Department of Transportation – Snow & Ice Guidelines

20 18CEHA Fall Chloride Workshop

Overview

- Design Practices
- Level of Service
- Comparison of ConnDOT vs. New England States
- Pre-Storm/Planning
- Application Rates
- Inventory Control
- Complaint Procedures
- Moving Forward

Design Process

- Existing - Environmental Screening
  - Setting
  - Receptors
  - Aquifer Protection Areas

- Future
  - MS4 – Impaired Waters
  - Shared Data from DPH

Highway Operations Procedures

Level of Service

- Roadways are classified by traffic volume:

CLASS	DESCRIPTION	TREATMENT
Class 1 – (Limited Access Highways)-	interstate routes and ramps, and expressway routes and ramps and emergency routes	• continuous service throughout the storm • roads and shoulders cleared within reasonable time following storms.
Class 2 – (Primary)-	major and minor collector highways	• reduced plowing; • center generally clear, • providing for one-wheel path of traction in either direction
Class 3 – (Secondary/All Others)-	local roads and lower-volume roadways	• low-level priority; • roadway may be snow covered and passable but heavy snow accumulations may develop

Regional State Application Rates

State	Conditions	Application Rate (lbs/lane-mile)	Frequency
CONNECTICUT	Above 29°F	200	3 hours
	20-29°F		
	Below 20°F		
MAINE	Above 20°F	100-300	Unknown
	Below 20°F	300-800	
MASSACHUSETTS	All	240	Unknown
NEW HAMPSHIRE	Sleet/Freezing Rain	300	1.5 - 2 hrs - Interstate
	Snow: 20° F	250	2.5 - 3 hrs- State roads
	Snow: < 20° F	250	
NEW YORK	Above 32°F	160	Unknown
	23-32°F	225 - 275	
	15-23°F	275-360	
	Below 15°F	Abrasives	
VERMONT	Above 32°F	0 - 100	Unknown
	25-32°F	100 - 200	
	20-25°F	200 - 300	
	15-20°F	300 - 400	
RHODE ISLAND	All	320	Unknown

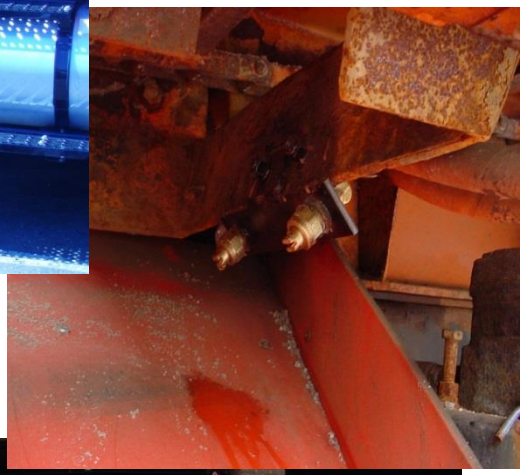
- ConnDOT does not have a bare and wet pavement policy
- Our state highway system should remain ***reasonably safe*** and in a ***passable*** condition by ***continuous plowing*** and ***judicious use*** of snow and ice materials

Regional State Application Rates

State	Total Lane Miles	Winter 2016 - 2017					
		Liquid			Dry Materials		
		Liquid Materials applied (gallons)	Average Liquid Materials applied (gallons) per Lane Mile	Relative Rank	Dry Materials applied (tons)	Average Dry Materials applied (tons) per Lane Mile	Relative Rank
CONNECTICUT	10,870	1,606,170	148	3	188,610	17	4
MAINE	8,300	1,197,494	144	4	142,192	17	4
MASSACHUSETTS	16,000	3,340,000	209	2	516,327	32	1
NEW HAMPSHIRE	9,366	226,280	24	6	87,030	9	6
NEW YORK	43,716	1,537,170	35	5	1,090,000	25	2
VERMONT	6,511	2,833,669	435	1	127,382	20	3
RHODE ISLAND	3,300						

