

Operational Plan

Part 2 - Treatments

2.1 Decision Making Procedure

- 2.1.1 On receipt of weather forecast information from the forecasting authority or in response to prevailing weather conditions, the decision taken on necessary action will be in accordance with the guidance given in **Table 2.1**.
- 2.1.2 Whilst the various operational scenarios in **Table 2.1** are recognised as best practice, in certain circumstances given that the Moray Council does not provide a 24 hour service, decisions, particularly relating to rain before freezing shall require judgement on whether pre-treatment salting is beneficial either before or during expected rainfall.
- 2.1.3 The decision making procedure shall in particular take account of residual salt levels or surface moisture. The decision making process shall be undertaken on a route by route basis throughout Moray and different decisions particularly with regard to climatic domains of Moray are entirely possible.

2.2 Target Spread Rates of Salt

- 2.2.1 Guidance on spread rates of salt are given in **Table 2.2**.
- 2.2.2 As Moray is located in northern Scotland, this area can experience more extreme winter weather conditions. When this is considered in conjunction with comparatively low traffic volumes on many routes, the use of salt/sand mixtures is adopted to provide abrasion at less onerous thresholds than national United Kingdom guidance.
- 2.2.3 Discretion must be left to Duty Officers and Supervisors when to make the change in accordance with climatic conditions and experience.

2.3 De-icing Materials

- 2.3.1 Salt supplied to various locations throughout the Moray Council area shall be Fine Grade 6.3mm Rock Salt to B.S. 3247
- 2.3.2 Sand for use either neat or in mixtures shall be single sized abrasive or particle size 1-6mm or a 5mm sand having a low fines content. The particles should be angular in shape and suitable to create an abrasive surface.
- 2.3.3 An environmentally friendly, non-corrosive liquid de-icing agent is used on multi-storey car parks only.

2.4 Level Crossings

- 2.4.1 Salt spreading should cease at the STOP line in advance of the level crossing and recommence beyond the STOP line on the opposite side of the crossing. Treatment over the level crossing is only provided by salt carryover from traffic.
- 2.4.2 When ploughing over level crossings drivers must stop and use the dedicated telephone to contact the signalman for permission to cross if they are unable to plough at the stipulated minimum speed of 5mph or blade width exceeds 2.9 metres. Thereafter drivers must follow all instructions issued by the signalman.
- 2.4.3 Snow blowers must not be used on level crossings.
- 2.4.4 There are 4 level crossings within Moray. The roads which they cross are as follows :-
- C6E Scotsburn Road, Kinloss - Priority 1 (*Part of 'EL1' P1 route*)
 - C9E Brodie-Muirside-Kintessack Road - Priority 2
 - C54H Crooksmill-Muldearie-Rosarie Road - Priority 3
 - U171E The Wards, Elgin - Priority 1 (*Part of 'EL6' P1 route*)

Table 2.1 - Decision Matrix Guide

Road Surface Temperature	Precipitation	Predicted Road Conditions		
		Wet	Wet Patches	Dry
May fall below 1°C	No rain No hoar frost No fog	Salt before frost	Salt before frost (see note a)	No actions likely, monitor weather (see note a)
Expected to fall below 1°C	No rain No hoar frost No fog			
	Expected hoar frost Expected fog	Salt before frost (see note b)		
	Expected rain BEFORE freezing	Salt after rain stops (see note c)		
	Expected rain DURING freezing	Salt before frost, as required during rain and again after rain stops (see note d)		
	Possible rain Possible hoar frost Possible fog	Salt before frost		Monitor weather conditions
Expected snow		Salt before snow falls		
The decision to undertake precautionary treatments should, if appropriate, be adjusted to take account of residual salt or surface moisture. All decisions require continuous monitoring and review.				

Notes :-

- a) Particular attention should be given to the possibility of water running across carriageways and other running surfaces e.g. off adjacent fields after heavy rains, washing off salt previously deposited. Such locations should be closely monitored and may require treating in the evening and morning, and possible on other occasions.
- b) When a weather warning contains reference to expected hoarfrost, considerable deposits of frost are likely to 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. Hoarfrost 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 eases.
- 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.
- e) Weather warnings are often qualified by altitudes in which case differing action may be required from each depot.

**MORAY COUNCIL
ROADS MAINTENANCE
WINTER SERVICE OPERATIONAL PLAN**

Table 2.2 - Treatment Matrix Guide

Weather Conditions	Temperature		Road Condition	Treatment	
	RST	Air Temperature		Salting (g/m ²)	Ploughing
Frost or forecast frost	at or above -2°C	n/a	dry or damp	15 (10)	No
Frost or forecast frost	at or above -2°C	n/a	wet ³	15 (10)	No
Frost or forecast frost	below - 2°C and above - 5°C	n/a	dry or damp	20 (15)	No
Frost or forecast frost	below - 2°C and above - 5°C	n/a	wet ³	20 - 30	No
Frost or forecast frost	at or below -5°C and above -10°C	n/a	dry or damp	20 - 30	No
Frost or forecast frost	at or below -5°C and above -10°C	n/a	wet ³	30 - 40 salt / sand	No
Light snow forecast (<10mm)	n/a	n/a	n/a	20	No
Medium / heavy snow forecast	n/a	n/a	n/a	20 - 30	No
Ice formed (minor accumulations)	n/a	above -5°C	n/a	20	No
Ice formed	n/a	at or below -5°C	n/a	30 - 40 sand / salt ⁴	No
Snow covered	n/a	n/a	n/a	30 - 40 sand / salt ⁴	Yes
Hard packed snow / ice	n/a	above -8°C	n/a	30 - 40 sand / salt ⁴	No
Hard packed snow / ice	n/a	at or below -8°C	n/a	30 - 40 sand / salt ⁴	No

Notes

1. Rate of spread for precautionary treatments may be adjusted to take account of residual salt, surface moisture or strong winds.
2. Dry salting treatments from salt barn stockpiles are shown in brackets
3. Wet road conditions should be considered as a road in which traffic produces spray.
4. Successive treatments may be required at the discretion of the duty officer / duty supervisor