





Salt Management Strategy (SaMS)

Addressing Chloride Pollution from Winter Salts in Northern Virginia

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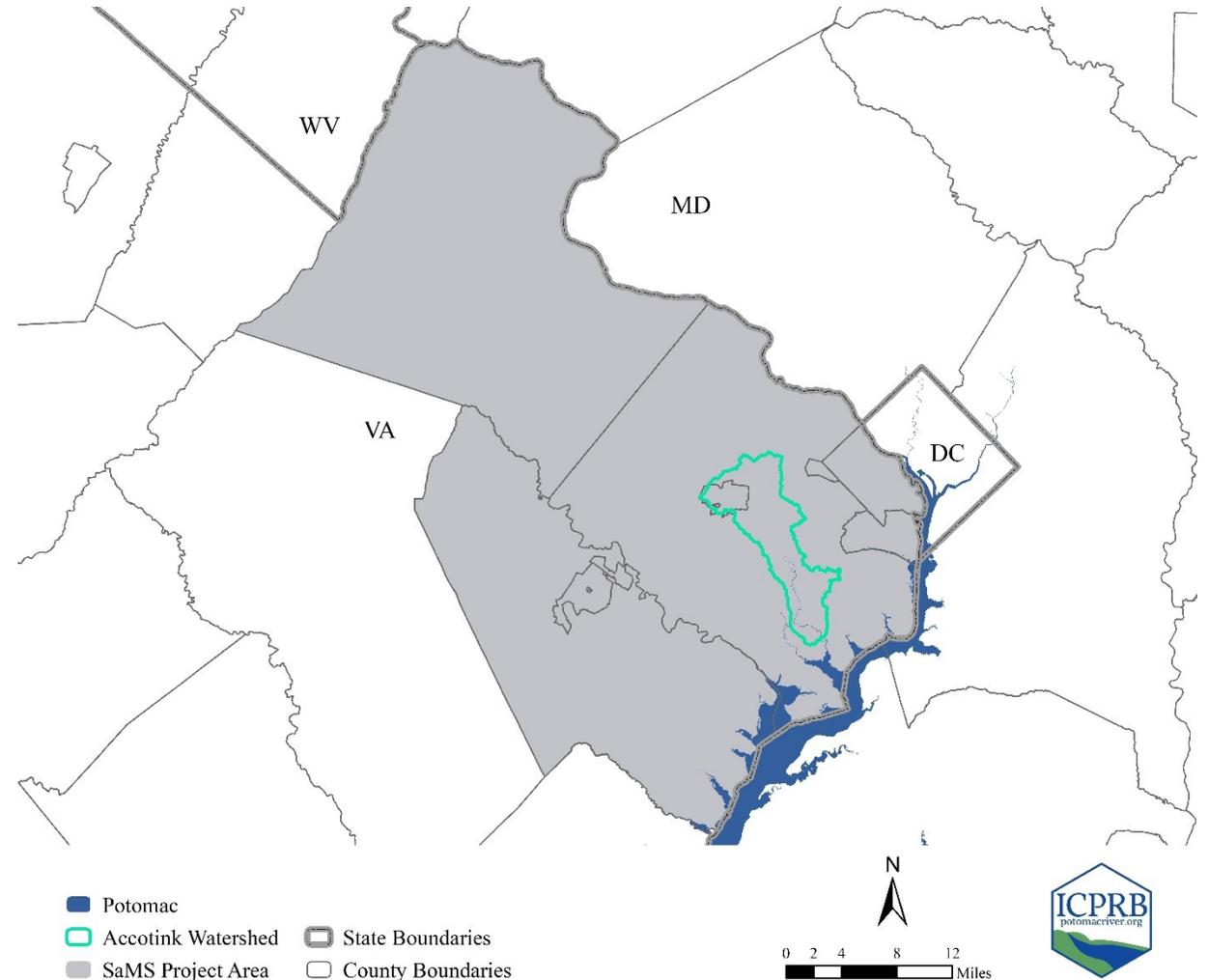
Accotink Creek TMDL: The Catalyst

