Policy And Resources Select Committee
- Severe Winter Weather Scrutiny Review

Background Information

Contents:

1 Key Points regarding the Winter Service:

- Motorways and Trunk Roads are the responsibility of the Highways Agency (an executive agency of the Department for Transport)

- Local Highway Authorities are responsible for all other roads. In Hampshire, the County Council is the Local Highway Authority.

- The Highway Authority is responsible for ensuring 'so far as is reasonably practicable, that safe passage along a highway is not endangered by snow or ice.'[1]

- The Highway includes 'the carriageway, footways, cycleway, structures etc that make up the whole network.'[2]

- In addition, the Traffic Management Act 2004 placed a network management duty on all local traffic authorities in England (in Hampshire the County Council is also the local traffic authority). It requires authorities to do all that is reasonably practicable to manage the network effectively to keep traffic moving. In meeting the duty, authorities should establish contingency plans for dealing promptly and effectively with unplanned events, such as unforeseen weather conditions, as far as is reasonably practicable.

- Given the scale of financial and other resources involved in delivering the Winter Service it is not reasonable either to provide the service on all parts of the Network, or ensure running surfaces are kept free of ice or snow at all times, even on the treated parts of the network.

- Highway authorities are responsible for treating public highways, but other services are usually responsible for their own premises and accesses

- The Hampshire & Isle of Wight Local Resilience Forum (LRF) is a partnership responsible for the development, maintenance and testing of plans and procedures for major emergencies and incidents, to ensure all of the relevant organisations are prepared to respond to a major incident in the county. Members include all Hampshire local authorities, relevant ambulance services, fire & rescue service, constabulary, maritime & coastguard services agency, strategic health authority, health protection agency and local media

[1] See Section 41 (1A) of the Highways Act 1980, as amended by Section 111 of the Railways and Transport Act 2003.
[2] According to 'lessons from the severe weather February 2009' – UK Roads Liaison Group

representatives. The role of the LRF is to ensure that all of these organisations work together to prepare for, respond to and recover from emergencies. The HIOWLRF Executive (Chaired by the Chief Constable) meets every three months and attendance is open to all partners engaged in emergency planning in Hampshire and the Isle of Wight. In order to support this large group, the Coordinating Group has been constituted. This is a smaller, tactical decision making group for resilience matters in the county which meets on a quarterly basis, or more frequently if required (Chaired by the Assistant Chief Constable).

- The Winter Service Guidance published by the UK Roads Liaison Group (section amended 15 December 2009) introduces the concept of 'resilience' – that local authorities should agree a number of days that a defined winter service can be guaranteed. This means an agreed minimum level of service will be maintained in terms of keeping roads clear of ice and snow. **In terms of this review** however, **'winter resilience'** will be considered more broadly, in terms of **the extent to which <u>all</u> key public services can ensure a minimum level of service during a severe winter weather event, including at times when some parts of the road network are not gritted.**

2 Key Literature

2.1 Following the severe winter weather experienced across the country in February 2009, various reviews were undertaken by national level organisations, to reflect on what had happened and make recommendations regarding actions to be explored to improve the response in future. A key report that emerged as a result was 'lessons from the severe weather February 2009', which provides a useful overview of the national context in relation to the operation of the 'winter service'. This covers the salt supply chain, salt procurement, appropriate salt stocks and planning by local authorities. A summary is provided below.

2.2 Lessons from the Severe Weather February 2009 – by the UK Roads Liaison Group (published July 2009)
Available in full here: http://www.ukroadsliaisongroup.org/liaison/winter.htm

2.3 This document comprises the findings and recommendations from a review undertaken following the heavy snow experienced in February 2009, initiated by the Secretary of State for Transport, undertaken by the UK Roads Liaison Group. Local highway authorities are encouraged to review their winter service policies before winter 2010/11, taking into account updated guidance published following the February 2009 severe weather (published December 2009, see section 3 below).

2.4 In the introduction it is noted 'in the UK there is great variability in the frequency and degree of freezing conditions and in the amount of snowfall from year to year.' And furthermore that 'the effects of climate change have made it far more difficult for highway authorities to predict conditions from year to year. A succession of mild winters inevitably resulted in some assuming that such conditions might continue, but last winter proved that this was not to be the case. Increased frequency and intensity of severe events is a consequence of climate change and needs to be taken into account in winter service planning'.

2.5 Principles of the review:

- High Public Expectations of winter service
- Lessons to be learnt from recent experience
- Climate Change – likely to mean increased risk of more severe and more frequent severe weather
- Need greater focus on resilience
- Highway Authorities take their own decisions about winter service policy
- Need a balance between level of resilience and value for money
- Should not rely on national measures or the 'Salt Cell' being invoked in circumstances considered 'reasonably predictable'

2.6 Weather Forecasting

Long range weather forecasting is notoriously difficult, and for winter 2008/9 indicated that temperatures were likely to be milder than average [then severe weather was experienced in February 2009]. Medium term forecasting i.e. 2 to 5 days, is more reliable, but can also vary significantly. Short term weather forecasting tends to be far more reliable. As long term forecasting is so unreliable, relating salt stock prediction to long range weather forecasting is too high risk. Medium Term weather forecasting however does not provide sufficient time for highway authorities to order and take delivery of significantly larger quantities of salt than normal. Weather forecasting cannot therefore be reliably used as the main determinant for salt stocks.

2.7 Severity of Winters

The trend of severity of winters from year to year is highly variable in the UK, as the chart below demonstrates.

