

# Winter Service Stakeholder Briefing

**October 2010**

## **Executive Summary**

This briefing note provides an overview of Lancashire County Council's Winter Service planning and operations for the 2010/11 winter period. It provides information on service costs, the priority network, salt stockholding and in season re-supply, resources and key contacts.

Where applicable the note highlights new service developments for 2010/11 at both Countywide and District levels.

## Briefing Note for Stakeholders

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### 1. Background

The winter of 2009/10 was the most severe for nearly 30 years with considerable snowfall and prolonged periods of extremely low temperatures. The situation was exacerbated by a second successive year of national rock salt rationing organised through a framework established by Central Government. Despite this, the County Council kept the main road network in Lancashire clear of ice and snow throughout the winter.

This briefing provides an overview of the Winter Service planning and operations in Lancashire, including details on some of the developments in service delivery since the 2009/10 season. It will also provide further information on any agreements on service delivery in the Rossendale District.

### 2. What is the Winter Service?

The County Council, as a highway authority, is under a legal duty to ensure, as far as is reasonably practicable, that safe passage along a highway is not endangered by ice and snow. The County Council therefore aims to provide a Winter Service that, as far as is reasonably practicable, will permit the safe movement of traffic on priority roads at all times and keep to a minimum delays and accidents in which ice or snow is a contributory factor.

### 3. What Does It Cost?

The County Council spends in the order of £4M per year on the Winter Service. During a typical winter season, the County Council would use around 18,000 tonnes of salt, although this varies dependent upon the severity of the winter conditions. In the 2009/10 winter, the County Council used just under 30,000 tonnes of salt, including 10,000 tonnes during the two week period between the 17<sup>th</sup> and 31<sup>st</sup> December 2009.

Typically around 60% of the budget is expended on fixed costs including;

- provision, maintenance and servicing of the gritting fleet;
- provision, maintenance and servicing of facilities, infrastructure and systems; and
- standby payments during the winter season.

The remaining 40% is expenditure on gritting and snow clearing. The actual costs will vary according to the severity of the winter. Some typical treatment costs are as follows:

- Precautionary treatment of the whole priority network in advance of a damp frost - £12,000 per treatment;
- Precautionary treatment of the whole priority network in advance of a wet frost - £20,000 per treatment;
- Precautionary treatment of the whole priority network in advance of snow – £32,000 per treatment

In snow events costs are likely to exceed £100,000 per day.

The Winter Service is a demand led service and when the winter weather is worse than average, the service will continue to be delivered, subject to the availability of resources, even if the original allocated budget is consumed. Last year the County Council spent around £1.6 million more than initially budgeted.

### 4. The Priority Network Hierarchy

The County Council recognises that it is uneconomic, impractical and indeed unjustifiable to treat the whole highway network when undertaking planned Winter Service operations. It is therefore necessary to identify clearly the priority roads and footways that will receive preferential treatment for salting and snow clearing. The Winter Service hierarchy is as follows:

Category	Definition
I	Non-Trunk Motorways and Primary Route Network
li	Remaining Principal 'A class' Roads
lii	<p>All 'B' class roads</p> <ul style="list-style-type: none"> <li>• Other Roads <ul style="list-style-type: none"> <li>• between or through large centres of population</li> <li>• serving hospitals, ambulance and fire stations, and the facilities of critical infrastructure providers</li> <li>• leading to main centres of employment and transport interchanges</li> <li>• important public transport routes with a service frequency of at least one bus per ten minutes and bus stations</li> <li>• leading to important industrial and military establishments</li> <li>• providing single access to villages.</li> </ul> </li> </ul>

In addition to the Priority Road Network the following are also treated:

1. A defined 'Priority Footway Network' is treated comprising access to/from transport interchanges, main employment centres, main shopping areas and areas access on the highway adjacent to main hospitals.
2. A defined 'Secondary Route Network', comprising our next most important roads are treated.
3. The remaining road network is treated on a priority basis during prolonged severe winter weather **as and when resources permit**, but only when the Priority Road Network, the defined Priority Footway Network and the defined Secondary Road Network are maintained clear. Other footways, cycle tracks and cycleways will not receive any salting treatment, with snow clearance considered on a priority basis only as and when resources permit.

Not all bus routes are included in the Priority Road Network, although many of the roads included are bus routes. The proliferation of smaller buses, route changes and the associated increases in the area served by them has meant that bus routes are now far too extensive to be included in the Priority Road Network completely.

