

Fairfax County Chloride TMDL and Salt Management Strategy (SAMS)

Department of Public Works and Environmental Services
Working for You!

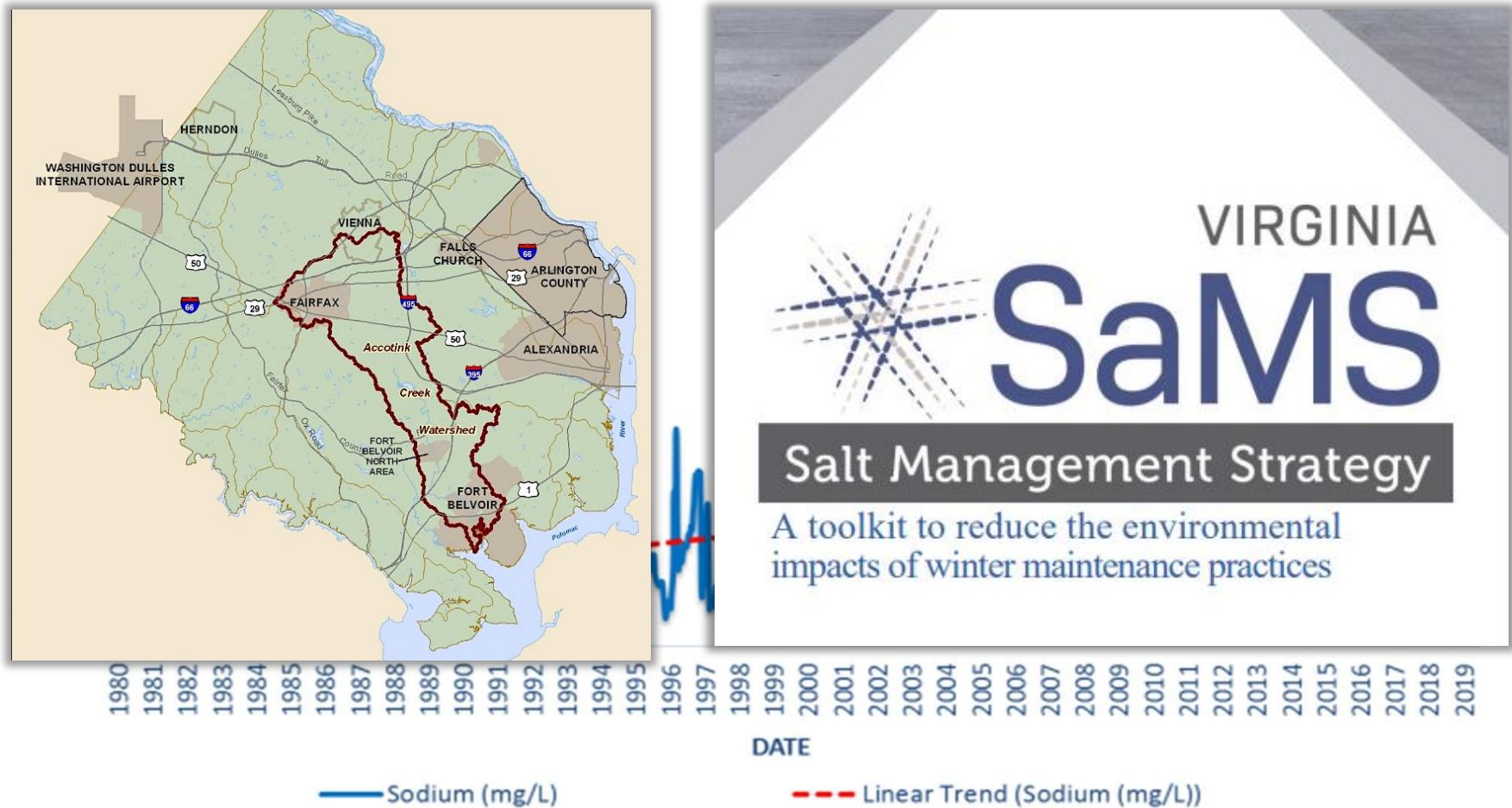


A Fairfax County, VA, publication
May 2026

