

STAFFORDSHIRE COUNTY COUNCIL

DEVELOPMENT SERVICES DEPARTMENT

WINTER SERVICE POLICY

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STAFFORDSHIRE COUNTY COUNCIL - WINTER SERVICE POLICY

1. INTRODUCTION

- 1.1 The purpose of this Policy is to set out the principles that Staffordshire County Council (SCC) will adopt to meet its obligations and duties in respect of Winter Service. It lays down which categories of road are to be treated, in what order of priority, and how quickly they should be treated. It also gives guidance on the interpretation of forecasts and subsequent action. It is intended, through the use of this Policy, to ensure that there is a uniform level of service throughout Staffordshire.
- 1.2 The standards contained within this Policy reflect the recommendations of The Roads Liaison Group's 'Well-maintained Highways' – Code of Practice for Highway Maintenance Management - (July 2005). The standards are however in a transition stage prior to the completion of a Network Review that will re-categorise each link of its highway network to take into account changes in the network and traffic patterns. This Network Review will inform a full re-appraisal of all of the highways that are assessed to require precautionary salting prior to the 2009/10 season.
- 1.3 Winter Service operations are intended to provide assistance to road users by treating designated elements of the highway network to mitigate the effects of frost, ice or snow, with the aim of maintaining safe traffic movements and thereby minimizing accidents directly attributable to these unfavourable weather conditions.
- 1.4 Whilst Winter Service operations are primarily designed to assist with maintaining the safety of road users, it is also recognized that there is a beneficial effect, when considering whole life costs of a carriageway, by preventing the formation of ice which can cause serious damage to the carriageway running surface.
- 1.4.1 However, it is also accepted that Winter Service operations can have an adverse impact on the fabric of other elements of the highway infrastructure and it is also acknowledged that the use of crushed rock salt can have a detrimental impact on the environment. For these reasons, continuing efforts are being made to maximise the effective operational use of this material and incorporate alternative materials that reduce these negative side-effects.
- 1.5 Each year Winter Service operations within Staffordshire account for a significant proportion (around 11%) of the total expenditure on the maintenance of highways. It primarily consists of two main activities:
- spreading of crushed rock salt, either to prevent the formation of frost or ice (precautionary salting), or, to assist the thawing of frost or ice;
 - clearing away snow which has accumulated on highways.
- 1.6 Since not every road on the highway network is treated on a precautionary basis, the importance of taking reasonable steps to inform road users of which roads are treated is recognised. For this reason, SCC will publish details of those roads

that it intends to treat, utilizing a number of differing mediums to ensure coverage of the whole of Staffordshire, and contact points for further information, or clarification, will be provided, (see Chapter 10).

- 1.7 A copy of the current Policy, for use by Staffordshire Highways personnel, will be located on H:\Highways\Operational Info\Policy Documents\Operational Policies.
- 1.8 Copies of this Policy will also be provided to the following:-
 - Chief Executives Office – (Legal Services Unit - Development Services)
 - Finance Directorate - (Insurance Services)
Zurich (SCC's Insurers)
Weightmans (SCC's Solicitors)
 - Neighbouring Highway Authorities
 - District Councils in Staffordshire
 - Elected members of Staffordshire County Council
 - Emergency Services
 - Staffordshire Police (Accident & Investigation Unit)
- 1.9 Access to this Policy will also be available to members of the public via the Staffordshire Web.
- 1.10 Staffordshire's Winter Service Policy will be reviewed on an annual basis, and, following the review, it will be updated and reissued where necessary.

2. **LEGISLATION**

- 2.1 Staffordshire County Council, as the Local Highway Authority (LHA) for Staffordshire, has a statutory duty, under Section 41 of the Highways Act 1980, to maintain the highway network in a good state of repair so as to render it safe for ordinary traffic at all times of the year.
- 2.2 The Railways and Transport Act 2003: Section 111, Paragraph 1A, states that "In particular, 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 and ice". The Act requires that after Section 41(1) of the Highways Act 1980, Paragraph 1A above should be added.
- 2.3 Section 150(1) of the Highways Act 1980, provides a LHA with a statutory duty to remove an accumulation of snow which forms an obstruction, however Section 150(3) of the Act states that Courts shall take into account the following factors.
- (a) the character of the highway and the nature and amount of traffic using it.
 - (b) the nature and extent of the obstruction.
 - (c) the resources of manpower, vehicles and equipment available to the Highway Authority and extent to which those resources are being, or need to be, employed elsewhere on such work.

Thus the Highways Act 1980 and the Courts recognise that it would not be practical for a LHA to treat all roads and footways as soon as ice forms or snow falls, since to attempt to do so would not be considered "reasonably practical".

- 2.4 Section 58 of the 1980 Highways Act provides the LHA with a defence to counter a legal action for negligence if one arose. The LHA must be able to prove, in a court of law, that it had taken "such care as in all the circumstances was reasonably required to secure that the part of the highway to which the action relates was not dangerous for traffic" based upon:
- The character of the highway and the traffic which was reasonably to be expected to use it;
 - The standard of maintenance appropriate for a highway of that character and used by such traffic;
 - The state of repair in which a reasonable person would have expected to find the highway;
 - Whether the Highway Authority knew, or could reasonably have been expected to know, that the condition of the part of the highway to which the action relates was likely to cause danger to users of the highway (*e.g. evidence of previous complaint*);
 - Where the Highway Authority could not reasonably have been expected to repair that part of the highway before the cause of the action arose, what warning notices of its condition had been displayed.

- 2.4.1 Where a Section 58 defence is used by a LHA to counter a legal action for negligence, it should be noted that the above are not the only criteria that a Court will consider and that decisions will be based upon case precedent.
- 2.5 As a responsible LHA, Staffordshire County Council has developed a Winter Service Policy. This has been produced to ensure that SCC is able to show that it has implemented suitable procedures, with regard to Winter Service operations, across those parts of the highway network which, taking account of the relevant Sections of the Highways Act 1980, it would be considered appropriate to do so. This will allow SCC to produce a robust defence, which can be used in a court of law, if a road traffic accident occurs where it is alleged that deficient Winter Service operations on a particular section of the highway network may have been contributory to the cause of the accident.

3. WINTER SERVICE OPERATIONS

- 3.1 Precautionary salting is to be carried out in accordance with Chapter 5 of this Policy, on all roads in Traffic Groups 1 to 4, as defined in the SCC Network Management Policy and set out in paragraph 5.1.1 of this Policy.
- 3.2 Under normal circumstances, precautionary salting will not be carried out on roads in Traffic Groups 5, 6 and 7. Any exceptions to this must be agreed with the Head of Highway Network Management or his nominated representative, and the reasons justifying the exception must be recorded on file.
- 3.3 Examples of permitted exceptions to the exclusion of precautionary salting work on Traffic Groups 5, 6 and 7 are as follows:
- Pedestrian precincts in which significant volumes of traffic use the pedestrian area for access outside the stated periods of traffic restriction;
 - Lengths of road which adjoin Traffic Group 1 to 4 roads or Trunk Roads by means of a steep gradient or sharp bends;
 - Link roads from Traffic Group 1 to 4 roads to Emergency Services premises. N.B. This only applies to adopted highways.
- 3.4 Where the formation of ice on roads in Traffic Groups 5, 6 or 7 is reported, or where maintenance staff note the presence of such ice, then, following the completion of the necessary work on roads in Traffic Groups 1 to 4 and on any approved additional lengths of road, de-icing work may be carried out at the discretion of the Area Highway Manager, subject to the availability of resources.
- 3.5 Snow clearance is to be carried out on the same prioritized routes and, thereafter, on the remainder of the road network in accordance with Chapter 6 of this Policy.
- 3.6 For economical and practical purposes, precautionary salting and snow clearance of some carriageway routes within Staffordshire, that are clear continuations of treated routes within a neighbouring LHA, are subject to reciprocal agreements. Routes subject to reciprocal agreements are detailed in the Area Maintenance Office Winter Service Operation Plan and are treated in accordance with the Policy of the respective neighbouring LHA.
- 3.6.1 Similarly, some carriageway routes within Staffordshire that cross into a neighbouring LHA are subject to reciprocal agreements and are treated by SCC in accordance with the requirements of this Policy and the details of these routes are contained within the Area Maintenance Office Winter Service Operation Plan.