Taking an average over the whole County, approximately 1/3 (2,500km out of a total network of some 7,000km) of roads are classed as priority roads in terms of the Winter Service.

The Highways Agency is responsible for Winter Service provision on the M6, M55, M58, M61 and M65 to Junction 10, the A56 between the M66 and M65 and the A585 between the M55 and Fleetwood.

#### ***Developments for winter 2010/11***

- A number of modest extensions to the Priority Road Network have been made without the need to incur significant capital cost increases in acquiring additional gritters, by improving the efficiency of some of the routes. A full review of the County Council's 49 priority gritting routes in conjunction with the development of route based weather forecasting (referred to below) will commence in 2011.
- The bus station in Rawtenstall and the turning facility in Waterfoot have been added to our precautionary routes in Rossendale.

## **5. Rock Salt**

The County Council uses rock salt to prevent the formation of ice on highways and to facilitate the removal of ice and snow from carriageway. Rock salt has to be used responsibly because, not only is it an expensive material, it also comes from a non-renewable source and can have an adverse effect on the environment by for example damaging vegetation and polluting water courses. Salt works by lowering the freezing point of water (to about -8°C) and in order to complete the de-icing process, the movement of the salt on the road surface by the action of passing traffic is essential.

Therefore, in conditions where traffic volumes are low, roads can remain icy for some time after the gritter has spread salt. Furthermore, in snow conditions, the salt will only be effective where the depth of snow is less than 40 mm and traffic can move the salt around. Once snow has been compacted and formed into ice due to very low road surface temperatures, the effect of de-icing salt is very limited and the icy conditions can persist for several days despite the repeated application of salt.

The salt supplied to Lancashire is treated with a by-product of the sugar refining industry and is marketed under the name of "Safecote". Safecote has the advantage of providing effective anti-icing, de-icing and corrosion inhibition properties; however, as stated earlier, salt becomes totally ineffective below -8°C but becomes progressively less effective below -5°C.

#### ***Developments for winter 2010/11***

- Guidelines for the treatment of secondary routes are being reviewed so that the response in severe conditions is improved. The guidelines will include the spreading of grit as a replacement of rock salt at times when rock salt is in short supply and to improve traction on compacted snow and ice.

## **6. Salt stockholding and in-season salt re-supply**

Since 1988, the County Council has operated an 'in-season' stock replenishment system, whereby the supplier maintains stock levels between pre-defined minimum and maximum levels during the winter season. The minimum level should ensure a good degree of resilience, but the system relies on the continuing availability of salt, which, until the last two winter seasons, has not been problematic.

Larger quantities of salt were stockpiled in the past to minimise the need for in-season restocking, however due to the rarity of severe snow events, these stocks were very rarely used.

The recent introduction of disposable sheeting now means that previously open stockpiles can be covered and made weather proof thus ensuring the salt remains usable into the future. This winter, the existing strategic salt stocks have been enlarged by 35% to increase our strategic reserve for use in extreme conditions.

It is unlikely that the national salt supply chain will recover sufficiently to guarantee continuity of supply throughout the forthcoming winter should the weather be colder than average. The County Council has secured deliveries to higher levels than last year, which will ensure greater resilience in severe conditions. However, the County Council cannot guarantee that there will not be a reoccurrence of a national shortage of salt in severe and prolonged winter conditions. Should this occur the national 'Salt Cell' may become operational.

An important element of avoiding a repeat of last year's salt shortages is to make the best use of our salt stocks by avoiding unnecessary treatments and over-salting. It is an understandable reaction, particularly during extreme conditions, to repeatedly apply salt to try to clear snow as quickly as possible. This is not effective and more salt does not necessarily mean faster snow clearance.

#### ***Developments for winter 2010/11***

- The main action to ensure re-stocking and increase salt stock has already been achieved. The County Council now holds 25,000 tonnes of rock salt and has requested a further 2,500 tonnes from Salt Union for delivery by 21<sup>st</sup> December 2010 to improve resilience through the Christmas and New Year period. However, Salt Union has confirmed that it will not be able to supply the

additional 2,500 tonnes until it has fulfilled existing contractual obligations and that this may not be before the end of the year.

- Steps to ensure that salt usage is adequate and proportionate are being put in place. The Decision and Carriageway Treatment Matrices in the Winter Service Plan have been reviewed.
- Work to further increase salt stock capacity for 2011/12 is also underway. The feasibility of re-using part of the existing Myerscough Planks highways depot on the A6 as an additional strategic salt store is being explored, where there is potential to hold up to 5,000 tonnes of dry rock salt. This will increase the County's maximum practical capacity to beyond 30,000 tonnes.

