

Transport & Environment Committee

10:00am, Thursday, 17 May 2018

Winter Maintenance Review

Item number	7.12
Report number	
Executive/routine	Executive
Wards	All
Council Commitments	19

Executive Summary

This report provides a review outline of winter maintenance operations over the period 27 October 2017 to 13 April 2018. The report also provides information on the development of a Winter Maintenance Plan to capture and track the actions identified from this review. At time of writing, key staff involved continue to carry out winter standby duties. An update therefore on the implementation of the improvement plan, with possible service options and data, will be reported to this committee in August 2018.

Winter Maintenance Review

1. Recommendations

- 1.1 It is recommended that Committee notes the information provided in this report and the development of the Winter Maintenance Improvement Plan.
- 1.2 It is recommended that Committee approves the review concept for prioritisation of pavements, cycleways, roads and grit bins.
- 1.3 It is recommended that Committee receives an update report on the implementation of the improvement plan, with possible service options, in August 2018.

2. Background

- 2.1 The Council operates a priority system for the treatment of roads, pavements, and cycle paths within the city boundary. Certain trunk roads, for example the A720 Edinburgh Bypass, M8 and M9, are the responsibility of Transport Scotland.
- 2.2 Outside normal Edinburgh Road Services (ERS) working hours (7.30am to 4.00pm) only Priority 1 routes are treated during freezing conditions.
- 2.3 During snow conditions, all available resources are deployed to maintain Priority 1 routes and then other routes are treated as long as snow conditions, and the remaining effects, prevail.
- 2.4 Gritting operations for Priority 1 routes are managed by ERS. Operations are staffed by two rosters (Rosters A and B). Roster A is staffed by ERS and undertakes the gritting of road routes and park and ride sites. Roster B is staffed by volunteers from across the Council and undertakes gritting of pavements and cycleways using mini-tractors.
- 2.5 Local Priority areas are managed by Waste & Cleansing staff and Parks & Greenspace staff. They carry out winter weather duties during their normal working hours, with Waste & Cleansing staff working a 4 on 4 off shift, so available 7 days per week and Parks & Greenspace staff working 4 days per week during the winter months.
- 2.6 The Council has also procured the services of sub-contractors to provide gritters and drivers to supplement Roster A when required. It also has a farmers' contract to provide gritting in rural areas in the south west of the city. This contract has proved to be very beneficial in treating areas ERS find challenging with its existing fleet.

- 2.7 There are contracts in place for additional staff and equipment to add to resources during times of extreme and prolonged weather.
- 2.8 Staff on rosters A and B are on standby throughout the winter period and provide cover, as required, 24-hours per day, seven days per week, irrespective of public holidays.
- 2.9 Detailed weather forecast information is provided, via a contract with the Met Office and supplemented by additional information such as road surface temperature, surface moisture and salt content of the road. This information is available to the ERS Duty Manager who makes the decision to deploy resources for gritting/ploughing. The Duty Manager aims to have gritting carried out on a pre-grit basis, applying salt before surfaces freeze but this is not always possible.

3. Main report

- 3.1 During and at the end of each winter, the service is reviewed to identify ways to improve, using a 'lessons learned' and 'you said, we did' approach. Details of this review, and the planned actions, are contained in this report.

Gritting Routes

- 3.2 The Council operates a priority system to treat roads, pavements and cycle paths within the City boundary. Roads are either priority 1 or classed as priority 2 covering the remaining Council maintained roads. Pavements are either priority 1, local priority or no priority. Cycleways are either priority 1 or no priority.
- 3.3 The review, and improvements to be proposed, will clarify what can at times be confusing prioritisation e.g. our web pages state that for roads "During snow conditions, all available resources will be deployed to maintain priority 1 routes and then other routes in priority order..." A reader may rightly wonder when or if a particular street will be treated.
- 3.4 This review is not aiming to 'downgrade' priorities but to bring clarity and consistency to the prioritisation of pavements, cycleways and roads, while supporting active travel and keeping Edinburgh moving equitably.
- 3.5 The following sections describe the current prioritisation arrangement for each area, (pavements, cycleways and roads) the proposed changes and how treatment will be delivered.