- Impaired benthic macroinvertebrate community
- Total Maximum Daily Loads (TMDL) developed to address sediment and chloride
 - EPA approved in May 2018
- First chloride TMDL in VA that addresses this source type (e.g. winter salt)



Salt Management Strategy (SaMS)

- A broad, proactive and voluntary approach to develop solutions to minimize impacts while maintaining public safety
- A toolbox for multiple audiences
 - Optimize winter practices
 - Raise awareness
 - Monitor efforts
 - Adaptive implementation

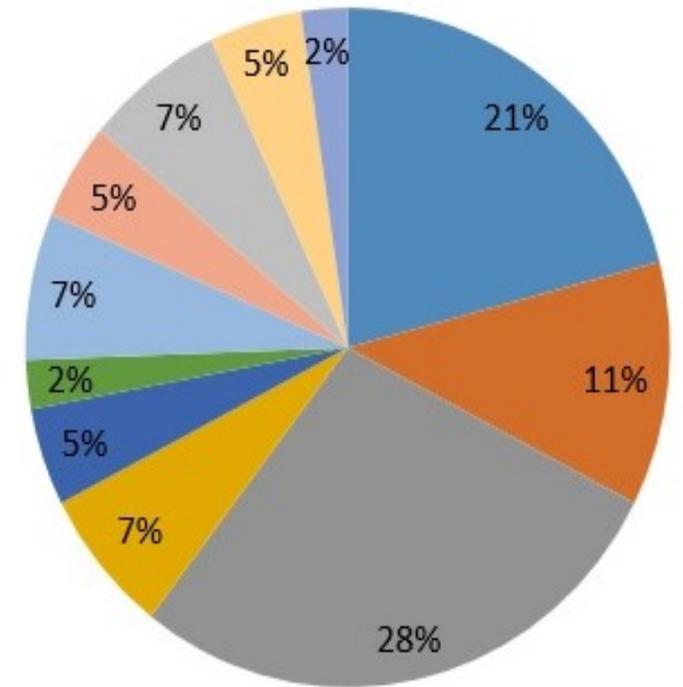


SaMS: Stakeholder-driven Development

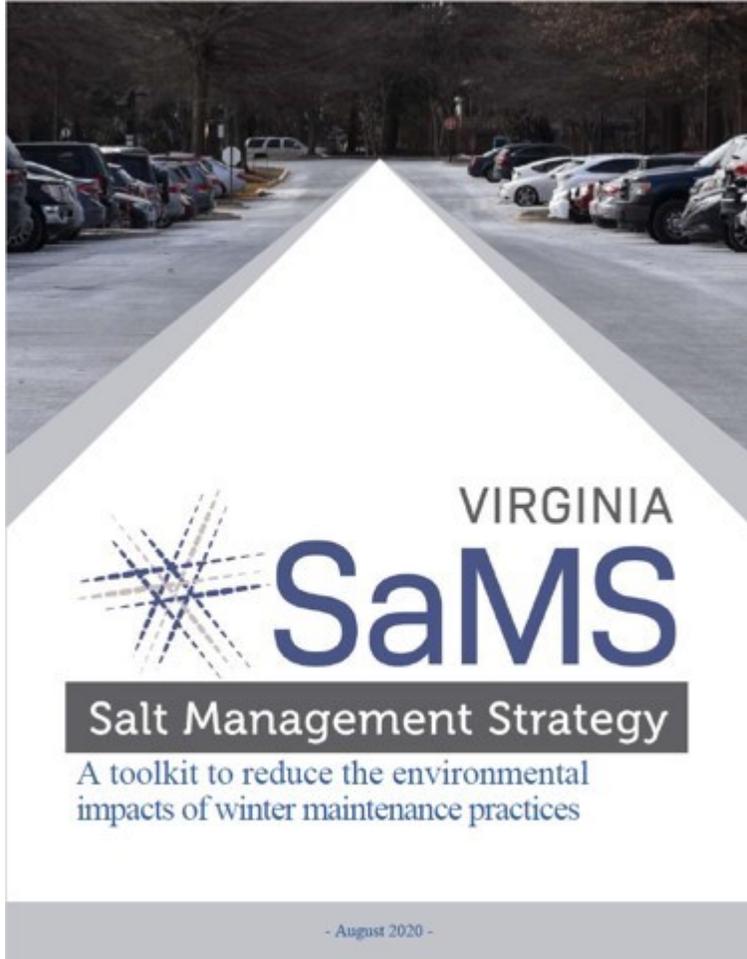
- Recommendations developed collaboratively and consensus-driven
- 43 entities represented by 63 individuals
- Participants include: VDOT, VA Dept. of Health, 2 (Two) Water Authorities, 4 (Four) Counties, 3 (Three) Cities, local NGOs



