

1 Winter Service & Emergency Plan 2009/10

1.1 Introduction

The Railways and Transport Safety Bill received Royal Assent on 10 July 2003 and came into force on 31 October 2003. It contains a clause that adds the following after Section 41(1) of the Highways Act 1980

“(1A) 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 or ice.”

There is also a duty under Section 150 to remove obstructions, which includes snow. It is therefore important that the procedures set out in this Winter Service Plan are followed. The Winter Service Plan is reviewed annually and has been designed as an operational handbook for staff in Devon’s Environment, Economy and Culture Directorate, maintenance contractors, for the information of adjoining highway authorities and other road users. It sets out winter service policies and procedures to meet the duties imposed under the Highways Act. Details of the pre-salting network are given in Chapter 2, dealing with ice in Chapter 8 and snow in Chapter 9.

1.2 Aims of Plan

This document sets out the County Council's strategy and details how winter service and emergency operations are managed. Its objectives are designed to assist emergency services, commerce and industry as well as other road users and can be summarised as follows:

- To provide, within resource constraints, as safe a passage as possible for users of the highway
- To minimise delays, accidents and damage resulting from snow, ice and associated flooding of the highway
- To undertake winter maintenance operations effectively and efficiently
- To ensure that the aims of the environmental statement on pollution are met
- To achieve the requirements of the Traffic Management Act 2004

The main facilities in place to achieve these aims are:-

- 24 hour monitoring of the highway network by the Highway Operations Control Centre, which liaises with Highway Management, Areas, the media, emergency services and adjoining authorities.
- A maintenance contractor with a trained workforce to deal with winter service and emergencies.
- Strategically sited stocks of salt.
- Dedicated salt spreading and snow ploughing plant.
- A network of sensors recording climatic and road surface conditions which, together with weather forecasts, help in the prediction of ice and snow.
- Radar images of precipitation from the national network of radar stations.
- Satellite images of cloud cover.
- Integrated weather monitoring system to inform the Areas of road and weather conditions.

The Winter Service is provided by the Term Maintenance Contractor, directed by the Areas.

1.3 Public Satisfaction

Annually, Devon County Council questions a sample of Devon residents as part of its corporate user survey. The table below shows the net satisfaction results for the past 10 years and what percentage of those surveyed rank winter service within their top three priorities relative to other highway maintenance activities.

Year	% Net Satisfaction	% Ranked Priority 1 - 3
2000	45	Not Requested
2001	25	Not Requested
2002	43	22
2003	37	24
2004	52	19
2005	60	22
2006	47	18
2007	54	13
2008	53	13
2009	35	18
2010	13	31

The Highway Maintenance Best Value Review consultations during early 2002 have shown both Parish Councils and User Groups viewed the service as an important function of the highway authority and that they were satisfied with the service provided.

1.4 Abbreviations

The following are abbreviations used in winter maintenance:

EMV/4WD	Emergency vehicles and 4-Wheeled Drive only
GPS	Global Positioning System (used in automatic vehicle tracking)
HOCC	Highway Operations Control Centre
HS	Highway Superintendent
IBC	Impassable, being cleared
INBC	Impassable, not being cleared
PWC	Passable with Care, isolated areas of snow
PEC	Passable with Extreme Care, Snow still present over road length.
PNAP	Passable, not available to the public
RC	Road Closed
SAO	Sub Area Office
SLO	Slow Lane Only (Lane 1) / No Overtaking

2 Salting Network

2.1 Introduction

To meet the duty to provide safe passage along the highway in a reasonable and practicable manner in accordance with Section 41(1A) of the Highways Act and to meet the requirements of the TMA and Road Traffic Act, the County Council undertakes pre-salting on the major routes of the network to prevent the formation of ice or snow from settling. It is not expected that reports of ice off this part of the network will normally receive treatment. However, during long cold periods, snow or ice is treated on other routes including footways and cycleways, off the pre-salting network as needed, subject to resource availability, once the precautionary salting network is clear.

2.2 Primary Salting Network

Devon County Council as highway authority maintains nearly 13,000 km of roads in the county. During a winter emergency situation it is not practicable or cost effective for the whole network to be pre-treated or cleared immediately.

Criteria have been developed enabling the salting network to be defined, this ensures a consistent approach across the County and achieves a reasonable balance between cost and level of service.

The criterion is as follows:

- Strategic Routes - All A and B roads and C roads classified as high speed routes
- Traffic Flow - Routes with February two way flows greater than 1000 vehicles per day
- Settlement Population - Main access route to settlements with a population of 500 or greater as provided by Strategic Intelligence
- Emergency Premises - Main access route to 24hr emergency services premises, defined as "Emergency premises with 24 hour access" include: ambulance stations, full time and retained fire stations, hospitals with 24 hour casualty departments and police stations manned 24 hours.
- Cottage and Community Hospitals – Main highway access route to strategic cottage and community hospitals as notified to the authority by Devon Primary Care Trust
- Secondary Schools – Main highway access to secondary schools
- Bus Routes – Bus routes with a service interval of at least 15 minutes within any one hour of the day, in one direction of travel or where a combination of multiple bus services meet this criteria
- Adjoining Highway Authority Salting Networks – Agreement to ensure consistency of action across boundaries
- The bus loop of Park & Ride sites

The length of road forming the pre-salting network of 48 routes is 21% of the road network therefore 79% of the road network will not receive precautionary salting even if icy roads are forecast.

Devon's Salting Network (Kms)

Area	Total Road Length	Salted Length	Unsalted Travelled Length
North	4688	907	531
South	4031	798	498
East	4101	1037	588
TOTALS	12820	2742	1617

The M5 motorway and following trunk roads are the responsibility of the Department for Transport, contact names and numbers for these roads are given in the Contacts Section.

M5	County boundary to J31, Pearce's Hill
A30W	Pearce's Hill to Lifton
A30E	M5 J29 to Devonshire House
A303	Devonshire House to Marsh
A35	Honiton to Raymond's Hill
A38	Pearce's Hill to Tamar Bridge

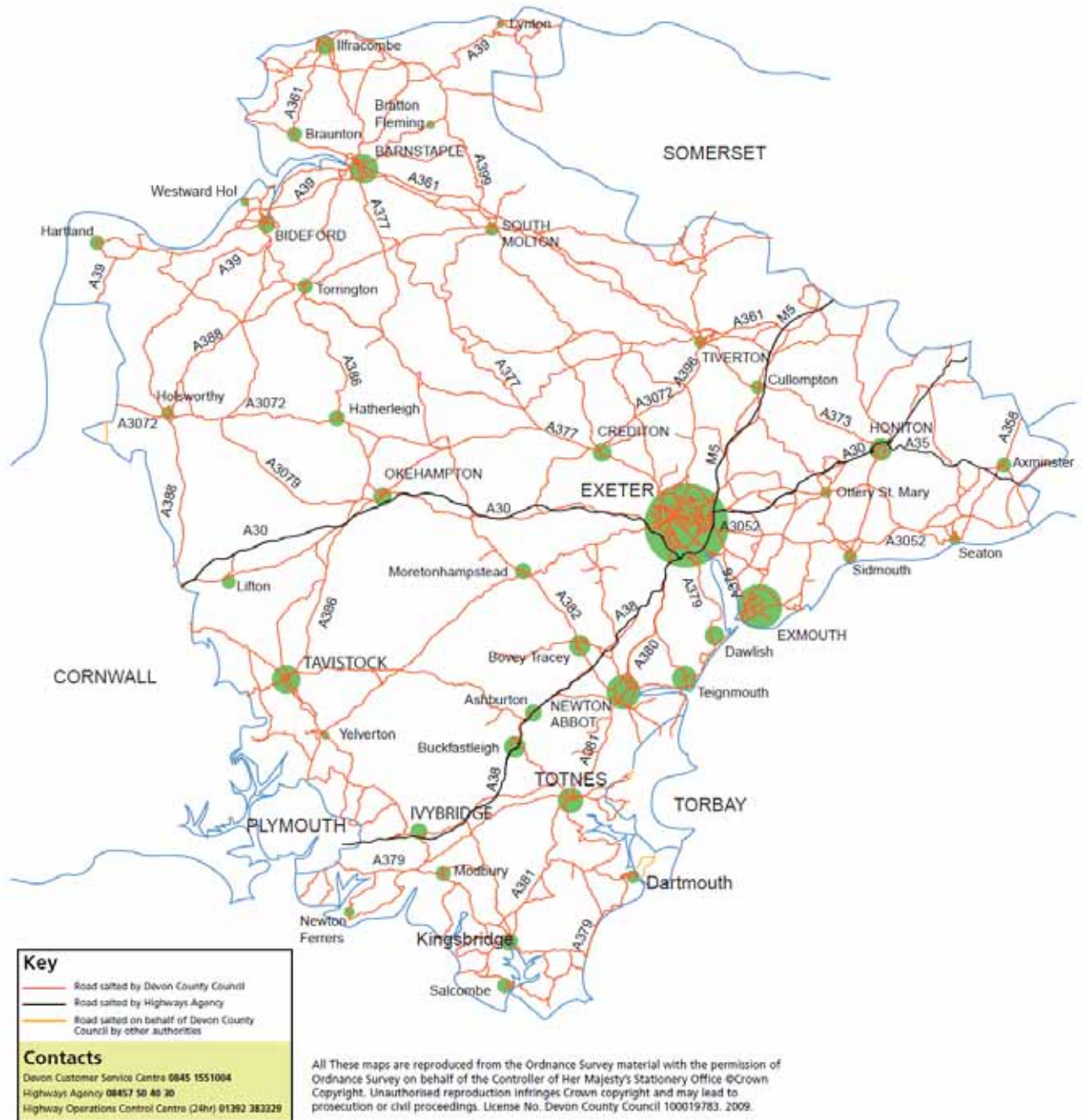
2.3 Cross-boundary Salting

Several sections of the County's network are salted by adjacent authorities and the detailed maps in Appendix 15 indicate the sections of the County network that are treated by our neighbouring authorities. The County treats some sections of the Highways Agency network and adjacent authorities' networks in Somerset, Plymouth and Torbay; details of the sections treated are shown on the route maps in Appendix 2. Under the Highways Act, responsibility for maintaining safe passage rests with the highway authority for the road and this arrangement allows for the efficient operation of the service.

Detailed action and operational procedures are described in section 7.10

The following map shows the pre-salting network as defined above and which includes some additional high speed routes and roads serving some smaller communities which are historically part of the salting network. The full routes are given in Appendix 2.

Precautionary Salting Network Map (needs changing)



An up to date route card and map will be produced for each route and kept in the assigned spreading vehicle at all times.

A routing exercise has been carried out to maximise efficiency by adopting the concept that the most efficient routes treat a distinct area (i.e. not having a significant overlap with other routes) and that they are confined to one weather domain. When developing routes, boundaries between Areas have been ignored in order to produce the most efficient and effective service delivery so minimising inappropriate salting, especially on marginal nights when the action is determined on a route by route basis. Arrangements with neighbouring authorities at the County's boundaries have been agreed.

2.4 Salting Footway and Cycleways

Winter service is important to the County Council in improving road safety preventing collisions, and ensuring that the affect of adverse weather on road users is minimised. Whilst some precautionary

treatment of footways and cycleways would be desirable, the cost of providing a service suggests that the current policy of only providing a reactive service is appropriate, when considering the risks to the road user and the Authority.

Busy footways e.g. main shopping centres are treated on a reactive basis during periods of prolonged freezing, within the resources available, once the precautionary salting network is clear.

Major cycleways will only be treated on a reactive basis during periods of prolonged freezing within the available resources and priorities,

A copy of the report giving further details appears in appendix 13 and this currently being reviewed with self help initiatives.

This will be subject to regular review.

2.5 Secondary Salting Network

The secondary salting network will usually be treated during extended periods of cold weather (defined as snow or ice most of the day). The list of the settlements and roads is in Appendix 3.

The secondary route criteria is defined as follows:

- Settlement Population - Main access route to settlements with a population of 100 to 499
- *Park and ride sites (car parking area)
- Bus Routes – Where problems have been identified on routes with a service interval of at least 30 minutes within any one hour of the day, in one direction of travel, or where a combination of multiple bus services meet this criteria.
- Main highway access route to Devon County Council Level 1 properties (those council properties providing essential services which cannot be closed in severe weather - as defined in during the swine flu pandemic emergency response).

* Most P&R sites have height barriers and arrangements will need to be put in place to allow access.

2.6 Level Crossings

Network Rail level crossings have equipment prone to signal failure when solutions high in salt exist. Network Rail has instructed that **all** level crossings should **not** be salted between the stop lines. Consequently, consideration should be given to the siting of grit bins containing only grit at these locations. Any accidental spillage of salt should be reported immediately to –

Wales and West	Incident Control	01793 499 143 or
	Route Control Manager	01793 515 678
Waterloo Line	Incident Control	020 7979 3905 or
	Route Control Manager	020 7979 3901

Network Rail Level Crossings

The following are controlled by:

Network Rail
contact Network Rail Control Centre
(Swindon)
tel 01793 515410
fax 01793 515284

Hele & Bradninch	Public Road	SS 995 023
Stoke Cannon	Public Road	SX 937 980
Red Cow	Private Road	SX 910 936
Crediton	Public Road	SX 840 994
Salmon Pool	Public Road	SX 827 001
Eggesford	Public Road	SS 683 115
Umberleigh	Public Road	SS 609 328
Pinhoe	Public Road	SS 965 942
Crannaford	Public Road	SY 011 980
Topsham	Public Road	SX 965 884
Teignbridge	Public Road	SX 856 733

The following are controlled by:

Network Rail
CP-1-F – General Offices
Waterloo Station
London SE1 8SW
Contact: Gary Hartnell
Tel. 0207 901 3291
Fax 0207 922 4723

Axe	Public Road	ST 321 017
Axminster	Public Road	SY 295 987
Feniton	Public Road	SY 094 944

Private Rail Level Crossings

Paignton and Dartmouth Steam Railway		Tel. 01803 555872
Kingswear	Public Road	SX 288 052
Seaton Tramway		Tel. 01297 20375
Colyford	Public Road	SY 254 927

2.7 Resilience Network

In order to maintain adequate resilience over the core winter period, and in light of the UK Road Liaisons Group's 2009 winter review recommendation on resilience, this authority will maintain adequate salt stocks in December, January and February (the high risk period) to be able to treat a reduced/core pre-salt network at a rate of 20g/m² six times a day for a period of 6 days. This will require a minimum stock holding of 6,500 tonnes during December, January and February (the high risk period). During the lower risk months of November and March the stock holding would be a minimum of 5,000 tonnes.

In the event of a salt shortage or other resource problem, a reduced salting network of just over 50% of the pre-salt network will be implemented to the following criteria:

- A roads
- Main access to 24 hour emergency premises
- Main access to primary market and coastal towns

This resilience network will only be implemented when authorised by the Executive Director of Environment, Economy and Culture in consultation with the Executive Member for Highways and Transportation, and it will be instigated on a countywide basis only.

2. 8 Road Closure Procedures and Diversion Routes.

It has been agreed that when sections of the County's network, motorway or trunk road are closed, and diversion routes are in operation, the salting plant usually in operation on the closed section will treat the diversion route when salting is required unless already forming part of the County's pre salting network. Consideration should be given to salting up to the point of closure if a significant distance is involved. Salting must be considered when closures are set up or removed.

2. 9 Grit Bins and bagged Salt/Grit

Grit bins and bagged salt/grit will be provided to allow self help by road users. A more detailed description is given in Section 5.15

2. 10 Self Help

Devon County Council will provide a leaflet to the public and other outside bodies on the subject of self help. This leaflet will also detail how public sector organisations can purchase bagged salt through Devon County Council s Supply Zone (see Section 5.13).

2. 11 Review of Network

The pre-salting network is reviewed annually to reflect developments, improvements and changes in traffic patterns and settlement populations.

3 Preparation for Winter

3.1 Introduction

The County Council and its Term Maintenance Contractor must be at a state of readiness prior to the onset of winter conditions. It is therefore of the utmost importance that planned winter service operations are defined by 1st October, so highway users are not put at unnecessary risk.

The following operations must be carried out prior to the start of the winter season:

- Place salt bags on steep hills and known trouble spots (use of bags to be minimal) by the end of September.
- Reposition grit bins as required (Highway Management must be advised of the locations).
- Grit bins containing **only grit** should be sited at Network Rail level crossings as some have signalling equipment whose performance would be adversely affected by salt.
- A central order will be raised for the replenishment of grit bins across the authority.
- Inspection of the pre-salting network in order to identify drainage problems and locations where water is discharged onto the highway. Every effort should be made to alleviate these sites by routine maintenance. The repair and maintenance of existing positive drainage systems including gullies should be undertaken. Negotiations should be undertaken with landowners wherever possible to prevent discharge of water onto the highway.
- Areas should consult Highway Management if they wish to make a case for snow fencing at any particular location.
- Emergency packs and blankets in the County's vehicles used for inspections should be checked and replacements ordered via Highway Management as necessary.
- The Highway Operations Control Centre to arrange for the calibration of road sensors and any necessary maintenance.
- Areas to ensure that Area Snow Plans are up to date, and that they know what resources (staffing and otherwise) are available in the event of an emergency.
- Areas will liaise with the appropriate District Council Officer and agree the role to be undertaken by District Council controlled labour and equipment in the event of severe winter weather.
- Areas to check with the term contractor the location and availability of farmers and contractors with tractor mounted snow blowers.
- Areas to arrange for the Materials Laboratory to test and calibrate all thermometers.

3.2 Pre-Winter Meetings with the Term Maintenance Contractor

Areas should arrange pre-winter meetings with the maintenance contractor during the first week in October which should confirm the following:

- Plant readiness and completion of the summer service to vehicles.

- Ploughs to be accessible at all times and fitted as part of trial runs carried out in September. As part of the summer service, all rubber and warning lights should have been checked, wheels freed, etc.
- The completion of calibration and driver instruction on the setting of spread rates and patterns for specific routes.
- That the maintenance contractor has sufficient trained operatives for all winter service activities, including a sufficient number of trained operatives for the snow blowers on a 3-shift system to facilitate 24 hour working.
- Certification of operatives for winter service.
 - Deployment of men and vehicles
 - Winter service pre-salting routes (Co-ordination by Highway Management)
 - Salt stocks
 - Contact / standby systems and rotas

4 Plant

4.1 Introduction

The effectiveness of the winter service plant is crucial to the efficient delivery of the service. Plant that cannot be calibrated to spread salt properly will compromise the objective of preventing ice with minimal salt use. Devon's strategy is therefore to run a well maintained fleet of modern salting vehicles.

4.2 Winter Service Fleet

The current winter service fleet is as follows:

84	Gritters
98	Snow ploughs
5	Snow blowers

The maintenance contractor must provide vehicles to carry the County's demountable gritters plus snow ploughs.

4.3 Speed of Gritters

The driver is responsible for ensuring that the vehicle is driven in a safe and legal manner, with due regard for road conditions, however the **maximum** speed that gritters may travel when salting is:

Speed related pre-wet spreaders	- 45 mph [72 kph]
Speed related dry spreaders	- 40 mph [64 kph]
Non speed related demounts	- 25 mph [40 kph]

Travelling speed when not spreading should be appropriate to the road and conditions. Speeds for other types of gritter should be checked with the Materials Laboratory.

4.4 Calibration of Spreaders

Calibration is of central importance in providing an efficient winter maintenance operation and due attention must be given to the pre-season and in-service tests to ensure that each vehicle is achieving the correct rate and width of spread within defined parameters.

The calibration of equipment shall be carried out prior to 1 October in accordance with the following procedure:-

- The calibration should be undertaken by static testing.
- The checks should be carried out with vehicles set to spread at 10g/m² and 20g/m². The width of spread should also be checked. It is essential that the checks are carried out using the same salt to be used during the winter period as variation in moisture content and grading can have a significant effect on both the rate of spread and transverse distribution.
- The static test will be the mean of three individual results at any one setting. The maximum range of the three results shall not exceed 3 g/m². Individual results shall be expressed to the nearest 0.5 g/m² with the mean to the nearest 1 g/m². A compliant result will be a mean within the range 9 - 12 g/m² for 10g/m² and 18 - 24 g/m² for 20 g/m² for dry spreading and 6.5 – 9.5 g/m² for 7.5g/m² and 13 - 19 g/m² for 15g/m² of dry salt for pre-wet spreading.
- Gate and chute offsets must be clearly marked and referred to in the calibration report to ensure that the set up can be repeated in service. Speed settings must likewise be identified in the reports.

- Advice on testing procedure can be obtained from the Materials Laboratory.
- The tests will be carried out in liaison with the Area, Materials Laboratory and the maintenance contractor. On completion of the tests and calibration, a sheet confirming the achievable rate of spread, widths and correctness of the spread patterns must be signed by the test supervisor and copies submitted to the Area and Highway Management. A copy should also be kept in the vehicle.

Further calibration tests following the above procedure should be undertaken on a random basis during the season and following any repairs or alterations to gritters. During the winter all gritters should have an in-service visual check for correct and effective spread pattern 'on the road' by HS's during late November and late January (depending on weather conditions). Copies of all test results should be circulated and kept as set out above.

4.5 Tracking Devices in Gritters

The front-line gritting fleet (with the exception of the small gritter used for A361 laybys – route 48) is fitted with data collection and tracking systems. The system has been installed to:

- monitor the treatment of routes
- determine the average route treatment times
- provide an archive of treatment data for route planning
- provide evidence for investigating complaints

Information is collected from sensors attached to the vehicle and it is important that the contractor understands the need to maintain these in good condition. The salt sensor in particular should be checked and cleaned prior to every treatment. However, it is recognised that the technology is currently not advanced enough to ensure that the monitoring of salt spread from the rear of the vehicles is accurate therefore it is important that the contractor keeps full local records of each treatment and in particular malfunctioning of this sensor.

The data from the vehicles is transmitted in near real time to the Highway Operations Control Centre and stored on a database server. The HOCC staff will monitor operations as far as they are able.

This operation is dependent on good fleet management, and the system needs to know which vehicle is allocated to which route. Any changes to the fleet information provided at the start of the season must be reported to the HOCC prior to the salting, and where substitute gritters are used, manual records must be kept and forwarded to the HOCC by midday at the very latest. This record must also include confirmation that the route has been completed as set out in the route card or give details of deviations and reasons.

Bi-directional gritting – the technology used to track gritters and monitor route compliance has also been developed to control the gritting function from pre-determined setting. This could have significant health and safety benefits for the driver. Some gritters have been fitted with this technology, which will be trialled during the winter and if found to be reliable will be implemented.

4.6 Plant Replacement and Future Plant Strategy

The provision and use of various types of plant has been considered by the Winter Service Review Group and HNMG, including developments such as body swap systems, which will increase utilisation and reliability of vehicles and pre-wetting which will reduce salt usage on negative texture surfaces and could increase gritter speeds and control over salt spreading to minimise adverse environmental affects. It is proposed to adopt the following strategy that will be implemented over time as existing plant reaches the end of its useful life.

Ownership - The policy is that the front line fleet should be in County ownership for security. This will allow the County to keep control of the type and age of the vehicles. It is also especially important with the "duty to salt" legislation, during a contract changeover period and should the Maintenance Contractor get into financial difficulties.

Low Throw Gritters - Use of low throw spreaders has been considered, but the advantages of their use was outweighed by the loss of ability to use any plant anywhere in the County due to the lack of clearance to the spinner, which is a problem when vehicles are used for salting off the network. The only exception to this are the smaller gritters operating in Exeter which are all low throw.

2 or 4 Wheel Drive Vehicles - to plough snow with any degree of success in the hilly terrain of Devon, a 4 wheel drive vehicle is necessary.

