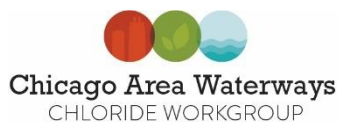


Chloride Pollutant Minimization Plan for  
Cook County Department of Transportation and Highways (CCDOTH)

11/04/2022

Prepared by Cook County Department of Transportation and Highways (CCDOTH)

Maintenance Bureau



Cook County Department of Transportation and Highways

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 Cook County Department of Transportation and Highways (DoTH) to reduce the environmental impacts from the organization's chloride related operations. DoTH 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 5-years of the TLWQS period and will be updated following the re-evaluations at Years 4 ½, 9 ½, and 14 ½.

Chloride is a permanent pollutant. It does not degrade over time and continues to accumulate in the environment. Proactive measures to reduce the amount of chloride discharged can help reduce the impacts from chloride on receiving waterways and the environment. Chloride impacts aquatic life, vegetation, and infrastructure. As the chloride concentrations increase and our waters become saltier, aquatic and plant biodiversity decreases and native species are overtaken by salt tolerant invasive species.

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 Plaines 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 Info, Facilities' Specific Info

The DoTH Maintenance Bureau is comprised of four (4) maintenance facilities housing supervisory staff, highway maintenance labor force and equipment personnel.

### 2.1 Facility overviews/descriptions

Agency Name: Cook County Department of Transportation and Highways		
Facility Name: Maintenance District 1		Permit Number: ILG103060
Facility Address: 2325 N Meacham Rd		
City: Schaumburg	State: Illinois	Zip Code: 60173

The Cook County Department of Transportation and Highways Maintenance District 1 Facility maintains 429 lane miles of highways in the northwest quadrant of suburban Cook County. This facility has a salt storage dome with concrete walls and a concrete pad with capacity for storing 4,000 tons of rock salt. This facility also houses a liquid deicer storage tank with a capacity of 4,000 gallons.

Agency Name: Cook County Department of Transportation and Highways		
Facility Name: Maintenance District 2		Permit Number: ILG103060
Facility Address: 2101 Ballard Rd		
City: Des Plaines	State: Illinois	Zip Code: 60016

The Cook County Department of Transportation and Highways Maintenance District 2 Facility maintains 346 Lane miles of highways in the northeast quadrant of suburban Cook County. This facility has a salt storage dome with concrete walls and concrete pad with capacity for storing 5,194 tons of rock salt. This facility also houses a liquid deicer storage tank with a capacity of 5,000 gallons.

Agency Name: Cook County Department of Transportation and Highways		
Facility Name: Maintenance District 4		Permit Number: ILG103060
Facility Address: 8900 W 135 <sup>th</sup> St		
City: Orland Park	State: Illinois	Zip Code: 60462

The Cook County Department of Transportation and Highways Maintenance District 4 Facility maintains 476 Lane miles of highways in the southwest quadrant of suburban Cook County. This facility has a salt storage dome with concrete walls and a concrete pad with capacity for storing 5,194 tons of rock salt. This facility also houses a liquid deicer storage tank with a capacity of 5,000 gallons.

Maintenance District 4 also maintains an additional salt storage dome at 901 E. 26<sup>th</sup> St in La Grange Park, Illinois 60526 with concrete walls and a concrete pad with capacity for storing 800 tons of rock salt and a liquid deicer storage tank with a capacity of 4,000 gallons.

Agency Name: Cook County Department of Transportation and Highways		
Facility Name: Maintenance District 5		Permit Number: ILG103060
Facility Address: 13600 S Ashland Ave		
City: Riverdale	State: Illinois	Zip Code: 60827

The Cook County Department of Transportation and Highways Maintenance District 5 Facility maintains 374 Lane miles of highways in the southeast quadrant of suburban Cook County. This facility has a salt storage dome with concrete walls and a concrete pad with capacity for storing 6,483 tons of rock salt. This facility also houses a liquid deicer storage tank with a capacity of 5,000 gallons.