4. WEATHER FORECASTING AND WEATHER BUREAU SERVICES

4.1 General

4.1.1 There are 7 climatic domains within Staffordshire, each has its own weather recording station and associated road sensors, 5 of which are located within Staffordshire with the remaining 2 being located within adjoining Counties, close to the County boundary. Staffordshire also has access to data that is obtained from additional road sensors located both inside and outside of Staffordshire.

4.2 Weather Forecasting Service

4.2.1 SCC maintains a Contract with an appropriate weather forecasting organization.

4.2.2 The forecasting information is currently provided by the Meteorological Office through its OpenRoad system under which a range of services are provided

- Site specific forecasts;
- Morning summaries;
- 24 hour forecasts;
- 2 – 5 day forecasts;
- Telephone consultancy service;
- Weather training (Basic and Refresher).

The weather forecasting information provided as part of this service forms the basis of Winter Service treatment decisions.

4.2.3 In addition, Winter Service staff may access directly, the password protected Meteorological Office OpenRoad web-site located at:

<https://services.metoffice.gov.uk>

4.2.4 The weather forecasting contractor should be consulted when conditions vary from the forecast, or when clarification of the information provided is required.

4.3 Weather Bureau Service

4.3.1 SCC maintains a Contract with an appropriate weather bureau to provide an effective ice prediction service.

4.3.2 The weather forecast information provided as part of the Weather Forecasting Service and information from weather stations and road sensors located within and adjacent to Staffordshire is channelled into the Weather Bureau Service where it is used to assist in the operation of an ice prediction system.

4.3.3 This Weather Bureau Service is presently provided by Vaisala who offer IceCast, which is a suite of software application modules that present's, stores and manages the data upon which Staffordshire's Winter Service decisions can be based.

4.3.4 IceCast modules accessed by SCC staff include:

- IceView - A software application module that is loaded onto designated

computers to provide a viewing platform of the data held on the IceCast server. This data is comprised of the weather station, road sensor and weather forecasting information managed by the bureau, which is displayed in tabular, graphical, cartographical and text formats together with Vaisala's TimeStep Thermal Mapping imagery;

- IceNet Update - The communications media of the IceCast suite that allows an authorised user to take advantage of the Internet to transfer data between the IceCast Server and a designated PC. This allows the user to view TimeStep map forecasts;
- IceNet – Provides a similar facility to IceView that allows an authorised user to access and view the data held on the IceCast server, using any PC, via a password protected internet connection;
- TimeStep Thermal Mapping - Offering Real Time Thermal Mapping imagery of a network and an hour-by-hour TimeStep view of the predicted temperature variation, displayed via a colour-coded representation of the network;
- IceMan - A web-based, password protected, centralised database containing records of Winter Service decisions and actions.

4.3.5 Vaisala also provide additional fee based services which include:

- Winter Service treatment route optimisation;
- IceCast scenario training;
- Maintenance and future provision of weather stations and road sensors.

5. **PRECAUTIONARY SALTING**

5.1 The priorities for treating the network are as follows:-

- (a) Traffic Group 1 and 2 as defined in Para. 5.1.1.
- (b) Traffic Group 3 and 4 as defined in Para. 5.1.1.

5.1.1 **Definition of Traffic Groups**

Traffic Group	Definition
01	Roads carrying over 1,250 commercial vehicles per day in each direction
02	Primary Route Network and roads carrying between 750 and 1,250 commercial vehicles per day in each direction
03	Roads carrying between 250 and 750 commercial vehicles per day in each direction
04	Roads carrying between 75 and 250 commercial vehicles per day in each direction Industrial estate distributor roads Main access roads to rural communities Commuter Routes Main distributor roads on large housing estates serving more than 500 homes
05	Roads carrying between 10 and 75 commercial vehicles per day in each direction Links to industrial estate distributor roads Housing estate roads serving between 300 and 500 homes
06	Roads carrying less than 10 commercial vehicles per day in each direction Housing estate roads including cul-de-sac serving less than 300 homes
07	Rear access roads on housing estates

Explanatory Notes

- 1. (a) A commercial vehicle is defined as one having a Gross Vehicle Weight greater than 3.5 tonnes, including buses and coaches.
(b) The traffic figures relate to a 24 hour day.
- 2. Main access roads to rural communities: under normal circumstances, only one main access road in and out of the community shall be nominated.
- 3. Commuter roads are those roads where a significant increase in traffic volume occurs in peak periods, i.e. 08:00 – 10:00 and 16:00 – 18:00.

5.1.2 It is important to note that School Bus Routes are not normally treated, unless

the route, or part of that route, coincides with the precautionary salting routes treated under the criteria described above. Close liaison between officers in the Highway Network Management Unit and Public Transport Sections of the Development Services Department will be maintained so that school bus operators may be advised of which routes are treated.

5.2 **Precautionary Salting**

5.2.1 Precautionary salting routes are designed within climatic domains. Accordingly the decision on whether or when to carry out precautionary salting is a local decision, to be taken by the Area Maintenance Office, within the guidelines set out in this Policy.

5.2.2 The decisions relating to precautionary salting are dependent on daily weather forecasts, prevailing road and traffic conditions, supplemented by ice prediction computer models, and consultation with weather forecasters, as required.

5.2.3 Precautionary salting of a route should normally be completed after approximately 2 hours of the salt spreader leaving the depot. This is a target time, and individual route lengths, prevailing weather conditions and delays caused by traffic, may be such that some variations occur.

5.2.4 Precautionary salting will be carried out at the rates of spread shown in the following table:-

Dry or damp road with frost forecast	10 gm/m ²
Dry or damp road with precipitation and frost forecast	20 gm/m ²
Wet road with frost forecast	20 gm/m ²
Wet road with precipitation and frost forecast	20 gm/m ² (evening pre-salting)
Damp/wet surface with ice formed	20 gm/m ² (30 in severe conditions)
Snow forecast	30 or 40 gm/m ²

The selected rate of spread will depend on road conditions, residual salinity, and the severity of predicted climatic conditions.

5.2.5 Where precautionary salting is carried out using the pre-wetted salt technique, the rate of spread for a dry or damp road with frost forecast, may be reduced from 10gm/m² to 7gm/m² in conjunction with 3gm/m² of saline solution. Similar reductions can also apply when using de-icing additives produced from natural materials or agricultural by-products.

5.2.6 All SCC salt spreaders will be calibrated prior to the start of Winter Service season as part of the pre-season overhaul.

