

AASHTO Winter Maintenance Technical Service Program (WMTSP) Snow and Ice Cooperative Program (SICOP) Pooled Fund 2018 Triennial Review

Background

The WMTSP/SICOP program was created in 1994 by AASHTO as a result of an International Winter Technology Scan of Japan and Europe. The program is directed to work towards establishing a sustainable, systems approach to snow and ice control in the United States—involving the vehicle, the driver, the equipment, the materials and practices, and the receiving environment. With an eye toward new operational technologies being used around the world coupled with the research outcomes here in the US, SICOP is positioned to help guide the development and implementation of improved snow and ice control equipment, materials and practices, and enhanced work force development techniques. Throughout the life of SICOP many states and local governments have made improvements in their equipment, retrained their workforce and incorporated strategies and tactics to create a sustainable winter maintenance program improving highway safety, mobility and reliability of the transportation network while reducing negative impacts to the environment. SICOP will continue to deliver products beneficial to member states, assisting them in the delivery of their winter maintenance mission.

Accomplishments 2015-2018

The following is a partial list of SICOPs more significant accomplishments since SICOPs last triennial review during AASHTOs 2015 Spring Meeting.

Leadership – SICOP is one of three TSPs that belong to the Committee on Maintenance family. Program direction is provided by the Winter Maintenance Policy Coordinating Committee (WMPCC). Made up of individuals representing each AASHTO region, TRB, APWA, NACE, AASHTOs Committee on Transportation System Operations (CTSO), and FHWA this group represents all major winter maintenance groups and consortia. Significant change has occurred in membership during the last 3-year period. Steven Lund, MNDOT (Region 3) assumed the Chair and joining the WMPCC were Heath Patterson, MSDOT (Region 2), Caleb Dobbins, NHDOT (Region 1), Steve Cook, MIDOT (CTSO Liaison), and Matthew Morreim, City of St. Paul Public Works (APWA)

The 3-Year National Winter Maintenance Strategic Plan (NWMSP) - To become aligned with our triennial review cycle, the WMPCC developed and adopted the National Strategic Winter Maintenance Plan (NSWMP) to replace the past 4-Year Plan. Based on input from the winter maintenance community and prioritized by SICOP member states, 7 strategic issues were identified that make the core of the 2018-20 NWMSP. The Plan was adopted by the WMPCC on January 2018.

International Technology Transfer

- Steven Lund represents SICOP on the US National Committee of the World Road Association on the Winter Service Technical Committee serving as co-chair of the Transportation Management During Winter Events Technical Working Group. Through this appointment SICOP is positioned to observe and learn about international winter maintenance technologies and operational advancements as well as share accomplishments made in the US. For example, SICOP facilitated information exchange on sander standardization efforts in Europe, to stay abreast of liquid only route trials in Scotland, and public service campaigns in the US.
- The WMPCC participated in the planning and execution of TRBs quadrennial International Winter Maintenance and Surface Transportation Weather Conference (CO, 2016).

Education – WMPCC members conducted a seminar at the APWA Annual Congress (now the PWX) on “Long Term Thinking-Preparing For Winter”, AZ (2015). Maintenance of the Internet training suite on RWIS/Anti-icing continues.

Identify and Promote Winter Maintenance Technologies

- The WMPCC was represented on the NCHRP project panel for Project 14-24: Performance-Based Winter Maintenance: Developing a Toolkit of Measures, Standards, and Monitoring Tools. WMTSP participated on Aurora project 2010-03: “Results-Based Winter Road Maintenance Standards”.
- SICOP significantly contributed to the National Academy of Science consensus report “Integrating Social and Behavioral Sciences Within the Weather Enterprise” published in 2018.
- Being a clearinghouse for winter maintenance research and activities is an important element of SICOPs mission. WMPCC members participate and contribute to the work and research of many other consortia e.g. Aurora and Clear Roads as well as TRB committees and other AASHTO committees with intersecting interests in winter maintenance.
- SICOP co-sponsored the National Winter Maintenance Peer Exchanges held in MN (2015) and PA (2017) in cooperation with Aurora and Clear Roads.
- Looking for innovative ways for technology transfer, SICOP launched a podcast, “SICOP Talks Winter Ops”, to provide an avenue for experts in the winter maintenance community to share their experiences on specific topics. The initial offerings have focused on providing more information on the SICOP project “Top-10 Things For A World Class Winter Maintenance Program”; episodes are released on a 3-4 week frequency and available at <http://SICOPTalksWinterOps.com>, iTunes, and GooglePlay.
- Winter maintenance in the news and other general interest topics are made available through our Facebook page @aashtoSICOP.
- Maintenance of the Snow and Ice List Serve as a vehicle for the winter maintenance community to ask questions and exchange information continues.

Supported AASHTOs Committee on Maintenance (CoM), Maintenance Operations (MO) TWG, and other AASHTO committees included helping CoM leadership in the FHWA committee support transition, representing our member states at the CTSO meetings in PA (2015) and CO (2016), and hosted a 1-day Weather Workshop prior to the CTSO meeting in SD (2017). With the help of the CoM and the MOTWG we were successful securing a NCHRP project to refresh the AASHTO “Guide for Snow and Ice Control”.

