Fairfax County Chloride TMDL and Salt Management Strategy (SAMS)

Department of Public Works and Environmental Services

Working for You!

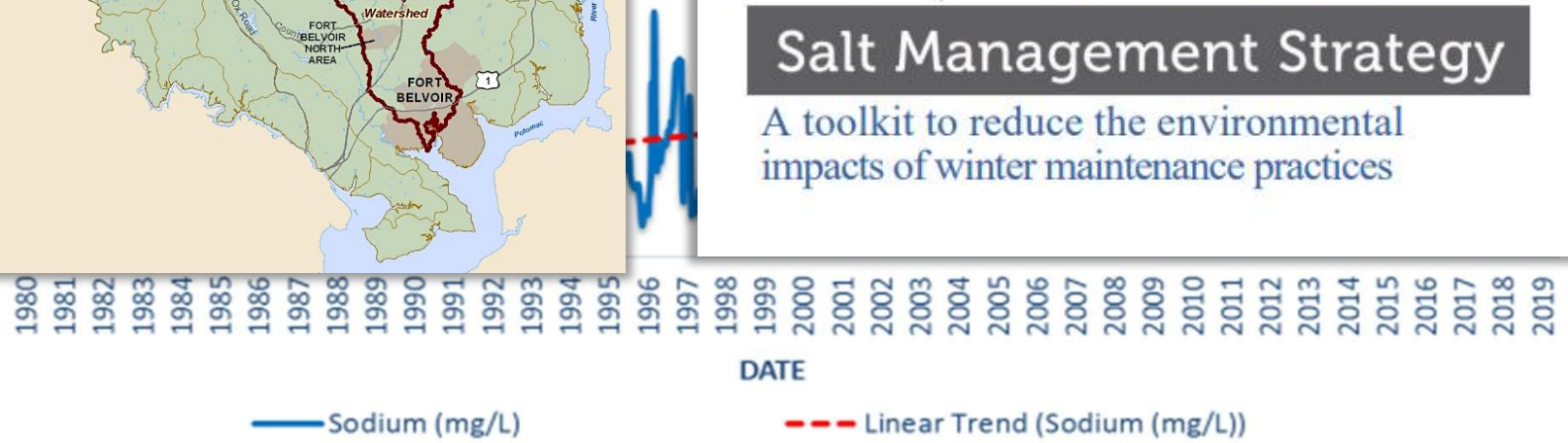
A Fairfax County, VA, publication

May 2026

Impacts to Drinking Water

Trends in sodium levels at the drinking water intake on the Occoquan Reservoir.

VIRGINIA SaMS
Salt Management Strategy
A toolkit to reduce the environmental impacts of winter maintenance practices

