Chloride Pollutant Minimization Plan for the Village of Crestwood

November 12, 2022

Prepared by the Village of Crestwood

The Village of Crestwood is a member of the Chicago Area Waterways Chloride Workgroup

1.0 Introduction to Chloride Issue in CAWS/LDPR

This Pollutant Minimization Plan ("PMP") has been prepared by the Village of Crestwood to reduce the environmental impacts from the organization's chloride related operations. The Village of Crestwood is a discharger covered under the Time Limited Water Quality Standard for Chloride for the Chicago Area Waterways System and Lower Des Plaines River watersheds. This PMP has been prepared to meet the requirements laid out in the Time Limited Water Quality Standard (TLWQS) for Chloride. The term of this PMP covers the first five (5) years of the TLWQS period and will be updated following the re-evaluations at Years 4 ½, 9 ½, and 14 ½.

Chlorides are commonly found in road salt, fertilizers, water softeners, dust suppressants, and certain industrial processes. Chloride-based deicers, like rock salt, are used on parking lots, sidewalks, and roads to provide safe surfaces to the public during the winter months. These deicers are one of most common sources of chloride in the Chicago region.

The water quality standard for chloride for the Chicago Area Waterway System (CAWS) was updated as part of the rulemaking process related to changing the designated use of the CAWS. The chloride standard was updated from 1,500 mg/L during the winter and 500 mg/L during the summer to 500 mg/L all year round. The change in the chloride water quality standard took effect in 2018. Because portions of the CAWS were not going to meet this new standard due to the need to maintain public safety on roads, highways, sidewalks and parking lots during the winter months, a joint submittal and supporting individual petitions were submitted between 2015 and 2018 to the Illinois Pollution Control Board for a variance from the chloride standard. The joint petition laid out best management practices that can be achieved by the petitioners to reduce their chloride use while maintaining public safety during winter storms. In addition to the CAWS, portions of the Lower Des Plaines River watershed were included as it receives water from the CAWS.

On November 4, 2021, the IPCB issued an Opinion and Order for a Time Limited Water Quality Standard (TLWQS) for Chloride for portions of the CAWS and Lower Des Plains River watersheds. The TLWQS for Chloride watersheds are defined in the Opinion and Order as the Des Plaines River watershed from the Kankakee River to the Will County Line (except for the DuPage River watershed) and the CAWS watershed (except the North Branch Chicago River watershed upstream of the North Shore Channel and those portions of the watershed located in Indiana). This is a watershed-based approach to reduce the chloride concentrations in the CAWS and Lower Des Plaines River. The TLWQS for Chloride requires all dischargers covered under the TLWQS for Chloride to create PMPs and implement specific best management practices based on their operations to reduce their chloride discharges.

2.0 Organization Information

2.1 Agency overview/description

Agency Name: Village of Crestwood		
Permit No.: ILG1030000 / MS4 Permit No.: IRL400320		
Agency Address: 13800 S. Cicero Ave.		
City: Crestwood	State: Illinois	Zip Code: 60418

Crestwood is an MS4 community. Crestwood maintains 77.5 actual lane miles, with 40 center-line miles. Crestwood is responsible for providing snow and ice control for its streets, including four (4) Village-owned parking lots. Parking lots consist of a Village Hall (which includes the Village Police Station and Fire Station), a Public Works facility, a recreational center, and a senior center. The only sidewalk maintained is in front of the Village Hall.

2.2 Chloride Sources

Crestwood's known chloride sources are from winter road and parking lot maintenance. Crestwood uses five (5) snow plow trucks, with three (3) trucks having a 10-ton salt capacity and two (2) trucks having a 2-ton salt capacity. Crestwood's snow plows spread salt over its 77.5 lane miles as needed during the winter season. Crestwood also maintains approximately 70,180 square feet of parking lots and a sidewalk. Crestwood has one salt-storage facility, which is fully enclosed, and the salt is stored inside on an impervious pad. Crestwood's salt trucks park immediately outside of the door to the salt dome and the salt is then loaded into the trucks. Any salt spilled is either spread to cover the adjacent parking area or it is swept back up and place back inside the salt dome.

2.3 Level of Service for Winter Maintenance Activities

Crestwood's goal is to make all streets, its sidewalk, and parking lots safe and accessible for vehicular and pedestrian traffic during and after a winter storm. Crestwood uses level of service goals for the roadways it maintains as guidelines to implement snow and ice operations during a storm. Specific information regarding Crestwood's guidelines is detailed in the Snow and Ice Plan, attached as Appendix 1.