## 2.2 Chloride Sources

The Cook County Department of Transportation and Highways conducts winter snow and ice removal operations to provide safer roads for the motoring public throughout suburban Cook County. This activity creates salt brine (chloride) runoff from road surfaces to area waterways. Cook County maintains domes for rock salt and plastic storage tanks for liquid deicer. Negligible amounts of chlorides may also end up in waterways as a result of loading activities.

## 2.3 Level of Service for Winter Maintenance Activities

The Cook County Department of Transportation and Highways' winter maintenance activities consist of snow and ice removal operations which include clearing road surfaces of snow and ice, edge line to edge line. Crews are also dispatched for complaints of; snow drifting situations. For snow and ice control operations, DOTH's objective is to deploy resources to provide the safest winter driving conditions feasible in the most efficient time possible to mitigate the impact winter weather conditions can have on those traveling on the County highway system.

## 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 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, IL that collects continuous conductivity data to estimate chloride concentrations.

#### 4.0 Chloride Reduction BMPs for POTWs, MS4s, CSOs, Industrial Sources, IDOT/Tollway

As part of the Chloride TLWQS, specific 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 Cook County Department of Transportation and Highways are included in the snow and ice policy, 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.	YES		DoTH has been a member of the Chicago Area Waterways Chloride Workgroup since 2021. DoTH maintenance and environmental staff attend meetings and trainings arranged by the CAWS.

##### 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.	YES		DoTH stores all salt in five permanent dome structures on concrete pads to prevent contact with stormwater.
Cover salt piles at all times except when in active use, unless stored indoors.	YES		DoTH stores all salt in salt domes, does not store any salt outdoors, and is committed to covering salt piles if ever stored outdoors.
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 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.	<i>Partially implemented</i>	<i>Will fully implement by end of 2025.</i>	Salt is currently stored in domes on concrete pads. DOTTH will work with our Cook County Bureau of Asset Management (BAM) to request a Capital Improvement Project (CIP) in FY 2024-25 which will improve the salt storage and loading zone. This will include the regrading of pavement which will allow snow melt and stormwater runoff from working areas to be collected for use in the production of salt brine.

<p><b>MS4/CSO Only</b> - Use deicing material storage structures for all communities covered under General Permit ILR40 for MS4 communities.</p>	<p><b>YES</b></p>		<p>DoTH stores all salt in five permanent dome structures on a concrete pad to prevent contact with stormwater.</p>
<p>Good housekeeping practices must be implemented at the site, including:</p> <ul style="list-style-type: none"> <li>• cleanup of salt at the end of each day or conclusion of a storm event;</li> <li>• tarping of trucks for transportation of bulk chloride;</li> <li>• maintaining the pad and equipment;</li> <li>• good practices during loading and unloading;</li> <li>• cleanup of loading and spreading equipment after each snow/ice event;</li> <li>• a written inspection program for storage facility, structures and work area;</li> <li>• removing surplus materials from the site when winter activity finished where applicable;</li> <li>• annual inspection and repairs completed when practical;</li> <li>• evaluate the opportunity to reduce or reuse the wash water.</li> </ul>	<p><b>YES</b></p>		<p>DoTH uses good housekeeping practices for winter road salt related work including loading, salt deliveries, and facility inspections. Details are provided within Section 4.D.II of the attached Snow and Ice Policy</p>

