



City of Manassas Park

FY2024 Local TMDL Action Plan

MS4 General Permit VAR040070

Deadline: May 1, 2025

15-day Public Comment: April 16 -30, 2025



Department of Community Development

Public Works Division

Manassas Park, VA

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Revisions

No.	Part	Description	Date
1	Cover Sheet	Bacteria Action Plan – City logo and date updated	4/30/25
2	Part III.K.1	Certification Statement moved, Signatory changed to David Ward, Stormwater Program Manager	4/16/25
3	Manassas Park MS4 Permit and Local TMDL Action Plan	Changed effective date of MS4 permit to 2023, incorporated draft Chloride Outreach Strategy attachment a	4/16/25
4	Part II.B.4.a	Disposal of animal carcasses added to the list of Best Management Practices	4/16/25
5	Part II.B.4.a	Continued participation in the NVRC Clean Water Partners added to the Outreach Strategy	4/16/25
6	Part II.B.4.a	The schedule of anticipated outreach actions updated: the Emergency Fair was deleted, the Community Yard Sale was updated to biannually, and the Trunk or Treat event was added	4/16/25
7	Part II.B.4.a	Protection of riparian buffers was added to the list of strategies selected from Table 5	4/16/25
8	Part II.B.4.a	Statement that no public comments were received was added	4/16/25
9	Part II.B.5.a	SWPPP for Blooms Park Maintenance Facility added	4/16/25
10	Part II.B.5.a	Calculations for street sweeping deleted	4/16/25
11	Part II.B.5.a	Projected reductions for 3 rd permit cycle to reflect the current strategy	4/16/25
12	Part II.B.5.a	Electronic media outreach through NVRC Clean Water Partners added	4/16/25
13	Part II.B.5.a	The schedule of anticipated outreach actions updated: the Emergency Fair was deleted, the Community Yard Sale was updated to biannually, and the Trunk or Treat event was added	4/16/25
14	Part II.B.5.a	The qualifier to exact outreach events changed from uncertainty due to COVID to a more general uncertainty due to scheduling, weather, etc.	4/16/25
15	Part II.B.4.a, Part II.B.5.a	Clarified and modified language in multiple headings and paragraphs and tables, adjusted formatting, added sediment removal table.	4/30-5/1/2025
16	Part II.B.5.a	Inserted ICPRB reference for rainfall and drought	4/30-5/1/2025

Note: Only substantive revisions have been included: spelling and grammar corrections, and changes in format, font size, and spacing have been omitted.



MS4 General Permit Program Requirements

Manassas Park MS4 General Permit and Local TMDL Action Plan

The City of Manassas Park (City) is subject to the General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4 Permit).

The City's Local TMDL Action Plan dated May 1, 2025, as submitted, provides a strategy for compliance with the MS4 General Permit requirements and incorporates by reference, each TMDL Action Plan where the EPA has determined a wasteload allocation. The outline that follows below details the City's implementation of specific TMDL Action Plans, exhibits data and tables, and additional information that may be referenced to support compliance with the MS4 General Permit Local TMDL requirements.

Part I.B - Discharge Authorization and Special Conditions

The City of Manassas Park is authorized for discharges by an active MS4 General Permit (VAR040070) and was issued by the Virginia Department of Environmental Quality (DEQ) effective November 1, 2023 and expires October 31, 2028.

Further, the permittee shall develop, implement, and enforce an MS4 Program designed to reduce the discharge of pollutants from the small MS4 to the maximum extent practicable (MEP) in accordance with this permit, to protect water quality, and to satisfy the appropriate water quality requirements of the State Water Control Law and its attendant regulations. The MS4 Program is required to address Local TMDL Special Conditions, as outlined in the following headings.

Part II.B.- Local TMDL Special Conditions

Part II.B.1 – The permittee shall develop a local TMDL Action Plan

The permittee shall develop a local TMDL action plan designed to reduce loadings for pollutants of concern if the permittee discharges the pollutants of concern to an impaired water for which a TMDL has been approved by the U.S. Environmental Protection Agency (EPA) as described in Part II B 1 a and 1 b:

- a. For TMDLs approved by the EPA prior to July 1, 2013, and in which an individual or aggregate wasteload has been allocated to the permittee, the permittee shall update the previously approved local TMDL action plans to meet the conditions of Part II B 3, B 4, B 5, B 6, and B 7 as applicable, no later than 18 months after the permit effective date and continue implementation of the action plan; and
- b. For TMDLs approved by EPA on or after July 1, 2013, and prior to June 30, 2018, and in which an individual or aggregate wasteload has been allocated to the permittee, the permittee shall develop and initiate implementation of action plans to meet the conditions of Part II B 3, B 4, B 5, B 6, and B 7 as applicable for each pollutant for which wasteloads have been allocated to the permittee's MS4 no later than 30 months after the permit effective date.

Response: All local TMDLs were developed by the EPA prior to July 1, 2013. Those TMDLs are; Bacteria TMDLs for Popes Head Creek, Broad Run, Kettle Run, South Run, Little Bull Run, Bull Run and the Occoquan River, Virginia, August 2006. Benthic TMDL Development for Bull Run, Virginia, June 2006



Part II.B.2 – The permittee shall complete implementation of the TMDL Action Plans as soon as practicable.

TMDL action plans may be implemented in multiple phases over more than one permit cycle using the adaptive iterative approach provided adequate progress is achieved in the implementation of BMPs designed to reduce pollutant discharges in a manner that is consistent with the assumptions and requirements of the applicable TMDL.

Response: TMDL Action Plans for Bacteria and Benthic impairments (Sediment) are ongoing.

Part II.B.3 – Each local TMDL action plan developed by the permittee shall include the following:

- a. The TMDL project name;
- b. The EPA approval date of the TMDL;
- c. The wasteload allocated to the permittee (individually or in aggregate), and the corresponding percent reduction, if applicable;
- d. Identification of the significant sources of the pollutants of concern discharging to the permittee's MS4 and that are not covered under a separate VPDES permit. For the purposes of this requirement, a significant source of pollutants means a discharge where the expected pollutant loading is greater than the average pollutant loading for the land use identified in the TMDL;
- e. The BMPs designed to reduce the pollutants of concern in accordance with Parts II B 4, B 5, and B 6;
- f. Any calculations required in accordance with Part II B 4, B 5, or B 6;
- g. For action plans developed in accordance with Part II B 4 and B 5, an outreach strategy to enhance the public's education (including employees) on methods to eliminate and reduce discharges of the pollutants; and
- h. A schedule of anticipated actions planned for implementation during this permit term.

Response: The TMDL action plans are incorporated into this document in Part II.B.4.a and Part II.B.5.a and are formatted per Part II.B.3

Part II.B.4 – Bacteria TMDLs

a. If the permittee is an approved VSMP authority, the permittee shall select and implement at least three of the strategies listed in Table 5 below, designed to reduce the load of bacteria to the MS4. Selection of the strategies shall correspond to sources identified in Part II B 3 d.

b. If the permittee is not an approved VSMP authority, the permittee shall select at least one strategy listed in Table 5 below designed to reduce the load of bacteria to the MS4 relevant to sources of bacteria applicable within the MS4 regulated service area. Selection of the strategies shall correspond to sources identified in Part II B 3 d.