3.0 Chloride Monitoring Data

Chloride monitoring data will be collected for the CAWS and Lower Des Plaines River watersheds per the IPCB order. The data will be maintained by the workgroups. Chloride data for the CAWS will be collected by the MWRD for the CAWS watershed and provided to the workgroups as part of the annual reporting as required by the IPCB order. The Lower Des Plaines Watershed Group also maintains a USGS monitoring station in the Des Plaines River at Channahon, Illinois that collects continuous conductivity data to estimate chloride concentrations.

4.0 Chloride Reduction BMPs

As part of the Chloride TLWQS, specific best management practices ("BMPs") were identified for POTWs, MS4s, CSOs, Industrial Sources, and IDOT/Tollway to reduce the chloride impact on the watershed. These BMPs will be implemented over the 15-year term and additional BMPs evaluated at 5-year intervals during the 15-year term. Further details about winter maintenance practices currently being implemented by the Village of Crestwood are included in the Snow and Ice Plan, which is included as Appendix 1. The BMPs identified are outlined below:

Workgroup BMP

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
The permittee must participate in a Chlorides workgroup for the CAWS or LDPR, depending on the watershed within which the facility's discharge is located.	**X**		The Village of Crestwood has been a member of the Chicago Area Waterways Chloride Workgroup since 2021. Crestwood has participated in all workgroup meetings and will attend required workshops and training seminars.

Salt Storage and Handling BMPs

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
Store all salt on an impermeable pad that must be constructed to ensure that minimal stormwater is coming into contact with salt unless the salt is stored in a container that ensures stormwater does not come into contact with the salt.	**X**		All salt stored by Crestwood is stored in a fully-enclosed permanent dome structure on an impervious concrete pad to prevent contact with stormwater.
Cover salt piles at all times except when in active use, unless stored indoors.	**X**		All salt stored by Crestwood is stored in a fully-enclosed permanent dome structure on an impervious concrete pad to prevent contact with stormwater.
For working areas, provide berms and/or sufficient slope to allow snow melt and stormwater to drain away from the area. If snow melt and stormwater cannot be drained away from the working	**X**		Crestwood's salt trucks park immediately outside of the door to the salt dome and the salt is then loaded into the trucks. Any salt spilled is either spread to cover the adjacent parking area or it is swept back up and place back inside the salt dome.

area, channeling water to a collection point such as a sump, holding tank or lined basin for collection, discharge at a later time, use for prewetting, and use for make-up water for brine must be considered.			Any excess salt from the working area does not come into contact with the stormwater system. Crestwood's salt trucks are cleaned inside a building with a triple catch basin system.
MS4/CSO Only - Use deicing material storage structures for all communities covered under General Permit ILR40 for MS4 communities.	**X**		All salt stored by Crestwood is stored in a fully-enclosed permanent dome structure on an impervious concrete pad to prevent contact with stormwater.
Good housekeeping practices must be implemented at the site, including: • cleanup of salt at the end of each day or conclusion of a storm event; • tarping of trucks for transportation of bulk chloride; • maintaining the pad and equipment; • good practices during loading and unloading; • cleanup of loading and spreading equipment after each snow/ice event; • a written inspection program for storage facility, structures and work area; • removing surplus materials from the site when winter activity finished where applicable; • annual inspection and repairs completed when practical; • evaluate the opportunity to reduce or reuse the wash water.	**X**		Crestwood uses good housekeeping practices for winter road salt related work including loading, salt deliveries, and facility inspections. Details are provided in Crestwood's Snow and Ice Plan.

Winter Maintenance Operations BMPs

Variance BMP	**Currently Implementing**	**Will Implement (Target Year)**	**Agency Description of Current Implementation**
Calibrate all salt spreading equipment at least annually before			

November 30th. Records of the calibration results must be maintained for each piece of spreading equipment.		**X** Target Year: 2027	
Pre-wet road salt before use, either by applying liquids to the salt stockpile, or by applying liquids by way of the spreading equipment as the salt is deposited on the road.		**X** Target Year: 2027	
Use equipment to measure the pavement temperature unless such equipment has already been installed on road salt spreading vehicles.		**X** Target Year: 2027	
Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing weather conditions, and forecasted weather conditions.	**X**		Crestwood varies the salt application rates based upon weather conditions during a storm. Information regarding application rates and materials is included in Crestwood's Snow and Ice Plan.
Track and record salt quantity used and storm conditions from each call-out.	**X**		Crestwood maintains records of each winter storm call-out. Information regarding recordkeeping is included in Crestwood's Snow and Ice Plan.
Develop a written plan for implementation of anti-icing, with milestones. The plan should consider increased use of liquids (e.g., carbohydrate products) beginning with critical locations such as bridges over streams.	**X**		See Crestwood's Snow and Ice Plan, at Appendix 1.
Provide employees involved in winter maintenance operations with annual training before November 30th on best management practices in the use of road salt in operations, including the practice of plowing first and applying salt only after snow has been cleared.	**X**		Crestwood completes annual training for winter maintenance staff each year, as set forth in the Snow and Ice Plan.
Be responsible for complying with all applicable BMPs even when deicing practices are contracted out and ensure that contractors are property trained and comply with all applicable BMPs.	**X**		Crestwood completes annual training for winter maintenance staff each year, as set forth in the Snow and Ice Plan. Crestwood does not contract out for snow and ice removal.
Complete an annual report, as			Crestwood will complete and submit an