Reserve Fleet - With the increased reliability of the current fleet of modern vehicles a reduced reserve fleet of 37 gritters is considered appropriate, distributed such that each SAO (excluding Exeter) has 2 gritters less than its number of routes, with a minimum of 4 units per SAO and Exeter having 2, the remaining units to be stationed across the county in Barnstaple, Eastern and Newton Abbot. Following the move to pre-wet spreading and use of GPS there should be a pre-wet road speed-related body swap gritter with GPS as first reserve at each of the 7 major depots and a dry road speed-related demount with GPS for first reserve at the 5 smaller depots. The 2 Exeter units [one to have GPS but not pre-wet] and one in each of the other SAOs should be a small size [suitable for use on 7.5 to 12 tonne vehicles] to enable narrow and residential roads to be treated when appropriate.

Pre-wet - Pre-wet is recommended for the following reasons:

- (i) Pre-wet has better retention characteristics
- (ii) Pre-wet gives a more even spread on the road.
- (iii) Reduction in salt use on negative texture surfacing materials
- (iv) Spreader can operate at higher speeds

All depots in Devon have been converted to pre-wet spreading with the exception of Copstone and Dolton Beacon. These remaining 2 depots in North Area will be converted in accordance with the depot strategy and availability of funds.

Snow Ploughs - each front line gritter must have a compatible snow plough, with an extra 25% (12) to cover for damage. A snow plough is also required for each reserve vehicle, with an extra 8% (3) to cover for damage.

4.7 Hire of Additional Plant

In emergencies, Areas may require additional plant; this can be ordered and paid for through the term contract series 4800 or directly from a District Council.

4.8 Transfer of Plant

Where an Area is severely affected by winter weather and additional gritters / snow blowers are required, they should liaise with Highway Management HQ to agree transfers from other Areas.

4.9 Vehicle and Plant Breakdowns

It is the responsibility of the contractor to ensure that vehicles are serviced to minimise breakdowns. When these do occur, it is the responsibility of the contractor to ensure that the Area and the HOCC are informed with an estimated time for completing the route, either by repairing the vehicle or using a substitute, whichever will provide the quickest response. It is the responsibility of the client to consider any other implications of this delay (e.g. timing of critical road weather conditions) and whether any other action is appropriate (e.g. reallocation of front line vehicles from less strategic routes).

4.10 Summer Plant Servicing

The summer service of plant will be undertaken by the maintenance contractor between 1 May and 30 September. Areas should receive written confirmation from the maintenance contractor that the summer service has been completed at the time the vehicles are returned to their operating depots before the end of September.

4.11 Health and Safety

An emergency pack and blanket should be provided for each bulk gritter with two packs and blankets for each snow blower. The packs are to be checked during September with any necessary replacements ordered by the maintenance contractor. Responsibility for the health and safety of contractor's staff lies with their Employer.

5 Salt and Grit

5.1 Introduction

Winter service operations seek to ensure the safety of road users whilst minimising the use of de-icing agents. Widespread use of alternatives to salt are not currently cost effective but any new materials or methods will continue to be considered and trialled where appropriate. Environmental aims are achieved when the correct patterns and rates of spread of salt appropriate to conditions are maintained.

5.2 Effectiveness of Salt

Research has demonstrated salt (sodium chloride) will effectively treat ice to temperatures of minus 9°C. Temperatures this low are very rare in Devon, even during prolonged periods of freezing weather and would then tend to only occur overnight. If such temperatures were to be forecast the only effective short term option would be the issue of media warnings until the supply of specialist additives such as calcium chloride could be arranged.

5.3 Salt Stock Levels

The management of the salt stock is the responsibility of the maintenance contractor in accordance with minimum holdings specified in the contract for each depot. The planned pre-winter stock level is 19,900 tonnes and details of stocks at each depot are shown in the salt stock table that follows. Storage locations are shown on the plan that follows. Based on past data this holding is sufficient to cope with a severe winter, but would need topping up should extreme snow conditions prevail.

Pre - Winter Salt Stocks 2009/10 (all capacity figures in tonnes)

AREA	DEPOT	CAPACITY	PROPOSED PRE-WINTER STOCK	OCTOBER 09 STOCK
NORTH	Beacon Down, Parracombe (B)	1400	1400	1400
	Pathfields, S Molton (B)	3100	3100	3100
	Dolton Beacon (B)	1450	1450	1450
	Copstone (B)	850	850	850
	Exeter Road, Okehampton (B)	1500	1500	1500
	Pixon Lane, Tavistock (B)	1300	1300	1300
Total		9600	9600	9600
SOUTH	Rydon Depot, Kingsteignton (B)	5000	5000	5000
	Moretonhampstead (O)	150	150	150
	Pridhamsleigh (B)		*Emergency Stock	
	Torr Quarry (B)	850	850	850
	Ivybridge (B)	1300	1300	1300
Total		7300	7300	7300
EAST	Fordton Depot, Crediton (B)	1300	1300	1300
	Lower Moor, Tiverton (B)	1600	1600	1600
	Heath Park, Honiton (B)	2000	2000	2000
	Avocet Road, Exeter (B)	1500	1500	1500
Total		6400	6400	6400
TOTAL		23300	23300	23300

Salt stored : (B) - in barns : (O) - open stock pile .

* During periods of extreme snow conditions arrangements are in place to use the Highways Agency depot at Pridhamsleigh for emergency refilling for extended operations, initial contact should be made via the 24 hour contact number given at Appendix 1.

5.4 Salt Barns

Salt barns are effective in providing conditions that keep salt at low moisture content; preventing leaching and allowing easier handling of the salt. Barns will ideally have an entrance at both ends but where this is not the case, the stocks should be worked from one side at a time to the rear of the barn and not across the full face, as this allows the stocks to be turned over.

5.5 Open Salt Storage

Open stockpiles must be covered with approved polythene sheeting at all times. Advice should be sought from Highway Management on all aspects of storage and working arrangements for salt stored in the open.

Salt Barns and Open Storage Sites



5.6 Temporary Storage Depots

During emergencies, temporary stockpiles may be used at locations which provide adequate working areas and suitable access without causing pollution problems. Any such location must be cleared at the end of the winter. Under no circumstances will temporary storage depot stocks be placed within 15m of trees or 4.5m of hedges, or sited where pollution of watercourses may occur. The requirements of paragraph 5.4 above must be met.

5.7 The Benefits of Pre-Wetted Salt Application

To be effective the salt needs to be used in the best form and on the right place in the road. Using small particle sizes achieves this and the most effective road position is in the wheel tracks.

Conventional application of salt relies on a spinner mechanism to distribute the salt behind the gritting vehicle. This action alone causes the salt particles to segregate. Historically the salt used was 10mm nominal size which had the tendency to bounce on the road surface or be spread too widely on distribution. Following traffic tends to displace those particles that fell into the wheel tracks. The move to finer gradings of salt to reduce wastage during distribution does, on high speed roads, lead to the potential for traffic and wind-induced drift of the particles, i.e. some of the salt ends up out of the wheel tracks and often in roadside vegetation or water courses.

Pre-wetting the particles of salt as they are distributed from the gritting vehicle leads to a more predictable spread pattern. Pre-wetted particles bounce less and a residual salt layer is adsorbed and adheres more effectively to the road surface. Very fine particles are also less liable to drift in vehicle slipstreams (including the spreading vehicle) and in cross winds. Pre-wet salt therefore is in a form and position where its de-icing action is most beneficial and lasts longer. The 6mm salt can be spread dry or pre-wet, but when making brine solution the salt must not contain more than 2% . There is a significant saving in salt on negative texture surfacing as it can be spread at the standard rates.

5.8 Salt Grading and Composition

To ensure control of the rate of spread when using correctly calibrated plant, the quality of salt is important. Two grades of salt are used as detailed below.

Salt for Spreading

The following Devon County specification shall be used when ordering salt for dry or wet spreading on carriageways:

Grading:				
Sieve Size (mm)	6.3	2.36	0.3	
% Passing	100	30 - 70	0 - 10	

Chemical Composition:

Constituent	NaCl	CaSO ₄	Insolubles	Moisture	Anti-caking Agent
Specification	>90%	<2.5%	<7.5%	<2%	>30mg/kg

This grading is coarser than the BS3247 specification because trials have indicated a more uniform spread is achieved on the carriageway and overspread reduced by 17%, so reducing contamination of the adjacent vegetation.

Chemical composition shall be stated by the supplier and tested by the Materials Laboratory in accordance with BS 3247 Part 1. All salt shall be transported in covered vehicles and shall have a moisture content not exceeding 2% by mass when delivered to the stockpile.

Salt for Brine Solution and Pre-wet Spreading

The following specification is the preferred salt for pre-wet spreading. It can also be used to prepare the brine solution for pre-wetting:

Grading:

Sieve Size (mm)	5	2.36	1.18	0.3
% Passing	100	85 – 100	50 -65	0 - 25

Constituent Specification	NaCl >95%	CaSO ₄ <2.5%	Insolubles <2%	Moisture <1.5%	Anti-caking Agent >30mg/kg
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Insoluble Matter Maximum Limits:

Copper	3ppm	Zinc	3ppm	Selenium	<2ppm
Cobalt	11ppm	Lead	8ppm	Iodine	<2ppm
Manganese	11ppm	Arsenic	3ppm	Phosphorus	10ppm

Chemical composition shall be stated by the supplier and tested by the Materials Laboratory in accordance with BS 3247 Part 1. All salt shall be transported in covered vehicles and shall have a moisture content not exceeding 1.5% by mass when delivered to the stockpile.

Salt for Brine Solution

Salt specifically for the making of brine will be to the same constituent specification as that for pre-wet spreading above except for the grading requirement.

Grading:

Sieve Size (mm)	6	3.35	0.5
% Passing	100	90 – 100	5

5.9 Restocking of Salt

The County Council have agreed with the term maintenance contractor that the Council will make the initial purchase of salt for sale at cost to the contractor. This allows the Council to control salt quality together with obtaining salt at the lowest price. The salt is procured through a framework tender contract that includes a consortium agreement with Cornwall Council.

5.10 Restocking of Salt in Summer

In liaison with the maintenance contractor, Areas will inform the Highway Manager of salt stock levels in each of the depots by the first week of March, confirming the levels at the end of the winter season.

The contract for salt supply includes a requirement for the supplier to inform Devon Procurement of dates, delivery and times for each location. They in turn will inform the Materials Laboratory and Areas, confirming details at least 48 hours prior to delivery. On the completion of delivery, Devon Procurement will inform Highway Management of the salt quantities delivered and the payment made.

Density of salt stored in barns is 1.24 t/m³.

5.11 Restocking of Salt in Winter

The term maintenance contractor must inform the Area when salt levels in any depot fall to 50% of the proposed pre-winter stock. This information will be sent to the asset management team who will decide if and when deliveries are appropriate and arrange this through Devon Procurement following the procedures as for summer delivery.

Reference should be made to section 2.6 on the need to maintain minimum stock levels of 6,500 tonnes from December to February and 5,000 tonnes in November and March, to ensure resilience to severe winter weather in high and medium risk months.

5.12 Barn Owl Nesting Boxes

During 1993 barn owl nesting boxes were placed in 5 salt barns: Beacon Down, Parracombe; Pathfields; Copstone, Parkham; Dolton Beacon; Fordton, Crediton. The barn owl is listed on schedule one of the Wildlife and Countryside Act 1981 which means it is protected against disturbance whilst at or near the nest. As the main restocking takes place near the end of the normal nesting season (March – August inclusive) care must be taken to ensure there is no disturbance. Inspections during the nesting season at sites where occupation by barn owls is suspected can only be carried out by the holder of an English Nature nest inspection licence such as the Barn Owl Trust (contact David Ramsden 01364 653 026 or 07889 594 663). Boxes can be checked outside the normal nesting season provided there is no evidence of Barn Owl nesting at the time. For details of signs of occupation and legal guidance please refer to the free booklet “Barn Owls on Site” published by English Nature. <http://naturalengland.twoten.com/NaturalEnglandShop/>

5.13 Supply of Salt to Public Sector Organisations and the General Public

Requests for the supply of salt to outside organisations will generally be refused. The maintenance contractor, who manages and owns the salt stocks, may not sell salt to other Local Authority Directorates or Government bodies without the permission of the Area Engineer.

Public Sector Organisations can order salt in 25 kg sacks through Supply Zone.

The general public can obtain 25 kg sacks from some builders’ merchants for use on private property.

Areas can supply members of the public with salt for highway use up to a maximum of 25 kg during extended periods of cold weather or snow (defined as most of the day), sacks should contain a maximum of 12.5 kg. This should be by arrangement from places where the public normally have access, not from operational depots unless there are appropriate safety facilities and insurance cover. The person issued with salt should be given a copy of the guidelines for use (at Appendix 7) and sign the register.

5.14 Grit

Grit for roads for winter service will be a 50/50 mix by volume of salt with a clean, coarse, crushed aggregate or sand having angular particle shape with a nominal size of 5mm graded in accordance with the following:

Sieve Size mm	6.3	5	3.35	1.18	0.6	0.075
% Passing	100	95 - 100	66 -90	0 - 20	0 - 10	0 - 1.5

A dry stockpile of aggregate for mixing with salt should be maintained at each salt store sufficient to cover the route(s) run from that depot twice at 20 g/m², up to a maximum of 100 tonnes.

5.15 Grit Bins and Bagged Salt/Grit

The use of roadside open heaps is not permitted because of the risk of pollution. Bins and bags containing salt should be positioned so that leakage, spillage or vandalism does not adversely affect tree roots.

Grit Bins

Grit bins are an expensive facility to manage and maintain, but provide a useful means of self-help with the community. It is important that the use and value of existing grit bins in an area is reviewed before additional bins are considered. Grit bins will be sited off the precautionary salting network at

known trouble spots, usually in urban areas, but also in some rural locations where particularly difficult conditions exist, subject to financial restraints. Grit bins will only be considered for location on the precautionary salting network at railway level crossings (grit only) or at known trouble-spots on urban footways. Grit bins should only be located where they do not present an unreasonable hazard to other highway users and can be safely accessed. Requests for new grit bins will be made to the Area office who may consult local members.

Members may request the addition of a grit bin where there is a pressing community justification that may not strictly meet the above requirement, in consultation with the Area Engineer, and using their own locality budget.

Grit Bins should contain a 50/50 mixture of salt and grit except at railway crossing where 100% grit must be used. Grit bins will only be used within National Parks when that Park Authority has given express permission.

Grit bins will be inspected and filled if required, prior to the onset of winter. Bins will be refilled during periods of prolonged freezing when they are known to have been used. As it is not cost effective to refill an individual bin in an area, bins will only normally be refilled when a number in a locality require replenishment. Where grit bins have been abused or vandalised, consideration will be given to removal or relocation. Grit bins will be uniquely identified with a label that provides advice on how the grit bins should be used and managed.

Areas can order grit bins directly through a Devon Procurement call off contract, see details below (DP contact Garry Palmer). From September 06, the bulk discounts have been replaced with a flat rate discount. The colour of the bin will be yellow or green as appropriate to the location and consideration will be given to whether lifting points are required to allow removal of the bin during summer.

Supplier - Wybone Limited, Mason Way. Platts, Common Ind. Estate, Hoyland, Nr Barnsley, S Yorkshire, S74 9TF. Contact - Steven Parker, Tel: 01226 744010, Fax: 01226 350105.

Details - The account no is DEVO001. The code for the special Grit bin is : SFG/11T/DEV (Yellow or Green).

Pricing - £198.94(2006) less 15% discount = £169.10 (less 8% if paid in 10 days) carriage free over £500.

Bagged Salt/Grit

- Use of bagged salt / grit should be kept to a minimum and all bags will be removed at the end of the winter period. They will be sited at known trouble spots where grit bins are not suitable due to limited space or within sensitive areas, provided that animals have limited or no access.
- Salt, grit or a combination of both may be used.
- Heavy duty material or double bagging must be used to prevent leakage.
- Areas can order directly through a Devon Procurement call off contract, see details below (DP contact Garry Palmer). SAOs not requiring the minimum quantity should combine with adjacent Areas as necessary.

Supplier - NWF Swiftpak, Church Road, Bason Bridge, Highbridge, TA9 4RG.

Contact - Sheila Nayler, Tel: 01278 789200, Fax: 01278 789100.

Details - Supply of Devon County Council specification Salt Bags; Grey poly bags, 560mm x 860mm, 750g; Printed on one side in black to read:- DEVON COUNTY COUNCIL ROAD SALT USE ON PUBLIC HIGHWAY.

Pricing - 1500 [minimum order] - £375.00 per thousand; 3000 - £355.00 per thousand; 6000 - £325.00 per thousand; 13000 - £295.00 per thousand; Carriage is £25 for any of the above.

5.16 Mutual Aid

Devon County Council will normally only consider providing salt for mutual aid to other authorities when its own winter service provision is not disproportionately affected and when the requesting authority:

- Has a network that directly links with Devon's own network
- Or it is not to Devon's ultimate detriment (eg exchanging salt shipments)
- Or where the requesting authority has made suitable contingency and salt reduction arrangements but the weather has been so exceptional to overwhelm these arrangements.

6 Ice / Snow Prediction

6.1 Introduction

The correct prediction of ice and snow is a key factor of efficient winter service operations as it minimises the extent of abortive salting works whilst keeping the network as safe as possible. The County has made considerable investment in providing the means for accurate prediction e.g. forecasts, predictive radar and thermal mapping so that appropriate winter actions are taken.

6.2 Winter Forecast - October to April

Introduction

The contract which includes Plymouth City Council and Torbay Council begins in October. During the period 1st October to 30th April inclusive (which may be extended) the County receives a road weather forecast each day. This is normally issued before 13:30 hours with updates to defined criteria as appropriate. The forecast aims to predict ice formation or snowfall at seven forecast sites for the following 24 hours presented in graphical and tabular form together with text forecast for the 5 weather domains. The main forecast is also used as the basis from which thermal maps are constructed. Details of the domains and heights of routes are shown in Appendix 6.

The Highway Operations Control Centre will consult with the forecaster when necessary and be able to provide information on request. Staff involved in winter service decision making should be trained in road weather metrology at the earliest opportunity and courses are normally available each autumn.

Route-based forecasting (RBF)

Devon County Council has been working with the Met Office to develop route-based forecasting which is designed to provide better information for decision makers to determine which individual routes may need treatment rather than a whole domain. Detailed information will be available as part of the web forecast on how the temperature is expected to vary across a route. The majority of Area South will be covered by RBF and experience and confidence will be gained by staff in this winter in the use of the product. Caution should be exercised in the early use of this product in decisions, but experience should be gained in its use.

24 hour Text Forecast

The text forecast is formatted to provide a summary grid which details the main hazards expected in each domain. The colour state has the following meaning:

- **GREEN** – Road surface temperatures are expected to **remain above freezing with no ice** and/or snow accumulations
- **AMBER** – Road surface temperatures are expected to **fall close to or below freezing** with ice and/or snow accumulations **possible**
- **RED** – Road surface temperatures are expected to **fall below freezing with ice** and/or snow accumulations

No domain minimum temperature or time below zero is included in the summary as this has proved too vague with large domains and no indication of where within domains minimum temperatures may occur. This information should be assessed from the thermal maps and forecast graphs.

The hazards identified refer to those which affect winter service, rather than severe weather. For example >2mm/hr of rain will wash salt off the road, rather than cause flooding problems. The H and L indicate high and low confidence of the hazard occurring (see section 6.3 for definition of these terms).

The text provides amplifying comments on a domain basis to clarify the forecast scenario.

The need for forecast updates is specified in the contract and the forecaster is aware of the requirement to update when their monitoring of sites indicates a divergence from the previous forecast. The update criteria for text, applicable for each site are:

- Change in frost state (no frost to frost or vice versa).
- If road surface temperatures are below or forecast to fall below +1°C when initially forecast to remain above.
- Change in snow status (accumulation, distribution, time of thaw, start or end timing by more than 2 hours)
- Significant change in surface wetness when road temperatures are expected to fall to zero or below.
- Change in time of frost by more than 2 hours.

2 – 5 day text forecast

This provides a general forecast 2 to 5 days ahead with an indication of alert state and hazards expected anywhere across the salting network. Alert state and hazard details are the same as above.

Graphs

Seven forecast graphs are received for the county which provide the following information as a minimum:

- Forecast road surface temperature
- Forecast dew point
- Forecast road surface condition
- Forecast precipitation

In addition a thermal map type driver is provided for each domain and used by the thermal mapping software.

The need for forecast updates is specified in the contract and the forecaster is aware of the requirement to update when their monitoring of sites indicates a divergence from the previous forecast. The update criteria, applicable for each site are, for graphs:

- The RST crosses the zero line (either way), when not previously forecast to do so.
- The RST crosses the zero line two hours earlier or later than forecast.
- Change of state of ground frost/no frost, ice/no ice and snow/no snow or visa versa.
- Change of precipitation snow/no snow or freezing rain/no freezing rain or visa versa.

6.3 Meteorological Terminology

The following terminology and weather states are used in the forecasts.

The freezing of wet road surfaces:

In most cases the road will have become wet because of rain which fell when the air temperature was above freezing point. It may also become wet because of a heavy deposit of dew, from a wet fog, by melting of a hoar frost which may have formed during the previous night or by the melting of snow. A subsequent fall in temperature of the road surface, usually due to radiation of heat to a clear night sky, causes the water film remaining on the surface to freeze. The difference between the rates of fall of temperature for various road materials due to changes in their thermal properties are small and significant differences in the ice formation on various surfaces arise only in marginal cases.

Definition of Forecast Terms

Airfrost

This occurs when the air temperature (measured between one and two metres above the ground) falls below 0°C.

Blustery

Used to describe showers, which are associated with strong gusts of wind.

Drizzle

Small droplets, which fall from low cloud. Drizzle can last for several hours and cover a large area, or be intermittent and localised.

Dry Frost

The road surface temperature is 0°C or below, with most roads expected to be dry. However, consider seepage, leaking water pipes, known hollows where dampness may persist.

Flash Frost

The rapid build-up of hoar frost on roads around sunrise. The road state can change from dry to significant cover of hoar frost within 15 minutes.

Fog

When used on the forecast hazard table: Visibility less than 200m.

Freezing Fog

Fog which forms when air temperature are below 0°C. The fog droplets remain in the liquid state, but will freeze on contact with tress and other objects, and under some circumstances, the road surface.

Freezing Rain / Drizzle

A very dangerous condition where drizzle or rain (from warmer air aloft) fall onto surfaces below freezing. The rain and/or drizzle freezes instantly causing widespread ice. Fortunately, this is rare in the UK, most likely to occur at the end of a prolonged spell of cold weather.

Gale

Mean wind speed of 39mph or more, gusts 49 mph or more. (Severe gale, mean 45 mph or more, gusts of 70mph or more).

High Confidence

Implies that on 9 out of 10 occasions the forecast event will occur. Amendments are unlikely.

Hoar Frost

Deposition of water vapour directly as ice on to ground surfaces i.e. when the road surface temperature is below both the dew point and zero. The ice forms as ice crystals and is usually highly visible. Hoar frost is more common over grass than on roads. Hoar frost on roads may

quickly change to clear ice under pressure from car tyres. It requires a dew point above a below freezing road surface temperature and a low wind speed of 3 to 15 knots.

Icy Patches

Used in road weather forecasts to indicate ice formation in prone areas only (gutters, dips in road surfaces, etc).

Icy Stretches

Used in road weather forecasts to indicate more widespread ice.

Isolated

Used to describe showers. Isolated showers imply that most places will stay dry, but somewhere in the area of coverage a shower may occur. The probability of a location having a shower will be in the range of 0-20%. May be abbreviated to ISOL.

Low Confidence

Implies that on five out of ten occasions the forecast event will occur. Amendments are likely.

Marginal

This describes nights where the road surface temperature is expected to be very close to freezing.

Period

Used to describe the length of cloud breaks or amount of sunshine, generally more than two hours.

Powder

The form of snow that occurs when the air temperature are well below freezing (lower than -2°C). This form of snow is very fine (like sugar crystals), drifts very easily, but does not tend to stick to objects. It can be handled by snow blowers. Salt is usually less effective.

Prolonged

Used to describe showers, which merge together producing a spell of continuous precipitation lasting one hour or more.