Table 5 Strategies for Bacteria Reduction Stormwater Control/Management Strategy	
Source	Strategies (provided as an example and not meant to be all inclusive or limiting)
Domestic pets(dogs and cats)	Provide signage to pick up dog waste, providing pet waste bags and disposal containers. Adopt and enforce pet waste ordinances or policies, or leash laws or policies. Place dog parks away from environmentally sensitive areas.



Table 5 Strategies for Bacteria Reduction Stormwater Control/Management Strategy	
	Maintain dog parks by removing disposed of pet waste bags and cleaning up other sources of bacteria. Protect riparian buffers and provide unmanicured vegetative buffers along streams to dissuade stream access.
Urban wildlife	Educate the public on how to reduce food sources accessible to urban wildlife (e.g., manage restaurant dumpsters and grease traps, residential garbage, feed pets indoors). Install storm drain inlet or outlet controls. Clean out storm drains to remove waste from wildlife. Implement and enforce urban trash management practices. Implement rooftop disconnection programs or site designs that minimize connections to reduce bacteria from rooftops. Implement a program for removing animal carcasses from roadways and properly disposing of the same (either through proper storage or through transport to a licensed facility).
Illicit connections or illicit discharges to the MS4	Implement an enhanced dry weather screening and illicit discharge, detection, and elimination program beyond the requirements of Part E 3 to identify and remove illicit connections and identify leaking sanitary sewer lines infiltrating to the MS4 and implement repairs. Implement a program to identify potentially failing septic systems. Educate the public on how to determine whether their septic system is failing. Implement septic tank inspection and maintenance program. Implement an educational program beyond any requirements in Part I E 1 through E 6 to explain to citizens why they should not dump materials into the MS4.
Dry weather urban flows (irrigations, car washing, power washing)	Implement public education programs to reduce dry weather flows from storm sewers related to lawn and park irrigation practices, car washing, power washing and other nonstormwater flows. Provide irrigation controller rebates. Implement and enforce ordinances or policies related to outdoor (etc.) water waste. Inspect commercial trash areas, grease traps, washdown practices, and enforce corresponding ordinances or policies.
Birds (Canadian geese, gulls, pigeons, etc.)	Identify areas with high bird populations and evaluate deterrents, population controls, habitat modifications and other measures that may reduce bird-associated bacteria loading. Prohibit feeding of birds.
Other sources	Enhance maintenance of stormwater management facilities owned or operated by the permittee. Enhance requirements for third parties to maintain stormwater management facilities. Develop BMPs for locating, transporting, and maintaining portable toilets used on permittee-owned sites. Educate third parties that use portable toilets on BMPs for use. Provide public education on appropriate recreational vehicle dumping practices.

Response: The City of Manassas Park is an approved VMSP authority and has implemented strategies per Part II B 4 (a).



Part II.B.4.a - Bacteria TMDL Action Plan for Bull Run Watershed

Introduction

This serves as a revision to the previous Bacteria Total Maximum Daily Load (TMDL) Action Plan prepared by the City of Manassas Park, dated August 16, 2021, which provides background information for the current TMDL Action Plan and is incorporated by reference. Where differences between the previous report and this TMDL Action Plan may occur, the May 1, 2025 Local TMDL Action Plan and TMDLs incorporated by reference shall be considered authoritative.

A TMDL is essentially a statement of the required reductions in a specific pollutant of concern for a water body to meet water quality standards for its designated uses. This specific update addresses the Bacteria TMDL for Bull Run; the TMDL is based on the best available science. This document addresses the Special Condition for approved local Total Maximum Daily Loads (TMDLs) cited in Part II B of General Permit VAR 040070, issued November 1, 2023.

TMDL Project Name: This update to City of Manassas Park Action Plan for Bull Run Watershed Bacteria TMDL – Permit Number VAR040070 addresses the City of Manassas Park bacteria allocation cited in the Environmental Protection Agency approved “Bacteria TMDLs for Popes Head Creek, Broad Run, Kettle Run, South Run, Little Bull Run, Bull Run and the Occoquan River, Virginia”, submitted by the Virginia Department of Environmental Quality; prepared by George Mason University and The Louis Berger Group, Inc., August 2006.

EPA approval date of the TMDL: November 15, 2006

Waste Load Allocated to the City of Manassas Park, and the corresponding percent reduction:

The approved Bacteria TMDL for Bull Run makes the following statement about the overall reductions necessary basin wide to meet water quality standards:

“The requirements to meet the calendar month E. coli geometric mean water quality standard of 126 cfu/100mL [colony forming unit per 100 milliliters] and the instantaneous water quality standard of 235 cfu/100mL for Bull Run are (text in brackets is added for clarification):

- 100 % reduction of the human sources (failed septic systems and straight [sanitary sewer] pipes [and services]).
- 100 % reduction of the direct instream loading from livestock.
- 90% reduction of bacteria loading from agricultural and urban nonpoint sources.
- No reductions from the forested land (wildlife indirect loads).
- 89% reduction of bacteria loading from MS4 locations, reflecting weighted average of the reductions required from forest (0%) and urban land (90%)”



Table 4A: Bull Run VAN-A23R-01 Distribution of Annual Average *E. coli* Load under Existing Conditions and TMDL Allocation (Excluding MS4s from the Land-based Loads)

Land Use/Source	Annual Average <i>E. coli</i> Loads (cfu/yr)		Reduction (%)
	Existing	Allocation	
Forest	1.42E+10 (14,200 million)	1.42E+10 (14,200 million)	0.0%
Cropland	7.97E+07 (80 million)	7.97E+06 (8 million)	90.0%
Pasture	3.19E+09 (3,190 million)	3.19E+08 (319 million)	90.0%
Low Density Residential	5.83E+11 (583,000 million)	5.83E+10 (58,300 million)	90.0%
Commercial/Industrial	2.58E+10 (25,800 million)	2.58E+09 (2,500 million)	90.0%
Water/Wetland	6.49E+08 (649 million)	6.49E+08 (649 million)	0.0%
Other Urban	8.98E+09 (8,980 million)	8.98E+08 (898 million)	90.0%
High Density Residential	4.66E+11 (466,000 million)	4.66E+10 (46,600 million)	90.0%
Cattle - direct deposition	8.93E+12 (8,930,000 million)	0.00E+00 (0 million)	100.0%
Wildlife - direct deposition	4.88E+12 (4,880,000 million)	8.30E+11 (830,000 million)	83.0%
Failed Septic - direct deposition	2.91E+10 (29,100 million)	0.00E+00 (0 million)	100.0%
Point Source	1.11E+14 (111,000,000 million)	1.11E+14 (111,000,000 million)	-
MS4s	1.03E+12 (1,030,000 million)	1.16E+11 (116,000 million)	88.8%
Total loads /Overall reduction	1.27E+14 (127,000,000 million)	1.12E+14 (112,000,000 million)	-

From: “Bacteria TMDLs for Popes Head Creek, Broad Run, Kettle Run, South Run, Little Bull Run, Bull Run and the Occoquan River, Virginia” Submitted by Virginia Department of Environmental Quality; prepared by George Mason University and The Louis Berger Group, Inc., August 2006. (Conversion from scientific notation added for the reader’s convenience.)



