North Yorkshire County Council

Business and Environmental Services

Executive Members

24 September 2021

Proposed change to the Winter Service operational procedures - reductions in the salt spreading rates.

Report of the Assistant Director – Highways and Transportation

1.0 Purpose of Report

To enable the Corporate Director of Business and Environmental Services (BES), in consultation with the BES Executive Members, to approve

1.1 A reduction in some of the minimum salt spreading rates for future winter operational periods.

2.0 Background

2.1 In the report tabled at your meeting held on the 25 September 2020, the resolution made then was to partially reduce some of our salt spread rates, moving closer to the minimum spread rates laid out in the Government backed industry guidance published by the National Winter Service Research Group. This guidance is titled Spread Rates for Precautionary Salting, which replaced the current Well Maintained Highways – Appendix H – Section H8.

2.2 In the report presented on the 21 August 2020 we reported that if the move to 9g/m2 and 13g/m2 during the 2020/21 season proved successful, and our confidence in the accuracy in the gritting fleet remains high, then it will be our intention to change our operational procedures again and lower the minimum salting spread rate to 8g/m2 and the rate for road surface temperatures between minus 2 degrees and minus 5 degrees on damp roads to 12g/m2 for the 2021/22 winter season.

3.0 Proposal

3.1 Due to the experience last season of using the partially reduced spread rates, along with the confidence in gritter accuracy, coupled with the recent £2.2m purchase by North Yorkshire Highways of 18 new gritters, it is our intention, in line with the comments referred to in 2.3 above, to further reduce our proposed spread rates for precautionary salting to the minimums set out in the NSWRG guidance mentioned in 2.1 above. The rationale for determining the new reduced spread rates are shown in Appendix A.

3.2 The reduced salt spread rates that we are seeking approval for are shown on the proposed Decision Matrix from the draft Winter Service Manual for the 2021/22 season shown in Appendix B.

3.3 Whilst any definite cost saving is impossible to predict as it will depend on the prevailing weather conditions, it is expected that these reductions will save around

£75k during a normal season. This is in line with our Medium Term Financial Savings strategy.

4.0 Equalities Implications

4.1 Consideration has been given to the potential for any adverse equality impacts on people with Protected Characteristics, arising from the recommendation. The results of the impact assessment has been set out in a completed 'decision not to undertake an Equalities Impact Assessment' form. This is attached at Appendix C and it shows that there are no negative impacts on any of the groups with protected characteristics.

5.0 Financial Implications

5.1 There is an estimated saving from these proposals of £75,000 in the 2021/22 and future financial years which is included in the Medium Term Financial Strategy.

6.0 Legal Implications

6.1 Section 41(1A) of the Highways Act 1980 states that a highway authority is under a duty to ensure, so far as is reasonably practicable, that safe passage along a highway is not endangered by snow or ice. Reducing our salt spreading rates to bring them into line with national guidance is not thought to weaken our response to that duty.

7.0 Climate Change

7.1 Consideration has been given to the potential for any climate impacts arising from the recommendation. It is the view of officers that the recommendation do not have an adverse on the environment of North Yorkshire and our aspiration to achieve net carbon neutrality by 2030 and a copy of the Climate change impact assessment screening form is attached as Appendix D.

8.0 Recommendations

8.1 It is recommended that:-

i. The Corporate Director, in consultation with the BES Executive Members agree to these reductions to the minimum salt spreading rates in our operational procedures when implementing the winter service policy.

ii. The Winter Service Plan and Decision Matrix are duly altered to reflect these changes.

BARRIE MASON
Assistant Director – Business and Environmental Services

Author of Report: Richard Marr
Background Documents: Report to Business and Environmental Services Director and Executive Members: Proposed change to the Winter Service operational procedures - reductions in the salt spreading rates and a rewording the policy to clarify our snow clearance procedures, dated 25 September 2020.

<u>Rationale behind the revision of the NYCC salt spreading treatment matrix.</u>
Prior to last season, the treatment matrix had been in use for many years and had not changed even though gritter spreading accuracy has greatly improved. Also, recent alterations to the guidance around salt spreading rates have convinced Officers that there was scope to reduce some of our spread rates.