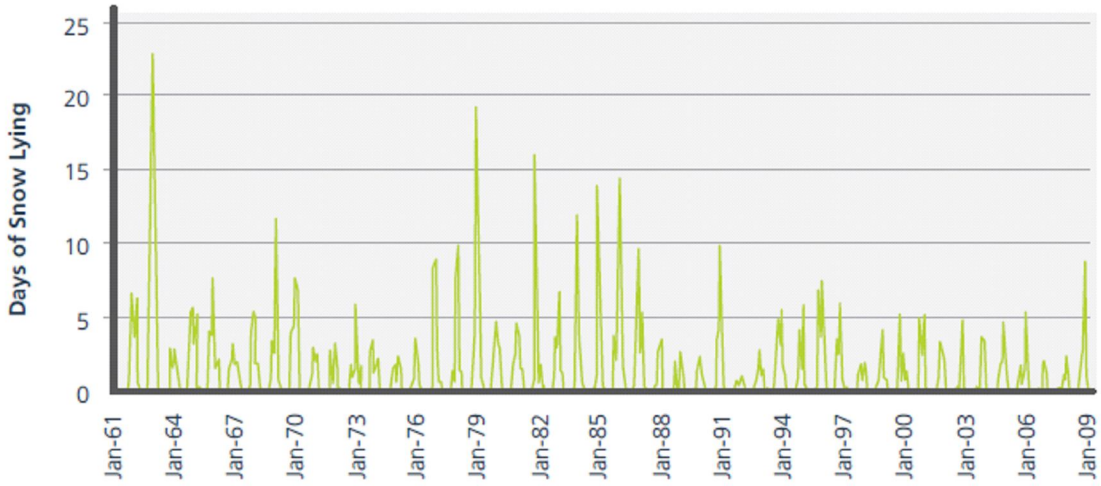


Figure 1 - UK Snow Fall since 1961

2.8 Salt Supply Chain

It is reported that there is 'no shortage in the overall available supply base for salt in the UK and the market cannot be considered restricted'. Furthermore, 'taking estimated exports and imports into account, the UK appears in normal conditions to be a net exporter of rock salt'. It is noted 'transport costs are a significant component of the overall cost of salt and location of the customer seems to have a reasonably strong influence on choice of supplier'.

2.9 Prices are fairly stable in normal market conditions, approx £20 to £30 per tonne for rock salt. The price of imported salt varies with currency exchange rates and shipping freight rates. Demand is highly seasonal and there is some uncertainty in predicting annual demand. 'Higher than usual demands can normally be met by increased UK production, running down supplier stocks and from additional imports. However, the market as it is currently operating clearly does not have the capacity to cope with a large unplanned spike in UK demand…some changes to the way customers and/or suppliers operate are necessary'.

2.10 The UK has significant reserves of rock salt. The issue is not the availability of salt, but the capacity of highway authorities and suppliers to store it, and for suppliers to provide it at the appropriate time. In February 2009 it was evident that supply was unable to meet the increased demand. This could be improved by: increased stocks and improved re-stocking arrangements by highway authorities, improved supplier capacity to supply higher demands at short notice, ability to provide early warning of potential future shortage, and mutual aid.

2.11 There are currently 3 operational salt mines in the UK:

Salt Union (based in Cheshire) – supplies approx 50% of the UK rock salt market. Salt is transported to customers by road, typically delivered within a week of the order being placed. Salt Union has a stock management system so customers can input agreed consumption and re-stocking trigger levels. In the winter of 08/9 they maximised their supply by working the mine additional days and distributing salt from their stocks.

2.12 Cleveland Potash (based in the Yorkshire Moors on the Northeast Coast) – supplies approx 35-40% of the UK rock salt market (though Potash is the primary purpose of the mine).

Delivery to UK customers is typically by sea to eastern and southern ports and by road to north east England. Delivery time is 3 to 7 days from placing the order. In the winter of 08/9 they maximised their supply by switching to producing salt full time, and importing salt from a sister mine in Spain.

2.13 Irish Salt Sales (based in Northern Ireland) – supplies 10-15% of the UK rock salt market. Delivery is by sea to English customers, delivery times vary up to 2 to 3 weeks for England.

2.14 Salt Procurement

Salt supply contracts are typically for fairly short periods. When authorities consider contracts, price is usually the dominant factor. Most contracts are awarded to a single supplier on a call-off basis, i.e. they provide a price for the highway authority to order as required, but provide no security of sale for the supplier. Highway authorities therefore carry the risk of being able to obtain salt when they need it, and mitigate this risk to some extent by holding some salt in their own storage.

2.15 Salt is often treated as a commodity purchase. The review notes 'commodity purchase arrangements do not necessarily embrace the service relationships between highway authorities and their salt suppliers which should lead to improved reliability, knowledge and anticipation through good communications and which are facilitated by contemporary procurement arrangements'.

2.16 It is also concluded that 'there was generally insufficient communication between the salt industry and highway authorities in that neither the early prospect of supply shortage, nor the early running down of local stocks, were fully communicated, and certainly not aggregated across a wide number of authorities'. It is noted that 'elsewhere in the highways sector, user groups based around suppliers operate successfully'. [the Government response to the review refers to the Highways Agency developing a closer relationship with its salt supply chain partners, and the formation of a strategic Salt Liaison Group, to discuss issues affecting salt usage and supply for the strategic network]

2.17 Example: Devon County Council – uses a framework contract for supply of salt, which allows them to access salt from various suppliers, depending on the type of salt, timeframe and price. A framework contract approves more than one supplier and specifies price and quality.

2.18 Purchase of salt currently carries risk for both the supplier and purchaser – this could be mitigated by use of performance contracts where a level of supply and purchase is guaranteed and there are penalties for failure on both sides.

2.19 Example: Illinois Department of Transportation – guarantees to purchase 80% of its estimated salt need, and the supplier guarantees to supply up to 120% if required.

2.20 Salt Storage

Salt is stored by producers, suppliers and highway authorities. 'most highway authorities have insufficient storage to hold enough stock to operate for a winter season and it is normal to restock at intervals'. Highway authorities determine their pre-season salt stock and in season restocking arrangements.

2.21 Appropriate Level of Salt Stocks

The Salt Association advise 2 weeks usage may be a reasonable stock level. Salt Union recommends highway authorities hold sufficient stock for 7 days severe weather conditions,

Irish Salt Sales suggest stocks in excess of 7 days. The Highways Agency has adopted a capability approach based on a number of days continuous heavy salting. 6 days minimum in December to February (high season) was chosen.

2.22 It is important to note that 'resilience requires resources to spread salt, for example gritters and drivers, as well as salt stock'. In addition, a resilience standard needs to take into account whether to cover the normally salted network or a locally determined minimum winter network.

2.23 Strategic stocks at a regional or sub-regional level have been considered by this review, but the management arrangements would be complex. The review notes that the Highways Agency's storage capacity exceeds current operational needs. It is suggested the HA holds a reserve, to reduce demand on salt stocks at peak times.

2.24 *Recommendation 9 of the review: consideration of the Highways Agency holding a reserve of salt above that which it needs to meet its service standards* [government response 'the increased risk of a salt shortage similar to that experienced last season has been considered when setting the salt stock profiles for this winter season, in order to increase the Agency's salt stock resilience']

2.25 Guidance

There is no mandatory guidance on delivery of winter services, but highway authorities should take account of any published guidance, legal precedence and good practice. Guidance includes the institution of civil engineers 'Highway Winter Maintenance Design and Practice Guide' and the Highways Agency 'Network Management Manual and Routine and Winter Service Code'. The UK Roads Liaison Group (who conducted the review) also themselves publish a guidance document entitled 'Well Maintained Highways – the UKRLG Code of Practice for Highway Maintenance Management'.

2.26 The guidance by the UKRLG suggests Highway authorities should formally approve and adopt policies for winter service, publish a winter service operational plan, review it annually, co-ordinate with adjacent authorities and publish information on the approach taken. The plan should include routes to be treated under various conditions, staff training and processes for recording information and operational decisions. Highway authorities should co-ordinate with other Highway authorities, key public services and other stakeholders. The review acknowledges the need to strengthen guidance regarding the winter service, to take into account the findings of this review. (see section 3 below)

2.27 It is noted 'if changes to a Highway authorities policies are required it is important that elected members and senior managers are aware of the issues'.

2.28 *Recommendation 12 of review: the Department for Transport should publish an information leaflet for highway authority elected members and senior managers on preparation for severe winter conditions* [distributed 15 December 2009 according to a statement from the Government, accepting the recommendations from the report]

2.29 Winter Service Plan should typically include:

Pre-salting routes, preparation for winter, plant, salt and grit stocks, ice and snow prediction, operational procedures, treatments, communications, effectiveness. Highways Authorities should also have a statement of policies, risks and responsibilities, decision making process and communications.

2.30 Legal issues around working hours for Lorry Drivers

The review notes 'the Department For Transport can introduce derogation against EU regulations for specific categories of vehicles and drivers when certain conditions are met', to relax the rules regarding the number of hours drivers of salt haulage lorries can work. This was invoked on 6 February 2009, to assist with the increased demand for salt re-stocking. However it is noted this process is complex, and came too late in the day for weekend deliveries to be arranged.

2.31 *Recommendation 15 of the review: the Department for Transport make preparations to enable rapid introduction of derogation against drivers hours regulations…if necessary in times of severe adverse weather conditions* [statement 15 December 2009 from the government indicates their view that the response in February 2009 'was as swift as possible']

2.32 Effectiveness of the Salt Cell

On 5 February 2009 the 'Salt Cell' was established – a national priority salt distribution system, which considered daily situation reports from regional resilience teams. The Salt Cell includes Cabinet Office Civil Contingencies Secretariat, Department for Transport, Highways Agency, Local Government Association, and the Communities and Local Government Department. They met to ensure best use of the salt supplies available in the UK at the time. Local Authorities were asked to report to the Salt Cell through regional resilience forums about the salt in their possession. The Salt Cell considered priority for delivery of salt from suppliers, and provided advice to suppliers. (emergency powers were not initiated, so this was advice not a requirement).

2.33 There was some inconsistency across highway authorities in terms of extent of network treated – some treated a reduced network, others retained their normal salting network. Demands were also placed on salt suppliers by requests from non highway authority customers including hospitals and airports. Salt union allocated 500 tonnes per day for non-highway users, and consider this provided enough for urgent non-highway needs.

2.34 Improvements to the Salt Cell are suggested including a protocol for when it would be triggered, terms of reference, status of its advice, data collection protocols, decision making criteria, membership, transparency, and improved communication. The report is clear that emphasis should be on planning to avoid the need for the Salt Cell in future, that it should not be seen as a back up. In future it should only be initiated as a last resort.
[note - the Salt Cell was invoked again in January 2010]

2.35 *Recommendation 16 of the review: In future use of the Salt Cell should only be as a matter of last resort. However, the government should develop a contingency plan for this including clear terms of reference, a triggering mechanism, review of the membership, clear data requirements and clarity of the legal position.* [the Department for Transport accepted this recommendation, and according to the statement made on 15 December 2009 'is working with a number of stakeholders, both within and without Government, to develop robust protocols against such an eventuality']

2.36 **Mutual Aid**

The review notes 'it is fundamental for an effective response that mutual aid arrangements are in place and have been considered as part of incident response planning.' However it also commented that 'Mutual aid should not be a fall back for poor planning' by individual authorities. Mutual aid can be formal or informal, and should be 'flexible enough to change in response to the dynamics of a situation'. It is noted that many highway authorities

engaged in mutual aid in February 2009, however it was considered that 'better planning for mutual aid could improve future response'.

2.37 Staff Training and Testing of Winter Service Plans

The review notes 'it would be beneficial to build severe winter conditions into routine regional and/or local training and exercising arrangements'. All plans need to be trained for, tested, and exercised to ensure that they are robust and will be fit for purpose.

2.38 Communications between different players

In February 2009 'it became apparent that there were few formal mechanisms for local highway authorities to communicate and co-ordinate their response with each other and the Highways Agency'. The report suggests 'communication at the planning stage is essential to ensure co-ordination of routes'. Communication with salt suppliers is also essential. Guidance recommends highway authorities should communicate directly with key stakeholders including all emergency services, public transport operators and motoring organisations during severe weather conditions.

2.39 Communications to the Public

Example: Devon – publishes an annual 'travelling in winter' leaflet for distribution to the public, which includes a map of the precautionary salting network, advice 'never assume a road has been salted', contact numbers for the county council's customer services and the Highways Agency, advice on winter driving, what the county is and is not able to do, and stopping distances in wet and icy conditions. This is advertised in local and regional newspapers, press releases, and on the internet. Local radio and tv are contacted prior to and during winter.

2.40 The review notes 'effective communication with the public is vital, and up to date information on travel conditions, journey times and network availability should be made available'. Information to the public 'needs to be clear, accurate, consistent and co-ordinated. Different messages from multiple organisations are likely to cause confusion'. Expectations of the public need to be managed appropriately. The review indicates the importance of covering communications as part of planning for the winter service.

2.41 Example: Staffordshire County Council – communications manager telephoned local media on a daily basis during severe weather

3 Key Guidance Document Relevant to Winter Service

UK Roads Liaison Group Code of Practice for Highway Maintenance **'Well Maintained Highways'** http://www.ukroadsliaisongroup.org/pdfs/p03_well_maintained_highways.pdf

UK Roads Liaison Group Complimentary Guidance (updates to 'well maintained highways') http://www.ukroadsliaisongroup.org/pdfs/Well%20maintained%20highways%20October%202009%20v3.pdf

On 15 December 2009, Section 13 - Winter Service of 'Well Maintained Highways - Code of Practice for Highway Maintenance Management' produced by the UKRLG, was amended to reflect the findings of their review.

This now includes the concept of adopting a resilience standard, and makes reference to climate change. Picking up on the recommendations directed to local authorities from the 'lessons from the severe weather February 2009' review, the UKRLG guidance regarding winter service now includes the following **recommendations**:

- Authorities should formally approve and adopt policies and priorities for Winter Service, which are coherent with wider objectives for transport, integration, accessibility and network management, including strategies for public transport, walking and cycling. They should also take into account the wider strategic objectives of the authority.

- Authorities should consider, consult on and formally adopt local service standards for resilience of their winter service in terms of number of days continuous severe conditions salting on a defined Minimum Winter Network for the Overall Winter Period and for the Core Winter Period.

- Authorities should review their approach to climate change and in particular their resilience to prolonged cold weather.

- Authorities should consider whether collaborative arrangements such as shared services, lead authority arrangements, collaborative service procurement, and sharing depots and salt stock, would provide an effective and value for money approach to increasing winter service resilience.

- Authorities should determine critical areas and infrastructure in conjunction with key public services and other stakeholders and seek to ensure that appropriate winter treatment has been considered by the appropriate party.

- Authorities should ensure effective communication of information for the public before and during both normal and severe winter conditions.

- Authorities should ensure that there is appropriate consultation and communication with other highway authorities, key public services and other stakeholders to ensure improved service for the public.

- Authorities should formally approve, adopt, and publish, in consultation with users and key stakeholders, a Winter Service Plan based on the principles of this Code.

- Authorities should define treatment route plans for carriageways, cycle routes and footways for pre-treatment and snow conditions, based upon the general maintenance hierarchy, but adapted to take into account the factors identified by this Code.

- Authorities should prepare contingency Winter Service Plans for severe weather conditions which include possibilities such as salting a Minimum Winter Network. Authorities should seek agreement on plans in advance with other highway authorities and key public services such as hospitals and public transport providers. There should be a co-ordinated approach to implementing Minimum Winter Networks across adjacent highway authorities.

- Authorities should explore the potential for mutual aid in salt supply and other aspects of winter service and should make contingency arrangements in advance.

- Authorities should take full advantage of decision support systems and services to enable timely, efficient and accurate decision making.

- Authorities should continually monitor performance during service delivery and respond effectively to changing conditions or network incidents.

- To ensure appropriate level of competence, training and development needs of all personnel should be established and reviewed annually, including health and safety and appropriate vocational qualifications. Training should then be provided where appropriate before the Winter Service season.

- Authorities and relevant organisations should provide training and conduct periodic exercising to test plans for responding to severe weather events.

- Authorities and salt suppliers should treat the supply of salt as a service rather than a simple commodity purchase.

- As a means of enhancing local salt storage capacity, authorities and salt suppliers should jointly consider supplier owned salt stocks held on a short or long term basis in a number of widely distributed locations around the country. A joint approach may include agreements such as purchase of some or all stock by the end of a season or provision of land.

- Authorities should seek a broad approach to salt supply, for example establishing framework contracts with more than one supplier.

- Authorities should consider whether efficiency benefits can be obtained from collaborative salt procurement and should also consider ways to improve the balance of risk between salt suppliers and themselves, e.g. longer contracts, performance contracts with minimum guaranteed purchase and supply, and contracts that include supply of salt and investment in facilities.

- All aspects of the Winter Service Plan, including service delivery arrangements, should be reviewed annually in consultation with key stakeholders to take account of changing circumstances.

4 Other Recent Reviews of the impact of severe winter weather:

Local Government Association 'Weathering the Storm – dealing with adverse winter weather conditions in the UK' (October 2009) http://www.lga.gov.uk/lga/core/page.do?pageId=5171308

4.1 Key points (other than issues already noted from the UKRLG review):
'we need to make sure that higher priority is given to keeping public transport operational to ensure that people have an alternative to using their car in hazardous conditions and that essential journeys can take place safely'

4.2 'efforts should be made to raise awareness of how individuals and businesses can prepare for and cope with unusual weather events'

4.3 'business continuity planning processes should include policies on extreme weather events, so that employees know how to respond and disruption to business is limited'

4.4 'as a result of heavy usage, a number of websites and remote technology platforms became very slow, with some (notably transport information sites) ceasing to function. There is a need to ensure that adequate capacity can be provided by technology service providers to deal with sudden increases in demands in future'

4.5 'because the UK experiences such severe weather so infrequently, we do not have the same levels of heavy clearing equipment such as snow ploughs, higher numbers of gritters etc that places such as Canada, USA or Russia do. Investment in and maintenance of such equipment would be at significant cost to the taxpayer and is arguably a poor use of public money due to the infrequency of the occasions when they would be required'

4.6 'It was estimated that in London on 2 February [2009], 1 in 5 people were unable to get to work. The London Chamber of Commerce and Industry reported that 90% of businesses operated below full capacity. The Federation of Small Businesses estimated the cost to the economy of this lost productivity on 2 February was £1.2bn'

4.7 Hampshire County Council was used as an example in relation to providing advice on safe winter driving. 'the county council worked quickly with the media and police to raise awareness and highlight safe driving advice to motorists….no incidents were reported to the police during the two days of severe snow and ice – remarkable given the circumstances [in Feb 09]' the following weblink was given: http://www3.hants.gov.uk/roads/highway-factsheets/winter-salting.htm

Durham County Council 'Review of Winter Maintenance Strategy and Service' (September 2009) http://www.durham.gov.uk/PDFApproved/OS_WinterMaintenance09.pdf

House of Commons Transport Select Committee 'the effects of adverse weather conditions on transport' (May 2009)
http://www.publications.parliament.uk/pa/cm200809/cmselect/cmtran/328/328.pdf

London Assembly 'Slipping up? Impact of the extreme weather on London Transport' (March 2009) http://www.london.gov.uk/who-runs-london/the-london-assembly/publications/transport/slipping-impact-extreme-weather-london-transport

Current

4.8 **Department for Transport 'Lessons Learned Review of Winter 2009/2010'** – this review was announced on 30 March 2010, and the indicated timetable is to report initially in July with 'quick wins' which could be implemented for winter 2010/11, with longer term outcomes to be published in autumn 2010.

4.9 The scope for the review suggests 'The response of central and local government to severe winter weather must aim to maintain public access to key services such as health, education and employment. However, the scale of the response must provide value for money to the public purse.'

4.10 The review will also be looking at public attitudes and expectations and 'enabling end users to help themselves', and will include an economic analysis which 'will include a review of the policies and standards relating to treatment of footways, costs of accidents and public liability.' (as well as considering other issues relevant to the impact of winter weather, similar to those covered in the previous reviews referred to above)

http://www.dft.gov.uk/pgr/regional/reviewofwinter0910/

5 The Highways Agency – Summary of Winter Service Arrangements

5.1 The Highways Agency contracts its winter service duties under the Highways Act to a number of contractors. For the most part the Highways Agency provides the vehicles and depots and the service providers are responsible for supplementing this with their own, as necessary, and providing all other elements of the service.

5.2 On a daily basis each service provider will receive a number of detailed weather forecasts tailored to the road surface. These enable the service provider's staff to review the weather conditions and make a decision on the proposed treatment. The service provider will have staff on duty 24 hours a day to monitor any changes to the forecast. Across the Highways Agency network there are a series of weather stations, or Environmental Sensor Sites.

5.3 If action is required, the service provider will inform key stakeholders such as the police, traffic officers, adjacent service providers and local authorities. The Highways Agency has been running a web-based notification system for a number of years now which is open to all key stakeholders.

5.4 The Highways Agency aims to treat the entire strategic road network in advance of hazardous winter conditions. Because the Highways Agency road network is high speed with very high traffic flows it is important to ensure the road is treated to prevent accidents occurring.

5.5 The Highways Agency provides guidance to its service providers on the options available regarding salt type and spread rates. These are based on existing publications such as Well-Maintained Highways.

5.6 The majority of the Highways Agency vehicles are in the process of being replaced through a framework contract. The new vehicles enable the use of pre-wetted salt, and also provide a number of technological improvements. All of the Highways Agency spreaders have ploughs that can be mounted in advance of snowfall.

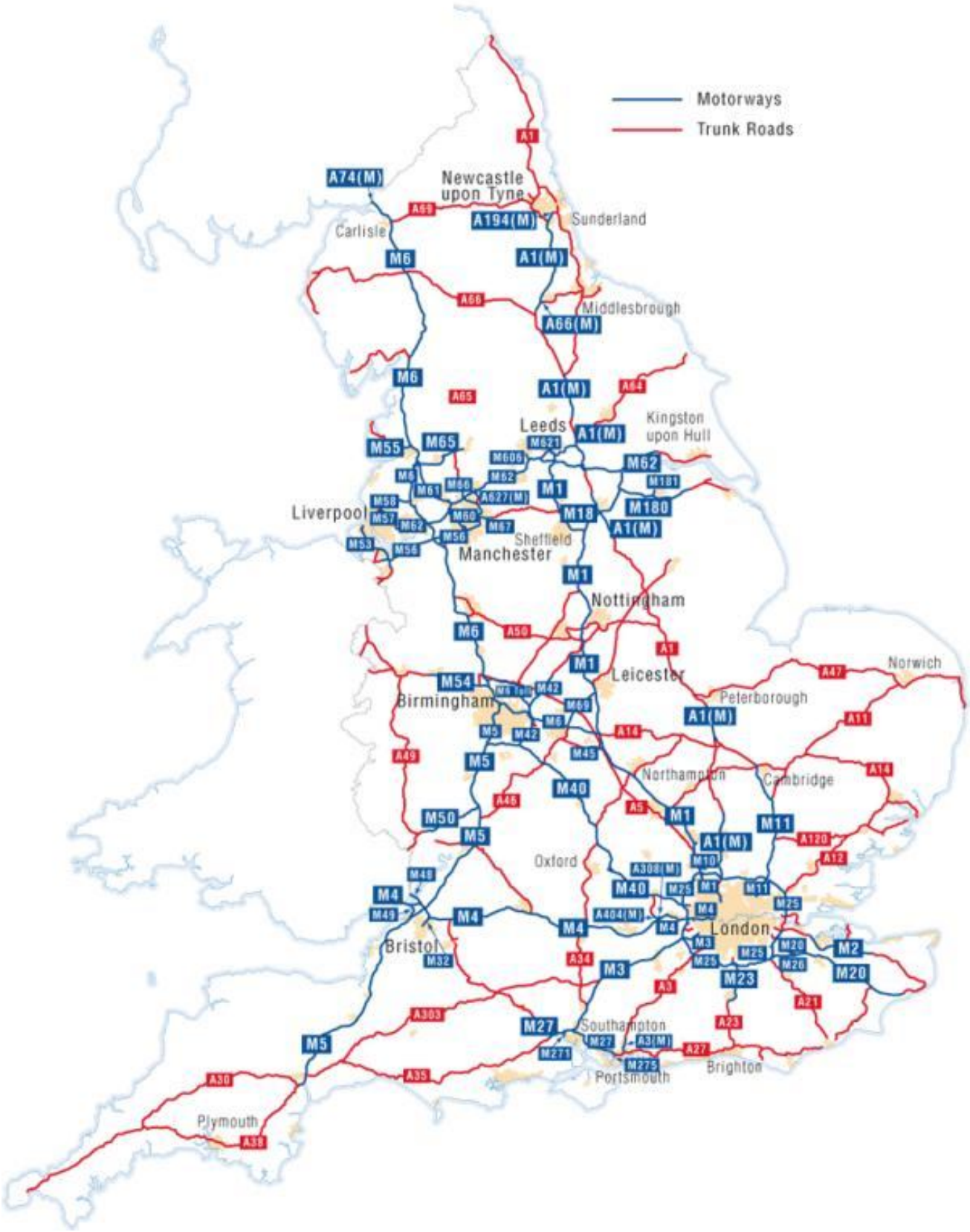
5.7 During periods of particularly severe weather it is appropriate to escalate to a severe weather desk. This is a dedicated member of staff (on occasions several staff) who focus on the delivery of the winter service. These enable the service provider to effectively and proactively manage their response to the weather when there is a risk of disruption to the network.

5.8 Following the severe weather experienced in December 2009 and January 2010, the Highways Agency will be applying its normal methodology in debriefing specific incidents, and will also be undertaking its annual regional and national winter reviews. There are lessons to be learnt from any winter, and this winter is proving to be more challenging than many. The Highways Agency will therefore use this opportunity to further develop areas of best practice and lessons learnt into its future programme of work.

5.9 A Map of the roads covered by the Highways Agency is shown on the following page

Information from the Highways Agency Bulletin, February 2010.

Highways Agency Road Network



6 Winter Maintenance: Hampshire County Council Current Policies

6.1 Background to the winter service policy

Winter treatment using salt was not established in the UK until the severe winter of 1962/63. With snow covered ground for 3 months in places it was essential that a more efficient and effective way than manually clearing ice and snow was devised. Hampshire was at the forefront of this and was one of the first authorities to use salt extensively to clear its network. Since that time the winter service has developed to a sophisticated level using the latest weather predictive tools , road side weather stations and advanced de-icing technology to spread salt. The underlying premise remains however that sodium chloride (rock salt) is the principle de-icing agent, and its capability is limited by temperature and moisture / water content.

6.2 The winter service in Hampshire developed from the 1960's and the winter maintenance arrangements in Hampshire evolved around fixed divisional and district boundaries at the time of Divisional Surveyors in the 1970s. At this time, the extent of the treated network was decided locally and consequently varied considerably across the county. This issue was identified in the Highway Management Best Value Review undertaken between 1998 and 1999, which recommended that the winter maintenance arrangements were reviewed county-wide and the arrangements put on a uniform footing county-wide without the artificial restrictions of divisional and district boundaries.

6.3 Revised winter maintenance arrangements introduced in1999-2000 were reviewed and consolidated in 2003 and incorporated within the Highway Maintenance Management Plan and winter service plan endorsed by Members. The principle change in the service was a reduction in the Priority 1 salted network to ensure treatment extent that was consistent with the policy across the whole county. The change in treated network went from 29% to 26%. Optimising the route treatments into weather zones and hot and cold routes also gave efficiencies in deployment of vehicles and resources which enabled a reduction of 4 gritter lorries without any loss in service.

6.4 In the winter of 1999-2000 revised winter maintenance procedures were introduced to put in place a uniform and consistent winter maintenance treatment regime across Hampshire. The need for a consistent and rigorously applied winter maintenance operation was also highlighted by a landmark legal case in East Sussex heard in June 2000. This particular case resulted from an accident on ice and a claim for damages against East Sussex County Council in 1991. The outcome of this case and court of appeal decision culminated in a change of law and a new duty on highway authorities to prevent the formation of ice and snow on the highway network as far as reasonably practicable. This duty is embodied within the approved winter maintenance policy.

6.5 Key Points

• **The Priority 1 network**: 26% of total network, 2,600 kilometres, is treated as a precautionary measure in advance of any predicted ice or snow. This comprises the busiest roads in Hampshire; those taking 85% of the traffic. The criteria for inclusion within this priority is all A and B class roads, busy bus routes (25 per day for rural services, and 50 per day for urban services), large schools and employment centres (exceeding 500 pupils or workforce) and large hospitals and emergency facilities. Roads passing through major shopping centres and those taking busy peak-time traffic are also included.

• Treatment of **the Priority 2 network**: 30% of total network, follows Priority 1 treatment when the latter is secure and safe. The treatment of Priority 2 routes is undertaken following sustained periods of sub-zero temperatures when snow or ice may be present. The criteria for inclusion within this priority are single access routes to villages, roads near schools, less busy bus routes, smaller hospitals and ambulance establishments, and roads through shopping centres. Footway treatments on the basis of a prioritised treatment are also included within this category.

• **Priority 3 network**: is for the rest of the network and treatment follows completion of the treatment on the Priority 1 and Priority 2 networks. This only occurs in prolonged periods of sub-zero temperatures, ice or snow. Treatment depends on available resources and is prioritised to areas of greatest identified need e.g. local shopping areas and community facilities, lesser roads with gradients etc.

• It takes between 2½ to 3 hours to salt the entire priority 1 road network

• Over the last 10 years, in an average winter, priority 1 routes have been run about 60 times, and priority 2 routes about 10 times.

• During winter 2009/10, we carried out 78 priority 1, and 12 priority 2 routes. On top of this there would have been adhoc use of gritters for "spot salting" type work mostly during the snow period.

6.6 Minimum network to preserve salt stocks

Hampshire County Council's Cabinet in January 2010 gave approval to use of a reduced priority 1 network in the event of salt supply difficulties, to conserve salt stocks. This would be 12% of the full network, about 40% of the current priority 1 routes. This would only be a last resort, and the full priority 1 network would be salted as soon as stocks recovered. However this winter, even with the restricted salt supplies issued by the Salt Cell, it did not become necessary to revert to this reduced network.

6.7 During the 2009/10 winter, the extent of the treated network came under scrutiny, especially in the vicinity of schools and links to centres of employment and residence. The Hampshire priority 1 network is at the lower end of the scale nationally (in terms of extent of coverage) and many authorities treat a much greater proportion of their networks than that.

Authority	**% of road network salted as priority 1**
Hampshire	26% (contingency 12%)
West Sussex	41%
West Berkshire	37% (contingency 26%)
Surrey	37%
Dorset	19%
Wiltshire	25%

(figures published on local authorities websites)

CSS Survey: percentage of road network treated in advance of predicted ice or snow (Survey 1998)

Region	treated network
Scotland	46%
Northern England	39%
Central England	35%
South East England	29%
Northern Ireland	28%
Wales	26%
South West England	22%

6.8 Salting footpaths

Footways are not salted routinely, but busy pedestrian routes are treated after prolonged sub-zero temperatures with persistent frost or ice which is expected to continue. (Cycletracks which are part of the road are treated as designated by the road priority, cycletracks which are part of the footway network are treated as the footway treatment designation)

6.9 Costs

- The average cost of salting one priority route is £900

- The cost of a complete county-wide salt run is £40,000

- Funding for the winter service is based on a 4 year rolling average to allow for variations in severity. Funding for the service is not capped. Average expenditure is currently £3,3000,000 per annum. It is expected the current winter will exceed this figure.

- As a result of the recent cold winter and the two periods of snowfall in December 2009 and January 2010, spending on winter maintenance is already in excess of the budget of £3.2m. Any variation in the budget from year to year is accommodated within the overall budget for highway maintenance, but higher or lower spending than the budget is met from or adds to balances. An overspending of around £2m is projected in 2009/10, which will be met either from underspendings on other non cash-limited budgets or from balances. The latest projections indicate that there will be a significant underspending against the balance of £2m retained within the waste management contract contingency.[3]

6.10 Salting Fleet

For plant we have available 8 dedicated gritter units, and 36 lorry mounted epoke[4] units, which includes 3 mini units, as the primary resource. In addition there are 4 spare epoke units and 6 spare vehicles to act as backup and assist with priority 2 routes.

