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DRAFT MINUTES
WINTER MAINTENANCE TECHNICAL SERVICE PROGRAM (WMTSP)
Spring 2007 Meeting

April 16-17, 2007
Hotel Fort Des Moines
1000 Walnut Street
Des Moines, IA 50309

Attendees

- Roemer Alfelor, Washington DC—FHWA
- John Burkhardt, IN DOT—TRB Winter Maintenance Committee Chair
- Dennis Burkheimer, IA DOT—AASHTO Region 3
- Mark DeVries, McHenry County, IL—APWA
- Bret Hodne, City of West Des Moines, IA—APWA
- Rick Nelson, NV DOT—Chair
- Greg Parker, Johnson County IA—NACE
- Dan Roosevelt, VA DOT—AASHTO Region 2
- Lee Smithson, AASHTO—SICOP Coordinator

Guest

- Max Perchanok, Ontario Ministry of Transportation, Canada
- Diana Clonch, Ohio DOT

Chairman Rick Nelson opened the meeting with introductions and a review of the agenda. No additional items were added to the agenda.

Outreach & Discussion of Outside Projects that WMTSP Members are Involved In

- NCHRP 6-15, “Guidelines for Testing and Calibrating Road Weather Information Systems (RWIS) Sensors in Field Deployments” was completed and is available as NCHRP Web-Only Document 87. Five of the eight NCHRP project team members were also members of the Aurora Consortium so when it was recognized that a follow-on project was going to be needed after the NCHRP was completed; Aurora was the obvious group to do that work. The Aurora Board formed and funded the follow-on Aurora Project 2006-02, “Pilot Test of ESS

1 Sensor Testing Guidelines” to gain real world experience with implementation of
2 an ESS sensor testing program, develop a standardized kit for testing ESS sensors,
3 and develop data collection software. The project will develop six kits for testing
4 ESS surface and atmospheric sensors, pilot test them in three Aurora member
5 states, Alaska, Utah and Virginia, and publish the results. Dan Roosevelt is the
6 project champion and reported that he is in the process of setting up the project in
7 these three states. Following completion of the project, Aurora and WMTSP will
8 collaborate to support the adoption and implementation of the guidelines as a
9 national standard. A question was raised in discussion whether Clarus would
10 have any interest in following this project, but in discussing both projects, it was
11 not clear what that interest might be. Clarus will indicate when sensors appear
12 unreasonable so those sites that are problematic could be checked using the
13 standardize kit for testing. Since both the Clarus Initiative and the Aurora project
14 have other lapping project team members (members from IA, AK, UT, VA and
15 MN on both projects) it was decided that normal project dialog would be
16 sufficient to insure items of mutual interest and support would be covered and
17 duplication of effort avoided.

18 • NCHRP 6-16, “Guidelines for the Selection of Snow & Ice Control Materials to
19 Mitigate Environmental Impacts” was completed and reviewed by the panel in
20 draft form in May 2006. Corrosion data was incomplete, so was pulled out of the
21 report and funded as a continuation project to be completed when the samples
22 corroded sufficiently so test results could be determined. Meanwhile the draft
23 report was sent to NCHRP editors and publication. The backlog has been so great
24 at NCHRP that the report has not yet been published. Tentative schedule is for
25 publication in late April or early May 2007. Storyboards have been completed
26 and are ready to be inserted into a revised version of the AI/RWIS CBT as soon as
27 the electronic version of the 6-16 is available from NCHRP. There are two
28 versions of the 6-16, a short version where revisions have been inserted into the
29 AI/RWIS CBT and another longer stand-alone version designed for supervisors
30 and materials technicians.

31 • NCHRP 6-17, “Performance Measures for Snow and Ice Control Operations” is
32 progressing. The project was slowed by changes in principal investigators and
33 some unexpected health problems. Phase I, collecting and reviewing information
34 relative to the domestic and international use of performance measures in snow
35 and ice control operations and identifying approaches for evaluating the
36 effectiveness and usefulness of these performance measures is complete. Phase

1 II, the evaluation of the technical, operational, and economic aspects of these
2 performance measures and identification of promising methods and measures for
3 performance assessment for different roadway classifications and storm
4 characteristics is now underway and is anticipated to be completed by late July
5 2007. One of the products anticipated from this research will be a plan for field
6 tests to evaluate and implement some of the more promising performance
7 measures. This will be a separate future activity which WMTSP needs to monitor
8 to insure evaluation and implementation gets funded and occurs.

