Milton Keynes City Council

Winter Service Plan

2022/2023

Contents

Distribution List

	Job Title	Organisation
1	Portfolio Holder	MK City Council
2	Service Director	MK City Council
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6	Winter Service Plan Duty Officers (x5)	MK City Council
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9	Ringway Infrastructure Services (x3)	Ringway Infrastructure Services
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11	Head of Environment and Waste	MK City Council
12	Operations Manager	SERCO

1. Introduction

Milton Keynes City Council as the Highway Authority is under a statutory duty to maintain the highway. The general duty is set out in the Highways Act 1980. Section 111 of the Railways and Transport Safety Act 2003 amends Section 41 of the Highways Act 1980, to add Section 41 (1A) which states: “In particular, a Highway Authority is under a duty to ensure, so far as is reasonably practical, that safe passage along a highway is not endangered by snow and ice”.

In September 2013, the UK Roads Liaison Group (UKRLG) issued an updated Appendix H supplement (Winter Service Practical Guidance) to the ‘Well Maintained Highways’ (Code of Practice for Highway Maintenance Management). This guidance was used as a basis for this document and our service provider’s operational plan.

Subsequent to this, a review of the well-maintained highways guidance by the United Kingdom Roads Liaison Group (UKRLG) new highways guidance was issued in the form of ‘Well Managed Highways’ in October 2016. The Winter Service guidance review was deferred to the National Winter Service Research Group (NWSRG), the guidance for winter produced by this group has been divided into a series of individual documents each dealing with separate winter service activities.

These documents are all published and are incorporated into this update of the winter guidance documents for Milton Keynes following a full review of the Winter Service documentation between April and September. This review has ensured that the transition was given due consideration to produce a complete coherent document that encompasses all elements of the service in preparation for the 2022 - 2023 winter season.

The table on the following page outlines each document and current national status and MK action/implementation if relevant.

Table 1: status of practical guide chapters

1. FOREWORD AND USING THE GUIDE	PUBLISHED MARCH 2021
2. PLANNING	PUBLISHED MAY 2020
3. DE-ICER TYPES	PUBLISHED MARCH 2019 SEE MK SECTION 9
4. SALT STORAGE	PUBLISHED MARCH 2019 SEE MK SECTION 10
5. TREATMENT METHODS AND TECHNOLOGIES	PUBLISHED MARCH 2019 INCLUDED MK SECTION 9
6. SPREADER MANAGEMENT	PUBLISHED MARCH 2019 SEE MK SECTIONS 9 AND 10
7. WINTER DECISION MAKING	PUBLISHED NOVEMBER 2020 SEE MK SECTION 8
8. SPREAD RATES FOR PRECAUTIONARY SALTING	PUBLISHED MARCH 2019 SEE MK SECTION 9
9. TREATMENTS FOR SNOW AND ICE	PUBLISHED MARCH 2019 SEE MK SECTION 9
10.TREATMENTS FOR EXTREME COLD	PUBLISHED MARCH 2019 SEE MK SECTION 9
11.TREATMENT OF FOOTWAYS AND CYCLEWAYS	PUBLISHED MARCH 2021 SEE MK SECTION 5
12. WEATHER FORECASTING AND RWIS	PUBLISHED SEPTEMBER 202 SEE MK SECTION 7
13. ROUTE SELECTION AND OPTIMISATION	PUBLISHED NOVEMBER 2020 SEE MK SECTION 6

The Winter Service Plan is important in terms of both road safety and the economy. It is carried out in an effort to assist the safe movement of all users of the highway, whether in vehicles or on cycle/foot. It is economically significant because of the costs incurred by the delays and accidents that bad weather can cause. The Winter Service Plan involves treating the highway to:

- prevent ice from forming, known as "precautionary salting"
- melt ice and snow already formed, known as "post salting"
- remove snow.

A balance must be made between the demands for increased precautionary salting and both cost and the environmental effects of applying large quantities of salt to our highway network.

This Winter Service Plan describes the policy, objectives, and procedures for the delivery of Winter Service on the Milton Keynes City Council road network. The operational aspects of the service are the responsibility of our Term Service Provider who produces a Winter Service Operational Plan that compliments and supports the Winter Service Plan.

For the purposes of Winter Service planning the season runs from 28 October 2022 to 14 April 2023. Provision is made for this period to be extended if required. However, we monitor road surface temperature and weather conditions from 1 October 2022 through to 30 April 2023. Note operational crews are available to mobilise and carry out treatments during this period.

The Traffic Management Act 2004 has placed a network management duty on all local authorities in England. It requires authorities to do all that is reasonably practicable to manage the network effectively to keep traffic moving. In meeting this duty, authorities should establish contingency plans for dealing promptly and effectively with unplanned events, such as unforeseen weather conditions, as far as is reasonably practicable, this document supports that duty in relation to winter weather.

In respect of its duty under item 3.8 Milton Keynes has developed a ‘Resilient Network’ which is based on its Winter Service Routes that also takes into consideration adjacent authorities, major through routes, critical infrastructure etc. This can be found at the following link;
www.milton-keynes.gov.uk/highways

2. Policy statement

The objective of the Winter Service is to ensure as far as is reasonably practicable and within the appropriate resource level, the safe movement of vehicles on the Council's strategic highway network, other key and important identified routes, and for delays and accidents which could be attributable to adverse weather conditions are minimised in accordance with the authority's statutory obligation. This plan also supports the authority's 'Adverse Weather Plan' under the Civil Contingencies Act.

2.1
The Plan supports the authority's 3 key corporate objectives:

A City of Opportunity

Our Winter Service is essential to support the diverse, strong local and regional economy of Milton Keynes during the winter season, which provides employment and opportunity for our residents. Winter Service is an integral part of our highway service that supports the investment necessary to operate our roads effectively during the winter season to connect to local, regional and national economies during inclement weather, and to secure our place at the centre of England's Economic Heartland.

An Affordable City

We want Milton Keynes to be a modern, diverse and successful city that attracts residents and businesses, founded on a well-maintained built environment. Our approach to Winter Service supports this through the identification of national standards based on an informed understanding of our community's needs and aspirations and allows us to demonstrate responsible, and continuously improving, custodianship of the Council's largest asset and its finances.

A Healthy City

We want Milton Keynes to be an active, vibrant place with people living long, healthy and fulfilling lives and the Winter Service has a vital role to play in encouraging people to make healthy transport choices throughout the whole year. Our approach to Winter Service, considers the needs of all types of user and emphasises the need to manage and maintain our streets, footways and redways to ensure they are safe attractive options for walking and cycling even during inclement weather.

2.2 Policy objectives in relation to best value

Customers
To consider the customer needs and expectations in delivering an efficient, effective and proportionate response to local winter conditions.

Safety
In conjunction with statutory obligations safety is a prime consideration for the winter service.

Serviceability
Maintaining availability and reliability of the highway network is a key objective for the winter service and one where user judgements of performance will be immediate rather than long term.

Sustainability
Low temperatures and the formation of ice can cause severe damage to the fabric of the running surfaces and structures and the winter service can therefore make an important contribution to whole life costs and the way that the authority manages its assets in line with the authority's Asset Management Policy and Strategy.

3. Winter Service Overview

The Winter Service Plan is essential for public safety and to the economy in maintaining the movement of traffic and pedestrians. The Winter Service Plan involves treating the highway to:

- Prevent ice from forming through the precautionary salting of roads.
- Post salting of roads to melt ice or snow that has already formed.
- Clearing of snow already lying on roads and footways.

The Winter Service Plan gives details of how the Environment and Property group intends to achieve the standards set out in the Winter Service Plan Policy Statement.

The Legal Duty of the Highways Authority is best achieved if clear policies and operational standards are defined and carried out. The Winter Service Plan and separate Operational Plan produced by our Term Service Provider provides the framework to ensure that Highway Services can demonstrate that it is meeting its current legal obligations in an efficient, effective and environmentally sustainable manner.

The authority has procured and externalised the whole Highways Term Service Operations and appointed Ringway Infrastructure Services to deliver this contract including the winter service (until March 2024). Ringway have a separate Winter Service Operational document that compliments and supports the Winter Service Plan.

The Winter Service this season will run from 28 October 2022 to 14 April 2023, although provision is made to extend this period at either end of the season to accommodate seasonal variations in the weather.

Milton Keynes City Council as the Highway Authority through the Environment and Property Directorate has responsibility for the maintenance of the adopted highways within the Authority excluding the M1 Motorway and A5 Trunk Road which are the responsibility of National Highways.

Milton Keynes seldom experiences severe winter weather, and the allocation of resources reflects this. However global warming continues to affect weather patterns and appears to be a contributing factor to a gradual rise in salting runs, through an increase in marginal forecasts experienced.

3.1 Route Hierarchy

Milton Keynes network is divided up into routes that are each treated in accordance with the priority assigned. Milton Keynes has the following treatment routes;

- Priority 1 - roads
- Priority 2 - roads
- Priority 3 - roads
- Priority footways
- Priority redways
- Snow Routes - roads
- Resilience Routes - roads

Our current Winter Service routes and asset locations can be found online at
www.milton-keynes.gov.uk/highways

3.2 Route Treatment

Milton Keynes currently divides its Priority 1 network into 9 routes, the current approach is to treat all 9 routes on each occasion that a minimum temperature and/or weather conditions on the network determines that a pre-treatment of the network is necessary.

The service trialled Route Based Forecasting as an alternative to managing the highways network during winter in Milton Keynes. This was undertaken in parallel during the 2017/18 winter season.

