

**Winter Season 2026-2027**



# **Winter Service Plan**

**FINAL v1**

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# WINTER SERVICE PLAN 2026-27

## INTRODUCTION

Suffolk County Council has a legal duty to ensure that, as far as is reasonably practicable, safe passage along a highway is not endangered by snow or ice.

This a statutory duty under the following Acts:

- Section 41 (1A) and Section 150 of the Highways Act 1980
- Section 111 of the Railways and Safety Transport Act 2003

‘Suffolk Highways’ delivers the winter service function on behalf of Suffolk County Council.

The winter service is part of the overall highway maintenance service and therefore has a finite resource and this must be taken into consideration when defining the level of service and treatment timings.

Given the scale of financial and other resources involved in delivering the Winter Service, it is not considered reasonable either to:

- provide the service on all parts of the network; and
- ensure roads, footways and cycle routes are kept free of ice or snow at all times, even on the treated parts of the network.

The winter service is managed according to the schedules and instructions contained within this plan and its supporting appendices.

Arrangements will vary according to the prevailing conditions and there is a mix of local and central control mechanisms and, in the severest of conditions, the service would be treated as a wide scale emergency and managed in accordance with the County’s Joint Emergency Response Plan.

The Winter Service is delivered in accordance with the practical guidance managed through the National Winter Service Research Group (NWSRG) The table below shows the current status of each document contained within the guide:

| Chapter                               | Published Date                  | Status    |
|---------------------------------------|---------------------------------|-----------|
| 1. Foreword and Using the Guide       | 18 <sup>th</sup> March 2021     | Published |
| 2. Planning                           | 18 <sup>th</sup> May 2020       | Published |
| 3. De-icer Types                      | 19 <sup>th</sup> March 2019     | Published |
| 4. Salt Storage                       | 19 <sup>th</sup> March 2019     | Published |
| 5. Treatment Methods and Technologies | 19 <sup>th</sup> March 2019     | Published |
| 6. Spreader Management                | 19 <sup>th</sup> March 2019     | Published |
| 7. Decision Making                    | 23 <sup>rd</sup> November 2020  | Published |
| 8. Precautionary Salt Spread Rates    | 19 <sup>th</sup> March 2019     | Published |
| 9. Treatments for Snow and Ice        | 19 <sup>th</sup> March 2019     | Published |
| 10. Treatments for Extreme Cold       | 19 <sup>th</sup> March 2019     | Published |
| 11. Footways and Cycleways            | 18 <sup>th</sup> March 2021     | Published |
| 12. Weather Forecasting and RWIS      | 14 <sup>th</sup> September 2020 | Published |
| 13. Route Selection and Optimisation  | 23 <sup>rd</sup> November 2020  | Published |

More details relating to the guidance can be found on the website under the following link: <https://nwsrq.org/practical-guidance-documents>

## PURPOSE OF WINTER SERVICE PLAN

The objective of the Winter Service Plan is to put in place the policy and processes to maintain the highway in a safe condition for the travelling public, free from snow and ice as far as is reasonably practicable. It is intended to reflect the needs of all travelling public, whatever the means of transport.

The Suffolk Highways' Winter Service Plan (the 'Plan') document contains Suffolk County Council's policy and an operational section detailing how its responsibilities are delivered.

The appendices have a restricted circulation due to the personal contact data contained within them.

The Plan is reviewed on an annual basis at the end of each winter period and will take into consideration changes to resource availability, revised best practice, appropriate technical innovations, variation in traffic flows and any other relevant significant events based on risk and experience.

Overall responsibility for the delivery of the winter service provision lies with Head of Contract and Commissioning who reports to the Assistant Director of Highways Services.

## SUMMARY OF WHAT WILL BE DONE

### Winter risk period

The Winter Period is from 1<sup>st</sup> October to 30<sup>th</sup> April.

The Core Winter Period and the main period of risk for the winter service is from 1<sup>st</sup> November until the 1<sup>st</sup> March.

Formal rotas are in place for the period from 1<sup>st</sup> October to 30<sup>th</sup> April.

Forecasts are monitored daily during the Winter Period to ensure that a response can be provided should it be necessary.

### Roads

Roads are prioritised into two main categories, Priority 1 (P1) and Priority 2 (P2) and these two categories cover approximately 50% of all roads in the county.

The definitions of each classification together with lengths treated are as below.

| Priority 1 (P1) Network                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1,259 miles (2,015 km)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <ul style="list-style-type: none"><li>• All A roads</li><li>• All B roads</li><li>• Roads to: 24 Hour Fire Stations / Accident and Emergency Hospitals/ Main Bus &amp; Rail Stations – at least to limit of Public Highway.#</li><li>• All roads where the traffic flow exceeds 4000 v/day.</li><li>• Locations at high risk from the occurrence of major civil emergencies where practicable.</li><li>• Consideration is given to roads with a traffic flow that falls between 4000v/day to 2000v/day where there are additional risk factors including but not exclusively:<ul style="list-style-type: none"><li>❖ 5 day a week bus services where practicable.</li><li>❖ extended gradients in excess of 5%(1:20) where practicable.</li><li>❖ high peak hour flows</li><li>❖ automated railway level crossings on passenger lines where visibility is limited.</li><li>❖ access to main high schools, where practicable.</li><li>❖ centres of employment where large numbers of employees are bussed in, where practicable.</li></ul></li></ul> |

| Priority 2 (P2) Network                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 843 miles (1,349 km)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <ul style="list-style-type: none"> <li>• Other bus routes where the service level is 5 days a week in the school term, and a PSV licensed vehicle is used where practicable.</li> <li>• Cohesive network serving all main centres of population in the rural areas.</li> <li>• All other routes carrying in excess of 2000v/day.</li> <li>• Routes added at the Asset Manager (Carriageways &amp; Winter) discretion where the following are additional risk factors (subject to operational and access constraints): <ul style="list-style-type: none"> <li>❖ high peak hour flows</li> <li>❖ access to other schools</li> <li>❖ gradients in excess of 5% (1:20)</li> </ul> </li> </ul> |

In all cases, links are treated in full to the next safe turning point for the gritting vehicle.

When planned closures occur on the P1 or P2 network, the diversion route is to be treated.

#Additional lengths are treated by agreement, at these locations where this does not impair operational completion of P1 lengths within treatment time.

P1 and P2 routes are treated in accordance with instructions under the decision-making process and spread rates contained in the treatment matrices.

When P1 treatments are required, they will be completed a minimum of 1 hour before the onset of the hazard\* and within 2½ hours of starting the treatment. This is calculated from leaving the winter depot to completion of the treated route (travel time back to the winter depot is excluded).

\*the treatment may be undertaken more than 1 hour ahead of the hazard to support operational delivery where agreed by the lead decision maker and operational lead.

When P2 treatments are required, they will normally be undertaken in the morning and completed by 7.30am and the commencement of the main commuter traffic flow. P2 treatments are subject to the needs of the P1 network.

P2 routes are run when a hazard is forecast to occur at two or more forecast sites (as defined on page 36) and the hazard is forecast to span the 4.00am to after 9.00 am period.

Ad-hoc post treatment of roads is carried out on a discretionary basis.

Snow clearance is carried out along the same routes as pre-salting subject to the extent and severity of the snow and where it is operationally practicable to do so. It is

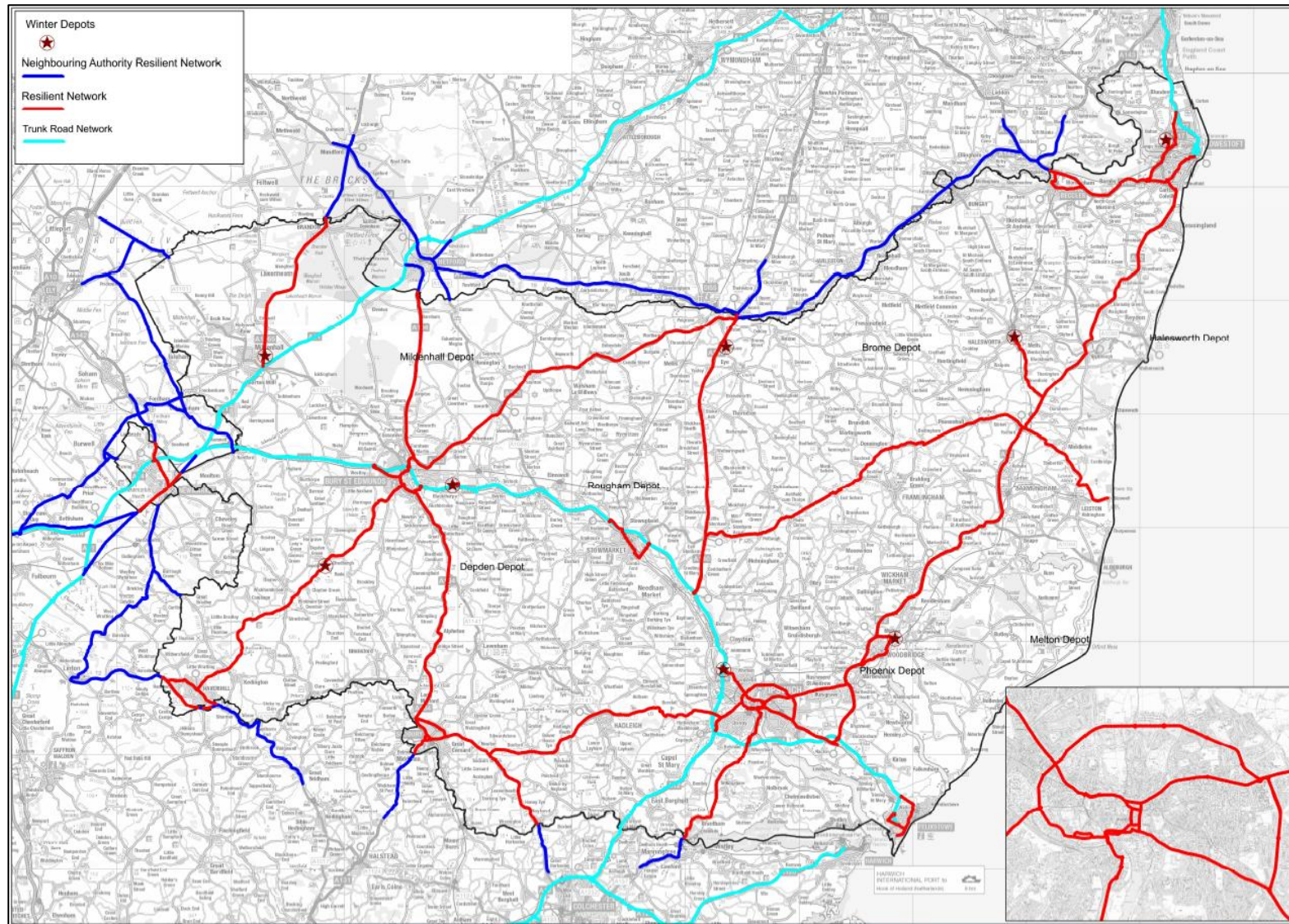
not possible to plough parts of some routes due to the additional width clearance required when a plough is fitted to the main gritting fleet.