Pavements

- 3.6 Pavement Priority 1 currently cover the busy pedestrian routes to hospitals, clinics, care homes and schools. These typically cover the busiest city centre pavements and higher altitude areas to the south and south west of the city.
- 3.7 Currently local pavement priority routes are subject to appropriate treatment during weather events on the basis of locally assessed conditions.
- 3.8 The remaining pavement network is considered with competing winter treatment demand.

- 3.9 In order to provide clarity on how pavements will be categorised, it is proposed that the following principals be used:
- 3.9.1. Pavement Priority 1 will have some minor changes to reflect recent City developments and per the principals above.
 - 3.9.2. Pavement Priority 2 will be created to absorb many of the local priorities and provide links to the P1 network of pavements and roads. This will give pedestrian access to key local facilities and the public transport network.
 - 3.9.3. Pavement Priority 3 will be created and include pavements linking residential pavements with P2 and P1 pavements.
 - 3.9.4. Residential Pavements will include all other residential areas. These will be pavements that are not P1, 2 or 3 and likely to be adjacent to homes.
- 3.10 When the Duty Manager decides treatment is required, it is proposed that P1 pavements will be treated by the existing 'Roster B' that can operate 24/7. P2 will be treated by diverting staff, such as Waste & Cleansing and Parks & Greenspace, from their normal duties. P3 will be treated by both P1 and P2 staff but only when P1 and P2 pavements are OK.

It is unlikely that resources will allow residential pavements to be treated, except in extreme and prolonged conditions when additional contracted resources are engaged. We would encourage and support community 'self-help' to treat these areas when required.

Cycleways

- 3.11 Currently Priority 1 Off-Road Cycleways receive treatment whenever weather conditions dictate and are pre-treated where possible when frost, snow or ice is forecast. These cycleways include: Middle Meadow Walk, Leamington Walk in Bruntsfield Links, Innocent Railway Path between St Leonards Lane and the Jewel at ASDA and sections of the Caledonian Cycle Track, North Edinburgh Cycle Network.
- 3.12 All other parts of the Council's off-road cycleway network are considered with all other competing demands.
- 3.13 In order to provide clarity on how cycleways will be categorised, it is proposed that the following principals be used:
- 3.13.1. Cycleway Priority 1 will have some minor changes to reflect recent development.
 - 3.13.2. Cycleway Priority 2 will be created to ensure that when combined with P1, a City wide cycle network is treated, giving cyclists access across the City. This network will include both off-road and on-road cycleways.
 - 3.13.3. Cycleway Priority 3 will be created and include cycleways that link into the P1 and P2 cycleway network.
- 3.14 When the Duty Manager decides treatment is required, it is proposed that P1 and P2 cycleways will be treated. The resource to deliver this will be determined when

the route review is completed, but likely to be similar to pavements. P3 will be treated only when resources allow and P1 and P2s are OK.

- 3.15 Although cycleways will be treated as above, at the same time as pavements and roads, it will not always be safe to cycle. Cyclist must make their own risk assessment and possibly transfer to public transport instead of cycling.

Roads

- 3.16 Road Priority 1 include important principal roads, all bus routes and roads to fire stations, police stations, ambulance depots, hospitals, clinics, care homes and schools.
- 3.17 Bus park and ride sites at Ingliston, Hermiston and Straiton are treated as Road Priority 1. During periods of extreme wintry weather treatment is extended to also include the park and ride parking spaces.
- 3.18 Currently road Priority 2 consist of all remaining maintained roads. Due to the level of resources, it is only possible to treat key link roads to Priority 1 roads and those located in higher altitude areas.
- 3.19 In order to provide clarity on how roads will be categorised, it is proposed that the following principals be used:
- 3.19.1. Road Priority 1 will have some minor changes to reflect recent City developments and per the principals above.
 - 3.19.2. Road Priority 2 will include key linking and access roads to the P1 network and roads that are part of the priority cycleway network.
 - 3.19.3. Road Priority 3 will be created and include roads linking residential roads with P2 and P1 roads. This could be for example a stretch of road without adjacent residences, which is linking a P2 road to a residential area.
 - 3.19.4. Residential roads will include all other residential areas. These will be roads that are not P1, 2 or 3 and likely to be adjacent to homes.
- 3.20 When the Duty Manager decides treatment is required, it is proposed that P1 and P2 roads will be treated by the existing 'Roster A' staff that can operate 24/7, supported by HGV drivers from across the Council. P3 will be treated by the same staff group but only when resources allow and P1 and P2 are considered to be OK.
- 3.21 It is unlikely that resources will allow residential roads to be treated, except in extreme and prolonged conditions when additional contracted resources are engaged. We would encourage and support community 'self-help' to treat these areas when required.