## 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.	<b>YES</b>		DoTH's snow trucks are calibrated by the manufacturer on an annual basis. Regular recalibration before snow season will be completed before November 30 <sup>th</sup> of each year.
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.	<b>YES</b>		DoTH uses pre-wetted salt before dispersion on road using onboard liquid deicing material as is noted in Section 4.D.II of the Snow and Ice Policy.
Use equipment to measure the pavement temperature unless such equipment has already been installed on road salt spreading vehicles.	<b>YES</b>		DoTH utilizes information provided by our contract weather forecaster and has equipment to measure pavement temperature on over 24 trucks with truck sensors divided equally between the four maintenance Districts.
Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing weather conditions, and forecasted weather conditions.	<b>YES</b>		DoTH varies application rates and materials based on pavement temperatures and weather conditions. Information regarding application rates and materials is included in Section 4.D.II of the attached Snow and Ice Policy
Track and record salt quantity used and storm conditions from each call-out.	<b>YES</b>		DoTH tracks and records salt quantity used and storm conditions from each call-out. Salt usage is tracked after each shift of a snow event..
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.	<b>Partially</b>	<b>Will fully implement updated anti-icing program by end of 2025.</b>	DoTH utilizes guidelines for use of anti-icing products and includes information in Section 4.D.II of the Snow and Ice Policy. DoTH is also working to expand upon our existing operations to allow for enhanced use of anti-icing materials. DoTH issued a solicitation for brine mixing stations for the two north Districts (1 and 2) in fall of 2022. DoTH plans to issue a solicitation for brine mixing stations for the two remaining Districts (4 and 5) in 2023, with implementation in 2024 and will update snow and ice policy to include protocols for anti-icing by 2025.
Provide employees involved in winter maintenance operations with annual training before November 30th on best	<b>YES</b>		DoTH completes annual training for winter maintenance staff each year before November 30th.

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.			
Be responsible for complying with all applicable BMPs even when deicing practices are contracted out and ensure that contractors are properly trained and comply with all applicable BMPs.	<b>YES</b>		DoTH does not typically contact any snow and ice operations. In the event that contract services are provided, DoTH will ensure that services comply with all applicable BMPs.
Complete an annual report, as 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.	<b>NO</b>	<b>Will complete first report in 2023</b>	DoTH will complete and submit an annual report each year to 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.	<b>YES</b>		DoTH's snow trucks are equipped with salt spreading monitoring equipment. Our trucks also can pre-set and measure application rates, record data and pre-wet salt.
<b>MS4/CSO/IDOT/TOLLWAY Only</b> - 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.	<b>YES</b>		DoTH has equipment to measure pavement temperature on a sufficient number of vehicles in our winter maintenance fleet with over 24 trucks with truck sensors divided equally between the four maintenance Districts.
<b>MS4/CSO/IDOT/TOLLWAY Only</b> - 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	<b>NO</b>	<b>Will implement by end of 2024</b>	DoTH will develop a method for conducting a post-winter review to identify areas of success and areas in need of improvement by 2024.



review should occur annually in the spring/early summer following each winter season.			
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## 5.0 Plan to Implement BMPs

The Cook County Department of Transportation and Highways will implement the following BMP's to take steps towards compliance with chloride standards for the Chicago Area Watershed.

**BMP:** 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 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.

**Plan to Implement BMP:** DOTH will request a Capital Improvement Project (CIP) in FY 2024-25 which will improve the salt storage and loading zone. This will include regrading of pavement which will allow snow melt and stormwater runoff from working areas to be collected for use in the production of salt brine.

### Schedule for Implementation:

- 2023: Coordinate with Cook County Bureau of Asset Management (BAM) on need for site improvements to all four Districts for salt storage and loading zone. Request funding be provided in 2024 budget for improvements.
- 2024: Work with Cook County BAM to select an architect and engineer for design of the improvements. Start design of the improvements.
- 2025: Finalize design and implement salt storage and loading zone improvements.

**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:** DOTH issued a solicitation for first brine mixing stations for the two north Districts in fall of 2022. DoTH plans to provide a solicitation for final brine mixing stations in 2023 for the two south Districts. With contracts in place, DoTH will work to implement all improvements by 2024 and will update snow and ice policy to include protocols for anti-icing by the end of 2025.

### Schedule for Implementation:

- 2022: Review bids from initial solicitation for two north Districts.
- 2023: Approve contracts for the two north Districts. Release a solicitation for the two south Districts. Implement improvements for the two north Districts.
- 2024: Approve contracts for the two south Districts and implement improvements.
- 2025: Finalize updated procedures for all Districts to be included in updated snow and ice policy.