During times of severe weather or if emergency planning procedures have been put in place, it may not be possible to keep the P1 and P2 networks clear of snow and ice.

In this scenario, Suffolk Highways will direct resources to maintain Suffolk County Council's Resilient Network which provides access to key services during severe weather. Once the resilient network is functioning resources will move onto P1 routes, P2 routes will follow when the P1 routes are functioning. The movement between routes will be determined by the severe weather or emergency planning group(s).

| Suffolk's Resilient Network |                                                                                          |             |
|-----------------------------|------------------------------------------------------------------------------------------|-------------|
| 313 miles (504 km)          |                                                                                          |             |
| Route                       | Description                                                                              | Length (km) |
| A1017                       | Haverhill Bypass (Bndry Essex CC to A143)                                                | 5.8         |
| A1022                       | A1156 to A137, Ipswich Town Centre                                                       | 1.0         |
| A1065                       | A11 Mildenhall to Norfolk CC Bndry                                                       | 16.4        |
| A1071                       | A134 Sudbury to A1214 Ipswich                                                            | 36.7        |
| A1117                       | A47/B1385 RAB to A146, Lowestoft                                                         | 12.4        |
| A1120                       | A12 Yoxford to A140, Earl Stonham                                                        | 36.3        |
| A1145                       | A146 Roundabout to A12 Roundabout, Lowestoft                                             | 2.4         |
| A1152                       | A12 Roundabout to Melton Road Cross Road, Melton                                         | 1.4         |
| A1156                       | A14 Junction 56 to A14 Junction 53 (incl Ipswich Ring Road)                              | 17.2        |
| A1189                       | A1214 to A1156 Felixstowe Road, Ipswich                                                  | 2.7         |
| A12                         | A14 Junction 58 Ipswich to A47 Lowestoft                                                 | 93.1        |
| A1214                       | A12 Park and Ride to A14 Junction 55, Ipswich                                            | 17.8        |
| A1302                       | A134 Roundabout to A14 junction 43, Bury St Edmunds                                      | 7.0         |
| A1304                       | Cambridge CC Bndry B1506 Junction to Cambridge CC Bndry near A1303 Roundabout, Newmarket | 5.0         |
| A1307                       | Cambridge CC Bndry to A143 Roundabout, Haverhill                                         | 3.4         |
| A1308                       | A14 Junction 50 to A14 Junction 49, Stowmarket                                           | 4.4         |
| A131                        | Essex CC Bndry to A134, Sudbury                                                          | 6.6         |
| A134                        | Essex CC Bndry Nayland to Norfolk CC Bndry near Thetford                                 | 61.5        |
| A137                        | Essex CC Bndry to A1214 Ipswich                                                          | 18.7        |
| A140                        | A14 Junction 51 Coddanham to A143 Scole                                                  | 29.5        |
| A142                        | A1304 Newmarket to Cambridge CC Bndry                                                    | 4.9         |
| A143                        | Haverhill (A1017) to A140 RAB Scole                                                      | 68.6        |
| A144                        | Blyth Road Halesworth to A12                                                             | 6.2         |
| A145                        | A146 Roundabout to Beccles Town Centre                                                   | 1.8         |
| A146                        | Norfolk CC Bndry to A1117, Lowestoft                                                     | 11.5        |
| A154                        | A14 Junction 61 to A14 Dock Spur Roundabout, Felixstowe                                  | 8.9         |
| B1077                       | A140 to Brome Depot, Brome                                                               | 0.7         |
| B1122/C228/U2822            | A12 Yoxford to Sizewell                                                                  | 12.2        |
| B1375/U5064                 | A1117 to Mobbs Way Depot, Lowestoft                                                      | 1.3         |
| B1438                       | Woods Lane Melton to A12 Roundabout Woodbridge                                           | 4.3         |
| C616                        | A1065 to Mildenhall Depot, Mildenhall                                                    | 0.2         |
| C769/U6321                  | A14 Junction 45 to Rougham Service Delivery Centre                                       | 0.8         |
| C966/C969                   | A146 Roundabout to A145, Beccles                                                         | 2.5         |
| U1329                       | A144 to Halesworth Service Delivery Centre                                               | 0.3         |
| U3629                       | B1438 to Melton Depot, Melton                                                            | 0.3         |

# RESILIENT NETWORK MAP



A further category referred to as 'Miscellaneous' covers ad-hoc priorities identified as per prevailing weather and road conditions.

| Miscellaneous                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Local discretion dependent on conditions and resources available.</li><li>• Other bus routes</li><li>• A second route to rural centres of population</li><li>• Access to livestock farms where alerted by DEFRA/NFU/ Farmer</li></ul> |

## IMPACT OF PANDEMICS

Significant pandemics can present unprecedented challenges across all aspect of daily life, impacting on the highway network in terms of how these are managed and used. The Covid-19 pandemic demonstrated a need to ensure robust planning is imperative should a similar event occur in the future.

In terms of people employed in the highway sector there is a need to consider and plan for the impact of a reduction in service in the event of a localised outbreak and/or clampdown, and how work can be undertaken safely and in accordance with any social-distancing or other necessary control measure which could be introduced to reduce the spread of any such virus.

Suffolk Highways is unable to predict the extent to which future outbreaks could impact on the winter service. The risk remains that any future outbreaks could impact on service provision, we have learned over the last few winter seasons that the situation can change at pace.

In recognition of the need to act quickly and if required, Suffolk Highways would introduce a Winter Pandemic Support Document which would form part of the appendices to this plan.

The Winter Pandemic Support Document would be a stand-alone document which would be continually reviewed in line with any developments following Government and/or local authority actions. Updates would be published and made available on the Suffolk County Council Winter Service webpage.

The main areas covered by the document include, but not necessarily limited to are:

- 1) Network Changes (pop up cycle lanes and safer places schemes)
- 2) Traffic Levels
- 3) Resource Levels

The document would be updated by the Head of Contract and Commissioning, supported by the Winter and Cyclical Works Manager, and in liaison with the Suffolk Highways' Senior Leadership Team.

Due to the nature of viruses decisions may need to be made quickly. This could mean a delay in updating our website. Suffolk Highways will endeavour to keep vital communication links up to date as changes are made through social media channels and to key stakeholders.

## TIMING AND OPERATIONAL CONSIDERATIONS

Winter service driving falls under the GB domestic drivers' hours rules. Planned winter treatments cannot be classed as an emergency and must be carried out within each driver's legal duty time limits.

Key information for drivers operating under the GB domestic drivers' hours rules, is illustrated below:

|                       |                                                                                                                                                                                          |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum daily duty    | 11 hours in a 24-hour period                                                                                                                                                             |
| Maximum daily driving | 10 hours in a 24-hour period (within the 11 duty hours)                                                                                                                                  |
| Daily rest            | Not specified under the GB domestic drivers' hours rules, however good practice states the use of the EU drivers' regulations requirement of a minimum continuous rest period of 9 hours |
| Weekly rest           | Working time directive requires either 24 hours in 7 days or 48 hours in 14 days                                                                                                         |

If any part of the daily duty falls between 00.00 and 04.00, duty time is limited to 10 hours.

Suffolk Highways predominately uses its directly employed operational workforce for the delivery of the winter service. As such, consideration is given to the impact that driving hours has on both the delivery of the winter service and normal daily duties (statutory functions including maintaining the highway in a safe condition such as pothole filling).

During the Core Winter Period, Suffolk Highways drivers, on the winter maintenance rota, are restricted to a 7.5 hour working day to undertake normal daily duties. This allows 3.5 hours for the preparation and delivery of a winter treatment, complying with the maximum daily duty time of 11 hours.

Suffolk Highways operate a rota system for drivers with two shifts available Monday to Friday. This provides the ability to deliver two winter treatments in a 24-hour period with no impact on normal daily duties. An example is provided below.

### Evening treatment (shift 1)

Normal daily duties – 07.30 to 15.30  
Winter – 19.00 to 22.30  
Total duty – 11 hours  
Off duty – 22.30 to 07.30  
Continuous rest period – 9 hours

### Morning treatment (shift 2)

Winter – 04.00 to 07.30  
Normal daily duties – 07.30 to 15.30  
Total duty – 11 hours  
Off duty – 15.30 to 04.00  
Continuous rest period – 12.5 hours

If evening and morning treatments can be completed as detailed in the examples above, there will be no impact on staff's normal daily duties.

In the scenario where forecast weather conditions prevent evening and morning treatments from being completed by the times in the examples above, then the number of hours available to complete normal daily duties will be reduced. In this scenario, the Countywide Decision Maker will liaise with the Operations Lead / Winter & Cyclic Works Manager to confirm an alternative treatment time that considers the needs of the winter service whilst minimising as far as possible the operational impact.