5.2.7 Area Highway Managers shall review precautionary salting routes before the onset of each Winter Service season. The agreement of the Head of Highway Network Management or his nominated representative is to be obtained to any variations before they are implemented, particularly where additional salting is proposed, or other operational and financial implications are likely to arise.

6. SNOW CLEARING OF CARRIAGEWAYS, FOOTWAYS AND CYCLEWAYS

6.1 General

6.1.1 In snowfall conditions, all normal highway work ceases and the available resources are directed to clear priority routes. In rural areas, some farmers are provided with ploughs and snow blowers to fit their tractors, to assist with snow clearance on a priority basis on planned routes. Area Highway Managers shall ensure that adequate instructions are given to rural area contractors and that adequate liaison is maintained, such that these resources are effectively utilised and duplication of effort is avoided.

6.2 Service to Carriageways

6.2.1 The order of priority for snow clearance shall be:-

- (i) Roads in Traffic Groups 1 & 2 which will be opened up to full width.
- (ii) Roads in Traffic Groups 3 & 4 which will be opened to one lane in each direction but full width at, and on the approaches to major junctions, roundabouts, steep hills and potential danger spots.
- (iii) When these priorities have been met, other roads will be cleared to one lane width.
- (iv) Roads in Traffic Groups 3 & 4 opened to full width.
- (v) Cul-de-sacs cleared to one lane width, if possible.

6.2.2 Snowfall less than 50mm deep will normally be cleared by the application of salt at a rate of 40 gms/m². Successive applications may be required.

6.2.3 Snowfall greater than 50mm will normally require ploughing, supplemented by spreading with salt at a rate of 40 gms/m². Where there is deep snow or drifting, passages may have to be formed by methods other than ploughing and salt spreading such as the use of snow blowers, snow throwers or mechanical excavation through the snow.

6.2.4 The frequency of ploughing and the continuation of snow clearance operations will depend upon the conditions. In extreme weather conditions, there may be a severe risk to both labour and plant as a result of "white-out" conditions during high winds. When such conditions exist, and operative's safety is at risk, clearance operations shall be suspended, and the Head of Highway Network Management or his nominated representative shall be informed.

6.2.5 In circumstances of very heavy and prolonged snowfall, there may be additional specific farming priorities related to problems of milk collection and the supply of animal foodstuffs. Area Highway Managers will be responsible for prioritising the response to requests for snow clearance from the farming community including those received via DEFRA and the NFU.

6.3 Service to Footways and Cycleways

6.3.1 Footways, at the locations defined in paragraph 6.3.2, will only receive attention at times when snow or ice is present and is likely to persist. They shall be cleared and / or treated with salt, depending upon conditions and in accordance with Table H3 in paragraph 11.5.8.

6.3.2 Such work shall only be undertaken on the following types of footways, using available resources:-

- (i) In main shopping areas;
- (ii) Adjacent to heavily-trafficked roads, where the footway has high pedestrian usage;
- (iii) Outside hospitals, schools and similar locations, where there are heavy concentrations of pedestrians;
- (iv) Outside health clinics, elderly persons dwellings, homes for the blind, or similar locations where there is above average use by the elderly, infirm, or disabled;
- (v) On steep gradients (10% or greater).
- (vi) Where footways include ramps or flights of steps leading to subways etc.

6.3.3 Cycleways, at the locations defined in paragraph 6.3.4, will only receive attention at times when snow or ice is present and is likely to persist. They shall be cleared and / or treated with salt, depending upon conditions and in accordance with Table H3 in paragraph 11.5.8.

6.3.4 Such work shall only be undertaken on the following types of cycleways using available resources:-

- (i) On heavily used cycleways;
- (ii) On steep gradients (10% or greater).

6.3.5 Segregated cycleways will not receive treatment.

6.3.6 To ensure a consistent approach throughout Staffordshire, schedules of footways and cycleways to be cleared at public expense shall be prepared by the Area Highway Manager and shall be agreed with the Head of Highway Network Management or his nominated representative as part of the Winter Service Operation Plan referred to in Chapter 7.1.

7. **OPERATIONAL ARRANGEMENTS**

7.1 **Before the 1st October of each year, Area Highway Managers must review all of their Winter Service operational arrangements, to ensure full compliance with this Policy. In addition, each Area Maintenance Office will be required to produce a Winter Service Operation Plan, which is a written statement of their proposed operational arrangements.** The Operation Plan should encompass the topics listed in Appendix 4.

7.2 Whilst carrying out Winter Service operations during the Winter Service season (1 October to 30 April), Area Maintenance Offices must proactively scrutinise both forecasts and actual road conditions to minimise abortive expenditure on Winter Service.

7.3 The use of the power systems, available in SCC's salt spreaders, to control salt spreading, eliminates the need for a second man in the cab during precautionary salting. The use of driver's mates shall be restricted to snow ploughing, and to other occasions, when conditions are hazardous, such as when ice has already formed, when emergency salting is required on particularly isolated stretches of road, when difficult manoeuvres are unavoidable, or when visibility is poor.

7.4 **Training**

7.4.1 All staff involved in any or all areas of decision making will have at least received Meteorological Office Basic / Refresher Weather Training and Vaisala IceCast Winter Service Scenario Training together with Vaisala IceMan User Training. This training will be arranged by the Asset Manager who will keep a record of all staff attending and arrange for refresher training where necessary.

7.4.2 All salt spreader drivers and operators of other Winter Service plant shall be qualified in the appropriate units of the 'NVQ 6157, Winter Maintenance Operatives' or the revised award NVQ6159. In addition, all such operatives shall be qualified in 'Unit 13, Health and Safety', and hold current registration on the 'LGMB National Database of NVQ drivers'.

7.4.3 Where, for exceptional operational reasons, it is necessary to employ operatives who are not qualified in accordance with the above requirements, then an experienced member of the Area Highway Manager's staff, in consultation with the Term Contractor's supervisory staff, shall assess the competency of all such operatives, prior to their being used for such duties. The use of unqualified operatives on an ongoing basis should not be permitted.

7.4.4 All private contractors engaged in snow clearance operations on behalf of SCC on public highways shall have received appropriate training to ensure that they are proficient in the installation and operation of SCC supplied snow clearance equipment.

7.4.4 Where new vehicles or items of new plant are introduced, it is the Area Highway Manager's responsibility to ensure that all relevant Staffordshire Highway's staff are fully familiarised with the adjustment and use of the equipment concerned.

7.4.5 Details of training events and attendees, the qualifications of drivers and operators of Winter Service plant, records of competency assessments and

details of familiarization exercises, should be retained and recorded within, or as an addendum to, each Area Maintenance Office Winter Service Operation Plan referred to in paragraph 7.1.

7.5 **Route Planning**

7.5.1 When planning routes, consideration should be given to climatic domains and corresponding decision locations and to minimising salt usage, by not salting overlapping routes, and varying the width of carriageway to be treated. Also consideration of relative temperatures on the “extreme thermal map” may allow the creation of routes which do not need gritting in marginal temperature situations.

7.6 **Salt Bins**

7.6.1 Careful consideration should be given to the provision of salt bins so as to ensure that maximum benefit is likely to be obtained. Salt bins should only be provided in residential areas adjacent to shopping centres, partway up hills with gradients greater than 10%, and at other locations where both need and previous usage can be demonstrated on roads which are not included on precautionary routes. An assessment form WS7, for determining the justification for the provision of salt bins, is included in Appendix 2.

7.6.2 Schedules are to be prepared and maintained by the respective Area Maintenance Office, showing the location of all salt bins. This information should be included in the Winter Service Operation Plan referred to in paragraph 7.1.