Fairfax County and the Northern Virginia Salt Management Strategy

Impacts to Drinking Water

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



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

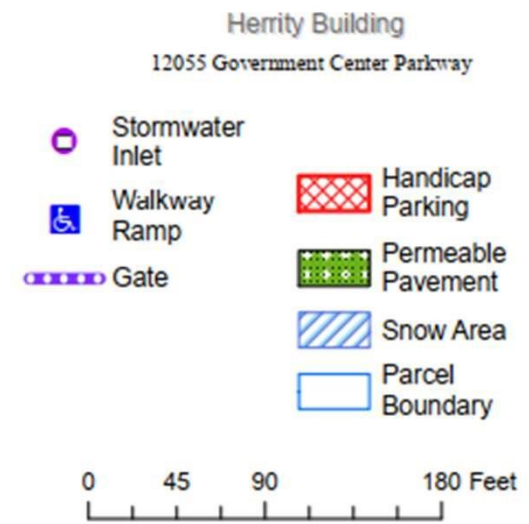
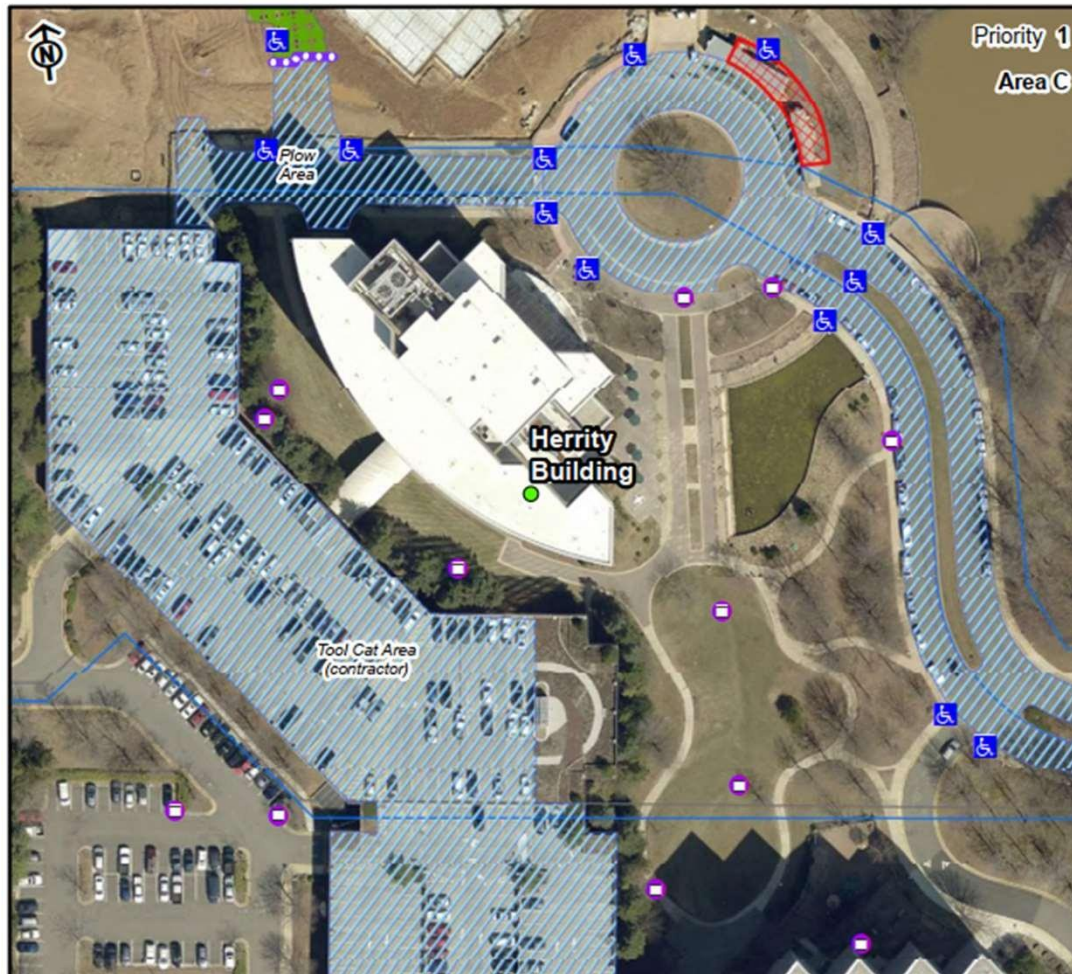


