O&M Works Requirements

WINTER SERVICE PLAN

	Signed	Date
Winter Service Manager	*Redacted*	
Account Manager	*Redacted*	

Record of Amendments

This plan shall be reviewed at a minimum of 12 monthly intervals and updated as appropriate. The reviews, including no changes, are noted in the following table.

Revision	Date	Amendment	Content Owner	Authorised By
0	22/07/16	First Draft – July Submission for Written Consent of SM	*Redacted*	*Redacted*
1	28/07/16	Updated following SMSR comments	*Redacted*	*Redacted*
2	04/10/16	Updated WSM, Route Cards, Maps, Depots, Vehicles	*Redacted*	*Redacted*
3	01/11/16	Updates to Route Cards, Maps, Patrol Routes, Vehicles	*Redacted*	*Redacted*
4	07/02/17	Updates throughout documents, particularly to Route Cards, Maps, Patrol Routes, Vehicles	*Redacted*	*Redacted*
5	21/04/17	Updated Route Cards / Maps for M8 W/B Opening	*Redacted*	*Redacted*
7	12/07/17	First draft of 2017/2018 plan	*Redacted*	*Redacted*
8	11/08/17	Updates following comments from SMSR, and route amendments	*Redacted*	*Redacted*
9	26/09/17	Update to Forecast Provider, minor update to r4, r5, footpath amendments, inclusion of final vehicle registration	*Redacted*	*Redacted*

For the use by the Scottish Ministers

Draft document submitted to the Scottish Ministers *Redacted*

Signed: _____

Comments to Company from the Scottish Ministers *Redacted*

Signed: _____

Final Document submitted to the Scottish Ministers *Redacted*

Signed: _____

Strategy Consented to by the Scottish Ministers *Redacted*

Signed: _____

Register of Controlled Copies

A Register of Holders of this Winter Service Plan is detailed below. These holders shall be issued with the revised document as they are made

Copy No	Holder	Company / Organisation	Designation	Hard / Electronic Copy
1	*Redacted*	Scottish Roads Partnership	Company Representative	H/E
2	*Redacted*	Scottish Roads Partnership	Operations Manager	H/E
3	*Redacted*	Scottish Roads Partnership	Technical Manager	H/E
4	*Redacted*	Amey O&M	Account Manager	H/E
5	*Redacted*	Amey O&M	Asset Manager	H/E
6	*Redacted*	Amey O&M	Operational Manager	H/E
7	*Redacted*	Amey O&M	Winter Service Manager	H/E
8	*Redacted*	Amey O&M	Control Room	H/E
9	*Redacted*	Mouchel-Fairhust JV	SMSR	H/E
10	*Redacted*	Transport Scotland	Area Manager	H/E
11	*Redacted*	Transport Scotland	Network Impacts Manager	H/E
12	*Redacted*	Amey – SE Unit	Winter Service Manager	H/E
13	*Redacted*	Scotland Transerv – SW Unit	Winter Service Manager	H/E
14	*Redacted*	BEAR – M80 DBFO	Winter Service Manager	H/E
15	*Redacted*	North Lanarkshire Council	Senior Engineer	H/E
16	*Redacted*	South Lanarkshire Council	Network Team Leader	H/E
17	*Redacted*	Glasgow City Council	Assistant Group Manager Network Control	H/E
18	*Redacted*	Police Scotland	Road Policing Traffic Management	H/E
19	*Redacted*	Scottish Ambulance Services		E
20	*Redacted*	Scottish Fire and Rescue		E

1. Contents

1.0 Introduction and Policy

The Network consists of sections of the busiest motorway network in the central belt of Scotland including the M8, M73 and M74. It also includes the A8 and A725 Trunk Roads.

Winter Service operations shall be provided by Amey on behalf of the Scottish Roads Partnership. They shall allow the safe movement of all road users through the O&M Works Site and minimise disruption to users arising from adverse winter weather (ice and snow). The incidence and severity of winter conditions vary throughout the season and from year to year and hence the resource requirements shall fluctuate accordingly.

Amey will deliver a level of Winter Service commensurate with the winter conditions normally associated with Central Scotland, with the facility to provide additional resources as required to deal effectively with all winter weather conditions which can be expected to arise. The requirements of the O&M Works Contractor are detailed in Part 2 of Schedule 4 and Series 2800 to the Specification of the Project and shall be implemented in cognisance of the principles incorporated in the Scottish Office Code of Practice – Winter Maintenance for Trunk Roads: 1993, 'Well Maintained Highways' publication, and its successor 'Well-Managed Highway Infrastructure' and also from guidance published by the National Winter Service Research Group (NWSRG).

Amey shall provide sufficient resources to ensure that all measures are taken to keep the roads of the O&M Works Site open to its users at all times and shall prevent snow or ice from remaining on Network in accordance with the requirements of Schedule 4 Part 2.

The O&M works site covers the following routes:

- M8 Junction 6 Newhouse to Junction 10 Easterhouse
- M73 Junction 1 Maryville to Junction 3 Mollinsburn
- M74 Junction 3a Daldowie to Junction 6 Hamilton
- A8(M) Baillieston Interchange to Swinton Roundabout
- A8 All Purpose Road Bargeddie to Newhouse
- A8 Baillieston Cross to Swinton Roundabout
- A89 Swinton Roundabout to A8 Bargeddie Roundabout
- A725 Kirkshaws Road Junction to Clyde Bridge South of Raith
- B7071 Bellshill Road from Raith Roundabout to B7071 Hamilton Road Junction
- A725/B7071 Pedestrian and cycling facility at Raith Interchange
- M8/A8 pedestrian and cycling facilities
- M73 pedestrian and cycling facilities
- Areas within the Land Made Available due to transfer to the relevant Local Authority in^{t} April 2018

Amey has previous experience of successfully managing both Trunk Road and Local Authority Winter Service Operations within the UK, including over 12 years in South West Trunk Roads, 10 years in South East Trunk Roads, 3 years in the M8 DBFO project and 16 years in North Lanarkshire. This valuable experience has assisted in shaping this strategy, which details how the Scottish Ministers' Winter Service requirements will be achieved.