Results have evidenced that Milton Keynes network shows very little variation in ultimate temperature between the urban and rural network, meaning that route specific treatments would not offer any benefits to Milton Keynes. On the contrary it would incur additional revenue cost based on the trial undertaken. Milton Keynes will not pursue this option at this time.

Milton Keynes Priority 1 Road Network

The Priority One route hierarchy has been developed from identified needs from the list of all roads for which Highway Services is responsible. The network includes:

- Category 2: All strategic routes (Principal A roads).
- Category 3a: Grid roads
- Category 3b: Secondary distributors (B and C roads and all main bus routes).
- Category 4a: Most link roads, local interconnecting roads and unclassified rural links from the villages to the distributor roads.

Resilient Routes

During periods of national salt shortages or other emergency situation such as a national pandemic the Council may reduce the amount of Priority 1 roads salted to conserve salt stocks or other resources.

The resilient salting network will replace the normal Priority 1 salting network during periods where there are national salt shortages or other emergency situation such as a national pandemic or the Authority has to conserve its existing salt stocks whilst still maintaining a resilient strategic network.

Milton Keynes Priority 2 Road Network

Priority 2 routes are considered important enough to warrant treatment during prolonged severe winter weather (conditions of continuous frost/ice/snow conditions – either where the daytime surface temperature does not rise above freezing or with severe hoar frost for a continuous 72 hours or heavy snow is forecast) when the Priority One network is passable and free from ice and snow conditions and resources allow. See Section 7.3

These are roads that do not fall into the Priority 1 route category following route assessment but still contain a key infrastructure asset e.g. minor road to a school or link to a utility substation or an estate road link. Hand salting may be necessary due to accessibility of salting plant.

Milton Keynes Priority 3 Road Network

Generally, this network of roads, being the remainder of the network not included in either the Priority 1 or 2 networks (e.g. most cul-de-sacs on estates), shall not be considered for treatment unless the Priority 1 and 2 networks are passable and clear of obstruction and only during extended periods of lying snow and if resources allow.

Priority Redways

In exceptional circumstances of continuous frost/ice/snow conditions (either where the daytime surface temperature does not rise above freezing or with severe hoar frost for a continuous 72 hours or heavy snow is forecast) treatment of redways will be carried out as a brine direct liquid application with a brine solution in dedicated purpose built vehicles. We also have capability for dry rock salting or pre-wet salting to the redways. See Section 7.3

It is considered that given the overall resources available to the highway authority for pre-treatment of ice, resources are not available for the routine pre-treatment of Priority 1 redways. It is also considered that the potential harm to cyclists and pedestrians in the event of slipping on ice is not as great as the risk of potential harm to persons in a fast-moving motor vehicle

The Priority 1 redway network is currently H6 Childs Way and V6 Grafton Street along their entire lengths either side of the transport corridor, these form part of the 'Super Cycleway' network and importantly provide key residential to commercial links North-South and East-West intersecting adjacent to key transport links (Central Milton Keynes bus and train station/Junction 14 Coachway).

Following publication of NWSRG Practical Guidance Documents chapter 11 Treatments for Footways and Cycleways (published March 2021), Milton Keynes City Council reviewed the Priority 1 redway network usage and found H6 and V6 routes have significantly higher usage by cyclists and pedestrians than other routes during 2018 to 2021.

Redway usage will be monitored during Winter 2022-2023 to determine if and when additional actions should be taken.
Note that the treatment of the redways parallel to the H6 and V6 grid roads (super-routes) are carried out using two dedicated brine sprayers with each route taking 6 to 8 hours to complete and is preferably carried out during daylight hours for improved safety.

Snow Routes

In advance of predicted snow or during periods of either falling snow or following snowfall, the authority may direct its resource to pre-determined strategic snow routes as a priority to ensure that the network where possible can move freely. When resource is available, and the snow routes are clear then snow clearance will continue to the rest of the routes based on priority level.

Priority Footways

All footways subject to normal overnight frost conditions will not be routinely treated.

It is considered that given the overall resources available to the highway authority for pre-treatment of ice, resources are not available for the routine pre-treatment of even the category 1 footways. It is also considered that the potential harm to pedestrians in the event of slipping on ice is not as great as the risk of potential harm to persons in a fast-moving motor vehicle.

However, in circumstances of continuous frost/ice/snow conditions (either where the daytime surface temperature does not rise above freezing or with severe hoar frost for a continuous 72 hours or heavy snow is forecast) treatment of Category 1 footways will be undertaken when resources become available from the carriageway Priority 1 and 2 networks. (Resources for town centre footway treatment will be supplemented from the supply chain from the highways service provider and/or resource from waste and cleansing contractor if available).

Council Car Parks

The City Centre (Central Milton Keynes) car parks and service roads shall be treated as and when salting of Priority 1 salting routes are carried out. Rates of spread shall be the same as the rest of the P1 network. Note: the treatment of the Central Milton Keynes car parks is funded from the Parking Revenue fund.

Off street car parks owned by Milton Keynes City Council will only be treated at the request of the MKC 'Parking Team' and only then in conjunction with the Priority 2 Network in periods of prolonged adverse weather and then only when resources are not required on the Priority 1 network.

Reciprocal Arrangements

In the interests of route efficiency, the adjoining County/Unitary authorities treat certain lengths of the Priority 1 network in Milton Keynes and a reciprocal arrangement exists in that Milton Keynes treats certain lengths of roads in these adjoining authorities. These arrangements do not apply in times of snow conditions or on other lower priority routes. See Appendix E.

Reciprocal agreements are confirmed with the respective adjoining authorities prior to the winter season each year. This is carried out under Section 8 of the Highways Act 1980.

3.3 Road Closures

During the winter period, road closures on the priority 1 network may cause traffic to be diverted on to roads that are not normally precautionary salted. In these cases, any affected diversionary route from a road closure will be treated as part of the Priority 1 network and will be precautionary salted for the duration of the closure. No road closure should be reopened without the route having been treated in advance of opening.

During snow conditions, Thames Valley Police, Emergency Services, Passenger Transport, Emergency Planning and Comms/Public Relations will liaise in respect of any road closures as and when they occur.

4.Risk Assessment of Routes

4.1 Winter Service Plan – Risk Assessment Procedure

It is recognised that the City Council does not have the resources available to carry out precautionary salting on its entire road network. In establishing the Priority 1 (precautionary) salting network our priorities have been to ensure that we treat the most strategically important roads on the network and those likely to pose the highest risk to road users in icy conditions.

The Priority 1 salting network has been developed over many years and the core network includes all A, B and C roads (including the MK grid road system), main estate spine roads and all the main bus routes.

The risk assessment process has been used to prioritise both existing and future adopted roads for inclusion and will take account of the criteria listed in the guide*. Each road will be scored against these criteria to provide an overall score and ranked accordingly. See Appendix B.

In addition to the risk assessment criteria the network will be reviewed annually to help identify potential trouble spots and to ensure they remain on the priority network.

*The national Winter Service review was deferred to the National Winter Service Research Group (NWSRG). Chapter 13 of the NWSRG guidance documents (published November 2020) is a risk-based approach to route prioritisation and our existing route hierarchy followed these principles. The routes have been assessed and updated where necessary for the 2022-23 season.

4.2 Risk Assessed Network

A risk assessment matrix will be scored and a cut-off point determined taking into account risk and current resource and this will be used to determine whether roads will be included as part of the Priority 1 salting network.

Note: This process has been reviewed following publication of the new NWSRG guidance chapter 13 Route Selection and Optimisation for winter service (published November 2020) and an assessment of the network has been undertaken.

The assessment will also identify if the Priority 1 should form part of the Snow Route/Resilient Network.

Roads not falling into the Priority 1 network will then be assessed for inclusion in the Priority 2 network with key factors identified in section 5.

All roads not falling in to the P1 or P2 routes will be deemed as Priority 3 as default.

Priority 1 footway routes will be assessed in accordance with priorities set out in the 'Milton Keynes Code of Practice for Highway Safety Inspections'. In addition all sheltered housing facilities will be treated due to the high risk associated with residents in inclement weather as outlined in section 5. Additional key footways will also be included that supports key infrastructure i.e. footways to the hospital from grid road bus stops that would be compromised during inclement weather during a priority 1 footway treatment (see Section 5).

Priority redway routes were identified from a risk-based approach and reviewed in accordance with NWSRG practical guidance chapter 11, the current list of routes as in Section 5.

The current risk assessment matrix contains the following criteria:

- Network category
- Traffic flows (if information available)
- Bus Routes
- Gradients
- Bends not subject to speed limit
- Community link
- Industrial area
- Previously salted route
- Adjacent key facilities
- Route efficiency and practicality

Route assessment matrix for roads can be found in Appendix B.

5.Weather Forecasts and Road Weather Monitoring Stations

Milton Keynes City Council uses a Weather Forecasting Bureau Service (DTN - Meteogroup - Roadmaster) and a weather station interface to collect weather data (Vaisala Navigator website) to assist in the Winter Service Plan decision-making process.

5.1 Weather Forecasting

Milton Keynes uses a weather forecasting bureau service provided by DTN MeteoGroup (Roadmaster) procured through the Eastern Highways Alliance group authorities.