These requirements translate into the following aggregated reductions necessary from MS4 areas:

Table 4B: Bull Run (Segment VAN-A23R-01) MS4s Waste load Allocation for E. coli

Permit Number	MS4 Permit Holder	MS4 Location	Existing Load (cfu/yr)	Allocated Load (cfu/yr)	Reduction (%)
VA0088587	Fairfax County	Fairfax County	6.81E+11 (681,000 million)	7.61E+10 (76,100 million)	89
VAR040104	Fairfax County Public Schools				
VAR044062	VDOT Urban Area				
VAR040067	Loudon County	Loudon County	1.18E+11 (118,000 million)	1.32E+10 (13,200 million)	89
VAR040062	VDOT Urban Area				
VAR040063	City of Manassas	City of Manassas	6.09E+10 (60,900 million)	6.82E+09 (6,820 million)	89
VAR040095	Nova Manassas Campus				
VAR040062	VDOT Urban Area				
VAR040070	City of Manassas Park	City of Manassas Park	3.16E+10 (31,600 million)	3.55E+09 (3,550 million)	89
VAR040062	VDOT Urban Area				
VA0088595	Prince William County	Prince William County	1.43E+11 (143,000 million)	1.60E+10 (16,000 million)	89
VAR040100	Prince William County Schools				
VAR040062	VDOT Urban Area				
Total Aggregate Reductions			1.03E+12 (1,030,000 million)	1.16E+11 (116,000 million)	89

From: "Bacteria TMDLs for Popes Head Creek, Broad Run, Kettle Run, South Run, Little Bull Run, Bull Run and the Occoquan River, Virginia" Submitted by Virginia Department of Environmental Quality; prepared by George Mason University and The Louis Berger Group, Inc., August 2006. (Conversion from scientific notation added for the reader's convenience.)

It should be noted that all point sources (including MS4s and other permittees) and all non-point sources (including agricultural and urban non-point sources) will be required to meet their reduction goals to achieve the water quality standard envisioned in the TMDL.

Significant [potential] sources of the pollutants of concern (Bacteria) discharging to the MS4 and that are not covered under a separate VPDES permit:

- Leaking sanitary sewers
- Leaking sanitary sewer services
- Pet waste (excrement)
- Wildlife waste (excrement)



Best Management Practices (BMPs)

Storm sewer collection system:

Implement program to comprehensively inspect and clean storm sewer catch basins and storm sewers – removes accumulated sediment, debris, and animal feces washed into storm collection system.

Sanitary sewer collection system:

Continue inspections and flushing program of trouble areas.

Continue cure-in-place lining program; to date, approximately 55% of the system in the old part of the City has been rehabilitated.

Continue replacing the City maintained sewer services on an as-needed basis.

Implement programs to proactively inspect and replace / rehabilitate the City maintained portion of sanitary services.

Pet waste:

City dog park located away from environmentally sensitive areas, with a BMP downstream, and dog waste bags and receptacle handy.

Expand the number of dog waste receptacles in Homeowners Association areas through Public / Private partnerships.

Implement dog waste receptacles in the public right of way through Public / Private partnerships.

Protect riparian buffers and provide unmanicured vegetative buffers along streams in publicly owned land to dissuade stream access. (Encroachments in these buffers for purposes of sanitary sewer easement maintenance, pedestrian trails, or to maintain channel conveyance for purposes of reducing flood risk will be allowed; however, buffers will remain unmanicured to the maximum extent practicable);

Wildlife:

The City of Manassas Park contracts out disposal of animal carcasses.

Calculations

Not Applicable – there are no quantifiable bacteria reduction estimates available for applicable Best Management Practices (BMPs).



Outreach strategy to enhance the public's education (including employees) on methods to eliminate and reduce discharges of the pollutants:

The City will for the remaining FY25 and for FY26 utilize both the Virginia Cooperative Education (VCE) team and the Prince William Soil and Water Conservation District (District) team to provide additional support for our Public Outreach and Education goals. Additionally, the VCE and District will provide continuous amendments to our Nutrient Management Plan, that includes 4 facilities, training to employees and staff, implement the VCAP program for residences, assess erosion impact areas at residential lots and many other services.

Biannual MS4 training for City and School staff;

Signage for dog waste at the City Dog Park, and other pet waste stations;

Outreach to the public through social media on issues related to water quality;

Continued participation in the Northern Virginia Clean Water Partners program shall continue.

Information booths at public events

Traditional written materials:

Brochures related to Fog, Oils, and Grease (FOG), pet waste, and the City's MS4 permit.

FOG brochure disseminated to homeowners after sewer backups;

Educational materials provided to restaurants;

Educational materials provided to auto repair shops.

Schedule* of anticipated actions related to the Bacteria TMDL during this permit term:

Information booth set up at the following events:

National Night Out (annually in August)

Community Center Yard Sale (annually in September and May)

City of Manassas Park Trunk or Treat (annually in October)

* Exact dates subject to changes due to scheduling conflicts, weather, and other unforeseen events

Strategies selected from Table 5 (A minimum of 3 from Table 5 in the MS4 General Permit, Part II.B.4, are required for Bacterial TMDLs for permittees approved as a VSMP authority):

Domestic pets:

The City aims to protect riparian buffers and provides unmanicured vegetative buffers along streams in publicly owned land to dissuade stream access. (Encroachments in these buffers for purposes of sanitary sewer easement maintenance, pedestrian trails, or to maintain channel conveyance for



purposes of reducing flood risk are exempted; however, buffers will remain unmanicured to the maximum extent practicable);

The City provides signage to pick up dog waste, providing pet waste bags and disposal containers – provided in the City's Dog Parks and other locations including residential HOA's;

Dog parks are typically located away from environmentally sensitive areas – as in Costello Park, with a BMP downstream;

The City has implemented additional Dog Waste Stations in public right of way through Public / Private partnerships; including residential community HOAs.

The City evaluates land areas within the MS4 service area and residential communities, on a case-by-case basis for potential expansion, of new Dog Waste Stations throughout the city and in Homeowner Association maintained areas through Public / Private partnerships;

Urban wildlife:

The City Public Works crews, currently, inspect and remove trash, debris, sediment and waste from wildlife. Additionally, the City prohibits the feeding of wildlife which reduces the amount of fecal matter and bacteria that may be produced during stormwater runoff events.

Illicit Connections and Illicit Discharge:

The City currently, through the Manassas Park Code of Ordinances, Chapter 8, Article IV, conducts and enforces an IDDE Program to detect both illicit connections and discharges. The City's Fire Department also responds to large unmanageable hazardous and other related spills including those that may contain bacteria. The ordinance and program were designed to detect and eliminate non-stormwater discharges to the MS4 conveyance system and outfalls. Additionally, to assess and determine the condition of septic systems. As a result, the City through its ordinance prohibited within the MS4 service area the installation and or connection of septic systems to our sewer system. Septic connections have been disconnected from the city sewer system and septic tanks and former storage of septage have been abandoned, remediated or removed.

Public Comment

This action plan was posted on the City's website on April 16, 2025 for the 15-day public comment requirement. There were no comments.