This Winter Service Plan is of key strategic importance to the successful operation of the Project and is owned by the Winter Service Manager. While the Winter Service Manager has the overall responsibility for the successful delivery of the Plan, he will be assisted in all

respects by the Winter Service Duty Officers who will support as required by the prevailing or predicted conditions.

Any procedures specific to the O&M Works Site consented to in writing by the Scottish Ministers will be included herein.

2.0 Management Arrangements

2.1 Winter Service Manager

The Account Manager and Operational Manager have ultimate responsibility for management and delivery of winter service. The role of Winter Service Manager (WSM) has been delegated, as detailed below.

2.1.1 Name

Redacted

2.1.2 Qualifications

- EngTech MICE
- HNC Civil Engineering
- SVQ Level 4 Construction Management
- Institute of Highway Engineers Winter Decision Makers Course
- Vaisala Scenario Training
- Vaisala Icenet
- Vaisala IceMan
- Meteogroup Advanced Meteorology
- Schmidt Autologic

2.1.3 Experience

Redacted has experience of 9 years in providing winter maintenance services. This includes 6 years as a decision maker within the Amey Joint Venture with North Lanarkshire Council, 2 years as Winter Service Duty Officer and 1 year as Winter Service Manager within the M8 DBFO Contract.

2.1.4 Responsibilities

The WSM has delegated and overall responsibility for the provision of the winter service and ensuring compliance of the project for the following activities:

- Ice prediction and weather forecasting service, including sensor calibration
- Collection and management of weather data
- Winter service decision making
- Confirmation of the daily action plan
- Plant and communications
- De-icing material stock levels and storage
- Staff and Operative training and rosters
- Inspection and maintenance of winter hardware
- Maintaining records
- Daily, weekly and annual reporting

The WSM is the owner of the Winter Service Plan (WSP), and is responsible for revisions to this plan at least once annually and whenever considered necessary during the Winter

Service Season. The WSM is responsible for submitting the WSP to the Scottish Ministers for written consent no later than 31 July each year.

The WSM is also responsible for the preparation and submission of the Winter Service Annual Report prior to 31 May each year and will attend the subsequent winter service annual review meeting with the Scottish Ministers.

2.2 Winter Service Duty Officers

2.1.5 Names

Redacted x8 nominated to the role of Winter Service Duty Officer.

2.1.6 Qualifications

Name	Qualifications
Redacted	• Detailed in section 2.1.2
Redacted	• EngTech MICE • HND Civil Engineering • SVQ Level 5 Construction Senior Management • Vaisala Icenet • Vaisala Scenario Training • Met Office Basic Meteorology
Redacted	• SVQ Level 4 Construction Management • Met Office Basic Meteorology • Vaisala Scenario • Schmidt Stratos 2 and SNK Training • City and Guilds Winter Service Operations
Redacted	• B.Eng Civil Engineering • I.Eng MICE • Met Office Basic Meteorology • Vaisala Scenario
Redacted	• IHE Winter Decision Makers Course • Vaisala Scenario
Redacted	• B.Sc (Hons) Civil Engineering • SVQ Level 4 Construction Management • Met Office Basic Meteorology • Vaisala Navigator • Vaisala IceNet
Redacted	• B.Sc (Hons) Environmental Civil Engineering • Vaisala Scenario Training • Met Office Basic Meterology
Redacted	• IHE Winter Decision Makers Course • Vaisala Scenario
Redacted	• B.Sc (Hons) Environmental Civil Engineering • IHE Winter Decision Makers Course

2.1.7 Experience

Name	Experience
Redacted	• Detailed in section 2.1.3
Redacted	• Operational Manager for M8 DBFO • WSDO between 2014 and 2017 on the M8 DBFO project • Previous resource planner for snow clearance at Glasgow Airport between 2013 and 2014 • Previous experience in Operational Delivery of Winter Maintenance on SW Unit, as Supervisor and Assistant Construction Manager between 2002 and 2013
Redacted	• Assistant Construction Manager on M8 DBFO project since 2017 • WSDO between 2015 and 2017 on the M8 DBFO project • Winter Maintenance Operative on the South West Trunk Road Unit between 2004 and 2014
Redacted	• WSDO between 2015 and 2017 on M8 DBFO project
Redacted	• Mentored WSDO during season 2016-2017 on the M8 DBFO project • Winter Maintenance Operative between 2014 and 2016 on the M8 DBFO project
Redacted	• WSDO between 2014 and 2017 on the M8 DBFO Project • WSDO between 2006 and 2014 on the SW Unit
Redacted	• WSDO between 2015 and 2017 on the M8 DBFO Project
Redacted	• Monitoring RSTs in Amey Control Room on Forth Bridge Unit in 2016 • Monitoring RSTs in Amey Control Room on M8 project in 2015 • Mentored WSDO through the season
Redacted	• No experience, mentored WSDO through the season

2.2.4 Responsibilities

All WSDOs are authorised by Amey, with responsibility for taking decisions, issuing instructions and implementing and directing the Winter Service at all times. If the WSDO is uncertain of conditions and what action to take he will discuss this with the Winter Service Manager.