At weekends, Suffolk Highways have one shift of drivers available for the winter service. Whilst normal daily duties do not exist at the weekends, the Countywide Decision Maker will liaise with on-duty operational supervisors to confirm treatments times that consider overall daily duty and driving hours along with further treatments that may be required throughout the weekend period.

For the purposes of Suffolk Highways' winter operations, salting treatments are considered effective for a period of 12 hours, when utilising the spread rates contained in the 'Precautionary Spread Rates – Normal Winter Conditions' section of this plan, subject to there being no forecast weather events such as rain or high winds that could remove salt between the completion of the treatment and the onset of the hazard. This period is measured from the planned start time of a salting treatment.

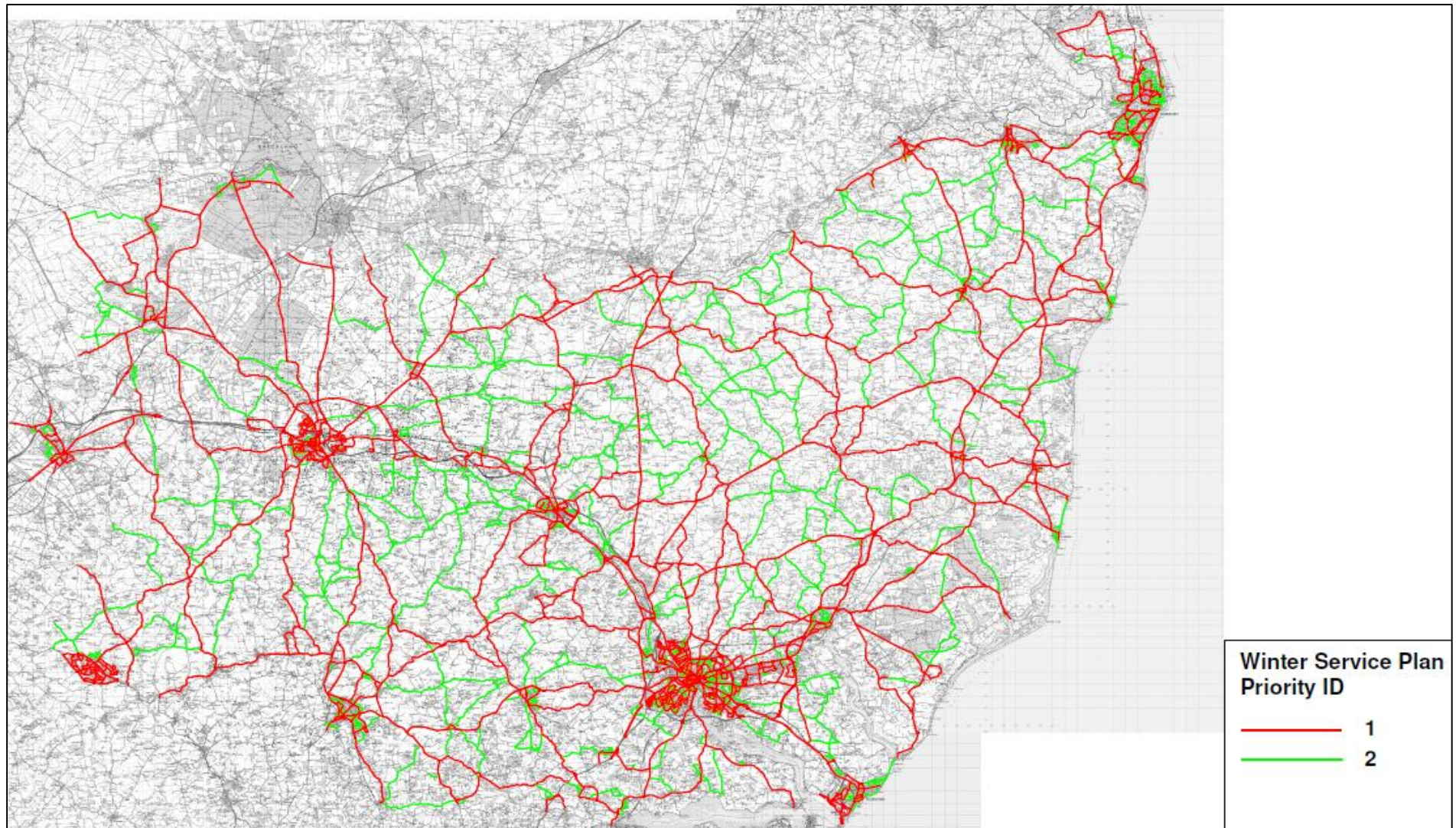
The table below provides percentage increases to spread rates to extend a 12 hour treatment up to a maximum of 20 hours, subject to there being no forecast weather events during the period and must be applied **after** any increases to the treatment rates defined within the 'Notes Regarding Potential Spread Rate Modifications' section of this plan.

These percentage increases are curtailed at 20 g/m<sup>2</sup> spread rate, the optimised maximum for the Suffolk Highways' winter fleet.

For example: If a forecast RST is -1.1°C on a dry surface which requires a treatment to be completed during a 'Light Traffic' period. The treatment rate would be 10 g/m<sup>2</sup> (8 g/m<sup>2</sup> + 25% for light traffic) . Using the table below if the 12-hour period was extended to 16 hours the treatment instruction would be 12 g/m<sup>2</sup> (10 g/m<sup>2</sup> + 20%)

| Extension to 12 hour treatment      |                                   |                     |                     |                     |                     |
|-------------------------------------|-----------------------------------|---------------------|---------------------|---------------------|---------------------|
| Spread Rates<br>(g/m <sup>2</sup> ) | 12 (hours)                        | Up to 14<br>(hours) | Up to 16<br>(hours) | Up to 18<br>(hours) | Up to 20<br>(hours) |
|                                     | % Increase to 12 hour Spread Rate |                     |                     |                     |                     |
|                                     | -                                 | 10%                 | 20%                 | 30%                 | 40%                 |
|                                     | 8                                 | 9                   | 10                  | 11                  | 12                  |
|                                     | 9                                 | 10                  | 11                  | 12                  | 13                  |
|                                     | 10                                | 11                  | 12                  | 13                  | 14                  |
|                                     | 11                                | 13                  | 14                  | 15                  | 16                  |
|                                     | 12                                | 14                  | 15                  | 16                  | 17                  |
|                                     | 13                                | 15                  | 16                  | 17                  | 19                  |
|                                     | 14                                | 16                  | 17                  | 19                  | 20                  |
|                                     | 15                                | 17                  | 18                  | 20                  |                     |
|                                     | 16                                | 18                  | 20                  |                     |                     |
|                                     | 17                                | 19                  |                     |                     |                     |
|                                     | 18                                | 20                  |                     |                     |                     |

## SUFFOLK P1 & P2 ROUTE COVERAGE



The Winter Network undergoes changes throughout the year depending on network adoptions and usage changes. Because of this the latest version of the winter network can be found on the link below to our website. An indicative plan is shown above for the purpose of visualising the extent of the winter service.

Link to Winter Network: <https://one.network/>

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## **FOOTWAYS**

There is no precautionary treatment of footways for frost in advance of bad weather.

Suffolk Highways' primary objective during snow conditions is to manage the needs of the P1 and P2 road networks.

If resources become available, footway treatments will be carried out on a reactive basis under a priority approach as shown below:

1. Town centre pedestrian zones
2. Shopping areas with high pedestrian flows
3. Near hospitals, doctors' surgeries and schools
4. Train and bus station highway footways
5. High volume pedestrian routes to/from train, bus stations and schools.
6. Near sheltered homes

## **CYCLE FACILITIES**

On-road cycle lanes, that form part of the P1 and P2 road networks, will receive a precautionary treatment for frost.

There is no pre-cautionary treatment of cycleways that are located away from roads i.e. stand-alone cycle routes, those within the footway or those located in the road with physical separation to the running lanes

## **BRIDGES**

There are several bridges in the county with weight restrictions that form part of the P1 and P2 routes. These are completed using mini gritters. Restrictions are initiated by the Structures Asset Manager as the need arises.

Suffolk also maintain two lifting bridges (Mutford Lock and The Gullwing) in Lowestoft which require Potassium Acetate to be applied rather than our bulk rock salt treatment. These two structures receive treatments under an agreement with National Highways who already use this product on their network.

## **LEVEL CROSSINGS**

Salting over level crossings can cause signal faults. Treatments will cease at the stop line either side of the level crossing as required by Network Rail guidance.

## **GUIDED BUSWAYS**

Gritters cannot safely pass along the guided busway between Ropes Drive (West) and Twelve Acre Approach, Kesgrave (SUPERROUTE 66).

Snow build-up on the guided busway can force the guide wheels off the tracks. In severe weather conditions, buses will utilise the A1214 which forms part of the P1 network.

## **OTHER FEATURES**

Where traffic calming measures exist, gritter drivers familiarise themselves with the route but no special measures are currently needed.

Where a planned road closure is in place, the gritter driver will treat up to both “Road Closed” signs (not the start of the diversion) and then treat the diversion route.

Treatment of other specific areas will always be considered on a local basis and will take into account all circumstances, however the priority in all situations will be the P1 network.

## **WORKING WITH OTHERS**

Suffolk Highways deliver the winter service in Suffolk on behalf of Suffolk County Council.

The exceptions to this are the Trunk Roads in the county (A11, A12 south of Ipswich, A47 north of Lowestoft and A14) which are the responsibility of Highways England.

In normal winter conditions, the nominated Countywide Decision Maker is responsible for determining treatment actions.

During times of severe weather, feedback from each of Suffolk Highways’ Service Delivery Centres (Rougham, Phoenix House (Ipswich) and Halesworth) can be used to assess conditions and determine localised actions if required.

