



## MINUTES

### Clear Roads 2009 Technical Advisory Committee Kickoff Meeting:

Pooled Fund Project #TPF-5(092) - Test and Evaluation of Materials, Equipment and Methods for Winter Highway Maintenance

**Tuesday, Wednesday and Thursday January 27 - 29, 2009**  
**Garden AB at Hilton Garden Inn Worcester**

#### Attendees:

Paul DeJulio, Colorado DOT	Tim Croze, Michigan DOT	Allen Williams, Virginia DOT
Dennis Burkheimer, Iowa DOT	Linda Taylor, Minnesota DOT	Mike Sproul, Wisconsin DOT
Shane Larson, Illinois DOT	Tim Jackson, Missouri DOT	Cliff Spoonemore, Wyoming DOT
Dennis Belter, Indiana DOT	Caleb Dobbins, New Hampshire DOT	Rudy Persaud, FHWA – D.C.
Troy Whitworth, Kansas DOT	Mike Lashmet, New York DOT	Leland Smithson, AASHTO
Paul Brown, MassHighway	Larry Gangl, North Dakota DOT	Colleen Bos, CTC & Assoc.
David Blodgett, MassHighway	Bernie Howard, Ohio DOT	
	Lynn Bernhard, Utah DOT	

#### Materials Distributed:

2009 Research Problem Statements	Transportation Synthesis Report – Post-Storm
Projects and Subcommittees Membership	Meetings: A Survey of State and Local Practices
Winter Maintenance – Low Salt Inventories	Transportation Synthesis Report – Limitations of the
Salt Management Practices	use of Abrasives in Winter Maintenance Operations
Peer Exchange Research Needs Statements and	Forensic Dynamics: Friction Testing of Chehalis Brine
Updates	Questions & Answers on Economic Recovery Issues
Determining Effectiveness of Deicing Materials and	Raised by State DOTs
Procedures - Quarterly Report	AASHTO Winter Maintenance Technical Service
Development of Standardized Test Procedures for	Program (WMTSP) Snow and Ice Cooperative
Deicing Compounds – Quarterly Report	Program (SICOP) Activity Report
Development of Standardized Test Procedures for	AASHTO Winter Maintenance CBT brochure
Carbide Insert Snowplow Blade Wear – Quarterly	Clear Roads Budget Overview
Report	Clear Roads Project Management – Roles and
Winter Maintenance Corridor Integration	Responsibilities
Calibration Guide Distribution Options	Clear Roads Operating Procedures
	PowerPoint Presentations by State

### Tuesday, January 27th, 2009

#### Introductions and Meeting Objectives

Chairperson Dennis Belter 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 new projects for RFP development.

One new member joined Clear Roads: Larry Gangl from North Dakota. Several guests joined the Clear Roads members for the winter meeting, including Troy Whitworth from Kansas, Caleb Dobbins from New Hampshire and David Blodgett from the Massachusetts Highway Department.

#### 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 approximately \$323,000 to spend on research this year.

## Research Project Selection

Prior to the meeting, Clear Roads members participated in two teleconferences to review the projects proposed for funding in 2009. Refer to the end of these minutes for notes on the discussions that took place on January 16 and 20, 2009.

- Six priority projects emerged from the discussion and ranking that took place prior to the meeting.
- The group discussed three of the six topics extensively because they had overlapping goals. The members agreed to roll them into one project that would likely have multiple phases:
  - Deicing Chemical Blends and Their Contribution to Reduced Friction on Roadways
  - The Use of Liquid Deicers and Roadway Traction
  - Developing Laboratory Tests, Tools or Methods to Simulate Deicing Chemical Performance during Actual Winter Storm Conditions.
- There was extensive discussion about how to scope the combined Deicing Chemical Testing project. The group eventually agreed that it would be up to the project subcommittee and the project champion to determine an appropriate scope for Phase 1 of the project.
- The group did define that the ultimate goal for the combined project is to determine which products to purchase as well as when and how to effectively and efficiently apply those products.
- The project should also build on the current Clear Roads research projects on deicing chemicals.