Duty WSDO's will operate on a roster basis. This ensures that two WSDOs are rostered for every week throughout the core Winter Service Season. The WSDO will maintain and update winter records including:

- Planned and actual:
    - Treatment records
    - Response times
    - Commencement times
    - Route times
    - Spread rates

- Observations and actions taken by the Winter Service Patrols
- Output from Constructional Plant on-board data capture devices
- Constructional Plant down time and software faults
- Constructional Plant deployment records (including Global Positioning System records) and driver/operator logs
- Logs of telephone, electronic mail and two way communication calls
- Traffic Scotland CMS Portal updates of proposed treatments
- Ice prediction system records
- Weather forecasts and actual weather experienced
- Complaints by members of the public and road users
- Accidents resulting from winter conditions
- Road closures due to winter conditions

During the months of November to March inclusive, a Winter Service control room will be staffed during all Winter Service operations. With our ability to network fully all communications and to remotely access the Computerised Road Weather Information System (CRWIS), the control room can be established at any location and transferred seamlessly at changes in the duty roster.

The WSDO shall be on duty in the control room whenever Winter Service Operations are planned, constantly monitoring weather and road conditions via the CRWIS and Weather Radar. The WSDO is able to receive information from and communicate instructions to patrol drivers on a regular basis.

At changes in shift, the outgoing and incoming WSDO will handover and exchange information including:

- 24 hour action plan
- current weather and road conditions including trends
- updates from the Expert Weather Forecasting Service, (Met Desk)

The WSDO will be supported by the WSM. The criteria which will determine this support will include guidance and decision making support during:

- marginal conditions
- periods when low confidence forecasts are issued
- Severe weather conditions such as prolonged snow, high winds or freezing rain.

In prolonged periods of severe conditions, the WSM will instruct additional resources to be deployed within the control room to deal with the increased monitoring requirement and higher level of ingoing and outgoing communications.

2.3 Monitoring Arrangements

2.3.1 Monitoring Arrangements during Normal Working Hours

During normal working hours the WSDO for the particular week will be responsible for monitoring weather forecasts and actual weather conditions.

2.3.2 Monitoring Arrangements out with normal working hours

Outside of normal working hours, the WSDO for the particular week will be responsible for monitoring weather forecasts and actual weather conditions. WSDO's will be placed on stand-by following a weekly rota throughout the winter service period. During the peak season shifts will not exceed 12 hours.

2.4 Personnel Resources

- **Winter Service Manager**: *Redacted*
- **Winter Service Duty Officers**: *Redacted*
- **Operations Manager** (OM): *Redacted*
- **Duty Operations Supervisors** (DOS): *Redacted*

All winter staff are suitably qualified and experienced to competently undertake the respective duties associated with their role.

The DOS will be directly responsible for the co-ordination of winter service operatives and constructional plant to deliver the requirements of the daily winter service action plan.

Prior to the beginning of each winter season, the OM will prepare a roster assigning sufficient numbers of trained drivers for each precautionary treatment and patrol route. This roster ensures that on a week to week basis, outside of normal working hours, drivers remain on standby or shift pattern to respond to treatment or patrol instructions.

A minimum of three trained and experienced operatives will be employed for each precautionary treatment route, to provide round the clock coverage without compromising Drivers Hours Regulations.

Operatives:

Operatives	Depot	Training	Address Postcode
Redacted	Bargeddie	Winter Maintenance City & Guilds	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*

Redacted	Bargeddie	Ditto	*Redacted*
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Redacted	Bargeddie	Ditto	*Redacted*
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Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*
Redacted	Bargeddie	Ditto	*Redacted*

2.4.2 Availability Rosters

During the winter period, detailed rosters will be prepared detailing all staff referred to in 2.4 of this Winter Service Plan. On a weekly basis during the winter period a specific Roster detailing personnel, contact details and specific duty details will be issued to all key staff. This will be distributed electronically and updated on a shared server area each week to ensure key details are constantly kept up to date

2.5 Call Out Arrangements

2.5.1 Call out arrangements during normal working hours

The WSDO will implement call out procedures by issuing the daily action plan for winter service operations. During the working day the WSDO will mobilise resources to undertake and complete the required treatment, this includes where changes to the daily action plan are required due to observations or updated forecasts.

2.5.2 Call out arrangements out with normal working hours

When a decision to carry out treatment outside normal working hours is made by the WSDO, the WSDO will call out the rostered drivers by telephone directly.

2.5.3 Contact arrangements during normal working hours

The WSDO will implement call out procedures by issuing the daily action plan for winter service operations. During the working day the WSDO will mobilise resources to undertake and complete the required treatment.

2.5.4 Contact arrangements out with normal working hours

When a decision to carry out treatment outside normal working hours is made by the WSDO, the WSDO will call out the rostered drivers by telephone directly

2.5.5 Mobilisation Times

To ensure that the requirement to mobilise and commence unplanned treatment on route within one hour of a call out is achieved, a shift system will operate from mid-November to mid-March. Operatives on shift will be based in Bargeddie Depot, facilitating an immediate response to call outs.

Outside of this period, operatives will be on stand-by and will be called out directly by the WSDO if required. Where the 5 day forecast indicates that severe weather is anticipated in these months, operatives will be put onto a shift system.

2.6 Communications Equipment

All winter service vehicles are fitted with 'hands free' mobile telephones. All drivers will be trained in the effective use of this system.

Any faults in the 'hands free' system of communication will be reported immediately to the WSDO for his action.

All winter service vehicles are also fitted with an integrated satellite tracking and data recording system. The rostered WSDO shall monitor this system throughout the season.

