



Innovation in Winter Maintenance Gritting

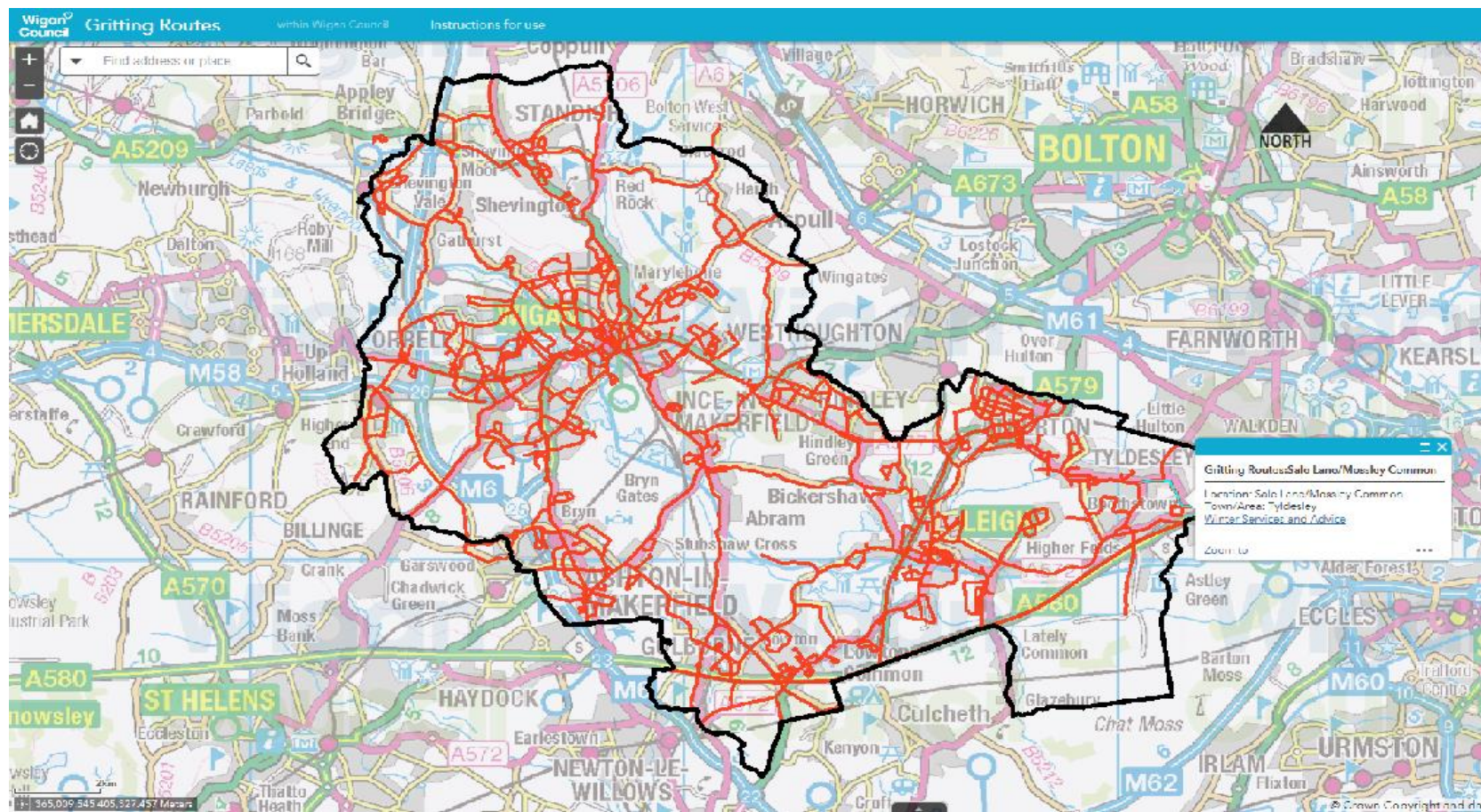
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Presentation Topics

- Optimising current winter maintenance fleet and salt products
- Investigation of route based gritting technology
- Results of sensor trials to determine localised temperature
- Questions & Answers

Winter Maintenance Service Overview



Confident Place, Confident People.

Winter Maintenance – Historical Position

- Council Fleet
- 11 vehicles
- Ave. 13 years old
- Maintenance cost
- Idle for 6 months
- Low utilisation
- Salt storage



Winter Maintenance – Service Development

- Invested in Salt Barn
- Optimised Routes – Webaspx
- Working Hours Directive
- Reduced Fleet
- Leased vehicles
- Coated Salt
- Spread Rates



Winter Sensors Trial

- Limited Forecasting Tools
- Infrared Sensor Technology
- Wi-Fi and LPWAN
- Battery Powered
- Real Time communications



Winter Sensors Trial – Location of Sensors



Phase 1 sensors (shown in red) were deployed in winter 2016/17.

Phase 2 sensors (shown in blue) were deployed shortly before winter 2017/18.

Confident Place, Confident People.

Winter Sensors Trial – Year 1

- 1 January 2017 to 31 March 2017
- 5 Sensors on 4 gritting routes
- 37,100 data readings
- Wide spatial variation in road surface temperature readings across sites
- 2 occasions sensors below zero but no treatment deployed
- 57 occasions sensors above zero treatment deployed

Winter Sensors Trial – Year 2

- 3 October 2017 to 30 April 2018
- 10 Sensors on 9 gritting routes
- 146,404 data readings
- Wide spatial variation in road surface temperature – sites consistent with Yr 1
- 51 occasions sensors below zero but no treatment deployed
- 85 occasions sensors above zero treatment deployed

Winter Sensors Trial – Year 3 and beyond

- 1 October 2018 to 31 March 2018
- 15 Sensors on 9 gritting routes
- Multiple sensors on routes
- Sensor development
 - Air moisture content
 - Link to weather forecasting models
 - Link to in cab technology
- Potentially 5 year scenario

Summary

- Financial Savings being delivered:

Year	Total Length of Carriageway Treated (km)	Total Cost £	Average Cost per km
2015-16	23,000	806,000	35.04
2016-17	28,000	803,000	28.68
2017-18	40,000	872,000	21.80

- Technology beginning to inform on our decision making processes
- Future development that will offer further service improvements, resilience and efficiencies



**Thank you for your time
and attention.**

**Questions and Answers -
Discussion**