Over-application



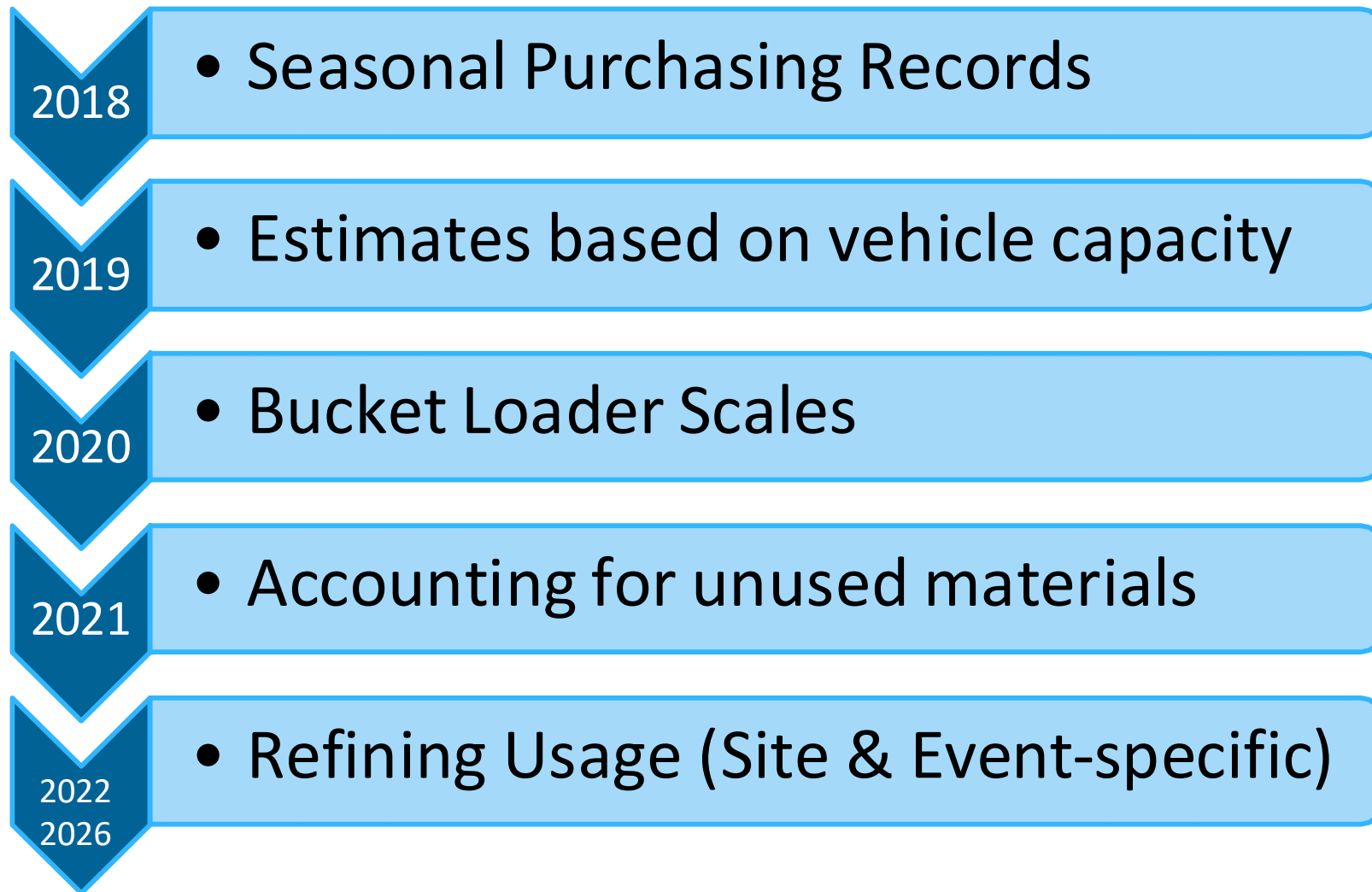
Correct application

Snow Book – Site Characterization



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

Tracking & Reporting – Material Usage



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		FCPA DD	660
Spring Hill REC Cente		4	550