We have maintenance support through service level agreements with our Internal Fleet Service and relevant manufacturers to repair or replace communications equipment.

Winter Service Patrol vehicles also use an encrypted digital radio communications system, "Airwave". Amey utilise this equipment as a dedicated communication system between Winter Service Patrol drivers, the Traffic Scotland Control Centre, the Winter Service Duty Officer and the Police.

2.7 Training for Managers and Other Staff

2.7.1 Details of Previous Training

The Winter Service Manager attended the Institute of Highways Engineers (IHE) Winter Decision Makers Course in 2017, and has previously attended Meteorology, Scenario and Vaisala system training.

Our WSDO's have either attended the IHE Winter Decision Makers Course or have attended training courses covering basic road meteorology and the interpretation of weather forecasts provided by Vaisala and the Met Office / Met Desk.

All operatives performing Front Line and Reserve Winter Service operations will hold an appropriate Class C LGV driving license, and be trained and experienced in winter maintenance operations.

2.7.2 Details of Proposed Training

All staff who has attended the IHE Winter Decision Makers Course and achieve the Professional Certificate have valid certification for a period of 5 years

For staff that has attended training courses covering basic road meteorology, the use of weather forecasts, CRWIS and scenario training, refresher training will not exceed three years.

An annual pre-winter internal briefing session will be held in September.

All operatives performing front line and reserve winter service operations will be trained and assessed to meet the requirements of the Winter Maintenance City & Guilds Qualification.

3 Weather Forecasting

3.1 Purpose

The purpose of the forecast provider is to provide accurate information for interpretation by our WSDO's, enabling them to plan the winter maintenance operations for the following 24 hour period. WSDOs also have 24/7 access to the Met Desk Forecaster for advice or updated information, providing a proactive approach to winter service.

3.2 Methodology

Amey will use the expert weather forecasting service (EWFS) from Met Desk who will utilise information from the existing road sensor network, to give detailed forecasts for each climatic domain, using information from Scottish Weather Radar and thermal mapping that they have access to, to inform on existing and anticipated conditions. Weather forecasts will be provided from 1 October to 15 May (inclusive), and will be delivered every day by 1300hrs via the web-based Computerised Road Weather Information System (CRWIS), providing:

2 – 5 day forecasts - a general area forecast per day, for the 4 days following the day of issue of the 24hr forecast information.

24 Hour Forecast - Domain specific forecasts, giving a general summary of the weather anticipated from 12:00 midday to 12:00 midday the following day. The main features of the forecasts are:-

- Readiness colour:
  - Green - RST forecast to be +1C (or above +2C on a low confidence scenario)
  - Amber – RST are expected to drop to between (and including) zero and +1C, or RST are expected to drop below zero but roads are predicted to remain dry, or On a low confidence marginal forecast, amber may be used if RSTs are expected to drop between +1C and +2C
  - Red - RST forecast are expected to fall below freezing with ice and/or hoar frost and/or snow accumulations and/or freezing rain likely.
- Hazards – this section gives detail on the weather conditions such as ice, hoar frost, snow (cm's), fog, wind and rain, which give rise to the "readiness colour".
- Temperatures – minimum road surface temperature and time at or below freezing.
- Wind - Detailing sustained and gust speeds along with direction for 5 hour periods
- Forecast graph showing forecast trend at the forecast site

Evening Forecast Update - Domain specific forecasts, giving updates to the 24 hour forecast based on latest evening model.

Morning Forecast Update - Domain specific forecasts, giving updates to the 24 hour forecast based on the latest morning model.

Non-Routine Forecast Updates - Issued where forecast changes out with the 24 hour forecast, evening forecast and morning forecast are observed or anticipated and likely to change readiness to amber or red.

Severe Weather Warnings - this service is provided throughout the year. The early warning weather alert provides information regarding heavy snow, high winds and / or heavy rainfall.

24 hour Consultancy Service - this facility is used if there are any doubts about the forecasts or when conditions change significantly. Confirmation of updates will be made by telephone to the WSDO if the forecast has changed significantly. The Forecaster will also be available to the WSDO to discuss any matters of concern or to clarify low confidence forecasts.

3.3 Weather Forecasting Service

3.3.1 Climatic domains

Given the extent of the O&M Works Site, the small number of treatment routes and the fact that they overlap significantly; it is proposed to continue to utilise one Climatic Domain for the project extents.

3.3.2 Weather radar

The WSDO will have access to a web-based Weather Radar facility provided by Met Desk, 24 hours a day, seven days a week, throughout the winter season to supplement forecast information. The Radar will help to improve the accuracy of assessing the timing, nature and intensity of precipitation, particularly snowfall.

3.3.3 Ice sensors and weather forecast sites

Ice Sensors located on or close to the Network will be polled on a regular frequency of 1 hour between 15th May and 1st October; and at 20 minute intervals between 1st October and 15th May inclusive. All data will be collected by the Ice Prediction System's Master Station, accessed by the WSDO via a portable computer. Weather forecast sensors have added functionality to allow Met Desk to model the temperature characteristics of the road pavement and can be accessed directly by Met Desk to assist in producing road-specific weather forecasts.