required by paragraph 3(B) of this order, which is standardized in an electronic format and submitted to the IEPA's website and to the watershed group.		Will Complete first report in 2023	annual report each year to the IEPA and the workgroup by July 1.
Obtain and put into place equipment necessary to implement all salt spreading/deicing measure specified in this BMP, such as any new or retrofitted salt spreading equipment necessary to allow for pre-wetting and proper rates of application.		**X** Target Year: 2027	
MS4/CSO/IDOT/TOLLWAY Only - Install equipment to measure the pavement temperature on the winter maintenance fleet for a sufficient number of vehicles to provide sufficient information to adjust application rates for the most efficient levels. Develop and complete a plan to equip the winter maintenance fleet before the first re-evaluation.		**X** Target Year: 2027	
MS4/CSO/IDOT/TOLLWAY Only - Before the first re-evaluation, develop a method for conducting a post-winter review to identify areas of success and areas in need of improvement. Items to be completed as part of the review must include, but are not limited to, an evaluation of each salt spreader's application rate, variations in application rates, and discussion of the variation compared to the recommended rates. Once developed, the review should occur annually in the spring/early summer following each winter season.		**X** Target Year: 2027	

5.0 Plan to Implement BMPs

BMP: Calibrate all salt spreading equipment at least annually before November 30th. Records of the calibration results must be maintained for each piece of spreading equipment.

Plan to Implement BMP: Crestwood will contact the manufacturer of its salt spreading equipment to determine best methods for calibrating the salt spreading equipment.

Schedule for Implementation: Undetermined at this time but the current plan is to implement this item by the first re-evaluation period in 2027.

BMP: Pre-wet road salt before use, either by applying liquids to the salt stockpile, or by applying liquids by way of the spreading equipment as the salt is deposited on the road.

Plan to Implement BMP: Crestwood will contact the manufacturer of its salt spreading equipment to determine the feasibility of equipping the salt spreaders with devices that will apply liquids as the salt is deposited on the roads. After receiving estimates for the costs associated with such equipment upgrade, Crestwood will determine how it can budget and pay for this expense, if needed.

Schedule for Implementation: Undetermined at this time but the current plan is to implement this item by the first re-evaluation period in 2027.

BMP: Use equipment to measure the pavement temperature unless such equipment has already been installed on road salt spreading vehicles.

Plan to Implement BMP: Crestwood will budget for and plan to purchase mirror mounted pavement temperature sensors for its five trucks until all vehicles are equipped. Due to the expense of equipping the entire fleet at once, Crestwood will attempt to budget for and obtain a sensor for at least one truck by the winter of 2023/2024 but that will still provide for pavement temperature information to make decisions regarding application rates of salt during winter storms.

Schedule for Implementation: Undetermined at this time but if the first purchase of a temperature sensor cannot be made for the 2023-2024 winter season, Crestwood will attempt budget the first sensor for the 2024-2025 winter season. Crestwood currently anticipates that it may be able to fully implement this item by the first re-evaluation period in 2027.

BMP: Develop a written plan for implementation of anti-icing, with milestones. The plan should consider increased use of liquids (e.g., carbohydrate products) beginning with critical locations such as bridges over streams.

Plan to Implement BMP: Crestwood will evaluate the need to use such anti-icing products as liquids prior to the first re-evaluation period. Currently, and as stated in Crestwood's Snow and Ice Plan, Crestwood currently uses on average only 500 tons of salt each season. Crestwood responds to each snow event by first plowing all of its streets without the use of salt. After the streets have been cleared, Crestwood waits for the daytime hours to spread salt on the plowed surfaces. Crestwood's annual salt usage should be considered minimal in relation to the number of lane miles maintained. Crestwood will evaluate whether the use of liquids would demonstrably lessen the total amounts of salt currently used per season.

