Weather Responsive Traffic Management Strategies at the Ontario Ministry of Transportation

Presentation to:
ITS Canada

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Contents

• Winter in Ontario
• Road Salt Management
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Winter Conditions in Ontario

Winter Months
• September-May

January Temperature
• 0 to -30°C

Annual Snowfall
• 20 to 200 cm

Number of snow storms
• 30 to 120
Road Classifications

Legend
- MTO Regional Boundaries
- Winter Highway Classes
  - 1
  - 2
  - 3
  - 4
  - 5
Road Salt Management

**Objective:** Use materials (salt, sand, liquids) responsibly

- The right product
- The right time
- The right location
- And the right application rate
Material Quantities on Provincial Highways

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<tbody>
<tr>
<td>Salt (tonnes)</td>
<td>728,000</td>
<td>664,000</td>
<td>395,000</td>
<td>560,000</td>
<td>420,000</td>
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<tr>
<td>Sand (tonnes)</td>
<td>701,000</td>
<td>759,000</td>
<td>461,000</td>
<td>580,000</td>
<td>360,000</td>
</tr>
<tr>
<td>Liquids (litres)</td>
<td>51,631,000</td>
<td>39,056,000</td>
<td>29,000,000</td>
<td>29,000,000</td>
<td>23,100,000</td>
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Salt Management

Best Management Practices to reduce salt impacts and quantities include:

- RWIS system for weather forecasts
- Fixed Automated Spray Technology (FAST)
- Direct Liquid Application (DLA)
- Pre-wet and pre-treated salt
- Electronic spreader controls
- Indoor loading and storage of salt
- Training
- Equipment Calibration
- Good Housekeeping practices
Long-term Trend in Road Salt Use

- Annual variation 30%
- Declining since late 90’s
Road Weather Information System (RWIS)

140 RWIS Stations

- 8 - FAST & 1 - Micro-FAST
- 8 - Spring load stations
- 24 - Tipping Bucket Rain Gauges
- 2 - Traffic counters
- 1 - Service provider
Ministry of Transportation

RWIS Station: Southern Ontario

Legend
- Current RWIS Locations 82 Stations
- Current RWIS & Traffic Sensors 2 Stations
- Current RWIS & FAST 7 Stations

MTO Regional Boundary
RWIS Station: Northern Ontario
FAST and micro-FAST

8 FAST systems in Ontario

- 1 micro-FAST trial
Seasonal Load Restrictions

Highway Standards Branch
Tipping Bucket Rain Gauges

- 24 sites in northern Ontario
- Future
  - add additional gauges
  - Generate IDF curves
Traffic Counters

- Two trial units installed in field
- Currently integrating with RWIS to pull data from field
- Maximize use of power and communications with ‘Data Collection Station’
MTO Service Provider

Tender for services

- Polling, data management
- Forecasting
- Maintenance
  - Routine
  - Non-routine
System Upgrades

- Wireless modems
  - Better communications
  - Reduced cost
- Cameras + IR illuminators
- Satellite locations
Next Steps

- New sensors
  - Freezing rain gauges
- Mobile road conditions
- Maintenance Decision Support Systems
Questions???

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Additional Information:

Maintenance Technology Project
www.mto.gov.on.ca/english/transtek/choices.shtml