Part II.B.5 – Local sediment, phosphorus, and nitrogen TMDLs.

a. The permittee shall reduce the loads associated with sediment, phosphorus, or nitrogen through implementation of one or more of the following:

- (1) One or more of the BMPs from the Virginia Stormwater BMP Clearinghouse listed in 9VAC25-870-65 or other approved BMPs found on the Virginia Stormwater BMP Clearinghouse website;
- (2) One or more BMPs approved by the Chesapeake Bay Program; or
- (3) Land disturbance thresholds lower than Virginia's regulatory requirements for erosion and sediment control and post development stormwater management.

b. The permittee may meet the local TMDL requirements for sediment, phosphorus, or nitrogen through BMPs implemented to meet the requirements of the Chesapeake Bay TMDL in Part II A as long as the BMPs are implemented in the watershed for which local water quality is impaired.

c. The permittee shall calculate the anticipated load reduction achieved from each BMP and include the calculations in the action plan required in Part II B 3 f.

d. No later than 36 months after the effective date of this permit, the permittee shall submit to the department the anticipated end dates by which the permittee will meet each WLA for sediment, phosphorus, or nitrogen. The proposed end date may be developed in accordance with Part II B 2.

Response: There are no local TMDLs for Phosphorus or nitrogen; therefore, there are no local action plans for these pollutants. Strategies for meeting the local TMDL limits for Benthic impairments (sediment) are included on the next page in Part II.B.5.a.



Part II.B.5.a - Sediment TMDL Action Plan for Bull Run Watershed

Introduction

This serves as a revision to the previous Bacteria Total Maximum Daily Load (TMDL) Action Plan prepared by the City of Manassas Park, dated August 16, 2021, which provides background information for the current TMDL Action Plan and is incorporated by reference. Where differences between the previous report and this TMDL Action Plan may occur, the May 1, 2025 Local TMDL Action Plan and TMDLs incorporated by reference shall be considered authoritative.

A TMDL is essentially a statement of the required reductions in a specific pollutant of concern for a water body to meet water quality standards for its designated uses. This specific revision addresses the Sediment TMDL for Bull Run; the TMDL is based on the best available science. This document addresses the Special Condition for approved local Total Maximum Daily Loads (TMDLs) cited in Part II B of General Permit VAR 040070, issued November 1, 2023.

TMDL Project Name: Update to City of Manassas Park Action Plan for Bull Run Watershed Sediment TMDL – Permit Number VAR040070. This updated TMDL action plan for the City of Manassas Park addresses the sediment allocation from the Environmental Protection Agency (EPA) approved **“Benthic TMDL Development for Bull Run, Virginia”**, Prepared by The Louis Berger Group, Inc., June 2006.

EPA approval date of the TMDL: September 26, 2006

Waste Load Allocated to the City of Manassas Park, and the corresponding percent reduction:

The approved Sediment TMDL for Bull Run quantifies the overall reductions necessary basin wide to meet water quality standards in the following tables (taken from Benthic TMDL Development for Bull Run, Virginia, submitted to Virginia Department of Environmental Quality, Prepared by The Louis Berger Group, Inc., June 2006):



Table 5A: Summary of Existing and Allocated Sediment Loads for the Bull Run Watershed

Source	Land Use Type	Existing Load (tons/year)	Allocated Load (tons/year)	Percent Reduction
Non-point Source	Deciduous Forest	55.7	55.7	0
	Evergreen Forest	12.6	12.6	0
	Mixed Forest	7.8	7.8	0
	Pasture/Hay	1,005.5	224.5	77.6
	Row Crop	2,066.8	461.5	77.6
	Low Intensity Residential	2.9	0.7	77.6
	Medium High Intensity	124.9	27.9	77.6
	Commercial/Industrial	189.9	42.4	77.6
	Institutional	19.9	4.5	77.6
	Urban Recreational Grass	0.6	0.1	77.6
	Instream Erosion	17,755.9	3,970.3	77.6
MS4	Non-point Source	4,163.8	911.4	77.1
	Instream Erosion	20,324.8	4,448.8	77.1
Permitted Facilities	Individual VPDES Permits	103.4	163.4*	-
	Stormwater Permits [#]	987.9	463.1	-
Total		46,822.5	10,794.7	76.8

(*)A load equivalent to half a percent (0.5%) of the Total TMDL Load (60 tons/year) was taken from the load allocations (LA) and added to the waste load allocation to account for future growth and the potential change in land- use from rural/open space to urban.

(#) Breakdown of the loads by type of stormwater permit is shown in Table 5C



Table 5B: Existing Sediment Loading in the Bull Run Attributed to MS4s

Permit Number	MS4 Permit Holder ¹	MS4 Locality	Acres	Land Based Load (ton/yr)	Instream Erosion (ton/yr)	Total Load (ton/yr)
VA0088587	Fairfax County	Fairfax County	50,024.9	3,310.5	16,160.0	19,470.5
VAR040104	Fairfax County Public Schools					
VAR040062	VDOT Urban Area					
VAR040064	Fairfax City	Fairfax City	173.8	11.5	56.0	67.6
VAR040062	VDOT Urban Area	Loudoun County	5,156.2	341.2	1,665.6	2,006.8
VAR040067	Loudoun County					
VAR040062	VDOT Urban Area					
VAR040063	Manassas City	Manassas City	2,564.0	169.7	828.3	998.0
VAR040095	NOVA Manassas Campus					
VAR040062	VDOT Urban Area					
VAR040070	Manassas Park	Manassas Park	1,323.0	87.6	427.4	514.9
VAR040062	VDOT Urban Area					
VA0088595	Prince William County	Prince William County	6,214.2	411.2	2,007.4	2,418.7
VAR040100	Prince William County Public Schools					
VAR040062	VDOT Urban Area					
Total			65,456.0	4,331.7	21,144.8	25,476.5

¹ MWAA Washington Dulles International Airport is subject to regulation under the MS4 program. The individual VPDES permit for this facility, permit number VA0089541, establishes the regulatory requirements for industrial stormwater, construction stormwater and MS4 under a single permit. The MS4 acreage is not presented in this table as the stormwater regulated under this program cannot readily be distinguished from other activities.



Table 5C: Wasteload Allocation by MS4 Areas including General Stormwater Permits

Permit Number	MS4 Permit Holder ¹	MS4 Area	Existing Load (tons/yr)	Allocated Load (tons/yr)	Percent Reduction(*)
VA0088587	Fairfax County	Fairfax County	19,470.5	4,450.6	77.1
VAR040104	Fairfax County Public Schools				
VAR040062	VDOT Urban Area				
VAR040064	City of Fairfax	City of Fairfax	67.6	15.4	77.1
VAR040062	VDOT Urban Area				
VAR040067	Loudoun County	Loudoun County	2,006.8	458.7	77.1
VAR040062	VDOT Urban Area				
VAR040063	Manassas City	Manassas City	998.0	228.1	77.1
VAR040095	NOVA Manassas Campus				
VAR040062	VDOT Urban Area				
VAR040070	Manassas Park	Manassas Park	514.9	117.7	77.1
VAR040062	VDOT Urban Area				
VA0088595	Prince William County	Prince William County	2,418.7	552.9	77.1
VAR040100	Prince William County Public Schools				
VAR040062	VDOT Urban Area				
Total			25,476.5	5,823.4	77.1

(*) The percent load reduction for the MS4s accounts for loads from all land sources including forested areas.