Pre-Storm/Planning

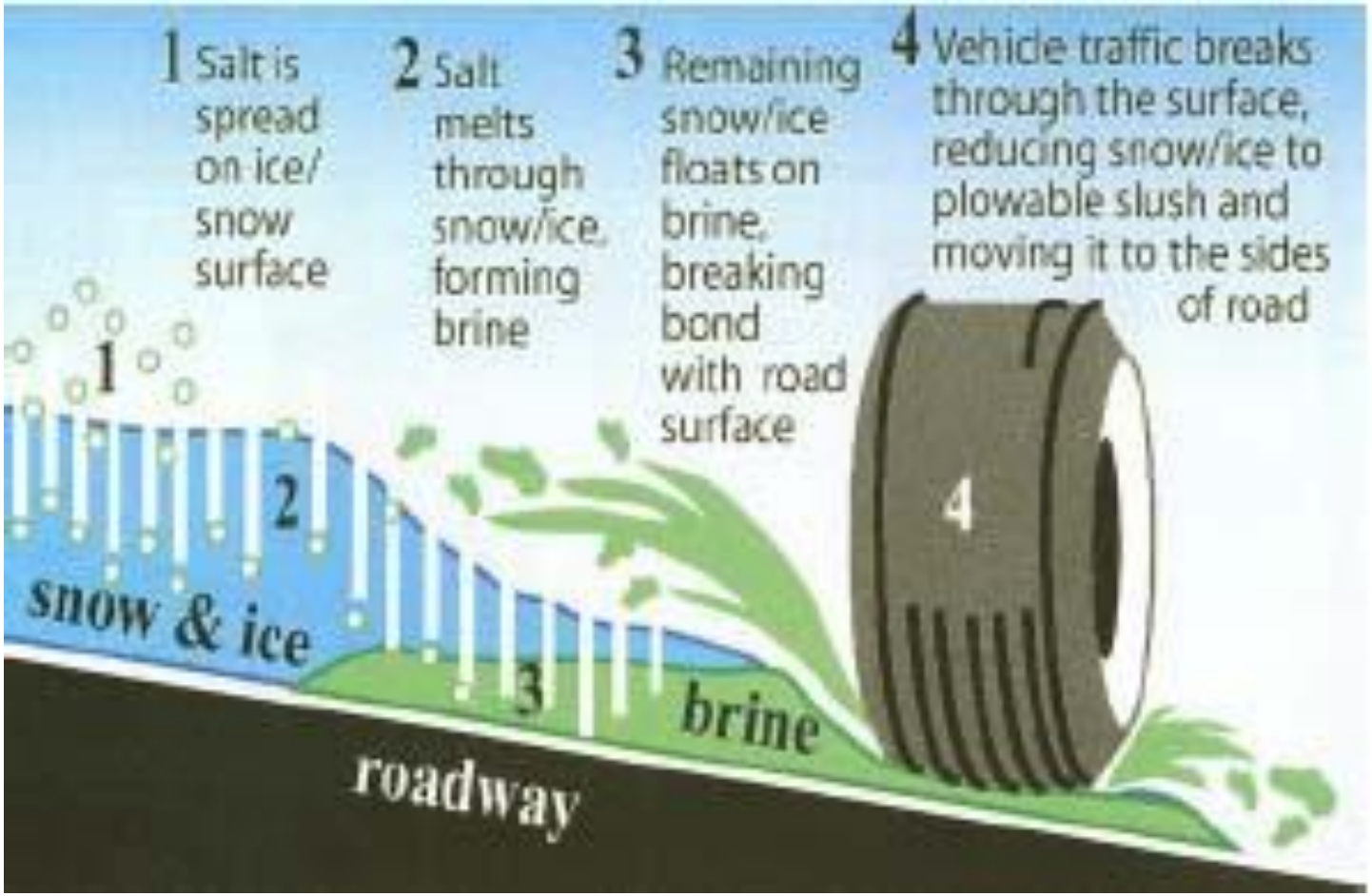
- Calibration
  - Spreaders
  - Pre-wetting Systems
- Training
  - Annual Operator Training
  - Tailgate Talks



Pre-Treating/Anti-Icing

- Proactive strategy
  - maintains a sufficient quantity of ice control chemicals on the pavement surface
  - before or very soon after precipitation or ice formation begins.
- Salt Brine (23%)
  - Bridge Decks
  - frost prone areas
    - Valleys
    - Shaded Areas
    - History