The guidance followed comes from the National Winter Service Research Group (NWSRG), and is attached.

BACKGROUND TO NWSRG PRACTICAL GUIDE FOR WINTER SERVICE
The latest (2016) version of the UK Roads Liaison Group's national code of good practice for highway maintenance matters, 'Well-managed Highway Infrastructure', no longer provides detailed guidance to practitioners regarding the delivery of the winter service.
Instead, and recognising the technical quality of its work and level of expertise residing within the NWSRG, the UK Roads Board, on behalf of the UKRLG, has requested the NWSRG to make its Practical Guide generally available to all practitioners and interested parties, as it is considered to constitute the best way of providing national best practice guidance on these issues.

The guidance goes into a lot of detail around the various external factors that influence how the salt that is spread works on, and is removed from, the road surface.

The key point of the guidance is that Authorities are to determine their own spread rate matrices that are appropriate for use on their own networks, as well as assisting them in determining which of those spread rates to utilise in response to a particular weather forecast, expected traffic and road conditions based upon this guidance.

The salient points to consider when determining our own matrix are:
1. Quality of the stored salt and accuracy of the gritter fleet.
2. Road temperatures expected during the period under consideration (usually the next 24 hours)
3. The amount of liquid water present at the time of spreading and the following period.
4. Traffic levels before, during and after spreading.
5. Wind speed and direction.
6. Residual salt present on the network.
7. Road surfacing type.

Last year the Corporate Director decision recognised the new guidance but restricted any reduction in spread rates to a minimum of 9g/m2, with further reductions only to be considered after a period of monitoring and experience. As no negative impacts were observed or detected, we now propose to reduce the spread rates further in line with the national guidance.

NYCC proposes to further amend its treatment matrix based on the following statements:

1. **Quality of the stored salt and accuracy of the gritter fleet**.
   a) Our salt is stored under cover and assumed to be at the optimum moisture content of 2% to 4%, and this will be checked at points through the year.
   b) The gritter fleet is modern, well maintained and calibrated at the start of every season. In season checks will be done and recorded. Therefore we will be using the rates suggested got "Good" spreader capacity.

2. **Road temperatures expected during the period under consideration (usually the next 24 hours)**
   a) Our matrix will be divided into appropriate temperature bands.

3. **The amount of liquid water present at the time of spreading and the following period.**
   a) Our matrix will be divided into dry, damp and wet for pre-treatments and ice, snow and freezing rain for post treatments.

4. **Traffic levels before, during and after spreading.**
   Table 8.3 in the guidance:-

TABLE 8.4.3 TRAFFIC LEVEL CATEGORIES (RELATING TO THE PERIOD AROUND THE TIME OF THE PRECAUTIONARY SALTING OPERATION)	
Level	**Vehicles per lane per hour**
Light	Less than 20
Medium	20 to 250
High	250 or more and moving at normal traffic speeds
Congested	250 or more moving slower than normal traffic speeds

The guidance states:
It is anticipated that traffic levels on the great majority of local authority road networks will fall within the 'Medium Traffic' category during the times periods that most precautionary salting operations are undertaken. Therefore, the recommended spread rates provided in the matrices contained within sub-section 8.6 relate to the 'Medium Traffic' category.

It is not anticipated that many local authority roads will fall into the 'High Traffic' category and research has shown that salt losses do not increase significantly for traffic levels beyond 250 vehicles per lane per hour, as long as this traffic is moving normally.

However, it is likely that some precautionary salting operations undertaken by local authorities will include routes that fall into the 'Light Traffic' and 'Congested Traffic' categories. In these situations, it is important that spread rates are modified accordingly.

As all out pre-treatments are on the Priority One network, our spread rates for pre-treatments will be based upon Medium Traffic levels.
Rates for post treatments do not need to consider traffic levels.

5. **Wind speed and direction.**
   The guidance states:
   When treatments are carried out during high wind conditions, it is recommended that authorities monitor residual salt levels and carry out re-treatments if and where necessary. If this issue is considered to pose a significant risk, authorities may also wish to increase spread rates when carrying out precautionary salting operations during periods when forecast mean wind speeds are 20mph or higher.

