2024**

### **Selection of the Future Vice Chair**

- Mark Goldstein (Massachusetts) nominated Todd Law of Vermont.
- Chris Landy (Maine) seconds this nomination.
- Todd Law accepts the nomination.
- Current Vice Chair, Doug McBroom, will move into the role of the Chair of Clear Roads at the conclusion of the 2025 spring meeting. Todd Law will move into his role of Vice Chair of Clear Roads at that time. The term is two years.

### **Future Meetings**

Below are the meeting dates / locations for the next three years.

#### **2025**

Spring Meeting: Richmond, Virginia. Week of April 14.

- A contract is in place with Delta Hotels Richmond Downtown.
- 555 E Canal St, Richmond, VA 23219.

Fall Meeting: Minneapolis / St. Paul, Minnesota. Week of September 15.

#### **2026**

Spring Meeting: Week of April 20.

- Primary: Lexington, Kentucky.
- Secondary: Kansas City, Missouri.

Fall Meeting: Week of September 14. Clear Roads / Aurora / SICOP joint meeting.

- Primary: Massachusetts.
- Secondary: Maine.

#### **2027**

Spring Meeting: Week of April 19.

- Primary: Boise, Idaho.
- Secondary: Seattle or Spokane, Washington.

Fall Meeting: Week of September 20.

- Primary: Deadwood, South Dakota.
- Secondary: Ohio.

### **QPL Update (Patti Caswell)**

- Many products on the QPL are expiring 12/31/2024.
  - Clear Roads members should communicate with the vendors that supply their deicing products to ensure those vendors renew their product listing.
  - To renew, a vendor only needs to email Patti Caswell to inform her that the product is still being produced and that there have been no changes to the product formula.

### **Product Proficiency Sample Program (Jasmine Dondlinger)**

- Participating Labs Goal – Need 17 labs to participate and only have seven. If don't get more labs, the program could get cancelled. It's free for AASHTO members (all DOTs). For vendors only \$350 annually.
- Timeline
  - Registration deadline – November 2024
  - Package/Deliver – December 2024
  - Data Submission Deadline – February 2025
  - Ratings Report for 2025 Spring meeting – April 2026
- Action items
  - Notify QA manager.
  - Give vendor lab person's contact information to Jasmine D.
  - AASHTO members – Get your lab to enroll in the program. No cost and very little time to do the tests.

### **Implementation Webinars (Craig Bargfrede)**

- Webinars that are intended to share results of Clear Roads and other relevant research with Clear Roads members to help in implementation.
- **MOTION** (Craig Bargfrede; Todd Law seconds) – Between fall meetings, Clear Roads will conduct three implementation webinars each year. The topic of each of these webinars, a Clear Roads member to volunteer to develop the content, and a month to conduct the webinar will be decided upon at each fall meeting. CTC will schedule the webinars and provide the Teams platform. Adopt this as a standard operating procedure. **MOTION PASSES.**
- Will consider expanding the webinars beyond just the Clear Roads member audience. Greg Waidley will check the participant limit on the CTC Teams account.
- Next webinars
  - Product Proficiency Sample Program (October 2024; Jasmine Dondlinger)
  - Stockpile Reports (November 2024; AJ Younes) This webinar was already in the works prior to the fall meeting.
  - Defensive Driving (January 2025; Doug McBroom)
  - Maintenance Vehicle Conspicuity (May 2025; Jeff Pifer or Doug McBroom)

### **AASHTO Snow and Ice Terminology Task Force (Joe Thompson)**

- See presentation posted on the members' page under TAC Meeting Presentations.

### **Virginia's Contracting Software (AJ Younes)**

- AJ provided a demonstration of Virginia's software tool used to manage labor contracts.

### **Business Roundtable**

- **MOTION** (Clay Adams motions; Doug McBroom seconds) – Clear Roads will change titles of project subcommittee champion and co-champion to chair and co-chair). **MOTION PASSES.**
- Greg Waidley reviewed the current Communications Report with the membership.

### **Tour Information**

- Whitefish brine manufacturing plant. Largest brine maker in the state.