There are 90 farmers who are signed up to assist with snow clearance, some covering more than one route. These farmers cover the rural areas of North, West and East Hampshire. There is no additional resource contracted in the south of the county. There are also adhoc arrangements with a very limited number of farmers.

[3] Information from budget monitoring report to Cabinet 22 February 2010.
[4] Epoke is a manufacturer of winter maintenance equipment, see: http://www.epoke.dk/Eng/

6.11 Hampshire Current Salt Storage Levels

• Hampshire's maximum stock of salt currently is approximately 12,000 tonnes. This is sufficient for 12 days continuous treatment during extreme adverse weather conditions of the priority 1 & 2 network. The provision is on the basis of a 5 day turn round for delivery.

• Following a decision at Cabinet in January 2010 this will be supplemented in future with an additional 6,000 tonnes. However, this will require at least one new salt barn to be built to store this salt. The increased salt stock will be available for next winter but a limited quantity may need to be stored in temporary locations until the permanent facilities are completed. Relevant planning and environmental permissions are already being sought for both permanent and temporary facilities.

6.12 Hampshire Salt Supply and re-stocking arrangements

Hampshire manage salt through the Highways Term Contractor Amey, which contracts with Salt Union. Recent events have highlighted lack of resilience in these arrangements, especially when salt needs to be transported for long distances by road. Consideration is being given to use of alternative suppliers, with the ability to deliver by boat to local ports. Consideration is also being given to potential partnership arrangements with neighbouring authorities to develop regional resilience.

6.13 The contract arrangements currently require the contractor to manage salt stocks with an ordering trigger level when stocks are at 75%. In addition it is required to restock to 100% capacity prior to the Christmas period. These restocking levels are being discussed with the contractor and the supply chain is being process mapped to identify possible improvements and increased resilience.

6.14 When to Salt

The County Council uses the Icelert® weather condition system as an aid to deciding when to salt roads. The system gathers information automatically from the County Council's own 'mini' weather stations which are strategically sited on roads throughout Hampshire. Computer links with the weather forecaster enable this information to be analysed and used to prepare accurate weather forecasts. These are vital for highway managers when they are deciding on the right time to carry out salting on priority routes.

6.15 Snow Clearance

Snow clearance involves implementing extensive emergency plans and includes the mobilisation of resources all aimed at clearing roads affected in the shortest time possible.

6.16 Snow ploughing commences when 25mm of snow has fallen and snow continues to fall. Our aim is to clear all priority roads of snow, as soon as conditions permit, and clearance work will continue as necessary. In certain extreme conditions it may be necessary to spread a mixture of salt and sand / grit to achieve traction, particularly in the case of compacted snow.

6.17 Hampshire County Council has 45 snow ploughs at its disposal. In addition, following successful application, 100 farmers have been supplied with snow ploughs and 6 snow blowers are available.

- The average length of a snow plough route is 20 miles.
- The average cost of clearing snow in the county is £250,000 for each 24 hour period.

6.18 Responsibility for driveways, carparks etc

These are all in private ownership or other local authorities ownership. The requirement to keep these areas safe lies with the owner and currently the Hampshire County Highways fleet is not used in these areas except by special request in emergency situations.

6.19 Extent to which the County Council works with others to ensure salted access

The highway network is salted in accordance with the winter maintenance policy which identifies the priority by which the highway accessing these facilities is treated. There are occasions when there are sections of private road or car park which are not part of the priority network, which require treatment to facilitate full access. This has been the responsibility of the owner except in exceptional circumstances.

6.20 Public clearing pavements near their property

There have been letters issued by the Department of Transport following requests for advice from individual local authorities, stating that in their opinion it would be necessary to prove that a person acted negligently for them to be liable to a claim. However, this is a matter that is being explored more fully to try to be able to establish more definitive guidance that can be conveyed to the public.

6.21 Grit Bins

Requests for salt bins should initially be made via local parish councils or other legitimate community groups. If there is no local group or they are not prepared to sponsor a request for a salt bin, the local highways unit can use its discretion to provide a bin, provided there is a clear highway benefit in doing so. The site for a bin will be considered by the County Council taking into account several factors, such as:

- The bin must not obstruct sight lines
- There must be sufficient space for the bin and for safe salt replenishment
- There must be sufficient traffic and/or pedestrian use
- The bin must not be placed on an existing Priority 1 salting route.

6.22 Once approval has been granted, the Public Body that has requested the bin is responsible for purchase of the bin, requests for re-filling the bin, and use of the bin for treatment of the highway (including monitoring). The County Council Highways Unit is responsible for installation of the bin and filling it with salt, re-filling the bin following a request from the public body, or during periods of adverse weather. Should a site prove problematic, for example, if there is regular use of salt for the treatment of private driveways, the County Council reserves the right to remove the bin.

6.23 Following the announcement by Cabinet in January 2010 that up to 4,000 additional grit bins would be provided, letters have been issued to Parish Councils and other local associations to identify areas where a salt bin may be appropriate. Revised guidance on the provision, sighting and maintenance of grit bins is being drafted and is part of the review of the winter maintenance policy currently being undertaken by the Environment Department.

6.24 Severity of Winters

The winter of 09/10 was widely acknowledged as the most severe since 1980; Hampshire experienced 26 days of continued adverse weather with just 2 days respite.