   Therefore our pre-treatment matrix for dry salting will show separate rates for when wind speeds are in excess of 20mph.

6. **Residual salt present on the network.**
   The guidance states:
   Residual salt from previous operations can reduce the spread rates required to prevent frost/ice formation. However if, when decision making, residual salt levels are relied upon to reduce instructed spread rates, it is important that such decisions are evidence based. As with all other pertinent information relating to winter service decision making, the supporting data should be recorded and retained.

   For the purposes of the treatment matrix, the effect of any residual salt has been ignored. However, further guidance is being sought from the industry.

7. **Road surfacing type.**
   The guidance asks that when spreading on porous asphalt, the spread rates provided in the guidance should be increased by 25% and the increased spread rate should be maintained for a distance of 1 kilometre 'downstream' of each porous section (in two-way traffic situations, the increased spread rate should be maintained for a distance of 1 kilometre at both ends of each porous section). For other negatively textured surfaces this increase should be between 10% and 25% for the first two years of the surfacing. For the purposes of our matrix this will be covered in a foot note.

   The recommended spread rates for dry salting in the guidance are shown below:

Recommended Spread Rates – Dry Salting (g/m²) Treatment Matrix 8.6.7				
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	23	9	17
-4.1°C to -5.0°C	14	28	11	21
-5.1°C to -7.0°C	20	39	15	30
-7.1°C to -10.0°C	27	54	20	40
-10.1°C to -15.0°C	38	75	28	56

TREATMENT MATRIX GUIDE

Weather Conditions **Road Surface Conditions** **Road Surface Temperature (RST)**		**Treatment**		
		Salt Barn-Dry Salting (g/m²)	**Dry roads only** **Wind in excess of 20mph Salting (g/m²)**	**Ploughing**
Forecast frost or ice, RST at or above -2°C Road dry or damp		8	9	No
Forecast frost or ice, RST at or above -2°C Road wet		8		No
Forecast frost or ice, RST between -2°C and -3°C, Road dry or damp		8	13	No
Forecast frost or ice, RST between -2°C and -3°C, Road wet		13		No
Forecast frost or ice, RST below -3°C and above -4°C Road dry or damp		9	13	No
Forecast frost or ice, RST below -3°C and above -4°C Road wet		17		No
Forecast frost or ice, RST below -4°C and above -5°C Road dry or damp		11	20	No
Forecast frost or ice, RST below -4°C and above -5°C Road wet		21		No
Forecast frost or ice, RST below -5°C and above -7°C and dry or damp road conditions		15	20	No
Forecast frost or ice, RST below -5°C and above -7°C Road wet		30		No
Forecast frost or ice, RST below -7°C and above -10°C Road dry		20	20	No
Forecast frost or ice, RST below -7°C and above -10°C Road wet		40 or (2x20)	40 or (2x20)	No
Light snow forecast (<10mm) Pre-salt		20	20	No

Medium/heavy snow or freezing rain forecast Pre-salt		40 or (2x20)	40 or (2x20)	No
Freezing rain falling		20 (successive)	20 (successive)	No
After freezing rain		20	20	No
Ice formed (minor accumulations)	Above -5°C	20	20	No
Ice formed	At or below -5°C	40 or (2x20)	40 or (2x20)	No
Snow covering exceeding 30mm		20 – 40 (successive)	20 – 40 (successive)	Yes
Hard packed snow and ice	Above -8°C	20 – 40 (successive)	20 – 40 (successive)	No
Hard packed snow and ice	At or below -8°C	Salt/abrasive (successive)	Salt/abrasive (successive)	No

*Subject to stockpile exposure and condition and spreader capability.
Rate of spread for precautionary treatments should be adjusted to take account of residual salt or moisture

Notes: 1. Treatments should be carried out whenever possible, after traffic has dispersed standing water.

Successive half rate treatments may be considered where gritters return on the same route.

1. Damp conditions definition – Water present which darkens the carriageway surface, no spray.

Wet conditions definition – spray is evident.

2. Porous Asphalt When spreading on porous asphalt, the spread rates provided in the matrices should be increased by 25% and the increased spread rate should be maintained for a distance of 1 kilometre 'downstream' of each porous section (in two-way traffic situations, the increased spread rate should be maintained for a distance of 1 kilometre at both ends of each porous section).