Rain

When used on the forecast hazard table: Rainfall over 2mm/hour at anytime over 24 hours. This is given for salt wash-off purposes only.

Rain or Snow

When used by themselves, i.e. without the word "shower", it means a long spell of precipitation, generally lasting more than one hour and covering a relatively large area.

Rime

Deposition of ice from freezing fog. This is a white form of ice, similar to hoar frost, but has a finer (at times feathery) structure. On roads, this tends to be more of a problem at higher levels.

RST

Abbreviation for road surface temperature.

Scattered / Occasional

Used to describe showers. "scattered" or "occasional" showers imply that a wide covering of showers across the area expected. Many places will see a shower but one or two locations will stay dry. The probability of a location having a shower will be in the range of 30-60%. May be abbreviated to SCT/OCC.

Shower

A short spell of precipitation, generally less than an hour, covering relatively small area. It can be assumed that shower will be of rain, unless prefixed by a qualifying word, e.g. snow, wintry shower, etc.

Snow Amounts

Slight: Undisturbed accumulations of snow reaching a depth of less than 25mm.
Moderate: 25 - 100mm. Heavy: Over 100mm.

Spell

Used to describe the length of cloud breaks or amounts of sunshine, generally more than one hour, but less than two hours.

Trend

The likely direction the weather is going over the next two to five days, e.g. "Turning much colder with night frosts and scattered snow showers", "cold and frosty at first, but becoming milder by Sunday", "little change through this period", or "remaining mild and windy", etc.

Wet Snow

Snow which falls with air temperatures close to freezing point. It melts easily and can be very sticky. In the UK, this is more common than powder snow.

Widespread / Frequent

Used to describe showers. The terms "frequent" or "widespread" showers imply that nearly all areas will catch a shower and most places will see more than one shower. The probability of a location having a shower will be in the range of 70-100%. May be abbreviated to **FREQ**.

Wind

When used on the forecast hazard table: Gusts over 25 mph.

Wintry

Used to describe showers when the precipitation consists of a mixture of the following: rain, sleet, hail, snow pellets, snow grains (snow pellets 2-5 mm in diameter, snow grains less than 1mm in diameter).

6.4 Accessing Weather Information

There has been a conscious drive to make the weather related information as accessible as possible to all staff 24-hours a day, seven days a week. This has largely been achieved by the use of third party web sites. Ice detection data is polled every 15 minutes by the Vaisala Bureau in Birmingham from where it is made available across the web and sent to the HOCC. Forecast information is also transmitted to the Vaisala Bureau and the forecaster receives site data from the Bureau. Most weather information is available on any internet PC, and is not restricted to the Devon County Council network.

The following websites are accessible to all staff on any internet ready PC, but are password protected and security must be maintained to adhere to the terms of our licence agreement. Some information is made available to our term maintenance contractor, but account and password information should not be divulged and access to these systems (where they are not made publicly available) is not permitted to other third parties without express written permission. Where there is a genuine need, a request should be made through the Operations and Communications Manager.

Met Office OpenRoad (MetWeb) <http://www.metoffice.gov.uk/premium/openroad/>

Met Off Severe Weather (MetO)

http://www.metoffice.gov.uk/weather/uk/sw/sw_forecast_warnings.html

Vaisala ICENET service <http://birice.vaisala.com/IceNet/>

[Vaisala ICEWEB service <http://birice.vaisala.com/iceweb/uk/dv/native/>]

Environment Agency (public) <http://www.environment-agency.gov.uk/subjects/flood/floodwarning/>

Vaisala have introduced a new product called **ICENET** which will be available this winter, but requires a personal login. ICENET enables the user to retrieve archive weather data, rather than just current information provided on ICEWEB. At some stage the ICEWEB service may be withdrawn.

These addresses will take you to a login page where you should enter your username and password supplied by your manager. Each has a help facility which identifies abbreviations and terminology used.

	MetO	Email	ICENET	Met Web	EA web
Forecast text (24h and 2-5 day)		✓	✓	✓	
Forecast Graphs			✓	✓	
Route-based forecasting (South)				✓	
Thermal Map			✓		
Tabular site data			✓		
Graphical site data			✓	✓	
Geographical site data			✓		
Recent site history data			✓		
Adjacent highway authority data			✓		
Web cams			✓		
Radar				✓	
Satellite				✓	
Statistics				✓	
Severe weather warnings	✓	✓		✓	
Flood warnings		✓			✓
Extreme Rainfall alerts		✓			
Flood Operational Guidance		✓			

- *Note: Fax will be used as an operational backup if other systems fail.*

Archive information

Extensive archive information is available through the IceNet system. However this information should not be released outside the Authority without consulting the Operations and Communications

Manager, to ensure that the appropriate caveats are made with regard to this data, and to ensure consistency, as some data could be misleading if taken in isolation.

Thermal Mapping

The thermal mapping is a useful tool that takes its data from the latest forecast information and extrapolates this information from across the forecast site to the adjacent salting network. Whilst this can be a very useful aid and guide, it should be remembered that the thermal mapping information is a number of years old and where significant changes have been undertaken in the road construction, some inaccuracies may occur. It is expected that the route based forecasting developments will supersede the thermal mapping.

Note on Chemical Factors and Surface States:

One key difference between Findlay Irvine and Vaisala sites is the way in which the residual salt is measured. Findlay Irvine sites make a crude measurement of Chemical Factor as a percentage in four steps of 0,30,60,90, but only when the sensor is wet. Vaisala sites make a measurement of the depressed freezing point (i.e. the temperature to which the road is protected against ice due to the salt) and also converts this to a chemical factor in a range 0 to 180. It reports a measurement all the time but this should be considered unreliable, and possibly erroneous, if the road is dry or drying out. Some surface states are linked to this measurement and they should also be considered carefully when the road is dry or drying (e.g. TR for treated etc). Other surface states and alarms reported by the FI sites are translated to the nearest Vaisala equivalent as listed above.

6.5 Ice Detection Outstations

There are 35 outstations in the County, two of which are located in the footway. There are two different types –Vaisala ROSA and Findlay Irvine - with combinations of the following sensors:-

- Road surface temperature.(all)
- Road depth temperature (forecast sites only)
- Air temperature.(all)
- Wind speed (see table)
- Wind direction (see table)
- Relative humidity.(all)
- Precipitation. (all)
- Surface states (all)
- Web camera. (see table)
- Present weather detector (PWD - see table)
- Second road sensor (see table)
- Laser surface measurements (Craze Lowman third road sensors only – see note 2)

The Highways Agency has installed a new network of sites on their roads and there will be a full exchange of data from these. The existing County sites on the trunk road network have been decommissioned and replaced with sites on County roads.

It is important for the integrity of the system that any sensor faults identified are promptly relayed to the Highway Operations Control Centre by Areas, and that Area staff ensure that the sites are kept free of encroaching foliage. Repairs are to be put in hand as soon as possible with the outstation maintenance contractor who is also responsible for the calibration of the sensors prior to October each year, with an intermediate check in January.

All personnel must be aware of sensor locations. If any maintenance works are planned to be undertaken on lengths of carriageways containing sensors, the Highway Operations Control Centre should be consulted one month prior to the works. Arrangements will then be made, if necessary, for the disconnection of the sensor and subsequent replacement.

ICE DETECTION SITES											
Site	Make	Road	Location	Height AOD	O.S.Grid Ref	Type	Web cam	2nd RST	PWD	Wind	Note
Barnstaple sub Area											
32*	Vaisala	A399	Bratton Down *	320	266200 139000	Forecast	✓			✓	
33	Vaisala	A361	Ashmill	45	278600 123600	Extended	✓		✓	✓	
40	Findlay Irvine	B3226	Little Stone	105	269200 124800	Basic					
52	Vaisala	A361	Portmore	50	258260 132103	Extended			✓	✓	
55	Vaisala	A361	Taw Bridge	25	254900 133200	Wind only				✓	1
Eastern sub Area											
2	Findlay Irvine	B3181	Poltimore Bowls	20	297026 095521	Basic					
11	Findlay Irvine	A3052	Three Horse Shoes	170	318736 091220	Basic					
13	Findlay Irvine	A376	Exton Camp	30	298766 086100	Basic					
38*	Vaisala	A30	Yarcombe *	260	324266 108015	Forecast	✓		✓	✓	
39	Findlay Irvine	B3165	Raymond's Hill	200	332868 096955	Basic					
Exeter sub Area											
12	Findlay Irvine	u/c	RD&E Exeter	30	293441 091630	Basic					
Ivybridge sub Area											
5	Findlay Irvine	A385	Marley Head	140	271936 060703	Basic					
20*	Vaisala	A3122	Halwell Camp*	185	278387 053022	Forecast				✓	
Newton Abbot sub Area											
7*	Vaisala	A380	Telegraph Hill *	220	290958 082941	Forecast	✓	✓	✓	✓	
10	Findlay Irvine	A380	Kingsteignton	20	287809 072377	Basic					
16	Findlay Irvine	B3212	Culver Bottom	90	284723 090003	Basic					
17	Findlay Irvine	A382	Slade Cross	140	279821 081287	Basic					
44	Findlay Irvine	Footway	Newton Abbot		286010 71330	Footway					
Okehampton sub Area											
8	Vaisala	A382	Whiddon Down	230	269456 092671	Basic					
9	Vaisala	B3357	Rundlestone	450	257603 074962	Extended	✓		✓	✓	
21*	Vaisala	A386	Shortacombe *	280	252443 086465	Forecast	✓			✓	
22	Findlay Irvine	A386	Yelverton	185	252069 067769	Basic					
23	Findlay Irvine	B3362	Tuelldown	205	242545 078010	Basic					
41	Findlay Irvine	A3072	Hillsmoor	85	253195 103714	Basic					
43	Findlay Irvine	Footway	Okehampton		258840 95220	Footway					
Tiverton sub Area											
14	Findlay Irvine	A377	Wellparks	40	284429 099617	Basic					
15	Findlay Irvine	A377	Chawleigh Week	70	268422 112819	Basic					
34	Findlay Irvine	A396	Exbridge	125	293339 124195	Basic					
51	Vaisala	A3072	Cadbury Cross	195	290779 105250	Basic					
53*	Vaisala	A361	Craze Lowman	100	299106 114115	Forecast	✓	✓	✓	✓	2
Torrington sub Area											
26	Vaisala	A388	Nether Bridge	55	234967 089817	Extended				✓	
27	Findlay Irvine	A3079	Halwill Junction	180	244286 099925	Basic					
28*	Vaisala	A388	Waldon Bridge*	115	236810 110165	Forecast					
30	Findlay Irvine	B3220	Beaford Moor	165	256370 114466	Basic					
54	Vaisala	A39	Waytown	160	236245 122821	Extended	✓			✓	

Note 1 – Taw Bridge site only has an anemometer to monitor wind speed and direction across new bridge.

Note 2 – Craze Lowman has two additional sensors (sensor 3) which monitor adjacent minor road for presence of hoar frost as part of a research project with the Met Office. (Site previously called Uplowman.)

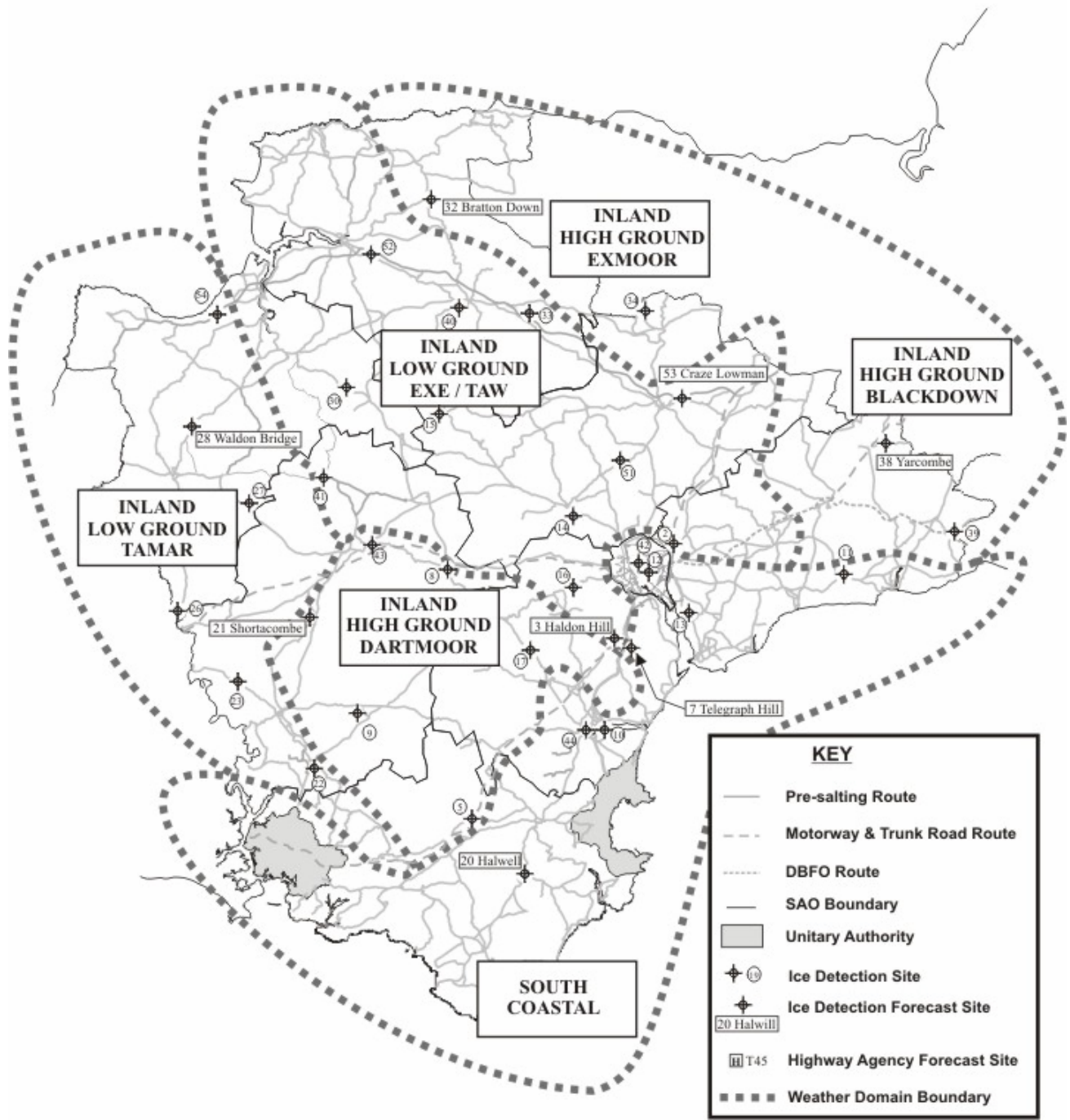
6.6 Adjacent Authorities' Ice Detection Outstations

There are several other ice detection outstations for which data may be available via web sites.

Owner	Site/Type	Road	Description	O.S. Grid Ref	Altitude
Torbay Council	V *	A380	Tyre Compton	287878 65578	150m
Plymouth	V *	A386	Tavistock Road	250020 60793	
Plymouth	V		Alma Road	246753 56160	
Cornwall C C	F *	A30	Five Lanes	221647 80307	
Cornwall C C	F *	A38	Landrake	237090 60400	
Cornwall C C	F	A39	Crimp	225547 115387	
Cornwall C C	F *	A38	Liskeard	223474 64593	
Highways Agency	T50 / V *	A303	Stopgate Cross	E232600 N109800	255m
Highways Agency	T43 / V *	M5	Willand	E304060 N113000	70m
Highways Agency	T44 / V *#	M5	Junction 31	E293030 N087840	50m
Highways Agency	T45 / V *#	A30	Cheriton Bishop	E278230 N093425	150m
Highways Agency	T46 / V *	A30	Ebsworthy	E249810 N090600	140m
Highways Agency	T47 / V *#	A38	Buckfastleigh	E274640 N066980	40m
Highways Agency	T48 / V *	A38	Heathfield	E283700 N076250	10m
Highways Agency	T49 / V *	A38	Smithhaleigh	E259190 N055520	70m
Highways Agency (Cornwall)	V *#	A30	Two Bridges	E227020 N081750	110m
Highways Agency (Cornwall)	V *#	A38	Landrake	E237090 N060400	80m

V - Vaisala ROSA Site F - Findlay Irvine Site * - Forecast Site
- Mains powered site with present weather sensor

ICE DETECTION OUTSTATIONS AND WEATHER DOMAINS



7 Action / Operational Procedures

7.1 Introduction

A good communications network is essential to ensure a speedy and effective response to winter conditions. The Highway Operations Control Centre (HOCC) acts as Devon's co-ordination centre for both routine winter service and severe weather emergencies. To control operations, links are required between the Highway Operations Control Centre, Highway Management (HQ), Areas and the maintenance contractor. This is achieved using winter service management systems which hold information on operations, weather, road conditions, routes, costs, etc.

The forecast together with other available information is considered and a proposed action is made by Highway Management (HQ) Weather Contact (HQ WC) and modified using any local condition information known to the Area Weather Contact (AWC) if appropriate. To ensure appropriate action, decisions will be determined on a route by route basis. From the start of the winter it is proposed that a new web based system will be in operation for recording the proposed, confirmed and actual actions. Should a problem exist with this system then the forms in Appendix 4 should be used. A check sheet / recording form which can be used if required when receiving forecast information by phone is in Appendix 5.

7.2 Performance Indicators

The National Code of Practice "Delivering Best Value in Highway Maintenance" introduced performance indicators to report on the efficiency of undertaking winter service operations. The definitions are given in full in Appendix 10.

The indicator used to monitor the efficiency of preventative operations is a Southwest Region variation based on SE2 and is defined as the number of occasions that all the precautionary salting routes were completed within the planned target time (outcome indicator). To make this as useful as possible, each Area will be reported individually. Normally the HOCC will collect data by monitoring the information received from GPS and the ice detection sites. If a reserve gritter without GPS is used, then the contractor must log the actual start and finish of gritting times and report them to HOCC the next working day.

7.3 Staff Contact Definitions

Standby HS	The Highway Superintendent on duty out of normal hours to deal with incidents affecting the public highway.
Area Weather Contact (AWC)	A designated person (usually at Highway Engineer level) responsible for reviewing any action proposed if necessary and discussing and agreeing any changes with HQ contact, and confirming the lunch-time action for their area, and instructing the contractor on the action for the area.
HQ WC	The nominated officer from HQ who is responsible for the initial determination of the daily action from the forecast information and acts as the HQ weather contact for the 24 hour period from that lunchtime. Where the lunchtime and overnight HQ weather contacts are different officers, there should be a briefing between the two for continuity.
Inspection Person	The person appointed to undertake a specific inspection at a specific time, usually a Highway Superintendent.
Inspection Buddy	The person appointed to 'buddy' the Inspection Person or Standby Highway Superintendent during an inspection, usually a Highway Superintendent. The Inspection Buddy will generally be contacted by the Standby HS or Inspection Person
SAO Contact	Either the Standby HS or Inspection Person depending on the Action and the time of any inspection

7.4 Proposed Action

The action proposed, by route, will be one of the following:-

Action	Qualifier (optional) <parameter>	When used	Action to be taken
No Planned Action		When no problems are foreseen and normally when forecast state is GREEN	No action planned. HOCC, area standby and contractor will respond if required
Monitor	(DF)	<p>When conditions are marginal and the forecast confidence level is low, including for hoar frost and snow. Also normally used following a pre-salt. Often used when forecast state is AMBER.</p> <p>DF (Dawn Freeze) qualifier added when the minimum temperature occurs after 5am so HOCC and all staff are aware of this.</p>	<p>No pre-treatment planned but HOCC will monitor weather systems and consult with the forecaster as necessary. The Standby HS will be contacted if an inspection or action decision is required. (Standby HS to contact Inspection Buddy if needed).</p> <p>When DF added, as above but HOCC will liaise with forecaster before 3.30am for up to date assessment of forecast. Any action will need to be decided before 4.30am to be completed before the peak travel period.</p>
Inspect	(DF) <time> <reason>	When ice, hoarfrost or snow is predicted and conditions are to be assessed by SAO staff before determining the action and timing in liaison with HOCC. May also be used for other emergencies e.g. flooding. DF (Dawn Freeze) qualifier added when the minimum temperature occurs after 5am so HOCC and all staff are aware of this.	<p>An Inspection is undertaken by the Inspection Person and Buddy to determine local road conditions (e.g. runoff, snow, flooding, etc), where these are not readily determined by the weather monitoring systems available in the HOCC.</p> <p>When DF added, as above but HOCC will liaise with forecaster before 3.30am for up to date assessment of forecast. Any action will need to be decided before 4.30am to be completed before the peak travel period.</p>
Pre-salt	<rate> <time>	When ice, hoar-frost or snow is confidently forecast and the route is to be treated. Normally but not always used when forecast state is RED .	Route is pre-treated, at a specified time and spread rate. This action will normally be accompanied by Monitor to alert Standby HS to potential for further action (e.g. if salt is washed away).

Wet Patch Salt	(DF)	When temperatures are predicted to fall below zero, but road surfaces are mainly dry and only wet patches are to be treated. May be used where previous treatments need further selective re-treatment (e.g. because of run-off).	Route is treated at the spreader driver's discretion during daylight, or to known trouble-spots (e.g. where there is a known runoff problem) at any time.
	<rate> <time>	DF (Dawn Freeze) qualifier added when the minimum temperature occurs after 5am so HOCC and all staff are aware of this.	When DF added, as above but HOCC will liaise with forecaster before 3.30am for up to date assessment of forecast. Any action will need to be decided before 4.30am to be completed before the peak travel period.

Qualifiers	DF	Dawn Freeze minimum temperature predicted after 5 am
	<time>	Time action on highway network required to start
	<rate>	Rate of spread of salt required
	<reason>	Reason for inspection to be undertaken

7.5 Inspections

Inspections will be undertaken when the information available through the Weather Information Systems (ice detection, weather radar etc) leaves some uncertainty about potential hazards with the state of the road surface.

Any inspection must be undertaken in accordance with the standard safe working procedures described in Appendix 11. A form for recording observations and a form to monitor hours worked, including on standby is at Appendix 4.

During a **MONITOR** action, inspections will be undertaken by the Standby Highway Superintendent (and Inspection Buddy if needed), if the HS is contacted by the HOCC and it is not possible for them to determine the appropriate action to be taken from the information they both have available.

When **INSPECT** is the action, it will be qualified with a time and a reason, and two named individuals, Inspection Person and Inspection Buddy will be identified to undertake the inspection. Examples of a reason include:

Wash-off	Where the roads have been pre-treated but subsequent rain may have washed the salt away to leave inadequate residual salt
Ice	To determine if ice is present
Snow	To determine the depth of snow and whether any previous treatment has been adequate
Hoar frost	To determine existence of hoar frost – this may be difficult to determine by staff and therefore careful consideration must be given before this is used.
Flooding	To determine the extent of flooding problems and would normally be undertaken at dawn.
Obstructions	To determine the effect of severe weather, again usually at dawn.

An additional qualifier **DF**, meaning **Dawn Freeze**, will be added when the temperatures are predicted to fall below zero after 5am. A decision needs to be taken **before 4.30am** if possible (to enable actions to be completed before the morning peak traffic flows). The Standby HS should determine which routes should be treated (after considering any relevant runoff problems). Run-off problems should be reported to the AWC daily to assist the decision making process.

7.6 Residual Salt

The decision to salt should include a risk assessment of probability of ice forming against residual salt levels by considering the following factors:

- time since last salting
- the amount and rate of any rainfall (>2mm/h may wash-off salt)
- surface water from various sources including runoff, absorption, leaks, etc
- sensor information
- method of treatment [dry or pre-wet]
- traffic
- wind

Residual salt should not normally be relied on for more than 2 nights [this includes the night the treatment was for] – i.e. if other factors are acceptable and there was a treatment on day 1 then it may be possible to not salt on day 2 but on day 3 there should be a treatment.