## **7. Weather Forecasting**

The County Council owns 12 Road Weather Stations and has access to information from others owned by the Highways Agency and Blackburn with Darwen Borough Council. Between 1<sup>st</sup> October and 30<sup>th</sup> April the Met Office supplies the County Council's decision makers with daily weather forecasts and reports dedicated to roads specifically in Lancashire. Forecasters also continually monitor observations from the weather stations, which provide information on road surface temperature and condition (wet/dry/salty), air temperature, humidity (and thus dew point) and an indication as to precipitation. At some sites, additional information is available as to temperature below the road surface, wind speed and direction. The forecast text, which is received daily at around midday, covers the following 24 hour period as well as the longer term 2 to 5 day forecast.

A number of highway authorities, including Lancashire County Council, are working with the Met Office to develop Route-based Forecasting. Lancashire trialled two routes during the 2009/10 winter and for 2010/11, is expanding coverage to all 49 priority gritting routes to conclude the trials. Route-based forecasts will be available alongside the normal 'domain' or area forecast on which decisions will continue to be based. The County Council aims to migrate all forecasting to the Route-based approach in the next few years. This should deliver better decision making and the potential for more efficient use of resources, with decisions based on each route rather than area or depot.

### ***Developments for winter 2010/11***

- In the forthcoming winter season 2010/11, all 49 routes will have route-based forecasts, in addition to the normal forecast.

## **8. Resources**

### **9.1 Fleet**

Front Line Fleet - There are 49 gritters operating county-wide from 11 depots. All gritters are paired with a dedicated plough for use in times of snow. All frontline gritters are fitted with a tracking device so that a gritter's position can be monitored at all times.

Additional resources in severe weather conditions:

- Reserve Fleet - This comprises 16 gritters. This fleet is used to back up the front line fleet during breakdowns and provide additional resources to treat secondary routes in severe weather situations.
- Hand Gritters - The County owns 50 hand gritters used to treat footways in times of severe weather.
- Other plant - This additional plant includes towed gritters, snow blowers and snow ploughs for severe situations.

The gritter tracking system (Exactrak) allows a continuous audit trail of activities showing time, location and what gritting activity has been undertaken.

### ***Developments for winter 2010/11***

- In addition to the above the County Council is seeking identify farmers, agricultural and other contractors to help the County Council to deal with the most remote locations should this become necessary. An invitation for expressions of interest has recently been advertised in the press.
- Satellite navigation and routing - Our present method of service delivery requires drivers to 'learn' at least one route from their depot and this has obvious difficulties and inefficiencies. Recent developments in satellite navigation mean that a route can be fed into a satellite navigation device together with automated salting information. This means that the driver needs only to follow the navigation instructions whilst the device would apply salt to the correct sections of road. The County Council trialled two systems last season and trials will continue during the forthcoming season with a view to selecting a system that could be rolled out from 2011/12. The successful system would allow any driver to drive any route, without prior knowledge of the route, allowing much more flexible use of labour resources, particularly in severe weather situations.
- The County Council is acquiring some new mechanical spreaders for use on footways.

## 9. Grit Bins

During the last two winters, the national shortage of salt combined with the need to focus resources on the Priority Road Network compromised the utility of grit bins, which previously had proved effective in providing a self-help facility. Grit bins will be monitored in the lead in to winter conditions and re-supplied as required. The frequency of re-supply is dependent upon a number of factors, including weather conditions, the number of grit bins and the availability of material. In severe weather conditions arrangements are being made with District Councils to assist in the delivery of this service.

### *Developments for winter 2010/11*

- The County Council is moving from pure rock salt to a salt and sand mix. This will reduce the amount of salt used whilst still providing both de-icing in typical conditions and better traction on snow. A facility has been established at Myerscough Smithy, Samlesbury, for the mixing, storage and distribution of this material. Because grit bins may empty quickly during severe weather conditions, the County Council cannot guarantee to maintain supplies of material to all grit bins at all times.
- The County Council is exploring potential opportunities with Parish and Town Councils to identify potential opportunities for winter service delivery.
- Evidence submitted to the national Winter Resilience Review (Interim Report published in July 2010) highlighted confusion over what steps individual members of the public could take to help themselves and others in tackling snow and ice, but suggested that the public are willing to play their part provided that role is formalised. The Department for Transport is preparing a Code of Practice (Snow Code) for the public and businesses for clearing snow and ice from footways, which should be available by the end of October. It is understood the DfT intends the "Snow Code", which will be Government endorsed, will be made available to households and businesses by local authorities.