At the end of the discussion the group approved four projects for funding:

- **National Peer Exchange 2009**
  - Funding: \$30,000
  - Subcommittee: Cliff Spoonemore; Lynn Bernhard (Bernie Howard and/or Diana Clonch will also participate in the first conference call)
- **Demonstration of a National Winter Maintenance Testing Program**
  - \$10,000
  - Subcommittee: Paul Brown, Tim Croze
- **Liquid Snow Removal Routes**
  - \$150,000
  - Subcommittee: Dennis Belter (Project Champion), Paul DeJulio, and representatives from the Utah DOT, Ohio DOT, Minnesota DOT, Iowa DOT
- **Deicing Chemical Testing (Phase 1)**
  - \$50,000
  - Subcommittee: Dennis Burkheimer (Project Champion), Lee Smithson (Project Champion), Tony McClellan, Monty Mills, Paul DeJulio, Dennis Belter.

### >>Action Items

- *CTC & Associates:* Work with the subcommittees to develop RFPs for Liquid Snow Removal Routes project and the Deicing Chemical Testing project.
- *CTC & Associates:* Check WisDOT policy and Clear Roads administrative contract to see if AASHTO can send Peer Exchange bills to Clear Roads and have Clear Roads pay the bills directly rather than sending money to AASHTO.
- *CTC & Associates:* Compile a matrix of Clear Roads members' driver hours of operation and break policies based on recent discussion.
- *Lee Smithson and Dennis Burkheimer:* Serve as project champions for the Deicing Chemical Testing project.
- *Dennis Belter:* Serve as project champion for the Liquid Snow Removal Routes project.

## Requested Reports

The members discussed several short-term reporting needs.

- Dennis Burkheimer is interested in having a report for the Multiple Blade Plow project. However, this report will be funded by the Iowa DOT and did not need to be approved by the Clear Roads membership.
- Linda Taylor mentioned that we may need some additional report writing on the Determining Effectiveness of Deicing Materials and Procedures project once we have the final deliverables. The members indicated approval, although the issue will be reviewed again once we have the final deliverables and can assess the scope of writing needed.

The group also reviewed a list of synthesis reports that had been requested and agreed to pursue the following:

- Correct Recording of Material Usage for Snow and Ice Operations (see 2009 proposal and discussion notes)
- Materials Spreaders (see 2009 proposal and discussion notes for Survey and Synthesis of Zero Velocity Spreaders)
- Snow College (see 2009 proposal and discussion notes)
- Level of Service Policies

**>>Action Items**

- *CTC & Associates*: Work with WisDOT to complete the requested synthesis reports.

## **State Reports**

Rudy Persaud shared a document on “Questions & Answers on Economic Recovery Issues Raised by State DOTs,” which provided information on the \$225 billion stimulus package for infrastructure that is forthcoming from the federal government.

The following states presented reports:

- Massachusetts
- Wisconsin
- New York
- Indiana

The states identified a number of recurring issues such as:

- The salt shortage
- Budget concerns
- Level of service adjustments and other policy changes related to the salt shortage and the budget concerns
- New training initiatives

## **Wednesday, January 28th, 2009**

### **Determining Effectiveness of Deicing Materials and Procedures**

Linda Taylor updated the group on this project’s goals and status. There are three parts to this project:

- Developing an evaluation test plan
- Assessing the evaluation test plan
- A final report with findings and conclusions of the study.

The project has not been on schedule, and the deliverables have required a number of revisions. The subcommittee is working with the investigator on a revised timeline.

### **Carbide Insert Snowplow Blade Wear Project Update**

Lynn Bernhard reviewed the project goals: coming up with tests to predict carbide blade wear, including both laboratory and field tests.

The lab work for this project is nearly complete. The field test still needs to be done. Lynn has had difficulty getting a third set of carbide blades for the project. He hopes to work with a neighboring state or another Clear Roads member to obtain the additional blades.

**>>Action Items**

- *Lynn Bernhard*: Send out an email to the Clear Roads members on the blades needed to see if any members can contribute from their own inventory.