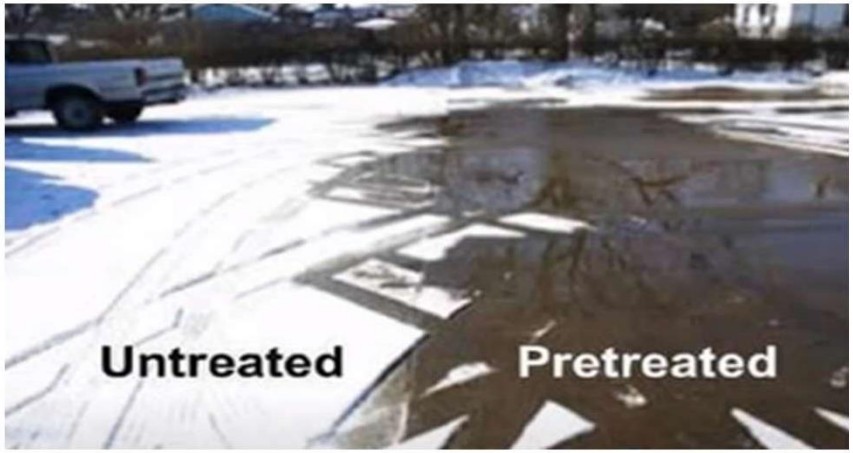


Facility and Equipment Updates

NEWS

April 14th, 2021

Fairfax County Salt Dome Projects Receive Building Design and Construction Award



When preparing for snow, Fairfax County, VDOT work to limit salt use

Angela Woolsey January 20, 2022 at 11:00am

Training and Calibration

WINTER MAINTENANCE TRAINING - SNOW AND ICE TRAINING

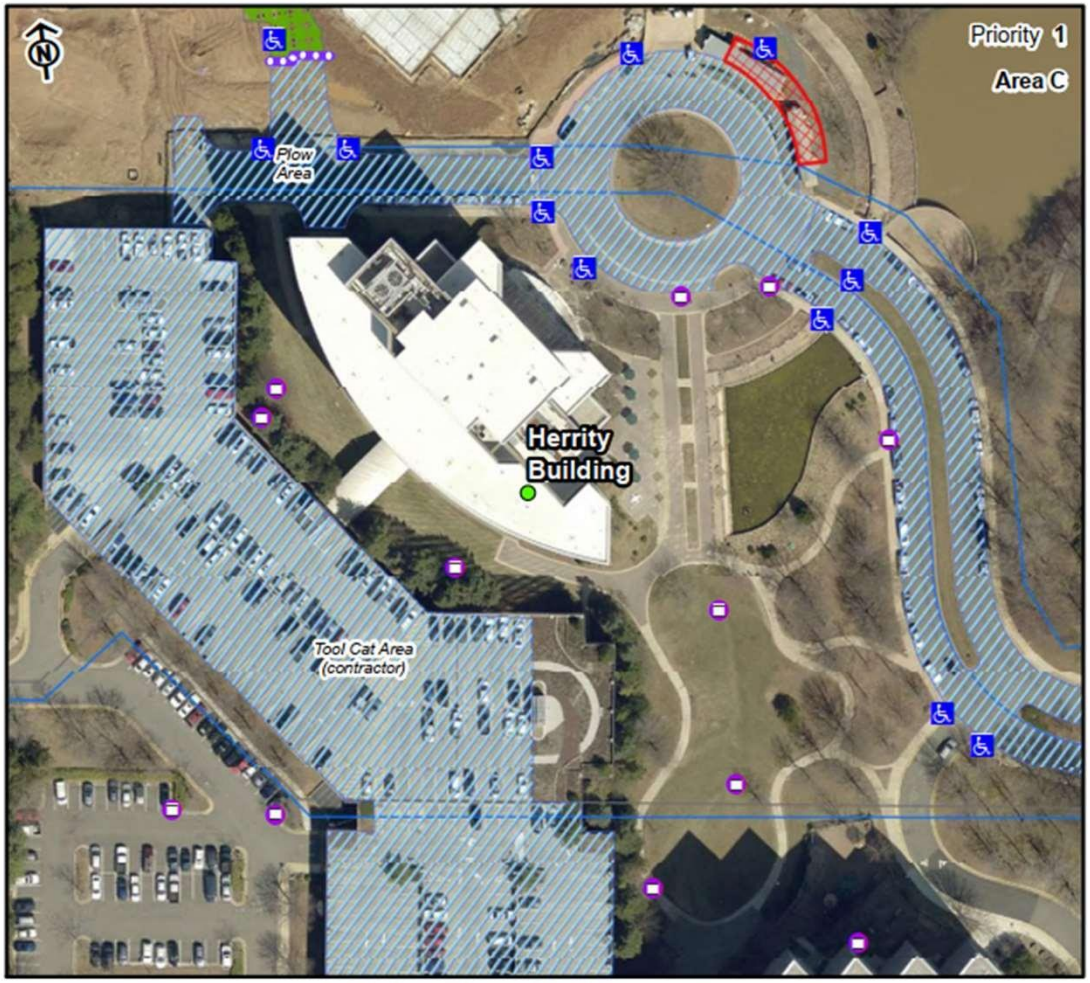
APWA NORTH AMERICAN SNOW CONFERENCE 2022 PITTSBURGH, PA

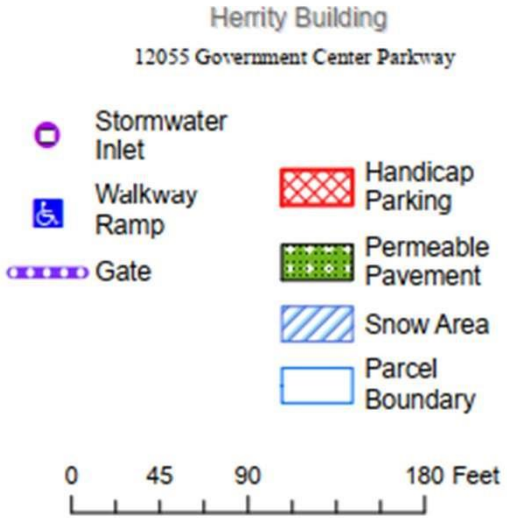
SNOW FLEET CALIBRATION ASSISTANCE AND CALIBRATION TRAIN-THE-TRAINER

Over-application

Correct application

Snow Book – Site Characterization





- **Highlight storm drains and special areas**
- **Quantifies areas treated**
- **Provide estimates / expectations for material use**