## 10. Information and Publicity

The county council has a dedicated winter service area on its website, which provides an overview of winter service delivery along with links to a mapping system which highlights the priority road network.

### *Developments for winter 2010/11*

- The County Council will publish an updated explanatory leaflet entitled "Travelling in Winter" which will provide some useful background information about the winter service as well as safer driving tips.
- Winter service information on the County Councils website is to be updated, with key information and more visible links from the homepage.
- The county council will launch a Twitter service to provide members of the public with key updates on winter service.
- Timely updates to the media.

## 11. The availability of additional resources during extreme conditions.

In a typical winter, much of the Winter Service relates to precautionary salting in advance of an overnight frost, usually accounting for some 85% to 90% of all Winter Service actions. Resource requirements are known in terms of plant, labour and materials and the County Council can reliably deliver the service. The response to prolonged, extreme conditions as experienced during the winter of 2009/10 is more difficult to plan for and the resources required may vary significantly from one year to the next. Furthermore, the weather in Lancashire can be unpredictable and the occurrence and severity of winter conditions may vary considerably across the county throughout the winter season, and from year to year.

The national Winter Resilience Review commissioned by the Secretary of State for Transport considered the issue of local authorities having in place plans to deploy staff from other responsibilities in a snow event, and in two tier council areas such as Lancashire, similar arrangements with district councils. It has recommended that local highway authorities collaborate with and support lower tier authorities to help ensure that maximum practical winter support is available in areas and communities beyond the treated networks, including possible treatment of key footways and pedestrianised areas.

There is significant potential to enhance the effectiveness of Winter Service provision in Lancashire through the comprehensive engagement of partners and better communications with stakeholders. Together with optimising use of the County Council's own resources, this should deliver a more innovative approach to tackling the problems that arise during prolonged severe winter conditions. Planning for such events is challenging, as the resources required in any one year may be quite different from previous years. Nevertheless, additional resources in terms of labour and plant are available within district councils, parish councils and the private sector, including farmers, agricultural contractors and plant hire companies.

### Summary of mutual aid developments and other additional resources for winter 2010/11

- Contract documentation for the engagement of private sector resources has been produced and the process to identify and engage suitable providers is underway.
- Parish Council response as previously referred to.
- District Council officers have been invited to consider a number of ways in which using a joint approach, including through mutual aid, we could improve Lancashire's resilience in dealing with extreme conditions. This approach includes;
  - Identifying a number of potential extensions to the priority route network,
  - Identifying District Council priorities for treatment of secondary routes to facilitate local service delivery (for example, refuse collection),
  - The distribution of a mixed salt and sand material to District Councils and the use of their labour and plant to assist the County Council in maintaining supplies to grit boxes and in treating important local footways and paved areas in District centres and the like in severe conditions
  - Assistance in handling customer calls.

**See Appendix 'A' for details of the District Council arrangement in Rossendale.**

## 12. Emerging issues

The onset of the severe weather in mid-December 2009 ended the annual salt re-stocking phase abruptly. The UK consumed a large volume of salt over a very short period of time, with the lack of road transport availability for salt delivery over the Christmas and New Year period seriously restricting in-season re-stocking. With few deliveries made to highway authorities during this period, by the beginning of January 2010 salt stocks were at a critically low level. The subsequent inundation of salt suppliers with new orders resulted in demand reaching such a level that they could no longer meet existing supply contracts.

On 6<sup>th</sup> January, for the second successive winter the Government initiated 'Salt Cell', its emergency arrangements to monitor salt demand and stocks and to advise salt suppliers where scarce supplies

should be best directed. It became apparent very quickly that highway authorities could not maintain network resilience without a reduction in the rate of salt consumption. The Government therefore asked both the Highways Agency and local highway authorities to enact measures to reduce salt consumption and conserve supplies through the implementation of efficiency measures, including a review of salt spreading strategies and network prioritisation.

"Well-maintained Highways", the national Code of Practice for Highway Maintenance Management, including Winter Service, now advises highway authorities to adopt local service standards for resilience in terms of the number of day's continuous severe conditions gritting on a defined minimum winter network.