Supported SICOP members states including representation at FHWA Road Weather Management Stakeholder meetings in GA (2016) and MN (2017) and their Regional Roundtable conference calls, presentations at Caltrans/UC Davis workshops on AVL (2016) and Corrosion Mitigation (2018), Nevada Transportation Conference (2016), the American Meteorological Society Forum (2015), and conducted a series of quick surveys to answer specific questions from member states on:

- Vehicle color of winter maintenance equipment
- Implementation of corrosion mitigation best practices
- AVL use in snow plows
- Winter driving public service campaigns
- Costs to acquire snow plows

Part 2: Goals/Objectives

Future Outlook

Providing mobility during winter storm events through an effective winter maintenance program will remain a critical mission for state DOTs throughout the US. SICOP continues to serve its member states with technical, operational, and informative resources.

Advancements in technologies utilized by road users like Connected and Automated Vehicles are making an impact on the winter maintenance landscape as well. The winter maintenance community worldwide is utilizing these and other technology developments to improve winter maintenance performance and the changing demands of the motorists. Increasing importance of sustainability, resilience, and the changing climate is influencing the evolution of winter maintenance strategies and techniques. SICOP is positioned to ensure the necessary research is conducted and member states are aware of these opportunities and have information necessary for implementation.

Guiding and Focusing WMTSP

To accomplish the program objectives outlined in AASHTO AR-3-94, SICOP works closely and collaboratively with the CoM and the MO TWG. The NSWMP (2018-2020) adopted by the WMPCC January 2018 provides a roadmap to guide SICOP activities for the next 3-year period. WMPCC members will champion each of the 7 strategic issues releasing products throughout the 3-year period.

SICOP will continue to utilize the National Winter Maintenance Peer exchanges, collaboration with the MO TWG, and participation on the PIARC Winter Service Technical Committee to identify emerging, critical and cross-cutting issues and technologies listed in the Plan. SICOP remains poised to contribute to the winter maintenance agenda of other consortia and organizations for the mutual benefit of our member states. Improving communications with member states remains a goal through the use of other mediums like webinars, podcasts, targeted emails and social media.

Part 3: Financial Assessment

States making the \$4,000 voluntary annual contribution to the SICOP Program (6455) were:

- FY 2015: AK, AZ, CO, CT, GA, IL, IA, KS, KY, MD, MI, MN, MO, MT, NV, NH, NJ, NM, NC, ND, OH, OK, OR, PA, RI, SD, TN, TX, UT, VT, WV, WI, WY
- FY 2016: AL, AZ, CA, CO, CT, DE, GA, IL, IA, KS, KY, MD, MI, MN, MS, MO, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, SD, TN, TX, UT, VT, WV, WI, WY
- FY 2017: AL, AZ, CO, CT, DE, GA, ID, IL, IN, IA, KY, ME, MD, MI, MN, MS, MO, NV, NH, NJ, NY, NC, ND, OH, OK, OR, PA, RI, SD, TN, UT, VT, WA, WV, WI, WY

Table 1 Financial Statement Summary

SICOP 6455	FY15	FY16	FY17
Revenue	132,000	140,000	156,00
Expense			
Salaries	3,290	2,094	1,291
Benefits	1,645	1,142	817
Travel	16,507	12,487	13,608
Professional Services	90,808	83,903	87,579
Supplies & Services	170	46	104
Overhead	3,139	2,535	1,689
Total Expense	115,559	102,207	105,088

AI/RWIS CBTs 6456	FY15	FY16	FY17
Revenue	50,000	3,750	0
Expense			
Consultant	93,043	3,735	0
Administration	0	402	983
Other	661	324	633
Total Expense	93,704	4,461	1,616

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” and resiliency in winter operations.
- Additional resources - Even with the increased footprint SICOP has developed through collaboration with the CoM and CTSO and social media, no increase in the \$4,000 voluntary contribution is required to sustain the program.
- Opportunities for funding - WMPCC members actively participate on boards and committees of TRB, Aurora, Clear Roads, and PIARC 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 - The utilization of technology in winter maintenance operations is rapidly advancing from the introduction of Road Weather Information Systems (RWIS), Maintenance Decision Support Systems (MDSS), and mobile road condition data systems. Several studies have demonstrated favorable benefit-cost results for these technologies. Combining technological advances with proactive response and trained workforce utilizing the RWIS/Anti-icing CBT yields very effective and efficient winter maintenance programs. Below is a brief selection of the benefit-cost studies:

- The WMTSP participated in the Strategic Highway Research Program Reliability focus area; particularly project L-07, which created a Design Guide for Addressing Non-recurrent Congestion and an Analysis Tool for Design Treatments to Address Non-recurrent Congestion. Insuring weather related design treatments to help mitigate the effects of weather on traffic; the spreadsheet-based design tool provides agencies a tool for estimating the effectiveness and comparative benefit/cost of weather related design treatments.
- RWIS remains an important element of winter maintenance practices, particular when used to support Maintenance Decision Support Systems (MDSS). A recent study published in March 2014 by Chien, et.al. for the New York State DOT titled “Road Weather Information System (RWIS) to Support NYSDOT Operations and MDSS Applications” showed that investments in RWIS sites can yield benefit cost ratios of 10.8 to 15.52
- A Benefit-Cost Analysis Toolkit for Road Weather Management Technologies completed in June 2013 for Clear Roads showed agency specific results of implementing RWIS in Iowa at 3.8 and RWIS along with MDSS in Indiana at 3.1