7.7 **Police Requests for Salting of Highways**

7.7.1 Following road traffic accidents that have occurred on highways that do not form part of the prioritized precautionary salting network, requests may be received from Staffordshire Police, that de-icing works are undertaken upon a particular length of highway to assist in allowing safe usage by emergency vehicles. In most circumstances, salt spreaders should not be taken off their primary task of salting priority routes, but when resources becomes available, and assuming that the de-icing works are still required, Area Highways Managers should use their discretion and may instruct de-icing works to be carried out as requested.

7.8 **Community Involvement**

7.8.1 Local communities must expect to be involved with self help immediately following the cessation of snow fall. Payments will only be made for work specifically authorised by the Area Highway Manager, where prior arrangements have been made to utilise appropriate machinery. Where Parish Representatives are in place, Area Highway Managers should liaise with them to ensure that programmes for snow clearance works are able to take account of local needs and priorities, and that community based snow clearing works are effectively co-ordinated with the work of the LHA.

8. WINTER SERVICE REPORTS

8.1 General Information

- 8.1.1 The Head of Highway Network Management or his nominated representative is responsible for keeping senior officers and Members of SCC informed, for the dissemination of information to the media, for reporting to Committees, and for liaison with adjoining Highway Authorities. In order to perform this role, accurate and regularly updated information is required on the weather and road conditions throughout Staffordshire.
- 8.1.2 Reports are obtained from Area Maintenance Offices via IceMan (see Chapter 4). The detail contained within these IceMan reports varies depending on the conditions experienced, but will include details of the routes treated, proposed actions, treatment start and finish times, actions taken and identity of the decision maker. If the internet connection fails – appropriate information reports must be transmitted by e-mail, FAX or telephone.
- 8.1.3 Outside normal working hours, and when exceptional circumstances dictate, appropriate information reports should be passed to the Head of Highway Network Management or his nominated representative, at their home telephone numbers. These numbers are recorded within the Area Maintenance Office Emergency Contact Folder.

8.2 Frost and Ice Exception Reports

- 8.2.1 In the event of frost and ice occurring without snowfall conditions, it will be assumed that routine Winter Service activities are in operation, unless reports to the contrary are received. If due to vehicle breakdown, or to an unexpected fall in temperature, a significant proportion of the network is not treated, this shall be recorded on Form WS4 and IceMan.
- 8.2.2 In the event of a press report of an accident, or significant traffic delays, allegedly due to frost and ice, the facts relating to the treatment, or failure to do so, shall immediately be reported to the Head of Highway Network Management Unit or his nominated representative.
- 8.2.3 Exception reports should relate to the 24 hour period ending 0900 hours on the day of the report, and reports shall be made between 0930 and 1000 hours.

8.3 Light Snowfall Reports

- 8.3.1 In the event of light snowfall (defined as snow less than 100 mm in depth), a daily report for the 24 hours ending 0900 hours shall be given, stating the following information:-
- (1) Snowfall info. - Time of fall
 - Average undisturbed depth
 - Depth of any drifts
 - Height above sea level where it begins
 - (2) Action taken - Confirmation, or otherwise, of precautionary salting of all defined routes

- Snow ploughing operations
- Use of farmer's snow ploughs
- Use of snow clearance contractors
- Salting of ploughed roads

(3) Problems

(4) Programme for working day

(5) Other information / remarks e.g. road closed, restrictions

8.3.2 Between 1530 and 1630 hours, a further report shall be made, giving the following information:-

(1) Action taken during the working day

(2) Action proposed for overnight

(3) Problems

(4) Other information / remarks

8.4 **Heavy Snowfall Reports**

8.4.1 In the event of heavy snowfall, defined as 100mm or more, or drifting of snow causing difficulties, a daily report for the 24 hour period ending 0900 hours, shall be made between 0930 hours and 1000 hours, giving the following information:-

(1) Report of overnight conditions including details of snowfall

(2) Action taken

(3) Major traffic route status - where a major traffic or bus route is restricted in its use because of snowfall conditions; this shall be reported, giving the route number, the extent of the restrictions and the nature of the restriction. Example descriptions of traffic route restrictions are:-

- Impassable
- Four wheel drive only
- Single lane width
- One lane in each direction (Dual carriageways only)

Unless reported otherwise, traffic routes will be assumed to be clear for 80% of their width and passable by two-way traffic.

(4) Problems

(5) Proposed action for the working day

(6) Other information / remarks

8.4.2 Between 1530 and 1600 hours a further report shall be made giving the following information:-

- (1) Action taken during the working day
- (2) Major traffic route status
- (3) Action proposed overnight
- (4) Problems
- (5) Other information / remarks

8.5 **Extreme Weather Condition Reports**

8.5.1 In extreme weather conditions, such as periods of intense snowfall or prolonged freezing likely to deplete the availability of resources, the contents of the 0930 and 1530 hour's reports will be as for Heavy Snowfall conditions.

8.5.2 However, major traffic route status reports will be required at hourly intervals, between 0930 and 1530 hours.

8.5.3 Additionally, at 1630 hours, the resources employed during the day and overnight will be reported under the following heading:-

- (a) labour, vehicles and plant
- (b) use of Parish or other labour

8.5.4 In extreme weather conditions, co-ordination of all specialist equipment and resources will be under the control of the Head of Highway Network Management or his nominated representative. This control will be exercised from the Emergency Operations Room (Snow Desk) located at the Police Complex, Weston Road, Stafford, when the Police consider conditions are appropriate.

8.6 **Salt Stock Reports**

8.6.1 In order to monitor salt usage and ensure timely re-supply, information detailing the quantity of salt used, the quantity remaining in the stock piles, and the quantities received is required. To ensure timely re-supply, salt usage is notified to SCC's contracted supplier who performs a stock control process on behalf of SCC and re-supplies the Area Maintenance Office stock piles as necessary. As an added safeguard, Area Maintenance Offices also monitor usage, stockpiles and re-supply

8.7 **Financial Reports**

8.7.1 Area Maintenance Offices raise salt purchase orders through the SAP system. Following delivery, salt receipt invoices are checked against purchase orders and the invoices input into the SAP system for payment.

8.7.2 At the end of the financial year, Area Maintenance Offices forward the details they have recorded relating to salt usage, re-supply and remaining stockpiles to the DSDJFU in order that a check of the remaining salt stocks can be carried out to ensure that overall expenditure on salt can be allocated to the correct budget.

8.7.3 It must be appreciated that the initial Winter Service budget is finite, and that

over-expenditure is not permitted without prior authorisation. The Head of Highway Network Management, or his nominated representative, will obtain approval in accordance with SCC Financial Regulations for any virement or additional funding required. The monitoring of expenditure is, therefore, critical in ensuring that funds are made available to provide the levels of service delivery set out in this document, regardless of the severity of the winter weather.

8.7.4 The monitoring and assessment of expenditure will be carried out at two levels:-

- (i) Existing financial reporting systems used to record actual expenditure for final claim purposes (i.e. final outturn expenditure);
- (ii) Periodic performance reviews undertaken throughout the winter season by the Highway Network Management Unit (Asset Management Section);

In addition, during very severe weather conditions (periods of prolonged snowfall or freezing), Area Maintenance Offices will be asked to provide an estimate of expenditure on a more frequent basis.