**BMP:** Complete an annual report, as 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.

**Plan to Implement BMP:** DOTH will complete and submit an annual report each year to IEPA and the workgroup by July 1 each year.

**Schedule for Implementation:** DoTH will complete first report in 2023 and continue annually thereafter.

**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:** Analyze data of application rates from 2022/23 snow season to help develop a method for the post-winter review in 2023. Refine and finalize post-winter review after 2023/24 snow season. Complete the post-winter review in 2024 and replicate in future years.

**Schedule for Implementation:**

- 2023: Analyze data from 2022/23 snow season for application rate of salt spreaders. Based on review of data, create a protocol for conducting a post-winter review.
- 2024: After 2023/24, update and finalize method as needed for conducting a post-winter review. Complete post winter review and update salt spreading protocols and Snow and Ice Policy as needed. Replicate post-winter review in future years.

**6.0 Other Chloride TLWQS Required Milestones**

DoTH 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: Petitioner establishes a mechanism for tracking of de-icing salt usage for each facility.	October 31, 2022	After each snow and ice event shift, DoTH documents the quantity of salt used and the balance of salt remaining in each dome.
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 available.	By July 1 of each year, beginning in Year 2 2023.	DoTH will submit an annual report to the workgroup and IEPA.
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	By July 1 of year 3 2024, the workgroups will submit a Status Report to the IEPA.	

<p>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.</p>		
<p>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 the TLWQS.</p>	<p>By July 1 of year 4 ½ 2026, the workgroups will submit a re-evaluation to the IEPA and IPCB.</p>	

**Appendix 1 – Section 4.D.II (Salt Application) of the Snow and Ice Policy**

## **D. PATROL/ROUTING PROCEDURES**

### **I. General**

Motor Vehicle Drivers shall follow their assigned patrol/route and radio in as follows:

- Upon completion of each individual road pass within their assigned patrol/route and provide the road pass to which they are en route
- Upon full completion of a roadway
- All other situations that should be known by the District (for example, hazardous locations, equipment problems, general road conditions, etc.)

The Central Dispatch Operator shall log these calls and indicate on a District map those portions of the patrol/route that have been completed. They shall also monitor the AVL to ensure radio calls are accurate and cross-reference the AVL data with the physical map. Central Dispatch Operators shall report any discrepancies between the physical map and AVL data to their Supervisor.

### **II. Salt Application**

Road salt is an important tool to keep County highways safe for the motoring public. Unfortunately, it is also a permanent pollutant to our water supply. It does not degrade over time and continues to accumulate, impacting aquatic life, damaging plants, and providing high chloride concentrations in our drinking water.

The Department is committed to utilizing best practices to reduce the amount of chloride runoff during snow and ice control operations. These include, but are not limited to, the following:

- Storage of salt shall be located within one of the five District salt domes unless approved by the Maintenance Bureau Chief. In the event salt is stored outside of a dome, it must be located on a hard surface and covered with tarps.
- During the loading and unloading of salt, Road Equipment Operators must follow good practices to minimize spillage. Trucks should not exceed ten (10) cubic yards with any load.

- District Maintenance Supervisors shall ensure that loading and spreading equipment is cleaned after each snow and ice event.
- The Equipment Division shall maintain the salt dome pad and equipment in good working order.
- The Equipment Division shall coordinate the calibration of all salt spreading equipment annually before November 30<sup>th</sup>, and records of the calibration results must be maintained for each piece of spreading equipment.
- District Maintenance Supervisors shall ensure salt is pre-wet prior to application.
- District Maintenance Supervisors shall ensure that loading and spreading equipment is cleaned after each snow and ice event.
- Supervisors shall track and record storm conditions and the quantity of salt used for each callout and document the same on each shift's Storm Summary Report.
- District Maintenance Supervisors shall ensure that all excess salt is cleared and surplus material removed from the loading site at the conclusion of each snow and ice event.