Breaking the Bond

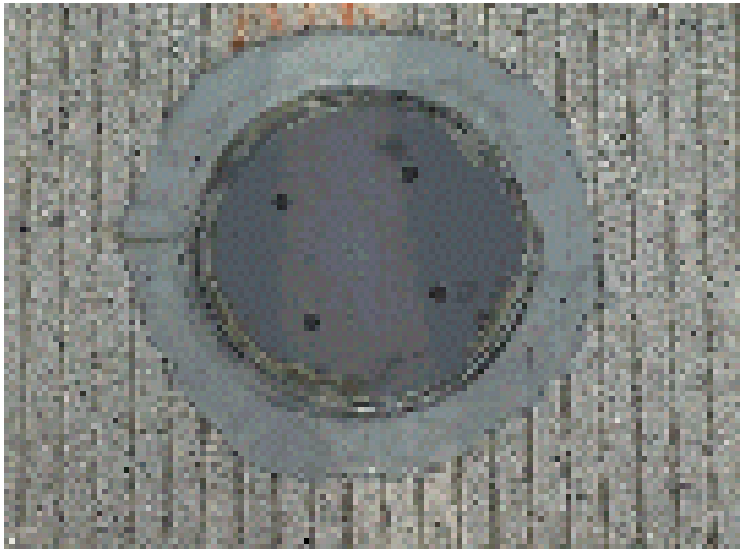


Application Rates

- Based upon Field Conditions
  - Type of precipitation
  - Roadway/Pavement temperature
- Road Weather Information Systems (RWIS)
- Solid Material – Sodium Chloride
- Liquid Material
  - > 25°F pre-wet with sodium chloride (brine)
  - < 25°F pre-wet with magnesium chloride

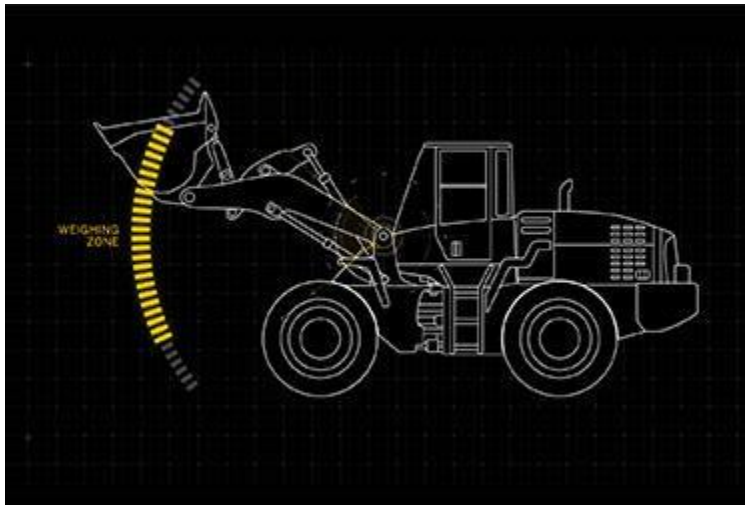
RWIS - Road Weather Information Systems

Pavement Sensors



Inventory Control

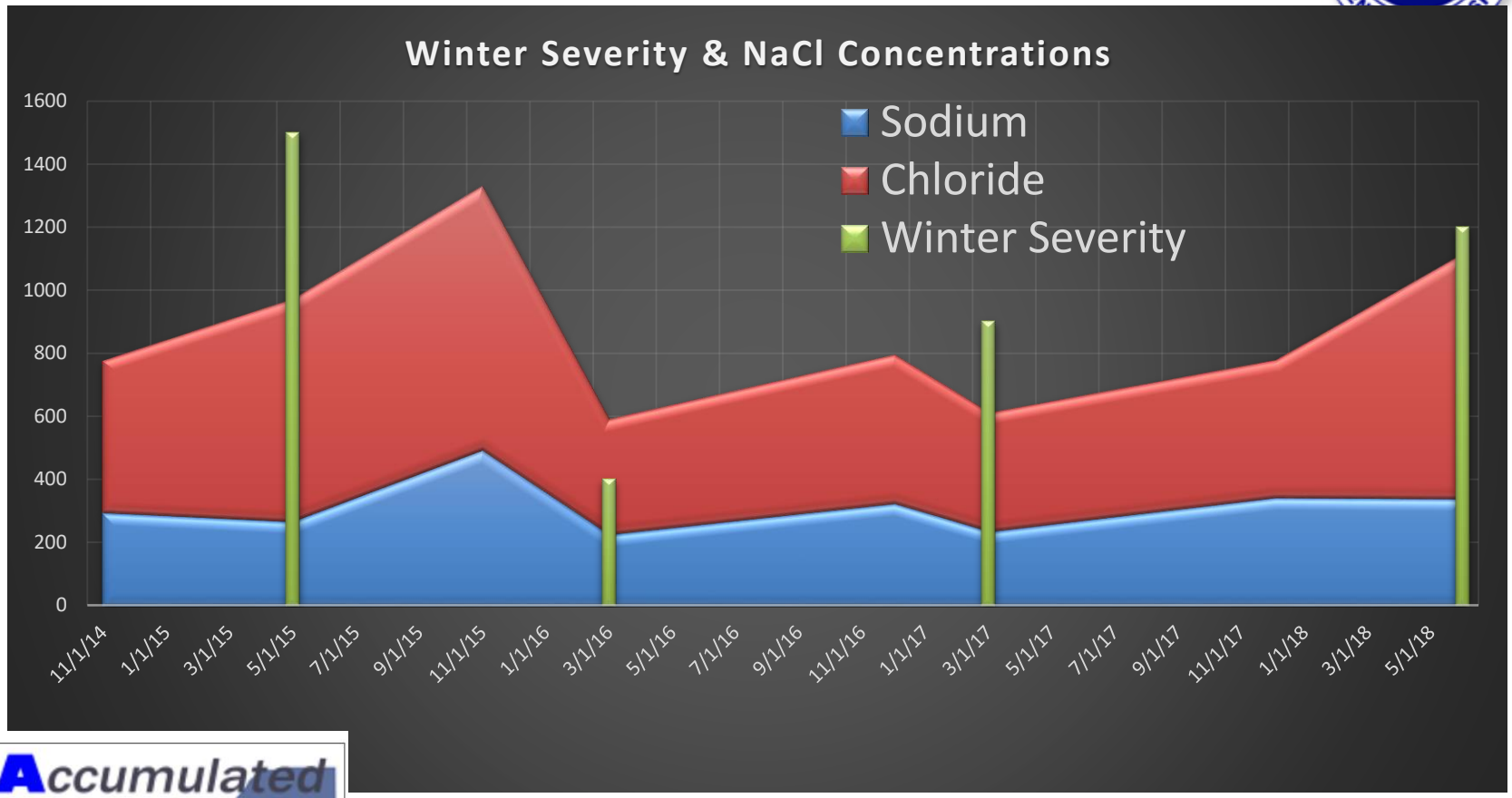
- Amount loaded onto trucks
  - Documented by Bucket
  - Loadrite® System
- Application Tracking by each storm route
  - Material Allotted – by storm conditions
  - Material Used
  - Material Returned
  - Supervisor Review