3.3.4 Thermal mapping

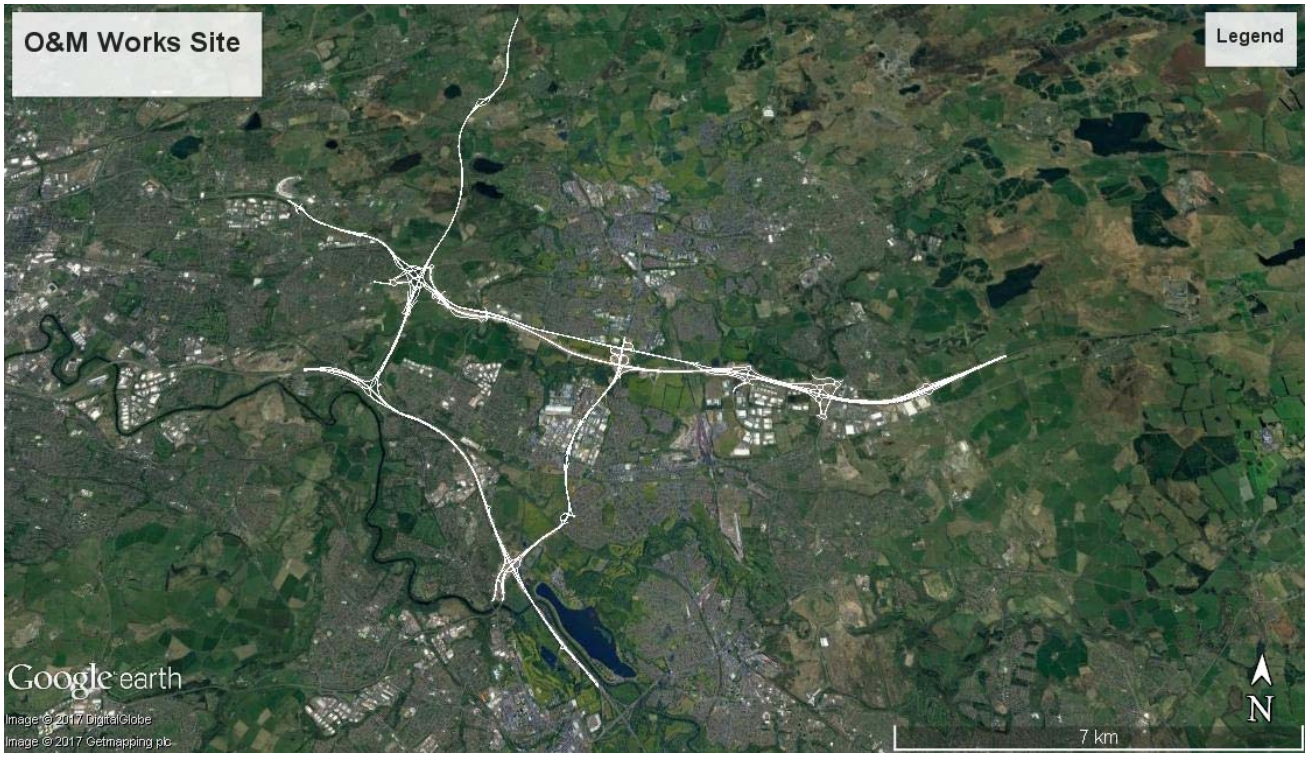
Thermal maps comprise digitised thermal fingerprints graphically representing variations in road surface temperatures along a route. By combining thermal map and forecast data, route maps can be produced indicating forecast minimum road surface temperatures along each route.

Digitised thermal mapping provides another useful tool for staff to supplement forecast data and local knowledge thereby aiding the decision making process regarding winter maintenance action. The maps can also be used to select suitable locations for additional outstations.

For effective use of thermal mapping, the digital map coverage of the Network must be maintained in a complete and up to date state. With this in mind, due to the completion of the M8 Junction 6 to Junction 8 and significant network improvements throughout the extents of the project, the process of generating new thermal maps shall be undertaken throughout the 2017-2018 winter season.

3.3.5 Location plans

The O&M Works site location plan is shown below:



3.4 Computer Systems

The computerised road weather information system (CRWIS) will continue to be provided by Vaisala. It will obtain, interpret and display the following, in a manner that predicts trends in weather and road conditions:

- Road sensor data (forecast & actual)
- Thermal maps (when available)
- Weather data from Met Desk
- Other relevant information

An automatic alarm, which activates when a road sensor falls to +1 degree centigrade, will be utilised. This alarm is monitored by the rostered WSDO through the winter service period, and operates within the control room.

In the event of power failure in the control room, non-electrical means of heat and light will be utilised pending the switching on of mobile generators from the depot emergency vehicle. Manual records will be maintained and transferred into electronic records on the restoration of the power supply.

In the event of communications failure, mobile phones will be used to maintain contact with vehicle drivers, police, Vaisala and Met Desk. Vaisala will monitor the CRWIS for Amey in this situation.

In the unlikely event that the CRWIS fails for any reason then the WSDO will contact the 24 hour CRWIS helpdesk and / or the Met Desk 24 hour consultancy service for assistance, until the system is restored.

Contact details are as follows:

Met Desk – *Redacted*

Vaisala – *Redacted*

4 Monitoring Arrangements For Areas Requiring Special Attention

Areas requiring special attention are known locations on the Network where:

- significant gradients exist, shown in Fig 4/1
- frost is prone to occur, (none known at present)
- water run-off is liable to happen (none known at present)

Amey will, throughout the Project period, review these areas and add other areas as necessary.

Road Number	Location
A725	Raith Interchange towards East Kilbride
A725	Raith Interchange towards Bellshill
M73	Junction 1 to Junction 2
M74	Northbound on to M73

Figure 4/1: Gradient Locations

Each area must be monitored effectively. For both frost susceptible and known surface water run off locations, the ability to monitor and forecast up-to-date road surface temperatures and states is critical.