7.7 Timing of Action

Treatment should be completed before the onset of frost and snow but after any other precipitation where practicable. With a scenario of rain turning to snow, treatment during rain is inevitable and consideration should be given to immediate re-treatment. Salting during the peak travel times should be avoided wherever possible. Salting should not be undertaken too far in advance when it could result in the salt being dissipated under the action of wind, traffic or dilution, or wasted if conditions change.

Morning salting operations should be completed where possible by 7.30am to best protect road users and avoid congestion and confirmation of a salting action should be by 4.30 am at the latest. It should be noted that any times for decisions or actions given in any part of this Section are for information or guidance and are not to be taken to preclude action at any time as and when appropriate in response to actual, reported or forecast road states or weather conditions.

7.8 Response and Treatment Times

When immediate winter service operations are ordered from the maintenance contractor, the response time is defined as the period between the instruction being given and arrival at the first point of salting on the route. Treatment time is defined as the period between the start and finish of spreading salt on the route, not the times of leaving and returning to the depot.

For 10g/m² and 20g/m² treatments in normal circumstances the **response time** on the pre-salting network is to be **1 hour** and the **standard treatment time** is to be **2½ hours** due to the conditions, topography and for the efficient use of plant. Therefore the total target time for completion of salting from an instruction to salt roads immediately is normally **3½ hours**, this will be monitored using GPS and if necessary and where possible, routes adjusted to be completed within this time. The long term target is to reduce the treatment time towards 2 hours.

7.9 Adjacent Areas – Cross Border Routes within DCC

Where part of an Area's network is covered by an adjacent Area's route, adequate liaison must be undertaken between areas to ensure all routes receive the required treatment, and there is cross boundary consistency. This is particularly important when an action results from an overnight MONITOR or INSPECT action.

7.10 Other Highway Authorities

Each AWC must be aware of the proposed actions of the Highways Agency's agents and other highway authorities within and adjacent to their Area including any later changes. The HOCC will liaise with the Highways Agency's agents and inform the appropriate AWC of the proposed action, together with any later changes if there are significant differences to the Area's earlier action. The

AWC will liaise with their adjacent authorities and the AWC should then consider and amend the proposed action if appropriate in liaison with HM (HQ) contact if necessary.

The following sections of Devon County Councils highway network are salted by adjacent authorities. The relevant AWC will need to make arrangements to treat them, if required, when the adjacent authority are not pre-salting their roads. Detailed maps of these sections are shown in Appendix 15. A formalised arrangement has been agreed with Cornwall Council for the sections of the A39 and B3254 that are treated for Devon by Cornwall; these will be treated in accordance with Cornwall's salting policy.

Area Office	Road Number	Location/Description	Adjacent Authority
South	A380	Torbay Ring Road, Marldon	Torbay Borough Council
South	A379/B3205	Kingswear area	Torbay Borough Council
East	A3015	Moor Lane Roundabout, Honiton Road to the M5 over bridge	Highways Agency
North	A39	Welcombe Cross to County Boundary	Cornwall County Council
North	B3254	Jewells Cross to Bevill's Hill	Cornwall County Council

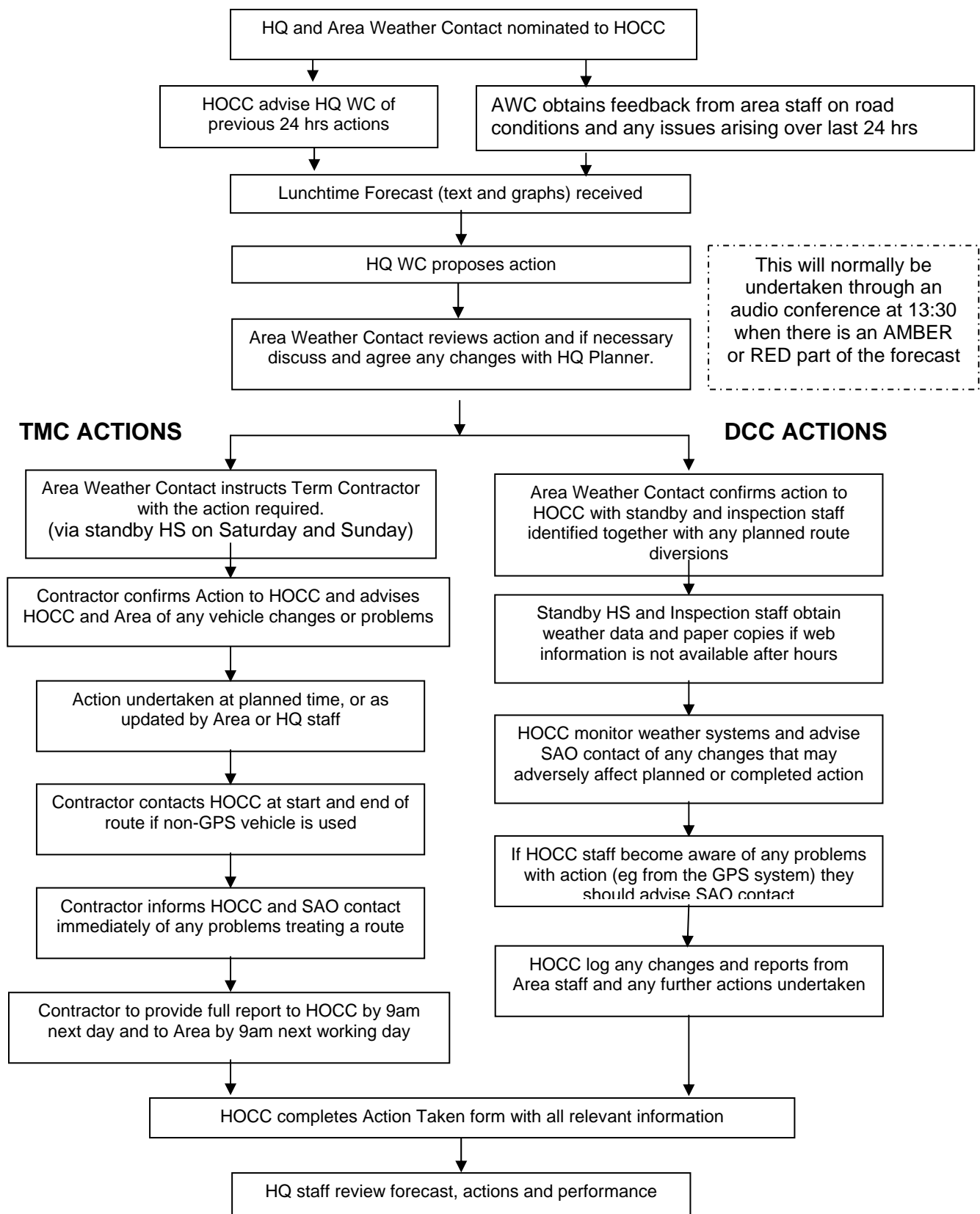
7.11 Extended Cold Periods

When temperatures are forecast to be below zero for the following 24 hour period or longer, salting off the pre-salt network should be proactive by treating the routes to the settlements listed at Appendix 3, within the available resources [including use of the whiteout fleet if appropriate]. Consideration should also be given to proactively treating high priority footways and cycleways, within available resources.

7.12 Procedure

Highway Management (HQ) will nominate an out of hours weather contact for each day during the winter period. Each Area will nominate a Weather Contact for each day including Saturday and Sundays during the winter period and advise the HOCC of their contact details **no later the midday on the last working day of the week**. The Area Weather Contact will be responsible **over the lunchtime period** for agreeing the proposed action with the nominated Highway Management (HQ) contact and passing it to the maintenance contractor, the Standby HS and other involved winter staff.

The following flow chart and tables set out the general action decision process and specific requirements for each of the designated actions. The proposed action, together with the rationale for it should be recorded together with the reasoning for any amendments agreed between the Area and Highway Management which should be added by the Area Weather Contact. The HOCC will add any comments and update information relevant over the remainder of the forecast period.



General procedure: Deciding the Action over the lunchtime/early afternoon period

- The action will normally be recorded and managed through the web action management system WAMS where its progress can be monitored. If the system fails then the form in Appendix 4 will be used by all staff involved in the process. WAMS will automatically send emails internally and externally.
- Forecast normally received between 12.30 and 13.00 hours by HOCC.

- **HOCC** advises the HQ WC contact that the forecast has arrived (alerting by phone at weekends) and of the last action taken
- **AWC** ensures that they have obtained any appropriate feedback from area staff that may affect their area action.
- **HQ WC** contact examines forecast, completes rationale, and provides proposed actions and timing for each route to the HOCC targeting 1400 hours when possible. Where the action is AMBER or RED for any domain an audio conference should be undertaken at 13:30 with the AWC and should also include the contractor and HOCC if possible. HQWC to brief HOCC if they cannot attend conference.
- **Each FRIDAY – Weekend STANDBY HS** – to liaise with colleagues and note runoff if known, major roadworks, who available for Inspection Person or Buddy if needed for Sat & Sun and actions to date.
- **AWC** reviews forecast graphs and proposed action & from feedback obtained earlier from staff, takes account of residual salt, and run-off problems, agrees any amendments with HQ WC contact, normally through the audio conference
- **AWC confirms action asap** but by 1430 hours and instructs the **TMC contractor** either directly or through the duty HS
 - ** If IT difficulties & email not possible confirm verbally to HOCC who complete App 4 and circulate.
 - ** AWC to complete record of Actions and reasons for changing proposal.
- **AWC** confirms instruction verbally given to the TMC contact if positive action is required. (done via Standby HS at weekends who each direct their partner TMC agent).
- **AWC** ensures the Standby HS and Inspection Person and Buddy receive notice of forecast, rationale and actions..
- **AWC - Weekdays** - if not an NPA – check Standby HS & Inspection Person and/or Buddy as required have viewed forecast & forecast graphs and have hard copy to take home overnight if not easily accessible on line out of hours. (** If HS's involved cannot access forecast and graphs, as a minimum AWC to explain and HS's to note).
- **AWC - Weekdays** ensures details of DCC staff, undertaking Monitor and/or Inspection action as required, are provided to HOCC & known to Standby HS. (Weekends–AWC to ensure HS briefed to do. HS to refer back to AWC or other HE if difficulties).
Standby HS's – Weekends - to liaise with colleagues to Monitor and/or Inspect and advise HOCC.
Standby HS's – Weekends - to also explain forecast & graphs to Inspection Person and/or Buddy.
- **AWC**, when appropriate liaises with other highway authorities including trunk road maintenance authorities within and adjacent to their Area to establish their planned action. Any resulting changes to the proposed Area action, after discussion with HQ WC contact if appropriate, will be communicated to the HOCC, the contractor and staff involved in weather for the period.
- **TMC "Area Contact"** confirms action to be taken by 15:00 or earlier if action is required in the afternoon. HOCC to monitor that all actions have been confirmed by contractor and follow-up if not.
- The above target timings may need to be brought forward if the forecast time of freezing or snow dictates. (The target times may slip if forecast late and/or weather involved make decision difficult).
- **In the event of computer failure** the HOCC will phone forecasts to HQ WC and AWC by 1330 hours with agreed actions by routes phoned to the HOCC by 1500 hours.
- **HOCC** examines any action information provided from adjacent highway authorities and contacts the HQWC if there is any inconsistency with the Devon action that causes concern.
- **HOCC** - If no action has been taken, but frost or ice is subsequently reported the SAO contact must be informed by HOCC and if possible problem areas treated (see following box "Reports of Ice").
- **HOCC** - If HOCC become aware of changes to the proposed actions of adjacent highway authorities and these give concern then the HQWC, AWC or SAO contact should be informed as appropriate.

General procedure: Contacts Out Of Hours

- When the action is No Planned Action or Monitor the SAO contact is the Standby HS for all issues including weather and emergencies.
- When the action is Inspect, the SAO Area contact is dependant on the reason for the contact as well as the time and duration of the inspection –
 - a) For problems not related to weather, the Standby HS is the contact at all times unless there is an inspection in progress and the inspection person or buddy could deal with the incident without affecting the inspection.
 - b) For inspections planned to commence before 1am weather related calls go to the inspection person until the inspection is complete, once the inspection is complete weather related calls go to the Standby HS.

E.g. – inspection commencing 8pm and complete by 10pm the SAO Contact before 10pm is the inspection person after 10pm weather related calls go to the Standby HS
– inspection commencing 11pm and complete by 2am the SAO Contact before 2am is the inspection person after 2am weather related calls go to the Standby HS
 - c) For inspections planned to commence at 1am or after weather related calls go to the Standby HS until 1am. After 1am weather calls go to the inspection person.

E.g. - inspection commencing 3am and complete by 5am the SAO contact before 1am is the Standby HS after 1am weather related calls go to the inspection person.
- If no action has been taken, but frost or ice is subsequently reported the SAO contact must be informed by HOCC and if possible problem areas treated (see following box “Reports of Ice”).
- If the HOCC become aware of any changes to the proposed actions of the adjacent highway authorities and these give cause for concern then the SAO contact should be informed and should determine whether to revise the agreed action and instruct the contractor.

The following 5 sections give additional specific requirements for the defined courses of action (a) to (e):

(a) No Planned Action

- a.1 HOCC monitors road and weather conditions and liaise with the forecaster as necessary.
- a.2 If isolated sites fall below +0.5°C, with nearby sites not showing a similar trend, the HOCC should first determine if there is a fault with the site or if hail showers are occurring, the forecaster may also be able to advise. If there is cause for reasonable concern, the Standby HS should be called to investigate and determine the appropriate action and communicate it as below.
- a.3 If there is a trend of temperatures falling below prediction in a locality; the HOCC should notify the Standby HS when site(s) rapidly approach or fall below +0.5°C when ice (particularly considering runoff possibilities), hoar frost, or snow is likely to develop for investigation by the Standby HS who then determines the appropriate action and communicates it as below.
- a.4 If road temperatures generally drop below +0.5°C (or are dropping rapidly to +0.5°C) HOCC are to consult with forecaster and then call HM (HQ) contact if there is cause for reasonable concern, e.g. precipitation, runoff or snow forecast, the sensors showing adsorption, wet, frost or not enough salt. HM (HQ) contact recommends an action, if appropriate, which is communicated by HOCC to the Standby HS(s). The Standby HS amends proposed action, if appropriate in liaison with HM (HQ) contact, to take account of local conditions (after considering run-off if relevant) and communicates it as below.
- a.5 The Standby HS gives written or verbal instruction to the maintenance contractor of the revised action.
- a.6 The Standby HS will inform HOCC of any action undertaken.

(b) Monitor

b.1	<p>HOCC monitors road and weather conditions and liaises with the forecaster as necessary. If the forecast temperatures are expected to remain above freezing, then follow para. 2 below. If the forecast is marginal or for hoar frost or snow when associated with a low confidence level then follow para. 3 below to allow for a later decision to be taken following consultations with the forecaster.</p> <p>The Monitor action is also used in conjunction with a salting action to alert the Area of the need to appoint a buddy in case an extensive inspection is subsequently required, to alert the Standby HS that he may receive weather or salting related calls and so he needs to be familiar with the forecast. In this instance the procedure to be followed will be as set out in the section on Pre-salt or Wet Patch Salt.</p> <p>The Standby HS and buddy must be familiar with the appropriate forecast graphs and time of minimum temperatures. Follow one of the 3 subsections:</p>
Temperatures expected to be above freezing -	
b.2	<p>If isolated sites fall below +0.5°C, with nearby sites not showing a similar trend, the HOCC should first determine if there is a fault with the site or if hail showers are occurring. The forecaster may also be able to advise.</p> <p>If there is cause for reasonable concern the Standby HS should be called to investigate and determine the appropriate action and communicate it as below.</p>
b.3	<p>If site(s) rapidly approach or fall below +0.5°C when ice (particularly considering runoff possibilities), hoar frost, or snow is likely to develop with other nearby sites showing a similar trend the HOCC should notify the Standby HS who will investigate, determine the appropriate action and communicate it as in para b.9 below.</p>
Temperatures expected to be marginal or low forecast confidence of ice or snow -	
b.4	<p>HOCC contacts the forecaster at appropriate intervals depending on forecast and current weather conditions for the latest weather update, particularly noting predicted minimum temperatures and timings, together with a comparison of the predicted and actual graphs and likelihood of ice formation (particularly considering runoff possibilities), hoar frost or snow.</p> <p>If there is a likelihood of ice formation, hoar frost or snow then HOCC informs the Standby HS who determines the appropriate action and communicates it as in para b.9 below.</p>
b.5	<p>If further advice is required, call the HM (HQ) Contact.</p>
DF qualifier – Dawn Freeze scenario	
b.6	<p>At 3am the HOCC contacts the forecaster for the latest weather update, particularly noting predicted minimum temperatures and timings, together with a comparison of the predicted and actual graphs and likelihood of ice, hoar frost or snow.</p>
b.7	<p>If there is any possibility of ice, hoarfrost or snow in an Area from forecaster predictions or because the actual temperatures are running below the predicted temperature graph, the Standby HS should be informed.</p>
b.8	<p>As soon as possible but before 4.30am if possible (to enable actions to be completed before the morning peak traffic flows) the Standby HS should then determine which routes should be treated (after considering any relevant runoff problems). An inspection should not be undertaken at 4 to 5 am for temperature alone if the Ice Detection System indicates that these are not near or rapidly falling to freezing, but may be undertaken to determine run-off problems if these are possible. See para b.9.</p> <p>Treatment Instruction</p>
b.9	<p>The Standby HS gives written or verbal instruction to the maintenance contractor of the revised action.</p>

(c) Inspect

c.1	This action will be qualified with the start time and reason for the inspection, the SAO Contacts (ie Standby HS or Inspection Person, and buddy) should be aware that the time of the Inspection may vary or be abandoned depending on the actual weather conditions. The SAO Contact must be familiar with the appropriate forecast graphs and time of minimum temperatures.
c.2	If a Pre-salt precedes this action then follow that procedure; otherwise follow the Monitor Procedure until the designated inspection time.
c.3	For inspections commencing before 1am, the SAO Contact during the evening will be the Nominated Inspection Person until the Inspection is complete, the SAO Contact for the rest of the period will be the Standby HS unless there is a further specific SAO Contact for a later Inspection. For inspections commencing after 1am, the SAO Contact during the evening up to 1am will be the Standby HS. The SAO Contact after 1am and for the rest of the period will be the Inspection Person. Follow one of the two subsections.
	Without DF qualifier:
c.3	The Inspection Person liaises with the HOCC immediately prior to commencing the Inspection to obtain a forecast update and the prevailing conditions to decide if the Inspection should proceed or be abandoned. If necessary confirming or amending any planned action by the maintenance contractor by verbal or written instruction. See para c.9
c.4	Inspections should be carried out from vans and will be undertaken in accordance with the requirements set out in the Standard Safe Working Procedure.
c.5	During or following the inspection, the Inspection Person will confirm or amend as necessary (after considering any relevant runoff problems), the planned action to the maintenance contractor by verbal or written instruction.
	DF qualifier –Dawn Freeze scenario
c.6	At 3am HOCC contact the forecaster for latest weather update, particularly noting predicted minimum temperatures and timings, together with a comparison of the predicted and actual graphs and likelihood of ice, hoar frost or snow.
c.7	At the planned start of the inspection the Inspection Person liaises with the HOCC to obtain a forecast update and the prevailing conditions, to decide if the inspection should proceed or be abandoned. If necessary confirming or amending any action planned by the maintenance contractor by verbal or written instruction. See para c.9 If temperatures are higher than expected and a frost or snow is no longer predicted, then the inspection will be abandoned unless specifically instructed for other purposes (e.g. flooding etc). For a Dawn Freeze, an inspection should not be undertaken for temperature alone if the Ice Detection System indicates that these are not near or rapidly falling to freezing, but may be undertaken to determine run-off if this may be a problem.
c.8	As soon as possible during the inspection but before 4.30am , the Inspection Person will confirm or amend as necessary (after considering any relevant runoff problems), the planned action to the maintenance contractor by verbal or written instruction. See para c.9 This will enable actions to be completed before the morning peak traffic flows.
	Treatment Instruction
c.9	The Inspection Person will inform the HOCC of the decision and any action to be undertaken, as soon as possible after the contractor has been informed.
c.10	On completion of the inspection, the Inspection Person will complete the inspection record sheets with details of the information obtained during inspection and the justification for the decision taken. This information must be securely filed in the Area Office.

(d) Pre-Salt

- d.1 The HOCC monitors road and weather conditions and liaises with the forecaster as necessary.
- d.2 Unless the pre-salt is imminent or already underway, the HOCC should notify the SAO Contact ... (normally the Standby HS unless an INSPECT has been added to this action, in which case the Inspection Person should be advised when required by the INSPECT procedure) ... as soon as possible if forecast sites indicate road temperatures are likely to reach freezing earlier than expected or other sites are likely to reach freezing or snow falling before the pre-salt has been completed in that Area. The HOCC should liaise with, and seek advice from, the forecaster determining the latest information available if there is any uncertainty about the situation, prior to communicating with the SAO Contact.
- d.3 The SAO Contact decides action (after considering any relevant runoff problems) and informs the HOCC who will amend the records.
- d.4 The SAO Contact gives written or verbal instruction to the Maintenance Contractor of the revised action.
- d.5 The maintenance contractor will be responsible for undertaking the pre-salt at the planned time and the HOCC will use the GPS system to monitor progress as far as reasonably practical to ensure all planned routes are appropriately treated. If the contractor has any problems starting the routes at the planned time he will immediately advise the HOCC and the SAO Contact if appropriate.
If when monitoring the GPS system, the HOCC are concerned that routes have not been treated as required by the planned action, the HOCC will call the SAO Contact so that he can resolve the problem with the contractor. Where a non GPS gritter is used the contractor is to telephone the HOCC when leaving the depot and when returning to confirm the route has been completed. [If unable to contact the HOCC on returning to the depot then the SAO Contact should be informed of times]
- d.6 If the forecast is updated or prevailing weather conditions are difficult, especially with regard to temperature and precipitation, the HOCC and relevant SAO Contact will liaise prior to the start time to determine if the treatment should proceed, be delayed or be abandoned. Where necessary confirming or amending any planned maintenance contractor action by verbal or written instruction.
- d.7 Following the treatment the HOCC will monitor weather conditions, particularly for precipitation. If there is rain which is heavy enough to wash the salt away (e.g. over 2mm/h) the HOCC will notify the appropriate SAO Contact(s) who will give written or verbal instruction to the maintenance contractor to retreat the affected part of the network if appropriate. The maintenance contractor will inform the Area of the start and finish times at the start of the next working day.
- d.8 If un-forecast snow is reported or snow is falling more significantly than expected, HOCC should advise the SAO Contact.

(e) Wet Patch Salting

- e.1 Follow the procedure for Pre-salt, but also note the following.
- e.2 Wet Patch Salting is to be undertaken by the maintenance contractor's spreader driver who will determine where treatment is required from visual observation unless specific instructions have been provided by the Area .
- e.3 If there is any precipitation prior, during or after salting, the SAO Contact should be informed and appropriate action taken.

Weekdays

- The Area to monitor actions against instructions and road conditions and record locally.
- The maintenance contractor collates all gritting times for previous 24 hours and emails to the HOCC by 0900 hours
- HOCC updates records

Weekends

- The HOCC to monitor actions against instructions and road conditions and complete records by 0900 hours
- The maintenance contractor collates gritting times over the weekend and emails to the HOCC by 0900 hours Monday.

The policy is to carry out precautionary treatment on the pre-salting network only. It is inevitable that ice may form on roads off the pre-salting network [80% of County roads] from time to time. The following table gives guidance on the expected response.

If the Pre-salt Network Has Been Treated	
<i>Report of Ice on the Pre-salt Network</i>	<i>Report of Ice off the Pre-salt Network</i>
<p>Either the AWC, HS or HOCC shall instruct the contractor to inspect the location and treat if ice is present. If deemed necessary the contractor should consult with the SAO Contact on the need for further treatment of the wider pre-salt network.</p>	<p>Ice is expected to form on roads that are not part of the pre-salt network.</p> <p>If the police or other emergency service report a particular location which is considered to be an exceptional danger because of ice (and the nature of this exceptional danger should be clarified by the call-taker), then action will be taken on this occasion at this location in isolation [e.g. treatment, signing, road closure, etc].</p> <p>If a member of the public reports ice then the HOCC is not expected to take any further action, but the details should be passed on when contacting the SAO Contact for another reason. If there are several reports at the same location or if it is a period of extended freezing and the location is on an Appendix 3 route; the SAO Contact should be informed and only if it is considered that the location is an exceptional danger because of ice, action considered as above.</p>
If the Pre-salt Network Has NOT Been Treated	
<i>Report of Ice on the Pre-salt Network</i>	<i>Report of Ice off the Pre-salt Network</i>
<p>The Client (e.g. AWC) shall instruct the contractor to inspect the location and treat if ice is present, then if necessary consult with the SAO Contact on the need for further treatment of the wider pre-salt network.</p>	<p>The HOCC should confirm, using the Ice Detection System, that temperatures are low enough (but not necessarily at freezing) for ice to be present and if so the SAO Contact should be called to either inspect the pre-salting network nearby and/or action salting of the pre-salt network as appropriate. A treatment off the pre-salt network is not expected (but see above if the location is considered to be an exceptional danger because of ice).</p>

7.14 Use of Thermometers and Cold Boxes

During inspections the thermometer probe and unit should be kept in the cold box provided whilst travelling between sites. The probe and unit should be as near as possible at the temperature of the road surface as this minimises the time taken to obtain an accurate reading, the 'ice block' should therefore not be frozen in a deep freezer but cooled to 'fridge temperature' (between 2°C to 4°C) otherwise it will be too cold on the majority of occasions.

7.15 Co-operation with the Police

Where routine winter service conditions prevail, the Highway Operations Control Centre will liaise on a regular basis with the Police Control Rooms. Regular contact will also be maintained with the local police in the Areas most affected by winter weather conditions.

7.16 Communication Systems

Staff providing an emergency response (most HS's), rely on their mobile phones and must carry sufficient coins to be able to make use of public phones in areas or at times of restricted coverage. It is known that the mobile phone network can be unreliable during emergencies (when there is very high demand for the network) and staff on duty should be alert to such occasions and contact the

HOCC via landline to see if any calls are waiting for their response. It is County policy that mobile phones must not be used whilst driving.

7.17 Contacts and Staff Rotas

Contact names are given in Appendix 1 of this document and in the case of the maintenance contractor, South West Highway's Winter Maintenance Manual. The Highway Operations Control Centre needs to be given lists of standby contacts in advance, (e-mailed to the Highway Operations Control Centre to cover a minimum period of one month) both in and out of hours, by the Areas and Highway Management (HQ).

7.18 Christmas, New Year and Easter Arrangements

In order to share the duties over Christmas, New Year and Easter; Areas and Highway Management (HQ) provide a rota of personnel who may be contacted. This information is collated and sent out to all relevant parties. Weekend procedures apply during this period.

7.19 Health and Safety

The County has health and safety procedures in place when dealing with severe weather emergencies and the pre-wet and water recycling equipment; these can be found at Appendix 12. The SSWP are on the intranet under the section "Standard Safe Working Procedures". There are two that particularly refer to winter service; "Winter Service and Emergency Inspections" and "Standard Lone Working Procedures". The addresses are:

<http://staff.devon.gov.uk/eec/eecbusinessmanagement/eechealthandsafety/eehealthmanagesystem/eechms31sswp/eechswinterserviceemerginspect.htm>
and <http://app-envintranet.devon.gov.uk/environ/safety/section3-1-29.html>

7.20 Records

Areas must keep a 'winter file' to record all action decisions and reasons together with any other reports, responses and outcomes as defence for any claims that may be received.

7.21 Procedure for Treatment of A361 / A39

The A361 and A39 are no longer managed separately by the County but are managed by the Areas within their boundaries. When salting this road, just like any other, the action should be called by salting route as necessary and not the whole road salted every time as a matter of course. It must be noted that if the A361 between Bolham and Portmore requires treatment then Route 48 must also be called to treat the lay-bys on this section. SWH have a separate agent to call out drivers for these roads who will be contacted by the local SWH Agent, it is not intended that the whole A361/A39 should be salted on every occasion.

7.22 Freezing Rain

The very nature of freezing rain means that it is difficult to predict and pre-treatment will have virtually no initial effect - consequentially ice will form for a time. The HOCC should notify the police and the local media to broadcast bulletins to advise the public to avoid travelling in the area. Wherever possible, VMS will be used to convey the message to drivers approaching the affected area.

If freezing rain is predicted, and when time permits, the part of the network predicted to be affected should be treated in advance. All available spreaders (including white-out fleet) should be loaded, when freezing rain is predicted and when time permits, be stationed across the part of the pre-salt network likely to be affected to enable spreading to commence as the rain falls, concentrating on routes in priority order as set out in the snow plan. During the period all County and contractors staff should proceed with extreme caution and be prepared to suspend operations if conditions present an unacceptable danger.

8 Ice Treatment

8.1 Introduction

Pre-treatment is by far the most effective course of action when dealing with ice and snow.

8.2 Salting - Rates of Spread

All salt is stored under cover, mainly in barns except for two of the smaller stockpiles which are sheeted; consequently the base rate of salting used throughout the County is 10 g/m² in accordance with the Code of Practice recommendations.

The following table gives the rate of spread of salt that should be used when freezing conditions are expected.

Road Status	Rate of Salt Spread
Mainly dry, some wet patches	10 g/m² to wet patches only
Formation of hoar frost expected	10 g/m²
Roads wet	10 g/m²
Roads wet (temps between -2 to -5°C)	10 g/m² but carefully consider dilution effects
Roads wet (temps between -5 to -10°C)	20 g/m²
Freezing rain – multiple applications	20 g/m² prior, during and after whilst ice persists
Ice already formed	20 - 40 g/m²

Unless otherwise instructed in the proposed action, when a rate over 10 g/m² is specified it should be spread in one pass where possible. If there is insufficient capacity to achieve this, vehicles should spread at the specified rate and refill as necessary. The treatment time will be extended and the start time will need to be adjusted by the Area accordingly. Where there is only a short time available then both the front line and reserve fleets should be mobilised to work in tandem. It is suggested that both vehicles spread at half the specified rate with the reserve vehicle leading, when it runs out of salt it returns to the depot to reload and the front line vehicle continues spreading at the full rate. When the reserve vehicle returns it continues as above, or spreading at the full rate to allow the front line vehicle to return and reload if necessary.

8.3 Pre-wet Salt Spreading

Most gritters now have the capability to spread pre-wet salt and this should be used whenever possible. The spread rate on the control box should be set to the specified rate of spread, e.g. 10g/m², then when pre-wet is selected the control box automatically adjusts the rate of spread of dry salt from the hopper to 7.5g/m² to take account of the salt being applied in the brine solution which contributes the other 2.5g/m². A pre-wet gritter will automatically spread at the dry rate if it runs out of brine. Details of the safe working and operational procedure for pre-wet salt spreading are given in appendix 18.

9 Snow Treatment

9.1 Introduction

Highway Authorities have a statutory duty under the Highways Act Section 41(1A) to ensure, as far as reasonably practicable, safe passage along the highway and under Section 150 to remove obstructions. Snow is considered to be an obstruction when it impedes use of the highway and will be removed as soon as practicable and conditions allow within the resources available.

9.2 Snow Plans

(a) Severe Weather and Emergency Response Plan

Section 12 details the County level Severe Weather and Emergency Response Plan (SWERP) which will be invoked during a widespread snow event. This plan details the activation, communication and roles required to manage such an event. This plan will marry with Area Snow Plans and follow the defined framework with this plan to provide details of organisation and snow clearance at an area level.

The SWERP will provide the strategic overview for managing a large-scale event, whilst the Area Snow plans will give the detail of priorities within the area. Any movement of plant between Areas can only be agreed by the Lead Officer managing the event at County level.

(b) The Area Snow Plan

The Snow Plan should be a complete document setting out priorities in tabular and map form together with full details of how the County Council's and the Term Contractor's plant should be allocated to routes and areas. There should also be a schedule and allocation plan of other plant and manpower resources together with emergency contact details.

The plan should include reporting sheets which list the A and B roads, broken down into suitable sections that can be used to report the road status during an event to the HOCC and Area Control Point, using standard reporting nomenclature as defined in section 1.5.

Areas should liaise with border colleagues to assist with clearance after their own roads are passable with care.

(c) Priorities

There are 4 separate areas to be prioritised:

The Reduced Salting Network

This will be the core network that will be treated and cleared if circumstances dictate. It will consist of just over half the normal salting network as defined in section 2 of this plan. The requirement to fall back to this network will be determined by the Lead Officer in consultation with senior management at countywide level, and may be used, for example, if salt supplies become unavailable.

The Salting Network

A priority list of roads within the Area should be drawn up starting with the major through roads, or parts thereof in consultation with adjacent Areas and working down through other roads in Maintenance Category order that make up the pre-salting network including the accesses to Emergency Service establishments.

Pedestrian and Cycle Routes

Priorities should be established so that routes with the highest flows are cleared first, e.g. commuter cycle routes together with footways in town centres, shopping areas and where there are high numbers of pedestrian traffic, i.e. footway category 1. Residential areas and less used footways should be cleared (following the footway and cycleway category priority) as resources become available.

Other Routes

The Area should be split into smaller areas to be supervised by a HS and the remaining road network in each prioritised as follows:

1. Highways to other important locations, essential industrial and military establishments, main line stations, bus garages and shopping centres.
2. Other commuter routes.
3. Single accesses to villages, hamlets, rural communities and schools.
4. Residential roads.
5. Roads to farms

(d) Preparation

During the summer period the provision of plant required to implement the snow plans should be discussed with the term maintenance contractor and suitable equipment identified from their lists of suppliers. The Area Snow Plans should be issued to the term contractor. Similarly, enquiries should be made with local companies that may have manpower available to clear snow from footways and cycle routes.

Farmers and contractors within or near the Area who own tractor-mounted snow blowers should be contacted to confirm their continued availability and details passed to the term maintenance contractor.

(e) Operations

The front line gritter fleet should be allocated to clear the major routes, in priority order supported as necessary by vehicles from the reserve fleet and hire plant. When these are passable plant can be allocated to other routes on the salting network and then directed to clear routes within each HS's area.

Manual staff should commence clearing footways and cycle routes in shopping areas and then to work through the priority list.

9.3 Severe Weather Warnings

Areas will be informed of snow conditions through the weather information systems. It is probable that the Met Office will issue severe weather warnings if any sizeable falls are expected (severe weather warnings are detailed in Section 14) and further details may be available through the HOCC.

9.4 Action To Be Taken Upon Receipt Of Snow Warning

The following table is intended as guidance on clearing snow under varying conditions. Pre-wet spreading should be used when possible.

Snow Condition	Salting Network	Other Routes
Slight - expected less than 25mm	Pre-salt at 20 g/m ²	No action.
Moderate - expected 25 to 100mm	Pre-salt at 20g/m ² . Plough when snow depth is over 50mm and treat as described in (3) to (9).	When plant is available, treat as salting network. Grit when snow is packed hard.
Heavy - expected greater than 100mm	Pre-salt at 20-40 g/m ² . Plough when snow depth is over 50mm and treat as described in (3) to (9).	When plant is available, treat as salting network. Grit when snow is packed hard.
The action of traffic is important when dealing with snow. It takes time and traffic for salt to work on snow to melt it.		

The treatment should be spread in one pass where possible. If there is insufficient capacity to achieve this, vehicles should spread at the specified rate and refill as necessary. The treatment time will be extended and the start time will need to be adjusted by the Area accordingly. Where there is only a short time available then both the front line and reserve fleets should be mobilised to work in tandem. It is suggested that both vehicles spread at half the specified rate with the reserve vehicle leading, when it runs out of salt it returns to the depot to reload and the front line vehicle continues spreading at the full rate. When the reserve vehicle returns it continues as above, or spreading at the full rate to allow the front line vehicle to return and reload if necessary.

On receipt of snow warning the following procedure should be carried out:-

- 1) Ensure all ploughs are easily available and ready for fitting.
- 2) Pre-salt the salting network, in accordance with the above table, immediately prior to snow falling to prevent snow settling on the road surface.
- 3) Fix ploughs to vehicles if significant accumulations or drifting is expected. This should be decided route by route locally and not be actioned too early as it makes the vehicle more difficult to manoeuvre. Start ploughing as soon as snow becomes deep enough to plough, i.e. approximately 50mm in depth.
- 4) After ploughing, treat un-compacted snow with salt at 10g/m² per 25mm of snow and re-plough to remove slush.
- 5) When prolonged falls are forecast it will be found useful to continuously plough from the onset of snow to prevent build up and to prevent compaction by traffic. Such ploughing can be combined with simultaneous salting at 20-40 g/m² so that a wet base is maintained. However, once snow depths of 120mm have been reached, or when tackling snowdrifts or where vehicles are operating on gradients, it may be desirable to continue ploughing without salting. The weight of a salt load will aid vehicle traction when ploughing.
- 6) On dual carriageways ploughing should be undertaken by lanes, generally starting with the nearside.
- 7) After ploughing, a further treatment of salt is required at the rate of 10g/m² for every 25mm of un-compacted snow for each degree Centigrade that the air temperature is below freezing (see note 8 below)
- 8) As snow melts under the action of salt, keep ploughing to remove slush.
- 9) If snow has become compacted and the temperature is low (-5°C or below) neat salt must not be used, as it will accumulate in the form of salt solution in depressions and produce a very uneven and slippery running surface. In these circumstances spreading of grit is advised.
- 10) A 50/50 grit/salt mix should be used on hard packed snow. Grit is not required on un-compacted snow as the action of salt will cause the snow to melt allowing the slush to be removed easily by ploughs.
- 11) Very low temperatures do not usually follow immediately after a snow fall and it is therefore very important to apply salt early, plough early, salt again and get the resultant slush off the road before compaction by traffic.

9.5 Snow Blower Procedures

Procedures are in place to ensure that snow blowers can be put into action as soon as conditions make it necessary, and also that the crews operating the machines are suitably equipped to operate safely in extreme weather conditions.

A system of control has been laid down which will enable the progress of snow clearing work to be monitored and for assistance to be given to the crew in the event of any mishap.

9.6 Deployment

Five snow blowers are based in depots at South Molton, Parracombe, Honiton, Moretonhampstead and Okehampton. These snow blowers will be brought into action as necessary on the instruction of the Area.

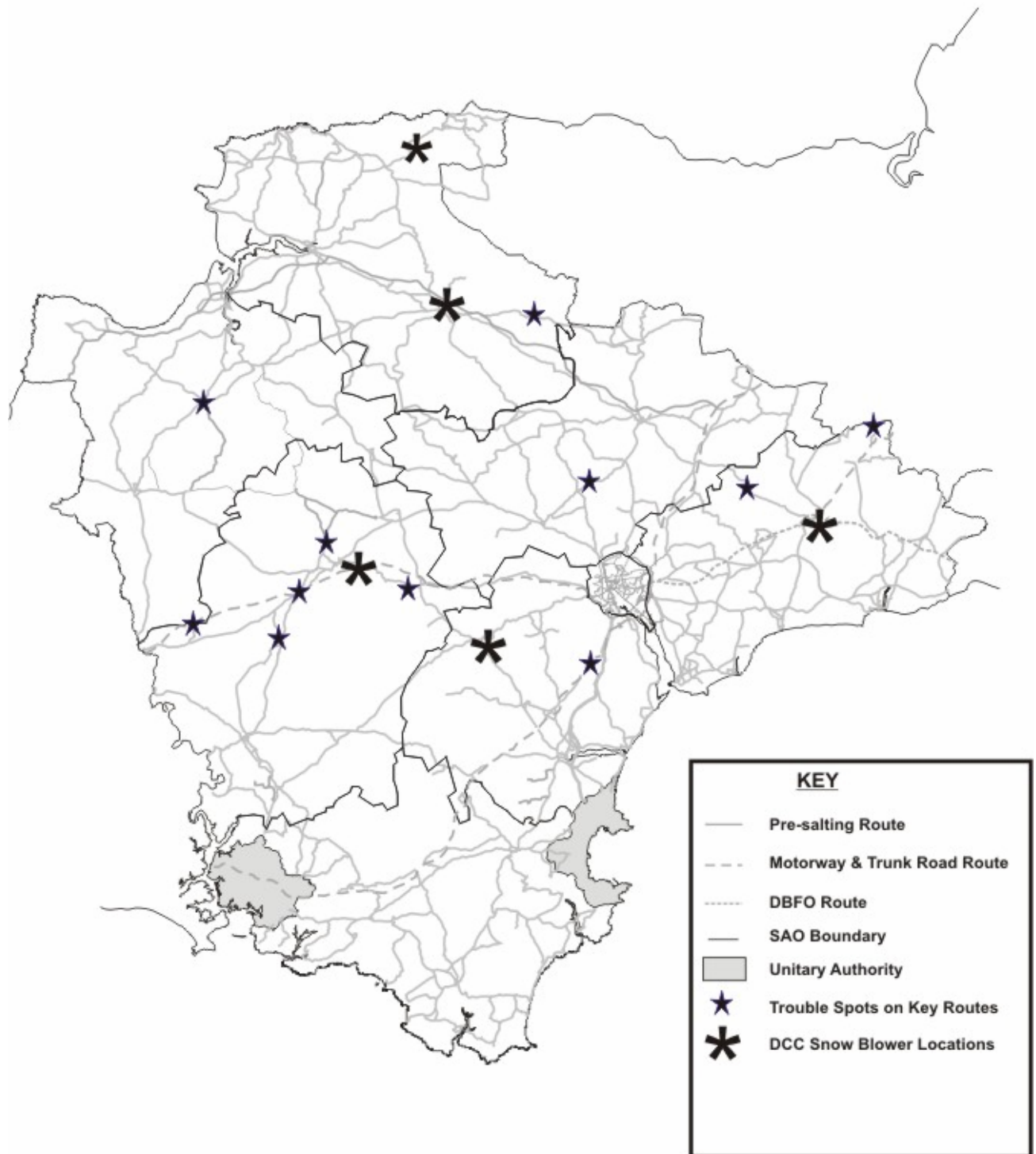
9.7 Level Crossings

Salt must not be spread between the stop lines of all Network Rail level crossings, even when covered with snow (see Section 2.5).

Before ploughing over a level crossing the driver must stop and telephone the signalman for permission to proceed and then inform the signalman when past the crossing. The crossing telephone can be used or telephone Network Rail Control on 01793 515 410.

Snow blowers must not be used between the stop lines of all level crossings.

SNOW BLOWER LOCATIONS



9.8 Standard Terminology for Reporting Road Status in Snow Conditions

The Police and the County Council have produced a coding system for describing the status of routes affected by snow. The following codes are for operational use and all come under the classification "Impassable" when reporting to the public, the media or other external organisations:

Abbreviation	Description
INBC	Impassable, not being cleared.
IBC	Impassable, being cleared.
EMV/4WD	Emergency vehicles and 4-Wheeled Drive only.
PNAP	Passable, not available to the public.
SLO	Slow Lane Only / No Overtaking
PEC	Passable with Extreme Care, Snow still present over road length.
PC	Passable with Care, isolated areas of snow.
RC	Road Closed.

When making reports to HOCC, Inspectors should also include the general conditions of side roads as well as those on the inspection route.

9.9 Hire of Labour / Drivers

In severe conditions when the maintenance contractor is fully committed, Areas may directly engage additional labour / drivers. District Council contractors should be engaged wherever possible, but failing this, labour can be engaged as follows:-

Casual Road Employees

Personnel recruited by the Council through the Department of Employment offices and other local sources who are brought temporarily on to the Council's establishment, to be paid the appropriate wage rate laid down by the National Joint Council for Local Authorities' Service with no bonus entitlement and proportionately reduced rates for youths.

Where Local Labour is recruited in villages, it is essential that some persons of authority in each village should be made responsible for locally organised groups and collect and certify the time sheets of each person employed.

Contract Labour by Local Builders

Where local builders and contractors are employed on a contract labour basis the following payment formulae to be applied as a maximum:-

- i) Cost of net labour (net labour being wages paid in accordance with the current Working Rule Agreement).
- ii) Add to the total of (i) up to 17½% to cover common law and public liability, National Insurance, holiday with pay and establishment expenses. Then add the actual amount properly payable in respect of value added tax if appropriate. It must be clearly understood that the County Council will not pay more than recognised trade agreement rates and the payment for working foreman or charge-hands will only be accepted if the employment was previously authorised. As a general rule, the labour rate should be that applicable to labourers, official orders must be raised in respect of all work under this heading.

Assistance by Farmers and Agricultural Contractors

Farmers, agricultural contractors and others who offer the use of their plant and operators during extended periods of snow should be directed to the term maintenance contractor. This and any other additional plant required can be ordered and paid for through the term contract series 4800.

The Devon Procurement list of approved contractors Contract DP18/1 no longer applies.

9.10 Hire of Helicopters

The use of helicopters for reconnaissance purposes will be controlled and organised through Highway Management.

9.11 Post-Snow Emergency Action

The following work shall be undertaken after a snow emergency:

1. Clear all gullies and drainage outlets.
2. Sweep significant accumulations of grit from carriageways and footways as soon as possible.
3. Thoroughly wash down all vehicles and lubricate gritting equipment.
4. Check all equipment and repair or replace all worn parts on snow ploughs, report on plant performance to Highway Management.
5. Highway Management should be informed of salt stock levels to allow them to be replenished as necessary.
6. Inspect roads for frost damage and carry out any remedial works necessary to make the carriageway safe.
7. Inspect bridges and culverts liable to flooding - ensure that they are clear of debris.
8. Carry out a survey of badly affected locations (within 7 days) reporting to Highway Management including a generalised assessment of other frost/snow/flood damage.
9. Sign defects where appropriate, ensuring "flood" boards and other relevant signs are available.
10. Highway Management to evaluate overall performance, recommending changes to procedures to be incorporated into this document and Areas should forward comments for consideration.

10 Media

10.1 Introduction

Contact via the media is an important way of keeping road users informed of adverse conditions and promoting safety on the highway. Media coverage of winter service and emergency operations plays a necessary part in making the public aware of the service provided and how vital the service is to the community.

It is therefore important that HOCC receives frequent updates from Areas on the local situation, preferably by email to hocc@devon.gov.uk but faxes and telephone calls otherwise. As a minimum; an overnight summary should be provided to the HOCC by 8.30am, with morning update reports at 11am and afternoon reports by 3pm to include details of important highways affected, together with men and resources deployed (a good estimate is sufficient).

10.2 Public Information / Media Coverage

If the public are kept informed by contact with the community and road users, winter operations will more effective and better understood.

The County therefore makes use of several means of communication which include:-

- leaflets on ways motorists can help to improve road safety
- plan of the salting network
- media releases relating to winter service and particular highway incidents
- media articles
- radio/television interviews
- information passed through motoring organisations and local radio stations
- the Devon County Council web site

Part of the role of the Highway Operations Control Centre staff is to collate the countywide highway situation in winter and severe weather conditions from information, largely provided by Areas, and issue regular reports to senior management, emergency services, and the media. It is imperative that the HOCC staff receive situation updates within the prescribed deadlines to enable credible media statements and interviews to be actioned.

The table below indicates the times at which the HOCC may be contacted for information during a winter or severe weather event.

06.00	Radio stations make initial contact to establish the overnight picture
07.10	First 'live' broadcasts may be required
07.00 - 09.00	Media require details of events in their area
09.00	Summary required by Senior Management and Media office
11.30 - 13.00	Midday broadcasts on local radio
16.00	Morning papers require latest information
17.00 - 19.00	Evening radio and Television may require information/broadcasts
21.00 - 22.00	Occasional evening broadcasts may be required (especially for snow)

10.3 Photographic Records

If, in an emergency, an unusual situation arises, high priority must be given to obtaining photographic records. Areas should arrange to have photographs taken in all winter emergency situations.

