

# **Chloride Reduction**

## **Best Management Practices**

### **2018 Lake Champlain Watershed Deicing Conference**

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**Caleb B. Dobbins, PE  
NHDOT State Maintenance Engineer**

# The Good Old Days



- 1941-First direct application of salt in US was on NH roads

# Statewide Snow and Ice Training- 3 Year Cycle





# Spreader Calibration



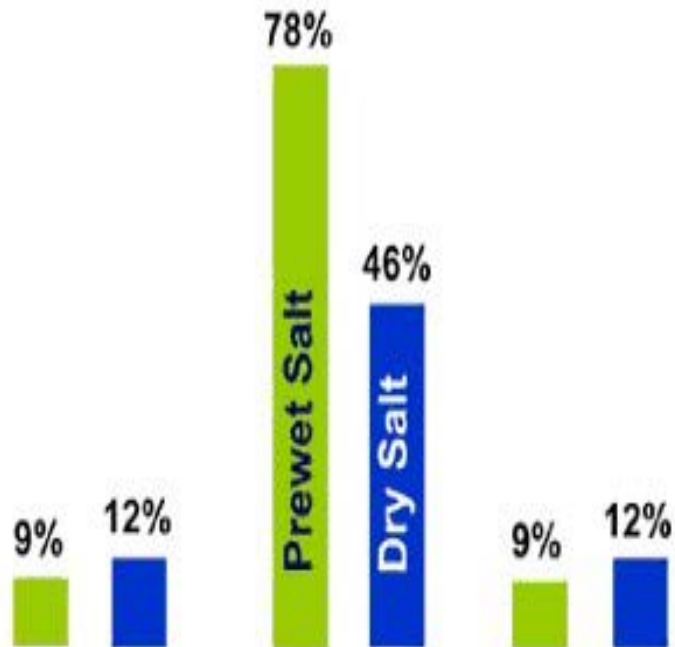


# Spreader Pre Wet System

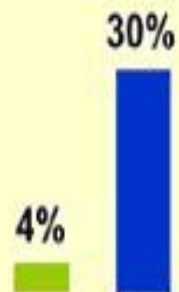


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## % Salt Retrieved from 24 ft. pavement



## Unretrieved Salt



## BENEFITS OF PRE-WETTING

- Cost savings of up to 1/3<sup>rd</sup> over dry salt
- Less damage to environment

Outside 1/3

Center 1/3

Outside 1/3

Source: Michigan Highway  
Department



# Brine Truck/Underbody Plow



# Flexible Plow Blades

**Blades are produced in 3' and 4' lengths.**

These lengths can be combined to fit most front mounted or underbody plows.

**Mounting Bushings Are Spaced At 12" Centers.**

This is done to get maximum oscillation.

**Directly adaptable to standard highway punched (3, 3, 12") plow**

Note: For applications, such as 8" centers, an adapter blade might be required.

Blades are approximately 7/8" thick and 6" wide.

Steel segmented blade with carbide insert encased in rubber.

Segment blade "ears" sandwiched between a clamping bar and the mold board.

Each blade segment articulates separately.

.955" carbide insert.