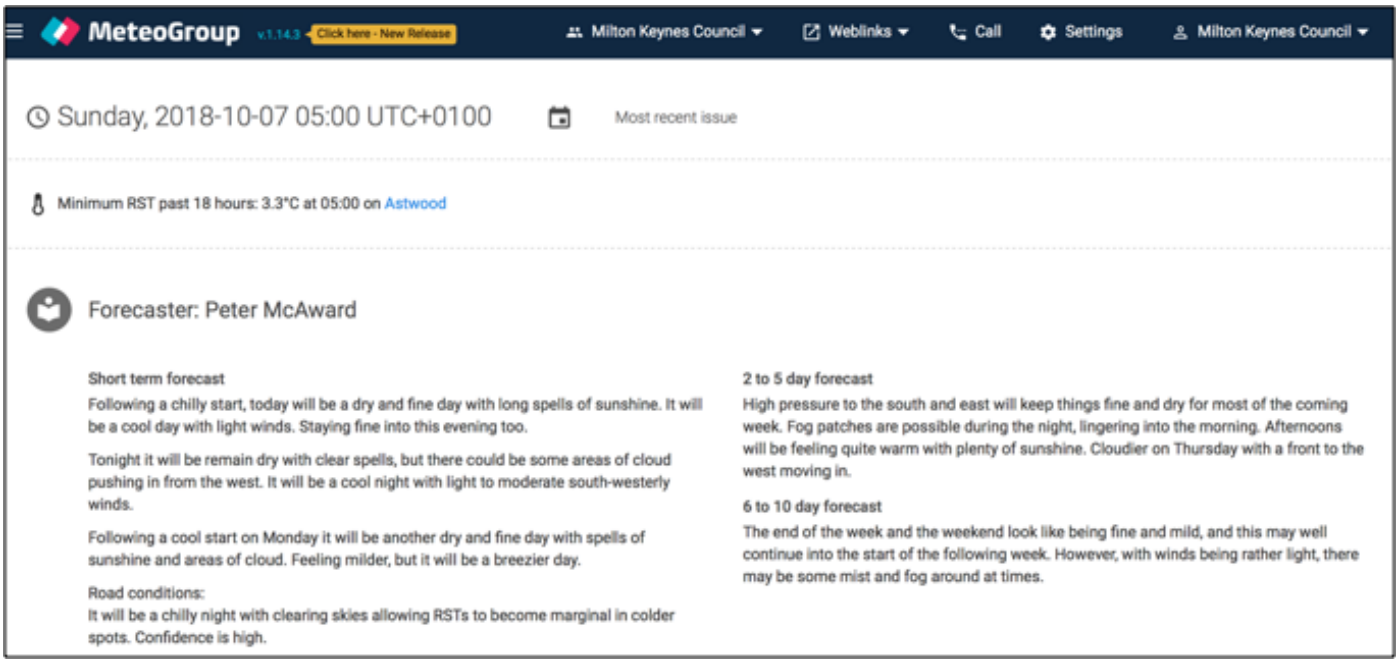


Figure 1: Example of a weather report from Roadmaster

We receive location specific, accurate, forecasts for the MK area of operation, taking into account local conditions. We are provided a detailed 24 hour, 2 to 5 day and 6 to 10 day forecasts.

We receive detailed forecasts for winter road hazards such as hoar frost, ice, snow and freezing rain (see Figure 1).

The short-term 24-hour forecasts provide us with information regarding start time, intensity and duration of the hazardous conditions, the Meteogroup meteorologists will also notify by telephone (24/7) of any imminent unforeseen change to forecasts or adverse road conditions. Long-term forecasts can help us estimate resource needs and the amount of gritting required/restocking of salt.

5.2 Vaisala Navigator Road Weather Stations

The Vaisala weather system monitors road weather information 'real time' data provided by the available weather stations and provides data for the forecasting consultancy to interrogate and forecast conditions (see Figure 2).

The complete system assists the W M Duty Officers in arriving at more accurate and effective decisions together with providing a historical weather record database.

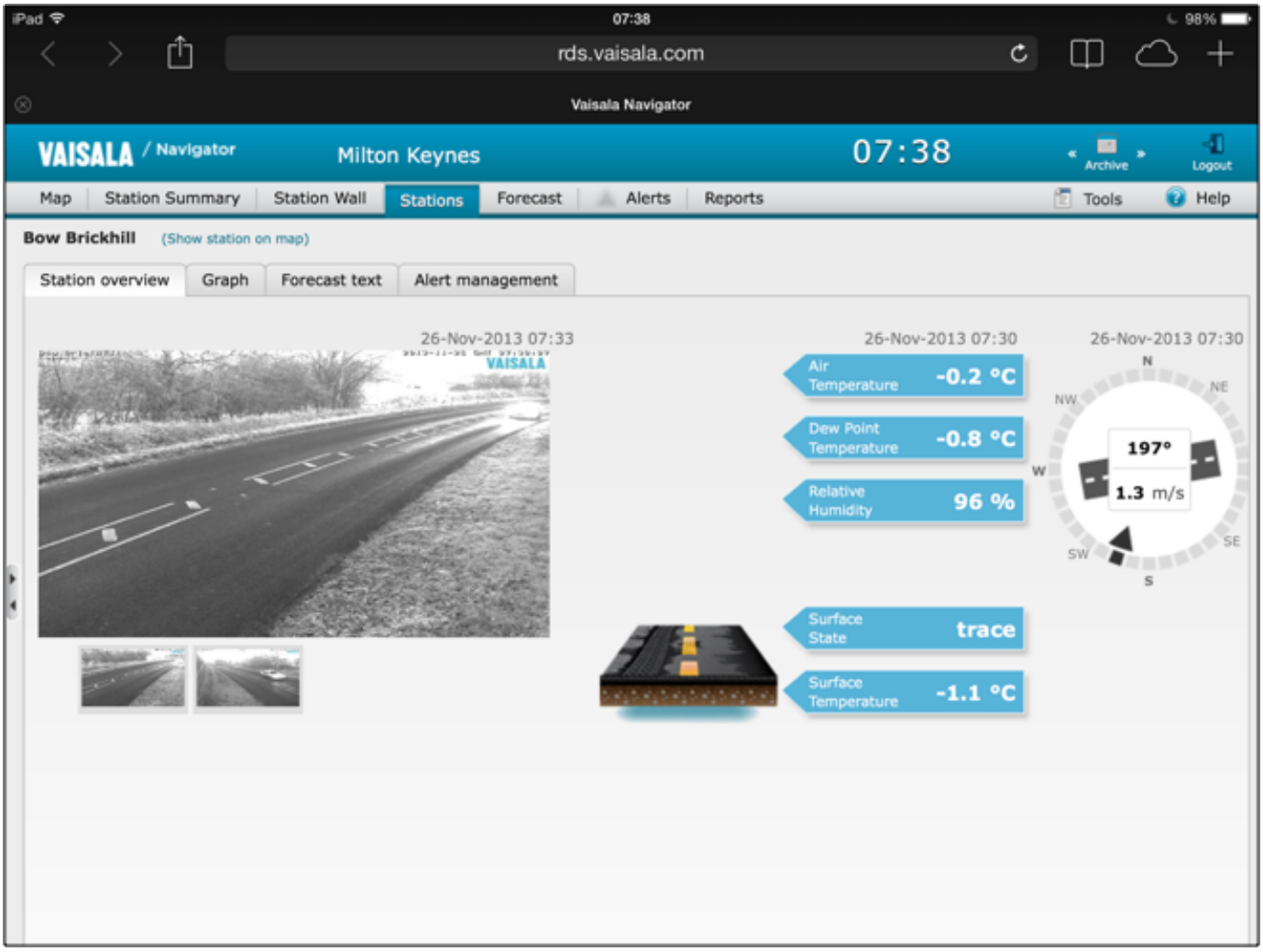


Figure 2: Example of a weather report from Vaisala

5.3 Weather Outstations

Milton Keynes currently has three outstations on the H5 at Campbell Park (North Overgate Roundabout), A422 at Astwood and Woburn Sands Road at Bow Brickhill.

MK City Council also has access to a fourth outstation for forecasting at Old Stratford courtesy of West Northamptonshire Council.

5.4 Data collection at weather outstations.

Data collected at outstations includes:

- High-definition camera shots – every 10 minutes
- Surface condition
- Road surface temperature
- Road surface trend over 24 hours
- Air temperature
- Dew point temperature
- Relative humidity
- Precipitation
- Wind speed & direction
- Time

It should be noted that both active and passive road sensor systems require the presence of moisture to determine either the concentration of anti-icing chemical on the road or the freezing point temperature of the solution present on the road sensor.

5.5 Weather Outstation Calibration

All weather outstation censors are to be calibrated annually prior to the winter season by the station supplier.

5.6 Record Keeping

Data from the Vaisala weather stations is automatically archived by Vaisala (Navigator) and Meteogroup in Roadmaster. Both systems allow historic interrogation of records. All decision records and Ringway operational records will be emailed to the Highway Duty Officer inbox to provide a timestamped record of activities.

All other Winter Service Plan records are to be kept for 21 years unless otherwise stated.

All Ringway operational records are stored electronically and available on request. (See Ringway Operational Plan).

6. Decision Making Process

6.1 General decision making for pre-salting

The decision making process in Chapter 7 was published by NWSRG in November 2020. MKCC have incorporated the recommendations within this plan.

The decision making process as to whether or not to carry out some form of treatment action is carried out by the nominated Winter Service Duty Officer and agreed with a secondary nominated WSDO, if no agreement is possible an adjudication will be made by the Team Leader Highways or the Strategic Asset Manager.

These staff members form a duty rota to cover the whole of the Winter Service period as defined at the start of this Winter Service Plan.

The duty rota for staff in Highway Services is revised annually before each winter season and shared with the forecasting service, term service provider and the out of hours service. This is subject to revision during the season.