(1) MWAA Washington Dulles International Airport is subject to regulation under the MS4 program. The individual VPDES permit for this facility, permit number VA0089541, establishes the regulatory requirements for industrial stormwater, construction stormwater and MS4 under a single permit. The MS4 acreage is not presented in this table as the stormwater regulated under this program cannot readily be distinguished from other activities.

It should be noted that all point sources (including MS4s and other permittees) and all non-point sources (including agricultural and in-bank stream erosion) will be required to meet their reduction goals to achieve the water quality standard envisioned in the TMDL.

Significant sources of the pollutants of concern (Sediment)

The Benthic TMDL for Bull Run lists multiple sources of sediment in the basin; however, not all those sources exist in the City of Manassas Park (e.g. row crops). The sources that exist in the City of Manassas Park that the TMDL identifies for reduction are:

- Low Intensity Residential
- Medium High Intensity
- Commercial/Industrial
- Institutional
- Urban Recreational Grass
- Non-point Source
- Instream Erosion



Instream erosion accounts for 83% of the existing sediment loading in the Bull Run attributed to the City of Manassas Park (427.4 tons out of 514.9 tons). The sources for the remaining 17% (87.5 tons) are residential (Low and Medium Intensity), commercial / industrial, institutional, urban recreational grass, and non-point source. A significant but unquantified percentage of these remaining sources (i.e. not instream erosion) are within the City of Manassas Park but are not within the MS4 service area. Any meaningful reduction in sediment must necessarily emphasize instream erosion.

Stormwater Pollution Prevention Plans have been developed for the following City owned facilities:

- Department of Public Works – Rugby Road Facility - Location for stockpiling soil
- Department of Public Works – Maintenance Facility, 331 Manassas Drive – storage of maintenance trucks, sand/salt storage, etc.
- Blooms Park Maintenance Facility
- Manassas Park Community Center
- Manassas Park Schools Maintenance Facility
- Signal Bay Water Park

Two other on-going sources of sediment are:

- Active Construction Sites
- Sand/Salt Application on City Roads and Sidewalks

Mother Nature plays a significant and primary role, concerning these impacts to water quality that can agitate and contribute to increases or decreases of pollutants of concern, respecting instream erosion and the generation of sediment from rainfall that produces stormwater runoff. However, in consideration when there is a lack of rainfall, especially for long durations during the month or year, also have place a particular quantifying reduction to the overall reduction equation and result. When there is little to no rainfall, the erosion impacts to streams, and sediment runoff producing events, are greatly reduced.

The map insert on the succeeding page, was distributed by the Interstate Commission on the Potomac River Basin (ICPRB) and show a significant reduction in average rainfall [-6 inches] for a 180-day observation period for precipitation 11/01/2024 – 04/29/2025 within our basin. Additionally, moderate, severe and extreme drought conditions must also be considered in the direct impacts to streams and lacking stormwater runoff producing events, which are the main culprit, where in our following heading, create the requirements for implementing Best Management Practices (BMPs) to assist localities in the management of these reduction efforts.



River Report: Looking at the data on rain, drought, and flow

A lot of yellow, brown, and orange in the graphs this week.

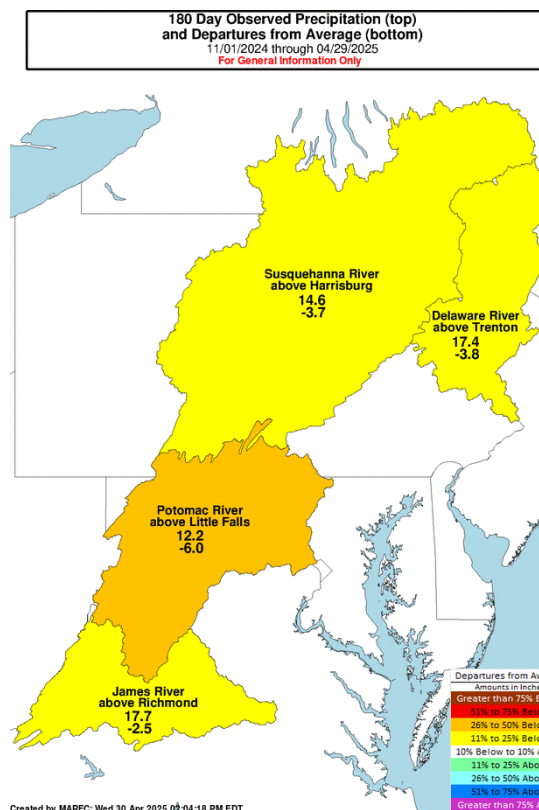
Rain: Since November, the Potomac River basin has received only 12 inches of rain, which is 6 inches below average. Some relief is in the forecast, with 2-4 inches of rain [expected](#) over the next week.

Drought: As shown in the map below, the basin is DRY with 57% of the area in Moderate Drought and 30% in Severe Drought.

Flow: The river's flow at the USGS gage at [Point of Rocks](#) is around 4500 cubic feet per second (cfs). The lowest recorded flow at this time of year is 3000 cfs in 1896.

ICPRB's Section for Cooperative Water Supply Operations on the Potomac (CO-OP) will be publishing the [Water Supply Outlook](#) for May in the coming days. Want to get a notification when the report comes out? [Let us know.](#)

As a reminder, the Metropolitan Washington area remains in the Drought Watch [declared](#) by the Metropolitan Washington Council of Governments last summer. This means that authorities are asking folks to use water wisely.



NOAA's River Basin 180 Day Precipitation
Departures as of April 29, 2025.



Best Management Practices (BMPs)

Each of the following BMPs are used in the City of Manassas Park:

Physical BMPs (a list of physical BMPs is included in Appendix A)

- Detention Ponds
- Extended detention ponds
- Hydrodynamic systems
- Grass swales
- Rain gardens
- Filters

Storm sewer collection system:

Implement program to comprehensively inspect and clean storm sewer catch basins and storm sewers – removes accumulated sediment, debris, and animal feces washed into storm collection system.

Continue annual inspection of storm sewer outfalls, and program outfalls for repair / stabilization.

Streams

Inspect open channel streams and evaluate channels for stability; prioritize and program repairs for streams on publicly owned properties.

Street Sweeping

Education (see outreach strategy below)

BMP Projects, Start/Completion Dates, and Sediment Removal Estimates

Project	Estimated Start Date	Estimated Completion Date	Estimated Sediment Removal
Bird Sanctuary Stream Restoration	September 2025	December 2026	400 Tons/Yr
Conner Center Pond 1 Retrofit	August 2025	June 2026	1.7 Tons/Yr

Note: Removal rate estimates are based on preliminary design computations and will be finalized in the approved design.

Calculations – currently the City’s Stormwater Program Manager is assessing the following physical BMPs listed below, to acquire the total length of miles of each , to determine applicable sediment removal rates. The Sediment TMDL Action plan will be revised within 30-60 days after the May 1, 2025 submission, to reflect the calculations used and the resulting figures.