In snow conditions, additional resources such as local farmers and contractors are coordinated from the Rougham, Phoenix House and Halesworth Service Delivery Centres. Staff rotas will be put in place to cover the period of snow and the recovery.

Suffolk County Council has a Service Level Agreement with Ipswich Borough Council for the treatment of footways in Ipswich during severe weather.

Suffolk County Council has cross-boundary arrangements in place with adjoining local authorities. This is to ensure that treatments are applied on a route basis and do not cease where a road crosses into an adjoining county. Additionally, Suffolk Highways communicates with those authorities to aid co-ordination of service delivery, as far as reasonably practicable, for a joined-up approach to treatments.

Suffolk County Council is bordered by Norfolk County Council, Cambridgeshire County Council and Essex County Council, all of which are members of the Eastern Highways Alliance including its benchmarking group. Winter leads are defined within this alliance to assist in developing and discussing winter related activities and strategies.

Suffolk Highways’ representatives attend regional and national winter service events.

## NOTES REGARDING POTENTIAL SPREAD RATE MODIFICATIONS

There are several factors that can potentially influence salt spread rates and the timing of salting treatments.

These factors are discussed below and form part of the decision-making process when determining appropriate treatments for a given weather forecast.

### NOTE 1 - 'ROUNDING'

In order to satisfy issues of practicability in delivering an efficient and effective winter service the following changes have been made to those spread rates provided in the matrices due to the impact on drivers' hours and next day working:

- \* change from 21 g/m<sup>2</sup> to 20 g/m<sup>2</sup>;
- \*\* change from 42 g/m<sup>2</sup> to 40 g/m<sup>2</sup>

### NOTE 2 - HIGHER SPREAD RATES

Suffolk Highways has optimised its winter routes to allow the delivery of a maximum of 20 g/m<sup>2</sup> during one treatment.

In certain weather and road conditions, the spread rates provided in the matrices are higher and therefore will require more than one treatment.

When doing multiple treatments to achieve the required spread rate, no single treatment shall be less than 8g/m<sup>2</sup>.

When multiple treatments are required, the first treatment shall be completed before the onset of ice at 0°C, with all subsequent treatments completed at least 1 hour prior to RSTs falling within the lowest temperature band.

For example, if forecast RSTs are between -5.1 °C and -7.0 °C, then the second treatment shall be completed at least 1 hour prior to RSTs falling below -5 °C.

### NOTE 3 - VERY LOW TEMPERATURES

Salt may not enter solution quickly enough to prevent freezing when spread at temperatures below -7°C (or -5°C in low humidity conditions i.e. below 80% relative humidity).

When these conditions are forecast, it is important that the timing of spreading operations allows enough time for the salt to enter solution.

Where possible, treatments will be completed at least 2 hours before air or road surface temperatures are forecast at or below -7°C (or -5°C in low humidity conditions).

These rates for salt are therefore shown in red in the matrices.

When spreading prior to air or road surface temperatures at or below -7°C (or -5°C in low humidity conditions) is not possible, Suffolk Highways will refer to the NWSRG guidance document 'Treatments for Extreme Cold' and the various matrices contained therein.

<http://www.nwsrg.org/publications/guidance>

Alternative de-icing materials are available for very low temperatures. Due to the extreme rarity of these temperatures being reached in Suffolk, it is not economically viable to have available and to store alternative equipment and de-icing materials (some of which have limited shelf lives).

#### **NOTE 4 - SALT MOISTURE CONTENT**

The spread rates provided in the matrices relate to UK indigenous rock salt exhibiting a moisture content within the following optimum range:

- Dry salting is within the range 2% to 4%;
- Pre-wetted salting is less than 4%

Should salt fall outside the optimum range, the spread rates provided in the matrices should be increased by 20%.

Countywide Decision Makers instruct spread rates based on salt falling within the optimal range.

It is the responsibility of the Operations Lead / Winter and Cyclic Works Manager to monitor salt moisture content. If any salt falls outside the optimum range, they will alert the relevant supervisor(s) who will make the necessary changes to the spread rate of the affected gritters.

#### **NOTE 5 - POROUS AND NEGATIVELY TEXTURED SURFACES**

These types of asphalt surfacing may reduce the effectiveness of spread salt. However, the porosity of such surfacing varies considerably with type and over time.

It is impracticable to increase spread rates on these surfaces especially where these comprise only relatively short sections of treatment routes.

Suffolk Highways will not adjust spread rates for these types of surfacing material.

#### **NOTE 6 - BRIDGE DECKS**

In certain weather conditions, some bridge decks can exhibit lower surface temperatures than those of adjacent roads.

It is impracticable to increase spread rates especially where these comprise only relatively short sections of treatment routes.

Suffolk Highways will not adjust spread rates across bridge decks.

## **NOTE 7 - TRAFFIC LEVELS**

The matrices assume 'Medium Traffic' around the time of the precautionary salting operation.

'Light Traffic' situations are deemed to be applicable when the planned completion of the salting treatment falls between:

- Normal working days – 00:00 and 04:30;
- Public holidays and weekends – 00:00 and 07:00

In this scenario, spread rates should be increased by 25%

'Congested Traffic' situations are deemed to be applicable when the planned treatment occurs during:

- Normal working days – 07:30 and 09:00;
- Normal working days – 17:00 and 18:00

In this scenario, spread rates should be increased by 20%

## **NOTE 8 - PRECIPITATION**

Precipitation adversely affects de-icing materials on the road surface, reducing their effectiveness and significantly increasing the rate at which they are removed from the road surface.

Where practicable, salting treatments will be delayed and undertaken after any predicted or actual rainfall has ceased and before freezing road surface temperatures are expected.

## **NOTE 9 - WATER FILM THICKNESS**

The amount of water on a road surface considerably affects the ability of salt to prevent frost and ice forming. Surface water reduces the concentration of brine and, in conjunction with the action of traffic, increases the rate at which salt is removed from the road surface.

Countywide Decision Makers will use the forecast surface state and the timing of rain fall in relation to the planned treatment time to determine the choice between dry and pre-wetted treatments.

Pre-wetted salting is used except for wet weather conditions, and the presence of standing water, when a dry salting treatment will be administered.

| Road surface wetness |                                                                                                                                                                                                             |                      |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Definition           | Description                                                                                                                                                                                                 | Water film thickness |
| Dry Road             | A road that shows no signs of water or dampness at the surface but may be just detectably darker. It may have moisture contained in pores below the surface that is not 'pumped' to the surface by traffic. | 0 to 0.03mm          |
| Damp Road            | A road which is clearly dark but traffic does not generate any spray. This would be typical of a well-drained road when there has been no rainfall after 6 hours before the treatment time.                 | 0.03 to 0.05mm       |
| Wet Road             | A road on which traffic produces fine spray but not small water droplets. This would be typical of a well-drained road when there has been rainfall up to 3 hours before the treatment time.                | 0.05 to 0.1mm        |

## **NOTE 10 - WIND SPEED AND DIRECTION**

Wind speed and direction can affect the spreading of salt and, in dry conditions, also affect the length of time that the salt will remain on the road surface.

Where practicable, spreading operations will avoid predicted high wind periods i.e. when mean wind speeds are forecast to be 20mph or more.

Where this is not possible, the 'Fair' spread rates in the matrices should be instructed.

## **NOTE 11 - RESIDUAL SALT**

Residual salt from previous operations can reduce the spread rates required to prevent frost/ice formation.

Residual salt levels across the network are notoriously difficult to measure accurately and this issue is still very much in focus nationally as an area for ongoing and future research.

Residual salt is not considered in the decision-making process in Suffolk.

## **NOTE 12 - SPREADER CAPABILITY**

For the purposes of this Plan, uniformity of distribution is expressed in terms of spreader capability. Uniformity of distribution is defined by the minimum amount of salt spread in each lane.

Suffolk Highways aim to maintain its fleet of gritters within the 'Good' capability range as detailed in the Winter Service Operational Handbook.

Countywide Decision Makers instruct spread rates based on 'Good' capability.

It is the responsibility of the Operations Lead / Winter and Cyclic Works Manager to monitor spreader capability. If any gritter falls outside of the 'Good' capability range, they will alert the relevant supervisor(s) who will make the necessary changes to the spread rate of the affected gritters, referring to the 'Fair' section of the tables below.

If a vehicle is not able to deliver salt in increments of 1 g/m<sup>2</sup> then the spread rate is to be rounded up to the nearest 5g.

# WINTER SERVICE TREATMENT MATRICES

## PRECAUTIONARY TREATMENT MATRIX - APPLICABLE TO P1 ROUTES

| Precautionary Treatment Matrix - Applicable to P1 Routes                                                                                         |                                                      |                                                                                    |                                |                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------|------------------------------------------------|
| Road Surface Temperature                                                                                                                         | Precipitation                                        | Predicted road conditions                                                          |                                |                                                |
|                                                                                                                                                  |                                                      | Wet                                                                                | Wet Patches                    | Dry                                            |
| May fall below 1°C                                                                                                                               | No rain<br>No hoar frost<br>No fog                   | Salt before frost                                                                  | Salt before frost (see note A) | No Action likely, monitor weather (see note A) |
| Expected to fall below 1°C                                                                                                                       | No rain<br>No hoar frost<br>No fog                   |                                                                                    | Salt before frost (see note B) |                                                |
|                                                                                                                                                  | Expected hoar frost<br>Expected fog                  |                                                                                    |                                |                                                |
|                                                                                                                                                  | Expected rain<br><u>BEFORE</u> freezing              | Salt after rain stops (see note C)                                                 |                                |                                                |
|                                                                                                                                                  | Expected rain<br><u>DURING</u> freezing              | Salt before frost, as required during rain and again after rain stops (see note D) |                                |                                                |
|                                                                                                                                                  | Possible rain<br>Possible hoar frost<br>Possible fog | Salt before frost                                                                  | Monitor weather conditions     |                                                |
| Expected Snow                                                                                                                                    |                                                      | Salt before snow fall                                                              |                                |                                                |
| The decision to undertake precautionary treatments should be, if appropriate, adjusted to take account of surface moisture.                      |                                                      |                                                                                    |                                |                                                |
| All decisions should be evidence based, recorded and require monitoring and review.                                                              |                                                      |                                                                                    |                                |                                                |
| Decision on treatment timing should account for traffic and road surface wetness at time of treatment and after, as well as forecast conditions. |                                                      |                                                                                    |                                |                                                |