The procedures for communicating weekday and weekend treatment action decision making are outlined in Section 6.4.

Decision Making Process

6.2 Logging Record of Decision

(See Appendix F)

In order to provide consistency of records between duty officers a standardised text will be used taking into account the assessment in Section 4.1

Records of decision and conversations will be recorded as per form (Appendix G) and will be emailed to the secure Highway Duty Officer inbox – all updates for the 24-hour period will be recorded and securely emailed.

6.3 Precautionary Treatment Decision Matrix

A decision matrix for precautionary treatments based on road surface temperatures/ conditions and predicted weather conditions is given in Table 1 below.

Table 1 – Sample Precautionary Treatment Decision Guide

<table>
<tr><th rowspan="2">Road Surface Temp.</th><th rowspan="2">Precipitation</th><th colspan="3">Predicted Road Conditions</th></tr>
<tr><th>Wet</th><th>Wet Patches</th><th>Dry</th></tr>
<tr><td>May fall below 0.5°C</td><td>No rain
No hoar frost
No fog</td><td rowspan="2">Salt before frost</td><td rowspan="2">Salt before frost (see note a)</td><td rowspan="2">No action likely, monitor weather (see note A)</td></tr>
<tr><td rowspan="7">Expected to fall below 0.5°C</td><td>No rain
No hoar frost
No fog</td></tr>
<tr><td>Expected hoar frost
Expected fog</td><td colspan="3">Salt before frost (see note B)</td></tr>
<tr><td>Expected rain BEFORE freezing</td><td colspan="3">Salt after rain stops (see note C)</td></tr>
<tr><td>Possible rain
Possible hoar frost
Possible fog</td><td colspan="2">Salt before frost</td><td>Monitor weather conditions</td></tr>
<tr><td>Expected rain DURING freezing</td><td colspan="3">Salt before frost, as required during rain and again after rain stops (see note D)</td></tr>
<tr><td>Possible rain
Possible hoar frost
Possible fog</td><td colspan="2">Salt before frost</td><td>Monitor Weather conditions</td></tr>
<tr><td colspan="2">Expected snow (See section 7.3)</td><td colspan="2">Salt before snow fall</td><td>Milton Keynes City Council</td></tr>
</table>

The decision to undertake precautionary treatments should be, if appropriate, adjusted to take account of residual salt if evidence of actual salt on network known.

All decisions should be evidence based, recorded and require continuous 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.

Notes:

A

Particular attention should be given to the possibility of water running across or ponding on carriageways and other running surfaces e.g. off adjacent fields after heavy rains, washing off or diluting salt previously deposited. Such locations should be closely monitored and may require treating in the evening and morning and possible other occasions. A current list of these locations will be held centrally by the WSDO team and updated following every salting action with data from the operational team of supervisors and drivers.

B

When a weather warning contains reference to expected hoarfrost, considerable deposits of frost may occur. Hoarfrost 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 can become 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 of the condition. Hoar frost may be forecast at other times in which case the timing of salting operations should be adjusted accordingly.

C

If, under these conditions, rain has not ceased by early morning, crews should be called out and action initiated as rain ceases.

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 throughout the danger period. Authorities should be aware of the health safety implications of ice forming during freezing rain events, both to the travelling public and Winter Service Plan personnel carrying out treatments. They should be prepared to make follow up treatments on any ice that has formed or to take suitable actions such as road closures.

6.4 Procedure for Weekday/Weekend Decisions

The forecasts will be obtained daily from the forecasting consultancy via the forecaster's website circa. 13:00 hours.

A decision will be made by the nominated Winter Service Duty Officer and second duty officer as to what action, if any, is required. This decision shall be logged as an action on the forecaster's website as a permanent record. See 6.1 and 6.2

If it is felt that the forecast is too marginal or weather conditions are undetermined to make a firm decision at 13:00, then the decision can be delayed (note added to dashboard) until the evening forecast update (17:45) is received. This may be delayed further until such a time that a decision can be made

If this is the case the Winter Service Plan Service Provider must be informed of any delay. See 6.1 and 6.2

This decision shall also be immediately passed (via automated email) on to the following:

- Out of Hours Winter Service Duty Officer
- Winter Service Provider
- Buckinghamshire Council
- Northamptonshire Highways
- Bedford Borough & Central Bedfordshire Councils
- Central Alarm
- CMK Shopping Management
- Head of Highways and Transport
- Service Director
- Cabinet Member
- Other relevant stakeholders

7. Treatment Selection – Spread Rates

7.1 Definition of Treatments

Precautionary salting

- The purpose of precautionary treatment is to prevent the formation of frost/ice or to weaken or prevent the bond of freezing rain or snow to road surfaces, the timing and treatment are critical to ensure that the pre-treatment is its most effective.
- It is usually impractical to spread sufficient salt to melt freezing rain or more than a few millimetres of snow. Therefore, in advance of forecast snow or freezing rain, salt is spread to provide a de-bonding layer so that snow is more readily removed by ploughing and compacted snow and ice are more easily dispersed by traffic. It is very difficult to remove a layer of compacted snow or ice that is bonded to the road surface, so precautionary treatments are essential before heavy snowfall.

Post Treatments

- Post treatments involve the ploughing of snow, the application of de-icers and the application of abrasives to ice and snow present on the road surface, or some combination of these.
- Although de-icers will melt ice or snow directly, it is normally impractical to apply sufficient quantities of de-icer to melt all but a moderately thick ice or snow layer.
- Ploughing is the only economical, efficient, effective and environmentally acceptable way to deal with all but light snow.

Monitoring Snow Events

- The condition of the routes should be monitored following either pre or post treatment in order to confirm that the treatment has been effective. If it has not been fully effective, contingency treatments should be considered to achieve the required condition.
- If post salting of the network becomes necessary, subsequent to a decision being made to treat, all vehicles will be made mobile as soon as possible and generally within one hour.

7.2 Precautionary Spread Rates for Treated Salting (Safecote)

Following updated guidance on Winter Service from NWSRG, MK Highways has developed spread rates taking into account the key notes on risk factors in the guidance and applying these to local conditions in Milton Keynes.

As with any assessment this will be subject to review in the event of any information that may alter these assumptions. The matrix table (see Pages 24-25) has been derived by adopting the national guidance spread rates and assessing against the following key factors:

1. **Rounding figures in matrix table**

Any figures will always be rounded up for operational reasons in line with experience of dealing with prevailing temperatures and accuracy of spread rates, except for temp band -4 to -5 where the recommendation is 21 gms this has been rounded down to 20 gms. No figure will be used lower than 7 gms/m2 for treated salt.

2. **Interpolation within temp. bands.**

No interpolation will be applied to the matrix table

3. **Higher Spread Rates**

Wwhere higher spread rates are stated, the application may take place in more than one treatment, this will be recorded in action log

4. **Very Low Temperatures**

Spreading salt alone at temperatures below about -7oC (the lower of air or road surface at time of spreading) or below about -5oC in low humidity conditions (relative humidity less than 80%) may not be practically effective. High spread rates will be required and even then salt may not enter solution quickly enough to prevent freezing or be able to melt ice or compacted snow. Consideration should be given to spreading at least 2 hours before the temperature reaches these values to allow salt to enter solution, or the use of alternative de-icers.

5. **Salt Moisture Content**

Salt moisture content will be monitored in order to keep in optimum moisture range. If moisture content falls outside optimum any salting undertaken before remedial action can be taken, consideration to increase spread rates should be taken. Service provider to monitor and manage moisture % throughout season to ensure optimum range is maintained

6. **Salt Chloride Content**

This will not be taken into account in adjustments to figures in matrix table.
Default figures to be used

7. **Porous Asphalt**

MK has not used porous asphalt on its network, therefore no adjustment shall be taken into consideration

8. **Negative textured surfaces**

MK has used negative textured surfaces on its network. These are generally short sections and from experience has not performed any different in relation to de-icing using rates applied to standard asphalts. A review shall take place in the event of any incidents involving ice formation on treated negative textured surfaces.

9. **Bridge Decks**

There is no current data to suggest any bridge decks suffer significantly lower temperatures on the MK network. Drivers will be instructed to 'spot grit' at a higher rate any bridge decks visually observing frost/ice and then recording for future consideration of a permanent adjustment on route.

10. **Traffic Levels**

Medium Traffic levels are to be assumed on the MK network at normal precautionary treatment times. If early morning runs are undertaken (00:00 to 06:00) traffic shall be considered to fall in the light category, spread rates shall be increased to the next treatment band to ensure adequate salt levels to compensate for lower traffic action activating salt. Any treatment of the CMK route during morning or evening traffic peak (07:30 to 09:30 and 16:30 to 18:30) shall be considered 'congested' traffic and either rates increased to the next treatment band, or a secondary treatment applied or delay treatment of route to outside these times if possible. Refer to Table 2: NWSRG - Spread Rates on Page 26.

11. **Precipitation**

Whenever practicable, treatments will be delayed and undertaken after any predicted or actual rainfall has ceased and before freezing road surface temperatures are expected, it will be necessary for winter service decision makers to use their judgement, along with all of the relevant information available to them (Refer to Table 2: NWSRG - Spread Rates on Page 26), to determine the optimum timing for these salting operations. This will include increasing spread rates.

12. **Residual Salt**

Residual salt levels in decision making will only be used if evidence is available to substantiate the presence of salt.

13. **Wind speed and direction**

Where mean wind speeds are experienced above 20mph treatment should be avoided. If this is unavoidable physical monitoring of the treatment should take place and if necessary retreatment of the network should take place or alternatively spread rates should be increased to next band.

