

**AASHTO Winter Maintenance Technical Service Program (WMTSP)
Snow and Ice Cooperative Program (SICOP) Pooled Fund
May 18, 2012 Review**

Background

The WMTSP/SICOP programs were developed in 1994 by AASHTO after the International Winter Technology Scanning Tour to Japan and Europe. The purpose was defined in AASHTO Administrative Resolution 3-94 which states: “In order to experiment with snow and ice control technology and systems not now in use in this nation, to determine their suitability to the United States and help introduce the use of those with most promise, the AASHTO Board of Directors endorses the concept of establishing a voluntary AASHTO Snow and Ice Pooled Fund Cooperative Program, under which testing by AASHTO Member Departments volunteering to sponsor and conduct tests can be supported financially with public sector funds voluntarily contributed by AASHTO Member Departments, Federal agencies, toll authorities, counties and cities.” Beyond the principal mission stated above, the program was directed to work towards establishing a sustainable systems approach to snow and ice control in the United States—one involving the vehicle, the driver, the equipment, the materials and practices, and the receiving environment. Energized with new operational technologies being used in Japan and Europe coupled with the research outcomes from the just concluded Strategic Highway Research Program (SHRP) the WMTSP was well positioned to guide the development and implementation of improved snow and ice control equipment, materials and practices, and enhanced work force development techniques. The result has been that many states and local governments have updated their equipment, retrained their workforce and changed their operations from a reactive snow and ice control program to a pro-active program. They are also using techniques for identifying and reducing the negative impacts to the receiving environment while improving highway safety, reliability and mobility.

Accomplishments

- Workforce Development Training Suites
 - Technology transfer and training were deemed the first steps in moving the existing workforce from a reactive snow and ice control program to pro-active operations. A suite of eight Computer Based Training (CBT) modules was developed to provide comprehensive training in all aspects of winter roadway maintenance for state and local governments. These CBTs were completed beginning in 2004 and updated in 2009-2010 to include new findings in NCHRP studies and latest best method practices. Thirty-five state DOTs, Federal Highway Administration, National Association of County Engineers, and American Public Works Association participated in the pooled fund to develop the CBTs. Beginning in 2005 a metric version of the CBTs was developed with funding from the Ontario Good Roads Association and three Canadian Provinces and the City of Calgary. A complete listing of the CBTs, their content and features can be found on the SICOP web http://www.transportation.org/sites/sicop/docs/CBT_Flyer_v2b%5B1%5D.pdf . Thirty five state DOTs contributed to the pooled fund for this project.
 - WMTSP received requests from several state DOTs to redevelop the CBTs so they could be easily updated, operate in a web browser and be in Shareable Content Object Reference Model (SCORM) compatible, enabling the CBT to launch from, and work with, the standard SCORM Learning Management System (LMS) they had in place in their training programs. A contract was signed in November 2010 for that redevelopment work. The work will be completed in fall 2012. Thirty state DOTs and the Aurora and Clear Roads consortiums have contributed to the pooled fund for this work.
- Winter Maintenance Equipment Innovations

- A new generation of highway maintenance equipment was needed to implement the research findings of the SHRP Anti-icing/RWIS projects. In 1995, WMTSP provided technical support to the state Departments of Transportation of Iowa, Michigan, and Minnesota as they formed a consortium to define this next generation equipment. The final report for that project can be found at website www.intrans.iastate.edu/reports/concept4.pdf . The concept vehicle project evaluated all the equipment innovations discovered on the 1994 International Winter Technology Scanning Tour and configured them to integrate on US made equipment. By 2004, according to input from a Midwest US equipment integrator, most state DOTs were ordering their new trucks equipped with all the functionalities listed in the Highway Maintenance Concept Vehicle Final report listed above, except the friction measuring and mobile-freeze point detection devices.
- WMTSP currently is continuing its efforts to locate both domestic and international private sector opportunities to develop and market these friction measuring and salinity testing technologies to optimize treatment strategies.
- National Winter Maintenance Peer Exchanges
 - As each state made its journey to pro-active snow and ice control operations, new equipment was being developed and field tested, new chemistry came into the marketplace, and new methods of technology transfer were implemented. While progress had been phenomenal, there was a need to bring state DOT snow and ice control experts and the private sector providing equipment and materials together to share information and network on snow and ice control related issues. There was also a need to bring research organizations into the discussion so they would fully understand where the communication, knowledge and technology gaps existed so strategies could be developed to bridge those gaps. WMTSP took the lead in organizing, contracting for facilities and meeting logistics and preparing the final report and research needs statements (RNS) for Winter Maintenance Peer Exchanges in 2007 (36 state DOTs attending), 2009 (30 state DOTs attending) and 2011 (41 state DOTs attending). WMTSP also conducted a survey prior to the 2011 Peer Exchange to determine how important the 2009 RNS were to their agency operations and also if they had additional unmet research needs to be considered at the 2011 Peer Exchange. 42 state DOTs responded which was a great help determining how well the efforts of the Peer Exchange were meeting the needs of each agency, determining their unmet research needs, and obtaining input from those who might not be able to attend the upcoming 2011 Exchange.
 - Progress for each RSN is recorded on spread sheets for each Peer Exchange. WMTSP organizes this progress and posts it to the Peer Exchange website at: <http://www.westerntransportationinstitute.org/professionaldevelopment/peer-exchange/default.aspx> .
- Communications with the Winter Maintenance Community
 - WMTSP created a subscriber-based list serve for the snow and community in 1996. It is an effective way to keep the community (state and local governments, contractors, vendors, etc.) connected and provides an useful way to share successes and solve problems that typically are being encountered for the first time and therefore do not have documented solutions to try. Currently over 800 public and private sector users have signed up and regularly use this service. Typically a posting for information has responses during the same day as posting. Many “thank you very much” have been received from those who were in need. The web site can be found at <http://www.transportation.org/default.aspx?siteid=88&pageid=2174> . The list-serve is also useful in communicating the publishing of NCHRP reports, Peer Exchange updates, meetings, etc.

Goals/Objectives

- Future Outlook Statement
 - Provide a world-class Winter Maintenance Technical Service Program
 - Identify, communicate, and facilitate the use of emerging winter maintenance research, technologies, materials, equipment & programs.
 - Expand workforce development and training opportunities by promoting the AASHTO's suite of eight CBTs in both CD-ROM and web-based applications.
 - Promote strategies for dealing with sustainability and climate change.
- Guiding and Focusing WMTSP
 - To accomplish the program objectives outlined in AASHTO AR-3-94, the WMTSP works collaboratively with Highway Subcommittee on Maintenance (HSCOM), Highway Safety and Reliability Technical Work Group (HS&R TWG). The WMTSP Four Year Program (2012-2015) approved at the July 16, 2011 WMTSP meeting and subsequently presented and accepted at the AASHTO HSCOM HS&R TWG meeting on July 17, 2011 is posted on the SICOP website www.sicop.net , click on Documents.
 - Emerging, critical and cross-cutting issues listed in the work plan
 - Performance management & performance measures
 - Workforce development
 - International & domestic best method practices
 - Integrating sustainability into winter operations
 - Projects, products, and liaison efforts are detailed in the four year work plan
 - Questions dealing with how to encourage involvement by all state DOT members were part of the focus of a HS&R TWG survey conducted in Spring 2012 by the WMTSP SICOP Coordinator. Survey participants submitted excellent strategies to involve state DOTs who can't travel to AASHTO meetings.

Financial Assessment

- List of States that contributed to the SICOP Program 6455 Annual \$4,000 Contribution
 - FY 2009=AK, AL, CO, CT, ID, IL, KS, MD, ME, MI, NC, ND, NY, OR, PA, TX, UT, VA, VT, & WI.
 - FY 2010=AK, AL AZ, CA, CO, GA, IA, ID, IL, KY, KS, MD, MI, MN, MO, ND, NH, NJ, OH, TN, TX, UT, WI, & WV.
 - FY 2011=AL, AZ, CA, CO, CT, GA, HI, IL, IN, KS, KY, MA, ME, MI, MN, MO, NC, ND, NH, NV, OH, OK, PA, SD, TN, TX, UT, WI, WV, & WY.
- List of States that contributed to the Computer-based Training Program 6456
 - FY 2009=MA
 - FY 2010=AZ, CA, DE, ID, IL, KS, MA, MD, ME, MI, MO, ND, NH, OH, OR, SD, TN, UT, VA, & WA.
 - FY 2011=AL, AZ, CA, CO, District of Columbia, DE, IA, ID, IL, KS, KY, LA, MA, MD, MN, MO, NH, NV, OH, OR, PA, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, & WY.
- Breakdown of how funds were spent:

SICOP 6455	7/1/08..6/30/09	7/1/09..6/30/10	7/1/10..6/30/11
Revenue	\$88,000	\$112,800	\$123,950
Expense			
Consultant	\$74,161	\$83,097	\$87,072
Travel	\$11,480	\$28,089	\$20,099
Administration	\$ 5,569	\$ 7,167	\$ 1,934
Other	\$ 6,981	\$ 5,565	\$ 1,298

AI/RWIS CBTs 6456			
Revenue	\$10,000	\$73,800	\$184,500
Expense			
Consultant	\$45,745	\$43,308	\$ 50,867
Travel	\$ 0	\$ 9	\$ 0

- Identification of needs, additional resources, and opportunities for funding
 - Needs—although significant progress has been made in implementing pro-active snow and ice control practices, additional effort is needed on “system concept” set forth in 1994 in AR-3-94 and solutions for the emerging, cross cutting issues associated with “sustainable transportation” in winter operations.
 - Additional resources—increased and enhanced collaboration with the international snow and ice community is needed.
 - Opportunities for funding—WMTSP members actively participate on boards and committees of TRB, Aurora, and Clear Roads, and have representation from FHWA at each of the WMTSP meetings to avoid duplication of efforts and leverage funding for research and implementation of findings.
- Benefit/Cost Analysis—three benefit/cost studies addressing total systems winter maintenance operations using the proactive technologies taught in the anti-icing and RWIS CBTs have been published:
 - NCHRP Project 20-07(117), *Benefit-Cost Study of RWIS and Anti-icing Technologies*, with most state DOTs reporting B/C ratios from 2:1 to 13:1
 - *Transportation Research Board Record No 2107*, March 2009, pp 95-103, produced approximately 17% savings in operational costs.
 - The Indiana DOT reported in *Maintenance Decision Support System: Statewide Implementation Final Report for FY09*, a savings of \$12.1 million in salt use and \$1.4 million in compensation for overtime by using MDSS in the 2008-2009 winter season.