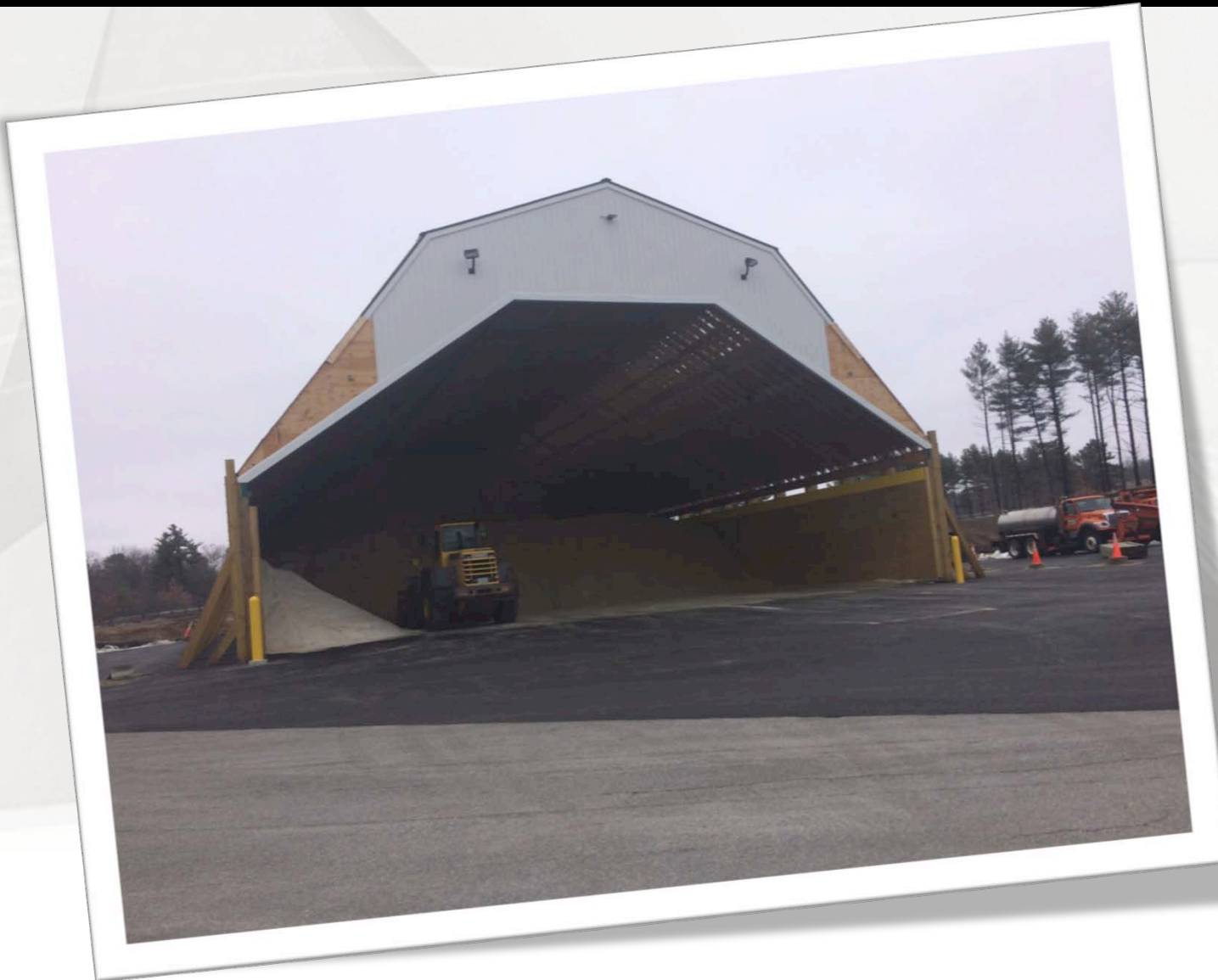
Much more than a standard carbide insert blade.



