

HAMPSHIRE COUNTY COUNCIL**Decision Report**

Decision Maker:	Cabinet
Date of Decision:	25 January 2010
Decision Title:	Review of Winter Maintenance Arrangements 2009-10
Decision Reference:	1250
Report From:	Director of Environment

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1. Executive Summary

- 1.1. The main purpose of this paper is to initiate a review of the winter maintenance service in the light of the adverse weather experienced in February 2009 and the extended severe winter conditions from 18 December 2009 to 14 January 2010. Authority is sought for an early start on the development of detailed proposals for greater local salt storage capacity, enhanced winter maintenance capacity and a significant extension of community grit bins across the county.
- 1.2. In the light of the experience of these two adverse weather events, and their impact across the Council's services, it is proposed that the Policy and Resources Select Committee be asked to coordinate and lead a full review of the County Council's winter resilience.
- 1.3. Finally, approval is sought for a temporary emergency reduction in the Priority 1 salting network to conserve salt supplies and protect the core strategic highway network in the event of the imminent exhaustion of salt reserves. Such a provision would be a temporary expedient and only be triggered as a measure of last resort.

2. Background to the winter service policy

- 2.1. Revised winter maintenance arrangements introduced in 1999-2000 were reviewed and consolidated in 2003 and incorporated within the Highway Maintenance Management Plan and winter service plan endorsed by Members.
- 2.2. 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.

- 2.3. This duty is embodied within the approved winter maintenance policy. Prior to the changes introduced in 1999-2000, winter maintenance arrangements in Hampshire had 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.

3. Winter Maintenance Policy

- 3.1. The policy introduces a consistent approach to the winter service, introducing treatment priorities. The prioritisation is in recognition that it is not possible to treat all of the network at the same time and a prioritised system of route treatment is necessary.
- 3.2. 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.
- 3.3. 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.
- 3.4. 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.

4. Salt stock provision

- 4.1. Salt is stored in dry conditions within salt barns as recommended good practice and the current holding is 12,000 tonnes. The salt stock is sufficient for 12 days' continuous treatment during extreme adverse weather conditions. The provision is on the basis of a 5 day turn round for delivery and takes into account the critical risk period between Christmas and the New Year holiday.
- 4.2. The salt stock is based on an analysis of the 20 winters in Hampshire from 1980 to 1999, which includes several severe winters. The salt stocks are double the Government recommendation of six days' reserves.
- 4.3. Salt is used in a variety of treatments to assist with de-icing, depending on the extent of ice, hoar frost or snow. It is used as dry granules or pre-wetted salt mixed with brine, and the spread rate and quantities used vary with each of the treatment applications.

5. Operation of winter maintenance policy

- 5.1. Winter maintenance treatment is included in the Highways Term Contract currently with Amey, and the Winter Maintenance service is fundamental to the contract. There are 45 Priority 1 gritting routes with gritters each taking about three hours to complete a full salting route. The gritter drivers are drawn from the contractor's labour force, so that when a salt run is called routine roadworks are affected. This arrangement makes best use of the labour available. There is, of course, always provision for emergency and urgent repairs to the network, and attendance to emergency situations.
- 5.2. The decision to salt is based on a bespoke weather forecast linked to Council-owned and managed roadside weather stations. The weather forecast for ice or snow is specifically tailored for the winter highways service. The treatment decision is based on the predicted forecast, and the salt concentration and frequency of treatment is dependent upon the risk and extent of ice, hoar frost or snow forecast.
- 5.3. In winter patterns over the last ten years, the Priority 1 routes have been run about 60 times and Priority 2 routes about ten times in an average winter, allowing for a short period of adverse weather each year.
- 5.4. Funding for the winter service is based on a four year rolling average to allow for seasonal variations in winter severity. Funding for the service is not capped. The rolling average expenditure is currently £3,300,000 per annum. It is expected that spending in the current winter will exceed this figure, depending on the severity of the weather over the next three months.