- *CTC & Associates*: Ensure that carbide blades and specifications are included on the next agenda as a “hot topic” for group discussion.

## **Standardized Procedures for Evaluating Deicing Chemicals Update**

Shane Larson reviewed the goals and status of this project. The goal is to develop a set of standardized lab tests so that we can evaluate the latest and greatest deicing chemicals being sold.

- The researchers have completed Task 1 and are nearly finished with Task 2.
- The researchers are working on Task 3 testing and are looking at salt brine, magnesium chloride, calcium chloride and various blends.
- Clear Roads is expecting the draft final report around March.
- The project should be completed on time and will include suggestions on how to implement the results.
- The group discussed the importance of having Clear Roads members use these tests once the project is complete.

## **Cost-benefit Analysis Project**

Paul Brown gave an update and reviewed the goals of this project. The goal is to develop a cost-benefit analysis toolkit that will help winter maintenance professionals to communicate operational needs to accounting and other non-winter maintenance staff within our agencies. The toolkit will help provide the information Clear Roads technical representatives need to demonstrate the value of the materials and equipment to do their jobs effectively.

- Clear Roads has a contract in place with Western Transportation Institute and the subcommittee has had a kick-off phone call with WTI.
- We should all expect to receive a survey from WTI on cost-benefit analysis practices and variables to which all the member states are expected to respond.

## **SICOP Update**

Lee provided a report on AASHTO WMTSP/SICOP activities. Highlights include:

- CBT distribution
- NCHRP 25-25, Task 29 Best Practices Library from the Environmental Stewardship Practices in Construction and Maintenance Compendium.
- Peer Exchange 2009 and Snow Expo planning
- PIARC XIII in Quebec City in 2010
- Domestic Scan Tour for Spring 2009
- APWA North American Snow Conference in April 2009
- Also AASHTO/TRB Maintenance Management Conference in July 2009

### **>>Action Items**

- *CTC & Associates*: Ensure that the 2009 Domestic Scanning Tour is reviewed at the next Clear Roads meeting.

## **Peer Exchange Update**

Lee Smithson led a discussion on the goals for the upcoming 2009 Peer Exchange. He noted that the 2007 Peer Exchange generated problem statements and that he and other contacts keep the list of problem statements updated with information on progress.

The Clear Roads members identified the following topics that they are interested in including at the Peer Exchange:

- Salt shortages
- Revisit the priority level on 2007 problem statements
- Snow plow configurations
- Levels of service and performance measures
- Training requirements

- Computer-based training implementation
- How to communicate with the public/legislators
- How to approach research on deicing chemicals
- Outreach techniques for knowledge transfer
- How do you implement new research not just within one state but also throughout that state.

The group suggested that the planning committee should look at the surveys from the previous peer exchange to look at the areas for improvement and topics for next time. They also indicated an interest in having more interactive sessions, including breakout sessions.

## **Snowplow Design Project/ Multiple Blade Plow Project Update**

Dennis Burkheimer provided an update on this project. The goal was to use funds left over from the concept vehicle project to develop a different type of blade with multiple edges on it for one-pass plowing. The idea is to remove as much snow and ice as possible in a single pass.

- The project was put out to bid and four vendors were selected.
- Three of the designs have already been delivered by Henke, Flink and Henderson for testing in Minnesota, Iowa, Indiana and Ohio.
- One more design from Monroe Truck equipment is waiting for delivery and testing in Wisconsin.
- There will be a meeting at the end of the season to bring together both vendors and operators to get more feedback about how they worked and what changes should be made in the future.
- Dennis would like to promote the results so that more snow and ice states are requesting innovative blade designs from the vendors if they are effective.

## **Calibration Accuracy of Manual and Ground-Speed-Controlled Salters**

Dennis Burkheimer provided a final update on this completed project:

- The full scope of the project has been completed. The report has been written and is posted on the Web site.
- We also asked for a Calibration Guide in addition to the final report and that has been completed as well. The Calibration Guide will also be posted out on the Web site. Most of it focuses on verification testing and is probably not something you would hand to a mechanic. There still needs to be tailoring to each manufacturer.
- The Clear Roads members agreed that each member state will take the report and tailor it to the controllers that they actually use. Then Clear Roads will compile the manufacturer-specific versions and share them with other snow and ice states or agencies.

The project results definitely highlight the importance of keeping equipment calibrated.

## **Winter Safety Campaign Update**

Dennis Burkheimer provided an update on this project. Clear Roads sent out letters to all the public information officers and winter maintenance engineers in snow and ice states in fall 2008 as a follow up to the Winter Safety Campaign to continue to promote this as a national effort. The letter also introduced the first week in December as Winter Driver Safety week.

Clear Roads also added a new page to the Web site to promote individual state activities and share examples of how states have used the campaign materials.

## **Safe Winter Driving Messages Project**

Dennis Burkheimer also provided an update on this project. The goal is to research what demographic is involved in the most winter crashes and then develop one or two media efforts to reach that age group. The project will also measure the effectiveness of the media approaches taken.

The mbcgroup bid on the project and we are working with them to revise the scope of their proposal to better fit our needs. We talked with them last week and they are sending us a revised proposal now that they understand the goals better. If the scope looks good, we'll move forward and sign a contract with them.

## Interface Specifications Project

Dennis Burkheimer provided an update on this project.

- The background is that everyone who has dealt with GPS understands the challenges of getting various components to work together seamlessly.
- The goal of this project is to try to get a set of specifications to help identify a standard communication format and protocols.
- Thompson Engineering was selected and we have held a kick-off call with them to get the project underway.

## Materials Shortage Discussion

Linda Taylor led a discussion on the salt shortages and how agencies have been addressing these issues. She had sent out some questions to facilitate discussion on this topic in advance.

Some highlights and points of consensus from the discussion included:

- Most DOTs did OK with salt procurement, but some local agencies had trouble getting salt.
- The DOTs often end up helping these local agencies to get the salt they need.
- Earlier bids typically get better prices, although it really only redistributes the problem to other states rather than addressing the industry-wide issue.
- Many states are adjusting level of service or making other policy changes to address the shortages and budget concerns.
- The group agreed that based on what they have seen the salt companies are going to continue write in more elaborate vendor-friendly clauses for the upcoming season, because they have the leverage to do so.

### >>Action Items

- *CTC & Associates:* Check with Monty Mills for an updated version of his salt PDF.
- *Linda Taylor, Shane Larson and Dennis Burkheimer:* Compile information on salt policy in a spreadsheet that Linda has devised.

## Planning for Future Meetings

Dennis Belter and Colleen Bos led a discussion on planning future meetings. The group agreed on the following regarding location:

- Clear Roads should continue to hold meetings in member states with a goal of leveraging the advantage of seeing each other's operations, roads and conditions.
- Identifying locations that keep the costs down should be a priority.
- The members discussed Indianapolis or Chicago (suburbs) for the next winter meeting.

The group discussed content and agreed to:

- Continue the practice of reviewing proposals via phone in advance of the winter meeting to free up more time on the agenda.
- Have half of the states give reports on their agency at each meeting, so that each state presents once per year.
- Start earlier in the morning each day so we can end earlier or have more time for reviewing the host state's operations.
- Include hot topics within the industry on the agenda for discussion at each meeting. For this meeting, we discussed the materials shortage (salt).

The group also discussed guests and agreed that:

- Groups like LTAP and APWA should be welcome to send an attendee as long as they pay their own travel and hotel expenses.

### >>**Action Items**

- *CTC & Associates:* Work with the members to ensure that future meetings include time to discuss hot topics and also include a tour of local DOT facilities.

## **Additional State Reports**

The following states presented reports:

- Iowa
- Utah
- North Dakota
- Illinois
- Minnesota

The states identified a number of recurring issues such as:

- The salt shortage
- Budget concerns
- Level of service adjustments and other policy changes related to the salt shortage and the budget concerns
- New training initiatives

## **Thursday, January 29th, 2008, 8:30 a.m. – 12:00 Noon**

### **Administrative Contract**

The contract with CTC & Associates to provide administrative and marketing services for Clear Roads expires January 10, 2010. The members discussed plans for issuing an RFP to solicit bids for this work. Colleen Bos left the room during this discussion.

### **Chair Position Rotation**

Per previous understanding, the position of Chair was due to rotate in 2009. The expectation was that the Vice Chair would take over the role of Chair and a new Vice Chair would be selected.

As a result, Paul Brown became the Chair. And the group agreed that Linda Taylor would become the Vice Chair. They will serve in these roles from March 2009 through March 2011.

### **Clear Roads Operating Procedures**

CTC & Associates revised the Operating Procedures for Clear Roads and asked the members to review them and provide feedback.

- Linda Taylor suggested that the two-year term for the Chair should be written into the Operating Procedures along with the understanding about the Vice Chair becoming the next Chair.
- The group also discussed the possibility of including training, education and outreach as a part of Clear Roads focus. However, Clear Roads would need to be reestablished under a new pooled fund number in order to make that change. Until that time, we need to stay focused on the original scope for Clear Roads.

The members also reviewed a newly created document on the Project Management Roles and agreed that it was a good outline of the responsibilities of the project champion, project subcommittee members and the administrator.

One question came up regarding whether we would let a representative with good expertise who was not a Clear Roads member serve as a member of a project subcommittee. The group agreed that someone could serve on

the subcommittee but would not be invited to attend the meetings without being a member or a participant as outlined in the Clear Roads Operating Procedures.

**>>Action Items**

- *CTC & Associates*: Revise the Operating Procedures to reflect the expectations regarding the two-year Chair term and the Vice Chair taking over the Chair's role.

**Additional State Reports**

The following states presented reports:

- Kansas
- Missouri
- New Hampshire

The states identified a number of recurring issues such as:

- The salt shortage
- Budget concerns
- Level of service adjustments and other policy changes related to the salt shortage and the budget concerns
- New training initiatives

**Next Meeting**

The Clear Roads members will next meet in person July 28-30, 2009 in Madison, Wisconsin.



## Clear Roads Research Problem Statements 2009 – Teleconference Notes

**Attendees:** Paul Brown, Mike Lashmet, Tim Jackson, Larry Gangl, Dennis Belter, Tony McClellan, Dennis Burkheimer, Shane Larson, Bernie Howard, Paul DeJulio, Allen Williams, Monty Mills, Linda Taylor, Tim Croze, Lynn Bernhard, Mike Sproul, Cliff Spoonmore

