



MINUTES

Clear Roads 2011 Technical Advisory Committee Fall Meeting:

Pooled Fund Project #TPF-5(218)

Tuesday- Thursday, October 25-27, 2012

Hilton Garden Inn Downtown - St. Paul, Minnesota

Attendees:

David Wieder, Colorado DOT	Lynn Bernhard, Utah DOT	Ryan Ott, Minnesota DOT
Tim Peters, Illinois DOT	Allen Williams, Virginia DOT	Clark Moe, Minnesota DOT
Troy Whitworth, Kansas DOT	Monty Mills, Washington DOT	Rick Shomion, Minnesota DOT
Paul Brown, Massachusetts DOT	Kyle Stollings, West Virginia DOT	Bob Vasek, Minnesota DOT
Tim Croze, Michigan DOT	Cliff Spoonemore, Wyoming DOT	Ashley Duran, Minnesota DOT
Tom Peters, Minnesota DOT	John Scharffbillig, APWA	Carole Wiese, Minnesota DOT
Tim Chojnacki, Missouri DOT	Lee Smithson, AASHTO	Deb Fick, Minnesota DOT
Caleb Dobbins, New Hampshire DOT	Curt Pape, Minnesota DOT	Colleen Bos, CTC & Assoc.
Larry Gangl, North Dakota DOT	Sue Lodahl, Minnesota DOT	Ted St. Mane, MLT Group
Charles Goodhart, Pennsylvania DOT		

Materials Distributed:

- Agenda
- Clear Roads Budget Overview
- Clear Roads Operating Procedures
- CTC Annual Report
- 2005 Clear Roads Presentation
- 2009 Clear Roads Solicitation
- 2011 Peer Exchange Research Needs
- 2006-2011 Product Experience Feedback
- Field Guide for Deicing Testing (with sample form)
- MLT Final Report for Deicing Testing Video

October 25, 2011

Introductions and Meeting Objectives

Steve Lund, Minnesota State Maintenance Engineer welcomed us to Minnesota on behalf of MnDOT.

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

- To get updated on current Clear Roads research and
- To select researchers for projects approved for 2011 funding.

Proposal Evaluations

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

- Cost-benefit Toolkit Phase II
 - Western Transportation Institute (WTI) submitted the only proposal and the group felt it met the scope and criteria, so they were selected for this project.
 - Caleb Dobbins joined the subcommittee for the Cost-Benefit Toolkit: Phase II.
- Snow Removal at Extreme Temperatures
 - WTI, Meridian, EVS Engineering, and North Dakota State University (NDSU) submitted proposals.
 - Clear Roads was unable to award the project, because the group realized that the budget had been stated incorrectly as \$125,000 in the RFP, rather than the \$50,000 that the group had budgeted.
 - The project will be re-posted with the same scope, but revised budget information.
- Determining the Toxicity of Deicing Materials
 - WTI, Barr Engineering and Michigan Tech University (MTU) submitted proposals.
 - Barr received the highest score and was selected for the project.
- Environmental Factors Causing Fatigue in Snowplow Operators
 - Virginia Tech Transportation Institute (VTTI), MTU, Thompson Engineering and EVS Engineering submitted proposals.
 - VTTI finished with the highest score and was selected for the project.
- Development of a Totally Automated Spreader
 - Thompson Engineering, WTI, Meridian, Force America and EVS submitted proposals.
 - Thompson Engineering finished with the highest score and was selected for the project.

After the selections the group discussed concerns about whether intellectual property rights need to be addressed when partnering with vendors from private industry. The group also discussed their commitment to open architecture and the possibility of including that in the Clear Roads mission statement or operating procedures.

- Tim Peters volunteered to lead a group to develop recommendations regarding intellectual property and open architecture. Lynn Bernhard and Tom Peters will assist him.
- CTC will see if anyone who was not in attendance would like to participate in developing recommendations.

