

**DRAFT MINUTES**  
**WINTER MAINTENANCE POLICY COORDINATION COMMITTEE**  
**November 12-13, 2002 Meeting**  
**Minneapolis, Minnesota**

**Attendees**

Pat Hughes, Chairman—AASHTO WMPCC (Minnesota DOT)  
Lee Smithson—AASHTO SICOP Coordinator  
Paul Pisano—FHWA  
Steve Brandau—NACE (Geneseo County Engineer, Illinois)  
Rick Nelson—Lead States Program (Nevada DOT)  
Dan Roosevelt—AASHTO Southeastern Region (Virginia DOT)  
John Blacker—AASHTO Western Region (Montana DOT)  
Joe Doherty—AASHTO Northeastern Region (New York State DOT)  
Ed Fink—AASHTO Highway Subcommittee on Maintenance (Colorado DOT)  
Wilfrid Nixon—TRB Committee A3C09 Winter Maintenance (University of Iowa)  
Robert Blackburn—Recorder 2002 Winter Scanning Tour

**January 2002 Scanning Tour**

Bob Blackburn presented an overview of the short version of the scanning tour draft final report and the draft problem statements prepared by the Implementation sub-team (Jim McCarthy, Diana Clonch, Dave Jones, and Dan Roosevelt). These documents were previously sent to the WMPCC members on November 6, 2002 in preparation for this meeting. WMPCC members provided feedback to Bob for corrections and revisions to the draft report and problem statements. Bob will have the final summary report completed by November 19, 2002. Wilf will post that report to the SICOP web.

Paul Pisano asked everyone who had made a scanning tour presentation to let him know the group and date of presentation. Two power point presentations have been assembled. One is by Wilf Nixon and the other by Dan Roosevelt. Dan will review both power points and edit them into one presentation, which will be posted on the SICOP web.

Funding for the problem statements was discussed. Scanning Tour Implementation Program (STIP) funds are available for implementing lower cost (approximately \$25,000) short term (can be implemented in approximately one year) projects. Longer term and higher cost projects will need to seek funds from the NCHRP program, 20-7 funds or possibly SICOP pooled funds. Problem statements from the scanning tour and current SICOP projects will be evaluated and prioritized for the SICOP four-year program.

A discussion took place concerning the evolving ITS groups. The 511 project overlaps into winter maintenance and should have provided WMPCC an avenue to provide guidance on developing protocols for the winter maintenance area. Everything in the ITS arena seems to be scattered making coordination and input very difficult. A meeting of

interested parties (ie, John Conrad who chairs the new AASHTO Subcommittee on Operations and Management, Jim Wright on the 511 Working Group, and Jeff Paniati on ITS Standards) is needed so WMPCC can communicate our ideas and understand each others missions. Pat will talk to Dave Ekern and see if he can help set up such a meeting.

### **Work Plan Reports**

A discussion of the SICOP work plans and how they appear on the SICOP web site follows:

- **Project #1: Develop a RWIS/Anti-icing Computer Based Training Package.** The project report dated October 2002 on the web was discussed. WMPCC was concerned that the original contract originally scheduled for an August 2002 completion was not yet totally complete. Lessons 1, 2 and 3 have been completed and sent to the states for customization recommendations. The other four lessons (4-7) were completed this summer in draft form and sent to the Technical Working Group (TWG) for their review. The TWG has not yet completed their review so the contractor is not able to finalize his work. The scenarios developed by CRREL for the CBT final exam do not function as the TWG had envisioned they would and thus will need revision. The scenarios have been sent to the TWG, but the TWG has been unable to determine how best to revise them to make them useful to the CBT. Although the scenarios are based on the research that CRREL accomplished for the FHWA Anti-Icing T&E, they aren't acceptable for use in their present format for the CBT. CRREL seems to have the research capability, but not the knowledge and ability to translate that into a usable product for the practitioner. WMPCC instructed Rick Nelson and Lee Smithson to contact the contractor and work out a plan so the CBT will be finished by July 1, 2003. WMPCC also approved converting the CBT to metric so sales to the Canadians can be made, but this conversion work is not to interfere with or delay the completion of the CBTs for state DOTs.
- **Project #2: State-of-the-practice equipment and facilities for RWIS and Anti-icing operations.** Some state DOT specifications and links to other state DOT web sites with specifications are now on the SICOP web site. WMPCC members will review what is posted and if their state is not posted they will get their states information to Wilf for posting to the web. The small agencies especially need this information as they expand into the anti-icing processes for snow and ice control. Photographs of equipment would also be helpful to them and other state DOTs. The goal for this project is to have a catalog of photos with links to each snow and ice control state DOT plus a contact person for that state. WMPCC felt it was not necessary to have the specifications posted since they tend to change frequently and are usually available at the state DOT web site. Wilf believes this project can be completed for under \$10,000 and he will refine that estimate when he puts together next years funding request for maintaining the SICOP web site. WMPCC needs to look to other avenues to promote good practice. An avenue to pursue would be with the AASHTO Subcommittee on Maintenance Equipment Focus Group, the TRB A3C08 Committee on Maintenance Equipment and LTAP. Wilf and Lee will seek

time on the A3C08 Committee agenda at the January 2003 annual meeting to discuss partnering opportunities.

- **Project #3: Road Condition Information to the Customer.** NCHRP Project 6-14, the research component of this project was completed with the publication of the NCHRP Final Report, “Feasibility of Using Friction Indicators to Improve Winter Maintenance Operations and Mobility”. This report was distributed by TRB on October 2, 2002 and can be downloaded from their web site at [http://gulliver.trb.org/publications/nchrp/nchrp\\_w53](http://gulliver.trb.org/publications/nchrp/nchrp_w53). The report concluded that the use of friction measurements to improve winter maintenance operations and mobility is feasible. The use of traction control systems now available in high end vehicles appear to be the only way to eliminate the extra wheel used in current friction measuring devices to predict road surface condition. Also the numerical models being developed in countries outside the United States to predict road surface condition appear feasible. A two-phase field evaluation program was proposed to further valid the effectiveness of using friction measurements. The first phase would use this information in maintenance operations and the second phase would build on the success of the first phase and be used to alert motorists on sections of roadway that pavement friction may be inadequate for safe mobility at speeds typical of that section. To date most friction measuring devices have been too costly for fleet application, but new manufacturers with different devices are entering the market place. Some of the devices use a fifth wheel for measuring friction on automobile race tracks (Haliday Technologies of Ohio, about \$15,000) while others use new methods such as a piezo cable embedded in the tire carcass (University of Minnesota), fixed roadway sensor, (Tim Legget, Forensic Dynamics of British Columbia, about \$10,000), and the electro-optical (EO) lubrication state sensor funded by a Small Business Innovation Research (SBIR) program from the National Highway Traffic Safety Administration, (Foster-Miller Inc, no cost available). The cost of these new units is expected to be in the price range of what the NCHRP 6-14 report indicated users would be willing to pay for the technology. The project statement needs to be rewritten reflecting that friction is on the horizon, but is not implementable at this time. The problem statement needs to consider the human factors involved and how to communicate road surface condition to the public. Part of this will involve better ties to the 511 project and making sure that maintenance considerations get on the table as the 511 project continues. In rewriting the road condition information aspects it will be important to recognize what is within the scope of the maintenance community, and how it ties to others who play a role in conveying information to the motorist.
- **Project #4: Develop a Driver Education Program for Snowcovered and Icy Roads and a Plan for Marketing the Program.** The Montana DOT has now secured funding from the Montana Research Board for determining what industry and government entities need to be involved. It is expected this project will make progress in the next six months. SICOP will continue its efforts to contact the insurance industry to explain what we have found in other countries outside the United States and determine their interest in this area. Mujeeb Basha will contact Ms. Linda Lewis (CEO) of the American Association of Motor Vehicle Administrators to discuss this project and seek her advice on how to approach the insurance industry.

- **Project #5: Winter Maintenance Chemical Specifications.** The power point presentation on the history and mission of the PNS will be posted on the SICOP web site. Regional groups patterned after the PNS are being considered in the Midwest and northeastern part of the United States and others are being considered in Canada. The project has been successful, and the project statement needs to be rewritten to reflect new efforts underway that will affect specifications and purchasing considerations. These include efforts such as NCHRP 6-16, “Guidelines for the Selection of Snow and Ice Control Materials to Mitigate Environmental Impacts”. Ed Fink and Dave Jones will work on the rewrite.
- **Project #6: Promote Anti-Drifting Measures with Pro-Active Road Design Considerations and Improved Snow Fence Configurations.** The draft CD-ROM updating the H-205 report has been reviewed and contains color photographs of many of the black and white photographs contained in the original report and a rewrite of the living snow fence chapter. The color photographs depict much more detail and will enhance the value of the report. Also several new construction materials and techniques are now available and included in the report. The revised report is expected to be complete and posted to the SICOP web as soon as NCHRP (Amir Hanna) gives his approval. The SNOWMAN project Brookhaven is working on is about 85% complete. Some user interface problems are being experienced. Progress is slow due to the non-availability of graduate students. As each section of the SICOP project is completed, special emphasis will be needed to insure road designers are informed that this information is now available. Using the SICOP List-Serve, contacting the AASHTO Subcommittee on Design and an article in the AASHTO Newsletter will be good starters.
- **Project #7: Build and Sustain Winter Maintenance Programs for Small Agencies and Support APWA in the Development of Their Urban Best Practices Manual.** APWA will be able to fund this project without SICOP funding so will pursue development of the manual on their own. This project will be transferred to the Project of Partners section of the SICOP web.
- **Project #8: Document the State-of-the-Art for Automatic Remote Fixed Location Anti-icing and Deicing Distribution Systems.** The current web site matrix is being updated. An announcement that the matrix is being updated was posted on the SICOP List-serve. Six replies have already been received. The updated matrix will include contact people information, best practices information ( siting, nozzle installation, location, spacing, etc, and what conditions activate the system). It is anticipated that the matrix will be revised and posted by March 2003. There is also a HiTech project to evaluate Freeze-Free, the results of which will be posted to the SICOP web when they are available. At some point this information will need to be translated into a best practices synthesis.
- **Project #9: Develop a Model Media Relations Package to be Used Before and During the Snow Season.** WMPCC discussed this project and decided the value in this project will probably be developing and posting a catalog of available materials and where they can be obtained.
- **Project #10: Determine the State-of-the-Practice for Automated Vehicle Location (AVL) With an Emphasis on Benefit/Cost and Route Optimization Technology Applications.** Dan Roosevelt has developed a matrix for this project

and has contacted about a dozen agencies using AVL to provide information. He has replies from six agencies with various information to fill in a matrix. Dan plans to follow-up with agencies that have not yet responded and then will post the results to the SICOP web site. The need for AVL seems intuitive, but so far there is an absence of statistical documentation to verify this.

- **Project #11: Determine the State-of-the-Practice for Vehicle Mounted (on-board) Road Condition Freezing Point Measurements.** The Iowa DOT has used a vehicle mounted Frensor unit the past two winters. This unit freezes the road surface brine with a Pelter cell unit and thaws the mixture and measures the freezing point. The unit worked well in laboratory testing and measured freezing point during field-testing, but experienced some difficulties in its self cleaning process and had to occasionally be cleaned by hand. The Swedish National Road Administration used six Frensor units during the past winter. Unfortunately, neither Iowa or Sweden had much winter weather so very limited data was obtained. More field tests will be accomplished during the upcoming winter. Successful completion of the winter field tests should make major contributions to the science of precision chemical determination and application of snow and ice control materials. Project team members are still trying to contact the OMRON Corporation of Kyoto, Japan to determine if their salinity sensor is ready for field evaluation. If the unit is available for sale or field testing, the approach will be to use it in combination with the Iowa DOT concept vehicle and compare with the results of the Frensor.

#### **Discussion of Other Projects That WMPCC Members Are Involved In**

- Rick Nelson reported that Nevada is working on a 511 project to incorporate RWIS data to 511 road conditions and whether traction devices are required. Nevada is also working on using thermal maps to forecast potential problem areas for motorists. They are also working on RWIS siting standards and construction specifications.
- Wilf Nixon reported that the University of Iowa has a research project using prairie grasses and switch grass for living snow fence applications. He is also working with the Iowa DOT to develop chemical specifications which include quality control and quality assurance. They are also evaluating products to apply to snow and ice control equipment to protect against corrosion. Another test and evaluation project they are working on is how to apply and keep snow and ice control materials on the roadway. One possible solution is to put hot water on the sand to provide particles with sufficient moisture to stick and freeze to the roadway.
- Ed Fink reported that Colorado is going into a more aggressive chemical-testing program (about \$200,000). They find corrosion testing especially costly and are looking for less expensive tests. One problem they are finding is that they get different outcomes depending on whether one uses SAE versus NACE or ASTM testing methods. Bob Blackburn pointed out that the SHRP 205 work was built around ASTM test methods so other test protocols may give different results. John Blacker reported that Montana had to censure a contractor for a couple of years for providing bad materials. Ed is a panel member on the NCHRP Project 6-16 “Guidelines for the Selection of Snow and Ice Control Materials to Mitigate Environmental Impacts”.

- Dan Roosevelt reported he is a panel member on the NCHRP Project 6-15, “Testing and Calibration Methods for RWIS Sensors”. The Aurora Consortium has a project on standardized presentation of road weather information. The Virginia DOT is being considered for a \$10,000,000 project to integrate RWIS, traffic, etc reporting in the Richmond area. This project should bring the maintenance community and the ITS community closer together. The Virginia DOT is undergoing major reorganization which will probably result in the placement of RWIS responsibilities into ITS and the Office of Maintenance into Asset Management or Mobility Management.
- John Blacker reported that Montana will have a ribbon cutting on December 11, 2002 for deploying their 511 project. RWIS VAMS is Meridian. Western Transportation Institute WTI has received the earmarked funds to develop the variable message signs for the Greater Yellowstone corridor. They will be integrating RWIS sites for high wind warnings, etc. The use of thermal mapping will also be integrated into the project. Montana plans on continuing a strong tie with PNS and Dan Williams will be their contact person. The Accountability for Montana’s Maintenance Operations (AMMO) will be examining level of service measurement techniques. Montana reduced their sand specification and 100% must pass the #4 sieve. Maintenance of the ESS has now been turned over to their communications technicians and everything is done in-house. So far it is working great.
- Paul Pisano reported that FHWA has been heavily involved in developing RWIS standards and distributed a brochure “An Introduction to Standards for Road Weather Information Systems (RWIS)”. They are also developing ties with the World Meteorological Organization (WMO). COMET projects have finished their first year and data is being assimilated and processed. They are also developing two road weather management courses, RW101, which teaches RWIS, and RW102, which teaches the fundamentals of using ESS standards. He handed out a brochure “Maintenance Decision Support System” and explained how MDSS will be field tested this winter in Iowa with other states performing supplemental work. He said that the Resource Centers will be undergoing major reorganization and that might affect the future of the Eastern Snow and Ice Conference. WMPCC felt the conference is an important outreach tool for snow and ice control technology transfer and needs to be continued in the future. Pat Hughes will write a letter stating WMPCC support. Paul also advised WMPCC that the National Academy of Sciences has begun a study to identify weather research needs for surface transportation, with a focus on the roadway environment. Paul handed out a brochure “Best Practices for Road Weather Management A New Resource for Transportation Managers offered by FHWA”. A CD entitled “Best Practices for Road Weather Management was released in August 2002 containing resources to help traffic, emergency, and maintenance managers improve roadway operations under inclement weather conditions.
- Joe Doherty discussed the progress Tony Sambuca is making on building and testing a low cost ESS. He has narrowed his research to three systems to compare to their SSI system this winter. New York is working up material on ESS siting criteria. They are also exploring living snow fence options and how to best work with landowners. They are using a simple agreement for permission. They are experiencing some roadway runoff problems in the Cascade Lakes area and