Schedule for Implementation: Undetermined at this time but will continuously evaluate this BMP and decide whether to implement new anti-icing measures by the first re-evaluation period in 2027.

BMP: Before the first re-evaluation, develop a method for conducting a post-winter review to identify areas of success and areas in need of improvement. Items to be completed as part of the review must include, but are not limited to, an evaluation of each salt spreader's application rate, variations in application rates, and discussion of the variation compared to the recommended rates. Once developed, the review should occur annually in the spring/early summer following each winter season.

Plan to Implement BMP: Crestwood will develop a plan, to be included in its Snow and Ice Plan, to track such items as total amount of salt used, the amounts of salt used per each winter event, the application rates used, and a comparison of rates used against recommended rates.

Schedule for Implementation: Crestwood will further develop this plan, some of which is already included as part of its Snow and Ice Plan, by the first re-evaluation period in 2027.

6.0 Other Chloride TLWQS Required Milestones

The Village of Crestwood will implement these specific milestones (not included in the above BMPs) as outlined by the Chloride TLWQS.

Milestone	Agency Completion Date	Agency Completion Details
6 Months After Effective Date (by 11/12/22): Petitioner establishes a mechanism for tracking of de-icing salt usage for each facility.	11/22/2022	Crestwood maintains records of each winter storm call-out and will record the amount of salt usage for each event.
July 1st OF EVERY YEAR (BEGINNING WITH YEAR 2): Discharger must submit an Annual Report for the previous year beginning on May 1 and ending on April 30 of the following year to the Agency and the chlorides workgroup on. The report shall be on salt usage for deicing and steps taken to minimize salt use and makes the report publicly	7/1/2023	Crestwood will submit an annual report to the workgroup and IEPA.

available.		
July 1st of YEAR 3, YEAR 8 and YEAR 13: The chlorides workgroup submits a Status Report to the IEPA which includes an analysis on the following: chlorides monitoring data; report on the chloride workgroup's outreach strategy, which includes outreach efforts to expand coverage of the TLWQS, and outreach and training for nonpoint sources; identification of any new BMPs, treatment technology or salt alternatives; identification of the impediments and potential solutions of those impediments faced by dischargers and those granted coverage under the TLWQS that prevent them from completing the training and making all capital purchases necessary to implement the required BMPs; and identification and description of any assistance (financial, technical, or otherwise) that the chloride workgroup may be able to provide.	By July 1 of year 3, 2025, the workgroups will submit a Status Report to the IEPA.	
July 1st OF YEAR 4 ½: Chlorides workgroup submits to the Board its first proposed re-evaluation pleading consistent with the Board's order granting	By July 1 of year 4 ½ (2026), the workgroups will submit a re-evaluation to the IEPA and IPCB.	

the TLWQS.		

Appendix 1 – Snow and Ice Plan

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VILLAGE OF CRESTWOOD

PUBLIC WORKS DEPARTMENT

SNOW AND ICE PLAN

Goals and Objectives

The Village of Crestwood provides snow and ice control for 77.5 actual lane miles, with 40 center-line miles of streets, four Village-owned parking lots, and the sidewalk in front of the Village Hall. Snow and ice control is considered emergency work in that pavement may need to be cleared any time of the day or night. Because of the potential hazard to the motoring public and the potential for high incidents of overtime involved in this program, careful planning and preparation must be done prior to the snow and ice season. This planning process is difficult due to the variable conditions encountered during each storm. Variables such as the rate and accumulation of snowfall, moisture content, temperature, time of day or night, wind direction and velocity, and duration all interact to make each storm unique.

It is the goal of the Public Works Department to make Village streets and parking lots safe and accessible during and after a storm for vehicles that are properly equipped for winter driving conditions, in accordance with the guidelines set forth herein. The Village will attempt to clear all routes to bare pavement and maintain a clear bare driving track on either side of the centerline within twelve (12) hours of the end of a snowfall. However, during and after a storm, some streets may be snow packed, and snow may be expected to accumulate adjacent to the traveled portion of the road.

In addition, the Public Works Department will attempt to make the four (4) public parking lots and the Village Hall sidewalk area safe and accessible for use during and after a storm, in accordance with the guidelines set forth herein. The Village will attempt to maintain access to the parking lots during business hours with the major clearing operation being completed during the evening and non-business hours. The Village will attempt to clear the Village Hall sidewalk to a bare surface and maintain a safe walking area for pedestrians within twelve (12) hours of the end of a one inch or greater snowfall.