Open channels – ditches, streams, creeks, swales

Street Sweeping roadway lanes – curb/gutter, edge of pavement



Outreach strategy to enhance the public's education (including employees) on methods to eliminate and reduce discharges of the pollutants:

The City will for the remaining FY25 and for FY26 utilize both the Virginia Cooperative Education (VCE) team and the Prince William Soil and Water Conservation District (District) team to provide additional support for our Public Outreach and Education goals. Additionally, the VCE and District will provide continuous amendments to our Nutrient Management Plan, that includes 4 facilities, training to employees and staff, implement the VCAP program for residences, assess erosion impact areas at residential lots and many other services.

Biannual MS4 training for City and School staff

Signage for dog waste at the City Dog Park, and other pet waste stations

Outreach to the public through social media on issues related to water quality

Information booths at public events

Traditional written materials (brochures and letters):

“Be the Solution to Stormwater Pollution” (English and Spanish)

“Pick Up After Your Pet!” (English and Spanish)

“How to Discharge Swimming Pool and Spa Water”

Outreach letters to auto repair shops and restaurants

Electronic media through the Northern Virginia Regional Commission’s Clean Water Partners (the City of Manassas Park is a member).

Schedule* of anticipated actions during this permit term:

Information booth set up at the following events:

National Night Out (annually in August)

Community Center Yard Sale (biannually in May and September)

City of Manassas Park Trunk or Treat (annually in October)

* Exact dates are subject to change due to scheduling conflicts, weather, and other unforeseen events

Public Comment

This action plan was posted on the City’s website April 16, 2025 for the 15-day requirement for public comment. There were no comments.



Part II.B.6 – Polychlorinated biphenyl (PCB) TMDLs.

a. For each PCB TMDL action plan, the permittee shall include an inventory of potentially significant sources of PCBs owned or operated by the permittee that drains to the MS4 that includes the following information:

- (1) Location of the potential source;
- (2) Whether or not the potential source is from current site activities or activities previously conducted at the site that have been terminated (i.e. legacy activities); and
- (3) A description of any measures being implemented or to be implemented to prevent exposure to stormwater and the discharge of PCBs from the site.

b. If at any time during the term of this permit, the permittee discovers a previously unidentified significant source of PCBs within the permittee's MS4 regulated service area, the permittee shall notify DEQ in writing within 30 days of discovery.

Response: No waste load allocation for PCBs has been identified for the City of Manassas Park, therefore this has not been addressed by a TMDL Action Plan.

Part II.B.7 – Prior to Submittal of the Action Plan required in Part II.B.1

The permittee shall provide an opportunity for public comment proposed to meet the local TMDL action plan requirements for no less than 15 days.

Response: A notice on the Local TMDL Action Plans for Bacteria and Sediment were posted to the city's Public Works, Stormwater Management Program, and MS4 Reporting webpages April 16- 30, 2025, to comply with the requirement for public comment. Additionally, an email was sent to DEQ for verification. The notice generated no comments.

Part II.B.8 – The MS4 program plan as required by Part I B of this permit shall incorporate each local TMDL Action Plan.

Local TMDL action plans may be incorporated by reference into the MS4 program plan provided that the program plan includes the date of the most recent local TMDL action plan and identification of the location where a copy of the local TMDL action plan may be obtained.

Response: The MS4 Program Plan will be revised to incorporate by reference this local TMDL Action Plan and a web address link where it can be found on the City's webpage .

Part II.B.9 – For Each Reporting Period.

Each annual report shall include a summary of actions conducted to implement each local TMDL action plan.

Response: The City's FY2025 MS4 Annual Report, due October 1, 2025, will include a summary of actions conducted that implement each Local TMDL Action Plan.



Part III.K.1 – Signatory Requirements.

CERTIFICATION STATEMENT

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.”

Print Name: David S. Ward

Position Title: Stormwater Program Manager

Signature:

David S. Ward

Digitally signed by David S. Ward
DN: cn=US, E=rd.ward@manassasparkva.gov,
O="City of Manassas Park, VA", OU=Public Works,
CN=David S. Ward
Reason: I attest to the accuracy and integrity of this
document
Date: 2025.05.01 14:52:59-0400

Date:

May 1, 2025



Attachment A – Chloride Outreach Strategy (Draft)

Attachment B – Dog Station signage

Attachment A

City of Manassas Park, Virginia
Chloride Outreach Strategy
April 16, 2025 (DRAFT)



MANASSAS
PARK
VIRGINIA

Prepared by
Allan J. Rowley, P.E.

Chloride Outreach Strategy

Introduction

This document outlines the outreach and education strategy of the City of Manassas Park for Chloride as required by the City's Municipal Separate Storm Sewer System Permit (MS4 Permit, Permit Number VAR040070). The permit requires that the City "develop an anti-icing and deicing agent education and outreach strategy that identifies target audiences for increasing awareness of anti-icing and deicing agent application impacts on receiving waters and encourages implementation of enhanced BMPs for application, handling, and storage of anti-icing and de-icing agents used for snow and ice management."

The strategy shall contain a schedule to implement two or more of the education and outreach strategies listed in the permit, along with a review of housekeeping procedures for anti-icing and deicing agent application, handling, storage, and transport activities and identify a minimum of two strategies for implementing enhanced BMPs that promote efficient management and application of anti-icing and deicing agents while maintaining public safety.

Target Audiences

City staff have identified the following target audiences:

- City of Manassas Park
 - Public Works
 - Facilities
 - Schools
- Homeowners' Associations (HOAs) (Appendix A)
- Businesses
- Property Managers
- Residential Properties

Education and Outreach Schedule and Strategies

The City will utilize the following strategies in its education and outreach strategy each year:

- Booth at Community Fair – Salt management materials will be available at the booth that promotes the City's MS4 program:
 - National Night Out (First Tuesday of August)
 - Trunk or Treat (the Saturday before Halloween)
 - Community Yard Sale
- Media materials:
 - A link to a YouTube video on Winter Snow and Ice Management Tips from NVRC will be included on the City's Stormwater webpage:
<https://www.onlyrain.org/winter-salt-management>
 - Media campaigns on salt management from The Clean Water Partners (part of NVRC); the City of Manassas Park participates in The Clean Water Partners
 - Traditional Printed Materials to be posted on the City's Stormwater webpage.

- Traditional Printed Materials (developed by the Northern Virginia Regional Commission) (Appendix B) to be available at community events (community fairs).
 - Property Management Snow and Ice Management Tips (to be mailed to property managers and businesses by Nov. 1 each year).
 - HOA Winter Maintenance Resource Sheet (to be emailed to HOAs by Nov. 1 each year)
 - 2023 Residential Snow and Ice Management Tips
- Review NVRC training: “Winter Salt Management Training Webinar” by Public Works Street crews by November 1 each season.
<https://www.youtube.com/watch?v=FHwmKJvN7s>

Review of Housekeeping Procedures

The City of Manassas Park stores salt at its Public Works facility at 331 Manassas Drive. The salt is stored in a salt shed; drainage from the area where salt is loaded into the spreaders drains into a tank which is emptied by a contractor and taken to a treatment facility. Upgrades to the tank are scheduled in the Capital Improvement Program.