Stakeholder Advisory Committee Representation (by organization)



SaMS Toolkit: Best Practices and Recommendations



- Comprises winter maintenance best practices and recommendations
- “Toolkit”: Organizations can pick and chose best practices
- Addresses a variety of audiences:
 - Winter maintenance professionals
 - Researchers
 - Water quality monitoring groups
 - Local governments
 - General public
- Resource for voluntary as well as permitting programs

SaMS Toolkit: Content Overview

- Planning and Application Practices
- Tracking and Reporting
- Best Practices for the General Public
- Education and Outreach
- Water Quality Monitoring
- Funding Sources and Financial Considerations
- Inter-Governmental Coordination
- Future Recommendations and Research Needs
- Implementation



3 Planning and Application Practices

The SAC, through the efforts of the smaller workgroups, collected and analyzed practical solutions to address the detrimental impacts of salts used for winter road maintenance and resources regarding best practices, which are included in the Appendices. The term "practices" is used broadly and includes: operational program improvement processes, deicing product options, and Note, measuring and tracking of salt use is also a best practice. However, it is not addressed in its own section ([Section 4](#)).

To provide the reader a roadmap of this section, the contents are outlined below:

- [Section 3.1](#) details the audience considerations for this section, and subsections of interest.
- [Section 3.2](#) provides context for the status of operational BMP P improvement process for implementing winter maintenance BMP in [Appendix B](#) and [Appendix C](#), respectively.
- [Section 3.3](#) includes information on different deicing products, traditional salt products ([Section 3.3.2](#)), alternative products that recommended process for piloting new deicers and mixtures of deicer consider in future versions of the SaMS Toolkit related to deicer.
- [Section 3.4](#) addresses application rates, and provides the context process that is provided in whole in [Appendix D](#).
- [Section 3.5](#) provides the context for the information from [Appendix E](#) maintenance certification and training program.
- [Section 3.6](#) documents a recommendation to consider best practices contracting in future versions of the SaMS Toolkit.

3.1 Audience Considerations

The planning and application practices discussed in this section were designed with specific audiences in mind. Specifically, these audiences include winter maintenance professionals and decision makers like elected officials, government agency leaders, property managers, and other winter maintenance contracting organizations such as homeowners associations. However, all other audiences are encouraged to read through [Section 3](#) as it is important to understanding the challenges winter maintenance organizations face and the opportunities these organizations have for reducing their salt use. Because of the diversity of audiences within the winter maintenance profession and those that have influence over the profession, the section below discusses these various audiences.



9 Future Recommendations and Research Needs

During SaMS development, there were many concepts identified for future evaluation, research, and discussion. In most cases, these were concepts that did not receive enough workgroup discussion and vetting to warrant including in the SaMS Toolkit. Additionally, the workgroups explicitly identified the need for future toolkit updates and evaluations of existing resources and recommendations. A brief description of all future recommendations and research needs discussed throughout the SaMS Toolkit is consolidated in this section. Additional detail on each can be found in their respective toolkit section.



Unless otherwise identified, the recommended timeline to revisit and address these items is suggested to occur during the first recommended SaMS Implementation Assessment Forum. [Section 11](#) discusses the SaMS Implementation Assessment Forum, as it was envisioned at the time the SaMS Toolkit was completed.