The matrix below (Table 2) provides recommended spread rates for precautionary treated salting operations on MK authority roads in response to predictions of ice and frost formation.

Table 2 - Recommended Spread Rates – Treated Salting (g/m2) Treatment Matrix				
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	7	7	7	7
-1.01°C to -2.0°C	7	8	7	7
-2.01°C to -3.0°C	7	12	7	10
-3.01°C to -4.0°C	9	17	7	13
-4.01°C to -5.0°C	11	21(20)	8	16
-5.01°C to -7.0°C	15	29	11	22
-7.01°C to -10.0°C	20	40	16	31
-10.01°C to -15.0°C	26	55	22	43

Notes:

- The figures are the original spread rates recommended in NWSRG Practical Guidance - treated salt rates, however, -4.01 to -5.0 /Good/Wet Road fair spreader capability has been rounded from 21gms down to 20gms in (brackets)

- Our spreader capability is Good and Milton Keynes is very unlikely to have to a spreader with a fair spreading capability.

- The temperature ranges have been modified to include the range 0.01 to 0.09 in each band

- Spreader Capability is covered in NWRSG Practical Guidance.

- Road Wetness is determined from NWSRG Practical Guidance – see Table 3.

- Temperatures experienced below -15°C become less economically sustainable when using standard treatments.

- New guidance is given in NWSRA Practical Guidance – however this requires new methods of mixing/application and MK highways has brine sprayers to utilise alternative additives these are small units designed for cycleways and have limited coverage capability therefore for the winter season 22/23 MK will not be using these.

Table 3 – 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 (-0-30gm2)
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 treatment time	0.03 to 0.05 mm (=30-50 g/m2)
Wet Road	A road on which traffic produces a 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 treatment time	0.05 to 0.1 mm (=50-100 g/m2)
Very Wet Road and flowing water on road	A road on which traffic produces droplets of water in the air to visibly flowing water on the surface	Greater than 0.1mm (=>100 g/m2)

7.3 Dealing with Snow/Freezing Rain

It is impracticable to spread sufficient salt to melt anything other than very thin layers of snow and ice. Ploughing is the only economical, efficient, effective and environmentally acceptable way to deal with all but very light snow.

Snow ploughs should be set to avoid damage to the plough, the road surface, street furniture and level crossings. Ploughing as near as possible to the road surface minimises salt usage and makes salt treatments more effective.

Drainage should not be obstructed when ploughing. Piles of snow should be removed or repositioned to allow melted water to reach the drains.

7.4 Preparation before ice and snow.

In preparation for ice and snow treatments the following should be applied:
When snow is forecast, ploughs should be checked over, prepared and positioned in order that snow clearance can start without delay as and when required.

When snow is forecast, farmers (if available) must be notified in order that snow clearance can start without delay as and when required.

To facilitate the breakup and dispersal of ice and snow by trafficking, treatment must be carried out before the snowfall or freezing rain so that sufficient salt is present on the surface to provide a de-bonding layer.

Although it will increase salt usage, before snowfall and where practicable, consideration should be given to spreading salt on as much of the network as possible (i.e. beyond the normal precautionary salting network). This will provide a de-bonding layer and facilitate the break up and dispersal of the snow by traffic in areas where subsequent treatments may not take place for some considerable time or at all.

During periods of heavy snowfall/extreme weather conditions, the department may call on the following resources if required: -

- Supply Chain partners
- Town and Parish Council staff
- Ringway / Eurovia supply chain partners

Emergency services concerned during an ‘event’ at all times.

7.5 Instigation for continuous 24 hr working and 24-hr staffing for the clearance of persistent ice and snow

During times of persistent ice and / or snow, it may be necessary to carry out all day or a 24hr salting and ploughing regime, particularly to include the Priority 2 network in clearance operations. As this type of operation can be very costly and needs to take into account the working time directive, the instruction to commence all day or 24hr staffing will only be authorised at a minimum responsibility level of Team Leader Highways.

During times of extremely heavy and drifting snow it may become impossible within the resources available, to keep even the primary routes of the Priority One network open to traffic. If this becomes the case then senior management, in conjunction with the Police and the Emergency Planning Department, may consider declaring a civil emergency and roads will be dealt with on a strict priority basis as follows:

- Priority 1 Snow Clearing Routes – Resilient Network
- Remaining Grid Roads
- Remaining Class B & C routes
- Remaining Bus Routes
- Remaining Main Spine Roads
- Remaining Rural Road Network
- Remaining Estate Roads

7.6 Snow desk

During periods of heavy snow, the Highways Team Leader (or deputy) in conjunction with the Winter Service Duty Officer will make the necessary arrangements for a “snow desk” to be staffed at Bleak Hall Depot.

The “snow desk” personnel will be responsible for logging all calls associated with the inclement weather and will liaise with the Highway Team Leader (or deputy) and Emergency Planning officers and all emergency services concerned during an ‘event’ at all times. During adverse weather the Winter Service Duty Officer may also request staff to help to assist with the phones at Central Alarm at weekends, bank holidays and outside of normal working hours.

7.7 Precautionary treatments before snow or freezing rain

Spread rates for precautionary treatments before snow or freezing rain are given in Table 3.

TABLE 3 - TREATMENTS BEFORE SNOWFALL AND FREEZING RAIN

Weather conditions	Spread
Light to Moderate/Heavy snow forecast	• 20-40g/m2 of dry salt, or • 20-40g/m2 of pre-wetted salt, or • 15-30g/m2 of treated salt
Freezing rain forecast	• 40 or 2x20g/m2 of dry salt, or • 40 or 2x20g/m2 of pre-wetted salt, or • 30 or 2x15g/m2 of treated salt

Note 1: In situations where time constraints dictate, a treatment of 20g/m2 across the whole of the scheduled network before the commencement of snowfall or freezing rain will typically prove more advantageous than a treatment of 40g/m2 on only part of the network.

7.8 Treatments during snowfall/freezing rain

Ploughing of snow should start and, where practicable, be continuous to prevent a build-up of snow. Both lanes of dual carriageways are to be ploughed and cleared on snow plan routes before commencing other grid roads. If resources are limited and the snowfall is such it is not possible to clear and maintain both lanes one lane shall be concentrated on to provide a continuous clear route until such a time that both lanes can be cleared. Note: Bus stops on grid roads are to be ploughed at the same time where practical.

In anticipation of snowfall, ploughs will be dispatched to areas of the network on the snow routes in order that immediate response can be made as soon as the snow is deep enough to plough.

On heavy trafficked road it is preferable to prevent a build-up of more than 10mm depth of snow, whereas the build-up should be no more than 50mm depth where there is a risk of compaction by traffic.

When lanes are clear on the grid road system ploughing should continue to clear the bus stop lay-bys and the junctions of the estate spine roads. This operation may be assisted through the use of JCB’s etc. (This recommendation is a result of lessons learnt from the heavy snow in December 2010).

Treatments during snowfall/freezing rain are outlined in Table 4.

TABLE 4 - TREATMENTS DURING SNOW AND FREEZING RAIN

Plough to remove as much material as possible e.g. slush, snow, compacted snow Ploughing should be down to the level of the road surface
Ploughing should start and, where necessary, be continuous to prevent a build-up of snow As snow melts under the action of salt, keep ploughing to remove slush

<table>
<tr><th>No ice or compacted snow on surface</th><th colspan="2">Ice or compacted snow on surface</th></tr>
<tr><td rowspan="3">To provide a debonding layer, spread:
• 20-40g/m2 of dry salt, or
• 15-30g/m2 of treated salt or
• 20-40g/m2 of pre-wetted salt</td><td colspan="2">Is traffic likely to compact subsequent snowfall before further ploughing is possible?</td></tr>
<tr><td>Yes</td><td>No</td></tr>
<tr><td>To provide a debonding layer, spread:
• 20-40g/m2 of dry salt, or
• 15-30g/m2 of treated salt or
• 20-40g/m2 of pre-wetted salt</td><td>No de-icer should be spread</td></tr>
</table>

7.9 Treatments for thin layers of ice

When a thin layer of ice has formed, including after freezing rain the following treatment should be made in accordance with Table 5:

TABLE 5: TREATMENT FOR THIN LAYERS OF ICE (LESS THAN ABOUT 1MM THICK)

Forecast weather and road surface conditions	
Lower of air or road surface temperature above -5oC	Spread: 40g/m2 of dry salt, treated salt or pre-wetted salt, or 40g/m2 of salt/abrasive mix
Lower of air or road surface temperature at or below -5oC	Spread: 40g/m2 of salt/abrasive mix (50:50)
Note 1: Salt is ineffective in the short term at temperatures below -7°C. Abrasives only should be used when it is expected to be below -7°C for long periods. Other de-icers are available for low temperatures	

7.10 Treatments during snowfall/freezing rain

When thicker layers of ice have formed, including after freezing rain, the treatment should be in accordance with Table 6 (below).

TABLE 6 - TREATMENT FOR LAYERS OF COMPACTED SNOW AND ICE

lough to remove as much material (e.g. slush, snow, compacted snow) as possible from the top of the compacted layer	
Medium Layer Thickness (1 to 5 mm)	High Layer Thickness (greater than 5mm)
For initial treatment, spread 40g/m2 of salt/abrasive mix (50:50)	For initial treatment, spread 40g/m2 of abrasives only
For successive treatments, spread 20g/m2 of salt/abrasive mix (50:50)	For successive treatments, spread 20g/m2 of abrasives only. After traffic has started breaking up the layer, spread 20g/m2 of salt/abrasive mix (50:50) so salt can penetrate the layer and reach the road surface.