>>Action Items

- *Ashley Duran*: Will notify all proposing vendors of the outcomes of the selections and initiate the contracting process.
- *CTC & Associates*: Coordinate with project subcommittees and selected vendors to finalize the budget and scope of work to be included in the contract.
- *CTC & Associates*: Query the TAC to see if there are additional TAC members who would like to participate in a discussion regarding issues of intellectual property and open architecture.
- *Tim Peters, Lynn Bernhard and Tom Peters*: Develop recommendations for the TAC on a Clear Roads policy related to intellectual property and open architecture.

True Costs of Snow and Ice Control

Paul Brown presented an update on the status of this project:

- He reviewed the background of this project, which was funded in 2010 and how it evolved into two projects: Weather Severity Mapping and the True Costs of Snow and Ice Control.
- Parsons Brinkerhoff is the vendor. The kick-off teleconference was held with them in late September, and the subcommittee is very pleased with their progress so far.

Winter Weather Severity Mapping

Paul Brown presented an update on the status of this project:

- He reviewed background of this project and the goal to develop a chart similar to the USDA plant hardiness zones that would depict winter weather severity in the US.
- Meridian is the vendor, and a kick-off teleconference took place in late September. The subcommittee is pleased with their methodology and the direction of the project.

Product Experience Feedback

Colleen Bos presented the product experience feedback results from the 2010-2011 season.

- The group agreed that they would like to continue to collect feedback for 2011-2012.
- CTC will query the TAC to identify what products will be tested for 2011-2012 and develop a survey to include those products.

>>Action Items

- *CTC & Associates*: Query the TAC to identify what products will be tested for 2011-2012 and develop a survey to include those products.

Field Trip

Minnesota DOT led a field trip to two locations in the MnDOT Twin Cities Metro District:

- The Regional Traffic Management Center (RTMC) and;
- The Maryland Avenue Truck Station.

October 26, 2011

Welcome and Meeting Objectives

Cliff welcomed everyone back and Tom Peters introduced the MnDOT staff who were sitting in on the meeting.

Illinois Winter Maintenance Report

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

- One of their challenges is staffing levels, because they use more temporary workers and have fewer full-time staff. It's not easy to recruit people into positions with an unclear number of hours and it's also harder to ensure good training.
- Another challenge is the rising cost of salt. They are working on training to help use salt more efficiently.

- Some new initiatives include:
 - Improved training for new hires, especially focusing on available technology.
 - Increasing use of liquids. For example all the trucks they purchase have pre-wetting capabilities now and they are using more slurry systems.
- They are doing a blade and plow study with Bradley University to study the performance of different snowplow blades, plow designs and types of pavement.

North Dakota Winter Maintenance Report

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

- Using a number of innovative technologies, such as MDSS and cameras to check on remote locations.
- Converting to Joma blades statewide after an internal study showed that they get 4 to 1 better wear compared with conventional blades.
- Adding additional tow plows to their fleet.
- Saved money by building 35 salt sheds across the state using their own crews and materials.
- Implementing two AVL units per district as a part of a seven-year test project.
- Dealing with recruiting challenges as they attempt to compete with the oil fields in western North Dakota, which recruit their drivers away with higher pay.

Peer Exchange 2011 Follow Ups

Lee Smithson led the group in reviewing the list of research needs identified at the 2011 Peer Exchange. Many of these projects were assigned to Clear Roads and the goal was to identify a Clear Roads Lead for each project, who could help take it forward as a synthesis report or a research proposal.

Please see the table included in Appendix A at the end of this document for the complete list of projects and notes that indicate the Clear Roads Lead and next steps.

>>Action Items

- *CTC & Associates:* Identify the projects that look like synthesis reports and work with TAC members to find member agencies with research departments willing to develop the synthesis reports.

Update on Aurora

Curt Pape presented an update on Aurora activities and reviewed the goals of Aurora and the group discussed partnership activities.

- Clear Roads has partnered with Aurora on the Peer Exchange and the Aurora Knowledge Base (Wiki) site.
- Clear Roads needs to transfer funds to Aurora for these projects. Both groups are interested in partnering on future projects as well.

>>Action Items

- *CTC & Associates:* Work with Deb Fick in MnDOT to get funds transferred to Aurora.

Aurora Spring Meeting

David Wieder had attended the Aurora Spring Meeting and identified some highlights that he thought would interest Clear Roads:

- A project studying the correlation between crash data and CLARUS data.
- An RWIS sensor density grid to identify optimal spacing.

The next Aurora meeting is in Salt Lake City in March 2012. Lynn Bernhard will plan to attend this meeting, although the groups will also explore whether it's possible to schedule the meetings to overlap. CTC will follow up with Chris Albrecht, the Aurora Administrator on the timing.

>>Action Items

- *CTC & Associates:* Work with Chris Albrecht, Aurora Administrator to determine if the spring meetings of the two consortia could overlap.

Update on APWA

John Scharffbillig presented an update on APWA.

- They have developed training for supervisors and created a certificate of completion for the program. They will be rolling it out across the country this year. There will be over a thousand participants, and the topics covered include material application, new technologies, equipment, etc.
- Sustainability is also a big focus, so they can develop and promote standards rather than waiting to be regulated by the EPA. Their fleet committee has also been working on emission standards.
- They are also working with FEMA to type and credential equipment for reimbursement from snowplow emergencies.
- APWA has also been working with OEM truck manufacturers on open protocols for interoperability.
- The APWA North American Snow Conference will be in Milwaukee, Wisconsin April 29-May 2, 2012 and Paul Brown will attend.

Budget Update

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

CTC Annual Report

Colleen Bos presented an annual report of Clear Roads activities including administration, meeting planning, research support and information services.

- The group expressed an interest in getting involved in social media by joining Facebook or Linked-In.
- CTC will work with interested members of the TAC to develop some recommendations on how best to do this.

>>Action Items

- *CTC & Associates:* Work with Tim Peters, Allen Williams and other interested members of the TAC to develop some recommendations on how best to incorporate social media into Clear Roads' communication tools.

Meet Minnesota's Research Department

The Clear Roads TAC met with Deb Fick, SP&R Coordinator and Carole Wiese, Research Financial Services Specialist, who support the administration of the Clear Roads pooled fund.

- MnDOT leads 10 pooled funds and are partners in 20 more. Clear Roads is the largest pooled fund they lead and is unusual in that it is funded by a mix of SPR funds and state funds.
- Deb reviewed the process for moving federal SPR funds to the pooled fund as well as the process for using state funds to pay for Clear Roads membership.
- Carole reviewed the travel and expense reimbursement process.
- The group discussed if there was a way to submit the RFB's further in advance of the Clear Roads meetings to aid in planning and logistics. The RFB process does have to take place within the fiscal year it is planned for, but Carole agreed that there should be a way to start the process earlier than had been done in the past.

- The group also discussed the need to be able to transfer funds to Aurora, and Deb suggested a partnership agreement might make that easier.

Clear Roads History and Goals

Cliff Spoonemore and Tim Croze each reviewed some of the background of Clear Roads to help inform new members on the history of the organization, its goals, structure and the resources that are available to member states. Colleen Bos presented the following:

- The 2009 pooled fund solicitation, which outlines Clear Roads mission.
- The Clear Roads operating procedures, which outline the rules that guide its activities, funding and membership.
- The Clear Roads website and the resources there both for the public and for Clear Roads members.

Membership Discussion

Cliff Spoonemore led a discussion regarding whether to allow Canadian provinces to join Clear Roads and whether contractors could be members. Some highlights of the discussion were:

- The group welcomed the idea of Canadian members. Ontario is currently pursuing membership.
- The group discussed both having contractors represent state agencies and having private organizations fund and join Clear Roads.
- On the former, there should not be a concern as long as they are designated as technical representatives by their state agencies.
- FHWA guidance suggests that there would be considerable hurdles to having a private organization join Clear Roads.
- Paul Brown offered to lead a subcommittee to develop recommendations for membership definitions for the operating procedures. Monty Mills, Tom Peters, Tim Croze and Lynn Bernhard joined the subcommittee.
- The subcommittee will review Aurora's by-laws to get some ideas of how to proceed. They will also address the issue of whether Asian or European members would be allowed.

>>Action Items

- *Paul Brown, Monty Mills, Tom Peters, Tim Croze and Lynn Bernhard: Develop recommendations for membership definitions for the operating procedures.*

Privatization in Winter Maintenance

Paul Brown and Allen Williams led a discussion on privatization in winter maintenance activities, since both Massachusetts and Virginia have experience and many states are facing the likelihood of privatization in the future.

Allen and Paul advised that agencies will need to completely rethink the way they structure their staff. Most of the remaining staff will need to be supervisors who oversee contract drivers. Not all staff will be suited to that role. Each of them shared the case study of their own state's experience:

Massachusetts Case Study

- The unstated goal of privatization is the reduction of employees. Massachusetts started with 4,500 maintenance employees and now has 175.
- Over time, the contract costs get higher, because the contractors know your agency doesn't have the staff or equipment to deliver maintenance services any other way. Services end up reduced due to financial constraints.
- There is a negative perception around hiring state employees, so the agency can't hire people back even though it has become more expensive to contract out the maintenance activities.

- Contracts often include ranges of service that will be provided, but contractors will always deliver the minimum, not the maximum.
- Massachusetts now pays between 30% and 40% more for maintenance.
- It can be challenging to find a single contractor with the expertise to cover all maintenance functions. MassDOT identified 24 functions that a maintenance worker does.

Virginia Case Study

- In the 1990's VDOT started public-private partnerships that solicited proposals on construction projects. Some proposals came in for maintenance-related work as well.
- Early contracts did not go particularly well, but they kept tweaking the contract provisions and renewing the contracts.
- In the 2000's, VDOT wrote a total asset management services contract, which became a required contract mechanism for interstate projects including maintenance. However they did not have enough staff to monitor the contracts.
- Currently, there are 7,500 employees at VDOT. They laid off roughly 3,000 people over time and the lay-offs took the most experienced staff, who were near retirement.
- In Virginia, contractors have a lobby and have more access to the legislature than the DOT staff.

Recommendations

- Think differently about contracts for a privatized workforce. For example, you need to define the acceptable action for every maintenance scenario. I.e., if a sign is bent, you should specify that it will be replaced, not just bent back into shape.
- Have a strategy in place for privatization before the legislature dictates it. For example, you need to have a list of all maintenance services you provide and how to measure them before you can effectively develop a contract to outsource them.
- Be prepared for the argument that contractors will save on overhead costs. Remind decision makers that unless the state sells off buildings, the overhead often remains the same regardless of the number of employees.
- Have a plan for working with the remaining staff. They may be resentful and unenthusiastic about monitoring contractors.
- Plan for contracts that measure services by the hour or the square yard, because contractors minimize their risk by only signing contracts where the work effort is very specifically quantified.

New Hampshire Winter Maintenance

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

- Facing a significantly reduced budget in 2012-2013.
- New Hampshire legislature had started to look at outsourcing, but instead maintenance will only focus on snow and ice activities in the coming years.
- Closing six maintenance sheds due to a related loss of staff.
- Focusing on developing performance measures for winter maintenance.
- Leasing a tow plow to try out some new technology.
- Broadcasting safe winter driving messages on their changeable message signs.

Massachusetts Winter Maintenance Report

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

- Recently merged Mass Turnpike, Mass Highway, and Tobin Bridge, and DCR (parks) into a single agency.
- Changed their materials usage approach and have reduced salt usage by 300,000 tons. They also 51 environmentally sensitive areas that are reduced salt zones.
- They are willing to fire contractors for non-performance related to the salt reduction and environmental sensitivity issues.