Future Recommendations and Research Needs

- Planning and Application Practices ([Section 3](#))
 - Piloting/evaluating new alternative deicing products to identify whether effective and environmentally safe through future research is encouraged. ([Section 3.3.5](#))
 - During the first SaMS Assessment Forum, discussing adoption of a certification and training program approach for use in Northern Virginia. If such an approach is adopted by the SAC or similar body, strategies for encouraging certifications are recommended to be reviewed periodically by that body. ([Section 3.5](#))
 - Continuing discussions, led by the entity that assumes SaMS implementation, regarding improved property management contracts after experience is gained through SaMS implementation and review of other contract models from around the country (e.g., the [contract template developed by the City of Edina, Minnesota in late 2018](#)). Specifically, future evaluation should identify either a specific recommended contract model or certain components any property management contract for winter maintenance activities should contain to promote the use of best practices. ([Section 3.6](#))
- Tracking and Reporting ([Section 4](#))
 - Developing model forms for tracking and reporting product use and BMP implementation that are customizable for small private service providers, civic/homeowner associations, and other specific audiences. ([Section 4](#))
 - Evaluating opportunities to conduct regional scale reporting, analysis, peer learning, and to develop improved future communications. This effort relies on organizations voluntarily adopting more consistent tracking of product use and BMP implementation, such as the information recommended to be collected in [Appendix J](#). ([Section 4.5](#))

(Continued on the following page)

Table 2. Partnership opportunities and expected costs for storm related practices in the BMP Pros and Cons menu.

Storm Related BMPs	BMPs	Potential Cost ¹		Potential Cost Savings ^{1, 2}	Are there opportunities to partner between organizations?
		On Staff Time	Other Costs ³		
				High	No ⁴
				High	No
				Medium	Yes
				Medium	No
				High	No
				Medium	No
				Low	No
				Medium	No ⁴
				Medium	No ⁴
				Low	No ⁴
				Medium	No
				Medium	No
				Medium	No
				Medium	No
				Medium	No
				Medium	No

for the General Public

General public can participate and be "winter salt smart" to help strike a balance between the applied in their communities and neighborhoods. These include:

Use at their own residences that either do not use salt or promote efficient and effective use in their communities and neighborhoods through promoting use of best practices within they are members.

Regarding travel during and around storm events.

Their actions are ineffective or insignificant in addressing a wide-scale challenge, each and their combined actions lead to a larger effect when viewed from a regional perspective. Best practices for the general public, which includes best practices for individuals to use ([5.1](#)) and practices that commuters and drivers can use to help road maintenance crews be ([5.2](#)). More detailed information and educational resources related to these are detailed in [Appendix I – Section 5](#) and [Appendix I – Section 6](#).





Did you know...

Salt applied to paved surfaces during slick weather conditions helps keep us safe, and businesses and vital services open. However, after a snow event, salt residue lingers and impacts:



Public health:

Affecting those serviced by drinking water supplies with higher salt concentrations.



Infrastructure:

Corrosion and damage to roads, bridges, sidewalks and parking lots leads to higher maintenance and replacement costs.



The environment:

Increases in stream and groundwater salinity impact freshwater fish and other aquatic life.

VIRGINIA SaMS

Salt Management Strategy

WINTER SALT SMART

Help Virginia be Winter Salt Smart

Follow these winter safety tips to give snowplows the room and time to operate, allowing roads to get cleared more efficiently with appropriate salt application:



Stay home, avoid non-essential travel and telework if possible.



Plan travel times to avoid driving during and immediately after a storm.



If you *must* go out, take public transportation.



Wait to drive until road conditions improve.



Monitor weather closely, as forecasts can change quickly.



What to do during and after a storm?



Clear snow by shoveling early and often, and apply salt only where needed.



If the sun comes out and you can wait, let the sun do some of the work before you apply salt.

