



National Strategic Winter Maintenance Plan 2018-2020

**Snow and Ice Pooled Fund Cooperative Program - SICOP
AASHTO's Winter Maintenance Technical Service Program**



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Adopted January 2018

Introduction

The Snow and Ice Pooled Fund Cooperative Program (SICOP) is AASHTO's Winter Maintenance Technical Service Program. It functions within a framework defined by the 3-Year National Strategic Winter Maintenance Plan ("Plan"). This Plan calls out strategic issues identified by member states that are important for the delivery of their winter maintenance mission. While the SICOP technical service program rarely funds research projects directly, the Winter Maintenance Policy Coordinating Committee (WMPCC), SICOP's steering committee, is tasked with identifying promising concepts and emerging technologies both internationally and domestically that will address the strategic initiatives in the Plan, ensure the necessary research is conducted to determine if they are suited to advance the state of the practice in winter maintenance, and if so, promote and assist in implementation.

Program Goals

AASHTO Administrative Resolution 3-94: Establishment of Winter Maintenance Program, laid the groundwork that created SICOP which evolved into AASHTO's Winter Maintenance Technical Service Program – SICOP. The program goals identified for this Winter Maintenance Program are:

1. Sustain or improve levels of winter maintenance service with significant cost/benefit improvements;
2. Provide an enhanced level of environmental protection; and
3. Increase the safety of driving under winter conditions.

In order to meet those goals there are several underpinning activities that occur with respect to all the strategic initiatives. These activities have been determined to be so fundamental they provide the foundation for the Plan.

- Build and maintain relationships with other AASHTO committees and entities interested in winter maintenance,
- Promote international and national research and assist in technology transfer,
- Promote international and domestic winter maintenance best methods,
- Provide technical assistance,
- Explore and integrate sustainability into winter operations, and
- Work to strengthen workforce development.

Strategic Approach

During 2015-2016 the winter maintenance community was canvassed to identify issues facing them regarding the delivery of their winter maintenance mission. Venues like the FHWA Road Weather Management Stakeholder meeting - Atlanta, GA, the National Winter Maintenance Peer Exchange – Minneapolis, MN, and the "Top-10" activities that constitute a world class winter maintenance program were utilized to compile an

initial list of strategic issues. This list was then submitted to the SICOP member states to identify their top-5 issues facing their winter maintenance program. The results were debated among the SICOP steering committee culminating in the selection of the strategic initiatives that make up this Plan.

The Plan is designed to run concurrently with the 3-year technical service program review cycle conducted by AASHTO leadership. This is a strategic document centered on pressing issues important to states participating in SICOP and provides focus areas for the next 3-year period through the strategic initiatives. The champions spearheading each strategic initiative are the key to the success of the Plan as they provide dimension and definition in how to approach the issue and the products to be produced. Throughout the life of the Plan the products produced will be promoted and shared with SICOP member states.

While each Strategic initiative stands on its own, synergies exist between many of them. As the work associated with each strategic initiative moves forward, those interrelationships will mature and take shape outlining the need for additional evaluation.

Strategic Initiatives

1: Explore optimal/adaptive snow plow route planning

Location of maintenance garages and plow routes have largely evolved over time. Newer equipment and strategies may have rendered historical routes sub-optimal. There are several commercial route optimization programs in existence that have been developed for municipalities and delivery companies. These, however, do not take into consideration the dynamic nature of snowplowing on roads with differing levels of service. In addition, not all roads perform similarly; some are warmer or colder than the norm leading to extra or minimal effort to reach a desired level of service.

2: Promote performance management for winter maintenance

Performance measures for winter maintenance operations are crucial for internal management as well as transparency for the public and elected officials. There are a wide array of measures, however, the highly variable nature of winter weather and many different methods to measure performance have complicated the acceptance of universal winter maintenance performance measures. In many cases improving winter performance will have a measurable impact in overall system performance.

3: Identify effective uses of Automated Vehicle Location (AVL) technologies for internal and external applications

Winter maintenance fleets have been instrumented for many years with Automated Vehicle Location (AVL) and Global Positioning System (GPS) technologies. These data are being utilized for fleet management and most recently as a tool for traveler information. Many opportunities exist to utilize data to improve performance and mobility during winter and technologies continue to evolve expanding their utility.

4: Examine Connected and Automated Vehicle (CAV) technologies utilized in winter maintenance

Connected and Autonomous Vehicle (CAV) technologies are being developed at a rapid pace. Winter maintenance fleets have been utilizing connected vehicle technology for some time through various AVL/GPS applications. Utilizing CAV technologies and mobile observations from other vehicles opens up opportunities to improve safety, mobility, and winter operations efficiency. Understanding the implications and applications of CAV technologies in winter maintenance will be key in moving forward.

5: Promote weather responsive traffic management to improve mobility and safety during weather events

Weather is a significant contributor to non-recurrent congestion. Congestion during winter operations complicates the delivery of services as well as increases the risk to motorists. Understanding and utilizing the opportunities associated with weather responsive traffic management technologies can improve network performance as well as winter maintenance operations at many levels.

6: Encourage liquid chemical use in winter operations

Utilization of liquid chemicals during winter operations have proven to be a valuable tool in winter operations. Pre-wetting solids and direct application of liquids can be effective in achieving desired levels of service under a variety of conditions from moderate to severe storms. Expanding the use of liquid chemicals through liquid only routes, the blending of chemicals to improve operating characteristics, and innovative methods for deploying liquids can make them more versatile.

7: Evaluate winter operations techniques for use in moderate weather zones to improve resiliency

Planning for and conducting operations in moderate weather zones is a difficult proposition. Balancing the need for specific equipment and materials against the probability of events and the range of events from snow/ice to flooding is a difficult proposition. Evaluating the applicability of various winter maintenance techniques and technologies can help in decision making.

Outputs

Throughout the three year period of the Plan several products will be produced for each of the strategic initiatives to help SICOP member states achieve their winter maintenance mission. These products can include white papers, surveys of best practice, webinars, presentations at various conferences and meetings, podcasts, and future research projects to name a few. At the conclusion of the three year period a final report will be created to document the progress made in each strategic initiative area and utilized during AASHTO's triennial review of their technical service programs.

In order to maintain the focus of the strategic initiatives the champions will, from time to time, reach out to the SICOP member states with progress reports and ask for additional input to guide their work.

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Or visit <https://sicop.transportation.org>