Fiscal Year
 ∨ 2025
 ∨ 2026

- Copy >
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- Group



Tracking & Reporting – Winter Events

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



Lake Fairfax Park, Reston

Spills & Over-application

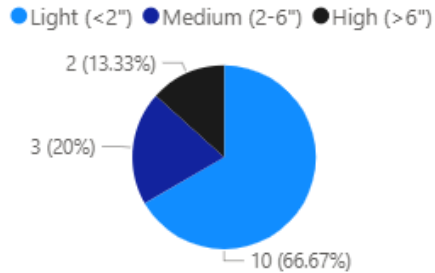


Tracking & Reporting – Winter Events

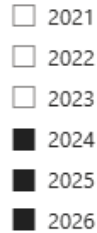


Salt Management Strategy - Chloride TMDL Action Planning - Winter Operations Tracking

Storm Intensities



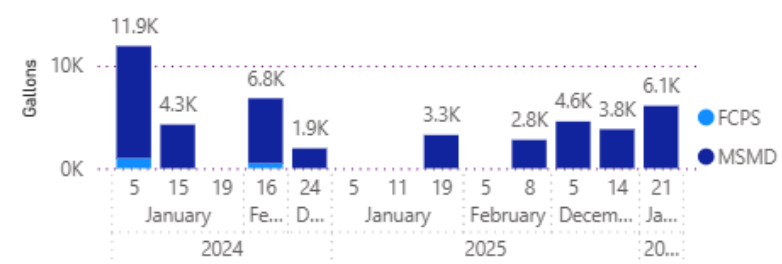
Fiscal Year



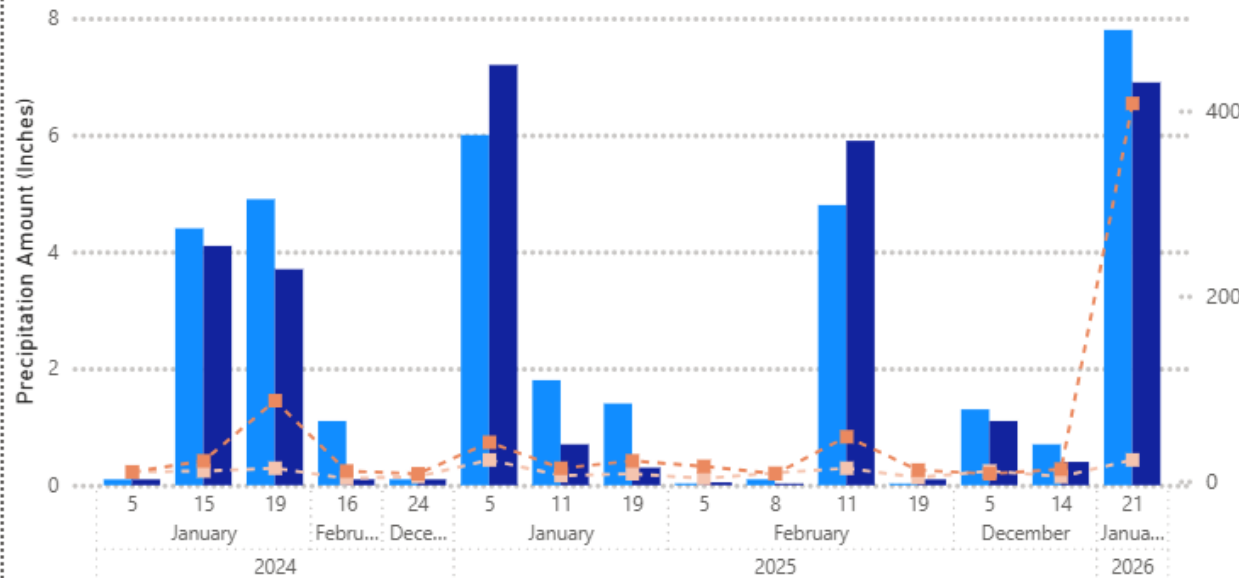
Forecasted Storm Conditions

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

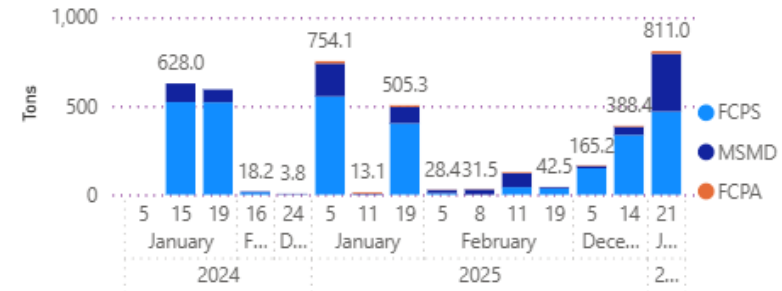
Brine Usage (Gals)



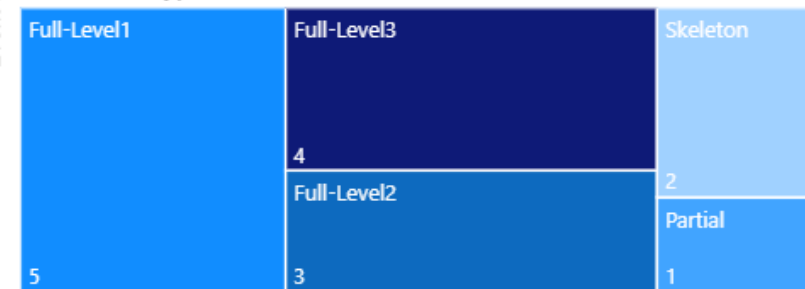
Winter Precipitation Amounts



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

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

Do you know...

- It only takes one teaspoon of salt to permanently pollute 5 gallons of water.
- Salt seeped into the environment can:
 1. Raise sodium levels in our drinking water and increase treatment costs.
 2. Harm fish, plants, and other wildlife.
 3. Corrode vehicles, roads, bridges, and parking lots.
- Salt can make it safer for us to walk and drive around. It helps keep roads open, and allows businesses, government, and social services to stay open with little interruption.
- Since there's no easy or cheap way to remove salt from our environment, we can all do our part to reduce the amount of salt we use and be #WinterSaltSmart by following the below tips.

What should you do before a storm?

- Have your shovel or snow blower ready. Shovels may be all that you need around Northern Virginia. To make it easier on your back, there are versions with wheels. Remember to take breaks and avoid overloading your shovel with wet snow.