8.7.5 For the purpose of recording actual expenditure, Area Maintenance Offices should only record local operational expenditure for which they are responsible:

- (a) The labour charges made by Winter Service contractors during the weekly period; related to Winter Service activities.
- (b) The quantity of all salt used during the weekly period, separately identified for precautionary salting, snow clearance and placing out of salt piles/grit bins etc.
- (c) Any additional plant costs incurred during the weekly period; these costs are those costs additional to the costs charged centrally, for SCC vehicles and plant. This will include for:-
 - (i) Any additional contractor's plant / vehicles ordered by the Engineer;
 - (ii) Additional plant hired for snow clearance.

8.7.6 The Head of Highway Network Management or his nominated representative, in conjunction with the DSDJFU will ensure that the following costs are recorded and charged centrally to the appropriate budget head:-

- (i) All charges relating to SCC owned vehicles / plant (other than the costs described in 8.7.5);
- (ii) Weather Forecasting Service and Weather Bureau Service;
- (iii) Research and investment initiatives;
- (iv) Training;
- (v) Route Optimisation Service;
- (vi) Provision / maintenance of weather stations / road sensors.

9. CO-ORDINATION AND LIAISON

9.1 Co-ordination

- 9.1.1 Each Area Maintenance Office is responsible for organising, co-ordinating and establishing priorities for the Winter Service activities within its own geographical area.
- 9.1.2 Decisions and actions made and undertaken within Staffordshire have been made available to neighbouring Local Highway Authority's and Staffordshire Police by allowing them to access IceMan.
- 9.1.3 In times of severe and extreme weather conditions affecting large areas of the County, an active co-ordinating role will be exercised by the Head of Highway Network Management or his nominated representative (see Chapter 8.5.4). At these times it may be necessary to re-direct specialist plant and salt stocks in order to deal with specific problem areas.

10. COMMUNICATIONS

10.1 Communications with the General Public

10.1.1 Staffordshire maintains a policy of not treating all parts of the highway network, since to attempt to do so would not be considered to be “reasonably practicable”. This policy is communicated to the general public by the distribution of a Winter Driving leaflet which includes a mapping based graphical display which outlines those routes that are accorded a priority for treatment. Similar information is publicised upon Staffordshire’s web site and is displayed at local libraries. A press release will be issued to inform the general public where this information is located and how it can be accessed.

10.1.2 It should be noted that courts have cited the publication of information indicating which carriageways within a LHA area are treated, as evidence that an LHA is acting in a responsible manner and complying with their statutory duties.

10.1.3 Queries and complaints received from the general public relating to Winter Service activities will generally be forwarded via CLARENCE, the Departmental Contact Centre, and will be dealt with by Area Maintenance Office staff, as appropriate, and must be recorded.

10.2 Communications with the Media

10.2.1 Queries from the media about road conditions in a specific locality may be answered by the appropriate Area Highway Manager. The Deputy Corporate Director (Staffordshire Highways) and Head of Highway Network Management or his nominated representative, should be kept informed of all statements made. When responding to media enquiries, every effort should be made to adhere to their deadlines.

10.2.2 Media statements relating to policy, the general level of resources, salt stocks and road conditions, in general, shall only be made by the Corporate Director (Development Services), Deputy Corporate Director (Staffordshire Highways), or a specifically delegated officer.

10.2.3 Where there are difficult road conditions due to adverse weather, information is to be passed by Area Maintenance Offices to the Highway Network Management Unit (Asset Management Section) by electronic mail, telephone, or FAX. Information can then be co-ordinated with the Departmental Communication Team, who maintain a contact list for local media outlets, and broadcast to road users in the most appropriate manner.

10.2.4 In severe weather conditions, all reports relating to road conditions will be issued to the media from the Emergency Operations Room (Snow Desk) located at the Police Complex, Weston Road, Stafford (see Chapter 8.5.4).

10.3 Communications with AA Roadwatch

10.3.1 The AA Roadwatch supplies information on the primary route network to national, regional, and local radio and television. When appropriate, information on winter road conditions will be conveyed to AA Roadwatch by the Development Services Department, Asset Management Section.

11. DECISION MAKING FOR PRECAUTIONARY SALTING

11.1 Introduction

- 11.1.1 This Chapter of the Policy deals with precautionary salting only. Every time it snows, the reaction needs to be adjusted to meet the circumstances, and decisions need to be made, at the time, based on the prevailing conditions.
- 11.1.2 Decisions about whether or not to carry out precautionary salting should normally be taken by appropriately trained and/or suitably experienced Staffordshire Highways staff, whether it is a weekday, weekend, night or morning.
- 11.1.3 The decision making process is assisted by an ice prediction system, which consists of weather stations and associated road sensors which are linked to a computerised weather prediction system (see Chapter 4).
- 11.1.4 The overriding objective is to maintain the network in a manner which mitigates the effects of ice and snow. However, decision makers are expected to take into account the impact of their decisions on the cost effectiveness and operational effectiveness of the overall maintenance service.

11.2 Action to be taken by the decision maker

- 11.2.1 The decision making is seen as a “two-stage” process. The first stage is to decide whether a stand-to is necessary, this is usually made in the early afternoon. The second stage is whether to salt a whole route, part route, or to stand-down, and this decision must be made just prior to the beginning of the salting operations. When decisions are made they should be entered onto the IceMan database without delay.

11.3 Availability of Forecasts

- 11.3.1 Each day, at 0800 hours, a morning summary of the weather over the last 24 hours is available through the IceCast system.
- 11.3.2 Each day at 1030 a general forecast for the next 24 hours together with forecasts for the following 2 to 5 days are also available through the IceCast system.
- 11.3.3 Detailed daily forecasts are made available from the forecast provider at about 1300 hours. This includes site specific forecasts for each of the forecasting (Ice Prediction) sites.
- 11.3.4 It is essential for all IceCast Workstations to be updated by the decision maker at appropriate times to facilitate a full and proper review of the forecast information available. In addition, each IceCast Workstation should be updated, prior to any operational action/decision taking place.

11.4 First Stage Decision Making

- 11.4.1 If, after viewing the 1300 hours update to the IceCast Workstation, road surface temperatures are forecast to remain above 3 °C, with no hazards, (i.e. unlikely to fall below 1 °C) no stand-to is required.

11.4.2 If, after the 1300 hours update, road surface temperatures are expected to fall below 3°C, (i.e. may fall below 1°C) reference should be made to the Ice Prediction Workstation (paragraph 11.1.3).

11.4.3 Consult the site specific forecasts for each site, or sites, in the appropriate climatic domain. The graph will indicate the minimum temperature expected at the sensor point. The thermal map must be consulted to see if there are any local cold spots which are expected to fall below 1°C. If all roads are expected to remain above 1°C on the realistic map, no stand-to is required.

11.4.4 An evening stand-to will be needed if:-

- (a) Road surface temperature is forecast to fall below 1°C before 0100 hours, and roads are wet, but no rain is forecast between 1900 and 0100 hours.
- (b) Snow is forecast before 0700 hours.

11.4.5 A morning stand-to will be needed if:-

- (a) Road surface temperature is forecast to fall below 1°C before midnight but rain is forecast between 1900 hours and 0100 hours.
- (b) Road surface temperature is forecast to fall below 1°C after 0100 hours with wet roads, causing ice to form.
- (c) Road surface temperature is forecast to fall below 1°C after 0100 hours with formation of hoar frost.