Project	Estimated Funding	Proposer	Discussion Notes
Development of Laboratory Test(s), Tools or Methods to Simulate Deicing Chemical Performance during Actual Winter Storm Conditions.	\$200,000	Dennis Burkheimer - IA-DOT	<ul style="list-style-type: none"> <li>• Originally submitted as an NCHRP project, but not selected</li> <li>• It could become a TRB project, but is unlikely to receive funding.</li> <li>• The goal is to develop a set of laboratory tests that mimic what happens on the roadways with deicers under “real world” conditions. To see if laboratory tests can simulate the field to a certain degree.</li> <li>• Dennis suggests it’s a 2 year project. It might take longer than that and might take more money than \$200,000.</li> </ul> <p><b>Questions and Discussion:</b></p> <ul style="list-style-type: none"> <li>• Linda suggested that the project should be split into two parts, so it was more manageable.</li> <li>• Dennis agreed to revise the proposal and sent out the revised version for consideration and ranking under the name: Develop Laboratory Tests, Tools or Methods to Simulate Deicing Chemical Performance during Actual Winter Storm Conditions</li> </ul>
National Peer Exchange 2009	\$30,000	Dennis Burkheimer - IA-DOT	<ul style="list-style-type: none"> <li>• This is a follow up to the 2007 Peer Exchange</li> <li>• The proposal is for funding of \$30,000 to support this Peer Exchange. It would be held in conjunction with the Eastern Snow conference.</li> <li>• Aurora has already approved the funding. FHWA has also agreed to give funding. The Peer Exchange is already scheduled.</li> </ul>
Salinity Sensor Development and Evaluation	\$50,000	Dennis Burkheimer - IA-DOT	<ul style="list-style-type: none"> <li>• This is a project that Aurora has already approved at \$50,000 and they are looking for a partner to match funds.</li> <li>• It’s a big project and will use a multiple bid RFP process so that multiple vendors can get cash to develop products.</li> </ul> <p><b>Questions and Discussion:</b></p> <ul style="list-style-type: none"> <li>• Linda asked if they had considered setting up a pooled fund for this project.</li> <li>• There was also discussion about whether some manufacturers are already doing this. However, the goal of this project is to use the money to get them to design something and provide evidence of its value through testing it.</li> </ul>
National Driver Education Training Curriculum	\$150,000-200,000	Dennis Burkheimer - IA-DOT	<ul style="list-style-type: none"> <li>• This project was proposed for 2008 and Dennis understands that Clear Roads would need to work with WisDOT to make sure it’s formulated as a research statement.</li> </ul> <p><b>Questions and Discussion:</b></p> <ul style="list-style-type: none"> <li>• Tim notes that there really is no law that requires driver’s training at all in Missouri, so one challenge is that each state may be different.</li> </ul>
Deicing Chemical Blends and Their Contribution to Reduced Friction on Roadways	\$200,000	Dennis Burkheimer - IA-DOT	<ul style="list-style-type: none"> <li>• This was originally a project assigned to PNS that came out of the Peer Exchange in 2007.</li> <li>• The idea is to check different materials in wide use across the country and their friction co-efficient.</li> <li>• The project would take different materials and apply either manufactured or natural weather conditions.</li> </ul> <p><b>Questions and Discussion:</b></p> <ul style="list-style-type: none"> <li>• There was a question about whether Forensic Dynamics already did this research and</li> </ul>

			<p>whether they could look at other blends.</p> <ul style="list-style-type: none"> <li>There was also discussion about whether this project and The Use of Liquid Deicers and Roadway Traction could be combined.</li> </ul>
Liquid and Squeegee Snow Removal Option	TBD	Dennis Belter - IN DOT	<ul style="list-style-type: none"> <li>This project is addressing ways to save materials and still be effective and focuses on a combined approach of using liquid and a squeegee blade to save material.</li> </ul> <p><b>Questions and Discussion:</b></p> <ul style="list-style-type: none"> <li>There was discussion about the 2 different focuses: liquid routes or squeegee blades.</li> <li>Dennis noted that the emphasis was meant to be on the liquid routes, but with a combined approach.</li> <li>After discussion about the scope, Dennis revised it, so it just focused on liquid routes and the challenges of doing real world testing.</li> </ul> <p><b>Revised Version:</b></p> <ul style="list-style-type: none"> <li>The project has been revised to just focus on the liquid routes. It will be a research project focused on testing liquid materials and liquid only applications.</li> </ul>
Effectiveness of Anti-icing Liquids in Maintenance Decision Support Systems (MDSS) Maintenance Recommendations	TBD	Dennis Belter - IN DOT	<ul style="list-style-type: none"> <li>Many members have noted the issue of using liquids prior to a winter storm event and the advantages it brings.</li> <li>More research and testing is needed though.</li> </ul> <p><b>Questions and Discussion:</b></p> <ul style="list-style-type: none"> <li>It was noted that you would not have to have MDSS for this to be valuable, although Dennis would like to see it incorporated into MDSS.</li> </ul>
Snow College for Frontline Managers	\$50,000	Linda Taylor - MN DOT	<ul style="list-style-type: none"> <li>This project addresses the issue that staff are promoted within the ranks from operators to supervisors to superintendents. In some cases, they need more training to help them move up in the ranks successfully.</li> <li>This project would identify the curriculum and the approach that is used to train supervisors.</li> <li>The project would conduct focus groups to determine what the training needs are at the supervisor level and then develop the curriculum on the basis of the focus group outcomes.</li> </ul> <p><b>Questions and Discussion:</b></p> <ul style="list-style-type: none"> <li>Shane notes that as they start to manage the operation more to address salt usage for example, many gaps are found with training.</li> <li>One of the challenges will be that everyone will want to make it customized to their state needs.</li> </ul>
The Use of Liquid Deicers and Roadway Traction	\$25,000	Paul DeJulio - CO DO	<ul style="list-style-type: none"> <li>This project is intended to address the issues with Mag Chloride making roads slick; research is needed to address the concerns.</li> </ul> <p><b>Questions and Discussion:</b></p> <ul style="list-style-type: none"> <li>Monty has noted that it is often a training issue related to certain temperature and humidity issues that make it very slick.</li> <li>There was as discussion of the right funding level.</li> </ul>
Development of a Standard Storm Severity Index and Snow and Ice Removal Performance Standard.	\$200,000	Shane Larson - IL DOT	<ul style="list-style-type: none"> <li>Colleen noted that Bill Hoffman and Wilf Nixon are working on this project as well.</li> <li>The goal is standardization, which should help with consistency of things like salt usage.</li> </ul> <p><b>Questions and Discussion:</b></p> <ul style="list-style-type: none"> <li>Aurora working on an automated index formulation program that is about 80% done right now.</li> <li><b>The members agreed that we wait on this for next year and Colleen should remove this from the ranking sheet.</b></li> <li>Lee would like to see us keep a high profile on this, even though it needs to wait.</li> </ul>
Correct Recording of Material Usage for Snow & Ice Operations	\$100,000 to 150,000	Shane Larson - IL DOT	<ul style="list-style-type: none"> <li>Shane notes that he is trying to address the problem of getting an accurate recording of materials usage.</li> </ul> <p><b>Questions and Discussion:</b></p> <ul style="list-style-type: none"> <li>Scales are suggested as a likely solution. Lee noted that APWA may come up with some</li> </ul>