It is also the goal of the Public Works Department to make the parking lots and walkways for all Village-owned facilities safe and accessible during the winter season. Caution is advised, however, when using Village facilities during the winter season because of the potential for hazardous conditions caused by snow, wind, and freezing temperatures.

Guidelines

The Public Works Department continuously monitors all winter snow and ice events, before, during, and after each event. The Public Works Department notifies personnel of hazardous road conditions due to snow and ice during normal work hours. After normal work hours, the Police Department watch commander will notify their dispatch center who, in turn, will notify the Public Works on-call person of the road conditions. The number of personnel called in may range from one (1) for isolated icing to five (5) for a full call-out situation. The Village uses five (5) snow plow trucks, with three (3) trucks having a 10-ton salt capacity and two (2) trucks having a 2-ton salt capacity. All Public Works personnel have a role in the snow and ice program. The Village completes annual training for winter maintenance staff each year before November 30th as to the below guidelines.

The Village plows only one (1) main street: Cal-Sag Road/Route 83 to the east and west of Cicero Avenue. The Village **does not** plow other main streets located in the Village limits, such as Cicero Avenue, Midlothian Turnpike, 127th Street, 135th Street, and Pulaski Avenue. Those main routes are cleared and maintained by either the State of Illinois or Cook County. The Village is primarily responsible for the side streets within the Village. The Village divides its streets into three (3) routes. The streets are plowed curb-to-curb and salted in both directions. For all storms, in general for all streets, the priority is to plow the streets clean first and to not apply salt until after the storm event has concluded in order to minimize salt use. In addition, the Village attempts to only apply salt during afternoon hours when the temperature and sun exposure is at their greatest. Exceptions to this general guideline are made to high-traffic areas, as needed.

Prior to implementing these best practices, the Village had averaged approximately 800 tons of salt each winter season. But since implementing these best practices several years ago, the Village currently only uses 500 tons of salt per season. Salt application rates vary with different weather conditions. As noted above, the general practice is to not apply salt until after plowing has concluded. Further, when possible, salt is not applied to surfaces until the afternoon when the temperatures are typically warmest, allowing for maximum salt impact on ice. Colder conditions may call for higher application rates than warmer conditions.

Crestwood Public Works employs good housekeeping practices before, during, and after each winter event. The Village has one salt-storage facility, which is fully enclosed, and the salt is stored inside on an impervious pad. The Village's salt trucks park immediately outside of the door to the salt dome and the salt is then loaded into the trucks. Any salt spilled is either spread to cover the adjacent parking area or it is swept back up and place back inside the salt dome. Any excess salt from the working area does not come into contact with the stormwater system. The Village's salt trucks are cleaned inside a building with a triple catch basin triple basin system. The Village's good housekeeping practices also include, but are not limited to, the routine inspection and repair of equipment as needed. The Village's good housekeeping practices also include reporting information for each snow event including, but not limited to, material usage and temperature and storm accumulation totals. The Village keeps detailed records of all aspects of snow removal. Tons of salt used, miles driven, and weather conditions are all recorded after each snowfall.

Sodium Chloride (rock salt) is the only used de-icer due to its availability and cost. Salt is most effective when the temperatures are at 20 degrees or warmer with sunshine and traffic. However, when these conditions do not exist, the salt's effectiveness is reduced. As temperatures dip below 20 degrees, higher application rates and repeated applications over a longer period of time may be needed to achieve the same de-icing effort. To be an effective de-icer, salt requires heat and moisture – two things often lacking on cold, dry winter days.

The Village's rock salt is stored in a single salt dome building and typically the Village stores approximately 100 tons of salt at any given time at the Public Works facility. Quantities of salt are constantly monitored throughout the winter season to ensure that there is an adequate supply. The storage area is also maintained by staff to ensure that unwanted runoff does not occur.

The Village recognizes that conditions may be so unusual or unexpected that a departure from these procedures should be authorized. Therefore, when conditions warrant, the Village Services

Director, in consultation with other Village Public Works staff, the Police Chief, and the Fire Chief, as necessary, may order a departure from these procedures when, in their opinion, conditions require such action.

The purpose of these procedures is to establish goals for the Village regarding snow and ice control. It is not to be construed to create any duty to any individual, person, or entity. These procedures do not provide any special protection or service to any particular individual or group of individuals. No additional rights shall be granted to any individual or entity simply by adoption and enforcement of these procedures. These procedures may be affected, in total or in part, by acts of God, strikes, equipment breakdowns, weather conditions, inadequacy of equipment, State or Federal regulations, shortage of personnel, and any other unforeseen, uncontrollable, or unanticipated acts.