| Precautionary Treatment Matrix - Applicable to P1 Routes |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Note A                                                   | Particular attention should be given to the possibility of water running across carriageways and other running surfaces, e.g. off adjacent fields after heavy rain, washing off salt previously deposited. Such locations may require blast treatment by the gritter to provide an increased volume of salt.                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Note B                                                   | When a weather warning contains reference to expected hoar frost, considerable deposits of frost are likely to occur. Hoar frost usually occurs in the early morning and is difficult to cater for because of the probability that any salt deposited on a dry road too soon before its onset, may be dispersed before it becomes effective. Close monitoring is required under this forecast condition which should ideally be treated just as the hoarfrost is forming. Such action is usually not practicable and salt may have to be deposited on a dry road prior to and as close as possible to the expected time the condition. Hoarfrost may be forecast at other times in which case the timing of salting operations should be adjusted accordingly. |
| Note C                                                   | If under these conditions rain has not ceased by early morning, crews should be called out and actions initiated as rain ceases.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Note D                                                   | Under these circumstances rain will freeze on contact with running surfaces and full pre-treatment should be provided even on dry roads. This is a most serious condition and should be monitored closely and continuously through the danger period.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Note E                                                   | Weather warnings are often qualified by altitudes in which case, different actions, may be required from each depot. (Rede in the west of Suffolk is the highest point at 128m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Note F                                                   | Where there is any hint of moisture being present, a pessimistic view of the forecast should be taken when considering treatment to negatively textured surfaces.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## PRECAUTIONARY SPREAD RATES – NORMAL WINTER CONDITIONS

Applicable to P1 and P2 routes

| Normal Winter Conditions                                   |                     |                 |               |             |
|------------------------------------------------------------|---------------------|-----------------|---------------|-------------|
| Spread Rates - Dry Salting (g/m <sup>2</sup> )             |                     |                 |               |             |
| Road Surface Temperature (RST) when frost/ice is predicted | Spreader Capability |                 |               |             |
|                                                            | Fair                |                 | Good          |             |
|                                                            | Dry/Damp Road       | Wet Road        | Dry/Damp Road | Wet Road    |
| At or above -1.0°C                                         | 8                   | 8               | 8             | 8           |
| -1.1°C to -2.0°C                                           | 8                   | 11              | 8             | 8           |
| -2.1°C to -3.0°C                                           | 9                   | 17              | 8             | 13          |
| -3.1°C to -4.0°C                                           | 12                  | 15 & 8          | 9             | 17          |
| -4.1°C to -5.0°C                                           | 14                  | 20 & 8          | 11            | 20*         |
| -5.1°C to -7.0°C                                           | 20                  | 20 & 19         | 15            | 20 & 10     |
| -7.1°C to -10.0°C                                          | 19 & 8              | 20, 20 & 14     | 20            | 20 & 20     |
| -10.1°C to -15.0°C                                         | 20 & 18             | 20, 20, 20 & 15 | 20 & 8        | 20, 20 & 16 |

| Normal Winter Conditions                                   |                     |             |               |           |
|------------------------------------------------------------|---------------------|-------------|---------------|-----------|
| Spread Rates - Pre-Wetted Salting (g/m <sup>2</sup> )      |                     |             |               |           |
| Road Surface Temperature (RST) when frost/ice is predicted | Spreader Capability |             |               |           |
|                                                            | Fair                |             | Good          |           |
|                                                            | Dry/Damp Road       | Wet Road    | Dry/Damp Road | Wet Road  |
| At or above -1.0°C                                         | 8                   | 8           | 8             | 8         |
| -1.1°C to -2.0°C                                           | 8                   | 10          | 8             | 8         |
| -2.1°C to -3.0°C                                           | 8                   | 16          | 8             | 12        |
| -3.1°C to -4.0°C                                           | 11                  | 20*         | 9             | 17        |
| -4.1°C to -5.0°C                                           | 14                  | 19 & 8      | 11            | 20*       |
| -5.1°C to -7.0°C                                           | 19                  | 20 & 17     | 15            | 20 & 10   |
| -7.1°C to -10.0°C                                          | 19 & 8              | 20, 20 & 13 | 20*           | 20 & 20** |
| -10.1°C to -15.0°C                                         | n/a                 | n/a         | n/a           | n/a       |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Note 2  | <p>Optimised routes allow the delivery of 20g/m<sup>2</sup> during one treatment.</p> <p>When multiple treatments are required to deliver the required spread rate, <b>no single treatment shall be less than 8g/m<sup>2</sup>.</b></p> <p>When multiple treatments are required the <b>first treatment shall be completed before the onset of ice at 0°C</b>, with all <b>subsequent treatments completed at least 1 hour prior to RSTs falling within the lowest temperature band.</b></p>                                                                                                                                                                                      |
| Note 3  | <b>In very low temperatures, treatments will be completed at least 2 hours before air or road surface temperatures are forecast at or below -7°C (or -5°C in low humidity conditions).</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Note 4  | <p>The matrices assume an optimal salt moisture content of:</p> <ul style="list-style-type: none"> <li>• Dry salting is within the range 2% to 4%;</li> <li>• Pre-wetted salting is less than 4%.</li> </ul> <p><b>If salt falls outside of the optimal moisture content range, Winter Service Superisors should increase spread rates by 20%.</b></p>                                                                                                                                                                                                                                                                                                                            |
| Note 7  | <p><b>Light Traffic</b>' situations are deemed applicable when the planned completion time falls between:</p> <ul style="list-style-type: none"> <li>• Normal working days – 00:00 and 04:30;</li> <li>• Public holidays and weekends – 00:00 and 07:00</li> </ul> <p>In this scenario, <b>spread rates should be increased by 25%.</b></p> <p><b>Congested Traffic</b>' situations are deemed to be applicable when the planned treatment occurs during:</p> <ul style="list-style-type: none"> <li>• Normal working days – 07:30 and 09:00;</li> <li>• Normal working days – 17:00 and 18:00</li> </ul> <p>In this scenario, <b>spread rates should be increased by 20%</b></p> |
| Note 9  | <b>A dry salting treatment should be instructed in 'Wet Road' conditions.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Note 10 | <p>Where practicable, spreading operations will avoid predicted high wind periods i.e. when mean wind speeds are forecast to be 20mph or more.</p> <p><b>Where mean wind speeds are greater that 20mph the 'Fair' spread rates should be instructed.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Note 11 | <b>Residual salt is not be considered in the decision-making process in Suffolk.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Note 12 | <p>Decision Makers instruct spread rates based on 'Good' spreader capability.</p> <p><b>If the spreader capability falls into the 'Fair' capability range, Winter Service Supervisors make necessary changes to the spread rate referring to the 'Fair' section of the tables above.</b></p>                                                                                                                                                                                                                                                                                                                                                                                      |

## PRECAUTIONARY SPREAD RATES – PRIOR TO SNOW OR FREEZING RAIN

### Applicable to P1 and P2 routes

| Treatment before snowfall and freezing rain      |                                                           |
|--------------------------------------------------|-----------------------------------------------------------|
| Spread Rates (g/m <sup>2</sup> )                 |                                                           |
| Weather conditions                               |                                                           |
| Light to Moderate/Heavy snow forecast            | 20-40 g/m <sup>2</sup> of dry or pre-wetted salt          |
| Rain forecast to fall on a freezing road surface | 20g /m <sup>2</sup> of dry or pre-wetted salt             |
| Freezing Rain forecast                           | 40 or 2 x 20-40g/m <sup>2</sup> of dry or pre-wetted salt |

It can be very difficult to remove a layer of compacted snow or ice that is bonded to a road surface. The aim is to apply a precautionary treatment to the P1 and P2 salting networks prior to snowfall or freezing rain to provide a debonding layer. This significantly reduces the risk of snow settling or ice forming on the road surface.

Where possible, treatments for snow will be carried out after any preceding rainfall has ceased and sufficient time and traffic has removed excess water on the road surface.

In situations where time constraints dictate, a treatment of 20g/m<sup>2</sup> across the whole of the P1 and P2 networks before the commencement of snowfall or freezing rain will typically prove more advantageous than a treatment of 40g/m<sup>2</sup> on only part of the network.

Freezing rain is relatively rare, but hazardous phenomenon in the UK. The nature of freezing rain means that the risk of ice formation is high even on treated surfaces.

The formal meteorological definition of freezing rain relates to situations when rain falls through a layer of very cold air in the atmosphere and becomes **super-cooled**, remaining as a liquid below the usual freezing temperature. When the rain strikes a surface, it freezes to form glaze ice almost immediately on contact. As the source of the precipitation is a warm front, the precipitation will usually be widespread and scale of the hazard extensive. This is very rare.

Rain that is **not super-cooled** but falling onto a surface that is itself significantly below zero can also freeze rapidly after contact although, in this instance, the ice is likely to take a short time to form as the temperature of the water decreases. Arising typically from showers, it will be less extensive than supercooled freezing rain.

It is rare but most likely in coastal areas when showers are brought onshore with a northerly, north-easterly or easterly wind;

Suffolk Highways' forecast text should distinguish between super-cooled and not super-cooled. If this is not the case, Countywide Decision Makers will discuss the forecast conditions with the forecast provider.