Public Works pretreats roadways with brine to minimize the amount of salt needed during icy weather; the use of brine often negates the need to use salt during small storms. Salt is used in conjunction with plowing to maintain safe roadways.

Parking lots at public facilities are plowed and salted by Public Works; sidewalks at public facilities are cleared and salted by Parks staff. No salt is stored outside.

Schools staff plow its parking lots and clear its sidewalks. Schools staff use salt from the Public Works salt shed to salt its parking lots and sidewalks. No salt is stored outside.

Appendix A

List of Homeowners Associations

Subdivision

Belmont Reserve
Belmont Station
Bloom's Crossing
Bloom's Station
Brandy Court
Brandy Station
Dominion Crossing
Glen at White Pines
Manassas Park Station¹
Mosby Ridge
Mosby Ridge II
Outlook Condos
Sage Creek at Mosby Ridge
Stone Ridge II
Stone Ridge II - Phase 2

1 -Includes Manassas Park Station HOA, Townes Condo at MPS and Reserve Condo at MPS

the Outlook Recreation Association: Outlook Condominium Association, Stoneridge II Community Association, and the Second Stoneridge II Community Association.

Appendix B

Outreach materials from NVRC

Did You Know...

Road salts can make it safer for us to walk and drive around in the wintertime. It helps keep roads open, and allows businesses, government, and social services to stay open with little interruption.

However, it only takes one teaspoon of salt to permanently pollute 5 gallons of water.

Salt seeped into the environment can:

- Raise sodium levels in our drinking water and increase treatment costs.
- Harm fish, plants, and other wildlife.
- Corrode vehicles, roads, bridges, and parking lots.

Since there's no easy or cheap way to remove salt from our environment, we can all do our part to be **#WinterSaltSmart** by following the below tips for snow and ice maintenance.



How should you prepare for a storm?

Shovels may be all that you need for winter weather in Northern Virginia. To make it easier on your back, you can choose shovel products with wheels. Remember to take breaks and avoid overloading your shovel with wet snow.

For big storms or to clear larger areas, snow blowers or other equipment may also be helpful. See below for a chart to decide which type of equipment to use depending on the size of the area that you need to clear (based on 2 - 3 inches of snow):

Sidewalk Clearing Equipment	Clearing Ability Per Hour
Shovel (2 ft shovel)	1,500 ft ² per hour
Shovel (3 ft snow pusher)	3,000 ft ² per hour
Snow Blower - (2 ft broom)	5,000 ft ² per hour
ATV (4 ft blade)	8,000 - 12,000 ft ² per hour
Skid Steer/Ventrac (4 ft broom)	10,000 - 21,000 ft ² per hour



Smart Salt Management

Choosing the Best Salt or De-icing Product

- Always check product ingredients. Labels like “safe,” “pet-safe” and “environmentally friendly” can be used inaccurately on certain salt products.
- **All nitrogen and phosphorus salts are illegal in Virginia.**
 - Nitrogen salts include urea, ammonium sulfate and potassium nitrate, etc.
 - Phosphorus salts may have “phosphate” (PO₄) in the ingredients, although these are rare.

If applying a salt to your driveway or sidewalk, choose a product based on the **Lowest Practical Melting Temperature**, not the **Eutectic Temperature**. See the table below for different product options:

Product Type	Chemical (3)	Lowest Practical Melting Temperature (1)	Eutectic Temperature (2)
Salts (contain chloride)	NaCl (sodium chloride) - also called rock salt MgCl₂ (magnesium chloride) CaCl₂ (calcium chloride) KCl (potassium chloride)	15° F -10° F -20° F 25° F	-6° F -28° F -60° F 13° F
Other Salts (do not contain chloride)	CMA (calcium magnesium acetate) KAc (potassium acetate)	20° F -15° F	-18° F -76° F

For more information on these salts and some alternatives, visit “[Materials to Treat Snow and Ice](#)” and for more information on the temperature ranges of the different salts, see “[Temperature Ranges and Terminology for Salts.](#)”

1 The temperature that a salt will melt ice in a reasonable amount of time. Also called “Lowest Effective Temperature.”

2 The lowest temperature that a salt can melt ice. This is not a practical temperature to reference (see the warnings below).

3 Source: https://stormwater.pca.state.mn.us/index.php?title=Lowest_practical_melting_temperature

Salt Application Tips: Small Areas

- **Sodium chloride:** One 12-oz coffee mug holds enough salt to treat a 20-foot driveway or ten sidewalk squares. Aim for about 3 inches between pieces of rock salt.
- **Calcium chloride:** Apply at a rate that is one third of the rate used for sodium chloride.
- If it is too cold for salt to work, or you'd rather not use salt, consider using other traction materials. These include sand, bird seed (make sure to use a native blend), wood ash, and zeolite crystals (like EcoTraction™).



Salt Application Tips: Large Areas

If applying salt to larger surface areas on your property, consider the Sustainable Salt Institute's recommended application rates based on pavement temperature and trends using rock salt (NaCl):

Pavement Temperature (F) and Trend (↑ ↓)	Pounds per 1000 ft2	Pounds per Acre
15 - 20 ↑	14	610
15 - 20 ↓	13.5	588
20 - 25 ↑	13.25	577
20 - 25 ↓	12.75	555
25 - 30 ↑	12.5	545
25 - 30 ↓	11	479
30 ↑	11	479
30 ↓	10	436

4 The Sustainable Salt Initiative (SSI) rates are representative of the average of total rates collected from winter management companies participating in the Snow and Ice Management Association's SSI during 2015-2016 and 2016-2017 winter seasons. For more information and to access "Sexton, Phillip Charles. 2017. Sustainability Analysis of the Commercial Winter Management Industry's Use of Salt. Master's thesis, Harvard Extension School" visit <https://dash.harvard.edu/handle/1/33826971>.

Additional Snow and Ice Management Tips



- Clear snow by shoveling early and often.
- Make sure to clear snow and apply salt only where needed.
- Be patient and give the salt time to work. The colder it is, the longer it will take for the salt to melt what snow or ice remains after shoveling.
- Never use salt to "burn off" snow. It will quickly dilute and requires excess use.
- If the sun comes out and you can wait, let the sun do some of the work before you apply salt.
- After the storm, sweep up the extra salt or traction material and use it again next time winter weather hits.

Smart Snow and Ice Maintenance

Resource Sheet for HOAs and Civic Associations

Winter 2024



Smart snow and ice maintenance during the winter is crucial for homeowner associations (HOAs) and civic associations to ensure residents' safety, maintain property values, and prevent liability, while also limiting the impacts of winter salt on the environment and reducing long-term maintenance and improvement costs to vehicles and infrastructure. The following resource list provides information and links for HOA leaders to make informed decisions when they are preparing for snow and ice in the winter months. From maintenance contracts to member resident education and outreach, these tools will serve as a foundation for smarter salt management in every community.

Frequently Asked Questions

How does winter salt impact the environment?

While salt on our roads and sidewalks helps to keep us safe in the wintertime, it only takes one teaspoon of salt to permanently pollute 5 gallons of water. In particular, salt that enters the environment can raise sodium levels in our drinking water and harm fish, plants, and other wildlife that are adapted to freshwater environments.