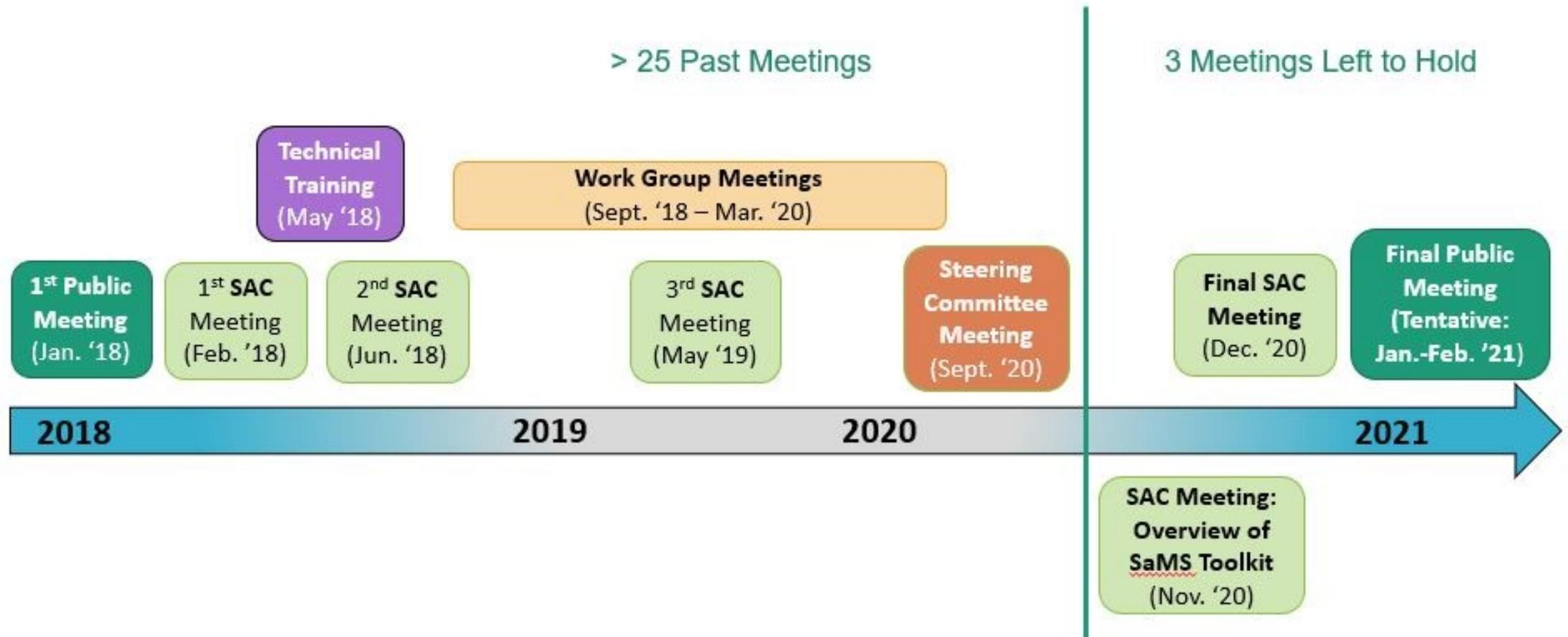


Apply salt after clearing snow. Never use salt to “burn off” snow. It will quickly dilute and requires more salt.



After the storm, sweep up the extra salt or traction material and use it again next time.

SaMS: Project Timeline



SaMS Implementation

- NVRC will coordinate initial implementation in 2021
- Voluntary implementation effort
 - Main incentive: potential for sizeable operational savings
- Permitting implementation effort
 - MS4 Permits
 - Toolkit as resource for permittees
- Proactive adoption has potential to avoid/reduce WQ impacts, avoiding need to list impairments that require additional TMDLs



County Salt Strategies

- Training
 - Calibration
 - Application
- Technology
 - Brine
 - Surface Temperatures
- Contracts
 - Pay by area not per ton
 - Closer Supervision
- Equipment