			<p>ideas due to the fact that the smaller agencies are starting to share materials, such as salt, etc.</p> <ul style="list-style-type: none"> <li>• <b>The group agreed that a synthesis report is the right starting point and that it could spawn a future project. Colleen will remove it from the ranking sheet, since it will be synthesis report.</b></li> </ul>
Survey and Synthesis of Zero Velocity Spreaders	\$20,000	Tim Croze - MI DOT; Paul Brown - Mass Hwy	<ul style="list-style-type: none"> <li>• This project was developed in response to an email thread on zero velocity spreaders.</li> <li>• For the first phase of the project, it seemed like there just needed to be a survey and literature search done on the different materials spreaders out there</li> <li>• <b>The group agreed that this should be addressed with a synthesis report and that the focus should be on material spreaders generally rather than just zero velocity spreaders.</b></li> </ul>
Comparison of Zero Velocity Spreaders	\$250,000	Tim Croze - MI DOT; Paul Brown - Mass Hwy	<ul style="list-style-type: none"> <li>• The second phase of the project would actually compare the different spreaders to see what is most cost effective.</li> <li>• They goal was to use the cost-benefit toolkit (another Clear Roads project). So this project should probably wait until next year when the toolkit may be available.</li> <li>• Questions and Discussion:</li> <li>• Dennis Burkheimer suggested that we change it to a more generic “material spreaders” rather than “zero velocity spreaders.”</li> <li>• <b>Per the discussion, Colleen will remove phase 2 from ranking sheet and it will wait until next year.</b></li> </ul>
Demonstration of a National Winter Maintenance Testing Program	Total Project Cost: \$40,000  Requested Funding: \$10,000	Paul Brown - Mass Hwy	<ul style="list-style-type: none"> <li>• Representatives from several winter maintenance research groups have been working on a concept for a National Winter Maintenance Testing Program</li> <li>• This project would be a pilot of the concept.</li> <li>• Questions and Discussion:</li> <li>• There is a question regarding whether this is just a database of research. However, it is expected to include an active working group that tries to coordinate the research and helping people find the next steps on research projects.</li> </ul>