- For big storms or heavy weight snow, snow blowers can be helpful.

Make sure to stock up on enough food, drinks and medicine (including prescriptions) before the storm

nvrc
Northern Virginia Regional Commission

www.wintersaltsmart.com

The Washington Post
Democracy Dies in Darkness

D.C., Md. & Va. The District Maryland Virginia Crime & Public Safety Local Education Obituaries Transportation Capital Weather Gang

Salt in water sources becoming worrisome in D.C. region, experts warn

By Antonio Olivo
August 8, 2022 at 6:00 a.m. EDT



Education & Outreach

Only Rain Nova
January 23 · 🌐

Snow on the horizon? Shovel first! ❄️

Before reaching for salt, grab a shovel. Shoveling early and often removes snow before it turns to ice, reducing the need for salt later. Less salt on sidewalks and driveways means less pollution washing into storm drains, streams, and rivers!

👉 Learn more about winter salt management: See less

Snow on the horizon?

Shovel first before salting!

ONLY RAIN
(NO CONTAMINERS)
DOWN THE STORM DRAIN

Be Winter Salt Smart!

USE LESS

Only Rain Nova
February 26 · 🌐

Did you know that anything that flows down the storm drain ends up in our waterways?

As snow and ice melt, runoff flows over streets and sidewalks, picking up winter salt, oil, trash, and pet waste before draining directly into local streams and rivers— untreated.

Shoveling first, using winter salt sparingly, picking up pet waste, and keeping debris out of the street can all help reduce pollution from runoff!

Small actions at home make a big difference for our waterways. 💧

Explore more tips at <https://www.onlyrain.org/pollution-reduction-tips> See less

Small actions at home make a big difference for our water quality!