# Salt Storage- Then



# Salt Sheds- Now (3,600 ton capacity)





# Road Weather Information System (RWIS)



# Shade Removal- Before





# Shade Removal- After



# Other Efforts



WINTER

STORM

TUES AM

PLAN

AHEAD

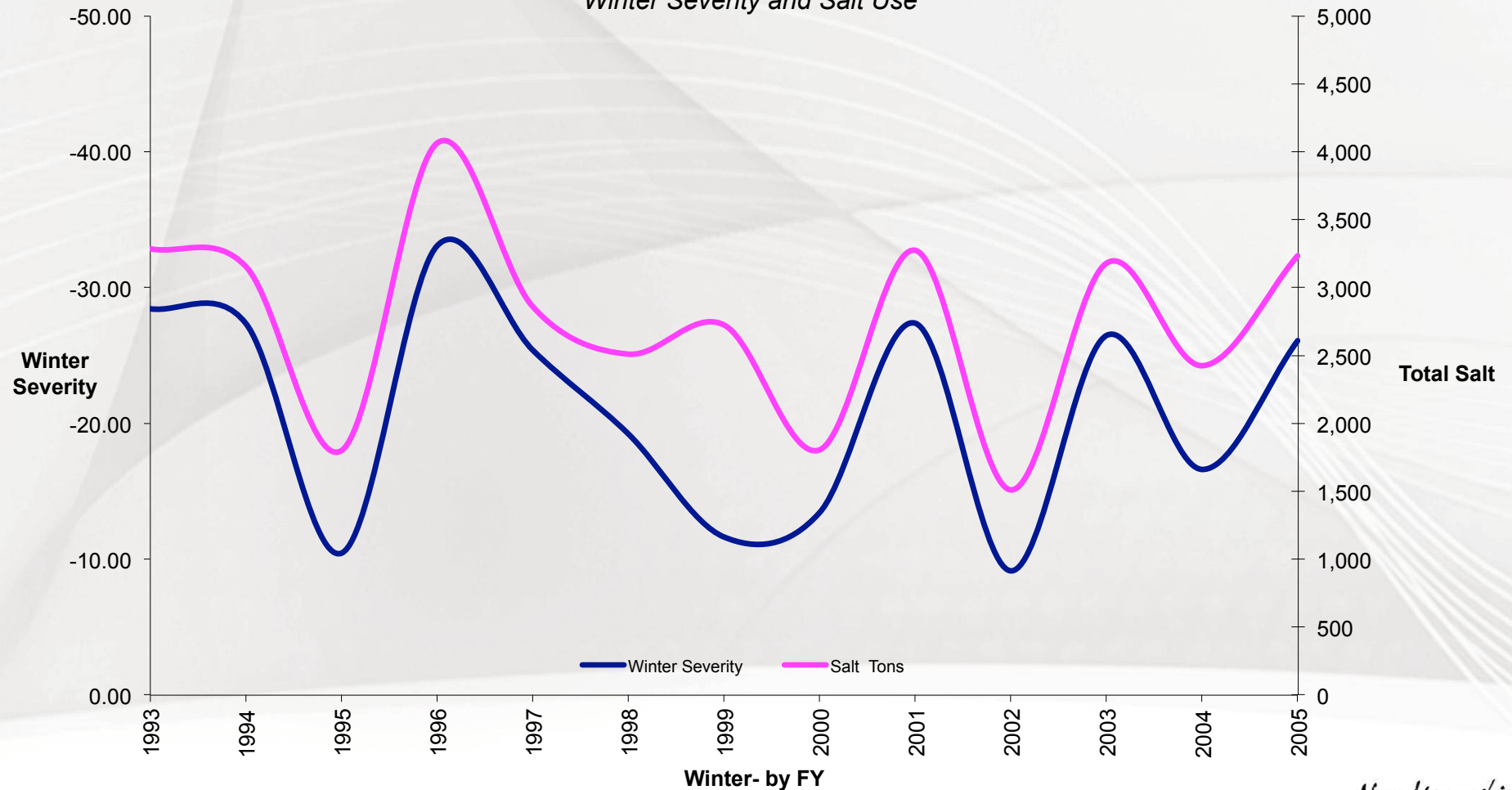


# **Questions of the Day**

- **Can you determine proper salt usage given the fact that every winter can be different?**
- **Can you reduce salt usage by 20% while continuing to maintain safety and remain within budget?**

# Winter Severity vs. Salt Usage

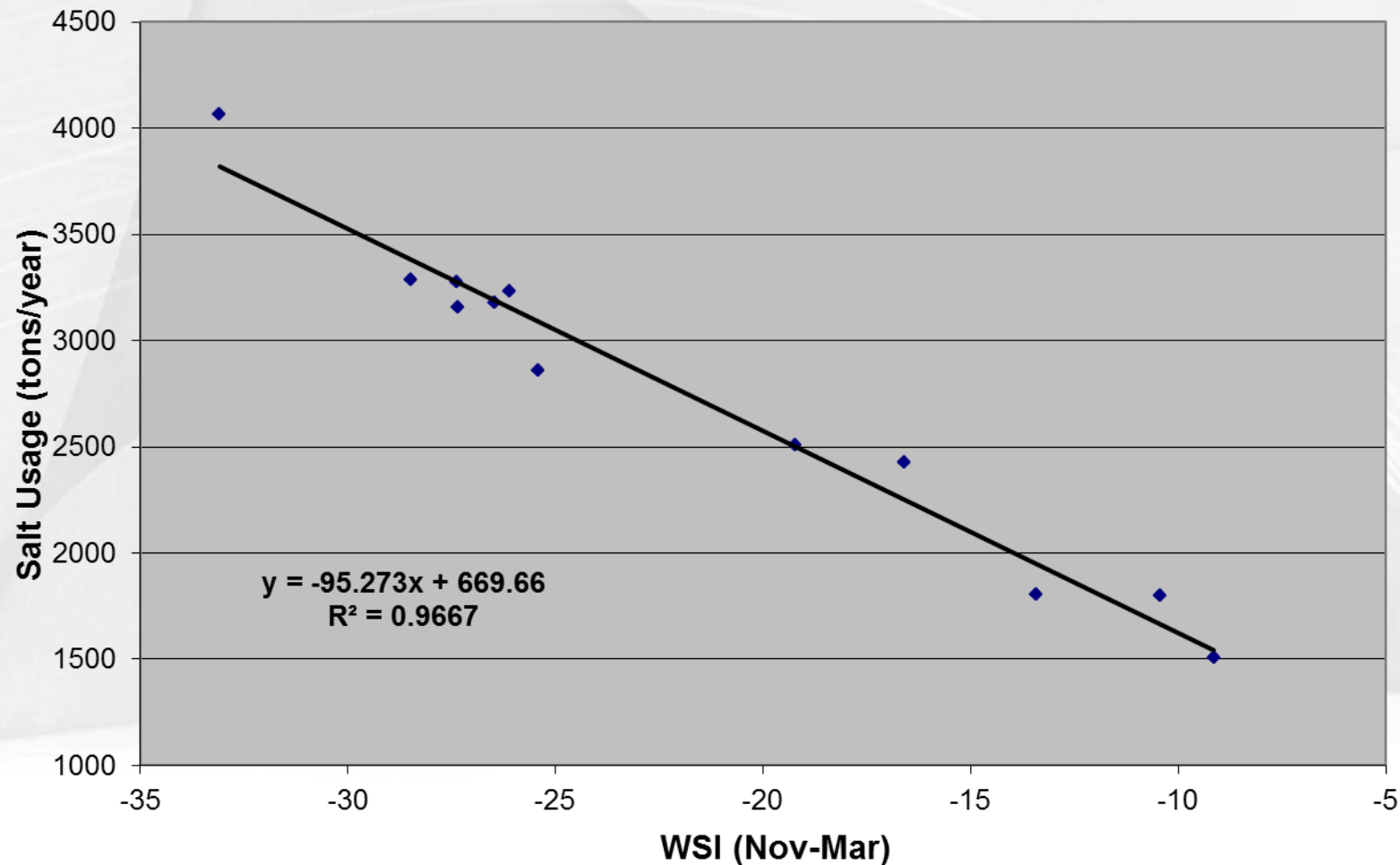
Derry- PS 528  
*Winter Severity and Salt Use*





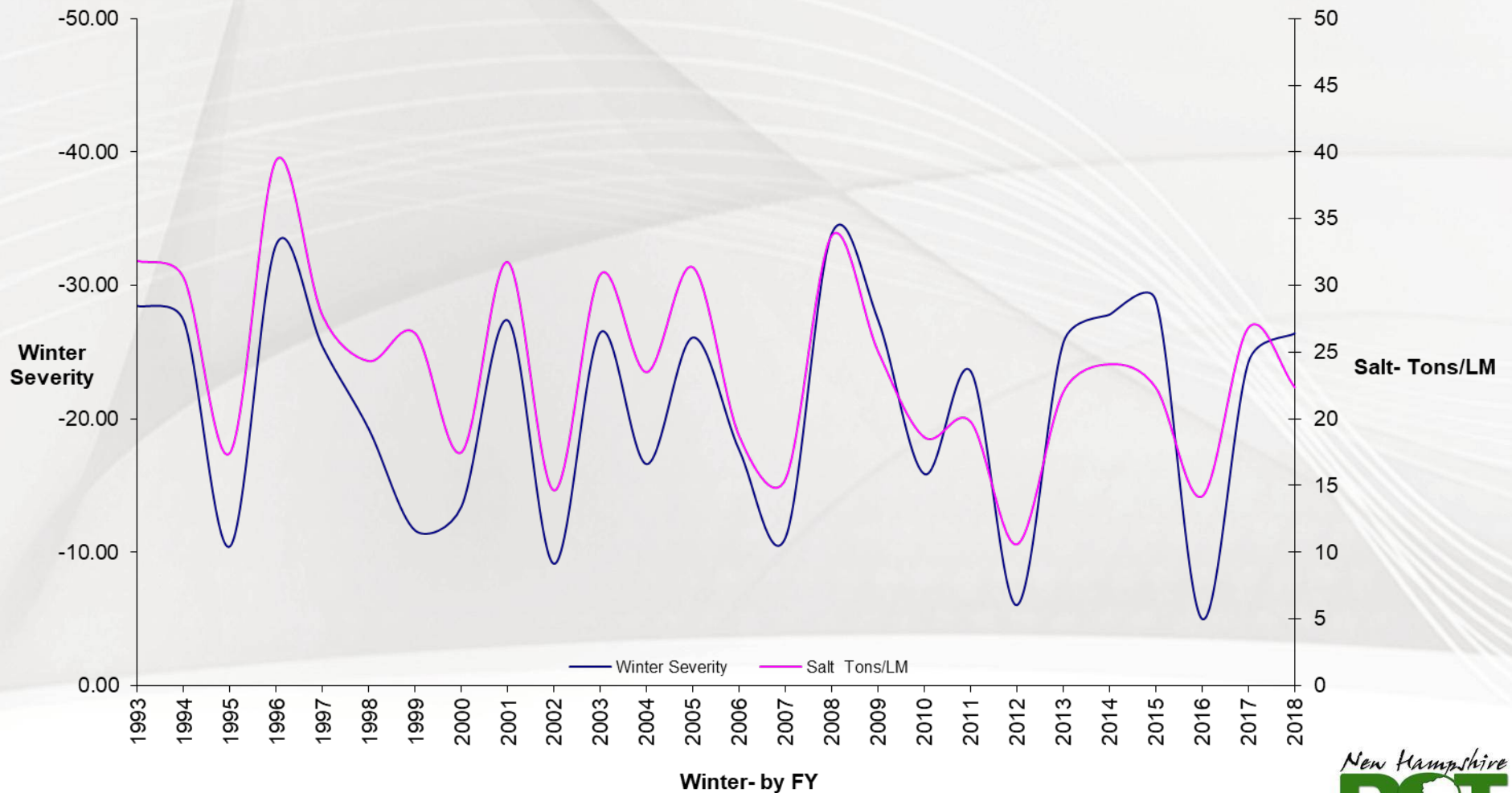
# Trend line- 1993 through 2005

Salt Usage vs. WSI for FY93 through FY05 (excluding FY99)



# Winter Severity vs. Salt Usage

Derry- PS 528  
*Winter Severity and Salt Use*





# Salt Reduction Due to Best Practices

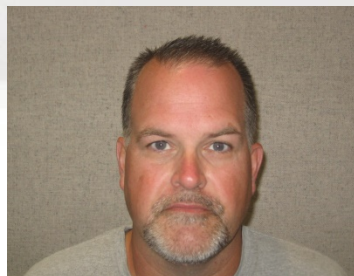
Derry- Patrol Shed 528

FY	Average WI	Salt Usage-Total Tons	Salt Usage-Tons/LM	Predicted Usage/LM	% Diff/LM
2008	-33.89	3480	33.7	37.8	-10.8%
2009	-27.41	2584	25.0	31.8	-21.3%
2010	-15.87	1921	18.6	21.2	-12.0%
2011	-23.57	2041	19.8	28.3	-30.0%
2012	-6.05	1135	10.6	12.1	-12.3%
2013	-25.71	2442	22.0	30.2	-27.2%
2014	-27.82	2767	24.1	32.2	-25.2%
2015	-28.88	2651	22.3	33.2	-32.7%
2016	-5.00	1741	14.2	11.1	27.8%
2017	-24.27	3395	26.8	28.9	-7.2%
2018	-26.42	2953	22.4	30.9	-27.6%

# Conclusions

- Salt use can be reduced from previous levels, using the previous described methods
- Maintenance personnel must understand that the only way for the NHDOT to achieve this goal is thru their actions and commitment





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# Any Questions?

**[Caleb.Dobbins@dot.nh.gov](mailto:Caleb.Dobbins@dot.nh.gov)**