In addition to the Winter Service Patrols detailed in Section 8 of this document, the WSDO has the authority to instruct the mobilisation of any front line winter constructional plant to patrol any part of the Network at any time. This action may be necessary to enable the WSDO to receive accurate real time visual information such as road surface state observations, surface water run-off and precipitation type/intensity. This information, combined with data within the CRWIS and Weather Radar allows the WSDO to monitor affected areas along with other areas on the Network and to make appropriate treatment planning decisions.

5 Decision Making

5.1 Role of the Winter Service Manager

The role of the WSM is strategic, and he has ultimate responsibility for the provision of the Winter Service. The WSM shall confirm with the WSDO the proposals for the coming 24 hour period. The WSM will be available at all times to enable the WSDO to seek advice regarding any aspect of the Winter Service.

The WSM will also provide all additional resources to provide the necessary level of winter service, including the provision of additional staff in the Control Room, additional drivers available during severe adverse weather and any additional plant, vehicles or materials required.

5.2 Role of the Winter Service Duty Officer

The WSDO has the delegated responsibility for producing the daily action plan in conjunction with the treatment matrices shown in appendix B. Following confirmation of the daily action plan by the WSM, the WSDO shall contact all rostered Winter Operatives informing each of them of the decision and timing of any treatment in the forthcoming period. Where possible, this shall be complete by 14:00 each day during the Winter Service Period.

The WSDO will have at his disposal robust procedures, detailed weather forecast information, actual road condition information including information from mobile surface temperature sensors and a communication system to the Winter Service Patrols and operations teams across the Network. We shall make full use of this information to determine the optimal time to commence precautionary treatments to ensure that these are complete within two hours of commencement and in advance of sub-zero RSTs.

Following confirmation of the daily Winter Service action plan, the WSDO will contact all Winter Service drivers informing each of the decision and timing of any treatment in the forthcoming 24hr period.

Through the 24 hour period, the WSDO shall monitor weather conditions and make the necessary decisions to carry out the necessary levels of service.

The WSDO is also responsible for providing the Daily Action Plan in the Traffic Scotland CMS system by 15:00 and updating it as necessary afterwards.

5.3 Weather Service Patrol Mobilisation.

Amey will carry out Winter Service Patrols from 1 November to 31 March inclusive on those sections of Trunk Roads identified in Schedule 4 Part 2, Table 3.2.1 of the Project and further detailed in Appendix D, Annex WSP 1 of this plan

The requirement for Winter Service Patrols is initially determined by the Winter Service Duty Officer on receipt of the Met Desk daily forecast and after this has been analysed. From 1st November to 31st March, where the forecast minimum road surface temperature is equal to or less than +3°C, for the climatic domain associated with the Patrol Routes listed in Section 8 of this Plan, the WSDO will instruct Winter Service Patrols on the daily action plan. In these instances the WSDO's are then responsible for mobilisation of the required resources.

On occasions the forecast may initially predict road surface temperatures to be above +3°C, but it is either

(a) Observed that RSTS are below +3, or

(b) a subsequent forecast update is made predicting road surface temperatures to drop to or below +3°C.

Where (a) is observed or (b) is received by the WSDO, Winter Service Patrols will be mobilised directly by the WSDO.

5.4 Proposals for Precautionary and Additional De-icing Treatments when Low Confidence Forecasts shall be issued for Variable Road and Weather Conditions

The minimum requirements for de-icing material spread rates for precautionary treatment shall be as provided in Tables 1, 2, 3, 3.1 and 3.2 of Appendix B.

When low confidence weather forecasts are issued by Met Desk, and during marginal conditions, the WSDO's will monitor conditions using the CRWIS. Amey's decision making process accounts for low confidence forecasts received and the WSDO will follow this process when considering the original and updated forecasts.

During marginal conditions the WSDO will always take a conservative approach. It is essential that during these periods the WSDO receives reports and information from the Winter Service Patrols. The WSDO shall instruct patrols to monitor conditions and, if necessary, initiate immediate precautionary treatments in accordance with the proposed de-icing material spread rates detailed in Table 2 of Appendix B.

5.5 Proposals for Monitoring the Effectiveness of De-icing Materials

Following any precautionary treatment, the WSDO will continue to monitor the weather forecasts and the actual weather conditions including but not limited to reports from Winter Service Patrols and data from the CRWIS. This information will be used to assess the effectiveness of the treatment and to instruct further treatment when considered necessary; in consideration of forecast conditions.

This is particularly important in situations where precipitation is forecast or has occurred resulting in a potential dilution of the amount of salt present and inherent reduction in the effectiveness of the treatment.

The presence and concentration of salt solution can be detected by Forecast and Road Sensors and displayed within the CRWIS as 'Freeze Temp'. This Temperature is the theoretical Road Surface Temperature at which ice will form and the salt solution will cease to be effective. The detection of residual salt through the CRWIS, however, depends upon the salt being in solution, when in a dry state the 'surf state' when salt is present will normally be 'trace', whilst if in solution, will be listed as 'wttrd'.

Where there is any doubt as to the ongoing effectiveness of any treatment undertaken, due to either dilution of salt from precipitation, or uncertainty of residual salt levels, the WSDO will err on the side of caution and will instruct further action to be undertaken.

5.6 Road Closure Operational Procedures

Any decision to close a road will normally be taken by the Police.

The WSM, the Scottish Ministers and Traffic Scotland Control Centre will be informed immediately by telephone, and in writing within 12 hours, of any decision to close a road, or of other major problems encountered within the Network due to winter weather conditions.

The Police will normally notify the other Emergency Services of any road closures and in liaison with Traffic Scotland will arrange for the provision of advance warning signs and/or activate variable message signs or arrange media coverage where appropriate.

The WSDO will also notify the local Roads Authorities of any relevant road closures.