- Mandated a cut of \$15M (actually resulted in closer to \$50M) by making the following changes:
 - Re-wrote salt contract.
 - Changed equipment configuration by reducing the amount of equipment provided by private contractors.
 - Mandated pre-wetting on all materials spreaders.
 - Converted material spreaders to closed loop systems last fall.
- They are testing and implementing a lot of new technology, including:
 - Tried out one tow plow and have now bought five because of the cost-benefits.
 - Starting a pilot program to do wireless data transfer from their trucks.
 - Bought a brine production plant.
 - Implementing a trial project using segmented plow blades.
 - Pavement temp sensors for all involved in making application decisions.
 - Developing and implementing six mobile RWIS stations.
 - Using wing plow lasers.

October 26, 2011

Future Clear Roads Meetings

The group discussed the location and timing of future meetings.

- The spring meeting is set for March 20-22, 2012 in Salt Lake City, Utah.
- West Virginia was identified as the location for the fall meeting. The meeting will take place October 2-4, 2012.
- The group would like to invite someone from LTAP and from the state of Alaska to the spring meeting.

>>Action Items

- *CTC & Associates*: Schedule and plan for the two Clear Roads meetings identified above and make sure LTAP and Alaska are invited to the spring meeting.

Deicing Video

Ted St. Mane presented the results of the Field Guide to Testing Deicing Chemicals Video project.

- He shared a copy of the final report for the project as well as a special edition of the DVD.
- He reviewed the process of developing the video.
- He showed a substantial segment of the video to the group for their feedback.
- The TAC approved the video and indicated it was a successful result.
- Ted will send the DVDs to CTC for distribution.

The TAC discussed the distribution of the video and agreed on the following:

- Send it to all the LTAP centers.
- Post it on YouTube and Vimeo.
- Post in the Clear Roads website as well as the mltgroup's website.
- We should track hits on the Clear Roads website before and after we post and promote the video.

The TAC also discussed the value of inviting LTAP Chair Terry McNinch to a future Clear Roads meeting.

>>Action Items

- *CTC & Associates*: Distribute the DVD as requested by the TAC once they are available.

Pacific Northwest Snowfighters (PNS)

Monty Mills presented the history of PNS and its current status and options for the future.

- PNS has focused on product testing and developed specifications for chemical testing.
- As the current inhibitor longevity project comes to an end, the organization will no longer be a pooled fund but an unaffiliated association of northwest states.
- PNS would like to find a way to continue product testing in partnership with Clear Roads.
- Partnership could help increase Qualified Product List (QPL) awareness and give Clear Roads the ability to influence the categories identified for testing.
- The PNS group would still like to maintain its identity by maintaining its website and having separate meetings. However, since their meetings include vendors, it might be an opportunity for Clear Roads to have some vendor interface without changing the current meeting structure.
- Monty suggests that PNS could become the “materials” arm of Clear Roads.
- It may be helpful for PNS to maintain their own pooled fund number to help draw a boundary between Clear Roads and PNS.
- Other Clear Roads states could help assist Ron Wright (Idaho DOT) with testing activities, although he’d like to continue to oversee those activities.
- PNS would like CTC to manage the PNS web site.
- PNS could be an ongoing project within the Clear Roads pooled fund that gets evaluated each year for funding. Funding was already approved for 2011.
- Colleen and Monty will follow up with MnDOT to determine the options for partnership and funding mechanisms.

>>Action Items

- *Monty Mills and CTC & Associates:* Work with MnDOT to determine the options for partnership and funding mechanisms.

Wiki Knowledge Base

Colleen Bos showed the Aurora Knowledge Base (Wiki) site to the TAC to encourage everyone to participate and to set up an account so they can post content.

- The group would especially like to post informal discussions there that might otherwise not get captured.
- The TAC asked Colleen to post a link on the Clear Roads website on the Welcome page and also on the Links/Resources page.

>>Action Items

- *CTC & Associates:* Post a link to the Knowledge Base (Wiki) site on the Clear Roads website on the Welcome page and also on the Links/Resources page.

Plug and Play Initiative

Paul Brown provided an update on this effort to achieve interoperability for plug and play technology in maintenance vehicles.