Grit Bins

- 3.22 There are approximately 2500 grit bins recorded across the City. When all unrecorded bins have been identified and new bins sited following recent requests, there will be approaching 3500 grit bins.

- 3.23 In the past, some grit bins have been placed on street without an 'asset' being created on the Confirm recording and refill IT system. These bins also do not show on the Council's online map and this will be rectified during the summer.
- 3.24 Refilling grit bins is resource intensive and a significant resource demand, usually at times when the priority pavement, cycleway and roads need treating. A crew of 2 staff and 1 x 3.5t vehicle will average around 46 grit bins checked/refilled per day. To refill 3500 grit bins within 5 days would require 30 staff and 15 vehicles.
- 3.25 A review of grit bins will be carried out during the summer with a proposal that the following is implemented:
- 3.25.1 The current principal for siting grit bins remains; a new grit bin will not be sited within 100 metres of another bin, grit bins will not block the passage of pedestrians or be sited in a private area, grit bins will not be removed outwith the winter period.
- 3.25.2 Grit bins will be checked and filled prior to the winter season.
- 3.25.3 Refilling of grit bins will be by web request or carried out in routes by domain (see thermal mapping below) following severe weather.
- 3.25.4 Refilling of grit bins will be in the reverse priority to pavement, cycleway and road priorities. Grit bins on non priority pavements, cycleways and roads will take the first priority for refilling with a target time of say 5 days.
- 3.25.5 Refilling of grit bins will be monitored and those infrequently used, that are sited on priority gritting routes will be removed.
- 3.26 An analysis of the resource required to maintain grit bins per the above will be carried out and the resource identified.

Treatment Domains

- 3.27 Edinburgh has historically been treated as 1 domain for winter weather activity, so usually when the forecast indicates at least part of the City needs treating, it is all treated per the priority system.
- 3.28 There can be significant temperature variations across the City, influenced by factors such as the high ground of the Pentlands, the coastal areas and the dense urban development of the City centre.
- 3.29 During the winter of 17/18 a contractor has thermally mapped the City, gathering information by driving Priority 1 routes on several occasions. This creates a temperature map of the City giving the relationship of one section of road to another. Forecast conditions at known points can then be more accurately forecast across the City network to allow a targeted treatment.
- 3.30 This thermal mapping will initially be used to create treatment 'domains'. Instead of one domain covering the whole City, we will have 3 or 4 domains. With advances in technology, it may in the future be viable to move to forecasting and treating on a pure map basis, by forecasting which sections of roads etc. are likely to freeze and then only treating them.

- 3.31 It is important to note that there will be many occasions throughout the winter period when it will be necessary to deploy resources across the whole of the city and this practice will not change. However, there will be occasions when this is not required and the thermal mapping forecasting will be used to implement this providing a saving.
- 3.32 Having treatment domains and domain forecasts for winter 18/19 onwards, will deliver some key benefits during marginal conditions:
 - 3.32.1. Reduced salt use
 - 3.32.2. Reduced fuel use and diesel fumes
 - 3.32.3. Reduced night time traffic noise
 - 3.32.4. Reduced pressure on staff
 - 3.32.5. Reduced fleet running costs

Vehicle Tracking System

- 3.33 The current gritting fleet was fitted with a vehicle tracking system for winter 17/18.
- 3.34 The tracking system supports operational Duty Team Leaders with monitoring and planning, particularly in periods of severe weather, giving information on location, route travelled, speed and where the gritting control unit is also monitored, salt application rate, spread width, weight used etc.
- 3.35 Mobile trackers have also been purchased and are placed in sub-contractor and hire vehicles to monitor and record location, route travelled, speed, time.
- 3.36 The information available from the system has been useful in providing information to the Council's Independent Claims Handler in defence of public liability claims received

Routing Technology

- 3.37 Current gritting routes have been manually created and are paper based, provided to drivers in map form and supplemented with written guidance.
- 3.38 Following review of the priority pavements, cycleways and roads, routes will be created within each of the new thermal domains. These will be optimised using Routesmart software, which usually achieves around 17% to 20% route efficiency when compared to manually routing.
- 3.39 The use of Routesmart opens the opportunity to display routes for drivers on a 'sat-nav' type device. This device can also control the gritter unit (on/off, spread pattern, spread rate) allowing the driver to just concentrate on driving and therefore reducing driver fatigue. It would also allow drivers who are unfamiliar with the route to operate it.