8. Salt Management

Salt is the prime material used for combating snow and ice. It is recognised that salt is also environmentally unfriendly and in the interests of salt resilience and to help combat the effects on the local environment, during the 2010/11 winter the Council introduced the use of a 6mm coated salt (SAFECOAT using an agricultural byproduct – ABP coating).

The salt is purchased by Milton Keynes City Council through the ESPO contract and deliveries are arranged in advance of the winter season and is replenished at appropriate times during the winter season to ensure resilience.

In accordance with recommendations in section four of the NWSRG guidance on salt storage (2019) the salt is stored in a purpose built 'Salt Barn' – see Section 9 'Salt Storage'.

SAFECOAT is a conventional dry 6mm rock salt coated with an Agricultural By-Product (ABP). SAFECOAT offers the following benefits:

- SAFECOAT can be applied using existing equipment
- Excellent surface retention
- UK experience suggests reduction in rock salt consumption by 30% to 50%
- Depressed freezing point at all dilution factors
- Reduces corrosion by 45% on highway assets

Milton Keynes also uses a sodium chloride brine solution for use on its redway cycle network.

9. Salt Storage

In November 2010 a new salt barn was constructed at Bleak Hall Depot to accommodate up to 3,250 tonnes of salt. This Capital investment was provided to allow the storage of the dry material SAFECOAT as indicated in Section 8 'Salt Management'

The storage of salt is critical to ensure that it can be spread at its optimum condition, one of the key factors is moisture content and there are target ranges for this, the figure for treated salt is less than 4%.

Our service provider is responsible for the management of the salt – details are contained within the Operational Winter Plan and include tests for moisture content, rotation of stock and maintenance of the storage facility to ensure salt is kept at its optimum condition for spreading.

9.1 Salt Resilience

The recommendations of "The Resilience of England's Transport Systems in Winter" (An Independent Review – Final report)" are that each authority should hold a resilience benchmark of 12 days/48 runs as a preseason stock holding.

Milton Keynes City Council initial stock holding for 2021/22 inter season will be circa. 3,250 tonnes taking stock to full capacity. This equates to 48 standard runs.

Milton Keynes City Council also has access to additional salt supplies through its term service provider Ringway.

Table 7 - Minimum Salt Stocks

Routes	Normal Salting Network P1 (tonnes per run)	Resilient Winter Network (tonnes per run)	Minimum Stock Level		
			Full Pre-Season Stock (12 days – 48 runs)	Core Winter Period Minimum (6 days – 36 runs)	Resilient Winter Period Minimum (3 days – 18 runs)
P1 Route (dry conditions)	70 tonnes 20 gms	50 tonnes 20 gms	3250 tonnes 20 gms	2520 tonnes 20 gms	900 tonnes 20 gms

9.2 Spreader Management

Spreader management is the responsibility of the term service provider and shall be undertaken in accordance with NWSRG Practical Guidance for spreader management and vehicles shall be calibrated/maintained to ensure that they achieve and maintain a 'Good' rating.

Monthly reports of salt usage by route on each run will be submitted by the term service provider.

Monthly reports of salt moisture content and ad hoc particle size distribution shall be submitted by the term service provider.

9.3 Salt Purchase and Stock Levels

Salt stocks are held in a purpose-built salt barn at the Bleak Hall Depot. The stock is managed by the Term Service Provider (Ringway) who are responsible for providing regular returns of salt usage. Ringway are responsible for monitoring the stock levels and for initiating replacement. This will include reviewing volumes of salt used on each route after each treatment

In extreme weather conditions when outside contractors are employed it is essential that all salt issued is accounted for on requisition forms or upon the service providers Winter Portal, this is the responsibility of Highways Term Service Provider.

A mixed stockpile of salt and grit should be made available when snow periods are likely to be prolonged and there is a possibility of a drain on salt stocks.

9.4 Brine solution

The redways are treated with a saline solution made from water and pure dried vacuum sodium chloride salt which is mixed in a mixing plant situated at Bleak Hall depot. We also have capability for dry rock salting or pre-wet salting to the redways.

At the start of the Winter Service Plan period the stock level of pure dried vacuum sodium chloride salt is to be maintained at 10 tonnes.

Mix at the rate of spread as identified in Table 8 (page 37) at the optimum brine solution rate as identified in Table 2– 'Spread rates for precautionary salting' (NWSRG).

Table 8 - Brine spread rates for frost events

Road Surface Temp. when frost/ice predicted	Recommended spread rates – Brine Spreading (ml/m2)	
	Damp/Dry Road	Wet Road
At or above – 2.0c	10	20
-2.01c to -5.0c	20	30
-5.01c to -7.0	30	n/a

Note: Target solution rate for brine is 23%. For a 500-litre brine tank this is 115 kg of salt per 500 litres (note: a full tank for the cycleway brine vehicle is 500 litres).

9.5 Salt Usage

Salt usage is variable depending on the conditions experienced over the winter period. Average seasonal salt usage – 3,647 tonnes – See Appendix D.

9.6. Salt Bins

Salt bins are currently provided at known trouble spots such as sharp bends, steep hills, junctions etc., and mainly on roads not covered by Priority 1 and 2 precautionary salting routes.

Currently there are 406 salt bins at locations across the borough. The locations of these grit bins can be viewed on the Interactive My MK Mapping tool on the Council's website www.milton-keynes.gov.uk. Use the Winter Maintenance check box to view the locations which will be illustrated with a G icon.

Demand for salt bins has increased substantially due to the extreme weather of the last three winters and without a base budget increase the provision of extra bins over and above 406 is not sustainable. Each bin is currently checked and refilled annually before the commencement of the Winter season. Bins that are damaged or worn will be removed but not replaced.

The Winter Service Duty officers may during prolonged spells of snow/extreme weather deem the use of ½ tonne bags of salt to be 'dropped' at key locations throughout the borough. This will be based on known hot spots and will be provided at the discretion of the service based on priorities and available resource.

10. Management & Control Procedures

10.1 Responsibilities

The following detailed duties relate to individual staff

Head of Highway Service

- During extreme conditions the Head of Highway Services shall be kept briefed of Winter Service Plan operations so that the Service Director for Environment and Property and the Portfolio Member can be briefed. Any escalation or suspension of normal works due to winter service pressures shall be taken by Head of Highways Service.

Term Service Provider

- Refer to Ringway Operational Plan

Team Leader Highways

- Liaise with the Term Service Provider on a regular basis to resolve any areas of difficulty and to ensure an effective Winter Service Plan service is implemented/maintained.
- Agree the arrangements for providing the Winter Service Plan service for Milton Keynes City Council. In conjunction with the Term Service Provider ensure that the necessary range of skills and resources of staff and equipment are available and that training is undertaken as needed.
- Annual Winter Service Plan reviewMaintaining the Forecasting service.
- Weather monitoring in conjunction with the Winter Service Plan and Vaisala weather stations ice detection service.
- Adequate salt stock levels are maintained in line with minimum stock levels.
- Winter Service Plan Duty Officer rota
- Manage the Winter Service Duty Officers

Winter Service Duty Officers (MKCC)

- The Winter Service Duty Officers will be responsible for all decision making as to when salting should be carried out.
- The decisions should be made to ensure that routes are, where reasonably practicable, salted prior to the hazard forming.
- Relay decisions to the Term Service Provider each day.
- Winter Service Duty Officers have 24-hour access to the Forecasters website to monitor forecast and Vaisala weather stations for actual weather conditions monitoring.
- The Winter Service Duty Officer will access the forecast each day and the decision will be posted on the Roadmaster web site, email the Duty Officer Inbox and they will inform the Highway Term Service duty operational supervisors what action is required.
- Will ensure the Service Provider delivers the required salting action to the Highway network by instruction via Roadmaster Meteogroup website.

Winter Service Supervisors (Ringway)

- Refer to Ringway Operational Plan

Summary Table of Responsibilities

The list of major decisions together with the respective decision making level of staff is as shown below:

RESPONSIBILITY	MINIMUM RESPONSIBILITY LEVEL
Update and revise Winter Service Plan	Team Leader Highways
Monitor requirements of Winter Service Plan	Team Leader Highways
Agree MK City Council Winter Service Plan	Team Leader Highways
Update and revise routes	Term Service Provider / Team Leader Highways
Update and revise Operational Plan	Term Service Provider
Confirm adjoining authority reciprocal agreements	Team Leader Highways
Arrange weather forecasting consultancy	Team Leader Highways
Extend or otherwise Winter Service Plan season	Team Leader Highways
MKCC Winter Service Plan Duty Officer Rota	Team Leader Highways
Routine Vaisala system administration	Team Leader Highways
Maintenance of Winter fleet incl. calibrations	Term Service Provider
Implement daily action and responses	Winter Service Duty Officers
Instigate and stand down 24hr manning	Team Leader Highways
Instigate consideration of a Civil Emergency	Team Leader Highways

Summary Table of Responsibilities
Continued...

RESPONSIBILITY	MINIMUM RESPONSIBILITY LEVEL
Allocation of fleet to route hierarchy	Winter Service Duty Officers
Spread rates of salt, widths of spread etc	Winter Service Duty Officers
Revision of contract snow clearing plant list	Term Service Provider / Team Leader Highways
Media communications in snow conditions	Highways Communications Manager/Term Service Provider
Arrange salt purchase and manage storage	Term Service Provider / Team Leader Highways
Agree MKCC salt stock levels	Team Leader Highways
Maintain salt bins	Term Service Provider
Performance Monitoring	TSC Operations Board
Assess MKCC performance	TSC Operations Board

11. Communications

11.1 Publicity

It is important that the highway user is aware and understands Highway Services approach to Winter Service Plan, plus advice on how to prepare for and undertake a vehicle journey, and for pedestrians, how to prepare to walk on footpaths that may be icy, or even to refrain from walking wherever possible in severe winter weather.