11.4.6 An evening and morning stand-to will be required if:-

- (a) Road surface temperature is forecast to fall below 1°C before 0100 hours with wet roads, and/or the possibility of further precipitation during the night, and a further fall in temperature before dawn.
- (b) Road surface temperature is forecast to fall below 1°C, and there is significant run-off following a period of wet weather or snow melt.
- (c) The formation of hoar frost is expected before 0100 hours, and there is no residual salt.
- (d) Overnight snow or sleet is forecast.

11.4.7 Whatever action is selected, including “No Action” decisions the decision must be entered into IceMan without delay.

11.4.8 Further guidance to supplement the first stage decision making is provided in Table H1 below, reproduced from ‘Well-maintained Highways’ (July 2005).

Table H1 – Decision Matrix Guide

		Predicted Road Conditions		
Road Surface Temperature	Precipitation	Wet	Wet Patches	Dry
May fall below 1° C	<u>No</u> rain <u>No</u> hoar frost <u>No</u> fog			No action likely, Monitor Weather (see note a)
Expected to fall below 1° C	<u>No</u> rain <u>No</u> hoar frost <u>No</u> fog	Salt before frost	Salt before frost (see note a)	(see note a)
	<u>Expected</u> hoar frost <u>Expected</u> fog		Salt before frost (see note b)	
	<u>Expected</u> rain <u>BEFORE</u> freezing	Salt after rain stops (see note c)		
	<u>Expected</u> rain <u>DURING</u> freezing	Salt before frost, as required during rain and again after rain stops (see note d)		
	<u>Possible</u> rain <u>Possible</u> hoar frost <u>Possible</u> fog	Salt before frost		Monitor weather conditions
<u>Expected</u> snow		Salt before snow fall		

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 possibly on other occasions.
- (b) When a weather warning contains reference to expected hoarfrost, considerable deposits of frost are likely to occur. Hoar frost usually occurs in the early morning and is difficult to cater for because of the probability that any salt deposited on a dry road too soon before its onset, may be dispersed before it can become effective. Close monitoring is required under this forecast condition which should ideally be treated just as the

hoar frost 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.
- (e) Weather warnings are often qualified by altitudes in which case differing action may be required from each depot.

11.5 **Action on a Stand-To**

11.5.1 The decision maker should, when judged to be necessary, undertake a patrol of an appropriate length of the network to be treated prior to the time of the stand-to and record the patrol route (see Chapter 12.2). If, in marginal conditions following a previous evening's salting operation, a patrol is carried out to monitor the network in order to ensure the salting is still effective, then a morning stand-to must be in place to ensure that treatment is able to commence as soon as a decision is made.

11.5.2 Update the IceCast Workstation.

11.5.3 Consult the site specific forecast for sites in the appropriate climatic domain. The graph will show whether the actual temperature matches the predicted curve. If there is a variation above the realistic curve, which indicates the road surface temperature not reaching zero, consult the forecaster. Should the forecaster agree that the site where the sensor is situated will not fall below zero, go to the thermal map and check that cold spots will not fall below 1 °C.

- (a) If all roads remain above 1 °C, stand-down.
- (b) If only isolated roads are expected to fall below 1 °C, treat only those roads.
- (c) If actual temperatures fall along or below the realistic curve, salt all roads.

Actual network conditions can be obtained by looking at the site status. This shows the road surface temperature and conditions at each sensor site at the last hour.

11.5.4 If it is raining during an evening stand-to, consult the forecaster to see when it is likely to end in order to determine the appropriate time to commence operations.

11.5.5 If rain is expected after an evening stand-to, which will render the precautionary salting ineffective, ensure that a morning stand-to has been arranged.

11.5.6 Further guidance to supplement action on a stand-to is provided in Table H2 below, reproduced from 'Well-maintained Highways (July 2005)'.

Table H2 – Treatment Matrix Guide

Weather Conditions Road Surface Conditions Road Surface Temperatures (RST)	Treatment		
	Air Temperature	Salting (g/m²)	Ploughing
Frost or forecast frost RST at or above -2°C		10	No
Frost or forecast frost RST below -2°C and above -5°C		20	No
Frost or forecast frost RST below -5°C and above -10°C and dry or damp road conditions		20	No
Frost or forecast frost RST below -5°C and above -10°C and wet road conditions (existing or anticipated)		2 x 20	No
Light snow forecast (<10mm)		20	No
Medium/heavy snow forecast		2 x 20	No
Ice formed (minor accumulations)	above -5°C	20	No
Ice formed	at or below -5°C	2 x 20	No
Snow covering exceeding 30mm		20 – 40 (successive)	Yes
Hard packed snow/ice	above -8°C	20 – 40 (successive)	No
Hard packed snow/ice	At or below -8°C	Salt/abrasive (successive)	No

Rate of spread for precautionary treatments may be adjusted to take account of residual salt or surface moisture.

11.5.7 Within Staffordshire salt is stored in the open at our depots with pre-treatment salting undertaken at a minimum rate of spread of 10g/m², as this has always proved to be effective. The policy of 'Just in time' salt deliveries also ensures that under normal circumstances salt is used and quickly replaced thereby minimizing storage periods and increasing the efficiency of the Winter Service operations.

11.6 **Role of the Decision Maker**

11.6.1 Following a decision to treat the network, the decision maker will provide the Contractor with details relating to the required rate of spread of salt.

11.6.2 The decision maker should liaise with and monitor the activities of the Contractor. The Contractor should ensure that all vehicles are correctly loaded before leaving the depot with sufficient salt to complete the route.

11.6.3 Where doubt exists as to the correct rate of spread, the decision maker should drive along sample lengths of road which have been treated, to assess whether the network is being treated with the correct application of salt. This action needs to be recorded in the Winter Service Diary (see Chapter 12.2).

11.6.4 **On completion of the stand-to, the Contractor must ensure that:-**

(i) All vehicles are emptied out and washed off;

(ii) The amount of salt used is correctly booked out;

(iii) The combined action taken and vehicle defect report is completed and passed to the decision maker.

11.6.5 **Spare salt should not be emptied out of salting vehicles by means of excessive rates of spread or treating additional lengths of road, but should be returned to the depot salt stock for future use. Salt should not be left in the salting vehicle since this is likely to deform the conveyor belt.**

11.6.6 All action reports should be completed and entered into the IceMan database.

11.6.7 When marginal conditions are forecast, an early inspection (1530 hours - 1600 hours) may be justified. Where no stand-to has been arranged, the inspector should, where necessary, implement the call out procedure.

11.6.8 Table H3 below, provides guidance on the treatment for Footways and Cycleways and has been adopted by every LHA within the Midland Service Improvement Group and should be adhered to subject to the notes below:-

Table H3 – Treatment Table for Footways and Cyclways

Category	Overnight Frost Conditions	Daytime Frost Conditions	Extended Ice Conditions	Snow Events
	Overnight forecast temperatures below zero but not extending beyond 8am	Overnight forecast temperatures below zero extending beyond 8am	Persistent widespread ice (rather than frost) for more than 18 hours in a 24-hour period and a forecast not to rise above zero for a further 18 hours in the next 24 hours.	
1a*	No treatment	Precautionary treatment	Monitor and further treatment as required when resources permit. Treatment only during normal working hours.	Snow removal will commence when resources become available from higher priority treatments. Endeavours will be made to complete clearance within 12 hours of cessation of snowfall, subject to availability of resources. Treatment only during normal working hours.
1	No treatment	No treatment	Monitor and treatment as required when resources permit. Treatment only during normal working hours.	Snow removal will commence when resources become available from higher priority treatments. Endeavours will be made to commence clearance within 24 hours of cessation of snowfall, subject to availability of resources. Treatment only during normal working hours.
2	No treatment	No treatment	Monitor and treatment as required when resources permit. Treatment only during normal working hours.	Snow removal will commence when resources become available from higher priority treatments. Endeavours will be made to commence clearance within 48 hours of cessation of snowfall, subject to availability of resources. Treatment only during normal working hours.
3	No treatment	No treatment	Reactive treatment not normally undertaken other than in response to specific circumstances. Treatment only during normal working hours.	Snow removal will commence when resources become available from higher priority treatments. Endeavours will be made to commence clearance within 5 days of cessation of snowfall, subject to availability of resources. Treatment only during normal working hours.
4	No treatment	No treatment		

Notes:

- (a). At all times priority will be given to the priority route network.
- (b). Combined footway/cycleways are treated in accordance with footway hierarchy.
- (c). Segregated cycleways are not treated.