Salt Stocks

- 3.40 The number of Council depots across the city is currently being reviewed and opportunities to rationalise this estate are being considered. The roads operational depots are included in this review.

- 3.41 Currently gritting is co-ordinated from 3 operational depots, Blackford, Barnton and the main depot at Bankhead. As part of the Roads Improvement Plan, the staff from Barnton Depot will transfer to Bankhead Depot. It is planned that the work required to facilitate this moved will be completed by September 2018. This will mean that gritting operations will be delivered from two depots and the Routesmart exercise will reflect this change.
- 3.42 A strategic 10,000 tonne salt stock was put in place at Tower Street following the severe winter in 2010/11. However this is a key potential residential development site so the salt was used to replenish the depot operational salt stocks this winter. The salt also needed to be recycled and the waterproof covers replaced, which would have cost circa £30k. The Tower Street site will be vacated by early summer.
- 3.43 Winter 18/19 operations will commence with access to 14,000 tonnes of salt, the same level held for 17/18, and there are a few options being explored for the 10,000t stock location.

Gritting Fleet

- 3.44 An element of the Roads Improvement Plan is reviewing the vehicle fleet used by ERS and a process of replacement is being developed with Fleet Services.
- 3.45 Given the timescales, it is unlikely Fleet Services procurement will be in a position to deliver new gritters for the 18/19 winter season. In the interim, vehicles will be sourced through a hire agreement to provide a core of replacement gritters.
- 3.46 The current fleet is ageing and for 18/19, hired/new vehicles will reduce the amount of down time and maintenance support from Fleet Services. The amount of down time stretched the gritting service this winter and required the use of sub-contractors to ensure Priority 1 routes were completed.

Customer Care

- 3.47 As a result of the Transformation Programme, and the development of the Business Support Service, a review of the process for managing correspondence is underway. Correspondence in ERS is managed via the Confirm Asset Management system and reports will be developed to allow analysis of this correspondence to inform service improvements. Performance targets will reflect corporate procedures and timescales.
- 3.48 It is planned to make information publically available via the Council's website, including forecast information and treatment decisions. Opportunities to display winter weather information on the Traffic Scotland web site, to give seamless journey information on the trunk road network and Edinburgh's network, are being explored with Transport Scotland.

Council Website

- 3.49 The information on the Council's website will be updated to provide clear information of the gritting service and reflect the changes to our service following this review.

- 3.50 It is proposed the website also provides clear health and safety information in relation to severe weather to support the findings of Scotland's Transport Minister following this winter. When the directive is issued to travel only if required it is important that cyclists and drivers know that every effort is being made to ensure they have the option to use public transport and gritting resources will support this.

4. Measures of success

- 4.1 The Thermal Mapping exercise will provide 3 or 4 domains, allowing targeted gritting to be undertaken in the coldest parts of the city when the weather forecast permits this approach.
- 4.2 Optimising gritting routes using Routesmart software is estimated to achieve a 17% to 20% route efficiency.
- 4.3 The Edinburgh community will have clarity on which pavements, cycleways and roads will be treated, and when.
- 4.4 There will be clear timescales for refilling grit bins.
- 4.5 The downtime of the gritting fleet will reduce with the provision of newer vehicles.