Tracking & Reporting – Material Usage

2018	• Seasonal Purchasing Records
2019	• Estimates based on vehicle capacity
2020	• Bucket Loader Scales
2021	• Accounting for unused materials
2022 2026	• Refining Usage (Site & Event-specific)

Tracking & Reporting – Asset Management

Site Reported:	Number of Staff	Activities / Activations	Deicer Use (Lbs)
Audrey Moore RECenter A2	4	12	4,430
Annandale - Facilities and Equipment Support, Hidden Oaks, Packard CenterA2	5	11	2,720
Oakmont REC Center and Golf Course A1	3	12	2,700
Providence REC CenterA1	3	12	2,630
South Run REC Center A4	2	7	2,050
Franconia REC Center A3	6	30	1,675
Lake Fairfax		7	1,225
Hidden PondA4		8	1,000
MobileCub Run RECe		1	1,000
Stoneybrooke - Stone Programs)A3		13	785
Mount Vernon REC C		19	775
MobileBurke Lake Go		1	750
George Washington F			660
Spring Hill REC Cente		4	550

Fiscal Year

- 2025
- 2026

Tracking & Reporting – Winter Events

Site Reported:	Year	Month	Day	Reported By:	Deicer Used (Lbs)
Lake Fairfax	2026	January	18	z, John	0
Lake Fairfax	2026	January	25	raves, Mart	350
Lake Fairfax	2026	January	26	raves, Mart	600
Lake Fairfax	2026	February	6		275
Total					**1,225**

Lake Fairfax Park, Reston

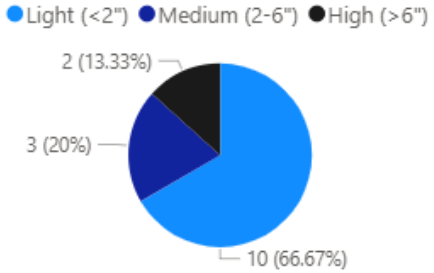
Spills & Over-application

Tracking & Reporting – Winter Events

MS4 Coordination

Salt Management Strategy - Chloride TMDL Action Planning - Winter Operations Tracking