*Staffordshire does not currently have any footways that have been designated as being in Category 1a. (Refer to page 5 of the County Highways Network Management Policy).

11.7 Miscellaneous Notes

- 1. Maintenance staff should always believe the forecasters and never 'second guess' them.
- 2. Dry roads are roads which are free from surface water. The term "salt wet" is applied to roads on which a layer of salt is present which has absorbed moisture from the atmosphere.
- 3. It should always be assumed that a forecast with a probability of 50% or more will happen, and below 50%; that it will not.
- 4. Record all decisions. If the forecaster is consulted, a note should be made in the Winter Service Diary (see Chapter 12.2). In the event of a claim or dispute, such records may prove invaluable in demonstrating that SCC has acted in a responsible manner.

12. **RECORD KEEPING**

12.1 The retention of accurate contemporary records is vital for two reasons; firstly to be able to mount a robust defence in the event of third party claim and, secondly, to provide accurate information in support of local performance indicators used to measure the SCC's standards of service delivery in respect of Winter Service. Area Highway Manager's are responsible for ensuring the timely and regular completion of the following records:-

- (1) WS1- Initial Action Report - Completed by Decision maker.
- (2) WS2 - Decision Matrix Guide - Completed by Decision maker.
- (3) WS3 - Treatment Matrix Guide - Completed by Decision maker.
- (4) WS4 - Combined Action Taken and Vehicle Defect Report - Completed by Driver/Leading hand and Decision maker.
- (5) WS5 - Winter Service Expenditure Pro Forma - Completed by Client Manager.
- (6) WS6 - Action reports (depot specific) - Completed by Decision maker.

Notes:-

- Items (1) and (4) to be input to IceMan at the time of any decision or action having taken place.
- Items (2) and (3) are to be retained at the Area Maintenance Office.
- Item (4) - A copy is to be forwarded to County Fleetcare if a vehicle defect is noted.
- Item (5) and (6) are for use only within the Operating Centre.
- The Client Manager should ensure that the information supplied by the Contractor is compatible with Client records.

12.2 In addition, notes must be made in a separate Winter Service Diary, kept explicitly for the purpose of recording:-

- (a) Contacts with the forecasters;
- (b) Complaints from the public;
- (c) Any contact with the Police;
- (d) Accidents which are reported due to frost or ice on the network;
- (e) Any contact with the media;
- (f) The route(s) patrolled;
- (g) The exact instructions given to the Contractor;
- (h) Actions taken in checking Contractor's performance.

13. REFERENCES

Roads Liaison Group

Well Maintained Highways - Code of Practice for Highway Maintenance Management –
July 2005

APPENDIX 1

STANDARD REPORTING FORMS

Form	WS1	Initial Action Report
Form	WS2	Decision Matrix Form
Form	WS3	Treatment Matrix Form
Form	WS4	Action Taken and Vehicle Defect Report
Form	WS5	Winter Service Expenditure Pro Forma
Form	WS6	Salting Action Report

THIS REPORT MUST BE POSTED ON THE ICEMAN BY 1400 HOURS

STAFFORDSHIRE COUNTY COUNCIL

INITIAL ACTION REPORT

Area Office

Date of Forecast

Details of Forecast Received

Time of Forecast

Forecast Min. Temp Date of Min. Temp / .../ Time of Min. Temp

Action to be Taken

(Please tick as necessary)

Depot	Stand-To PM (Date.....)	Stand-To AM (Date.....)	No Action
	Proposed Rate of Spread		
 gm/sq.m		
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Passed to Contractors Representative..... (Date)

Contact for Forecast Provider..... Telephone No.

Signature of Officer completing this form:

Signature Name Date
(BLOCK CAPITALS)

THIS FORM IS TO BE FAXED TO THE ASSET MANAGEMENT SECTION, THE MET OFFICE, NEIGHBOURING LHA'S AND THE POLICE IN THE EVENT THAT COMPUTER / INTERNET FAILURE RENDERS ICEMAN INEFFECTIVE.

√ as appropriate

Table H1 – Decision Matrix Guide				
		Predicted Road Conditions		
Road Surface Temperature	Precipitation	Wet	Wet Patches	Dry
May fall below 1° C	<u>No</u> rain <u>No</u> hoar frost <u>No</u> fog			
Expected to fall below 1° C	<u>No</u> rain <u>No</u> hoar frost <u>No</u> fog	Salt before frost	Salt before frost (see note a)	No action likely, Monitor Weather (see note a)
	<u>Expected</u> hoar frost <u>Expected</u> fog		Salt before frost (see note b)	
	<u>Expected</u> rain <u>BEFORE</u> freezing	Salt after rain stops (see note c)		
	<u>Expected</u> rain <u>DURING</u> freezing	Salt before frost, as required during rain and again after rain stops (see note d)		
	<u>Possible</u> rain <u>Possible</u> hoar frost <u>Possible</u> fog	Salt before frost		Monitor weather conditions
<u>Expected</u> snow		Salt before snow fall		
<p>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.</p>				

√ as appropriate

Table H2 – Treatment Matrix Guide

Weather Conditions Road Surface Conditions Road Surface Temperatures (RST)	Treatment		
	Air Temperature	Salting (g/m ²)	Ploughing
Frost or forecast frost RST at or above -2°C		10	No
Frost or forecast frost RST below -2°C and above -5°C		20	No
Frost or forecast frost RST below -5°C and above -10°C and dry or damp road conditions		20	No
Frost or forecast frost RST below -5°C and above -10°C and wet road conditions (existing or anticipated)		2 x 20	No
Light snow forecast (<10mm)		20	No
Medium/heavy snow forecast		2 x 20	No
Ice formed (minor accumulations)	above -5°C	20	No
Ice formed	at or below -5°C	2 x 20	No
Snow covering exceeding 30mm		20 – 40 (successive)	Yes
Hard packed snow/ice	above -8°C	20 – 40 (successive)	No
Hard packed snow/ice	At or below -8°C	Salt/abrasive (successive)	No

Rate of spread for precautionary treatments may be adjusted to take account of residual salt or surface moisture

WM4

Rate of Spread		
10	20	40

Route No:	Gritter:	Reg:	Date:	WET	DRY
Mileage Out:	Mileage Back:	Weight Out:	Weight Back:	Salt Used:	
Driver Name:		Time Out:	Time Back:	AM	PM
Fuel	Y	N	Litres:		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>		

Signature.....