5. Financial impact

- 5.1 The budget to provide a winter weather service is based on a 7 year average spend and was £2.88m for 17/18. Budget underspends following milder winters create a reserve to fund severe winters with high costs.
- 5.2 The budget and reserve level will be reviewed to ensure the contingency reserve is maintained but only to an amount sufficient to fund a severe winter such as experienced in 2009/10 and 2010/11.
- 5.3 The improvements and changes outlined in this report will enable the Council to deliver winter weather services effectively and efficiently. Any year on year savings from efficiency or milder weather will add to the reserve.
- 5.4 To deliver the improvements outlined in this report, especially for pavements and cycleways, there will be a service 'cost' to services that supply staff to carry out winter weather duties during their normal working hours. The largest groups of staff and therefore service impact, will be for Waste & Cleansing and Parks & Greenspace but many services also supply staff.
- 5.5 The August 2018 update report to this Committee will be clear on which 'normal' services e.g. street cleansing, will cease or significantly reduce whilst those staff are performing winter weather duties.

6. Risk, policy, compliance and governance impact

- 6.1 The City of Edinburgh Council has a statutory duty (under Section 34 of the Roads (Scotland) Act 1984) to take such steps as it considers reasonable 'to prevent snow and ice endangering the safe passage of pedestrians and vehicles over public roads'. The intention of this duty is not that the Council will take immediate and

simultaneous steps to clear and/or treat every road whenever ice or snow exists. It is recognised by the Courts that this would be impossible and beyond the limits of available resources. Failure to fulfil these duties could result in action being taken against the Council.

- 6.2 ERS provides the Winter Maintenance Service with support from other Council services; some provide drivers for the gritting fleet. Failure to secure this support could have significant reputational risks if the pavement, cycleway and road network is not treated during wintry weather. It would also increase the requirements to use sub-contractors, and could expose the Council to legal challenge.
- 6.3 A strategic store or supply of salt to replace Tower Street needs to be identified before September 2018. Failure to identify a store/supply could impact on the level of strategic salt stocks and reduce the Council's preparedness for a severe winter.
- 6.4 Failure to replace the existing fleet could result in an insufficient number of available vehicles to manage the gritting requirements in accordance with Section 34 of the Roads (Scotland) Act 1984.

7. Equalities impact

- 7.1 It is recognised that the Winter Maintenance service impacts upon everyone in the city to a greater or lesser degree. It is acknowledged that people with mobility difficulties are likely to experience significant disruption to their working and/or personal lives.
- 7.2 The major Winter Weather Working Together review conducted in 2011 focussed on the identification of groups who may be more adversely affected by severe winter weather including sheltered housing, special schools and care homes. The changes made to gritting routes were developed from these findings.
- 7.3 Reviews of gritting routes undertaken since that date take in to account the location and needs of these groups and the services they need to access.
- 7.4 During periods of severe winter weather, the Council's Emergency Plan has provisions in place to cater for those from within the protected characteristics.
- 7.5 In 2012 the Swedish city of Karlskoga considered gender equality when it reviewed the way it cleared its streets of snow. It was found that clearing the main highways first benefited car drivers, more of whom tended to be men, rather than footpaths and cycle paths, more often used by women. The city decided to start by treating the streets and paths around daycare centres, then areas around the largest workplaces and schools, before moving on to office districts and main roads. This resulted in fewer injuries, since pedestrians are more likely than motorists to be injured in icy weather.
- 7.6 Edinburgh's winter weather review proposes using 3 main groups of staff to treat all priority 1 pavements, cycleways and roads at the same time. The priority 1 roads are selected to provide emergency service access and a public transport network.

8. Sustainability impact

- 8.1 Reduction in mileage, gained through the thermal mapping exercise when gritting only the coldest domain, will result in a reduction of vehicle emissions.
- 8.2 Reduction in mileage, gained through Routesmart route optimisation will result in a reduction of vehicle emissions.
- 8.3 Any reduction in salt usage, obtained through the thermal mapping exercise, will reduce the amount of salt entering rivers and water courses.
- 8.4 Renewal of the gritting fleet will provide more efficient engines and reduce emissions.

9. Consultation and engagement

- 9.1 ERS staff have, and continue to be, consulted on the depot rationalisation project and the replacement of fleet.
- 9.2 Consultation and engagement with staff is taking place in relation to the wider Roads Improvement Plan which includes some aspects of Winter Maintenance.
- 9.3 Specialist groups such as Sustrans, Living Streets, SPOKES and some community groups will be engaged and consulted.