- 9 • NCHRP20-07(200), “Synthesis of Vehicle Based Winter Maintenance
10 Technologies” has been completed and has been forwarded to AASHTO for
11 posting on the Highway Subcommittee on Maintenance and SICOP websites.
12 This report provides an excellent snapshot in time of current use of vehicle based
13 technologies for winter maintenance and fixed automatic spray technology
14 (FAST) for bridges. Lee will check that a link to the synthesis gets posted on the
15 new SICOP website. The results of this study were presented by the Western
16 Transportation Institute at the January 2007 TRB Annual meeting, but this
17 presentation only includes FAST systems, while the full report covers everything.
- 18 • FHWA MDSS Implementation and MODSS Development—Roemer distributed a
19 hand out entitled “FHWA Road Weather Management Program Roadmap—FY
20 2007-2011” which charted: 1) Stakeholder Coordination; 2) Road Weather
21 Research & Development; 3) Technology Transfer, Training & Education and ; 4)
22 Performance Management & Evaluation, and provided the following reports:
23

24 MDSS Deployment and Technical Assistance:

- 25 ○ The Road Weather Management Team is offering free seminars called
26 “Roadshows” to those involved with winter road operations. 15 have been
27 delivered to date.
- 28 ○ AASHTO Technology Implementation Group (TIG) has selected MDSS
29 as a focus technology in order to accelerate adoption of this approach to
30 the challenges of winter weather operations. The Road Weather
31 Management Program (RWMP) is working in conjunction with the TIG as
32 part of the "Market Ready Technology" effort associated with the
33 Maintenance Decision Support System.
- 34 ○ Parallel MDSS Cost/Benefit Analyses are currently underway in South
35 Dakota (conducted by WTI) and in Maine (conducted by Battelle) and will
36 continue into beginning of summer. Results will be presented at the MDSS
37 Stakeholder Meeting (currently scheduled for Sept. 18-19 in Kansas City,
38 MO). Max Perchanok commented that Ontario is having difficulty
39 obtaining the data needed to determine costs and benefits for RWIS and

1 asked if the MDSS analyses includes RWIS. Roemer indicated that Utah
2 DOT recently completed a Cost Benefit Analysis for RWIS.

3
4 Maintenance and Operations Decision Support System (MODSS)

- 5 ○ The RWMP is working towards expanding decision support systems
6 beyond winter maintenance to include Traffic Management and Summer
7 Maintenance decision support, leveraging and expanding upon MDSS
8 capabilities.
- 9 ○ First stakeholder meetings for both communities were held February 28-
10 March 2, 2007 in Boulder, Colorado. 8 States represented in each group.
 - 11 ▪ Maintenance Beyond Snow and Ice (Mowing, Striping, Herbicide
12 Spraying, Surface Repair) -- some rules of practice exist
 - 13 ▪ Traffic Management (Traveler Information, Incident Management,
14 Signal Control) -- no rules of practice seem to exist, and
15 management is more reactive, not proactive to weather
- 16 ○ MODSS Preliminary User Needs Assessment delivered December 2006.
- 17 ○ NCAR currently developing requirements and concept of operations
18 document based on the input from stakeholder meetings. Will be
19 presented at MODSS-Maintenance Stakeholder Meeting scheduled on
20 Sept 19 in Kansas City, MO.

21
22 • FHWA Clarus Initiative

23 – System Design and Proof-of-Concept Completed. Evaluation held in
24 December 2006.

25
26 – Next step is conduct multi-state regional demonstrations, whose goals are:

- 27
- 28 • Demonstrate that the System Design works in various geographical and
29 operational settings
- 30 • Provide incentives to States and local agencies to contribute data to
31 Clarus from their ESS
- 32 • Create an environment that will allow the private sector to innovate and
33 create new and improved weather products and services

34
35 Three Phases for Regional Demo:

36
37 1. Request for Applications

- 38 • Team-based approach to create ConOps for Business-to-
39 Government weather information products and services tailored to
40 agencies' needs
- 41 • The ConOps will describe innovation in products, services or
42 technologies that result in new or improved business-to-
43 government solutions
- 44 • RFA released Sept 29, closing date was December 1

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- 3 teams will be awarded up to \$150K each via cooperative agreements. Dan Roosevelt commented that Aurora had received communications that their agreement had been accepted.
 - Period of Performance (POP) is 9 months
2. Connection Incentive Program
- FHWA will provide funds as incentives for States and local agencies (that did not participate in the RFA agreement) to connect to Clarus
 - Similar to the 511 Program Assistance grants
 - No predetermined funding amounts
 - Offer will be presented as Request for Expression of Interest (RFEIO)
 - POP is about 6 months, to start in late 2007.
3. Request for Proposals
- FHWA will evaluate ConOps developed by 5 teams from RFA and select any or all for implementation
 - RFP will be posted for contractors to bid on implementation
 - One contractor can be selected for more than 1 ConOps implementation
 - POP is 2 years
- Other FHWA Initiatives
 - TMC Weather Integration Self-Evaluation and Planning Guide
 - One of the recommendations from the TMC Weather Integration State of the Practice Review
 - Goal is to develop a set of guidelines for evaluating weather integration needs at TMC's and developing a weather integration implementation plan, to be completed in the summer
 - 3 TMC's will be selected in the summer to conduct self-evaluation and develop weather integration implementation plans
 - RWM Performance Measures Development
 - Goal is to develop measures that can be used to evaluate the effectiveness of RWMP products and services under Section 5308 of SAFETEA-LU
 - Literature Review of relevant measures completed
 - Workshop scheduled for April 24, 2007 in Washington DC (Dan Roosevelt participating)
 - Selected measures will be shared with State DOT stakeholders for general comment
 - Road Weather Resource Identification Tool
 - Version 2.0 now available from the RWM website.
 - New version contains more than 650 resources.

- 1 ○ More than 130 downloads of the tool to date, positive feedback.
- 2 ○ Recommended enhancements/updates being evaluated.

3 4 NHI Course-Principles and Tools for RWM

- 5 ○ 3 Training Courses Delivered in SD DOT and NH DOT.
- 6 ○ Web-based version under development, to be available in April 2007.
- 7 ○ Evaluation of existing NHI Courses for adding or expanding RWM
- 8 component – completed.

9 10 Weather-Responsive Transportation Management

- 11 ○ Final report for the Empirical Studies on Weather and Traffic now
- 12 available. Speed and capacity adjustment factors due to precipitation and
- 13 visibility are available from the report.
- 14 ○ Scope of Work (SOW) for follow-on work on human factors and network
- 15 prediction models under inclement weather currently under development

16 Surface Transportation Weather Symposium

- 17 ○ The 3rd National Symposium on Surface Transportation Weather is
- 18 tentatively rescheduled for the week of July 25, 2007 in the Washington,
- 19 D.C. area. Sponsors include FHWA, TRB, NOAA/OFCM, AASHTO and
- 20 ITS America. Specific dates and logistics are still being finalized.
- 21 ○ Theme: Improving commerce and reducing deaths/injuries through
- 22 innovative weather-related R&D and applications for the surface
- 23 transportations system
- 24 ○ Areas of R&D Needs: (1) Data Collection and Analysis, (2) Modeling and
- 25 Prediction, (3) Information Dissemination, (4) Stakeholder Response.
- 26 ○ To be invited are Secretaries of Transportation and Commerce.

27 28 Vehicle Infrastructure Integration (VII)

- 29 ○ “Weather Applications and Products Enabled Through Vehicle
- 30 Infrastructure Integration (VII): Feasibility and Concept Development
- 31 Study” from NCAR has been approved for distribution.
- 32 ○ “Vehicles as Mobile Sensing Platforms for Meteorological Observations:
- 33 Volume 2 Research during a Summer Season” will be available in
- 34 January. Report complements Volume 1 which focused on Winter Season
- 35 characteristics.
- 36 ○ VII Applications Proof of Concept draft document was completed in
- 37 December 2006. The Proof of Concept is expected to take place in Detroit
- 38 beginning September 2007.
- 39 ○ The Michigan DOT RFP for the VII Data Use Analysis and Processing
- 40 (DUAP) task was awarded to Mixon/Hill, Inc. in December 2006.

- 41
- 42 • Aurora—Dan Roosevelt handed out the Aurora Program Ongoing Project Status
- 43 dated February 14, 2007. This handout contained the titles of 30 projects and the

1 percentage each has completed. For further details see www.aurora-program.org.
2 Aurora membership is now up to 17 members and one more state DOT is
3 considering joining.

- 4 • Clear Roads—Dennis Burkheimer talked about Clear Roads being the youngest of
5 the consortiums and currently has 13 state DOTs. He distributed a summary of
6 Clear Roads projects. The Synthesis of Best Practices for Eliminating Fogging
7 and Icing on Winter Maintenance Vehicles was completed in September 2006 and
8 the final report is on their web site at www.clearroads.org/05-01antifogging.htm.
9 *Better Roads* magazine October 2006 has a feature-length article about the
10 project. Two other projects, “Calibration Accuracy of Manual and Ground-
11 Speed-Control Spreader” (anticipated completion October 2007) and
12 “Determining the Effectiveness of Deicing Materials and Procedures” (anticipated
13 completion August 2008) were discussed. RFPs for three new research projects,
14 “Cutting Edge Specifications and Testing”, “Deicing Chemical, Additive or Mix
15 Performance Standards”, and “Transportation Synthesis Reports on Winter
16 Maintenance Issues” will be distributed in late spring 2007. Dennis also
17 discussed their partnering projects, one of which is with AASHTO on the
18 development of addition CBTs on Equipment Maintenance is nearing completion,
19 Proper Plowing Techniques has storyboards complete, and Deicing has an outline
20 completed. The other two Blowing Snow Mitigation, and Policy Management
21 have not been started. Clear Roads is working with FHWA, PNS, Aurora and
22 AASHTO WMTSP to develop a National Snow and Ice Peer Exchange in August
23 2007 to be held in Columbus, Ohio and dedicated to information sharing and
24 research coordination among winter maintenance professionals. He also
25 described a National Winter Safety Campaign that Clear Roads is coordinating to
26 educate drivers about the importance of driving safely in winter conditions. He
27 handed out samples of the multimedia project with a slogan “Ice & Snow, Take It
28 Slow”. Clear Roads distributes a bi-monthly E-Newsletter that provides
29 summaries and links to the latest technical news and winter maintenance research
30 at www.clearroads.org/resources.htm.
31 • TRB Winter Maintenance Committee—John Burkhardt advised that Bill
32 Mahoney, a friend of the TRB Winter Maintenance Committee has authored a
33 research problem statement entitled, “Optimizing the Placement of Environmental
34 Sensor Station (ESS) Sensors for Diagnosing and Predicting Pavement
35 Condition” addressing the placement of RWIS sensors on the tower. This
36 research problem statement will be submitted by the TRB Winter Maintenance

1 Committee for consideration in the 2008 NCHRP program. John said the TRB
2 Committee on Winter Maintenance and the Task Force on Surface Transportation
3 Weather has a group also working on a National Peer Exchange to determine
4 winter weather research needs. John believes the National Snow and Ice Peer
5 Exchange that Dennis previously described will attract an audience that will be
6 experienced in winter operations and have much to offer for operational research
7 needs, while he would like to see a group of individuals who are capable of
8 examining the larger picture research needed to develop surface transportation
9 weather research needs for winter and summer operations. Rick suggested that it
10 might be appropriate to form that Peer Exchange in conjunction with the 2008
11 Snow and Weather Conferences being planned for Indianapolis. The proceedings
12 from the 3rd National Surface Transportation Weather Symposium will be very
13 helpful in defining the larger picture research since they will contain the visions,
14 challenges and directions from national leaders from the transportation,
15 meteorological, homeland security and commerce sectors. Dan suggested that we
16 should be finding five or six people experienced in these areas and invite them to
17 the Peer Exchange to build on whatever base we have in 2008.

- 18 • TRB Task Force on Surface Transportation Weather—the Task Force sponsored
19 two paper sessions (#422, “Vehicle Based Sensors for Weather Information” and
20 #474, “Weather Impacts on Surface Transportation”) at 2007 TRB Annual
21 Meeting. The Task Force is co-sponsoring with the Office of the Federal
22 Coordinator for Meteorological Services (OFCM) the 3rd National Surface
23 Transportation Weather Symposium, (tentative date July 25, 2007) in
24 Washington, DC. Sessions are being developed to review the progress that has
25 been made during the past seven years; discuss the perspectives, challenges and
26 opportunities to developing an interagency surface transportation weather
27 research plan; and examine the social and economic impacts and benefits of
28 surface transportation weather and climate information for planning and
29 operations decision making. The Task Force has developed and distributed a call
30 for abstracts for the 4th National Conference on Surface Transportation Weather to
31 be held in June 2008 in Indianapolis. The theme of this conference will be
32 “Improving Transportation Through Weather Information”. Abstracts are due
33 June 1, 2007. There is a conference call scheduled for April 20th with Chair Wilf
34 Nixon, Rich Wagoner & Rick Nelson (Co-Vice Chairs), Roemer Alfeloro
35 (Secretary) and TRB Group Chair Lee Smithson to examine the Task Force
36 mission and accomplishments and set the agenda for the remaining life of the

1 Task Force. The Task Force is also working on developing a Spot Light Session
2 for the 2008 TRB Annual meeting.

- 3 • American Public Works Association—Mark DeVries and Bret Hodne discussed
4 the upcoming 2007 APWA North American Snow Conference being held in St.
5 Paul, Minnesota, April 22-25, 2007. WMTSP members Wilf Nixon, Bret Hodne
6 and Dennis Burkheimer will be speaking at the Conference. Mark has been very
7 involved with the planning for the 2007 Conference and both he and Bret will be
8 serving on the committees for the APWA meetings in 2008 at Louisville, KY and
9 2009 at Des Moines, IA. Bret discussed the tremendous training need that should
10 be met and the need for certification. APWA has begun a “Click, Listen and
11 Learn” training system and wants to broaden it to include more subjects and other
12 units of government. APWA is working with the SALT Institute and using some
13 of their training. APWA Winter Maintenance Subcommittee wants to develop a
14 certification program for snow plow drivers. They are starting by reviewing any
15 existing certification programs to build on and also avoid competing with them.
16 Dan felt that a state DOT like Virginia would be interested in this APWA effort
17 since they contract for most of their services. Mark explained an APWA Snow
18 and Ice Award he has been working on. An agency explains on their application
19 how their methods are award winning methods or best practices. The goal is not
20 just being the best, but how those methods can help bring everyone else up to
21 higher standards. These Awards are presented each year at the APWA North
22 American Snow Conference.
- 23 • National Association of County Engineers—Greg Parker updated WMTSP on the
24 NACE Annual Conference being held in Milwaukee the next week.
- 25 • 12th Annual Eastern Snow Expo—planning and program development are well
26 underway for this Expo to be held in Columbus, Ohio August 29-30, 2007.
27 AASHTO has contracted for lodging and convention center exhibit hall and
28 meeting rooms. First mailings will be going to the state DOTs and local
29 governments in May. Marketing material has been developed and mailed to
30 prospective vendors. This material contains testimonials from vendors at last
31 years Expo on why they exhibit and sponsor the event. It also contains
32 information on the “new this year” Product Development Forum that follows the
33 National Snow and Ice Peer Exchange. Each vendor is allowed one person to
34 attend this forum and learn first hand what the Peer Exchange participants feel are
35 the priority research and development needs to meeting future snow and ice
36 control requirements. This will allow vendors an opportunity to interact with Peer

- 1 Exchange participants to ascertain their future product and service requirements.
- 2 • Surface Transportation Weather Conference—the primary purpose of the National
3 Surface Transportation Weather Conferences was discussed. Draft agenda and a
4 call for papers were distributed. The objective of holding these annual national
5 conferences is to provide a forum for sharing knowledge and experiences
6 regarding the use of weather information to improve surface transportation
7 management, operations and decision making. The July 25, 2007 Conference is
8 designed to engage top level national administrators in presentations and panel
9 discussions focusing on a theme of “Improving Commerce and Reducing
10 Deaths/Injuries Through Innovative Weather-Related R&D and Applications for
11 the Surface Transportation System”. The next Conference is being planned for
12 June 2008 in Indianapolis. The theme is “Improving Transportation Through
13 Weather Information”. The technical program will be built around a “Call for
14 Papers” that has been sent to transportation and weather information managers,
15 planners, analysts, researchers, application developers, and other practitioner from
16 public and private agencies who are engaged in developing or implementing
17 weather information products, technologies and services. The call focuses on six
18 areas: Weather Data Collection, Observation and Management; Weather
19 Modeling and Forecasting for Transportation Applications; Weather Information
20 Dissemination and Integration; Decision-Support Systems for Transportation;
21 Weather Impacts on all Surface Transportation Modes; and Performance
22 Measurements, Evaluation and Monitoring.
 - 23 • Other—In February 2007, the AASHTO Highway Subcommittee on Maintenance
24 (SCOM) and the Subcommittee on Systems Operation and Management (SSOM)
25 were asked to ballot their members and approve or disapprove adding a new
26 chapter, “Systems Operation and Management” to the *AASHTO Maintenance*
27 *Manual*. Both Subcommittees approved the ballot to add this material. However,
28 after Lee and Paul read the new Chapter, they felt some of the material presented
29 in Section 3.3 Weather Management Systems needed additional editing to make it
30 correct and current with the state-of-the-practice. WMTSP made those corrections
31 and approved presenting them to the joint meeting of the SCOM and SSOM in
32 July 2007. If WMTSP members determine additional changes are necessary, they
33 will get them to Lee before the July meeting.

34
35 **Project Review of SICOP Program**

- 36 • CBT Revisions & Developments—progress developing

- 1 ○ AI/RWIS CBT—storyboards to incorporate NCHRP 526, “Guidelines for
2 Snow and Ice Control Materials” and NCHRP 6-16, “Guidelines for the
3 Selection of Snow and Ice Control Materials to Mitigate Environmental
4 Impacts” are finished and all that remains is to link the electronic version
5 of 6-16 to storyboards. The electronic version is anticipated to be
6 available in May 2007.
- 7 ○ The five CBTs being developed in cooperation with the Clear Roads
8 Consortium are progressing as follows:
- 9 ▪ “Equipment Maintenance”—154 storyboards have been developed
10 and reviewed and edited by the Technical Working Group and are
11 ready for distribution. WMTSP discussed how to distribute the
12 new CBTs. Bret would like them in one package for APWA to
13 market the entire group. The disadvantage of that would be
14 waiting until all five units are finished, which will be sometime in
15 2008. The advantage of distributing the Equipment Maintenance
16 now is it would provide a sample to the pooled fund members and
17 provide them an opportunity to let us know what they liked and
18 what they would like improved or added in the subsequent units.
19 The feeling was to send a complimentary copy to the states that
20 didn’t participate in the pooled fund and offer them an opportunity
21 to join and receive the other four as they are finished.
- 22 ▪ “Proper Plowing Techniques”—179 storyboards have been
23 developed and are undergoing their second review and editing.
- 24 ▪ “Deicer”—CBT outline draft has been reviewed and approved by
25 the TWG.
- 26 ▪ Blowing and Drifting Snow—not started yet
- 27 ▪ Policy—not started yet
- 28 • Winter Maintenance Chemical Specifications—the purpose of this project is to
29 provide the winter maintenance community with current chemical specifications
30 and on-going research. This portion of the SICOP website was infected by a virus
31 and is being reconstructed by AASHTO. It is anticipated the website will be up
32 and running within the next month and will be maintained at the AASHTO
33 Headquarters. WMTSP members were asked to visit the new website (same
34 address as before www.sicop.net) and let Lee know of any errors or things to be
35 added or deleted.
- 36 • Vehicle Based Equipment Integration—this NCHRP project 20-7 Task 200,

1 “Synthesis of Vehicle Based Winter Maintenance Technologies” is finished and
2 the report distributed in paper copy. Dan will review the report and determine if
3 the matrix now on the SICOP website needs to be updated. Lee will contact
4 NCHRP for an electronic copy and post it on the SICOP website.

5 • Fixed Automated Spray Technology—the FAST technology was also a part of the
6 NCHRP project 20-7 Task 200 listed in the previous bullet. Lee will see if a link
7 can be added to the SICOP website to take a viewer directly to the FAST power
8 point presentation that was presented January 2007 to the TRB Winter
9 Maintenance Committee and now posted on their TRB Committee website. Dan
10 will check the matrix now on the SICOP website and determine if it needs to be
11 updated. Dan reported on the Colorado FAST project. The Colorado report is
12 available and needs to be posted on the SICOP website. Dan will follow up and
13 get the electronic version posted or get a link if it is posted elsewhere.

14 • ESS Guidelines Implementation/Evaluation—Roemer reported that FHWA is
15 now involved in a task to determine how well the guidelines are meeting the
16 needs of the transportation agencies, and identify the changes needed to make the
17 guidelines more useful and applicable in the field. The work is being conducted
18 by Cambridge Systematics and Mixon Hill Inc. Full implementation and
19 evaluation is being conducted in Michigan DOT at the Lake Superior Region
20 (kick-off meeting was held last week in Escanaba, Michigan) where they are
21 installing 30 stations primarily for winter maintenance use. An evaluation is
22 underway in Idaho DOT and New Hampshire DOT to determine how well the
23 guidelines match the recent placement of their sensors.

24 • Promote Anti-drifting Measures with Proactive Road Design Considerations—
25 Mike Lashmet was unable to attend the WMTSP due to the blizzard on April 14-
26 15, but sent the following quarterly status report:

27
28 Quarterly Status Report

29
30 Project Title: C-01-67: CADD Expert System for Blowing Snow
31 Project Manager: Joseph Doherty
32 Budget: \$588,750

33
34 **Project Output:** Software to allow passive snow control design utilizing NYSDOT’s Microstation
35 design standards.

36
37 **Desired Outcome:** That SUNY Buffalo delivers useful software and training to NYSDOT in the first
38 quarter of calendar year (2007). Depending on the level of success, the Department (and/or SUNY
39 Buffalo) may/may not approach AASHTO about offering the Snowman software for use by the greater
40 public works community.

41
42
43
44 **Project History**

Stage	Current Schedule	Date Accomplished
Funding Approved	1996 + -	
RFP Issued	1997 + -	Same
Contract Executed	Oct.15, 1997	
Project Completed	March 31, 2007	

1
2
3 **Project Status: 03/31/07**

4
5 Milestones Accomplished:

- 6
7 - The SNOWMAN software was essentially finalized by SUNY Buffalo with extensive input and testing
8 by Region 5 Design staff.
9 - A train-the-trainer session was held in Buffalo March 15 for NYSDOT CADD staff from across the state.
10 Dr. Ron Tabler (consultant), Dr. Stuart Chen and Mike Lamanna (both with SUNY Buffalo) presented the
11 background behind and the use of SNOWMAN. A DVD of this training session was produced.
12 - An outline of the final project report was submitted by Dr. Chen.
13 - A first draft of the SNOWMAN users' manual was completed.
14

15 Planned Activities:

16
17 Although the contract has officially ended as of 3/31/07, there will be a number of “close out” activities in
18 the next few weeks. The most significant will be:

- 19
20 - NYSDOT will work with SUNY Buffalo to finalize the remaining project documentation.
21 - SUNY Buffalo will submit the final project invoices to NYSDOT.
22 - Joe Doherty will finalize an Implementation Plan for the ongoing promotion and use of SNOWMAN.
23 - NYSDOT will process a separate purchase order to allow ongoing technical support to be provided by
24 Mike Lamanna (the prime SNOWMAN software developer) for a period of several months after the close
25 out of the SNOWMAN project contract with SUNY Buffalo.
26 - Outreach activities will be conducted by NYSDOT (targeting in-house staff) to promote the use of
27 SNOWMAN to support design and operations functions.
28 - Outreach activities will be conducted by SUNY Buffalo (targeting state, regional and national
29 organizations involved in design and winter maintenance activities) to promote the benefits of the
30 SNOWMAN software.

- 31
32 • Road Condition Information—Dan reported that Ohio and Virginia DOTs as well
33 as Ontario Ministry of Transportation are continuing their efforts to evaluate and
34 test friction measuring equipment. Friction varies depending on where the
35 measurement is taken, in or outside of the wheel path. Max reported he found the
36 same thing in his work so one needs to decide where the measurements need to be
37 taken to get the representative sample. Aurora has an on-going project 2007-02,
38 “Cold Weather Testing of the Halliday Road Grip Unit”, to help document the
39 variability and improve the reliability of friction measurements with a variety of
40 tire treads. If the project is successful the results need to be promoted for use in
41 traffic management operations and for use in performance measurements in
42 maintenance operations.

- 1 • Outreach to Local Government—Bret discussed the need for better follow
2 through to promote better and more consistent training. It would be good to roll
3 out training CD’s at events like snow roadeos or winter conferences. There is a
4 need to develop a speakers bureau such as the “Ice Warriors” that was developed
5 after the SHRP program was sun set. This speakers bureau would have expertise
6 to address a wide variety of winter maintenance subjects. LTAP needs to be
7 brought in as a member of the WMTSP Committee to help understand the training
8 gaps they see in local governments and help improve the consistency of APWA,
9 AASHTO and LTAP training materials. Bret and Lee will discuss this with Larry
10 Frevert, APWA President, when Larry is in Des Moines on May 21st to present
11 Bret with his “Top Ten Public Works Leaders of the Year Award”.
- 12 • Communications Standards & Winter Maintenance—Roemer discussed the white
13 paper FHWA prepared on Communications Standards and Winter Maintenance.
14 Dan Roosevelt gave some background about serving on the NTCIP 1204
15 Committee (National Transportation Communications for ITS Protocol,
16 Environmental Sensor Station Interface Standards) and noted that responsibility
17 was handed off to Curt Pape, MN DOT to serve on the committee. The winter
18 maintenance community needs to be represented on the 1204 committee as the
19 standards are being developed, but unless the person representing winter
20 maintenance operations has some background in the ITE and NEMA standards
21 development arena, the level of dialog gets very confusing. Version 3.0 of the
22 interface standard is currently being balloted so progress is occurring. Since the
23 AASHTO Subcommittee on Maintenance is meeting jointly in July with the
24 Subcommittee on Systems Operation and Management, WMTSP needs to explore
25 how we can best integrate winter maintenance in the standards development
26 process.
- 27 • Integrated ITS Corridor—Roemer reviewed the FHWA report, “Integration of
28 Emergency and Weather Elements into Transportation Management Centers”, at
29 website, www.ops.fhwa.dot.gov/weather/resources/publications/tcmintegration/index.htm.
30 FHWA is developing a self evaluation guide that a TMC can use for a needs
31 assessment. FHWA is preparing a study to determine how weather conditions
32 and weather related information affect travel behavior and will examine traffic
33 models to determine if weather is considered in traffic predication and network
34 modeling. WMTSP discussed how we might be able to help in promoting
35 proactive operations to the TMC since winter operations have been successful in
36 changing maintenance from reactive to proactive. It was felt that accurate

1 weather forecasts will be key to the gaining confidence of new users and the work
2 underway is well focused on determining the accuracy of forecasts and what
3 elements need more attention.

- 4 • Equipment & Facilities for RWIS/AI—WMTSP discussed that the webpage
5 needs to be updated, but the current information was lost when the website was
6 hacked. The AASHTO webmaster will try to retrieve the information after which
7 Dan and Wilf will recommend steps to take to update. At the last meeting the
8 issue of new equipment emission standards for dump trucks was brought forward.
9 Dan contacted Erle Potter, chair of the AASHTO HSCOM Equipment Focus
10 Group, concerning new emission standards information. He indicated the
11 AASHTO Equipment Reference Book is published annually and contains
12 guidance on meeting emissions standards. It is posted on the AASHTO Highway
13 Subcommittee on Maintenance Equipment Focus Group webpage at
14 [http://www.transportation.org/sites/maintenance/docs/AASHTO%20Equipment%
15 20Reference%20Book202006-2007%20Format.pdf](http://www.transportation.org/sites/maintenance/docs/AASHTO%20Equipment%20Reference%20Book202006-2007%20Format.pdf). A link will be posted on the
16 SICOP website. Dan also reported that Aurora has a number of sample RWIS
17 specifications posted on its website which the SICOP website needs to link to.
- 18 • Develop domestic scan—WMTSP discussed the need to develop a domestic scan
19 proposal. Need to determine what agencies are on the cutting edge and planning
20 for what should be accomplished in the next five years. Max said if Canada is
21 visited he can show us some of the best North American practices in salt
22 management and how Canada got uniformity in the Provinces. Bret and Mark
23 have examples of local governments that are leading the chemical blending
24 process. There was general agreement that performance measures should be a
25 focus and as measures are developed and implemented they will shift our focus to
26 looking at the outcomes. The scan should also include training and technology
27 transfer practices. One of the outcomes from the scan should be the formation of
28 a speakers bureau as was previously discussed in the “Outreach to Local
29 Government” agenda item (see pages 13-14 of these minutes). Lee will draft out
30 some ideas and circulate to WMTSP for consideration.
- 31 • Update 1999 AASHTO Guide for Snow and Ice Control—WMTSP discussed the
32 need to update the 1999 Guide. Use 20-7 funding and produce a searchable CD-
33 ROM in PDF so it can be posted to the SICOP web and printed as needed. Lee will
34 draft a request for 20-7 funding.
- 35 • Support 2007 National Snow & Ice Peer Exchange—a letter will be sent to each
36 state DOT inviting them to the Exchange. Travel expenses will be paid for one

1 person from each state (if funds are available consider paying for two from states
2 interested in sending more than one person or to round out areas of operations not
3 well represented). Funding of \$25,000 each has been contributed by FHWA,
4 Aurora and Clear Roads. AASHTO has contracted for the lodging and meeting
5 rooms. Outcomes from the Exchange will include identification of knowledge
6 gaps in winter maintenance and equipment improvements that need to be
7 developed. A Product Development Forum will be held in the afternoon of the
8 second day when Exchange attendees will meet with Eastern Snow Expo vendors
9 to discuss future product and service requirements needed to meet customer
10 expectations. Also ten to twelve state DOTs will present what they feel are their
11 best practices in winter maintenance.

- 12 • Develop best method practices NCHRP25-25(4)—discussed NCHRP 25-25,
13 “Research for the AASHTO Standing Committee on the Environment” and Task
14 29, “Best Practices from the Environmental Stewardship Practices in Construction
15 and Maintenance Compendium”. Carlos Braceras, Chair of the AASHTO
16 Highway Subcommittee on Maintenance asked Wayne Lupton, CO DOT and
17 Leader of the Task Force on Snow and Ice and Lee Smithson, AASHTO SICOP
18 Coordinator to form a Working Group for Task 29 and **create a process to**
19 **“mine”** Chapter 8, “Winter Operations and Salt, Sand, and Chemical
20 Management”, Section 8.3, “Strategic Planning for Reduced Salt Usage” of the
21 Compendium **for “best practices”**. The Working Group made up of Wayne
22 Lupton (CO DOT), Lee Wilkinson (IA DOT), Dennis Burkheimer (IA DOT),
23 Mike Lashmet (NY DOT), Lynn Bernhard (UT DOT), Don Miller (CO DOT),
24 and Lee Smithson (AASHTO) created an evaluation matrix with suggested
25 criteria of “beneficial”, “practical”, “cost-effective”, “cost to implement” and
26 “operationally sustainable” as the five basic questions that DOT management ask
27 when evaluating practices. The group then independently evaluated each strategic
28 planning effort listed in Section 8.3. Draft findings and recommendations were
29 sent to the NCHRP 25-25 Task 29 Steering Group for their consideration and
30 action.

31 32 **WMTSP Program**

- 33 • Presentation of New Projects—WMTSP did not present formally written or
34 formatted new projects, but instead had the following discussion on the projects
35 discussed during the meeting:
 - 36 ○ WMTSP needs to monitor progress on NCHRP 6-15, “Guidelines for

1 Testing and Calibrating Road Weather Information Systems (RWIS)
2 Sensors in Field Deployment” (see page 1, lines 30-35); Aurora Project
3 2006-02, “Pilot Test of ESS Sensor Testing Guidelines” (see page 1 line
4 36 to page 2 lines 1-15); FHWA “ESS Guidelines Implementation &
5 Evaluation” (page 12 lines 8-17); to insure adequate technology transfer is
6 accomplished, testing procedures are consistent with what operations
7 people will use, guidelines are practical and determine whether AASHTO
8 standards need to be developed. WMTSP also needs to support the
9 research problem statement “Optimizing the Placement of Environmental
10 Sensor Station (ESS) Sensors for Diagnosing and Predicting Pavement
11 Condition” that the TRB Winter Maintenance Committee will be
12 submitting for the 2008 NCHRP Program (page 7 lines 25-30). All three
13 of these projects are important to the surface transportation weather by
14 providing accurate and representative data for use in reporting real time
15 conditions and use in forecasting models.

- 16 ○ Dennis asked WMTSP to assist Clear Roads in establishing a National
17 Winter Safety Campaign (see minutes page 7 lines 19-22). Rick will take
18 the 511 Clear Roads material and ask Nevada’s 511 coordinator how he
19 would go about establishing the national campaign and report back to
20 WMTSP. There was concern that the 511 logo does not appear to have a
21 copyright or registered trademark. The logo might get altered and be a
22 source of confusion or might jeopardize the creditability of the Campaign.
23 Lee will follow up with AASHTO for any guidance they have.
- 24 ○ WMTSP needs to support the August 2007 National Snow and Ice Peer
25 Exchange (see minutes page 7 lines 16-19) and assist John in developing a
26 similar Peer Exchange in June 2008 (see minutes page 7 lines 32-36 and
27 page 8 lines 1-11)
- 28 ○ WMTSP needs to get LTAP actively involved in this program by
29 exploring having them as a member of the committee. The LTAP mission
30 is to serve all levels of government, state, county and city, but is usually
31 more focused on the local governments. However, their scope seems to
32 vary from state to state so there may be gaps or overlaps with AASHTO or
33 APWA that need to be identified (see minutes page 9 lines 3-17, and page
34 14 lines 1-5).
- 35 • Evaluation of Existing Projects—details covered in the minutes of each project, so
36 no further discussion was held.

- 1 • Evaluation of WMTSP Program
 - 2 ○ White paper—some edits and additions were made in the Vision 2007
 - 3 section. Lee will make those changes and post it on the SICOP web site
 - 4 ○ SICOP 4 Year Work Program—Lee will draft a progress report
 - 5 summarizing accomplishments in the SICOP 4 year program 2003-2007
 - 6 and the next 4 year program 2008-2012 and submit them to the WMTSP
 - 7 members for editing and approval. The 2003-2007 progress report will be
 - 8 submitted to the AASHTO HSCOM Snow and Ice Task Force in July
 - 9 2007 for their information. He will also draft the 2008-2012 SICOP 4
 - 10 year program and submit it to WMTSP for their editing and approval.
 - 11 This 4 year program will also be submitted to the Snow and Ice Task
 - 12 Force in July for their approval and approval of the Subcommittee.
- 13 • Budget Considerations—since Ken Kobetsky was unable to attend the meeting
- 14 account balances were not available for discussion. Lee reported that the 2006
- 15 request for funds to replenish the SICOP administrative budget was very
- 16 successful with a total of 34 states making their \$4,000 contribution. Bret was
- 17 going to contact APWA to get approval for AASHTO to invoice them for a
- 18 \$4,000 contribution. Greg was doing likewise for the NACE contribution.
- 19 Bret will also ask APWA to approve a \$5,000 contribution to be placed in the
- 20 CBT pooled for the development of the five additional CBTs being developed
- 21 (see minutes page 11 lines 3-21). APWA will be provided a license to market
- 22 these CBTs through their bookstore.

23
24
25 Draft minutes as of June 6, 2007