Storm Intensities



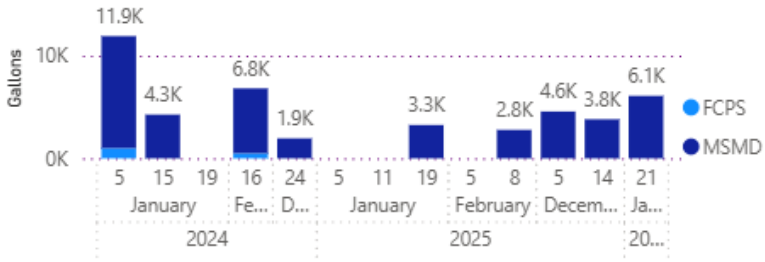
Fiscal Year

- 2021
- 2022
- 2023
- 2024
- 2025
- 2026

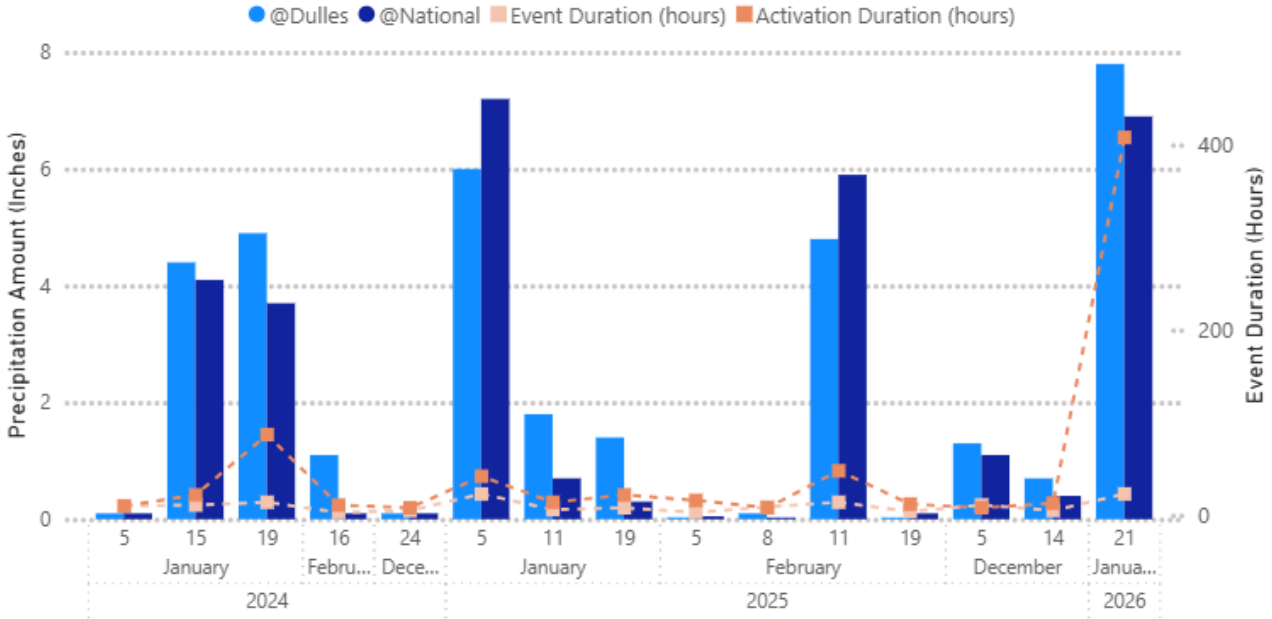
Forcasted Storm Conditions

Early Storm Conditions	Count
Start as Snow	11
Start as Freezing Rain	3
Start as Rain	1
Total	**15**

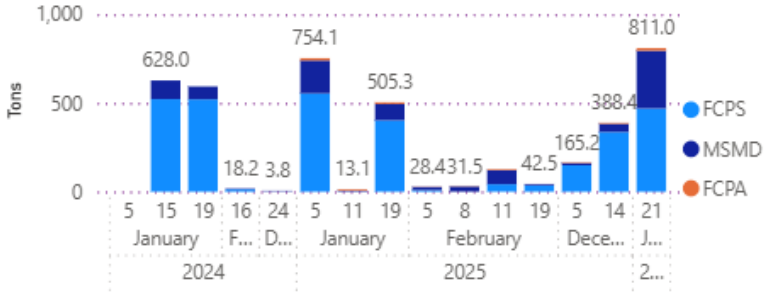
Brine Usage (Gals)



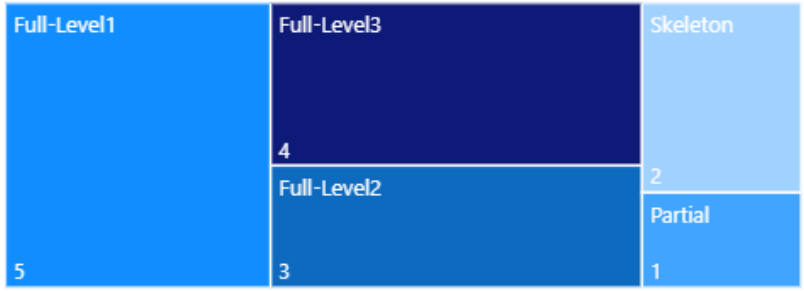
Winter Precipitation Amounts



Rock Salt Usage (Tons)



Activation Type



Updating Contract Language

Implementation of best practices should not reduce effectiveness or safe movement of persons and vehicles. Best practices include:

i. Use mechanical removal or anti-icing techniques, such as brining, as initial options before using deicers
ii. Responsible application of appropriate material at the proper amount and rate. (Appendix D -Page 146).
iii. Implementation of the correct procedure(s) for the temperature and conditions.
iv. Accurate, regular record keeping and data recording.
v. Responsible storage of deicing materials, salt, and snow.
vi. Regular calibration of equipment; at a minimum once annually
vii. Cleanup and proper disposal of any spilled salt as soon as possible.
viii. The Contractor may be required to adhere to tracking, reporting, documentation, practices, etc. outlined in the SaMS Toolkit (Appendix J- Page 253).

Monitoring and Assessment

USGS science for a changing world

USGS Home Contact

Fairfax County Water Resources Monitoring Network

Home | Study Overview | Partners | Maps | Data | Publications

Study Overview

Problem

In the past decade, hundreds of millions of dollars have been invested into the implementation of Best Management Practices (BMPs), with the explicit goal of improving water quality. Earlier research has demonstrated that these implemented BMPs are effective at the plot-scale and the field-scale; however, less information is available to document the effectiveness of these BMPs at the watershed scale - precisely the scale at which water-quality compliance and water-quality improvements are typically judged. Because of the costs associated with the implementation of these BMPs, federal, state, and local agencies are asking:

1. Are the implementation activities working?
2. How long will it take for the BMPs to work?
3. Are there more time-efficient, cost-effective methods for detecting these improvements?

Answers are needed to these questions to support the development of watershed implementation plans, to motivate BMP implementation by stakeholders, and to ensure the vitality of the cost-share programs that have supplemented the cost of implementing these BMPs.