Publicity is paramount and will be provided through providing information on the Council's website, through well-established social media channels, issuing e-shots to subscribers and updating key leaders in the community including elected members, parish councils, the emergency services, health care and education facilities, transport operators and the local media.

We send automated emails of daily actions to key stakeholders such as the MK City Centre Management who then disseminate this information to all businesses.

We tag in the local radio stations (MKFM/Heart FM/BBC3CR) and the local newspaper (MKCitizen) with any real time updates so they can issue with their regular weather and travel bulletins and on their own social media channels and websites.

Important safety information such as how to drive in wintery conditions, avoid black ice and latest updates are published in a timely manner. We also encourage people to only undertake journeys if necessary and to check their vehicles before setting off during certain weather conditions.

We also publish regular messages about out winter activity to keep the public informed about what MKCC do to keep the network safe and where they can find grit bins.

The service provider, Ringway also has its own Twitter account to issue live updates.

During periods of heavy standing snow residents will be reminded of the Snow Code designed to promote self-help.

Winter Service Plan information is available on our website,
www.milton-keynes.gov.uk/highways

11.2 Media Communications for a Major Weather Incident.

Emergency Planning will co-ordinate the media communications in accordance with the authorities 'Adverse Weather Plan'.

It is important that only one contact point is made with the media and this should be made through a nominated Milton Keynes Officer (Highways Communications Manager), who will be updated regularly by either Highways Duty Officers and/or the Service Provider.

This nominated officer will regularly update:

- The portfolio holder
- MKCC Chief Executive
- Service Director for Public Realm
- The Mayor
- Political Assistants (3)
- The Corporate Leadership Team
- Parish Councils (48)
- Elected Members (57)
- Local media

11.3 Operational Communications

Refer to Ringway Operational Plan.

11.4 Key Personnel Telephone Numbers

The key personnel telephone numbers are listed, updated and maintained as part of the annual standby review and current GDPR and Data Protection Policies are adhered to.

12. Performance Monitoring & Record Keeping

12.1 Performance Monitoring

Winter Service Plan performance will be monitored throughout the winter months and reflected in subsequent updates of this plan. The following is a checklist of data and information that may be required in future reviews and reports:

- Adequacy of response time
- Response times
- Treatment times
- Level and justification of public complaints
- Third Party Claims
- Road closures
- Accuracy of spreading equipment
- Rate of salt usage
- Links to Monthly Highways Operational Board meetings

12.2 Performance Indicators

The Highways Term Service Contract KPI for the winter service (KPI 10) measures the number of runs completed on time.

12.3 Forecasting Service

Performance monitoring will be undertaken through the Winter period to establish the standard of forecasting and the incidence of abortive actions and failures to salt. This monitoring is to be carried out throughout the winter period.

Minimum actual temperatures will be taken directly from the Weather forecasting master stations.

A report of performance is produced at the end of the season.

13. Budgets

The budget for Winter Service Plan is provided for within the highway maintenance revenue budget allocation and allows for an average winter. The service is funded through the revenue account. Historic costs are evidenced in Appendix D.

In the event of extreme weather conditions, it is likely that the Winter Service Plan budget will not be adequate to cover all necessary activity required under this policy. In the event of projected overspend on this allocated budget the Head of Highways/Service Director Environment and Property and shall be notified.

14. Training

Highways will provide training for all staff involved in dealing with Winter Service Plan. The service provider shall ensure all staff working on the Winter Maintenance service are trained to the appropriate level for the role that is being performed. Details to be found in the service provider's operational plan.

Before the commencement of the Winter Service season or in line with the first marginal forecast all Winter Service term service operatives will have a trial exercise to ensure that all the transport/equipment is operational. All spreading equipment will have been calibrated by the service provider and all Snow Ploughing equipment will have been checked.

All active Winter Service Duty Officers shall have undertaken and passed the IHE Winter Decision Makers Course as this is held as the standard qualification to determine competency. All active Winter Service Duty Officers will have at least one year's experience of decision making or shadowing.

Winter Service Plan duty officers will receive regular refresher training provided through the forecast provider.

The Highways Client team will arrange briefing sessions in October and post-winter debriefing during April for all officer level staff along with representatives from the service providers management team. This will identify any specific training requirements.

15. Accommodation/Facility

The Head of Highways and the Highways Client team are based at Synergy Park, Chesney Wold, Bleak Hall, Milton Keynes. The term service providers office and salt stocks are also based at here.

Figure 3: Grey area is the Salt Barn location at the Synergy Park Depot, Bleak Hall, Milton Keynes

16. Appendices

Appendix	Title
A	Winter Service Duty Officer Rota 2022/23
B	Route Prioritisation Matrix
C	Salt Bin Prioritisation Matrix
D	Winter Service Statistics
E	Reciprocal Arrangements
F	Logging Record of Decision
G	Winter Maintenance Decision and Conversation log

Appendix B - Route Prioritisation Matrix

Date of Assessment | **Assess by (name)**

RISK CHARACTERISTIC	RISK CATEGORY	STANDARD SCORES	ASSESSMENT OF ACTUAL SCORE
1.NETWORK CATEGORY			
2. TRAFFIC FLOWS - Where available, traffic count data from the Transport Policy Manager shall be used. If no data is available, then a reasoned assessment of traffic will be made taking into account traffic flow in the proximity. The requirement is for a single day (weekday) 12-hour count and converted into Annual Average Daily Traffic (AADT).			
3. BUS ROUTE			
4. GRADIENTS - Highway services using an appropriate method shall assess the degree of gradient. Any gradient to be assessed shall be greater than 50 metres in length.			
5.BENDS (subject to a speed limit in excess of 40mph)			
6. COMMUNITY LINK - Where a road for assessment provides a link for a community in excess of 200 dwellings to and from the core network then a risk rating score of 5 points will be awarded.			
7. INDUSTRIAL AREAS - Where a road for assessment provides a major link from an industrial estate to a road on the core network then a risk rating score of 5 points will be awarded.			
8. PREVIOUSLY SALTED ROUTE - Where a route has previously been included in the precautionary salting network then a risk rating of 5 points will be awarded.			
9. ADJACENT TO KEY FACILITIES - If a road for assessment provides access for emergency facilities such as hospital, fire, or ambulance station, school, major electricity substation etc then a risk rating score of 10 points will be awarded.			
10. ROUTE EFFICIENCY AND PRACTICALITY - Where route efficiency can be improved by including a length of road to complete a circular route and links other roads on the salting network then points may be awarded to lift it above the relevant risk assessment cut off point. Similarly, if lengths of road are restricted through width or turning point then points will be deducted to drop the length of road below the relevant cut off point.			

Appendix C - Salt Bin Prioritisation Matrix

Location of salt bin

Date of assessment

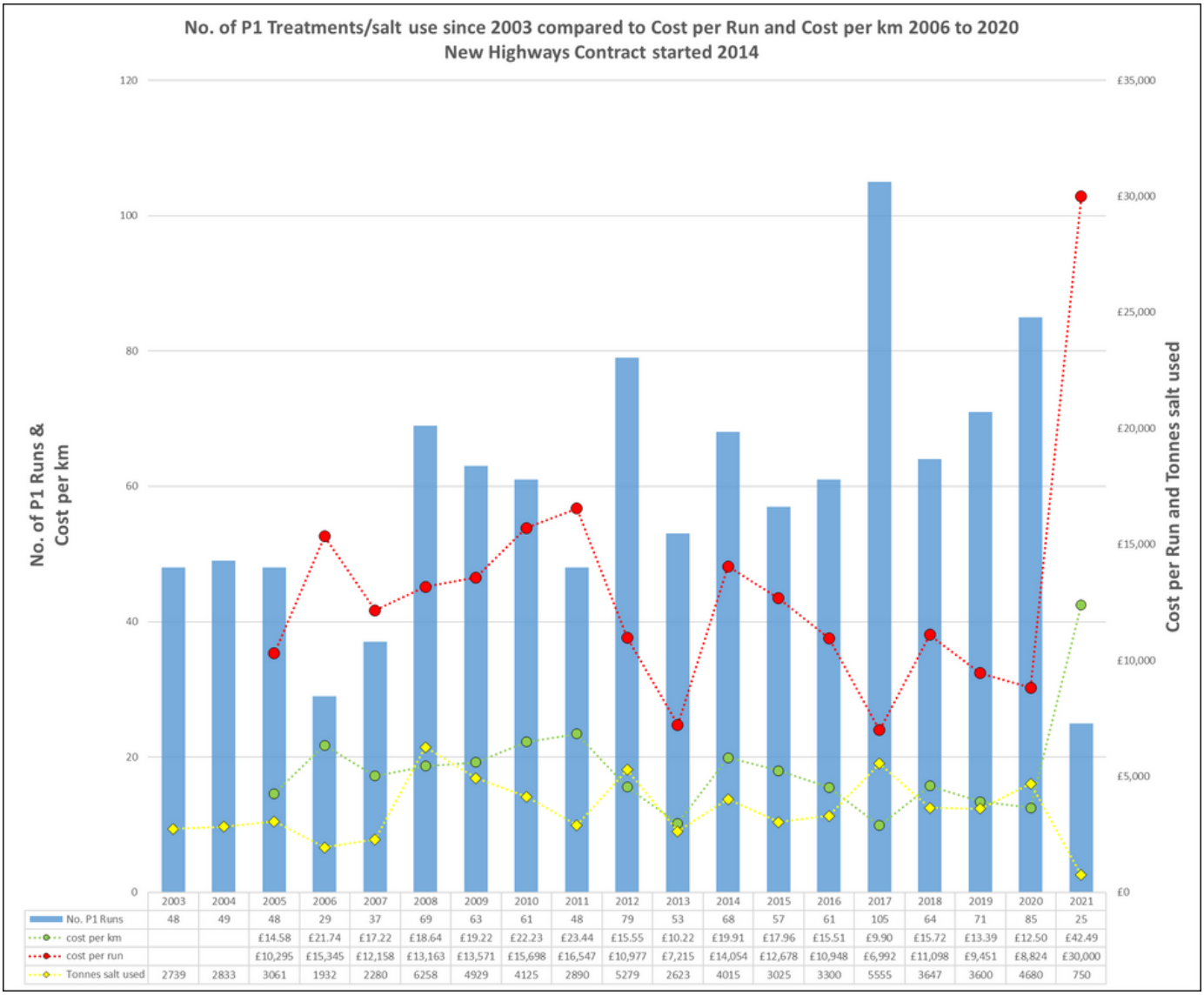
Assessed by (name)