Motor Vehicle Drivers must familiarize themselves with the operations of the salt spreader so they can adjust it and their vehicle speed in order to place the optimal amount of chemicals and/or abrasives on the roadway.

Motor Vehicle Drivers shall apply salt or brine mixture in a continuous spread over the entire patrol/route. Unless otherwise directed by their Supervisor, Motor Vehicle Drivers should use discretion in placing a spot application, or, if in doubt, radio in for instructions.

The application of salt, brine mixture, and calcium chloride (liquid additive to salt), should be done in accordance with best management practices to avoid accidents, minimize damage to equipment, and minimize excess salt on the roadway. Required and recommended practices are listed below:

- Motor Vehicle Drivers shall maintain speeds not greater than twenty (20) to twenty-five (25) mile per hour when applying salt.

- Salt should only be used during conditions where it is effective at improving driving conditions. Salt should typically not be used during very heavy snow fall periods (blizzard conditions) where plowing operations will continue for the foreseeable future.
- Calcium chloride should only be added to salt between 20 degrees and -25 degrees Fahrenheit where it is most effective at improving driving conditions.
- The application rate shall be adjusted to obtain optimal results based on pavement temperature, existing weather conditions, and forecasted weather conditions. Please see tables below for recommended anti-icing and deicing application rate guidelines.

Condition	Gallons / Lane Mile		
	CaCl <sub>2</sub>	Enhanced Salt Brine	Salt Brine
1. Regularly scheduled applications	15 – 25	15 – 30	20 – 40
2. Prior to frost or black ice event	15 – 25	15 – 30	20 – 40
3. Prior to light or moderate snow	15 – 25	15 – 30	20 – 50

Table 1 – Anti-icing Application Rate Guidelines

Pavement Temp (°F) and Trend (↑↓)	Weather Conditions	Maintenance Actions	Tons / Lane Mile		
			Salt Prewetted/ Pretreated With Salt Brine	Salt Prewetted/ Pretreated With Other Blends	Dry Salt*
>30°↑	Snow	Plow, treat intersections only	80	70	100*
	Freezing Rain	Apply chemical	80 – 160	70 – 140	100 – 200*
30°↓	Snow	Plow & apply chemical	80 – 160	70 – 140	100 – 200*
	Freezing Rain	Apply chemical	150 – 200	130 – 180	180 – 240*
25 – 30°↑	Snow	Plow & apply chemical	120 – 160	100 – 140	150 – 200*
	Freezing Rain	Apply chemical	150 – 200	130 – 180	180 – 240*
25 – 30°↓	Snow	Plow & apply chemical	120 – 160	100 – 140	150 – 200*
	Freezing Rain	Apply chemical	160 – 240	140 – 210	200 – 300*
20 – 25°↑	Snow or Freezing Rain	Plow & apply chemical	160 – 240	140 – 210	200 – 300*
20 - 25°↓	Snow	Plow & apply chemical	200 – 280	175 – 250	250 – 350*
	Freezing Rain	Apply chemical	240 – 320	210 – 280	300 – 400*
15 - 20°↑	Snow	Plow & apply chemical	200 – 280	175 – 250	250 – 350*
	Freezing Rain	Apply chemical	240 – 320	210 – 280	300 – 400*
15 - 20°↓	Snow or Freezing Rain	Plow & apply chemical	240 – 320	210 – 280	300 – 400*
0 - 15°↑↓	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	300 – 400	Not recommended
<0°	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	400 – 600**	Not recommended

Table 2 - Deicing Application Rate Guidelines for single travel lane

\* Dry salt is not recommended as it is likely to blow off the road before it melts ice and can only be used with Maintenance Bureau Chief approval

\*\* A blend of 6 – 8 gal/ton CaCl<sub>2</sub> added to NaCl can melt ice as low as -10°.

**III. Plowing**

i. General

Prior to leaving the facility, plows should be checked to ensure that the plows, hoses, blades and shoes are in good condition and that the amount of blade