investigating what field data to gather to do an environmental assessment. They will be testing both active and passive sensors this winter on a bridge fixed anti-icing spray technology (FAST) project. They have developed a new specification for an 800-gallon anti-icing truck they would share with others. They are looking at how to track all the snow and ice control labor and chemical usage as part of the Maintenance Asset Management Information System (MAMIS). This will be a 1 ½ to 3 year project.

- Steve Brandau feels that NACE needs to put more emphasis in winter maintenance to stimulate the counties to adopt better snow and ice control practices. The counties usually have access to the state RWIS, but the managers aren't trained on how to effectively use it. The larger counties are beginning to outfit their truck with anti-icing equipment and using RWIS, but the smaller counties need help and encouragement. Often the county engineer is satisfied with the level of service, so given the current budget situation, there is no incentive to change.
- Bob Blackburn discussed the need to develop simple test protocols for liquid chemicals.

### **WMPCC SICOP Program**

- **Evaluation of existing program**
  1. SICOP Project #1—need scenarios developed (Rick and Lee will follow through with the contractor to get this done). There needs to be a deployment plan as part of a broader education effort. This would track behavior modification and outcomes. Wilf will develop an approach to determine pedagogically what the student is doing differently and why. Bob would like to help Wilf with this by adding what was learned in NCHRP 6-13. Ed Fink believes a base line of accidents can be established and then track results after implementing the new processes.
  2. SICOP Project #2—need to develop an equipment and facilities catalog and post to the web. (Rick and Wilf will work on this. Wilf will put a cost line item in the next annual renewal of the SICOP web maintenance fee).
  3. SICOP Project #3—Project will be posted on web as completed. Lee will post his hand-out to the web site. Dan and Wilf will evaluate Project 6-14 to see what WMPCC can do to implement or supplement 6-14 recommendations, propose research and/or submit for IDEA considerations, and rewrite the problem statement. WMPCC also needs to monitor what others (511) are doing to communicate road condition information. Rick will function as this liaison since he is on the new AASHTO Subcommittee on Operations and Management.
  4. SICOP Project #4—John would like to keep this in the mix of SICOP projects, reporting Montana's findings. Further investigation and contacts with the insurance industry need to be made by Mujeeb to get their evaluation about this type of education. The project will be posted to the Education and Outreach section of the web.
  5. SICOP Project #5—the power point presentation on the history and mission will be posted to the SICOP web site. The project will be posted to the completed projects portion of the web. Ed will develop a new statement for the project

considering the NCHRP 6-16 project, on-going QA/QC work and the formation of regional groups.

6. SICOP Project #6—post to the Education and Outreach section of the web as soon as NCHRP approves release of the CD-ROM material. Make an announcement using the SICOP and NACE list-serves. Publish articles in the AASHTO Newsletter, APWA Reporter and LTAPP Newsletter. (Lee and Wilf will work on these). Monitor SNOWMAN and make it available through AASHTO when available. (Joe will monitor and coordinate this) Investigate making presentations at NACE (Steve) and LTAPP conferences to promote technology transfer to local governments.
7. SICOP Project #7—post to the Education and Outreach section of the web. Diane needs to keep status of the project current.
8. SICOP Project #8—Dan will post the updated matrix to the SICOP web (best guess about March 2003). Consider the project complete at that time, but keep the matrix updated annually. Need to consider developing a best practices document.
9. SICOP Project #9—WMPCC decided there was not a need to develop model media package. Wilf will put a message on the list-serve such as “if you have a brochure, video, etc, please send it for posting” and it will be considered for posting. Only need to post a sampling of what is being used and provide links to web sites or contact people. If some of the best ones were put on DVD, FHWA could use them as hand-outs at conferences.
10. SIOCP Project #10—Dan will post the updated matrix to the SICOP web (best guess about February 2003). Matrix needs annual update.
11. SICOP Project #11—continue international monitoring and liaison with state DOTs to maintain interest in this cutting edge technology. Lee and Wilf are positioned on various boards and committees to make this liaison possible.