The WSDO shall immediately inform Traffic Scotland Control Centre and the Scottish Ministers of the reopening of the road.

5.7 Activation of Snow and Ice and Hidden Message Signs

Amey will open snow and ice message signs prior to 1st October each year or as necessary before this date to provide information to the road user regarding weather and road conditions.

Liaison with the Police will take place regarding the activation of hidden message signs when roads are being closed, but these signs will normally be activated by the Police.

5.8 Processes and Procedures for Deciding when it is Unsafe to Continue with, or Commencing Clearing Operations

If in exceptionally severe conditions, such as blizzards resulting in reduced visibility and deep drifting snow; the Winter Service Manager decides that it is unsafe for operational personnel to clear snow or ice, operations will be suspended until conditions improve. Such instances are likely to be extremely rare and the Winter Service Manager will liaise with the police, the Scottish Ministers, the expert weather forecaster and Traffic Scotland prior to making such a decision.

Notification of roads closed as a result of being unsafe to continue clearing operations will be notified as 5.6 above.

5.9 Manual for the Management of the Risk of Unplanned Disruption

The Winter Service Plan is a controlled item of the Quality Plan and forms part of the O&M Manual. The Winter Service Plan forms part of the Disruption Risk Management Plan and shall be reviewed at no greater than 12 monthly intervals.

6 LIAISON

6.1 The Scottish Ministers

Effective liaison with the Scottish Ministers prior to, during and after the winter service season is essential to the successful delivery of the service. The Scottish Ministers will be consulted during the preparation, approval and review of the Winter Service Plan on an annual basis.

The Scottish Ministers will have the capability of remotely accessing electronic winter service records in real time.

Amey will continually review the need for snow fences and shelter belts on the Network and, where it considers that such provisions are necessary; will notify the Scottish Ministers in writing.

Prior to the commencement of the Winter Service Period, the Scottish Ministers will receive one controlled paper copy and one controlled electronic copy of the Winter Service Plan.

6.2 The Police

In preparing the Winter Service Plan, Amey will consult with all relevant Police Authorities. The Police shall receive, from Amey, one controlled paper copy and one controlled electronic copy of the Winter Service Plan. All relevant Police Authorities will be notified, by the WSDO, of all proposed treatments and patrols once known, but not normally later than 15:00 each day.

Amey will liaise closely with the Police to monitor adverse winter weather and travelling conditions. During periods of Severe Weather, the Winter Service Manager and WSDO will work closely with the Police who may supply information to the media regarding travelling conditions on the Network.

Any decision to close a road will always be taken by the Police. Amey will liaise with the Police regarding road closures as detailed in Section 5.6 of this document.

6.3 Traffic Scotland Operator

Amey will, prior to the commencement of each winter service season, issue the Traffic Scotland Operator one controlled paper copy and one controlled electronic copy of the Winter Service Plan.

During the Winter Service Period, the Company shall report the known effect of adverse weather and travelling conditions to the Traffic Scotland Operator

Traffic Scotland will be notified by the WSDO of all planned treatments and patrols by 15:00 each day. In addition, should messages be required to be displayed on electronic warning systems and variable message signs, Traffic Scotland Control Centre will be notified by the WSDO.

During periods of severe weather the WSDO will undertake regular reviews, at no less than hourly intervals, of the information published within the severe weather bulletin board, and update this information via the Traffic Scotland Roadwork's Module and/or the gritter Management module:

(i) If he is aware of any change in the situation at any location logged on the bulletin board and

(ii) If he is aware of any other locations where severe weather is affecting driving conditions or traffic movements on the Trunk Road network.

6.4 Adjacent road and highway authorities

In preparing the Winter Service Plan, Amey will consult with all adjacent Local Roads Authorities. They will receive, from Amey, one controlled paper copy and one controlled electronic copy of the Winter Service Plan. Adjacent Local Roads Authorities will be notified by the WSDO of all planned treatments and patrols by 15:00 each day.

Amey will liaise closely with all adjacent Local Roads Authorities to monitor adverse winter weather and travelling conditions

6.5 Adjacent South East Unit and South West Unit including DBFOs

A consistent level of service at boundary interfaces with adjacent Trunk Road Operating Companies is essential to allow the safe movement of road users and to minimise delays and disruption caused by snow and ice conditions.

During the annual preparation and review of the Winter Service Plan, Amey will consult with adjacent Trunk Road Operating Companies. They shall receive one controlled paper copy and one controlled electronic copy of the Winter Service Plan. The WSDO will notify adjacent Trunk Road Operating Companies of all proposed treatments and patrols once known, but not normally later than 15:00 each day.

During periods of severe weather, the WSDO will liaise and update the adjacent Trunk Road Operating Companies regarding the current status of the prevailing weather conditions and Amey's winter service operations.

6.6 Network Rail

As there are no railway level crossings, liaison with Network Rail will not be appropriate.

7 Mutual Aid Arrangements

7.1 Mutual Aid

A list of contacts for adjacent Operating Companies and Local Authorities will be held by the WSM to allow offers of mutual aid to be made, subject to the availability of resources. This aid may take the form of providing salt stocks or operated winter service plant. Whenever such a request is received, we will endeavour to make this aid available at the earliest opportunity, without compromising the level of service being provided on the Network.

8 WINTER SERVICE PATROLS

From 1 November to 31 March inclusive, when the forecast minimum road surface temperature for the Network is less than or equal to 3°C, the WSDO will instruct the relevant Winter Service Patrols covering the routes detailed in Schedule 4 Part 2 Annex 3.2.

All Winter Service Patrol routes are under continuous review and will be amended as and when necessary throughout the season to reflect any required changes.