## TREATMENTS DURING SNOW OR FREEZING RAIN

### Applicable to P1 and P2 routes

Treatments are undertaken during snowfall to:

- Limit the accumulation of snow on the road surface, thereby reducing the amount of salt required for subsequent treatments;
- Help the dispersal/clearing of the snow by traffic;
- Prevent snow from being compacted.

| Treatments during snowfall and freezing rain                                                                                                                                                                                                                                                                                                                                                             |                                                                                               |                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------|
| Spread Rates (g/m <sup>2</sup> )                                                                                                                                                                                                                                                                                                                                                                         |                                                                                               |                             |
| <ul style="list-style-type: none"><li>• Plough to remove as much material as possible e.g. slush, snow, compacted snow</li><li>• Ploughing should be as close to the level of the road surface as possible</li><li>• Ploughing should start and, where necessary, be continuous to prevent a build-up of snow</li><li>• As snow melts under the action of salt, keep ploughing to remove slush</li></ul> |                                                                                               |                             |
| No ice or compacted snow on surface                                                                                                                                                                                                                                                                                                                                                                      | Ice or compacted snow on surface                                                              |                             |
| To provide a debonding layer, spread:<br><br>20-40 g/m <sup>2</sup> of dry or pre-wetted salt                                                                                                                                                                                                                                                                                                            | Is traffic likely to compact subsequent snowfall before further ploughing is possible?        |                             |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Yes                                                                                           | No                          |
|                                                                                                                                                                                                                                                                                                                                                                                                          | To provide a debonding layer, spread:<br><br>20-40 g/m <sup>2</sup> of dry or pre-wetted salt | No de-icer should be spread |

De-icer should not be spread alone without abrasives to anything other than a thin layer of ice or compacted snow when snowfall has ceased, or future snowfall will be less than 10mm.

Applying salt alone to compacted snow and ice can produce dangerously slippery conditions if a weak brine film is formed on top of the ice/snow layer.

During and after snowfall, it is best that only the ploughed lane is treated if other lanes have still to be ploughed. The spread width settings may be adjusted accordingly.

## TREATMENT FOR THIN LAYERS OF ICE

### Applicable to P1 and P2 routes

| Treatment for thin layers of ice (less than about 1mm thick) |                                                                                                       |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Spread Rates (g/m <sup>2</sup> )                             |                                                                                                       |
| Forecast weather and road surface conditions                 |                                                                                                       |
| Lower of air or road surface temperature above -5°C          | 40 g/m <sup>2</sup> of dry or pre-wetted salt, or<br>40 g/m <sup>2</sup> of salt/abrasive mix (50:50) |
| Lower of air or road surface temperature at or below -5°C    | 40 g/m <sup>2</sup> of salt/abrasive mix (50:50)                                                      |

Abrasives are 5-6mm and angular. Salt and abrasives are pre-mixed before loading onto the spreader. The mix proportions are approximately 50:50 by weight.

Salt is ineffective in the short term at temperatures below -7°C (or -5°C in low humidity conditions).

Abrasives only should be used when it is expected to be below -7°C (or -5°C in low humidity conditions) for long periods.

## TREATMENT FOR LAYERS OF COMPACTED SNOW AND ICE (>1MM)

### Applicable to P1 and P2 routes

| Treatment for layers of compacted snow and ice                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Spread Rates (g/m <sup>2</sup> )                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                         |
| Plough to remove as much material (e.g. slush, snow, compacted snow) as possible from top of the compacted layer                                                                |                                                                                                                                                                                                                                                                                                                                         |
| Medium layer thickness (1 to 5 mm)                                                                                                                                              | High layer thickness (greater than 5 mm)                                                                                                                                                                                                                                                                                                |
| For initial treatment, spread:<br>40 g/m <sup>2</sup> of salt/abrasive mix (50:50)<br><br>For successive treatments, spread:<br>20g/m <sup>2</sup> of salt/abrasive mix (50:50) | For initial treatment, spread:<br>40 g/m <sup>2</sup> of abrasives only<br><br>For successive treatments, spread:<br>20g/m <sup>2</sup> of abrasives only<br><br>After traffic has started breaking up the layer, spread:<br>20g/m <sup>2</sup> of salt/abrasive mix (50:50) so salt can penetrate the layer and reach the road surface |

For compacted snow, when no further snow is expected, salt and abrasive mixtures or abrasives are applied to assist the action of traffic in breaking up the layer.

When further snow is expected, salt and abrasive mixture treatments may be applied to provide grip as well as a debonding layer between the existing layer and any future snow to assist future ploughing operations.

Salt should not be applied on its own as it may eventually form a weak brine solution which may re-freeze to form an ice or ice/brine layer.

Care is needed when salt is mixed with abrasives with a high moisture content. Checks should be made that the mixture remains free flowing, does not clump and can be spread effectively.

Salt should be added to the abrasive to prevent freezing water within it. If the moisture content of the abrasive is 7%, 25 Kg of salt per tonne of abrasive is sufficient to prevent freezing if thoroughly mixed.

## EMERGENCY SITUATION – SALT SHORTAGE

Applicable to P1 routes only

| Emergency situation - Salt shortage                   |                    |                  |          |
|-------------------------------------------------------|--------------------|------------------|----------|
| Spread Rates - Dry and Pre-Wetted (g/m <sup>2</sup> ) |                    |                  |          |
| Weather Conditions                                    |                    | Dry/Damp Road    | Wet Road |
| Frost/ice predicted                                   | At or above -1.0°C | 8                | 8        |
|                                                       | -1.1°C to -2.0°C   | 8                | 8        |
|                                                       | -2.1°C to -3.0°C   | 8                | 13       |
|                                                       | -3.1°C to -4.0°C   | 9                | 15       |
|                                                       | -4.1°C to -5.0°C   | 11               | 15       |
|                                                       | -5.1°C to -7.0°C   | 15               | 15 & 15  |
|                                                       | -7.1°C to -10.0°C  | 15               | 15 & 15  |
| Light snow forecast                                   |                    | 15               |          |
| Moderate/heavy snow forecast                          |                    | 15 & 15          |          |
| During snowfall *                                     |                    | 15 & 15          |          |
| Thin ice formed above -5.0°C                          |                    | 15               |          |
| Thin ice formed below -5.0°C                          |                    | 15 salt/abrasive |          |
| Compacted snow/ice (1 to 5 mm)                        |                    | 15 salt/abrasive |          |
| Compacted snow/ice (greater than 5 mm)                |                    | 15 abrasive      |          |

\* Alternate between ploughing and salting as required for continuously laying snow.

In a salt shortage scenario, Suffolk Highways will only undertake treatments on the P1 network.

## **Route plans**

Detailed route plans have been developed to ensure the efficient coverage of the Priority 1 and Priority 2 routes. These are reviewed on an annual basis to ensure they remain appropriate and the most efficient route.

All necessary vehicles, plant, other equipment and materials are allocated on area and route basis.

## **Volunteers**

Suffolk Highways has contacts within the voluntary sector for further assistance during periods of bad weather. For data protection purposes, this information is not published.

General information for the public on clearing ice and snow is available in the Snow Code available on the Direct Gov and Suffolk County Council websites.

<http://www.suffolk.gov.uk/gritting>

## **Grit bins**

Grit bins are provided by borough, town and parish councils in support of 'self-help' in the clearance of snow and ice.

Borough, town and parish councils must apply to Suffolk Highways for the installation of a grit bin.

A grit bin will only be permitted in a location if certain criteria are met. Further details can be found in the 'Grit Bin Guidance and Application Procedure' document on our website and by using the link below.

<https://www.suffolk.gov.uk/roads-and-transport/highway-maintenance/check-which-roads-are-gritted/grit-bins>

All approved grit bins are stocked by Suffolk Highways in readiness for the Core Winter Period and replenished at such intervals that it considers to be appropriate, based on resource levels and priorities. Owners of the bin can choose to re-stock the grit bin at its own cost if Suffolk Highways is unable to do so.

Grit bin owners are responsible for maintaining a list of registered volunteers to ensure that they are covered by Suffolk County Council's insurance for spreading the grit.

Unauthorised use of the salt within the grit bins is considered theft.

## **Training**

All staff involved in delivery of the service undergo training appropriate to the role they cover. Training and development needs are reviewed on an annual basis.

As a minimum, Suffolk Highways gritter drivers will have achieved Winter Maintenance Operatives City and Guilds Assessment Scheme 6159 in operational efficiency, vehicle usage, de-icing, distribution and snow clearing.

## **DECISION MAKING**

Throughout the winter period a decision will be made daily on whether any precautionary or reactive treatment is required to the road network based on the weather forecast taking into consideration all available information, liaising with other areas / authorities where practicable.

All Countywide Decision Makers are given suitable training. Countywide Decision Makers are rostered with a Support Decision Maker who can be used to discuss challenging weather forecasts and agree appropriate treatments.

### **Role of the Countywide Decision Maker**

- Make treatment decisions each day based on the weather forecast received by 12:00 (with a tolerance of +15 minutes). This decision shall be for the entire county and tailored to individual weather domains where appropriate;
- Review this decision following the evening forecast update received by 18:00 (with a tolerance of +15 minutes);
- Receive and manage calls from the weather forecaster and Emergency Services Centre Controllers (formerly Ipswich CCTV centre);
- For planned treatments before 00:00hrs, review spread rates a minimum of 1 hour prior to the planned start time, confirming or adjusting based on the latest available weather information (to allow enough time for the loading of the correct amount of salt);
- For planned treatments after 00:00hrs, review spread rates based on the 23:00hrs forecast in conjunction with the support decision maker. If the treatments are not confirmed before 00:00hrs the support decision maker will take on this responsibility. This activity must be concluded a minimum of 1 hour prior to the planned start time.
- Amend treatment decisions as required and communicate these to the operational teams as appropriate.