CHARACTERISTIC	SEVERITY	STANDARD SCORES	ASSESSMENT OF ACTUAL SCORE
1. GRADIENT	< 1 in 10 1 in 10 to 1 in 30 >1 in 30	75 40 Nil	
2. SEVERITY OF BEND	Sharp Moderate Slight	60 25 Nil	
3. CLOSE PROXIMITY TO AND FALLING TOWARDS AND AWAY FROM JUNCTION	Heavily trafficked road Moderately trafficked road Lightly trafficked road Not falling towards	90 75 30 Nil	
4.ASSESSED TRAFFIC DENSITY AT PEAK TIMES	Moderate Light	40 Nil	
5. NUMBER OF PREMISES FOR WHICH THIS IS THE ONLY ACCESS	Over 50 20-50 0-20	30 20 Nil	
6. PEDESTRIAN MOVEMENTS	High Moderate Low	60 25 Nil	
7. ROAD PRIORITY	Priority 1 Route Priority 2 Route Priority 3 Route	-300 Nil 20	

In exceptional circumstances and to facilitate operational delivery of the service, the Head of Highway Services has the discretion to authorise the provision of salt bins independent of the assessment criteria. The justification will need to be recorded against the asset.

Appendix D - Winter Service Statistics

Average Figures based on all costs 2003 to 2021				
Avg. Budget Spend per Year	Avg. Number of Priority 1 Runs per Year	Avg. Cost per Run	Avg. Cost per Km	Avg. Tonnes of Salt used per Year
£707,678	59	£12,013	£17.02	3652



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
No. P1 Runs	48	49	48	29	37	69	63	61	48	79	53	68	57	61	105	64	71	85	25
cost per km			£14.58	£21.74	£17.22	£18.64	£19.22	£22.23	£23.44	£15.55	£10.22	£19.91	£17.96	£15.51	£9.90	£15.72	£13.39	£12.50	£42.49
cost per run			£10,295	£15,345	£12,158	£13,163	£13,571	£15,698	£16,547	£10,977	£7,215	£14,054	£12,678	£10,948	£6,992	£11,098	£9,451	£8,824	£30,000
Tonnes salt used	2739	2833	3061	1932	2280	6258	4929	4125	2890	5279	2623	4015	3025	3300	5555	3647	3600	4680	750

Key for Appendix E

MKCC - Milton Keynes City Council
WNCC - West Northamptonshire County Council
NNCC - North Northamptonshire County Council
BBC - Bedford Borough Council
CBC - Central Bedfordshire Council
BCC - Buckinghamshire County Council

Appendix E

Reciprocal Arrangements with Other Authorities

ROAD NAME	SALTING AUTHORITY	HIGHWAY AUTHORITY
Class 3 Forest Road, Hanslope from county boundary (Salcey Forest) to Long Street, Hanslope	WNCC	MKCC
Class 3 Hartwell road, Hanslope – from Forest Road north to county boundary	WNCC	MKCC
A509 – from county boundary to A428 Warrington crossroads	NNCC	MKCC
A428 – from A509 Warrington Crossroads west to county boundary	WNCC	MKCC
MKC boundary (C179) Beachampton Road – Calverton Road – Horsefair Green – Wolverton Road – Queen Eleanor Street to county boundary – All Stony Stratford	WNCC	MKCC
B5388 (Yardley Road, Olney) county boundary to A428	MKCC	WNCC
Class 3 – county boundary (B526) west to Salcey Forest Crossroads	MKCC	WNCC
Class 3 – from Salcey Forest Crossroads west to Park Road, Hartwell	MKCC	WNCC
Class 3 – Yardley Road at A508 junction to county boundary (Station Road), Castlethorpe	MKCC	WNCC
A4146 Fenny Stratford Bypass, from county boundary at Galley Lane roundabout to A5 “Kellys Kitchen” roundabout	BCC	MKCC
Class 3 – C17 from county boundary through Stock Lane and Coddimoor Lane, Whaddon to A421 roundabout	MKCC	BCC
A422 from county boundary to C53 Astwood	CBBC	MKCC
C10 Harrold Road, Lavendon from county boundary to A428 Lavendon	BBC	MKCC
A421 from county boundary to Kingston Roundabout	CBBC	MKCC
C127/C74 from U327 College Road, Cranfield to county boundary	MKCC	CBBC
C14/C28 Newton Road, Turvey from A428 to county Boundary east of Newton Blossomville	MKCC	BBC

Appendix F

Logging Record of Decision

When logging a winter decision via the DTN Roadmaster website it is important to ensure all decisions and/or communications logged by the MKCC decision maker follow a standardised, consistent approach. This is an important for record keeping accuracy and to ensure that clear and concise information is available for all relevant stakeholders. Below are examples of the scenarios a decision maker will encounter, and the detailed response format required. Please note that this is for DTN Roadmaster posts only.

No Action

This post is recorded as a 'No Action' decision on Roadmaster. Post must include: - Minimum predicted RST, confirmation of no predicted winter hazards, confidence level, the Duty Officer name & contact number and continued action (monitoring).

Example:

Minimum predicted RST +4 degrees, no forecasted winter hazards, high confidence. DO to continue to monitor overnight/until next forecast.

Deferred Decision

This post is recorded as a 'note' on Roadmaster and not an action/no action decision. Post must include: - Minimum predicted RST, confidence level, reason for deferral of decision, time of next forecast check, duty officer name & contact number.

Example: minimum predicted RST +1 degree with low confidence in cloud cover & predicted RST behaviour. Decision deferred until next forecast update (18:00).

Action

This post is recorded as a 'Action' decision on Roadmaster. Post must include: - Minimum predicted RST, forecasted hazards & timing, confidence levels, any predicted precipitation & timings, wind speed, road condition (wet/damp/dry), expected traffic levels (high/med/low), run priority (P1/P2), start time of run, spread rate, any route timing alterations due to traffic levels, any spot gritting requirements, duty officer name & contact number.

Example: minimum predicted RST -0.5 degrees, predicted hoar frost between 00:00 – 06:00, no predicted rain forecast, wind speed 4mph, dry surface state, expected low traffic levels. P1 run for 21:30, 8g sq m. Drivers to spot grit any areas of standing water.

Notes:

On occasion the decision maker may need to add further notes to Roadmaster to record information that might not be recorded at the time of a posted decision (such as any issues post-treatment, cancellation/alteration of any actions etc). Notes may be added to the system either with or without notifications sent over email and text message. Decision makers should carefully consider whether text/email notifications need to be sent out as a result of adding notes especially during late nights & early mornings.

Appendix G

Winter Maintenance Decision and Conversation Log

Winter Maintenance Decision Details

Winter maintenance decision for					
Duty Engineer	Mark macdonald	Decision agreed by	Clifford Nash	Time	
Meteo Group forecast summary					
Are any Vaisala RWIS showing wet or ice - If 'Yes' Details	All wet				
Are road temperatures predicted to be around or below zero	-3.6c				
Is a hoar frost predicted? If 'Yes' Details	yes 1am to 9am Downs				
Proposed action Roads	Full Run			Run No	
				Spread Rate	9g/m2
Is this action in preparation or response to snow conditions	N/A			De-icer	Safecote
Is your action decision based on residual salt? If 'Yes' Details	No.				
Is Salt Cell in operation	No	Details of Salt Cell instructions	N/A		

Salt Stock Informatio	Current Stock held before this action commences (X)			Salt usage as a result of this action (Y)				Residual Stock levels (X-Y)	
Total MKC Stock		2500	Tonnes	50				2450	Tonnes
	Sandy (Tonnes)	Date Expt/Recd	N/A	Thorn Turn (Tonnes)	Date Expt/Recd	N/A			

Times and details of any discussions.

11.30 discussed and agreed decision with Cliff Nash. Informed by CM Pre wet available so run brought forward to 18:00 as permitted. Forecast showed sub zero a few hours before frost but dew point and RST very close from 11pm.
Posted on Icelert at 11.50

Andy Macphearson	phoned at 11.43	Full run at 6pm 10g/m2
Whatsapp group	Updated at 12:20	Full run at 6pm 10g/m2

Hoar frost time	**yes 1am to 9am Astwood**
Ice Formation Time	**na**