Objectives

Develop and initiate a water-resources monitoring network within Fairfax County to describe surface-water quantity and quality in numerous County streams. The data collection will be designed to provide a long-term record that can be used to address two fundamental objectives...

Objective 1. Develop four integrated water-resources monitoring stations throughout the County that can be used to describe current conditions and trends in both water quality and water quantity. These water-resources data also will be used to compute loads in water-quality constituents, such as sediment and nutrients. Finally, these data will be used to evaluate water-quality improvements that are associated with BMP implementation activities.

Objective 2. Evaluate the transferability of the results from the intensive water-resources monitoring stations to other watersheds. After determining the water-quality improvements that have occurred in the intensively monitored watersheds, evaluate whether the interpretations developed in these intensively monitored basins are consistent with trends and patterns in other less-intensively monitored (partial-record) watersheds. These partial-record trend sites will have slightly varied basin characteristics as the intensively monitored watersheds and will likely have differing amounts of BMP implementation activities.

Addition of major ions to sampling programs:

- Calcium
- Sodium
- Potassium
- Magnesium
- Chloride

Education, Outreach, Intergovernmental Coordination

Board of Supervisors Environmental Committee Meeting: Feb. 15, 2022

Share

Public Meetings

2/15/2022 11:00 am to 2/15/2022 12:30 pm

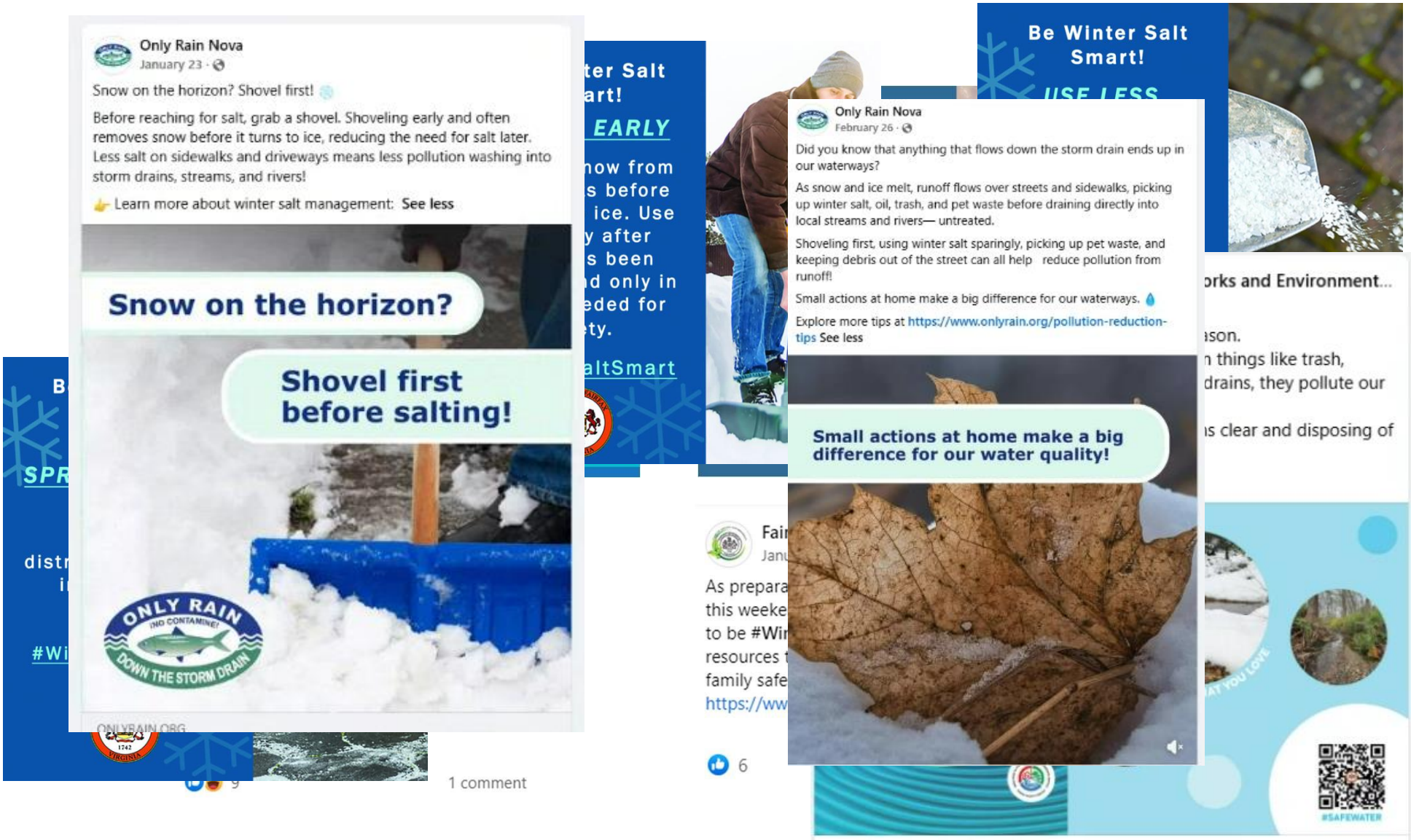
Event Description

The Board of Supervisors Environmental Committee is scheduled to meet at 11:00 a.m. on Feb. 15, 2022 in the Board Auditorium of the Fairfax County Government Center.

MEETING MATERIALS

- **Item 6 - Quarterly Review of Environment and Energy NIPs**
  - Maryland EV Incentives NIP
  - Vehicle Emissions Standards NIP
  - Fairfax Green Initiatives NIP
  - CECAP Implementation NIP
  - Chloride TMDL and Salt Management Strategy NIP