6. The treated network and weather patterns

- 6.1. The winters in Hampshire over the last ten years have been relatively mild, although the particularly wet weather has resulted in slightly above average need for Priority 1 salt runs, and hence a higher winter maintenance spend overall. This is because of the higher risk of ice on marginal (near zero temperature) nights when the roads are wet. Most years over this period there was a short period of severe weather lasting up to three days, with snow, ice or freezing rain and sustained temperatures below zero. There have been two notable exceptions to this winter pattern and these are set out below.
- 6.2. **Winter 2008-09** – This winter was marked by a change to the normal weather patterns because of a shift in the jet stream position. An extended period of cold lasted throughout the UK in December 2008 and January 2009, resulting in significant hoar frosts in Hampshire that required continuous treatment. By Christmas 2008 a complete season's worth of salt had been used. There was a high demand nationally for salt and the national stocks became severely depleted early into the new year. Severe wintry conditions set in on 31 January 2009 until 9 February 2009, with significant snow up to 300 millimetres deep and, as a result, there was major traffic disruption on the network. Clearance continued around the clock, with a focus on main roads and systematic treatment and clearance of the rest of the network. It was many days before all roads were clear, aided by a natural thaw, and the north of Hampshire was particularly affected. There were many comments and adverse publicity about the extended period of time that the minor roads remained icy and people snowed in.
- 6.3. Salt stocks were depleted throughout the UK. In Hampshire, reserves were reduced but sufficient stocks were held to continue with the level of treatment required for the Priority 1 route main road network. The County Council was able to assist other authorities as part of the mutual aid programme with the supply of salt from its stocks.
- 6.4. Following this event and the difficulties nationally with salt levels and supplies, a review was undertaken and winter guidance was issued by the Roads Board Liaison Group and the CSS. Hampshire accords well with all of the recommendations of the report and exceeds the recommended salt stocks and resilience. In addition, provision was made for more grit bins to be provided in consultation with Parish Councils and Community Groups.
- 6.5. **Winter 2009-10** – This winter to date is marked as exceptional, exceeding the extremes experienced in the last 2008-09 winter. The dominating factor, again, being a change in normal winter weather patterns highlighted by trapped high pressure systems from the east and a change in the jet stream position. This has culminated to date in the most severe and prolonged wintry weather since before 1980. There have been some 26 days of continued adverse weather with just two days of respite within this period.

- 6.6. There were three separate snow fall events over this period, with accumulations of 300 millimetres and snow depths exceeding one metre on some country lanes. There was one phase of freezing rain which meant that the ice and compacted snow retained a strong grip on the network.
- 6.7. The winter service continued around the clock; it was a battle to keep the main roads open and necessary to undertake mechanical clearance of the footways and side roads as weather patterns and capacity permitted. Significant additional resources were deployed to assist with the clear up, to make roads and footways passable and safe as quickly as possible.
- 6.8. The disruption to motorists and associated welfare issues where motorists abandoned vehicles overnight, needing respite care and rescue, became major issues. Instances of pedestrian falls on footways increased, placing extra demands on hospital casualty units.
- 6.9. The Council received many hundreds of requests for salting and gritting on residential roads. Treatment was prioritised to provide help on the basis of the emergency requirements and need. Self-help was practised by many people and communities across the county.
- 6.10. Because of the severity of the winter and duration of the wintry conditions, a significant issue has been the supply of rock salt for winter treatment. Following the start of the bad weather before Christmas, mined salt reserves were all used up, creating a critical national shortage of salt. As a result, a National Salt Cell was set up by the Government to allocate and distribute salt according to need.
- 6.11. Mindful of the re-supply problems, Hampshire County Council has managed its salt stocks to conserve resources without compromising safety or the clearance operation, and with appropriate treatment decisions to conserve salt, such as mixing it with grit where beneficial. Even with this good management, however, Hampshire's salt level is now critical and the Council is dependent on further supplies being delivered through the Salt Cell process.

7. Salt provision in the light of recent winter events

- 7.1. The last two adverse winter events highlighted the vulnerability of the national salt supply situation. Whilst the Government is now taking action to address the immediate impact of this, the long term vulnerability is now well-established. It would therefore be prudent for Hampshire to bring in its own measures to improve local resilience and provide a greater safeguard, in the event of future adverse weather events.
- 7.2. It is crucial for the safety and well-being of the travelling public that sufficient salt stocks are available for the winter service. A reasonable additional resilience provision would be for an extra 6,000 tonnes of salt to be stored locally, giving a total stock of 18,000 tonnes. This would raise

the resilience to 18 days of continuous treatment, which is considered to be a reasonable level of protection considering recent winter events.

- 7.3. This additional storage would require 2 x 3,000 tonne salt barns located strategically in Hampshire. The optimum location for one of the barns operationally would be in the south-east area of Hampshire. This would have the advantage of serving routes from an easterly direction, which in itself would give more resilience should parts of the network be inaccessible. It is further suggested that consideration is given to barn storage at the existing Micheldever Depot, used and owned by Hampshire County Council for highways activities.
- 7.4. Planning permissions and relevant approvals from statutory consultees would be required. It is expected that a barn of 3,000 tonne capacity would cost in the order of £500,000, plus any land costs. Given the lead-in times for such facilities, it is proposed that authority should be given at this stage for detailed plans to be drawn up and a business case prepared to allow an early start on site, if resources are available and the necessary statutory consents are obtained.

8. Salt procurement

- 8.1. Salt provision is managed through the Highways Term Contractor, Amey, which contracts with Salt Union to provide and manage the salt stocks. Salt Union is one of two major suppliers in the UK with salt mines in Cheshire. The wintry events, however, have highlighted the lack of resilience, especially when salt is transported over long distances by road.
- 8.2. It is recommended that procurement arrangements are brought in, with alternative suppliers within and outside the UK that are able to provide salt and deliver it by boat to local ports. This will provide extra resilience.
- 8.3. In addition, it is recommended that discussions are held with Hampshire's neighbours, and with other public sector agencies, to assess the opportunities for more structured partnership arrangements for mutual aid, or integrated service provision.

9. Support for Community Resilience

- 9.1. One feature of the weather event this winter has been the efforts of the community to help to clear footways and roads, to assist themselves and others. There is ambiguity in terms of the legal position and worries about health and safety issues that may well have mitigated against a wider take-up of self-help measures.
- 9.2. Grit bins are an excellent example of self-help and are well-used by the public and local communities. One feature of the recent wintry weather has been a greater demand for grit or salt to place on the roads and footways. A significant increase in the provision of bins would support local

communities, particularly if combined with County Council leadership in streamlining arrangements for initial provision of bins and for refilling.

- 9.3. Servicing a large number of grit bins and ensuring that they are replenished at appropriate times is a significant undertaking, and a suitable management regime needs to be set in place for it to work at its best. A review of the arrangements to reinforce their provision, and guidance on their use for the public, is recommended, together with an increase in the numbers provided to communities.

10. Critical Infrastructure

- 10.1. The current winter policy provides for the routine treatment of public roads at major hospitals and emergency services. Treatment of smaller emergency facilities is dealt with under the Priority 2 regime. This worked well in the past but, as the weather event progressed this year, requests for assistance and treatment of critical infrastructure off the main Priority 1 routes became a significant issue. It was also apparent that many organisations ran out of salt and grit for localised treatment of forecourts, car parks and access roads, and requested assistance from the Council. The Council assisted as a priority action where appropriate, but this put pressure on the service and resources.
- 10.2. A review of the arrangements and support services, particularly with other public service providing bodies, is recommended, to see how salt and grit can be made more readily available in extended periods of adverse weather. This provision extends to critical parts of the highway network where special salt provision at key links may be beneficial to help vehicle movement.

11. Multi-Agency working

- 11.1. At times of extended severe weather with the potential for major disruption and/or welfare issues, the Adverse Weather office at the Police Headquarters at Netley is opened. There is a multi-agency presence and Hampshire County Council is represented by the highway officers from the Environment Department and Emergency Planning Unit.
- 11.2. The great advantage of this group is that it is able to identify the key priorities and put in place multi-agency action plans and measures to deal with the issues identified.
- 11.3. Key examples of this were the respite arrangements and management of the gridlock and abandoned vehicles in Basingstoke on 21 December 2009 and on the A3(M) on 4 January 2010. Also, managing the restoration of power supplies brought down by fallen trees on 4 January 2010.

- 11.4. A review of the working of the Adverse Weather Office by the multi-agency team is planned, in the light of experience gained over the extended adverse weather period.

12. Review of the Winter Service

- 12.1. The severe winters of 2008-09 and 2009-10 highlighted a number of issues that need to be addressed in a wider review of the service, and it is planned to undertake this over the next six months. The findings will then be reported to the Policy and Resources Select Committee, should it take on the coordination and leadership of a wider review of the County Council's winter resilience.
- 12.2. In particular, the extent of the treated network has come under increased scrutiny, especially the treatment in the vicinity of schools and links to centres of employment and residence. These issues will be included in any review, and recommendations made regarding the potential extension of the Priority 1 network.

13. Emergency provisions in the light of the current severe weather 2010

- 13.1. The depletion of salt stocks over this winter throughout the UK has meant that there are insufficient salt supplies to go round. The Government has asked authorities to cut back on salt usage by up to 60% to preserve stocks for the rest of the winter, and indicated that it will allocate salt supplies accordingly.
- 13.2. The Government recognises that it is vital to ensure that the strategic network is treated as a priority, and has requested that authorities reduce salt usage in favour of maintaining treatment on the strategic county road network. The Council's position is similar to all other authorities, in that salt stocks are at a critical level and without replenishment remaining supplies will be quickly exhausted. It is therefore proposed to have contingency arrangements in place, should it be necessary to conserve salt stocks further.
- 13.3. The strategy in Hampshire is to treat the main roads (known as the Priority 1 network), which is some 26% of the total network. This is at the lower end of the scale nationally and many authorities treat a much greater proportion of their networks than that. In the Council's response to Government it has pointed this out, and on this basis, together with its treatment arrangements to conserve salt, the County Council has already made the expected savings. The Council has also recommended that all authorities should be treated fairly and allowance made for the extent of each network treated.
- 13.4. It is proposed that approval be given to a temporary, emergency contingency provision to treat just the strategic A road network and major connections (to be defined as the PX network, see attached map) in the

event that salt stocks diminish below critical levels. This revised network is 12% of the full network, 978 kilometres or about 40% of the current Priority 1 routes. It is proposed that this temporary emergency provision is triggered only when salt stocks fall to an agreed resilience level of four days for routine treatment (600 tonnes). Permission is sought to introduce this change in the winter service policy.