The matrix from the guidance below does not account for conditions when the roads are dry and wind speeds are in excess of 20 mph. Nor do they account for porous / negative texture asphalts.

Recommended Spread Rates – Dry Salting (g/m²) Treatment Matrix 8.6.7				
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
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-4.1°C to -5.0°C	14	28	11	21
-5.1°C to -7.0°C	20	39	15	30
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-10.1°C to -15.0°C	38	75	28	56

Initial equality impact assessment screening form
(As of October 2015 this form replaces 'Record of decision not to carry out an EIA)
This form records an equality screening process to determine the relevance of equality to a proposal, and a decision whether or not a full EIA would be appropriate or proportionate.

Directorate	BES
Service area	H & T
Proposal being screened	Proposal to adjust our operational procedures within the Winter Service Policy to reduce salt spreading rates to bring them in line with revised national guidance.
Officer(s) carrying out screening	Richard Marr
What are you proposing to do?	Reduce salt spreading rates in line with national guidance
Why are you proposing this? What are the desired outcomes?	To reduce the amount of salt spread..
Does the proposal involve a significant commitment or removal of resources? Please give details.	No

Impact on people with any of the following protected characteristics as defined by the Equality Act 2010, or NYCC's additional agreed characteristic
As part of this assessment, please consider the following questions:

- To what extent is this service used by particular groups of people with protected characteristics?
- Does the proposal relate to functions that previous consultation has identified as important?
- Do different groups have different needs or experiences in the area the proposal relates to?

If for any characteristic it is considered that there is likely to be a significant adverse impact or you have ticked 'Don't know/no info available', then a full EIA should be carried out where this is proportionate. You are advised to speak to your Equality rep for advice if you are in any doubt.

Protected characteristic	**Yes**	**No**	**Don't know/No info available**
Age		✓	
Disability		✓	
Sex (Gender)		✓	
Race		✓	
Sexual orientation		✓	
Gender reassignment		✓	
Religion or belief		✓	
Pregnancy or maternity		✓	
Marriage or civil partnership		✓	
NYCC additional characteristic			
People in rural areas		✓	
People on a low income		✓	
Carer (unpaid family or friend)		✓	

Does the proposal relate to an area where there are known inequalities/probable impacts (e.g. disabled people's access to public transport)? Please give details.	The proposal covers the entire County			
Will the proposal have a significant effect on how other organisations operate? (E.g. partners, funding criteria, etc.). Do any of these organisations support people with protected characteristics? Please explain why you have reached this conclusion.	No.			
Decision (Please tick one option)	EIA not relevant or proportionate:	✓	Continue to full EIA:	
Reason for decision	People with protected characteristics should not be adversely affected by the proposed changes .			
Signed (Assistant Director or equivalent):	Nigel Smith			
Date:	10/09/21			

Climate change impact assessment

The purpose of this assessment is to help us understand the likely impacts of our decisions on the environment of North Yorkshire and on our aspiration to achieve net carbon neutrality by 2030, or as close to that date as possible. The intention is to mitigate negative effects and identify projects which will have positive effects.

This document should be completed in consultation with the supporting guidance. The final document will be published as part of the decision making process and should be written in Plain English.

If you have any additional queries which are not covered by the guidance please email climatechange@northyorks.gov.uk

Please note: You may not need to undertake this assessment if your proposal will be subject to any of the following:
Planning Permission
Environmental Impact Assessment
Strategic Environmental Assessment

However, you will still need to summarise your findings in in the summary section of the form below.

Please contact climatechange@northyorks.gov.uk for advice.