Education & Outreach



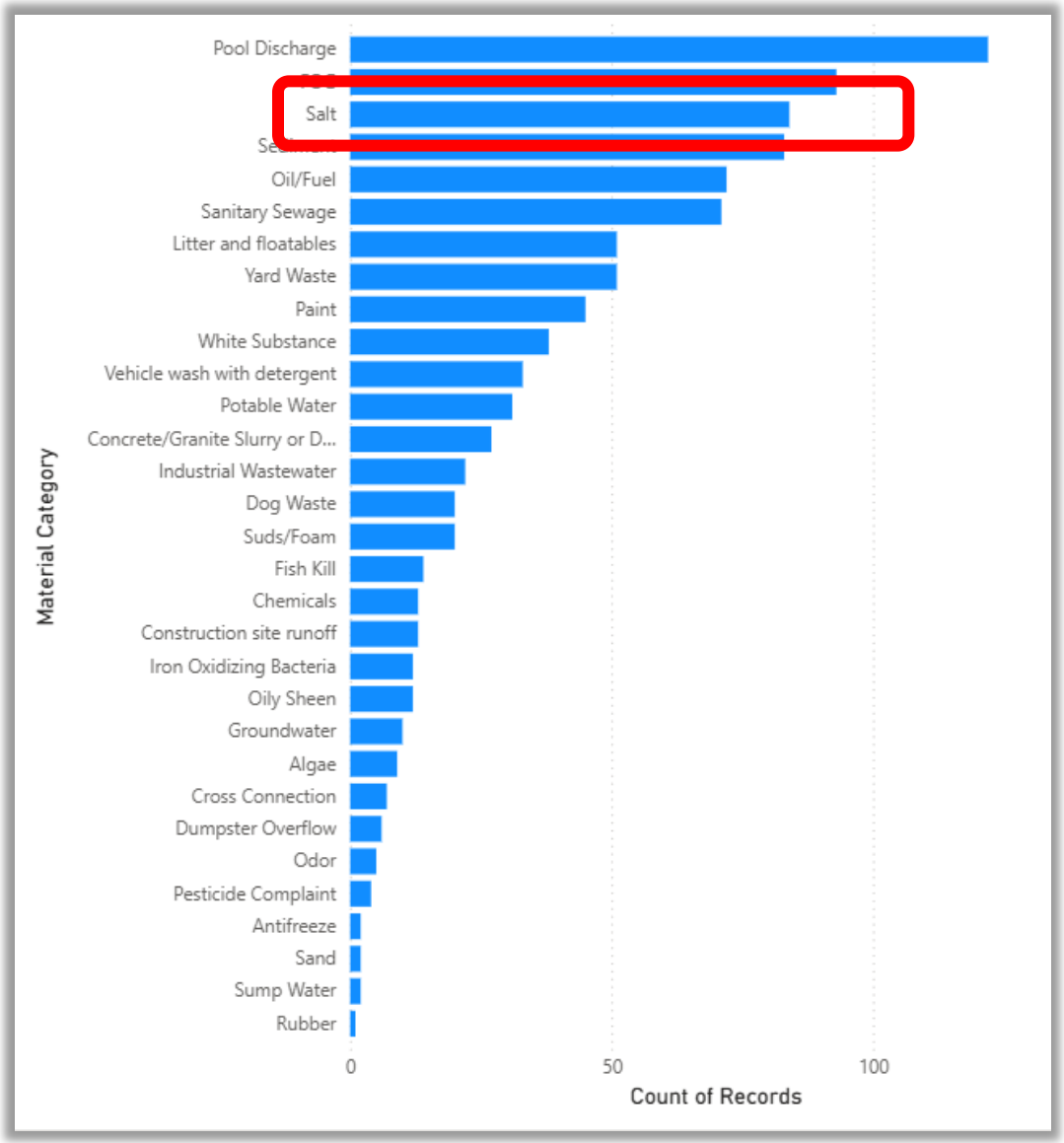
Education & Outreach

Audience: Property Managers of Private / Commercial Parking Lots

Education & Outreach

Compliance Assistance

Stormwater Pollution Inspection Team



Education & Outreach

Salt and Sand Piles
Storage Guidance

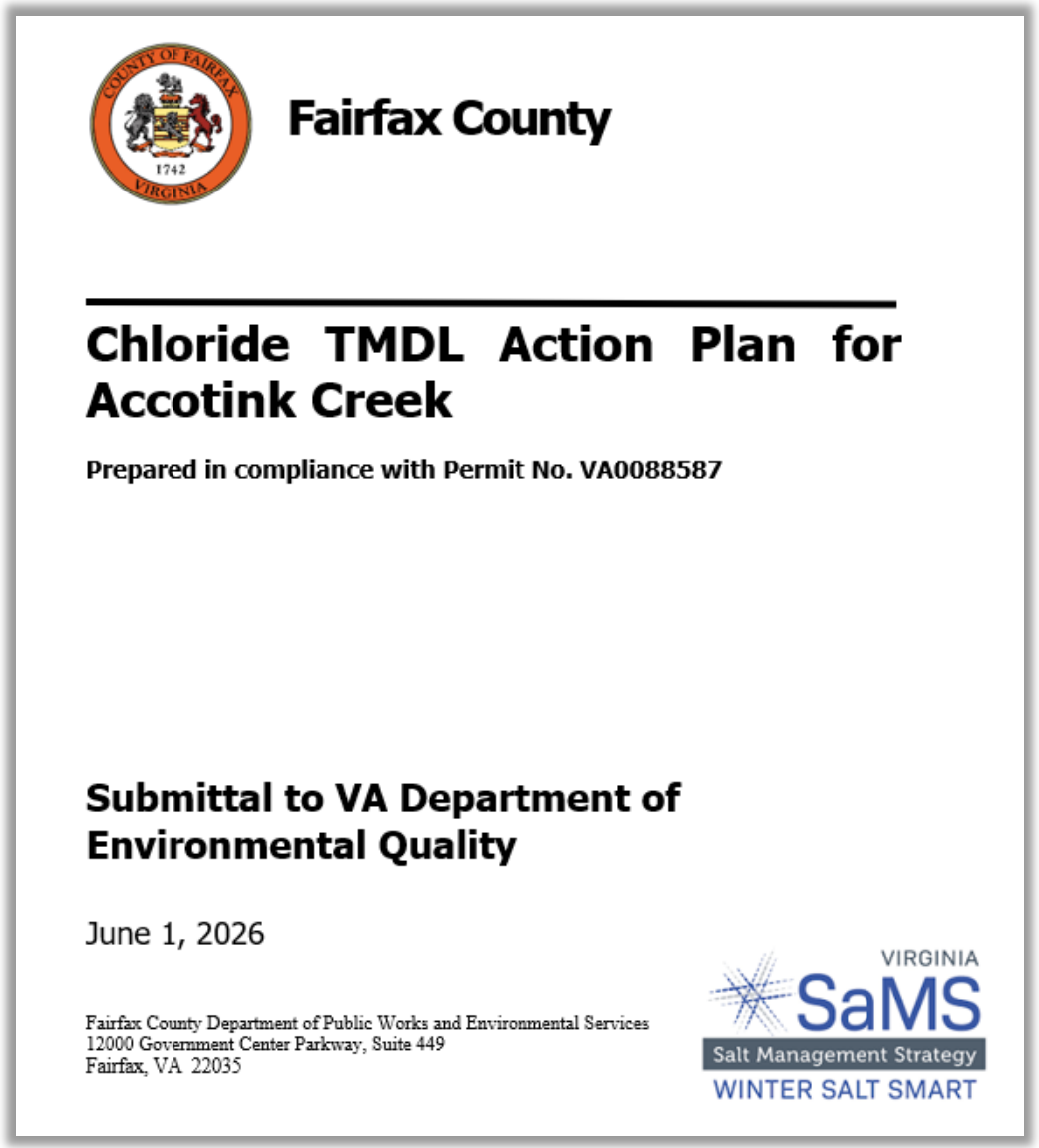
Business and property owners who plan to store loose or bagged salt or sand outside may not know that improper storage may harm the environment, destroy natural habitats and pollute the Chesapeake Bay.

Salt contains chloride, which is toxic to aquatic and plant life. It corrodes equipment and damages infrastructure. Salt also contains sodium which, once it enters our waterways, is not removed by wastewater treatment or even drinking water treatment processes. Salinization of the nation's waters is a growing concern and regulatory efforts are currently underway to reduce salt inputs to the environment.

Improper salt storage due to lack of containment

Sand-laden runoff from developed areas clogs storm drains, degrades aquatic environments, and harms aquatic life.

Additional Perspective & Next Steps



Fairfax County

Chloride TMDL Action Plan for Accotink Creek

Prepared in compliance with Permit No. VA0088587

Submittal to VA Department of Environmental Quality

June 1, 2026

Fairfax County Department of Public Works and Environmental Services
12000 Government Center Parkway, Suite 449
Fairfax, VA 22035

VIRGINIA SaMS
Salt Management Strategy
WINTER SALT SMART

Additional Perspective & Next Steps

Fairfax County Snow and Deicer Management Policy
(*Draft*)

A. Statement of Policy
This policy establishes standards for snow and ice control operations at County facilities to provide for safe and passable conditions for pedestrians and motorists during winter weather events while minimizing adverse impacts to stormwater and local waterways. This policy supports emergency response services as well as compliance with the Virginia Pollutant Discharge Elimination System (VPDES) Municipal Separate Storm Sewer System (MS4) Permit requirements.

The County shall establish and adhere to standards for snow plowing and deicer application that minimize the discharge of pollutants to the maximum extent practicable. All activities shall implement pollution prevention and good housekeeping practices for municipal operations.

B. Application
This policy applies to all County agencies involved in snow and ice operations. Agencies are responsible for implementing this policy and ensuring that staff and contractors understand and follow these requirements.

C. Level of Service Established
The County will pursue a level of service for snow and ice control that seeks to:

- Maintain safe and passable conditions at County facilities for pedestrians, motorists, and schools;
- Support timely emergency response operations;
- Minimize the discharge of pollutants, including chlorides and other deicing-related pollutants, to stormwater and local waterways to the maximum extent practicable; and
- Comply with applicable requirements of the VPDES MS4 Permit and related Total Maximum Daily Load (TMDL) Action Plans.

This level of service will be achieved through the adoption and implementation of procedures, plans, and standard operating procedures (SOPs) governing snow and ice control operations, material selection, storage, application, and cleanup.

D. Objectives of Snow and Ice Control Operations

Fairfax County and the Northern Virginia Salt Management Strategy

Tracking Implementation

Category	2018	2019-2020	2021-2022	2022-2023	2023-2024	2025-2026	2025-2026 Comment
Level of Service	Good	Good	Good	Good	Good	Good	Review, update, draft County-wide plan
Training / Certification	Fair	Trending Good	Good	Good	Good	Good	Request Winter Ops Contractors to view NVRC Training Video on Yout
Equipment Calibration	Fair	Trending Good	Good	Good	Good	Good	Consistent & Coordinated Calibration Process.
Site Characterization	Fair	Trending Good	Trending Good	Trending Good	Good	Good	Completed.
Operations Plan	Fair	Fair	Trending Good	Trending Good	Trending Good	Good	Snow Plan Updated. SOPs consolidated and reviewed. County Policy d
Quality Assurance	Fair	Fair	Fair	Trending Good	Trending Good	Good	Chloride TMDL Action Plan completed, includes QA
Salt Usage Documentation	Fair	Fair	Trending Good	Trending Good	Trending Good	Good	Tracking Dashboard Implemented. Asset Management System / Yeti i
Material Storage	Fair	Trending Good	Trending Good	Trending Good	Trending Good	Trending Good	FCPS Woodson Facility Design Completed
Tracking and Reporting	Poor	Fair	Trending Good	Good	Good	Good	Formalized metrics to be documented in county-wide chloride usage p
Education & Outreach	Poor	Fair	Trending Good	Trending Good	Good	Good	Materials will be finalized and referenced by TMDL Action Plan.
Snow Contracts	Poor	Poor	Trending Fair	Trending Fair	Fair	Trending Good	Working with DMB and contract managers
Monitoring	Poor	Poor	Trending Fair	Fair	Trending Good	Good	Monitoring underway. Planning for additional studies.

Additional Information

For additional information, please contact

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571-635-6189

www.fairfaxcounty.gov/dpwes