A minimum winter network is that part of the highway network normally treated in winter that provides a minimum essential service to the public, including strategic routes, access to key facilities and other transport needs. The Code advises that at least six days resilience for salt and other resources, including equipment, drivers and fuel, would represent good practice during the Core Winter Period (December to February).

The County Council intends to work to a Winter Service Resilience Standard of six days based on three treatments of the Priority Road Network per day at an average spread rate of 30g/m<sup>2</sup>, recognising that its ability to do so will depend on external factors over which the County Council has no absolute control, for example, the national salt supply chain situation. This will necessitate the County Council maintaining a continuous minimum stockpile of 10,800 tonnes of salt, including strategic reserves, and assumes no treatment of the Secondary Road Network nor other potential demands on the salt stock, for example, for Priority Footway Network treatment. The County Council will therefore need to optimise its effective use of salt by avoiding unnecessary treatments and over-salting to conserve stock as far as is practical, particularly during the early weeks of the winter period, and until the national salt supply chain situation becomes much clearer.

## **Key Contacts**



**Lancashire County Council, Winter Service Plan and Policies:**

Dave Colbert

Tel: 01772 534501

Email: [dave.colbert@lancashire.gov.uk](mailto:dave.colbert@lancashire.gov.uk)

**Lancashire County Council, Communications Service:**

Safika Munshi

Tel: 01772 538190, 07827 873848

Email: [saf.munshi@lancashire.gov.uk](mailto:saf.munshi@lancashire.gov.uk)

Mike Warren

Tel: 01772 533537

Email: [mike.warren@lancashire.gov.uk](mailto:mike.warren@lancashire.gov.uk)

**Things that may surprise you**

The following examples illustrate what can, and sometimes does go wrong, causing problems for the travelling public:

- On a wet night followed by rapidly clearing skies, salting will normally start after the rain has stopped to avoid the salt being washed away, but with temperatures falling by as much as 5 degrees per hour, some roads may well have frozen before the gritter has salted them.
- 'Dawn frost', which occurs on dry roads and involves the formation of early morning dew on cold roads, freezes on impact and is difficult to forecast with any accuracy.
- Rush hour snowfall when rain turns to snow coinciding with the rush hour. Early salting cannot take place as it would be washed away and gritters cannot progress due to congestion.
- Snow is harder to forecast and deal with than frost and salt will not melt snow – snow must be cleared before salting.
- Road weather forecasts are up to 90% accurate which means that there are up to 10 days in winter when frost is not forecast but actually occurs.
- It can take up to 4 hours for gritters to salt a route and, therefore, it will take this length of time before some roads are treated.

**Appendix 'A'**

<b>Resources</b>	<ul style="list-style-type: none"> <li>• 4 gritters will operate from the Bacup depot covering the 4 Rossendale routes. One of the gritters can also operate with a snow blower attachment which is stored in the depot and will be available during the winter period.</li> <li>• Salt Storage – The stock of salt held at the depot has been increased from 1,250 tonnes prior to last winter to 2,000 tonnes.</li> <li>• Over 370 grit bins in Rossendale.</li> </ul>
<b>Arrangement with the District Council</b>	<p>Agreement has been reached with Rossendale BC for the local storage of approximately 30t of salt/sand mixed material for use on the footway network. Rossendale BC will assist LCC through the use of labour resources to treat the footway network when refuse collection, street cleansing and grounds maintenance operatives are unable to carry out their normal duties due to adverse weather conditions.</p>
<b>Arrangement with the Town Council</b>	<p>An informal arrangement is in place with Whitworth Town Council to assist with the provision of salt to spread on footways in Whitworth town centre using the town centre caretaker.</p>
<b>Key Contact</b>	<p>For all operational enquiries during the winter period please phone the winter watch hotline on 0845 053 0011 or email <a href="mailto:enquiries@lancashire.gov.uk">enquiries@lancashire.gov.uk</a>.</p> <p>Any other enquiries please contact:</p> <p>Daniel Herbert, Head of Public Realm Lancashire County Council, 01706 231675, <a href="mailto:highwaysrossendale@lancashire.gov.uk">highwaysrossendale@lancashire.gov.uk</a></p> <p>Fiona Meechan, Director of Customers and Communities Rossendale Borough Council, 01706 217777 <a href="mailto:enquiries@rossendalebc.gov.uk">enquiries@rossendalebc.gov.uk</a></p>