Winter Operations Across the Pond
Lessons Learned from the United Kingdom

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October 17, 2019
OVERVIEW

- Quick Preview of UK Presentation
- Lessons Learned from Cold Comfort UK
- APWA North American Snow Conference
- AASHTO Maintenance Committee Annual Meeting
Harrogate, England
May 15-16, 2019
## Temperatures

<table>
<thead>
<tr>
<th></th>
<th>December</th>
<th>January</th>
<th>February</th>
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</thead>
<tbody>
<tr>
<td>Historic</td>
<td>-6.8°C</td>
<td>-9.1°C</td>
<td>-6.2°C</td>
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<tr>
<td>2018/2019</td>
<td>-3.4°C</td>
<td>-9.8°C</td>
<td>-10.7°C</td>
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<tr>
<td>2013/2014</td>
<td>-10.9°C</td>
<td>-13.3°C</td>
<td>-13°C</td>
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**Coldest United States City**  
(of 100 most populous)
The 2018/2019 Cold Snap Wasn’t Long But It Had Lasting Effects

- Long lasting cold subsurface temperatures
  - Increased salt usage
WHAT WORKED?
WHAT DIDN’T WORKED?
Things To Consider in the Future

Ice Breakers
ALLIANZ FIELD
LESSONS LEARNED
EQUIPMENT
GRITTER = SALTER OR SANDER
Lessons Learned Technology
Pavement Temperature Monitoring

- Mild temperatures that bounce above and below freezing.
- Kent County-SE of London.
  - 2x size of Hennepin Cty.
  - Utilize over 100 temperature sensors.
- Netherlands
  - 1,100 mi²; 7 Cty. Metro: ~3,000 mi²
  - Utilize approximately 200 temperature sensors
Residual Salt Sensor
- Mobile sensor
- Has been used for years in Japan. Found \@ PIARC
Testing in England & Scotland this winter season

Netherlands
- Pilot project putting 25,000 friction sensors on cars
CUSTOMER SERVICE w/ ALEXA

- Ayrshire Roads Alliance in Scotland
- Developing system that will allow people to notify public if they have plowed/treated a road, submit a complaint, and it could do push notifications.
APWA Snow Conference

- Winter Mtce. Supervisor Certificate Course
- Liquids Presentation Series
- Exhibit Floor
- New Technology

Interested in joining the Winter Maintenance Subcommittee?
AASHTO MacC Annual Meeting

- SICOP Pooled Fund Program
  - ClearRoads, Aurora, TRB
- Ice Breaker Study coming soon
- FHWA Workshop
  - Impacts of Automated Vehicles on Highway Infrastructure
  - We’re at Levels 1 & 2 in the US. Hype is around Levels 4 & 5
  - Car companies are saying Levels 4 & 5 will be available to coordinated fleets (i.e. Uber, Lyft) and not the public in 2030.
  - Freight is on different path. Focusing on platooning.
  - Ideal conditions will be needed for full autonomy. (6” striping, no snow, good pavement conditions.)
QUESTIONS

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