Fairfax County
January 23 · 🌐

As preparation for winter weather, this week we encourage residents to be #WinterReady. Check out our resources to help your family stay safe. <https://www.fairfaxva.gov>

1 comment

6

WORKS AND ENVIRONMENT...

ASON.

n things like trash, drains, they pollute our

is clear and disposing of

WHAT YOU LOVE

#SAFEWATER



Education & Outreach

Choose the Right Materials

- Acetates** BEST OPTION
 - Wide range of temperatures (check individual products)
 - Often more expensive than chlorides
 - Less corrosive; suitable to apply on pavement and landscaped areas
- Sodium Chloride/Rock Salt**
 - Best when pavement is above 15°F
 - Highly corrosive; can damage pavement and landscaped areas
- Magnesium Chloride**
 - Good for very cold conditions; melts ice to -15°F
 - Not the best choice when pavement is above 15°F
 - Corrosive; can damage pavement and landscaped areas
- Calcium Chloride**
 - Best for very cold conditions; melts ice to -25°F
 - Not the best choice when pavement is above 15°F
 - Corrosive; can damage pavement and landscaped areas

Do you need more information?

Learn more about stormwater pollution prevention in Fairfax County by following the QR code below.


Fairfax County's Erosion and Stormwater Management Ordinance (Chapter 124.1) does not allow substances other than stormwater into the County storm drainage system unless the discharge is permitted by the state.



<https://www.fairfaxcounty.gov/publicworks/>

PROPERTY MANAGER

Winter Weather Best Practices for Parking Lots and Sidewalks



Audience: Property Managers of Private / Commercial Parking Lots

Before and During a Storm

As a property manager, you may need to arrange snow and ice removal during winter weather events. While safety is the top priority, salt and other chemical deicers can corrode pavement and damage landscape vegetation, local streams, and drinking water supplies.

The following winter weather strategies can promote safety, minimize environmental impacts, and save money.



Monitor Temperature and Conditions

Stay updated on forecasts. The storm type, timing, and expected pavement temperature will help determine the best deicer for the conditions.

Let the sun be your friend. If the temperature is expected to rise, deicers may not be needed.

Consider Pre-Treatment

Apply salt brine or other liquid deicers before snow and ice arrive. Pre-treatment can stop ice from bonding and reduce how much product you need during a storm.

DON'T Don't pre-treat if rain is forecast before snow and ice. The rain will carry the deicer to the nearest storm drain and into local waterways. To avoid wasting time and resources, apply deicers after precipitation stops.

Clear Snow and Ice First

Clear snow and ice using shovels or plows. Clearing should always be the main approach to removal.

Clear snow early and often. Frequent removal reduces snow compaction and ice formation.

DON'T Don't pile snow on top of a storm drain. The drain must be open and available to receive runoff when the snow and ice melt.

Apply Sparingly

Use only the minimum amount of deicer needed. Scatter deicers evenly and avoid clumps.

- As a rule of thumb, use about 2.3 pounds of rock salt per 1,000 square feet when pavement is around 15°F.
- More deicer may be needed depending on conditions. Ask the person doing the application for their reasoning if they suggest larger amounts than normal.

Deicers can harm pets, plants, and the environment. Use only the minimum needed and avoid storm drains, landscaped and vegetated areas, and pet areas.

Contractors

- If a contractor is used for snow and ice removal, make sure these best practices are clearly written in the contract.
- Review your expectations with the contractor before each winter weather season.

Staff and Tenant Training

- Conduct pre-season training each year so staff understand the winter weather plan.
- Tenants may also apply small amounts of deicers. Provide them with helpful guidance in the form of a letter or flyer.

Maintenance

Responsible Storage

- Deicers must be stored under cover and protected from rain and snow.

Sweep Up Excess and Spills

- After winter weather events, collect leftover deicer that remains on the pavement or has spilled so it does not harm the pavement and environment.
- Leftover deicer can be reused for future snow and ice events.

Calibrate Equipment

- If deicers are applied using spreaders (drop spreader or tailgate spreader), calibrate it to the manufacturer's recommendations.
- Proper calibration prevents over-application and saves money.