Title of proposal	**Proposed change to the Winter Service operational procedures - reductions in the salt spreading rates**
Brief description of proposal	**To reduce the salt spreading rates during the forthcoming winter period**
Directorate	**Business and Environmental Services**
Service area	**Highways and Transportation**
Lead officer	**Nigel Smith**
Names and roles of other people involved in carrying out the impact assessment	**Richard Marr, Area Manager, Highway Operations**
Date impact assessment started	**7 September 2021**

Options appraisal Were any other options considered in trying to achieve the aim of this project? If so, please give brief details and explain why alternative options were not progressed. **No other options were considered, as this proposal is a minor amendment to existing operations. Moreover, it will have a negative impact on climate change.**
What impact will this proposal have on council budgets? Will it be cost neutral, have increased cost or reduce costs? Please explain briefly why this will be the result, detailing estimated savings or costs where this is possible. **The proposal will reduce council costs as it will result in less salt being purchased for the winter service operation**

How will this proposal impact on the environment? N.B. There may be short term negative impact and longer term positive impact. Please include all potential impacts over the lifetime of a project and provide an explanation.		Positive impact (Place a X in the box below where relevant)	No impact (Place a X in the box below where relevant)	Negative impact (Place a X in the box below where relevant)	Explain why will it have this effect and over what timescale? Where possible/relevant please include: • Changes over and above business as usual • Evidence or measurement of effect • Figures for CO_2e • Links to relevant documents	Explain how you plan to mitigate any negative impacts.	Explain how you plan to improve any positive outcomes as far as possible.
Minimise **greenhouse gas emissions** e.g. reducing emissions from travel, increasing energy efficiencies etc.	Emissions from travel	X			A reduction in salt spread will result in less salt being purchased for the operation and therefore less salt transported from the mine to the highway depots.		
	Emissions from construction	X			Less salt will have to be mined.		
	Emissions from running of buildings		X		Negligible reduction from this proposal.		
	Other						
Minimise **waste:** Reduce, reuse, recycle and compost e.g. reducing use of single use plastic		X			Less salt will be spread on the highway		
Reduce **water** consumption			X				

How will this proposal impact on the environment? **N.B. There may be short term negative impact and longer term positive impact. Please include all potential impacts over the lifetime of a project and provide an explanation.**	**Positive impact** (Place a X in the box below where relevant)	**No impact** (Place a X in the box below where relevant)	**Negative impact** (Place a X in the box below where relevant)	**Explain why will it have this effect and over what timescale?** **Where possible/relevant please include:** • **Changes over and above business as usual** • **Evidence or measurement of effect** • **Figures for CO_2e** • **Links to relevant documents**	**Explain how you plan to mitigate any negative impacts.**	**Explain how you plan to improve any positive outcomes as far as possible.**
Minimise **pollution** (including air, land, water, light and noise)	X			Reduced transport pollution due to less salt having to be delivered to highway depots.		
Ensure **resilience** to the effects of climate change e.g. reducing flood risk, mitigating effects of drier, hotter summers		X				
Enhance **conservation** and wildlife	X			Marginal impact of less salt being spread		
Safeguard the distinctive characteristics, features and special qualities of **North Yorkshire's landscape**		X				
Other (please state below)						

How will this proposal impact on the environment? N.B. There may be short term negative impact and longer term positive impact. Please include all potential impacts over the lifetime of a project and provide an explanation.	Positive impact (Place a X in the box below where relevant)	No impact (Place a X in the box below where relevant)	Negative impact (Place a X in the box below where relevant)	Explain why will it have this effect and over what timescale? Where possible/relevant please include: • Changes over and above business as usual • Evidence or measurement of effect • Figures for CO_2e • Links to relevant documents	Explain how you plan to mitigate any negative impacts.	Explain how you plan to improve any positive outcomes as far as possible.

Are there any recognised good practice environmental standards in relation to this proposal? If so, please detail how this proposal meets those standards.
This proposal moves us to the nationally recognised minimum salt spread rates for winter operations.

Summary Summarise the findings of your impact assessment, including impacts, the recommendation in relation to addressing impacts, including any legal advice, and next steps. This summary should be used as part of the report to the decision maker.
As the proposal will result in less salt being spread on the County's highway network, this proposal will have a small, but positive impact to the environment and climate change.

Sign off section

This climate change impact assessment was completed by:

Name	**Richard Marr**
Job title	**Area Manager**
Service area	**Highways and Transportation**
Directorate	**Business and Environmental Services**
Signature	
Completion date	**7 September 2021**

Authorised by relevant Assistant Director (signature):

Date: