REDUCING

CHLORIDES

By: John Kawka

DuPage County Division of Transportation
Manager of Highway Operations
Top Ten Reasons for Being Here

10. Ever wonder why Salt Creek was named Salt Creek?
9. My job is more interesting than yours!
8. Nobody else wanted to volunteer to speak.
7. Something to fill in my day until snow season begins.
6. I have the salt, who has the pepper?
Top Ten Reasons for Being Here

5. Takes a Polish guy to teach you how to use borscht on the roads.
4. The boss asked – how much longer until your probation is over?
3. I like to hear myself talk.
2. He who has the salt makes the rules.
1. At a $140.00 a ton, it is no longer good luck to throw salt over your shoulder!
On the Dangers of being too close to snow plows
Facts About DuPage County DOT

- The County is 18 miles squared
- 950 lane miles of road
- 78 maintenance employees
- DOT runs two snow shifts
  - 10 routes each shift
  - 62 snow plow drivers
- 255 pieces of equipment including 39 6-wheel dump trucks
Snow & Ice Emergency Call Outs
2007-2008

- November 21, 2007 through January 14, 2008
  - 219 hours of overtime
  - 586 trucks
  - 13,732 tons of salt
  - 19.8 inches of snow
Snow & Ice Emergency Call Outs
2007-2008

- Season Total Ending March 27, 2008
  - 506 hours of overtime
  - The fleet of 39 trucks were called out for 34 multi-day events
  - 32,772 tons of salt were spread on the roads
  - 60.3 inches of snow fell
Employee, Equipment and Storm Information
1997 to 2008

Tons of Material
12 Year Snow Fall

<table>
<thead>
<tr>
<th>Year</th>
<th>Snow Fall</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
</tr>
</tbody>
</table>
Highway Lane-miles under DOT Jurisdiction

Lane-Miles 1984 to 2007

Percentage Increase from 1984 to 2004 = 52%
Winter 2007-2008
What Did We Learn?

- We learned how to reduce salt usage and maintain safe roads
- We learned how to manage our salt – conservation
- We used 13,000 tons of salt in December
- We used 9,000 tons of salt in January
- We used 8,000 tons of salt in February
- We used 2,000 tons of salt in March
Salt Don’ts

- Do not apply when too cold
- Do not spread beyond traffic
- Do not apply then plow off
- Do not try to burn off ice and snow
- Do not apply to cold, dry pavement
Basic Winter Best Management Practices to Chloride Reduction

- Good Housekeeping
Vehicle Winter Preparation
Calibrating Salt Spreaders

- Spreaders are calibrated to deliver 250 pounds to 300 pounds per lane mile
Our Winter Storm Plan

- Starts with our greatest asset:
  - Our employees
- First we look at personnel
- Balance experience with youth
- Educating employees with new techniques, methods and products
- Efficiently planning snow routes, location, traffic, length and make adjustments
- Scheduled snow plow training
- Safe operating procedures
Communication

- Communication with employees is vital
- Employees are aware of the value of the commodity he/she is responsible for
- Facts:
  - A shift leaves with almost 500 tons of salt at $47.00 a ton that is $23,500.00 a shift or $800.00 a truck
  - At $140.00 a ton, that is $70,000.00 or $2,400.00 a truck (based on 29 trucks per shift in 2007 for one load)
Storm Preparation - Liquids

- Treating our roads with liquids
  - Supermix and salt brine

- In 2007 DuPage County DOT used Supermix for the first time
  - A blend of 85% salt brine, 10% Geomelt and 5% liquid calcium chloride
  - We experienced good results
  - Not enough chances due to rain and freezing rain

- De-icing
  - We also used Supermix during an afternoon freeze back
Ferry Road
Ferry Road
Storm Preparation - Liquids

- Encouraged by the results which leads us to 2008
- We now have 4 vehicles capable of spraying Supermix on hills, curves, bridges and other known problem areas as weather allows
- Anti-icing allows us to conserve valuable salt and buy time
- Through effective application of this product as an anti-icing agent, we are conserving our resources and providing safe roads
- Facts:
  - 2 pounds of salt per gallon of Supermix applied at 30 gallons per lane mile or 60 pounds of salt per lane mile
  - 60 pounds of salt versus 200 to 300 pounds – that’s chloride reduction
Large Dome and Liquid Storage
Why Treat the Salt?

KEEP IT SIMPLE STEVE
Storm Preparation - Solids

- Treated salt – Geomelt – our product of choice
- DuPage County DOT will start the year with 5,000 tons of treated salt
- We are looking at 30% reduction application due to the properties of this product
  - less bounce equals more product on the road
- Easier to control, less problems associated with delivering liquids
- Treated product offers consistent coverage through the snow routes while lowering the effective melting temperatures of salt
- Our fleet has some capacity for extreme conditions
- Post storm cleaning of vehicle – less corrosion
Weather Forecasting

- No two storms are alike
- Murray & Trettel Weather Service
- DTN/National Weather Service
- DuPage County Sheriff
- RWIS – Future
- Farmers Almanac
- Wooley Bears

- My secret weapons:
  - WBBM News 78
  - Looking out my window
Summary

- By using liquids and treated products we reduce the amount of chlorides resulting in a lower impact on the environment and effectively managing our resources.
- Effective employee training is key.
- Giving time to prepare and clean vehicles for the next event.
- LCC, Supermix and Geomelt are tools to combat storms.
- Communication before, during and after storm.
- A steady effort is key to keeping ahead of storms.
THANK YOU!