- Annette Dunn has been leading an effort to define a specification.
- Paul would like the TAC to review the specification and let the subcommittee know if there is feedback.
- The subcommittee would like to add a day at the start of the spring meeting to get AVL and spreader vendors, equipment experts and other stakeholders at the table to review the specification and discuss the best way to implement it.
- CTC will send the revised specification to Thompson and let them know the status of implementation efforts.

>>Action Items

- *All TAC Members:* Review the specification and let the subcommittee know if there is feedback. Let CTC or the subcommittee know if you would like to attend the meeting with vendors and other stakeholders.

- *CTC & Associates*: Send the revised specification to Thompson and let them know the status of implementation efforts.
- *CTC & Associates*: Work with the subcommittee to identify attendees and an agenda for the spring plug and play meeting with vendors and other stakeholders.

Snowplow Driver Training Materials

Colleen Bos reviewed the snowplow driver training materials which were gathered, catalogued and posted on the Members Only page of the Clear Roads website as a result of a synthesis report requested by Mike Sproul.

- The group would like to keep the materials password protected on the Members Only page, because they do not want the materials to be accessed and used incorrectly since there is some content not included (such as notes for PowerPoint slides) and the appropriate use of the materials could be misconstrued.
- There was some discussion about the risk associated with allowing member agency staff who are not on the TAC to access those materials.
- CTC will determine if there is an effective yet user-friendly way to set up a separate password for those materials.

>>Action Items

- *CTC & Associates*: Follow up on the best way to control access to the materials.

Appendix A: Clear Roads Fall Meeting Minutes – 2011 Peer Exchange Research Needs

Rank	Title	Consortium	Discussion Notes
1	How Effective Are Existing Application Rates for Salt?	Clear Roads/	<u>Monty Mills and Paul Brown</u> will write up a Research Proposal for 2012.
2	Synthesis of Outsourcing Benefits & Risks	Clear Roads/ SICOP	<p>Clear Roads determined this is a good candidate for a Synthesis Report. Note: Outsourcing goes beyond snow and ice, however, it should focus on snow and ice, while also looking at other areas for additional information. SICOP is also interested in pursuing this.</p> <p>It was noted that NCHRP 20-7, Task 329 is assessing alternative delivery methods for winter operations and is funded at \$75,000.</p> <p><u>Caleb Dobbins</u> will be the Clear Roads Lead.</p>
3	The Use Of Social Media in Winter Operations	All	Clear Roads discussed using this as a test case and try to use social media to get our own research out. CTC is also involved in some social media research events and may be able to help. <u>Tim Peters and Allen Williams</u> agreed to be the Clear Roads Leads.
4	Mobile Road Weather Sensor Standards	Aurora	
4	GIS Based Route Optimization	Clear Roads	Clear Roads determined this is a good candidate for a Synthesis Report . Note: The school bus industry, UPS, etc, are all good resources. Iowa DOT is also working on this. <u>Annette Dunn</u> will be the Clear Roads Lead.
5	Research Design Concepts That Can Be Incorporated into Roadway Construction to Assist in Winter Operations	SICOP	
6	Cameras and Operational Impact of Remote Road	Aurora	<u>Lynn Bernhard</u> will be the Clear Roads lead and will work with Aurora on this one.

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	Condition		
7	Mechanical Snow Removal Strategies and Opportunities	Clear Roads	<u>Charlie Goodhart</u> will be the Clear Roads Lead and will write up a Research Proposal for 2012.
7	Quantifying Salt Concentration On Pavement (alternative to sensors)	Clear Roads/ Aurora	Meridian may already have addressed this, but perhaps MDSS states could request that Meridian provide this as part of their pooled fund. Clear Roads should be involved to bring an operational perspective on this. Envirotech is working on a laser solution to this with the Colorado DOT. Iowa DOT may be working on a project to address the salinity sensor need. They should have six new sensors installed by winter to see if they can push data to the AVL system. Although there is still the aspect of finding a way to quantify salt without a sensor. No Clear Roads Lead identified.
7	OGFC Applications	Clear Roads	<u>Paul Brown</u> will be the Clear Roads Lead and write up a Research Proposal for 2012.
8	Synthesis of Best Marketing Practices for Winter Operations	SICOP	
9	Create A Winter Maintenance Experts Bureau	All	<u>Lynn Bernhard</u> will be the Clear Roads Lead and will write up a Research Proposal for 2012.
9	Communicating Road Weather Information to Decision Makers	Aurora	
10	Salt Brine Primer	Clear Roads	Clear Roads determined this is a good candidate for a Synthesis Report . Note: This could eventually it becomes an operational manual. <u>Kyle Stollings</u> will be the Clear Roads lead.
10	Improved Winter Severity Index	Aurora	

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11	Cost Benefit of Salt Use in Winter Maintenance.	All	<p>Clear Roads determined this is a good candidate for a Synthesis Report. Note: Talk to the Salt Institute and also put the resulting report on the wiki knowledge base.</p> <p><u>Monty Mills</u> will be the Clear Roads Lead, but requested a change in title to "Cost-Benefit of Salt Use in Winter Maintenance." The group agreed that this is a good opportunity to promote Clear Roads and the Wiki site as a resource for this type of information.</p>
11	Validate the Accuracy of Pavement Condition Predictions from Various Sources	Aurora	
11	Field Validation of Lab Research	All/ SICOP	Clear Roads felt this should be a SICOP project.
12	Cathodic Protection of Maintenance Vehicles to Reduce Corrosion	Clear Roads	WTI/Alaska/Clear Roads are already doing a comprehensive corrosion best practices project. Need to wait on the results of that project.
13	Synthesis of Best Practices for Maintenance Change Implementation	All	Clear Roads determined this is a good candidate for a Synthesis Report . Note: This could be a CBT directed towards managers.
13	Determine the Effect of CDL Medical Card Requirement	Clear Roads/ AASHTO	<u>Caleb Dobbins</u> and <u>Allen Williams</u> are the Clear Roads Leads. This effects more than winter maintenance, so appears to be an AASHTO project.
13	Propose NCHRP Synthesis of Systems, Processes and Plans to Manage a Winter Storm Successfully	SICOP	
14	Chip Seal Effects to Plow Blades	Clear Roads	<u>Mike Mattison</u> and <u>Troy Whitworth</u> will be the Clear Roads Leads and write up a Research Proposal for 2012.

Appendix A: Clear Roads Fall Meeting Minutes – 2011 Peer Exchange Research Needs

14	Cost-benefits of Gradation Specification for Mined Salt	Clear Roads	<p>Clear Roads feels this should be about more than just mined salt. All salt should be included. Questions include: What's the best thing to make brine? What's the optimum gradation?</p> <p><u>Monty Mills and Paul Brown</u> will be the Clear Roads Leads and will include this in their proposal for the project on How Effective Are Existing Salt Application Guidelines.</p>
15	Synthesis of Best Practices for Pass Operations	Clear Roads	<p><u>David Wieder</u> will be the Clear Roads Lead and will write up a Research Proposal for 2012. <u>Lynn Bernhard and Monty Mills</u> are available to assist.</p>
16	Tow Plow Training	Clear Roads	<p>MoDOT has a lot of training already and it should be made available via the Clear Roads website. WisDOT is also doing a 2 year study and gather ideas about where they work and where they don't. Clear Roads members should follow-up with Mike Sproul and he will collect their questions and issues and build them into his study.</p>
16	Make the Aurora Winter Severity Index Available to All, and Extend the Length of Record	Aurora	
17	Publicizing RWIS & Operations Info	Aurora	
17	Consistent (Across Borders) Preparation Plan - aka - Pre Season Preparation Plan	Clear Roads	<p>The group felt that this information is already available.</p>
18	Criminal Background Checks	na - no votes	<p>This will be combined with the project to Determine the Effect of CDL Medical Card Requirement.</p>