10. Background reading/external references

- 10.1 Roads Service Improvement Plan at Transport & Environment Committee On 1 March 2018

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11. Appendices

Appendix 1 – Winter Weather Improvement Plan

Winter Maintenance Improvement Plan v.03

Action No	Action Point	Action	Target Date	Forecasted Date	Lead Team	Comments	Status
Winter Operations							
1	Use thermal mapping information to revise gritting routes	Domains to be established and routes to be revised following Thermal Mapping Exercise	Aug-18		CALMs		Open
2	Review Road Priority Routes	Routes to be revised based on Thermal Mapping information and review.	Oct-18		Roster A CALMs	Existing Priority 1 Routes will be reviewed with operation out of two depots (Blackford and Bankhead). Existing Priority 2 Routes will be reviewed. Priority 3 routes developed. Residential Routes will be reviewed.	Open
4	Review Pavement Priority Routes	Routes to be revised based on Thermal Mapping information and review.	Oct-18		Roster B CALM and Team Leader	Existing Priority 1 Routes will be reviewed with operation out of two depots (Blackford and Bankhead). Priority 2 Routes will be developed/reviewed. Priority 3 routes developed. Residential Routes will be reviewed.	Open
5	Review Off-Road Cycle Routes	Routes to be revised based on Thermal Mapping information and review to create a network.	Oct-18		Roster B CALM and Team Leader	City wide network to be created using on-road and off-road cycleways.	Open
6	Grit Bin Policy	Review policy for the provision of grit bins.	Aug-18		Commercial Team		Open
7	Grit Bin Locations	Analyse the location and provision of grit bins across the city	Oct-18		Commercial Team	Identify and create IT system 'assets' for approximately 500 grit bins on street but not on system.	Open

8	Grit Bin Filling	Review procedure for the filling of grit bins	Oct-18		Commercial Team	Programme will be informed by the findings of Thermal Mapping Exercise	Open
Customer Care							
9	Correspondence	Develop a procedure with Business Support colleagues to respond to correspondence	Aug-18		Commercial Team	Performance Targets will mirror Corporate procedures and timescales.	Open
10	Correspondence/ Performance	Arrange for reports to be developed in Confirm to monitor Winter Maintenance provision	Aug-18		Confirm specialist		Open
11	Council Website	Review and update Council Website to provide information on the Thermal Mapping Domains. Provide information on priority gritting routes and Provide information on the location of grit bins, how to request a bin and the procedure for filling grit bins. Provide H&S information in relation to severe weather.	Oct-18		Emergency Planning and Commercial Team		Open
Depot Operations							
12	Salt Supplies	Review salt stocks and strategic salt stores	Aug-18		Commercial Team	A stock of 14,000 tonnes will be in place for winter 18/19. Access to strategic salt supply to be identified for 10,000 tonnes	Open

13	Salt Sheds	Feed in to the Council's Depot Review project to ensure satisfactory geographical salt provision	ongoing		ERS Manager	Location of salt dome at Bankhead to be considered within the Depot Review to ensure best use of space. Blackford salt dome will require maintenance/investment pending completion of Depot Review.	Open
14	Strategic Salt Store	Identify new strategic salt store to replace Tower Street	Aug-18		ERS Manager	Depending on location, site may require ground works to accommodate salt stocks. If required budget will need to be identified.	Open
Fleet							
15	Gritters	Liase with Fleet Services to ensure provision of replacement vehicles	Jul-18		Commercial Manager		Open
16	Vehicle Maintenance and Support	Review maintenance and support service provided by Fleet Services	Jul-18		Commercial Manager	Develop an action plan to progress findings of this review. Mechanical and Fitter support is required 24/7 during operations.	Open
Contract Management							
17	WW Contract	Investigate the possibility to contract drivers only and use CEC gritting fleet	Sep-18		Commercial Manager	Current provision is for a contractor to provide vehicle and driver. Options for the provision of driver only to be discussed with Legal/Fleet Services.	Open
18	WW Contract	Review performance of current contractor	Jun-18		Commercial Manager		Open
19	Farmers Contract	Review current contract	Jun-18		Commercial Manager		Open
Technological Improvements							

20	Gritter monitoring	Develop the use of information available from UK telematics gritter monitoring system	Oct-18		Commercial Team	Gritter monitoring successfully installed this winter.	Open
21	Routesmart	Develop optimised gritting routes in Routesmart	Oct-18		Routesmart Specialist	Routesmart is already utilised in Waste Services	Open