### **Role of Support Decision Makers**

- Assist the Countywide Decision Maker in confirming appropriate treatments;
- Act as a point of contact for supervisors between the period of 00:00hrs to 06:00hrs.
- Liaise with the weather forecaster as appropriate;
- For planned treatments after 00:00hrs, review treatment and spread rates a minimum of 1 hour prior to the planned start time, confirming or adjusting based on the latest available weather information (to allow enough time for the loading of the correct amount of salt) if this has not been completed by the countywide decision maker following the 23:00hr forecast.
- Amend treatment decisions as required and communicate these to the operational teams as appropriate using the Vaisala Manager software package;
- If necessary, liaise with the Countywide Decision Maker.

## **Information Systems**

The information provided by the forecast contractor can be accessed through the winter management systems of which there are two.

Each of Suffolk Highways winter vehicles is fitted with an in-cab vehicle management system. This provides details of the treatment undertaken in real time, including reporting and recording of vehicle movement, salt on/off, speed, flow rate and width.

The Countywide Decision Maker will update the forecasting system with the planned actions by 13.00 hours and use the email functionality to send out these actions and the weather forecast information to the winter service contacts list.

The operational system is then updated with the required actions and confirmation text messages are sent out to those delivering the service.

Actual actions will be recorded on the operational system by Suffolk Highways once treatments are complete by 9.00am the following morning.

## **Weather Forecasts**

Suffolk Highways contract a specialist weather forecaster to provide daily forecasts specifically tailored to the needs of a local highway authority providing a winter service.

There is also a contract in place for the provision of a bureau service to poll data from our own and other regional weather stations.

This data is provided to the weather forecaster to build a complete picture of events and is the basis for decision making across the county. The contract also provides for direct access to a forecaster in times of difficult weather conditions.

Weather forecasts will be available daily at 05.00, 11.00 and 1700 hours with a tolerance of +15 minutes. An interim forecast will also be provided at 23:00 hours to help inform early morning treatments.

The weather forecast provider will communicate with the Countywide Decision Maker if they expect to exceed this time who will alert other duty officers accordingly.

## **Thermal Maps**

Suffolk is a large geographical area and consequently, weather conditions and road surface temperatures can vary across the network on the same night.

For example, cloud cover in the west of the county (which acts like a blanket) could keep road temperatures above freezing where clear skies in the east allow heat to dissipate causing road surface temperatures to fall below freezing.

An exercise to refresh Suffolk's thermal maps was completed in 2016.

The data from these maps has been used to support the division of the county into 4 weather domains which will be used for forecasting and treatment decisions for each winter season

- West Suffolk;
- Central Suffolk;
- Ipswich;
- Coastal

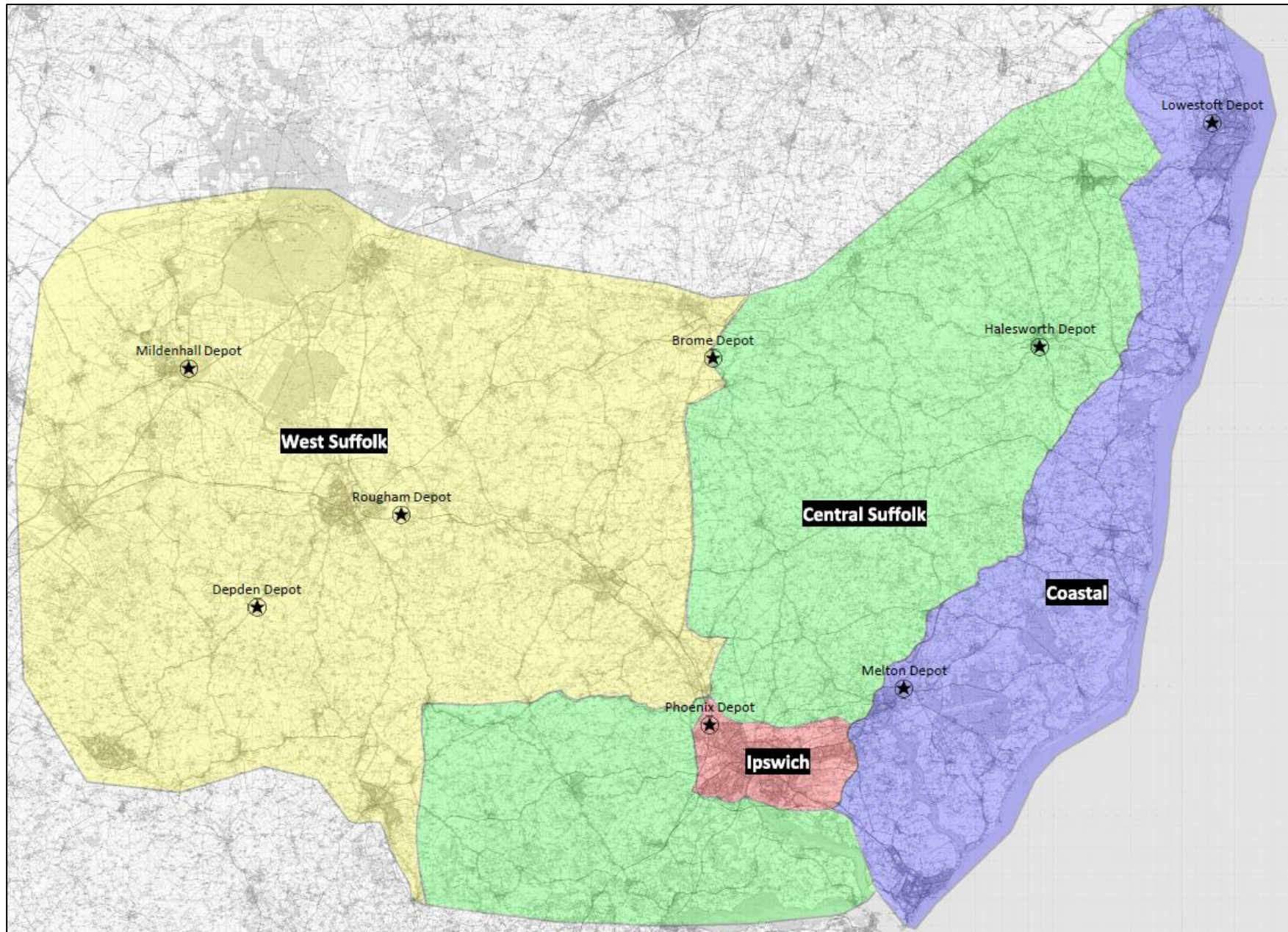
These domains (or areas) allow winter treatments to be tailored relative to the forecast weather conditions for each domain.

Treatment decisions for P1 and P2 networks will be based on the following forecast sites:

| Domain          | Forecast Site |
|-----------------|---------------|
| West Suffolk    | Barnadiston   |
| Central Suffolk | Ashbocking    |
| Coastal         | Sotherton     |
| Ipswich         | Ashbocking    |

Thermal maps are **not** used as part of the daily decision-making process.

## WINTER SERVICE DOMAINS



# **RESPONSIBILITIES OF OFFICERS**

## **HEAD OF CONTRACT AND COMMISSIONING**

- Support the commercial management of the winter service;
- Activate Severe Weather Plan;
- Communicate potential reduction in resources;
- Communication and media lead.

## **WINTER AND SOFT ESTATE ASSET MANAGER**

- Provide support to the Head of Contract and Commissioning
- Keep up to date with national guidance and good practice;
- Produce and maintain the Winter Service Plan;
- Compile decision maker rotas;
- Review Suffolk's road network to ensure appropriate roads are included into the P1 and P2 treated networks;
- Consider and where appropriate include roads where additional risk factors are present into the P2 treated network;
- Receive and assess requests for roads to be added to the P1 and P2 treated networks;
- Review Suffolk's road network to ensure appropriate roads are included into the Resilient Network;
- Coordination of network with neighbouring authorities;
- Management for the countywide salt bins;
- Responsibility for the delivery of the decision making process and its consistent application;
- Management of the Countywide and Support Decision Makers;

## **COUNTYWIDE DECISION MAKER**

- Access, review and take appropriate treatments decisions based on weather forecast information available from forecasting systems;
- Plan, propose and review actions on operational systems;
- Update operational systems messaging board to record decisions/actions;
- Ensure planned treatments are in accordance with the Plan;
- Coordinate actions with the other duty officers;
- Coordinate activities with neighbouring authorities, where practicable and appropriate to do so;
- At weekends only - advise Suffolk Highways out of hours contacts of the planned action and Support Decision Maker, when appropriate;
- First point of contact for forecaster;
- Review provisional forecast for potential early treatment;
- Recommend the initiation of the Severe Weather Plan;

- Ensure any reported issues from operations and/or the morning decision maker are resolved.

## **COUNTYWIDE SUPPORT DECISION MAKER**

- Appraise the lunchtime decision, latest weather forecast and actual conditions;
- Liaise with the weather forecaster for morning treatments as necessary;
- Accept or change the planned morning actions ensuring changes are in accordance with the Plan;
- Update forecasting and operations systems as necessary;
- Update operational systems message board to record decisions/actions as necessary;
- Resolve / report operational issues;
- Consult with and deputise for the Countywide Decision Maker as required.

## **SUFFOLK HIGHWAYS OPERATIONS LEAD / WINTER & CYCLIC WORKS MANAGER**

- Produce the Winter Service Operational Plan appendix including route cards and maps;
- Compile operational rotas;
- Provide required labour, vehicles, plant, salt and other equipment, materials and systems to provide the winter service;
- Implement relevant training for operational staff, including pre-season readiness/route review;
- Provide and review tracking and completed actions data and other evidence to substantiate provision of the winter service;
- Monitor the winter service fleet and equipment to ensure they remain within the 'Good' capability range and communicate to the relevant supervisor(s) those which fall within the 'Fair' capability range;
- Ensure salt condition is tested for composition, grading and moisture content and communicate to the relevant supervisor(s) stockpiles that fall outside of the optimal moisture content range;
- Assist with the decision-making process;
- Communicate with decision makers including feedback on any operational issues likely to affect current or recently completed winter service actions;
- Make recommendations for improvements and efficiencies to the winter service.