Vehicle Inspection

	Out	In		Out	In
1. lights, indicators, stop lights, reflectors	<input type="checkbox"/>	<input type="checkbox"/>	7. load security	<input type="checkbox"/>	<input type="checkbox"/>
2. brakes (pressure, build up application)	<input type="checkbox"/>	<input type="checkbox"/>	8. tyres inflation, damage (visual)	<input type="checkbox"/>	<input type="checkbox"/>
3. brake warning device and instruments	<input type="checkbox"/>	<input type="checkbox"/>	9. steering	<input type="checkbox"/>	<input type="checkbox"/>
4. windscreen wiper/washer, horn, mirrors	<input type="checkbox"/>	<input type="checkbox"/>	10 seat security, seat belt condition	<input type="checkbox"/>	<input type="checkbox"/>
5. engine oil, water, fuel levels	<input type="checkbox"/>	<input type="checkbox"/>	11. first aid kit, fire extinguisher	<input type="checkbox"/>	<input type="checkbox"/>
6. vehicle and body for damage	<input type="checkbox"/>	<input type="checkbox"/>	12. wheel nuts/indicators (rust marks, indicate slackness)	<input type="checkbox"/>	<input type="checkbox"/>
Gritter Washed	Y	N			
	<input type="checkbox"/>	<input type="checkbox"/>			

Road Conditions

To Be Completed By Decision Maker

Dry	<input type="checkbox"/>	Slight Snow	<input type="checkbox"/>
Wet	<input type="checkbox"/>	Moderate Snow	<input type="checkbox"/>
Hoar Frost	<input type="checkbox"/>	Heavy Snow	<input type="checkbox"/>
Ice	<input type="checkbox"/>		

Vehicle Defect Report

Description of Defect:	VDR Faxed	Y	N
		<input type="checkbox"/>	<input type="checkbox"/>
	Mechanic Attended	Y	N
		<input type="checkbox"/>	<input type="checkbox"/>

Reasons For Non Compliance:

Comments:

Decision Maker.....

STAFFORDSHIRE COUNTY COUNCIL

WINTER SERVICE MONITORING - SALTING ACTION REPORT

EXAMPLE

AREA 4

DEPOT:	LICHFIELD	Date:	
---------------	------------------	--------------	--

Time of Stand-To p.m.		Time of Stand-To a.m.	
------------------------------	--	------------------------------	--

Network Condition Check:				
Routes inspected (Indicate routes)	p.m.	a.m.	Road surface Temperature	Time of reading
Mitre Cross Roads				
A51 access to Gills Cables				
Pipe Hill Crossroads				
Summary of Road Conditions:	p.m.	a.m.		
Roads dry				
Roads wet				
Hoar frost				
Black ice				
Slight snow				
Moderate snow				
Heavy snow				
Action Taken:	p.m.	a.m.		
No action				
Isolated road lengths salted				
All routes salted				
Selected routes salted (Indicate routes)				
Route Monitoring	Route No	Route No		
Route checked for spread distribution				
Remarks				
Signed	p.m.	a.m.		
			SCC supervisor	

APPENDIX 2

Form WS7

STAFFORDSHIRE COUNTY COUNCIL

SALT BIN ASSESSMENT FORM

Location of Salt Bin	Assessment Date	Assessed by
----------------------	-----------------	-------------

	Characteristic	Severity	Standard Score	Actual Score
(i)	Gradient	Greater than 1 in 15 1 in 15 to 1 in 29 Less than 1 in 30	75 40 Nil	
(ii)	Severe Bend	Yes No	60 Nil	
(iii)	Close proximity to and falling towards	Heavy trafficked road Moderately trafficked road Lightly trafficked road	90 75 30	
(iv)	Assessed traffic density at peak times	Moderate (Traffic Group 5) Light (Traffic Group 6)	40 Nil	
(v)	* Number of premises for which only access	Over 50 20 - 50 0 - 20	30 20 Nil	
(vi)	Is there a substantial population of either disabled or elderly people	Yes No	20 Nil	
TOTAL				

* N.B. Any industrial or shop premises for which this is the only access is to be automatically promoted to the next higher category within characteristic (v).

Any Site for which the summation of the weighing factors equals or exceeds 100 would warrant the installation of a grit bin.

APPENDIX 3

MISCELLANEOUS REPORTING FORMS

The use of the following forms is not a requirement of the Policy. They have been included as examples of good working practice, which Area Highway Managers may wish to adopt.

Form WS8 Winter Service - Non-Routine Instructions

Form WS9 Winter Service Forecast Reports

Form WS10 Winter Service Media Contact Report

Form WS11 Winter Service Status Report

Form WS12 Winter Service Salt Stocks Report

STAFFORDSHIRE COUNTY COUNCIL**WINTER SERVICE STATUS REPORT****EXAMPLE****AREA 1**

Date Time

Road No.	Location	Status
A527	Brindley Ford to Mossley	
A523	Leek to Rushton Spencer (Hugbridge)	
A523	Leek to Calton Moor	
A52	Calton Moor to Ashbourne	
A53	Leek to Stockton Brook	
A53	Leek to Buxton	
A520	Leek to Cheddleton	
A520	Cheddleton to Weston Coyney	
A52	Calton Moor to Cellarhead	
A52	Ash Bank	
A522	Wetley Rocks to Kingsley Moor	
A522	Kingsley Moor to Cheadle	
A522	Cheadle to Upper Tean	
A521	Cheadle to Forsbrook	
A521	Cheadle to Froghall	
B5030	Uttoxeter to Rocester	
B5032	Cheadle to Alton Towers	
B5053	Kingsley to Bottom House	

<u>Possible Status</u>	Road Clear	0
	Passable with care	1
	Passable with extreme care	2
	Road Blocked	3

APPENDIX 4

INFORMATION TO BE INCLUDED WITHIN AREA MAINTENANCE OFFICE WINTER SERVICE OPERATION PLAN

- Details of local Winter Service decision making arrangements.
- Details of supervisory arrangements.
- Details of communications strategy.
- Details of stand-by rotas (demonstrating compliance with the Working Time Directive).
- Details of qualifications of drivers/supervisory staff (see Chapter 7.4).
- Details of relevant training events including attendance records.
- Details of precautionary salting routes including length, salt quantities, and designated salt spreading vehicle.
- Details of reciprocal Winter Service arrangements with adjoining Local Highway Authorities.
- Details of local snow clearing strategy.
- Details of salt spreading vehicles including vehicle reference number, location and capacity.
- Details of loading equipment including reference numbers, location and capacity.
- Details of salt stocks, including re-order levels and location.
- Details of snow ploughs and snow blowers, including reference numbers and location.
- Copies of calibration certificates.
- Details of non-term contract salt spreading and snow clearing arrangements.
- Details of footways and cycleways scheduled for priority treatment in the event of protracted periods of ice and snow.
- Details of salt bins, including locations and replenishment strategy.
- Details of contacts for Met. Office, Vaisala etc.
- Details of emergency communications strategy, including provision of information for Head of Highway Network Management, Elected Members, Emergency Services etc.
- Details of holders of copies of the Winter Service Operation Plan and Winter

Service Policy.

- Details of local responsibilities and procedures for record keeping.
- Details of known problem sites to enable supervisors unfamiliar with the area to monitor/direct priority action in non-routine situations.
- Details of local health and safety arrangements.
- Details of any risk assessments associated with Winter Service operations.
- Details of vehicle servicing arrangements.
- Master Copy of Drivers Vehicle Checklist and Defect Reporting Forms.