Does excess winter salt financially impact our HOA?

Salts causes corrosion to vehicles and infrastructure, including sidewalks, roads, and bridges, and can lead to costly maintenance and repairs around your community. There are also a number of direct costs from winter salt application, including costs for materials (salt, brine, fuel etc.), equipment (trucks, plows, spreaders, etc.), and labor that increase with excess salt application. Without the use of optimal products and smart application practices, winter salt can result in greater costs to HOAs to maintain levels of service and replace infrastructure over time.

What actions can my HOA/civic association take to ensure smart salt management?

There are a number of ways that you can reduce the impacts of winter salt in your community:

- Engage member residents through workshops, newsletters, flyers, and other outreach tools to educate them about the environmental consequences of road salt and smart salting practices.
- Create a salt use policy that assesses current salt usage, adopts best practices for application, and ensures that your community is engaged around responsible salting practices.
- Develop a winter maintenance contract that reflects your salt use policy while also maintaining public safety and quality levels of service.
- Promote landscaping with native plants, which are typically more resilient to salt damage, and buffer zones to mitigate salt damage.

Developing a Smart Salting Policy

A salt use policy for an HOA or civic association outlines guidelines and best practices for the application of de-icing materials during winter months. Components of a policy may include assessment and monitoring guidelines, application practices, resident education, community involvement, and future adaptation. Overall, having a salt use policy helps to protect the environment and community health, while also enhancing property values, cost savings, and long-term sustainability. See below for two examples of these policies:

- [University of Wisconsin Madison Outdoor Salt Use Policy](#)
- [Village of Shorewood Hills Salt Use Policy](#)

Resident Education and Outreach

Smart salt management extends beyond coordination with winter snow and ice maintenance professionals. Communication and education to residents within your communities is vital to ensuring that residents are prepared for winter storm events but also understand the impacts of excess salt use on their surrounding environment. The following education and outreach resources can be shared with residents via emails, newsletters, printouts, and other formats to help spread the word on being #wintersaltsmart.

- [Winter Snow and Ice Maintenance Fact Sheet](#)
- [Fairfax Water: Winter Warrior Comic](#)
- [MWCOG #SmartSalt Infographic](#)
- [ICPRB: Winter Salt Smart StoryMap](#)
- [Winter Salt Impacts Infographic](#)
- [Winter Snow and Ice Management Tips Video](#)



Winter Maintenance Contracts

There are a number of factors to consider in the development of a winter maintenance contract, including costs, levels of service, and implementation of salt application best management practices. The following documents highlight example contracts and considerations to ensure an optimized level of service for your neighborhood's snow and ice maintenance needs.

- [Maryland Department of the Environment \(MDE\): Things to look out for in a Winter Maintenance Contract](#)
- [Minnesota Model Contract](#)
- [City of Edina Model Contract](#)

Additional Resources & Links

- [Virginia Salt Management Strategy Toolkit](#)
- [Interstate Commission for the Potomac River Basin \(ICPRB\): De-Icing Materials](#)
- [Minnesota Statewide Chloride Resources](#)
- [Wisconsin Salt Wise](#)
- [New Hampshire DES Salt Reduction Publications](#)
- [Arlington County Resources](#)
- [Fairfax County Guide to Snow](#)
- [Izaak Walton League of America: Salt Watch](#)
- [MWCOG Winter Salt Smart Resources](#)

Find these resources and more by scanning the QR code or visiting [**www.wintersaltsmart.com**](http://www.wintersaltsmart.com)



Did You Know...

Road salts can make it safer for us to walk and drive around in the wintertime. It helps keep roads open, and allows businesses, government, and social services to stay open with little interruption.

However, it only takes one teaspoon of salt to permanently pollute 5 gallons of water.

Salt seeped into the environment can:

- Raise sodium levels in our drinking water and increase treatment costs.
- Harm fish, plants, and other wildlife.
- Corrode vehicles, roads, bridges, and parking lots.

Since there's no easy or cheap way to remove salt from our environment, we can all do our part to be **#WinterSaltSmart** by following the below tips for snow and ice maintenance.

How should you prepare for a storm?

Have your shovel or snow blower ready!

- Shovels may be all that you need for winter weather in Northern Virginia. To make it easier on your back, you can choose shovel products with wheels. Remember to take breaks and avoid overloading your shovel with wet snow.
- For big storms or heavy weight snow, snow blowers may also be helpful.
- Always make sure to assemble an emergency or storm preparedness kit.
- Have your salt and traction materials ready and be sure to store them away for rain and snow!



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



Smart Salt Management

Choosing the Best Salt or De-icing Product

- Always check product ingredients. Labels like “safe,” “pet-safe” and “environmentally friendly” can be used inaccurately on certain salt products.
- **All nitrogen and phosphorus salts are illegal in Virginia.**
 - Nitrogen salts include urea, ammonium sulfate and potassium nitrate, etc.
 - Phosphorus salts may have “phosphate” (PO₄) in the ingredients, although these are rare.

If applying a salt to your driveway or sidewalk, choose a product based on the **Lowest Practical Melting Temperature**, not the **Eutectic Temperature**. See the table below for different product options:

Product Type	Chemical (3)	Lowest Practical Melting Temperature (1)	Eutectic Temperature (2)
Salts (contain chloride)	NaCl (sodium chloride) - also called rock salt	15° F	-6° F
	MgCl₂ (magnesium chloride)	-10° F	-28° F
	CaCl₂ (calcium chloride)	-20° F	-60° F
	KCl (potassium chloride)	25° F	13° F
Other Salts (do not contain chloride)	CMA (calcium magnesium acetate)	20° F	-18° F
	KAc (potassium acetate)	-15° F	-76° F

For more information on these salts and some alternatives, visit “[Materials to Treat Snow and Ice](#)” and for more information on the temperature ranges of the different salts, see “[Temperature Ranges and Terminology for Salts](#).”

1 The temperature that a salt will melt ice in a reasonable amount of time. Also called “Lowest Effective Temperature.”

2 The lowest temperature that a salt can melt ice. This is not a practical temperature to reference (see the warnings below).

3 Source: https://stormwater.pca.state.mn.us/index.php?title=Lowest_practical_melting_temperature

Post-Storm Maintenance

- Clear snow by shoveling early and often.
- Make sure to clear snow and apply salt only where needed.
- Never use salt to “burn off” snow. It will quickly dilute and requires excess use.
- If the sun comes out and you can wait, let the sun do some of the work before you apply salt.
- After the storm, sweep up the extra salt or traction material and use it again next time winter weather hits.

Salt Application Tips

Sodium chloride: One 12-oz coffee mug holds enough salt to treat a 20-foot driveway or ten sidewalk squares. Aim for about 3 inches between pieces of rock salt.

Calcium chloride: Apply at a rate that is one third of the rate used for sodium chloride.

- If it is too cold for salt to work, or you'd rather not use salt, consider using other traction materials. These include sand, bird seed (make sure to use a native blend), wood ash, and zeolite crystals (like EcoTraction™).
- Be patient and give the salt time to work. The colder it is, the longer it will take for the salt to melt what snow or ice remains after shoveling.

Attachment B