## **ALL OFFICERS UNDERTAKING WINTER SERVICE**

- Ensure all actions are undertaken in accordance with the Suffolk Highways Winter Service Plan and the supporting appendices.

## **DEPOTS, PLANT, VEHICLES & EQUIPMENT**

The Winter Service is delivered from eight depots strategically situated around the county to give the best possible coverage and keep gritting routes to a manageable size.

The depots are located in Phoenix House (Ipswich), Brome, Halesworth, Melton, Lowestoft, Mildenhall, Depden and Rougham.

All the depots have covered salt stores, whilst brine making facilities are present in most of the operational depots these items are non operational due to their age and require replacement. Currently there are no plans to replace these facilities due to cost and therefore the County will be operating dry salt only for the 2026-27 winter season.

The winter service fleet (excluding snow-blowers) is owned and maintained by Suffolk Highways. Suffolk Highways has access to workshops within some of the operational depots containing facilities to support the service and maintenance requirements for the winter fleet. This facility is further supported by mobile fitters operating 24/7 throughout the winter season.

Arrangements for the hire of additional equipment can be arranged through the directorate procurement officer and also through existing arrangements by Suffolk Highways.

Suffolk Highways will ensure vehicles are calibrated prior to the start of the season with a mid-season calibration. Salt usage and spread rate density checks will be performed after every treatment to ensure the correct rates of spread are achieved.

Suffolk Highways weighs all winter fleet before and after each treatment. The resultant difference in weight is checked against a theoretical tonnage (derived for the different spread rates used, dry or pre-wetted treatments and for each winter route) to ensure an appropriate weight of salt is spread.

In addition, all Suffolk Highways' winter fleet are fitted with vehicle tracking devices that record a number of parameters when in operation. This data can be used by operational staff to pinpoint any issues with the spreading operation allowing appropriate action to be taken.

## **SALT MANAGEMENT**

Salt stocks are maintained at strategic locations around the county to enable the most effective operations for the service. Appropriate loading arrangements are in place at each location.

Stock levels for the start of a season and also minimum stock levels are recorded. Salt stocks will be held and managed by Suffolk Highways. Suffolk Highways will co-ordinate the ordering of salt and will book out salt used against each route on a daily basis.

Weekly updates on salt stocks will be made available to the Suffolk Highways Technical Services Manager to forward to Department for Transport as required.

Suffolk Highways will test salt to ensure conformity with BS3247:2011 Salt for spreading on Highways for Winter Maintenance.

Salt condition will be monitored and regularly tested for composition, grading and moisture content as detailed in the Winter Service Operational Plan appended to this Plan.

## RESILIENCE

### SERVICE STANDARD

Overall Winter Period 1<sup>st</sup> October – 30 April

Core Winter Period 1<sup>st</sup> November – 1<sup>st</sup> March

The Minimum Winter Network is the P1 routes

#### Salt stock

Suffolk Highways will manage stock levels and deliveries to ensure stocks are available to run the service through the winter season. Salt barn storage capacity across the County is 22,700 tonnes. This year we will continue to dynamically manage our salt stocks as we need to undertake maintenance to several of our salt barns next summer ahead of the 27-28 winter season. We may therefore need to run lower levels to ensure we have reduced amounts of salt in stock at the end of this season.

With support from our supply chain, we will maintain resilience through responsive in-season deliveries to ensure stock levels can be maintained.

The table below shows the amount of salt used over previous seasons.

| Total Salt Used | Tonnes |                       |
|-----------------|--------|-----------------------|
| 2013-14         | 9471   |                       |
| 2014-15         | 15685  |                       |
| 2015-16         | 8465   |                       |
| 2016-17         | 12547  |                       |
| 2017-18         | 28097  | Beast from the East   |
| 2018-19         | 10585  |                       |
| 2019-20         | 7989   |                       |
| 2020-21         | 21223  | Beast from the East 2 |
| 2021-22         | 9371   |                       |
| 2022-23         | 13294  |                       |
| 2023-24         | 7821   |                       |
| 2024-25         | 12,684 |                       |
| 2025-26         | 8,779  |                       |
| Annual Average  | 12,770 |                       |

## **STAFF RESOURCES**

There are a variety of different rotas in place to ensure staff resources are in place. Standby arrangements are in place for all personnel involved in the winter service.

Contractual arrangements are in place with farmers and others to support the service.

## **FUEL**

Due to tax changes that came into force on the 1<sup>st</sup> April 2022 rebated fuel will no longer be permitted to support the winter fleet.

## **VEHICLES & PLANT**

Suffolk Highways fleet to deliver the service is a mix of mainly dedicated vehicles with some multi-purpose ones and a number of back up vehicles.

Suffolk Highways has access to three snow-blowers around the county to help deal with severe snow situations.

## **BUSINESS CONTINUITY**

In the event of severe depletion of resource through an emergency situation (e.g. national salt shortage, flu pandemic) a reduction in treatment levels may be introduced under the direction of the Assistant Director of Highways Services or Head of Contract and Commissioning.

The reduction in treatment levels will include reducing to treat our P1 salting routes only and a reduction in the maximum spread rate to 15g/m<sup>2</sup>.

## **SEVERE WEATHER**

If weather conditions are likely to cause severe disruption across the county, the Head of Contract and Commissioning or the Winter and Soft Estate Asset Manager and the Countywide Decision Maker, will activate the Severe Weather Plan for winter service.

A separate decision will be made whether to activate our severe weather desk. When activated the severe weather desk is located at Phoenix House in the Suffolk Highways control hub. In times of severe weather, the control hub will operate on a 24/7 basis.

Head of Contract and Commissioning or Winter and Soft Estate Asset Manager and Service Delivery Centre Leads will be the first point of contact for Suffolk County Council's Communications Team and will also provide communication updates at the appropriate times using a specific email distribution list.

## **SEVERE WEATHER EXERCISE**

Suffolk County Council's Joint Emergency Planning Unit coordinates regular exercises to check Suffolk Highways' readiness including an annual exercise before the start of the winter season to test the systems, process and procedures.

## HEALTH AND SAFETY

The provision of the Winter Service is not an emergency service and therefore associated work is considered as planned. This means that decisions on the gritting options must take the drivers' hours legislation and working time directive into consideration.

Suffolk Highways has systems in place to manage lone working.

## COMMUNICATIONS & INFORMATION

Information on the Winter Service is provided through the Suffolk County Council web site.

[www.suffolk.gov.uk/gritting](http://www.suffolk.gov.uk/gritting)

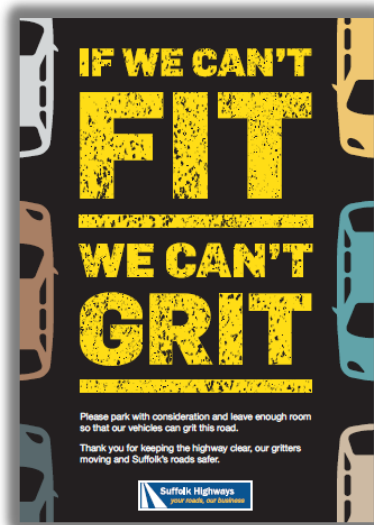
A map of our P1 and P2 routes can be found on the One.network website.

These maps show the extent of our treated network, subject to access by our gritting fleet.

Suffolk Highways gathers feedback from its winter drivers on locations where residential on-street parking prevents access. Where locations are identified, Suffolk highways will send out leaflets to residents to make them aware.

Where continued parking prevents access, Suffolk Highways may remove these roads from the treated network if it is not possible to include the locations onto one of its mini-gritter routes.

Details of its winter service actions are made available to the Suffolk County Council's Communication Team and are updated on X @suff\_highways and our Suffolk Highways Facebook pages.



Suffolk Highways works in partnership with Highways England, joining up with other local authorities, to support the winter marketing campaign to raise awareness by sharing key messages to the travelling public.

Regular updates to staff, Councillors and the public are provided before and during severe weather.

Additional information on the Winter Service is provided through the Suffolk County Council's Customer Service Contact Centre. This service is under continual development and improvement to allow more detailed information to be available to users of the service.

An emergency out of hours service is managed by IBC Emergency Services Centre. Calls from Suffolk police and the public will be handled through this contact centre.

## QUALITY SYSTEM

The Winter Service Plan is managed under the principles of quality management, but it is not a formal quality system.

A formal process is in place to ensure the Winter Service Plan is approved before the start of the winter season.

The policy element of the Plan is widely published. The supporting appendices have a more limited circulation due to the personal details including contact details contained in a number of the sections.

An annual review meeting will take place at the end of each winter season to review the season's performance and to identify any learning, new service developments or issues that need to be resolved before the start of the next season. An action plan will be developed with an owner and timescales identified to ensure all actions are completed.

Operational record keeping is carried out by the personnel involved in the service. Historical records are available and are managed within Suffolk County Council's retention guidelines. Performance reports are regularly reviewed throughout the winter period.

### Revision Record

| Version                   | Amended By | Change                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Issue Date |
|---------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Circulation of Draft v1.0 | Ben Cook   | <ul style="list-style-type: none"><li>• Updated text to reflect 2026.</li><li>• Updated text Pg 12 for Pandemics.</li><li>• Update text Pg 34 for systems.</li><li>• Updated Pg 37 and Pg 38 Roles and Responsibilities to reflect system use.</li><li>• Updated Pg 39 and Pg 42 for Brine making.</li><li>• Updated Pg 40 text for Salt Resilience.</li><li>• Updated table Pg 40 for Salt usage.</li><li>• Updated Pg 42 text for Communication &amp; Information updates.</li></ul> | 17/09/2026 |
| Final v1.0                | Ben Cook   | Issued in line with the above comments                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 24/09/2026 |
|                           |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |
|                           |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |

## **WINTER SERVICE PLAN APPENDICES**

- Control of Documents
- Suffolk Highways Winter Service Operational Plan
- Routes
- Severe Weather Plan