- 13.5. The impact of this change is that 60% of Priority 1 routes will no longer be routinely treated in critical situations. Such a change in the network treatment coverage would need to be made clear to the travelling public so that the risks are clearly understood in order that motorists may modify their driving.
- 13.6. This provision is a temporary measure of last resort to stretch the last of the salt stocks as far as possible to maintain strategic access in Hampshire. It would be revoked as soon as the supply position recovered sufficiently to support a return to the current levels of treatment. Without this provision being brought in when stocks reached 600 tonnes, no routes would be treated in Hampshire except the motorways and trunk roads, once the final four treatment runs were completed. To put this in further context, 600 tonnes of salt was used overnight to deal with snow and ice on 12/13 January.

14. Conclusions

- 14.1. The winter policy and operation has served the Council well, giving consistency and maximising the response and capability to restore the network as quickly as possible following previous ice or snow events.
- 14.2. The extreme wintry conditions of the current and last winter have seriously stretched these arrangements. Climate change factors need to be taken into account in any future revision of the policy. It is no longer a credible response to suggest that these events are extreme, one in 20 or 30 year events, and that service planning should not react to them on this basis.
- 14.3. A full review of the winter service will be undertaken shortly, but there are several service issues that should be addressed now to provide the resilience necessary for full protection and an improved delivery next year. These include the introduction of increased salt stocks and two new salt barns that are strategically located, additional support for the community and self-help by providing more salt bins, together with investigating improvements to the winter maintenance fleet to provide a more flexible and accessible presence. Finally, it is proposed that greater partnership working with multi-agency partners and neighbouring authorities should be explored to help the resilience of critical services and infrastructure.

15. Recommendations

15.1. That the Cabinet approves:

- (i) provision of up to 4,000 additional grit bins, subject to confirmation of funding, and the promotion of appropriate measures to support local community resilience;
- (ii) provision of an additional 6,000 tonnes of salt, making the county salt stock holding a total of 18,000 tonnes;
- (iii) procurement of salt supplies from at least one additional supplier, with stock to Hampshire transported by sea;
- (iv) preparation of detailed plans and project appraisals for additional salt storage facilities in South East Hampshire and at the Micheldever Depot;
- (v) initiation of discussions with multi-agency partners and with neighbouring authorities to improve the resilience of salt supplies and reserves and the resilience of critical infrastructure and services to winter weather events;
- (vi) the contingent emergency temporary provision of a reduced strategic Priority 1 salting network based on the A roads (PX network) as an emergency measure to conserve salt stocks when they reach beyond critical levels (600T) be agreed. Such provision to operate only until salt stocks are regained and then to resume treatment of the whole Priority 1 network; and
- (vii) an invitation to the Policy and Resources Select Committee to lead and coordinate a strategic review of the County Council's winter resilience.

CORPORATE OR LEGAL INFORMATION:**Links to the Corporate Strategy**

Hampshire safer and more secure for all:	yes
Corporate Business plan link number (if appropriate):	
Maximising well-being:	yes
Corporate Business plan link number (if appropriate):	
Enhancing our quality of place:	yes
Corporate Business plan link number (if appropriate):	

Section 100 D - Local Government Act 1972 - background documents

The following documents discuss facts or matters on which this report, or an important part of it, is based and have been relied upon to a material extent in the preparation of this report. (NB: the list excludes published works and any documents which disclose exempt or confidential information as defined in the Act.)

DocumentLocation

None

IMPACT ASSESSMENTS:

1. Equalities Impact Assessment:

- 1.1. During any severe winter the direct provision of extra treatment will improve front line service and also benefit those vulnerable groups in the community.

2. Impact on Crime and Disorder:

- 2.1. There is no impact on crime and disorder.

3. Climate Change:

- a) How does what is being proposed impact on our carbon footprint / energy consumption?

The changes should improve accessibility and reduce the risk of traffic congestion in adverse weather, and so should impact positively on the carbon footprint from vehicle emissions. The changes to service should improve the efficiency of service delivery and hence the carbon footprint.

- b) How does what is being proposed consider the need to adapt to climate change, and be resilient to its longer term impacts?

With the weather extremes experienced as a result of a changing climate, this will impact on climate change adaptation. The impact of climate change on the service is predicted to result in more extreme variations in weather and therefore a risk that the events of February 2009 and December 2009 are replicated on a more regular basis. Also a trend of wetter winters with more marginal temperatures.