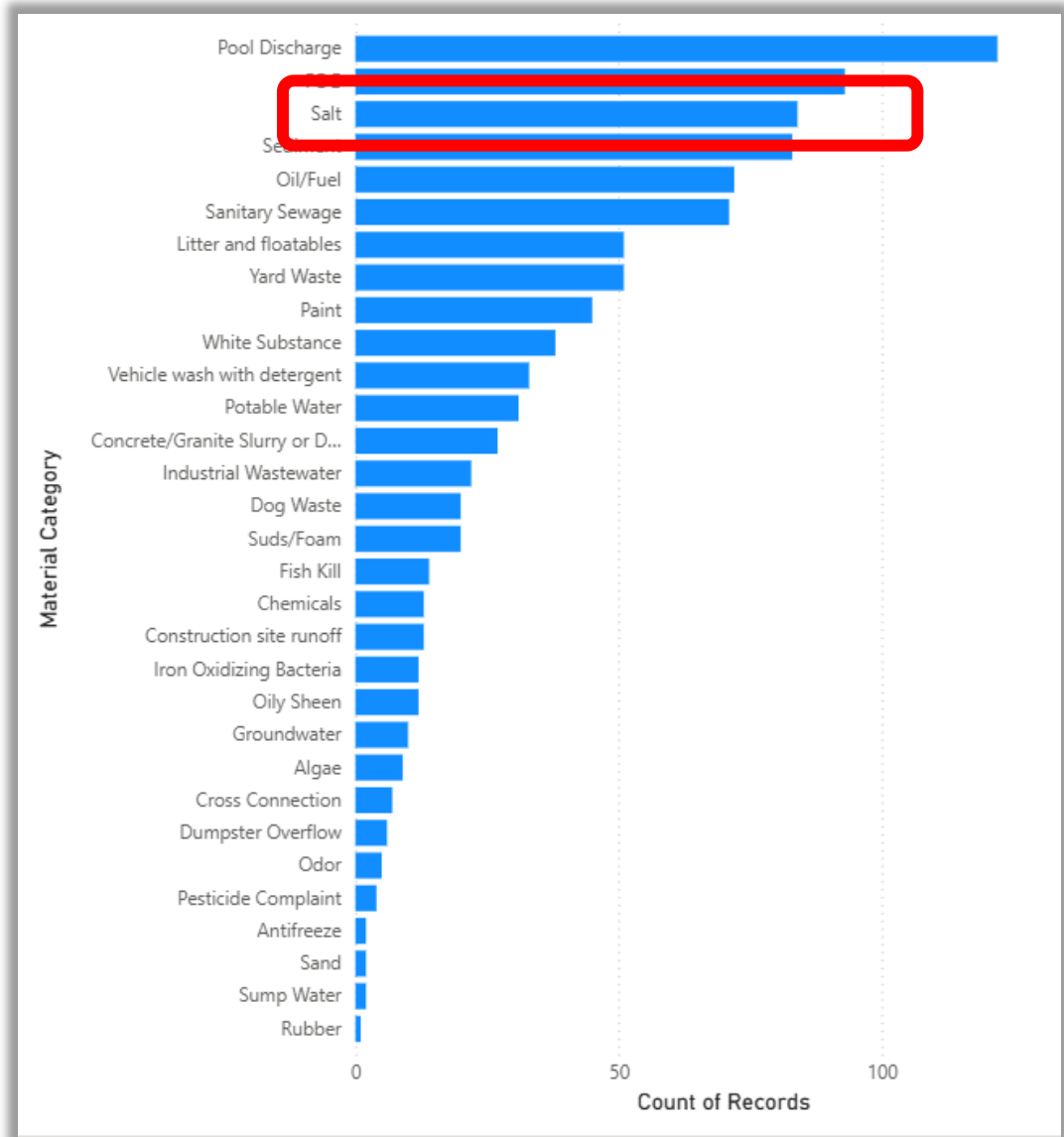
VIRGINIA SALT MANAGEMENT STRATEGY (SAMS) TOOLKIT, DECEMBER 2020



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.

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



Improper salt storage due to lack of containment

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



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

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 YouTube
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



Martin Hurd, MS4 Program Coordinator
Fairfax County DPWES
Stormwater Planning Division
Martin.hurd@fairfaxcounty.gov
571-635-6189

www.fairfaxcounty.gov/dpwes