Complaint Procedures

- Complaints are typically received via:
  - Sister state agency (DEEP, DPH)
  - Directly from well owner
  - Local Health Department
  - Internal ConnDOT units (e.g., ConnDOT Maintenance).
- Property owner's initial water sample is reviewed by ConnDOT.
- Bottled water is provided to homeowner as an interim drinking supply.
- ConnDOT then conducts investigation to determine the appropriate remedial solutions.

Trends & Solutions

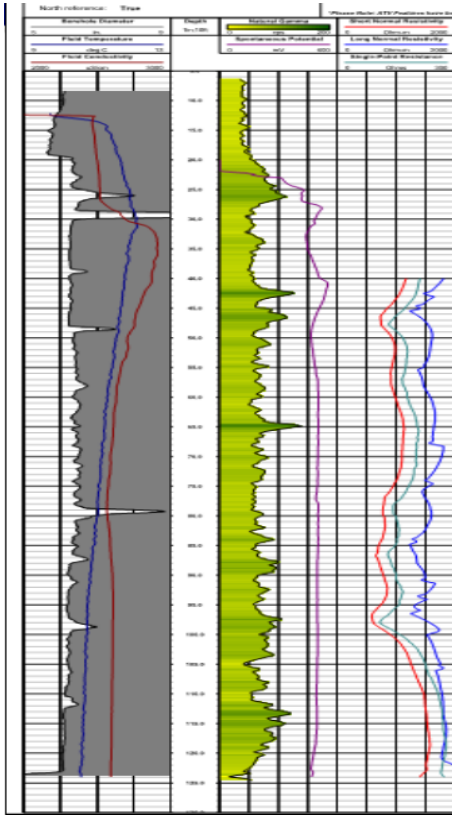


Accumulated Winter Season Severity Index

https://mrcc.illinois.edu/research/awssi/indexAwssi.jsp

Trends & Solutions

- Common issues with wells
  - Shallow overburden
  - Dug wells
  - Well zone of influence includes roadway network
- Well Siting
  - Near snow shelf
  - Near drainage
- Solutions are unique to each location



Moving Forward

- Siting of new wells:
  - Recognize that roadways are a potential source of pollution and there should be a 75 foot minimum separation distance
- Recognizing that private contractors are a large contributing factor
  - Green SnoPro – New Hampshire Model
  - Liability Relief
- Training

UCONN T2 Training

- Training targeting municipalities being put together by UCONN Technology Transfer Center.
  - Similar to New Hampshire Green SnowPro Certification.
- Will promote reduction of total salt usage through calibration of equipment and other ConnDOT best practices.
- UCONN T2 Center expects to preview the training course in Fall of 2018.

QUESTIONS

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