- **Evaluation of New Projects**

WMPCC felt the Scan Technology Implementation Plans (STIPs) listed below in priority order should be submitted to FHWA International Programs for funding. If they don't get funded, then try 20-7, and if that fails, WMPCC should pick them up as SICOP projects.

1. Integrated Intelligent Transportation Systems (ITS) Corridor Review—investigate integrated ITS corridors pertaining to weather related inputs with an expected output being a system design concept (including maintenance management and traffic management functions) and a preliminary operational test plan.
2. Road Web Markup Language (RWML)—investigate the potential functionality and benefits of RWML with an output being a comprehensive ‘road weather data object dictionary’ including all types of weather-related data objects (ie observations, nowcasts and forecasts of atmospheric, pavement, subsurface, water level and air quality conditions) in XML.
3. Baseline on Winter Maintenance Performance Standards—document domestic and international performance standards, applicable to winter maintenance with an output being a synthesis including winter maintenance standards by road classification and evaluation measures.



WMPCC discussed the other STIPs as follows:

- National Weather Service/Department of Transportation Collaborative Project—is outside of scope of WMPCC activities. However there is value in inviting Gregg Mandt to the next WMPCC meeting to open further dialogue to decide if further collaboration would be beneficial.
- Environmental Sensor Station (ESS) Siting Standards and Implementation Guidelines—only need to be monitored since they are active projects by FHWA, Aurora and other state DOTs.
- Winter Maintenance Equipment Review—since the concept of this STIP overlaps into two existing committees, TRB Committee A3C08, Maintenance Equipment and the AASHTO Subcommittee on Highway Maintenance, Equipment Focus Group formal liaison will be established with them and results reported by to WMPCC. Wilf and Lee will begin this liaison with TRB A3C08 at their annual meeting in Washington DC in January 2003. This committee has membership from both the private and public sectors and members of the Equipment Focus Group. The entire scope of the problem statement will be discussed with the committee in an effort to obtain direction on how best to proceed and determine if partnerships might be a possibility.
- **Other New Projects for Consideration**
  - Is there a need to establish an Ice Warriors type of program? WMPCC felt that a committee should be appointed to investigate this concept.
  - An objective look at the ‘Myths and facts of winter maintenance privatization’ is needed. VMS has published a report for starters and others should be studied. Lee will contact TRB Committee A3C01 and determine if they are interested in supporting a synthesis of practice.

### **WMPCC/SICOP Budget**

The AASHTOs request to support the SICOP Administrative Budget pooled fund has been very successful. About \$100,000 has been collected. This should last for about three years. Lee will publish a list of the states that have contributed.

### **WMPCC Outreach Activities**

Rick made a presentation at the ITS Conference; Wilf and Diane made a scanning tour presentation at the APWA Winter Conference; Wilf made scanning tour presentation at LTAPP conference; Wilf taught two one week workshops on ?? in Washington; Lee made CBT presentations at the TAC Conference in Winnipeg in September and the APWA Western Snow Conference in Denver in September; Joe, Lee and Dan made presentations at the Eastern Snow and Ice Conference in West Virginia in September; John made a SICOP presentation at the WASHTO conference; Ed made corrosion and avalanche presentations at the APWA Western Snow and Ice Conference in Denver in September (**Note to everyone to please fill in the details of conference name, location and date for me. THANKS**)

**Next Meeting**

John Blacker offered to host the next WMPCC meeting in Montana in May.

Date: November 25, 2002