10.4 Use of Variable Message Signs

Devon County Council has recently made a significant investment in variable message signs (VMS) across the county, particularly in Exeter, Barnstaple, Newton Abbot and on the North Devon Link from the M5 to Barnstaple.

These signs will be used to reinforce messages to the travelling public about winter driving conditions, winter road safety and other weather related travel information when they are not required for higher priority messages, and when it is appropriate to do so.

Information may be automatically generated for these signs from, for example, data from the ice detection system when temperatures fall below freezing, or when wind speeds exceed pre-defined trigger levels, and may include forecast information.

Whilst it is the drivers responsibility to ensure that they are driving according to the prevailing weather conditions, this information can assist in making drivers more aware of the environment in which they are driving.

Examples of messages will include:

RISK OF ICE

HIGH WINDS

GRITTING IN PROGRESS

RISK OF ICE OVERNIGHT

11 Effectiveness of Action

There are several factors which affect public safety and cost of winter service and these are monitored. The County Council is currently using winter service management systems including GPS fitted to the front line fleet allowing monitoring of operations and highlights areas where improvements can be made.

- **Forecasts**

The forecasts received from the forecaster dictate to a large extent the action that is proposed. Accuracy is therefore of prime importance to avoid abortive work, hence mean errors, standard deviations and whether frosts were accurately forecast are all monitored. The County will take up significant errors with the forecaster.

- **Action Taken/Actual Conditions**

This will be monitored to measure the extent of abortive work or dangerous road conditions.

- **Response/Treatment Times**

Areas will monitor their contractor's performance to ensure that response and treatment times are being met, so that conditions are as safe as is reasonably possible for highway users.

- **Salt Usage**

A check of actual salt use should be made, by the measure of salt stocks at the end of winter, monitored against salt operations ordered.

- **Financial Monitoring**

Expenditure is to be monitored and will be compared to Actions Taken

12 Major Emergencies

12.1 Introduction

If a major emergency occurs in Devon, it is inevitable that the Environment, Economy and Culture Directorate will be involved, as most major emergencies will have an effect on the highway network. Typical recent events have included major flooding, collisions involving heavy goods vehicles with dangerous chemicals and factory fires involving large scale evacuations. This chapter will clarify the terminology used within emergency planning and set out what may be expected from this Directorate.

12.2 Definitions

An emergency is defined by the Civil Contingencies Act 2004 as an event or situation which threatens serious damage to:

- Human welfare.
- The environment.
- The security of the United Kingdom.

Serious damage to human welfare may involve:

- Loss of life.
- Illness or Injury.
- Homelessness.
- Damage to property.
- Disruption to the supply of money, food, water, energy or fuel.
- Disruption to electronic or other forms of communication.
- Disruption to transport.
- Disruption to health services.

Serious damage to the environment may involve:

- Contamination of land, water or air with biological, chemical or radio-active matter
- Disruption or destruction of plant or animal life

A major incident is any emergency that requires the implementation of special arrangements by one or more of the emergency responders provided it meets one of the following conditions:

- the emergency is likely to obstruct the organisation seriously in the performance of its functions, or it is likely that the organisation:
 - (i) would consider it necessary or desirable to take action to prevent the emergency, to reduce, control or mitigate its effects, and
 - (ii) would be unable to take that action without changing the deployment or acquiring additional resources.

12.3 Lead Co-ordinating Agency

The Police will lead the co-ordination of the response to most major incidents, particularly sudden impact emergencies and weather related incidents such as flooding. The response to some other emergencies will be co-ordinated by other Agencies, these will be identified as part of the Community Risk Register, and examples include:

- The Maritime and Coastguard Agency (MCA) lead on Search & Rescue at Sea and with Local Authorities collaborate over maritime pollution emergencies
- The Health Service leads for public health outbreaks

The Department for Environment, Food and Rural Affairs (DEFRA) takes the leads for animal disease outbreaks

12.4 Directorate Response

In the early stages, the Highway Operations Control Centre will be the first point of contact for highway related issues, and will advise the duty Area contact (duty HS out of hours) with details of what the police require, whether it has been declared a major emergency, and whether a Tactical (Silver) Control has been established. Emergency Planning will often be contacted through the HOCC.

When the duty Area officer arrives on sites the following actions should be undertaken:

- Liaise with local Police on site to determine what traffic management and road closures are needed

- Determine if a Tactical (Silver) Control has or is being established and where it is.

- Determine other useful information about the incident (e.g. likely duration, exclusion zones, diversions etc)

- Report all this information to the HOCC

If evacuations are required it is possible that Transport Coordination may be asked by Emergency Planning to provide transport from the incident to a rest centre.

12.5 Relevant Documents

- County Emergency Response Plan
- Devon Flood Warning and Response Plan
- Temporary Mortuary Plan

12.6 Severe Weather Emergency Response Plan

Purpose

This document is designed for operational use with checklists, agendas and procedures to aid an operational response. It will also detail some key useful information that may be required in an emergency but does not seek to replicate information available in the Winter Service and Emergency Plan.

The purpose of this plan is to provide an operational overview of the key roles and operation of Highways Management in the event of a severe weather or other highway related emergency that requires more than a local (within an area) response. However some of the principles used within this plan may be relevant to other situations. It is not intended that the plan will cover the details of area responses (eg which roads to give priority to) but will provide the handle into such local plans and detail the minimum criteria that they should contain.

Glossary

Term	Meaning
MACC	Multi-agency conference call
FLOODCON	See MACC
DEVFLOODCON	
Gold	Police strategic management of emergency – may involve partner agencies
Silver	Police tactical control
Bronze	Emergency services local operational control
SWERP	This plan!
WSEP	Winter service and emergency plan
ERA	Extreme rainfall alert
HOCC	Highways Operations Control Centre
LRF	Local Resilience Forum
EPO	Emergency Planning Officer

Criteria for activation

The plan should be activated by a manager within the group when there is sufficient information to suggest that there is a reasonable likelihood of a widespread event that could cause significant disruption to the travelling public. Whilst this is a judgement call there are various tools available to assist with this judgement, and it is better to initiate the plan and then stand-down than to initiate the plan too late.

Examples of information that will assist in determining whether to activate the plan:

- ◆ Severe weather warnings
- ◆ Extreme rainfall alerts
- ◆ Flood guidance statements
- ◆ Severe tidal flood warnings
- ◆ Weather forecasts
- ◆ Multi-agency (Environment Agency, emergency services, adjacent highway authorities etc) conference calls

The type of forecast scenarios that may require activation are:

- ◆ County-wide snow-falls (eg > 10cm)
- ◆ Extreme rainfall event leading to county-wide flooding
- ◆ Severe tidal flooding on one or both coasts

The activation is most likely to be undertaken by the duty manager of the Highways Operations Control Centre. If other managers feel that the plan should be activated they should consult with the HOCC manager and then agree its activation.

Where possible it is preferable that the plan is initiated in working hours so that an initial conference call can be undertaken and staff prepared for future action. Therefore this may occur when there is less certainty over the event. The advantage is that it will be easier to contact staff and make initial arrangements and then stand down if not needed, than to have the additional difficulty of contacting appropriate staff out of hours.

Multi-agency conference calls (MACC)

As a result of the Pitt Report, agencies responsible for responding to flooding incidents are being encouraged to engage in advanced communication to co-ordinate an appropriate response to the emerging situation. This is not to be confused with a GOLD conference call when a major incident has been declared by the emergency services. These calls may be initiated with a codeword to differentiate them from a GOLD conference and the current proposal is DEVFLOODCON or FLOODCON. These may be called by any agency and will enable discussion about:

- ◆ current situation in the county or Local Resilience Forum (LRF) area
- ◆ interpretation of warnings or alerts that have been received
- ◆ impact expected by each agency
- ◆ planned response by each agency
- ◆ areas needing special consideration
- ◆ planning for or likelihood of SILVER and/or GOLD being established
- ◆ the need for further conference calls

Anyone at Highway Engineer/duty HOCC manager level or above may be required to attend this conference (normally by a conference telephone call from wherever they are currently based) on behalf of the Directorate (Emergency Planners from DCC may also be involved) and should ensure they are briefed about the current situation and understand the potential impact on the highway network. Their responsibility is to understand what other agencies are doing and what is the appropriate response for the Directorate. This information should be relayed to the HOCC and others that need to follow-up on the actions.

The MACC may help to determine whether this plan needs to be activated or form part of the liaison once the plan has been activated. Senior managers at Head of Service or Director level should be informed when these conferences occur, so they are aware at the level of preparedness.

Action by HOCC

On receipt of a call requesting a MACC/FLOODCON /DEVFLOODCON (eg from EA or other agency):

- Contact duty Emergency Planning Officer (unless it is the EPO who is calling). It is their responsibility to arrange the conference call with external agencies
- Gather details from the EPO
 - time of conference call
 - attendees required (HQ, area, and HA)
 - telephone number for call
 - participant passcode
- Contact HOCC manager or HQ weather contact to attend conference call
- Contact Area manager or area weather contact to attend conference call in area affected, if available
- Contact the Highways Agency Regional Control Centre and request that a manager also dials into this conference call.
- Advise Head of Highway Management or Director unless agreed with HOCC Manager that they will advise.

If a HOCC manager or HQ weather contact assesses that a MACC would be useful, they should discuss this with the duty EPO and then activate this procedure with the HOCC and EPO.

Activation of SWERP

When it is determined that this plan should be implemented, the following actions should be undertaken:

1. HOCC Manager (or lead officer) to determine an appropriate time to hold an initial conference call, which should be at least one hour and ideally two hours ahead to give staff time to be contacted. Relay following information to HOCC watch keeper:

- ◆ SWERP activated
- ◆ Brief nature of emergency
- ◆ Time of conference call
- ◆ Telephone number and passcode for conference call (eg Chris Cranston's no: 0800 7836004 Participant code: 33058524#)

IN HOURS

2a. HOCC watch keeper to contact each Area Office Manager (AOM) or Assistant Area Engineer if AOM cannot be contacted, and pass information declared in 1. above.

OUT OF HOURS

2b. HOCC watch keeper to contact each Area – either through the Area Weather Contract (winter) or an Area Standby (one of a number on duty in the area) if not in winter, with the information declared in 1. above.

AREA PERSON CONTACTED

3. The person who is contacted in the area is responsible for invoking the area procedure to ensure an Area Manager and anyone else the Area Manager considers appropriate to dial into the conference call at the designated time.

HOCC MANAGER OR LEAD CONTACT

4. The HOCC manager or lead officer is responsible for informing:
- ◆ Senior Management at Head of Service or Director level
 - ◆ Other HQ staff that may assist with the response
 - ◆ Corporate Communications press officer (if available)
 - ◆ Emergency Planning Duty Officer (if appropriate)

- ◆ Customer Service Centre Manager (if appropriate and available)
- ◆ Term Maintenance Contractor senior manager (who may cascade to area managers or agents)

5. If using Chris Cranston's conference call details the chairperson's passcode is 89285061#

CONFERENCE CALL PROCEDURE

Audio-conferencing in DCC normally uses BT MeetMe facility. Callers should dial the appropriate freefone dial-in number from any phone, just before the designated time, and they will then be asked to enter their participant code (or in the chairman's case the chairperson code) followed by the #.

They will then be asked to record their name.

They should then await the chairperson's instructions. Avoid excessive local background noise and use *6 to mute/unmute their own line.

Conference calls can be recorded.

Initial SWERP conference call agenda

The agenda for the initial conference call, which will be chaired by the Lead Officer or HQ manager if Lead Officer not designated, will be:

1. Brief summary of why the SWERP has been activated
2. Summary of available weather information and warnings issued
 - a. 24 hour forecast
 - b. Severe weather warnings
 - c. Flood guidance and Extreme Rainfall Alerts (if issued)
 - d. Other warnings in place (Flood, tidal etc)
 - e. Advice from the Met Office
3. Assessment of potential and probable impact of event
4. Multi-agency arrangements and information
 - a. Information from other GOLD/FLOODCON conferences
 - b. Emergency planning arrangements/GOSW/LRF
 - c. Adjacent highway authorities
5. Reports from each area of current highway status and impact
 - a. North Area
 - b. East Area
 - c. South Area
6. Proposed response action required to event (see next section)
7. Resources required for response
 - a. Client staffing
 - b. Contractor staffing
 - c. Plant
 - d. Materials (eg Salt)
8. Designation of key officers in HQ and Areas (if not clear at meeting must be designated within 1 hour of meeting closing).
9. Media arrangements
10. Time of next conference call (to be determined by nature and timing of event, availability of further information etc)

Action response required to event

The action required will vary depending on the nature of the event but the following will give some useful guidance to be considered.

SNOW

- ◆ WSEP gives general guidance on how to deal with snow events.
- ◆ Snow clearance operations are best undertaken during day-light hours.
- ◆ If heavy snow is forecast to fall overnight, continuous treatment on the major (presalt) network will provide the best platform for snow clearing operations, the following morning.

- ◆ Consider police/emergency service requests for assistance.
- ◆ Consider adjacent highway authorities

HEAVY RAIN

- ◆ Consider politically sensitive and vulnerable areas, both in terms of flash flooding and fluvial flooding.
- ◆ Consider what pragmatic mitigation can be undertaken (eg clearing key culverts of debris prior to onset).
- ◆ Consider major events (eg County Show) – can suitable resources be deployed nearby on routine maintenance works?
- ◆ Refer to Devon Flood Warning and Response Plan.

TIDAL

- ◆ Consider areas requiring specific responses (eg Slapton)
- ◆ Consider politically sensitive and vulnerable areas.
- ◆ Consider which coast may be affected and effect on resources

Management of event

The Lead Officer will determine the frequency and for how long the conference calls will be required. These will provide the main facility for managing the event from a Directorate perspective and the interplay with other conference calls that may be undertaken (County, GOLD, MACC, GOSW etc) will determine if there are any external factors that need to be considered.

The conference calls should provide a useful vehicle for engaging with staff in the Areas, pooling expertise and ensuring that strategic decisions that need to be taken are well-informed. It is important that only the Lead Officer makes the final strategic decision, especially regarding the movement of resources, being the one with the full overview of the event.

It is also important that decisions taken at the conference calls are acted upon by the area staff and others engaged with the conference. Any concern must be raised at the appropriate stage during the call, otherwise effective management is lost and the County could become vulnerable. It is the Lead Officers responsibility to ensure areas have the opportunity to engage with the process.

The roles and responsibilities should provide an effective mechanism to clarify who is responsible for what in the response.

Conference calls must be disciplined and strongly chaired as there can be many attendees and the meeting can be lost if attendees talk over each other.

It is recommended that whilst a response is or maybe required, conference calls occur at least once a day for continuity, and during the winter, 13:30 is recommended to co-inside with the availability of the forecast.

Roles and responsibilities

The roles identified below are essential to the effective operation of the Plan. They are not specifically related to “rank” but should be undertaken by a suitably senior person who has the relevant training and experience to undertake the task effectively. It is the responsibility of senior management to ensure the designations are suitably endorsed.

The roles defined are:

- ◆ Lead officer
- ◆ Support officer / HOCC Manager
- ◆ Admin Support Officer
- ◆ Communications Officer
- ◆ Area Manager
- ◆ Sub-area Manager

Lead Officer

Responsible to:

- The Director and Head of Highway Management for the strategic management of the event

Responsible for:

- The strategic management of the Directorate response to the severe weather event
- Ensuring that key roles have been designated for the event and are known
- Ensuring that the welfare of staff is being managed in HQ/Areas
- Calling and chairing Directorate audio-conferences relating to the event or designating a deputy to chair when required.
- Acting as Directorate liaison with GOSW, GOLD, MACC/FLOODCON and DCC emergency planning conference calls as required, or designating a suitable deputy to attend. However when a deputy is designated, it is important to ensure that this role is fully briefed as it is key that one person has the complete strategic overview at this level to ensure an effective response. Ensuring that actions from these conferences are followed up and Directorate issues taken to these conferences where appropriate.
- Taking the ultimate decision on strategic movement of plant and resources across the county, after taking appropriate advice.
- Receiving and considering and acting upon national advice that may be received from time to time, including warnings, alerts and advice notes.
- Ensuring liaison occurs with adjacent highway authorities
- Assessing the resource available to respond to the incident and determining if additional resource is required. For a snow/ice event ensuring that there is adequate salt stocks within the county and arranging for further supplies if required.
- Taking strategic decisions.
- Logging personal decisions taken.
- Providing a media "talking head" on the County's highway response to the incident, with highway advice

Support Officer/ HOCC Manager

Responsible to:

- Lead officer

Responsible for:

- supporting the lead officer in managing the event
- ensuring the welfare of HQ staff involved in the event, including planning shift change-over of staff and gaining adequate resources in HQ
- providing information that the Lead Officer may require to make appropriate decisions
- ensuring that the Lead Officer is informed on any developments in the situation, as information emerges
- taking minutes of audio-conferences if no admin support is available, or ensuring their accuracy if secretarial support is available.
- Ensuring the HOCC is briefed on the outcome of any audio conference
- provide key liaison between HOCC and lead officer, especially regarding information that becomes available in the HOCC

Admin Support (if available)

Responsible to:

- Lead officer

Responsible for:

- Taking minutes of meetings and decisions taken
- Computer logging of data when appropriate

- Admin support to the lead officer in managing the event

Communications Officer

Responsible to:

- Lead officer (for directorate's response to event)
- Corporate Communications Manager (for linking with emergency planning and other agencies – eg police)

Responsible for:

- Gleaning information from audio-conferences and producing press releases
- Managing media enquiries, especially for interviews
- Co-ordinating response corporately and with other external agencies

Area Manager

Responsible to:

- Area engineer

Responsible for:

- Local area management of response (eg snow clearance)
- Welfare of all area staff involved in response
- Managing priorities across the area
- Ensuring information is being fed from sub-areas to centre on status of clearance operations, resources and, where appropriate, salt levels, in a pre-agreed format
- Ensuring sub-area operations centres are opened and resourced and have adequate communication facilities
- Ensuring adequate support staff are available
- Opening an area control room if appropriate
- Ensuring strategic decisions are implemented
- Advising lead officer of any area problems impeding the response
- Sub-area manager's responsibilities if not designated

Sub-area Managers (if designated)

Responsible to:

- Area Manager

Responsible for:

- Local sub-area management of response in accordance with Area Plan
- Instructing the Term Maintenance Contractor
- Maintaining details of instructions and orders
- Completing and submitting road status forms to area and HQ at the required intervals, normally prior to conference calls
- Ensuring effective use of local resources
- Local supporting staff, and their welfare

Highways Operations Control Centre

Responsible to:

- Support Officer / HOCC Manager

Responsible for:

- Consolidating status information and advising the media
- Handling calls from professional partners and alerting HOCC manager (& Lead Officer) about significant events and requests
- Liaising with adjacent highway authorities and understanding their response and priorities
- Liaising with area control rooms routinely
- Monitoring and responding to weather information changes

Area emergency plans

Key information will be held in the Winter Service and Emergency Plan (WSEP) on the general county response to winter service and weather emergencies and this plan details the county-wide response to severe weather emergency.

However the Area Engineer is responsible for ensuring that each area has a plan that will determine the area response which links to this countywide plan and specifically contains the following information:

1. How the initial SWERP activation will be cascaded within the area to ensure representation at the initial audio-conference, and subsequent full event activation.
2. The location, access, communication, operation and resourcing of an Area Control Room, where the Area Manager will be based to undertake their specific role as previously detailed in this document.
3. The location, access, communication, operation and resourcing of any Sub-area Control Rooms, where the local management of an event will be undertaken.
4. Details of staff who would be required to attend a control room in a management or supporting role, ensuring that they can reasonably be expected to get there in difficult travelling conditions, and there are enough staff allocated for shift working 24/7. This list will need to be reviewed at least annually.
5. A clear prioritisation of routes in the Area, in accordance with County Policy, to determine the order in which routes will be cleared in an emergency. If sub-area control rooms are to be established to manage the operation then the plans should be broken down to detail the priority for that sub-area, with an indication as to how priorities will be managed across sub-areas.
6. Priorities of cycleways and footways, especially where they could be important to the economy (eg High Streets).
7. How consumable resources will be monitored and reported to HQ.
8. The resources that could be expected to be available in the area/sub-area, for different events such as snow, flooding and high wind.
9. Normal tasks that can be sacrificed when staff are required to respond to the event.
10. A list of the A and B roads, and other key routes, broken down into suitable sections that can be used to report the road status during an event to the HOCC and Area Control Room. This should use standard reporting nomenclature as defined in the WSEP and in a common format with other Areas.
11. Who is responsible for determining that staff are designated and trained for their specific role in an emergency.
12. Who will be capable of fulfilling each designated role in an event, including those officers who would be designated for Silver Control when required.
13. How expenditure will be managed and local decisions recorded.

Extreme weather information services

There are a number of services and warnings that are now issued when severe weather is expected, or as a result of it occurring and they are described in this section.

Severe weather warnings

These are issued by the Met Office as part of the public warning service and come in the form of **early warnings** and **flash warnings**, when specific trigger levels are reached. They are distributed by email and are also available on the web with additional information at http://www.metoffice.gov.uk/weather/uk/sw/sw_forecast_warnings.html

Early warnings can give up to 5 days notice of an extreme weather event and will often contain a risk assessment in the form of a likelihood of causing disruption or risk to life. They will refer to probability of a region being affected and the South West region stretches from Cornwall to Gloucestershire.

Flash warnings are issued when confidence in an event reaches 90% and can be from 0 – 6 hours advance warning. They will identify which local authority area is likely to be affected.

Extreme Rainfall Alerts and Flood Guidance

These documents are relatively new and are provided by the Flood Forecasting Centre which is a joint venture between the Met Office and Environment Agency. They are designed to provide better information about flooding risk, but notably including surface water (flash) flooding risk. They are intentionally focussed on the extreme events but will provide risk assessments when events have only a 10% probability and hence care needs to be exercised in how the information is used to ensure an appropriate reaction. They can be helping in guiding the need for FLOODCON audio-conferencing.

Flood warnings

Issued by the Environment Agency these work in a four stage warning system:

- ◆ Flood Watch – flooding of low lying land expected. Be aware! Be prepared! Watch out!
- ◆ Flood Warning – Flooding of homes and businesses expected. Act now!
- ◆ Severe Flood Warning. Severe flooding is expected. There is extreme danger to life and property. Act now!
- ◆ All Clear. Flood watches or warnings are now longer in force in this area

In addition the EA may issue a pre-MIP (Major Incident Plan) and a MIP. The first means to prepare for a major incident which is imminent – ie flood defences are likely to be overtopped and many lives and property are at risk. The second means to activate the Major Incident Plan as contained in the Devon Flood Warning and Emergency Response Plan.

When invoked the Area will be expected to implement the Traffic Management Plan where it exists, for the specific scenario contained in the DFWERP (which covers most major towns and city susceptible to serious flooding risk).

Summary of warnings are available on the internet at:

[http://www.environmentagency.gov.uk/homeandleisure/floods/34678.aspx?type=Region&term=South west](http://www.environmentagency.gov.uk/homeandleisure/floods/34678.aspx?type=Region&term=South%20west)

Debriefs

After any activation of this plan a debrief should take place with appropriate staff, generally including staff in the designated roles. If only used in a precautionary mode, the debrief may be informal, but when used in response to a major event a full debrief should be undertaken, within a month of the event to capture key issues.

The purpose of the debrief is

- ◆ To consider what went well
- ◆ To consider what could be improved
- ◆ To consider what changes should be made to the plan
- ◆ To consider what other changes need to be made

Police response to emergencies

Most major incidents will be declared and lead by the police. A weather event may not be declared as major incident until it is seen to significantly disrupt normality and require a special response due to the number of lives at risk. If a major incident is declared the police will normally establish a GOLD, SILVER, BRONZE command structure.

GOLD

The strategic decision making group which establishes a framework of policy within which the SILVER will operate. They will often ask partners to send representatives to the Strategic Coordinating Group which advises GOLD either at Middlemoor or via an audio-conference. Officers ranging from the Chief Executive to the Lead Officer of a weather event may be asked to participate at GOLD meetings.

SILVER

The tactical incident management level which the police will normally establish at Exeter, Paignton or Barnstaple. Managers in the areas may be requested to attend SILVER at one of these locations to advise on highway issues and respond to requests from the SILVER commander to assist with road closures, diversions, access and evacuation routes etc.

BRONZE

The police operational level designated with specific tasks. There could be a number of BRONZE command points established.

Emergency services - First Officer at the Scene

When emergency services arrive at a scene with casualties then they may need to take precautions. By including this information in the plan it can help staff to understand the emergency response and ensure they assist rather than impede any action.

Risk Assess

Don't rush in. Consider the risks to your own safety first, the risks to other responders and the public. Remember the possibility of a CBRN (Chemical Biological Radioactive or Nuclear) incident.

Think – Safety Triggers for Emergency Personnel (STEP) 1, 2, and 3.

STEP One

ONE CASUALTY

No obvious explanation or cause
Approach using normal procedures.

STEP Two

TWO CASUALTIES

No obvious explanation or cause
Approach with caution and consider all options.
Report on arrival. Update the control room.

STEP Three

THREE OR MORE CASUALTIES

No obvious explanation or cause

DO NOT approach. withdraw, contain and report. Isolate yourself and **SEND** for **SPECIALIST HELP**.

If there is, after an evaluation of the incident, a credible threat:

- ◆ **DO NOT proceed to the scene.**
- ◆ **GO TO a safe place uphill, upwind.**
- ◆ **DO NOT involve yourself in rescue work.**
- ◆ **DO NOT touch anything or you may become a CASUALTY.**

Emergency Services – situation report CHALETS

When emergency service first arrive at an emergency situation they are asked to report the situation using the following CHALETS format:

Casualties

1. Approximate number of ALL casualties, and where they are located?
2. What symptoms are present?
3. About what percentage are deceased, seriously injured, minor injuries or trapped?

Hazards

1. Is there are cloud of gas, smoke or fire present?
2. Any debris from any explosion, if so, how widely spread?
3. Any other potential hazards?
4. Any environmental hazards, such as bodies of water or potential pollution?
5. If a transport incident, are there any Hazchem markings visible?

Access (and Egress) Routes

1. Is the initial access route safe?
2. Are likely access and egress routes congested?
3. What resources will potentially be needed to maintain clear access and egress routes?
4. Is it necessary to remove parked vehicles?
5. What egress routes are available, particularly for the removal of casualties?
6. Is it necessary to set up 'Red (priority) Routes'?

Location

1. What is the precise location (to include a grid reference)?
2. How large is the area affected?
3. Does it contain residential properties, shops or offices?
4. Are there any venues with large numbers of people nearby?
5. Are there vulnerable persons (e.g. elderly or infirm) involved or nearby?

Emergency Services Required (and Evacuation)

1. Which Emergency Services are required?
2. Is specialist equipment required?
3. Are specialist support organisations required i.e. radiation monitoring?
4. Is Evacuation necessary, or is Shelter a more viable option?
5. Will evacuation of people be required, if so approximate numbers?
6. Where will they be evacuated from?
7. Is there an identified safe route to use?
8. Where will they be taken to?
9. Are facilities available to receive them?

Type of Incident

1. Can the type of incident be identified, i.e. plane crash, explosion, fire, hazmat, etc.?
2. Are there any early indications if the incident may be any act of terrorism or crime?
3. Has a Major Incident been declared? If in doubt do so.

Start the Log (and Safety)

1. Commence a log as soon as possible to record decisions and actions taken.
2. Safety measures taken / required, e.g. PPE, cordons established.

13 Other Emergencies

13.1 Definitions

Other emergencies include:

Clearance of debris and obstructions	Flooding
High winds	High temperatures
Other highway emergencies	

If an emergency develops or has the potential to develop into a major incident, then the Severe Weather Emergency Plan should be followed, as detailed in Section 12.

13.2 The Highway Operations Control Centre

A good communications network and a single point of contact are essential for the effective management of all emergencies and safe use of the highway network. This is provided by the Highway Operations Control Centre (HOCC) which is staffed 24 hours a day and provides a contact point between the Council, the public, its contractors, the emergency services and other Authorities.

The HOCC is equipped to enable staff to monitor many aspects of the highway network and manage incidents of severe weather. Technology available to them includes Urban Traffic Control which is utilised to manage traffic in Devon's larger conurbations and Closed Circuit Television, including web cams and is used to monitor traffic flows and weather conditions.

13.3 Notification

Incidents which are reported to the HOCC, will be passed to the appropriate Area. The Area will investigate and inform HOCC of the current situation and again when the highway is clear.

The Highway Operations Control Centre must be informed of incidents reported to Areas that affect the flow of traffic so that they can be included in reports that may be prepared for public information and senior managers as appropriate.

13.4 Nominated Emergency Contacts

Areas will provide the HOCC with a rota of nominated emergency contacts for use when emergency situations arise. In addition, the HOCC has procedures that list those officers, senior managers and organisations (Police, Environment Agency etc.) who are to be contacted in the event of serious incidents.

13.5 Clearance of Debris and Obstructions

The Environmental Protection Act gives the responsibility for highway sweeping and litter clearance to the District, City or Borough Councils (including fly tipping, dead animals and abandoned vehicles). The County Council still retains certain duties relating to road safety:

- removing obstructions from the highway posing an immediate hazard to road users
- removing materials from the carriageway, cycleway or footway which are posing a potential hazard to users
- removing material that is compromising maintenance systems
- removing leaf fall at locations where this is exceptionally heavy and is seriously affecting road safety.

The Area will attend the scene of a road traffic crashes at the request of the emergency services to clear debris from the carriageway, cycleway or footway.

Non-hazardous spillages (liquid or solid) will also be cleared and the carriageway, cycleway or footway temporarily treated if appropriate. The Environment Agency can be consulted using their enquiry line 08708 506 506 on an appropriate course of action if necessary.

Hazardous spillages (gas, liquid or solid) should be treated with caution. The first priority is to keep the area clear and call the emergency services if not already in attendance, in addition the Environment Agency should be informed and consulted on their emergency hotline 0800 807 060. In some circumstances, e.g. where material needs collecting and disposing of, then specialist waste disposal contractors will be needed. A full procedure is set out in the Standard Safe Working Procedures document "Spillage of Hazardous Substances on the Highway" which also includes details of the "HAZCHEM" panel, it can be found at:

<http://staff.devon.gov.uk/eec/eecbusinessmanagement/ecehealthandsafety/ecehealthmanagesystem/eechms31sswp/eechsspillagehighway.htm>

Locations where particularly heavy autumn leaf fall creates a serious road safety problem will be discussed with the local District, City or Borough Council and the County Council will arrange for their removal where appropriate.

Section 148 of the Highways Act makes it an offence to deposit any dung, compost, rubbish or other material (e.g. mud or hedge cuttings) on a made-up carriageway or on the highway if it interrupts any user. If the deposit constitutes an immediate danger on a major route and the offender will not immediately remove it, or if he cannot be traced easily, the County Council will remove it and may attempt to reclaim the cost of doing so from the offender in accordance with Section 149 of the Act. If the deposit does not constitute an immediate danger or is on a minor route the police should trace the offender and request its removal. If the offender refuses, a formal notice can be issued, if he then fails to act on the notice the default procedure in the Act may be followed, during this time appropriate warning signs should be erected.

Where soil or refuse is being washed onto the highway the County Council will discuss possible preventative measures with the adjacent landowner / occupier concerned, involving the Environmental Agency where appropriate. Should the landowner / occupier not agree to undertake, nor complete the agreed remedial work, the Council will issue a notice under Section 151 of the Highways Act and may pursue retribution through the Court for any remedial work undertaken by the Council.

13.6 Flooding

Over recent years the frequency of storms in Devon has increased and this has led to more instances of flooding affecting the highway. It is therefore important to maintain and improve the capacity and condition of existing highway drainage systems to make them robust enough to cope. Consideration also needs to be given to run off and discharge capacity during the design process.

Surface water flooding of the highway shall be prevented wherever possible and this may involve exercising powers under Sections 100 and 163 of the Highways Act (draining water from and preventing water from flowing onto, and preventing water falling on or flowing on respectively).

Further details about the warnings that are now available concerning potential flooding are given in Section 15. If a flooding event becomes a major incident, reference should be made to the "**Devon Flood Warning and Response Plan**" issued by Emergency Planning.

13.7 Sandbags

The primary responsibility rests with the property owner to protect their property.

Each Area should hold small local stocks of sandbags ready for use in order to deal with the effects of highway flooding, for example resulting from a blocked / damaged surface water drains, culverts, etc. It is not able to supply sandbags generally to property owners to prevent flooding arising from rivers or land run-off. In the event of requests for assistance from District Councils, Fire Service or other agencies however; the County Council does endeavour to provide a back up service within the limits of available resources. However the prime responsibility of this Directorate at such times is to look after the integrity of the highway infrastructure, including bridges and the safety of road users.

Some District Councils supply sandbags to the general public, the policy of each is set out at Appendix 8.

The following businesses can supply bags for sand but the sand will have to be obtained from quarries or builders' merchants: Greenhams, Exeter (01392 271770); Parker Merchanting, Exeter (01392 288900). Many builders' merchants do not stock sandbags.

13.8 High Winds

Following storms, the Council will clear fallen trees, branches, earth slips and other debris from carriageways, cycleways and footways on major routes, where necessary using the priorities set out in the pre-salting network and maintenance category order. On minor roads the adjacent landowner/occupier will be given the opportunity to undertake clearance work where the obstruction originated from outside the highway. Where it is necessary for the Council to undertake any clearance work it may attempt to recover the cost from the adjacent landowner / occupier where appropriate.

The range of possible actions could include the following, although the timing of the response will need to be considered to safeguard safety of persons until the more extreme conditions have abated:

- Signing and maintaining temporary closures and diversions.
- Clearance of fallen and potentially dangerous trees.
- Clearance and removal of debris.
- General support to the emergency services.

13.9 High Temperatures

High temperatures can damage bituminous surfaces by reducing skidding resistance or increasing susceptibility to rutting. Sanding of surfaces can be undertaken to mitigate the former but the latter will need to be remedied through normal road maintenance.

13.10 Other Highway Emergencies

There are a range of other possible situations that will need an emergency response, this includes for example: landslips, collapsed walls, collapsed retaining walls, subsidence, broken covers, etc. each will need to be considered and an appropriate response actioned for example:

- Signing and maintaining temporary closures and diversions.
- Clearance and removal of debris.
- Assistance with temporary support and repair.
- General support to the emergency services.

When necessary, where there are several emergency situations and resources are fully committed, responses should be actioned using the priority order set out in the pre-salting network and maintenance categories.

13.11 Highway Inspection during Emergencies

Where emergencies are not limited to localised areas an inspection of all major routes (as given by the salting network) and other known trouble spots will be made so that necessary clearance work and signing can be organised in priority order. This information about the status of the network should be passed to the HOCC as soon as possible.

13.12 Co-operation with Adjacent Authorities

Areas will liaise with Highway Managers in neighbouring Authorities in order that mutual assistance can be arranged as necessary.

13.13 Resources Deployed

During emergencies, information on resources deployed in terms of men, plant and costs will be required and the Highway Operations Control Centre will make requests for information so Areas will need to ensure this information is being collected.

13.14 Records

Areas must keep local records of all incidents, emergencies, etc., together with reports of responses and outcomes for use in defence of any claims that may be received.

14 Weather Warnings

14.1 Introduction

The criterion for the issue of warnings is the strong likelihood of severe weather which may cause considerable inconvenience to a large number of people or present a danger to life and causing disruption over a wide area. Warnings are sent from the Met Office Public Weather Service to the HOCC via fax and email, but information is also available on the Met Office public web site at:

http://www.metoffice.gov.uk/weather/uk/sw/sw_forecast_warnings.html

14.2 Severe Weather Early Warnings and Flash Warnings

Warning Lead Times and Levels

Early Warnings – come well in advance of an event.

Flash Warnings – given closer to the event, typically 6 hours before.

- | | |
|-----------------------------|---|
| 1) Low level flash warning | – covers severe weather. |
| 2) Emergency flash warnings | – higher level severity likely to cause widespread damage and infrastructure paralysis. |

Both 1 & 2 can also come as Early Warnings. It is recognised that the UK has a range of climate, but for clarity of understanding, the Met Office issue warnings on one set of fixed weather criteria for the whole UK and leave the judgement on what response to make to the emergency authorities. The fixed weather criteria for the two levels are set out in the table below.

Higher Level Event

- Severe gales/storms - gusts of 80 mph or more
- Very heavy snowfall, blizzards or drifting - expected to give depths of 15 cm or more. Blizzards are severe when visibility is reduced to near zero.

Lower Level Event

- Severe Gales - repeated gusts of 70 mph or more over inland areas
- Heavy Snow - snow falling at a rate of approximately 2 cm/hour or more expected for at least two hours
- Blizzards/drifting - moderate or heavy snow accompanied by winds of 30 mph or more with visibility reduced to 200m or less, or drifting snow giving rise to similar conditions
- Heavy rain expected to persist for at least two hours and to give at least 15 mm within a 3 hour period, or a period of rainfall of sufficient intensity to cause flooding on already saturated ground (includes snow-melt) i.e. around 25 mm/day
- Freezing rain
- Fog with visibility below 50 metres (where this is expected to pose a risk to life such as transport collisions and is therefore restricted to heights above sea level were major roads occur.)

In exceptional circumstances, where a sequence of weather events has increased the risk to the public, further warnings may be issued below the thresholds listed above. Such warnings will be clearly stated to be such and include the forecast threshold used.

The text accompanying warnings will provide advice on the possible impacts of the forecast event for the specific regions affected. For example a warning of 4 cm of snow for the mountains of Scotland will carry a very different impact advice statement to a forecast of 4 cm of snow for Birmingham.

Warning Confidence for Issue

Lower Level Event:-

Issued well in advance of event - Early Warning (when confidence greater than or equal to 60%)

Issued close to event - Flash Warning (when confidence greater than 90%)

Higher Level Event:-

Issued well in advance of event - Early Warning (when confidence greater than or equal to 20%)

Issued close to event - Flash Warning (when confidence greater than 90%)

14.3 Advisory Warnings

In addition to the warning identified above, the Met Office web site will contain advisory messages. These are not faxed or emailed. These advisories are issued by 1300 daily as routine, though they may be updated at other times if required. They indicate confidence of expected severe or extreme weather. Early warnings and Flash Warnings supersede advisories when confidence levels are 60% or greater.

14.4 Distribution of Warnings

On receipt of these warnings, the HOCC will relay Early Warnings and Flash Messages, normally by automated email, but otherwise by fax or telephone to Devon County Council staff who may need to act on these warnings but also including the following:

Leader of the Council

Chief Executive

Director of Environment Economy and Culture and Culture

Deputy Director of Environment Economy and Culture

Head of Highway Management

Traffic and Highways Operations Manager

Area Offices

Media Office

Emergency Planning Duty Officer

Fire Service (unless other arrangements are in place to receive this information)

Ambulance Service (unless other arrangements are in place to receive this information)

All District Councils in Devon (unless other arrangements are in place to receive this information)

The majority of severe weather information is disseminated directly by the Highway Operations Control Centre. For prolonged periods of severe weather, a road status and a general summary of the weather situation that has occurred and the parts of the county affected, together with a prognosis of the conditions in the immediate future, will be issued.

14.5 Beaufort Scale of Wind

Speeds are given at height of 10 m above open flat ground.

Beaufort Force	Description	Speed (m.p.h.)		Effect
		mean	Gusts	
0	Calm	< 1		Calm: Smoke rises vertically
1	Light air	1 - 3		Direction of wind shown by smoke drift but not wind vanes.
2	Light breeze	4 - 7		wind felt in face; Leaves rustle; ordinary vanes moved by wind
3	Gentle breeze	8 - 12		Leaves and small twigs in constant motion; wind extends light flags.
4	Moderate breeze	13 - 18		Raises dust and loose paper; small branches are moved
5	Fresh breeze	19 - 24		Small trees in leaf begin to sway; crested wavelets form on inland waters
6	Strong breeze	25 - 31		Large branches in motion; whistling heard in telegraph wires; umbrellas used with difficulty
7	Near gale	32 - 38		Whole trees in motion; inconvenience felt when walking against wind
8	Gale	39 - 46	49 - 59	Breaks twigs off trees; generally impedes progress
9	Severe gale	47 - 54	60 - 69	Slight structural damage occurs; (chimney pots and slates removed)
10	Storm	55 - 63	70 - 78	Seldom experienced inland; trees uprooted; considerable structural damage occurs
11	Violent storms	64 - 72	79 - 89	Very rarely experienced; accompanied by widespread damage
12	Hurricane force	73+	90+	Devastation

15 Extreme Rainfall Alerts and Flood Warnings

15.1 Introduction

Following the major UK flooding in June and July 2007, the Government commissioned Sir Michael Pitt to lead a year long independent inquiry, and on the 25 June 2008, the final Pitt Review was published. The report examines both how to reduce the risk and impact of floods, and the emergency response to the floods. Whilst there has been no legislative changes enacted to date as a result of the report, there has been action on behalf of the Government to act on a number of the recommendations, in particular in improving the information available to emergency responders and encouraging emergency responders to improve their communications prior to potential flooding events including surface water and flash flooding.

On 21st April 2009 the Flood Forecasting Centre (FFC) was created, as a partnership between the Environment Agency and Met Office, to forecast river and coastal flooding as well as extreme rainfall which may lead to flooding from surface water. It will help provide earlier warnings of floods to local authorities and the emergency services, to give them more time to prepare for floods and reduce the risk of loss of life and damage to property. The new service will complement existing public flood warning arrangements from the Environment Agency and public weather warnings from the Met Office.

As a result of these initiatives the following operational information is available to assist in managing flood events (FFC – Flood Forecasting Centre, MO – Met Office, EA – Environment Agency):

Title	By	When	Example
Extreme Rainfall Advisory	FFC	Probability >10%	Appendix 16
Extreme Rainfall Alert	FFC	Probability >20%	Appendix 16
Flood Guidance Statement	FFC	Noon daily when Amber or above	Appendix 16
Severe weather early warning	MO	Up to 5 days before	See section 14
Severe weather flash warning	MO	Up to 6 hours before	See section 14
Flooding operational information	EA, Devon	When flooding expected	Appendix 16
Flood Warnings	EA, Devon	When required	See this section

As a result of these warnings a multi-agency conference call may be convened, normally by the County Council's Emergency Planning Duty Officer in consultation with the Environment Agency and possibly the police for the professional partners within the County or Local Resilience Forum area (covered by the Devon and Cornwall Police Force). This may be known as DEVFLOODCON or FLOODCON and operates in a similar way to a GOLD conference. It is designed to allow the professional partners to be appraised of the situation and for each party to understand how the others are planning to respond to the event. Professional partners would include emergency services, local authorities, EA, Met Office, Highway Agency and sometimes GOSW.

If major flooding events occur or are likely, reference should be made to the **Devon Flood Warning and Response Plan** which details how the county and other agencies will respond to the incident in Devon and has specific plans for a number of location susceptible to fluvial (river), pluvial (surface water) or tidal flooding.

15.2 Extreme Rainfall Alerts (ERA) and Flood Guidance Statements

The Flood Forecasting Centre is operational every day of the year and sends out Flood Guidance Statements daily at noon, with an increase of frequency during extreme flood events. The HOCC only receives these statements when they are categorised as "Amber or above" – i.e. when there is the possibility of an event. An example of a Flood Guidance Statement is shown in Appendix 16.

The ERA Service is designed to alert emergency responders in England and Wales to the possibility of urban surface water flooding as a result of extreme rainfall. The alert is issued at a county level to help local response organisations manage the potential impacts of flooding. An ERA can take two forms:

- ERA Guidance/Advisory — issued when there is more than a 10% chance of extreme rainfall
- ERA Alert — issued when there is more than a 20% chance of extreme rainfall

Examples of these alerts are shown in Appendix 16.

15.3 Flood Warnings

THE Environment Agency (EA) has 4 stage system of flood warnings, which applies to both flooding from rivers and the sea.

Flood Watch
Flood Warning
Severe Flood Warning
All Clear

In addition, the EA's local office will issue "operational information" in the form of faxes or emails (see example in Appendix 16) which provides their best information summary on an expected flooding event.

There is a single number information line for the general public - 0845 988 1188. Members of the public can sign up to Floodline Warnings Direct. Their website on Current Flooding Situations is updated every 15 mins. The warning code definitions have also been updated.

The HOCC will receive faxes of flood warnings from the Environment Agency and distribute these to affected Areas by fax or phone as appropriate, examples are given at Appendix 9. The faxes will include whether or not there is a need to invoke the responses given in the Devon Flood Warning and Response Plan Part 1 – Major Risk Areas, in which case the County Emergency Planning Officer will be informed by HOCC.

The new codes are a fundamental change from the previous colour coded flood warning system and are not directly comparable. Flood Watch and All Clear applies to all watercourses and coastlines, Flood Warning and Severe Flood Warning are only applicable to main rivers and coastal areas. Generally the system will move up and down through the stages, however there will be circumstances when stages are omitted e.g. for a flash flood. The term Update is used to indicate that flooding within an area is forecast to increase but a step-up in warning stage is not warranted, it can also be used to update a warning that has been in force for a time to maintain public awareness.

15.4 Flood Watch Areas

The country is divided into Flood Watch Areas that are based on river catchments. Devon is mainly covered by four River Areas, which do not coincide with the similarly named District Council boundaries and two Coastal Areas although small areas of the County are covered by part of adjacent areas.

River Areas	Mid & East Devon	North Devon	South Devon	West Devon
Coastal Areas	South Devon Coast		North Devon Coast	

Sub-Area	River Areas	Coastal Areas
Barnstaple	North Devon Area	North Devon Coast Somerset Coast
Exeter	East & Mid Devon Area	
Ivybridge	South Devon Area West Devon Area	South Devon Coast
Newton Abbot	East & Mid Devon Area South Devon Area	South Devon Coast
Okehampton	North Devon Area South Devon Area West Devon Area	
Eastern	East & Mid Devon Area	South Devon Coast
Tiverton	East & Mid Devon Area North Devon Area	
Torrington	North Devon Area West Devon Area	North Devon Coast North Cornwall Coast





These areas are shown on the following map:

Flood area map

ENVIRONMENT AGENCY FLOOD WATCH AREAS



15.5 Flood Warning Code Definitions

Warning Code	New Definition (Autumn 2005)
	Flooding of low-lying land and roads is expected. Be aware! Be prepared! Watch out!
	Flooding of homes and businesses is expected. Act now!
	Severe flooding is expected. There is extreme danger to life and property. Act now!
	Flood Watches or Warnings are no longer in force in this area.

There are many different sources and types of flood risk and flooding including rivers and the sea, estuaries, sewers, surface water, overland flow, etc. The Agency's Flood Warning Code System applies principally to flooding from rivers and the sea, to designated areas within the indicative floodplain. Such areas are known by their standard generic terms "Flood Watch Area" or "Flood Warning Area".

Flood Watches will be issued for areas of the floodplain within a catchment or group of catchments at risk from minor impact flooding from main rivers, ordinary watercourses and the sea. These will be known as Flood Watch Areas. A single Flood Watch Area may cover the flood plain across a number of catchments with broadly similar hydrological and hydraulic characteristics e.g. a single Flood Watch may be issued for several catchments within the flood plain.

The degree of detail provided by the Flood Watch regarding specific flood locations will depend on local knowledge of where rivers start to come out of banks in low lying areas, or where coastal spray/overtopping starts to occur.

Flood Warnings and Severe Flood Warnings will be issued for Flood Warning Areas, which are delineated by recognised communities such as an urban area, a significant suburb of a large city, a village or hamlet as follows:

1. River Name and County - City /Town / Village or Upstream to Downstream description
2. Coastal Area - Cities / Town / Village or A to B description

15.6 Codes



Flooding of low-lying land and roads is expected. Be aware! Be prepared! Watch out!

Triggers	Severe weather or heavy rainfall warning from Met Office; Thunderstorms forecast; Rain forecast on wet ground; Snow-melt forecast; River gauges; Forecast high flows; Tide/surge/wind forecast
Impact on ground	Fast flowing bank-full rivers; Flooding on fields and minor roads in the flood plain; Surface water flooding; Spray/wave over-topping; Overland flow from rivers or watercourses; Flooding from ordinary watercourses; Potential property flooding
Advice to operational organisations	Notify others as per the Local Flood Warning Plan; Activate appropriate emergency procedures; Notify relevant departments/check resources; Monitor weather forecasts; Ring Floodline 0845 988 1188; Watch water levels; Be aware the situation could worsen



Flooding of homes and businesses is expected. Act now!

Triggers	As for Flood Watch, plus; Rivers rising - alarm levels reached; Higher Tide/surge forecast; Site observation suggest worsening situation; High flows - rivers overflow banks and defences; Heavy rainfall – e.g. flash floods; Actual flooding
Impact on ground	Risk to life and property (cellars and basements); Underground stations and lines vulnerable; Damage to flood defences; Risk to main roads and railways; Significant wave/spray overtopping; Access roads vulnerable; Severe flood plain inundation (High risk to livestock)
Advice to operational organisations	As Flood watch, plus; Consider need to mobilise resources: personnel, plant, sandbags etc.; Consider need to evacuate the public from risk areas; Flooding is now expected, so be prepared for a worsening situation



Severe flooding is expected. There is extreme danger to life and property. Act now!

Triggers	As for flood warning, plus; Forecasts continue to suggest a worsening situation; Very high river flows or levels which exceed highest alarms; Agency experts consider very serious flooding likely; Severe flooding actually happening
Impact on ground	Large numbers of people or properties affected, including (for example) caravan sites; Major incident plan or flood Response Plan triggered; High risk to life; Civil disruption (traffic, utilities, hospitals); Major breaches of flood defences
Advice to operational organisations	As flood warning, plus; Consider need to activate major incident plan; Begin necessary evacuation procedures



Flood Watches or Warnings are no longer in force in this area.

Triggers	Rivers back in-bank, and levels falling with no significant rain forecast; Rivers return to flows below trigger levels; Tides receding, normal tides forecast
Impact on ground	Flood water receding; If no actual flooding has taken place previously, the environment will be unaffected; If flooding has taken place, this warning code implies a drop in water levels, but leaving damage and destruction to be cleared up
Advice to operational organisations	Again actions will depend upon the level of incident that has gone before. Organisations may need to: Notify all relevant personnel of all clear message; Remained tuned for updates; Review emergency procedures

16 Winter Service Contractor's Role

16.1 Introduction

The work force, plant and equipment to carry out winter service and emergency operations is provided by the County Council's Term Maintenance Contractor. Some of the parameters, which guide their role, are given below but reference should also be made to the Highways Term Maintenance Contract 2007 where the level of service and response required of SWH Ltd is stated.

The contractor is on standby from 15 October to 15 April, occasionally there is a need to respond to situations requiring winter service action outside this period and plant and personnel should be ready between 1 October and 30 April. This document has already stressed the importance of pre-winter season meetings, plant calibration and other issues affecting the works.

16.2 Highway Term Maintenance Contract

The contract encompasses all activities necessary to secure the free passage and safety of persons using the highway network. SWH Ltd have provided a commitment that they will have sufficient resources available to attend all winter service call outs on the salting network and emergencies within the required response times. This work will take precedence over other highway works.

The Contract series 4500 Emergency Response and Attendance, series 4600 Winter Maintenance and series 4700 Vehicle and Equipment use and maintenance define the work requirement. The general procedure is as follows:-

- 1) Verbal or written instruction from the Area to SWH Ltd who will maintain a 24-hour communications channel.
- 2) SWH Ltd respond to the winter service or emergency call out.
- 3) When a gritter without GPS is used then SWH Ltd should report when salting is started and again when completed to the HOCC by mobile phone and subsequently to the Area.

16.3 Routing

Individual salting routes have been developed in partnership between the County Council and SWH Ltd so that each route can normally be completed within 2½ hours of the start of the salting route (unless agreed locally with the Area) When agreeing routes, it is imperative salting vehicles are matched to specific routes (e.g. some routes have very narrow sections which would not be suitable for the larger capacity bulk gritters) and that the overall route efficiency (salting length divided by total length to the completion of salting) is as high as practicable. The contractor is expected to be at the start of the route defined as when the salting starts (not leaving the depot unless that is where salting starts) at the pre-agreed action time or within one hour when an immediate call-out is instructed.

16.4 Trained Operatives

Under the Term Maintenance Contract, SWH Ltd must provide a sufficient number of trained operatives to carry out continuous shift work, on the salting network, during snow or other emergencies. All drivers salting, gritting, and ploughing on roads must be trained and successfully assessed in accordance with City and Guilds 6157 and registered with the IDeA. The Training Centre at Notter Bridge has been accredited to be able to provide this training and assessment.

16.5 SWH Ltd Contacts

Contact numbers for SWH Ltd managers are given in the Contacts Section of this document with a full listing of those involved in winter service activities given in SWH Ltd's Winter Service and Emergency Manual.

**Appendix II
To EEC/10/168/HQ**

EEC Scrutiny Committee Winter Task Group Recommendations

Recommendation:	Lead:	Timescale:	Response	
Highway Operations:				
1.	That a corporate delivery plan is created including actions and accountabilities and that the Task Group revisits the review including progress on the recommendations and delivery plan.	EEC Scrutiny Committee all partners.	12 months time	Information on progress will be fed into this delivery plan.
2.	That Parish and Town Councils be invited to be formally involved in a review of the Parish road maps including the classification of roads.	EEC Highways	Starting as part of the Winter maintenance review	The criteria for the roads to be included in the secondary routes has focussed on trying to maximise the population that can have reasonably close access to a treated road connecting to the primary salting network. By taking a community population size of 100 (Strategic Intelligence definition) means that 96% of Devon's population will have reasonably close access to a treated road. Information on the location of grit bins, the primary salting network and the proposed routes for the secondary network that conform to the proposed policy is being sent to parishes for their comment.
3.	That the current policy to not treat footways and pavements, including cycle ways, other than a reactive response is reviewed to include the provision of self help as part of the Winter Maintenance Plan.	Devon District Forum EEC Highways	For the Winter of 2011/12	It is proposed in this report that the current policy to only treat footways and cycleways on a reactive basis as resources allow is maintained. Any change in policy to treat cycleways and footways at a higher level will have huge resource and budget implications.

4.	That there is a formalised process with the District Councils so that employees (e.g. Street Scene) are trained to allow them to be redirected and employed to clear snow off footways and urban areas when they are unable to fulfil their normal duties due to adverse weather.	Devon District Forum District Leaders and Chief Execs	For the Winter of 2011/12	The authority will support any agreement that is made by the appropriate training and deployment of District staff.
5.	That, with reference to the CYPS Scrutiny school transport recommendation four, to endorse the planned review into the treatment of secondary school routes should be funded corporately and consider a further review of reactionary treatment for primary schools.	EEC Highways with CYPS	For the Winter of 2011/12	This report includes a policy change to include treatment to highway access to secondary schools on the precautionary (primary) salting network as this can be achieved at minimal additional cost. The inclusion of primary schools as part of the reactive (secondary) treatment network would have such significant additional resources implications to that currently available, and hence significant extra budget requirements that it is not recommended and consideration should be given to local community self-help schemes instead.
6.	That because water and drainage is the most destructive element in highway maintenance all work on the highway network should have at least a 20% additional drainage capacity built into new builds to deal with the effects of climate change.	EEC Highways	Ongoing	Devon County Council specifications for its own highway works and the guidance for private developers who are seeking approval for their new highways to be adopted under Section 38 of the Highways Act 1980 already include the requirement to increase by 20% the capacity of drainage systems derived from present assumptions as to the maximum storm intensities to be designed for.

7.	That the Highways Agency should, in line with DCC best practice, use the most up to date climate change predictions to inform their specifications and prioritise adaptation measures.	Highways Agency	Summer 2010	Devon County Council has made representations (through ADEPT or when specifically consulted) to the DfT and Highways Agency regarding the requirements for the current revisions to their Specification for Highway Works and gully spacing in their Design Manual for Road and Bridge Works. It has to be recognised however that ultimately the Highways Agency will set its own policies and design standards for trunk roads and motorways.
8.	That the vital work of the Devon County Council Materials Laboratory into solutions for treating the network damaged by winter weather and particularly into in situ recycling techniques and the effects of tar on bitumen is able to continue.	EEC Highways	Ongoing	There are no current plans for the work being carried out by the Devon County Council Materials Laboratory with regard to developing solutions to treating the network damaged by winter weather to be discontinued.
9.	That Devon County Council will raise the issue of farmers using red diesel when treating the highway by raising the problem with central Government and HRMC.	DCC Legal, LGA MPs	As part of the Winter maintenance review	<p>The issue regarding use of red diesel by farmers has been clarified by Her Majesty's Customs and Excise leaflet which states:</p> <p style="padding-left: 40px;">“A vehicle is an excepted vehicle when it is being used to clear snow from public roads by means of a snow plough or similar device (whether or not forming part of the vehicle) or when it is travelling to or from the place where it is to be or has been used for that purpose.”</p>

10.	That Devon County Council will, in line with Cornwall Council and Dorset County Council meet with the NFU to explore how the farming community can help with winter maintenance and address the insurance, equipment and storage issues.	EEC Highways	As part of the Winter maintenance review	Work is ongoing with the NFU, linking with their work with Cornwall and Dorset, to explore this area with a view to linking it into the proposals for community-based self help. Options to increase salt storage capacity are also being pursued.
Grit Bins:				
11.	That following considerable demand for additional bins there is a complete audit of salt and grits bins in the authority including clarification of ownership, numbers and exact location to provide the most comprehensive service.	EEC Highways	For the Winter of 2010/11	The computerised inventory has been updated over the summer with the best information available, and this information is then being sent to Parish Councils so that they can comment upon its veracity. Currently there is in excess of 2,600 grit bins on the inventory.
12.	That there must be a review of the current SWH contract for filling bins to ensure that they are correctly located regularly filled and that the contract offers good value for money.	EEC Highways	As part of the Winter maintenance review	Discussions have been held with the contractor as to how the bins can be serviced and filled in a more cost effective manner, and it is planned to manage this element of the contract centrally so the contractor, equipped with the latest inventory, can arrange to visit all the bins in the most economic way across the county. It is also planned to set up a system whereby reports of empty or damaged bins can be handled centrally and passed straight to the contractor. An agreement will be reached whereby the contractor will be instructed to refill bins in an economic manner rather than on individual reports, but this could vary depending on the severity of the Winter.

13.	That Parish and Town Councils should be invited to formally be involved in the audit in their area with clear lines of communication to report back to their County Councillor who should report to HATOC.	Local County Council Member	For the Winter of 2010/11	Information will be communicated to Parish and Town Councils – see response to 2 and 11 above.
14.	That there must be a clear communication message to tackle the problem of the illegal misuse of grit bins including a message on the bins to inform the public what they are for, how to use them, how to get them refilled and how to report misuse.	EEC Highways	For the Winter of 2011/12	It is proposed that better information will be provided on the how grit bins should be used by a combination of labels and leaflets, re-enforced by pre-winter publicity.
Bus Routes:				
15.	That in line with Devon County Council Green travel and sustainable transport policies to ensure essential routes are treated the current policy for treating bus routes should be expanded.	EEC Highways	For the winter of 2011/12	The bus network has been reviewed and it was identified that the next logical level for treatment was to treat all the red route services on the Devon bus map which indicates routes with a service of 5 buses a day or more. However it was estimated that this would add an extra 250 km to the salting network at considerable additional expense. Indications from some bus operators are that the current network is adequate for normal winter conditions. Consideration will therefore be given to the benefits of treating any additional network in the future and the cost associated with it in time for the 2011/12 Winter.
16.	That communication with bus operators is reviewed to improve partnership working.	EEC Highways Bus operators	As part of the Winter maintenance review	Discussions have taken place on how partnership working could be improved, and these include better points of contact and access to more information on the internet.

Procurement:				
17.	That Devon County Council develops a policy for conditions of mutual aid when working in partnership with other South West authorities to take into consideration when shortages occur due to an authority having made no adequate contingency plans.	Central Procurement EEC Highways	As part of the Winter maintenance review	A recommendation has been made for a mutual aid policy for salt.
18.	That Devon County Council should continue its good practice to treat the supply of salt as a complete service rather than a simple commodity purchase.	Central Procurement EEC Highways	Ongoing	The authority has already ordered 17,000 tonnes of Irish Salt to fill all of the available storage capacity for 2010/11, and pre-ordered a further 10,000 tonnes to replenish stocks during the winter period as required. This will enable the authority to enter the Christmas period with a near full complement of salt stocks to provide maximum resilience.
19.	That there should be communication with professional partners for a review their own salt arrangements and joint working to ensure access to key services.	Central Procurement EEC Highways	For the Winter of 2011/12	Negotiations have also been held with SupplyZone (part of Devon Procurement) to procure bags of salt for purchase and use by public bodies in Devon (including Parish Town and District councils) and therefore be able to build up their own winter resilience prior to the core Winter period.
20.	That Devon County Council will seek to establish a partnership arrangement with District authorities to review their salt arrangements and joint working particularly to consider the treatment of District car parks.	Devon District Forum District Leaders and Chief Execs	For the Winter of 2011/12	The authority will support any agreement that is made. District Councils will be invited to send representatives to the Winter Conference to ensure preparedness for the coming winter and will have access to the SupplyZone arrangement indicated in 19 above.

Emergency Planning:				
21.	That relevant guidance from Well maintained Highways Code of Practice for Highway Maintenance Management 13.6.25 should be applied: <i>Where roads are known to be particularly vulnerable consideration should be given to the installation of permanent flap down variable message signs.</i>	EEC Highways and Highways Agency	To be considered for the 2011/12 budget	The cost, effectiveness and practicality of installing permanent flap down or remotely controlled variable message signs for suitable locations on the principal road network that are particularly vulnerable will be investigated with a view to making appropriate recommendations to Members for implementation, if appropriate, by the start of the 2011/12 winter.
22.	That lines of communication from the incident and rest centres needs to be improved to ensure a clear line of information from the ground up.	Devon Cornwall Local Resilience Forum Emergency Planning	For the Winter of 2010/11	The Emergency Planning team have established a new protocol where they will host a 'Welfare telecon' audio-conference to ensure that the Rest Centres and voluntary agencies are kept informed of decisions made at Silver Control and that any views are fed back to the following Silver meeting via the Duty Emergency Planning Officer, who normally attends the Silver Control meetings.
23.	There is a dedicated communications spokesperson at command level during an emergency to manage the media response and ensure they are part of the solution not the problem.	Devon Cornwall Local Resilience Forum	For the Winter of 2010/11	The police have identified the need for a media cell at Silver Control following their review and are addressing this in their procedures.
24.	That the working practices of the Highways Agency and Devon County Council need to be addressed and improved with reference to working in their respective areas of responsibility on Haldon Telegraph Hill.	EEC Highways and Highways Agency	For the Winter of 2010/11	There have been a number of debrief and working group meetings with the Police and Highways Agency regarding the management of Haldon and Telegraph Hill in another snow event. Various options have been considered and a plan has been

				produced which identifies the available turnaround points that currently exist on the network, identifies a strategy for managing the traffic and determines how timely information can be communicated with the media. The working group considered that an additional turnaround point could be desirable on Haldon Hill but there are practical difficulties that the Highways Agency is investigating.
25.	Moving barriers and cross over points through structural engineering changes and appropriate signage should be installed on the Haldon Telegraph Hill to allow the movement of gritters and the turning of vehicles during an incident.	EEC Highways and Highways Agency	To be considered for the 2011/12 budget	See above (24.)
Communication:				
26.	That Devon County Council will host an operations meeting prior to the agreement of the winter maintenance plan to discuss and plan operations with partners.	EEC Highways	For the Winter of 2010/11	Joint winter planning has been undertaken with the Highways Agency and Police regarding to the winter response to Haldon and Telegraph Hill and through the winter conference – see 28 below.
27.	That resource is available so that Highways can ensure information is on the internet and that all Parish Councils can access important and real time information from Devon County Council on highways maintenance during extreme weather.	EEC Highways and ICT	For the Winter of 2011/12	Winter information is available on the DCC website and this will be augmented with further information that has been produced from this Winter. Development of a web based system that allows “live” information related to Winter actions to be displayed geographically on the web site has started and it is expected that this will become available during the coming Winter and provide useful information particularly to parish and town councils.

	That Devon County Council will host a meeting in the autumn each year to present the Winter maintenance plan with stakeholders and the press and media to improve communications and understanding the resources available.	EEC Highways	For the Winter of 2010/11	A conference have been arranged on 28 September 2010 at the Met Office by Devon County Council entitled Extreme Events with the support of other professional partners to inform stakeholders, and in particular Parish and Town Councils about how Devon manages severe weather events and how more self-help can be provided. A Minister has been invited to deliver a keynote address, and Brian Smith, a member of the DfT Winter Review Team, has agreed to present the early findings of the National Winter Review.
29.	That as the press and media are a 24 hour industry this should be reflected with a formal out of hours service from corporate communications at Devon County Council.	Corporate Communications	For the Winter of 2010/11	Options to address this area are being considered in light of current financial constraints but currently senior officers are supporting out of hours on a voluntary basis when major incidents occur.
30.	(a) That there is a single point of access for highways calls should be adopted at the Customer Service Centre;(b)That initial routine access (whether by telephone or web) should be through the CSC to simplify and improve the workflow.	Customer Service Centre EEC Highways	For the Winter of 2011/12	The Lean review regarding the handing of highways calls in the Customer Service Centre is being implemented.
Community and Individual self help:				
31.	That the Winter Maintenance Plan will go further to include a formal process for self help which should involve the District, Town and Parish councils.	EEC Highways	As part of the Winter maintenance review	Parish and Town councils will be advised of which roads are included within each primary and secondary salting network. They will then have the opportunity to comment on whether the most suitable route has been identified for linking their communities to the primary network.

			<p>The remainder of the un-treated network (roads, footways and cycleways) will be the subject of self-help. This is subject to further work:</p> <ul style="list-style-type: none">- Formalise a process for the use of District Council employees to clear snow off footways and urban areas when they are unable to fulfil their normal duties due to adverse weather.- Discussions with NFU to explore what role farmers may be willing to play in severe weather, linking particularly into their discussions with Dorset and Cornwall.- Encouraging Parish and Town councils to facilitate local self-help and provide an easily managed source of salt in bags to the councils at minimal cost- The provision of grit bins (see later section)- The provision of a public self-help leaflet to mitigate concerns over litigation. The National Winter Review has also made an interim recommendation that the government produces this type of leaflet for the coming winter. <p>It will clearly take time for some of these initiatives to develop, but the process will have started for the coming winter. The issue regarding use of red diesel by farmers has been clarified by Her Majesty's</p>
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32.	That Devon County Council to produce a leaflet for the public explaining the legalities and giving information on self help and advice on individual and community liability which should be included in Council s web guidance and relevant publications.	DCC Legal EEC Highways Emergency Planning	For the Winter of 2010/11	Further advice on self-help is being prepared in the form of a leaflet, and information will also be made available to the Customer Service Centre and on the internet, and this will address the issue of liability.
33.	That in any future incident advice on individual and community liability should be communicated as part of real-time guidance and advice via the Customer Service Centre.	Customer Service Centre DCC Legal	Ongoing	See 32 above
34.	That within the emergency planning road shows and emergency planning guidance, information is available to Town and Parish Councils which includes emergency winter maintenance in their emergency plans as part of the risk assessment process.	Emergency Planning	For the Winter of 2010/11	Emergency Planning have been including matters relating to winter resilience in their community road shows.

<p>35. (a) To enable self help on the untreated network the process needs to be formalised and coordinated and to this end, a pilot area of suitable geographic size and population should be identified in which;</p> <p>(b) that the Town and/or Parish Councils have an agreed coordinated response to extreme winter weather as part of their emergency plan,</p> <p>(c) that Devon County Councils will centrally procure salt for the Town and/or Parish Council and that the Town and/or Parish Councils will identify strategic positions for storage in line with EA regulations will coordinate the distribution when and where required,</p> <p>(d) that Devon County Council will actively engage with Town and/or Parish Councils to assess their willingness and capability for a wider roll out of the formal self help process to ensure there will be no disparity in the service received.</p>	<p>EEC Highways the local County Council Member</p>	<p>By the Winter of 2011/12</p>	<p>It is also proposed that Parish and Town Councils will be invited to appoint "Snow Wardens" who will be trained in how to clear ice and snow and act as a coordinator for local volunteers. Local volunteers who act under the direction of a trained Snow Warden will be covered under the County's Indemnity Insurance policy. If there is particular interest in this, then the duties could be expanded to provide local information to the county council and coordinate local support for those in need. The conference will be used to promote these ideas and gauge interest. As previously indicated an economic supply of salt has been negotiated with SupplyZone, which councils can purchase.</p>
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CYPS School Transport Task Group Recommendations			
	Recommendation:	Rationale:	Response
1.	That there is a model communications policy for school transport in adverse weather conditions to ensure consistency of information for parents and carers across the County.	A model policy should be adopted by all schools and governing bodies and a protocol for transport providers which clearly set out the roles and responsibilities of the various parties in terms of communicating closures to parents. This model policy should include guidance on the use of school websites and local media. Although there was excellent practice, not all schools are communicating effectively with parents.	Procedures are being developed to tighten the practice of schools informing CYPS of their closures and improving communication with parents

2.	That the use of the Devon County Council homepage be reviewed in terms of communicating information on school closures and school transport in adverse weather.	The Council's homepages needs to be better utilised and be fully updated to provide all relevant information for parents and students alike on those days where the weather may force schools to close.	School bus operators already have systems in place to advise the Transport Co-ordination Service (TCS) and the media The Devon website now has a live facility to show all routes and school closures which can be updated directly by CYPS and TCS, and this will be made more prominent during severe weather on the front DCC web page and be available to MyDevon
3.	That schools are a priority for salting and gritting up to and including driveways and turning circles. That Highways review the gritting and salting routes accordingly.	Access to the County s schools needs to be a priority in terms of salting and gritting in adverse weather. The Task Group recognise the difficulty of gritting and salting access to every rural school in Devon.	Amendments have been proposed in this report on treating the highway to the school gates of secondary schools as part of the precautionary salting network. It is not possible or practicable to salt driveways and/or turning circles within secondary school grounds nor to treat the highway to primary school gates. To include these additional responsibilities is likely to require significant additional resources due to the length of route and specialist plant and equipment.
4.	That clear guidelines are provided about what schools can do in terms of clearing snow and salting ice on their grounds, driveways and also adjacent pavements and school gates	Guidance from the LA is needed for schools in terms of liability and taking reasonable measures to clear snow.	Self-help guidance is being drafted to address issues of community self-help and this will be adapted and augmented for use on school premises. School representatives will be invited to the winter conference on 28 th September and will be able to purchase salt and spreading equipment through SupplyZone.

5.	That there is clarification as to the legal responsibilities of schools when transport providers in adverse weather wish to transport children early from school.	Head Teachers are concerned whether to let pupils leave if they cannot be certain that a parent or guardian will be home or the pupil can access their connecting transport. Clarification is essential as to where schools are legally on this issue.	The authority has a responsibility to get children home that it has transported to school.
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