Winter Service Patrols will:

- Patrol all carriageways of Trunk Roads, excluding slip roads, identified in Annex 3.2, Table 3.2.1 of Schedule 4 Part 2.
- Report on road conditions encountered to, and take instruction on treatments from, the Winter Service Duty Officer,
- Provide an immediate response when instructed to carry out treatments or other de-icing Operations by the Winter Service Duty Officer,
- Deal with any situation on the Winter Service Patrol route requiring immediate attention,
- Pay particular attention to Areas Requiring Special Attention identified in Annex 3.3 of Schedule 4 Part 2.
- Undertake short stops for minor maintenance such as clearing grips and removing debris, and
- Provide daily reports.

Category A Winter Service Patrols shall operate from 02:00 to 10:00 at two hourly intervals as described in Schedule 4, Part 2, Paragraph 3.10.8. The routes will be designed such that each Winter Service Patrol alternates between a one hour patrol and a one hour standby on each route. All patrol routes shall be completed within one hour of commencement.

The routes for dual carriageways and motorways shall be further designed so that the patrol vehicle, when working, is able to attend any location on its route within 30 minutes of receiving a call from the Winter Service Duty Officer.

Category A Winter Service patrols shall operate out with the specified times when forecasts indicate an increased risk of delays and disruption to users caused by snow and ice conditions.

Operating periods for Category A Winter Service Patrols shall be between 02:00hrs and 04:00hrs, 04:00hrs and 06:00hrs, 06:00hrs and 08:00hrs and 08:00hrs and 10:00hrs.

Category B Winter Service Patrols shall operate from 00:00 to 09:00 at three hourly intervals as described in Schedule 4, Part 2, Paragraph 3.10.10.

Operating periods for Category B Winter Service Patrols shall be between 00:00hrs and 03:00hrs, 03:00hrs and 06:00hrs and 06:00hrs and 09:00hrs.

Special attention will be given to those locations designated as “Areas Requiring Special Attention” described in Section 4.

8.1 Winter Service Plant and Reporting

8.1.1 Winter Service Plant Provided by Amey for Winter Service Patrols

Winter Constructional Plant for Winter Service Patrols, as detailed in Annex WSP 5 of Appendix D, will be:

- Fully loaded with de-icing material to provide an immediate response to carry out precautionary treatments or other de-icing Operations for carriageways,

- Equipped with on board data logging equipment to record actions taken by Winter Service Patrols,

- Equipped with on board global positioning system, and
- Front line service independent and separate to precautionary treatment resources which will not be diverted to other de-icing operations or emergencies.
- Stocked with welfare kits, for distribution during an incident involving stranded vehicles, Each patrol vehicle shall have:
  - 24 space blankets
  - 24 bottles of water
  - 24 energy bars.

8.1.2 Winter service patrol report

A Winter Service Patrol report shall be provided by the Company in the format referred to in Table 3 of Annex WSP 1 to Appendix D of this part

9 Treatment Routes

9.1.1 Treatment routes are detailed in Annex WSP 2, Appendix D.

I. Precautionary Treatment Routes, Including sections shared with Scottish Ministers Trunk Road South East and South West Units, including DBFO's and other adjacent road authorities:

a. The precautionary treatment routes have been separated into the following distinct categories:

1. Carriageway precautionary treatments not exceeding 40g/m² (WSP 2 of Appendix D)
2. Local Authority Carriageway precautionary treatment routes within the land made available for O&M works. These will to be treated by the relevant local authority.

Areas included in 9.1(a)(1) include sections of road that shall be transferred to the relevant Local Authority on 1st April 2018. Prior to this date, handover arrangements shall be established with the local authority.

All precautionary treatment routes have been designed to enable completion of treatment routes, including contiguous laybys but excluding remote laybys, within two hours of commencement of the treatment. Precautionary treatment routes will mobilise, commence and complete before snow and ice conditions are forecast to occur. Immediate responses for unplanned treatments will mobilise and commence within one hour of the WSDO's instruction.

All precautionary treatment routes are under continuous review and will be amended as and when necessary throughout the season to reflect necessary changes due to works affecting the treatment routes.

De-icing vehicles and drivers will be assigned to specific routes to promote route ownership and knowledge, but all drivers will have a basic knowledge of every precautionary treatment route and will be capable of undertaking any such route if necessary. All vehicles shall also be fitted with Schmidt Autologic, which provides navigation and automated spreading of treatment routes

Precautionary treatment spread rates, specified by the WSDO on the daily action plan, will be in accordance with Section 5.2 of this document.

Additional care will be taken at road works, where in addition to areas currently being trafficked, all other areas, including contraflows, likely to be opened to traffic are treated. Traffic management equipment, including cones and cylinders, may disrupt distribution of salt, and liaison with engineering staff responsible for roadwork sites is essential if complete and robust treatment is to be ensured. Where more extensive traffic management measures prevent adequate precautionary treatment application, separate treatment will be carried out in advance of the carriageway being re-opened to traffic

No Winter Constructional Plant will be driven above the legal speed limit at any time or at a speed greater than 40mph during precautionary treatment operations on de-restricted dual carriageways or motorways. On single carriageway roads de-icing material will be spread across the full width of the

road in a single pass with the Winter Constructional Plant travelling at a speed no greater than 30mph.

II. Contingency Plans for Alternative Access to Precautionary Treatment Routes Where Normal Access is Prevented Due to Weather Related or Other incidents

Amey have put in place arrangements and resources which will ensure that carriageway precautionary treatments will be provided for sections of the Network where normal access is prevented due to weather or other related incidents.

These contingency arrangements provide resources for precautionary treatments using an alternative access. Front Line Winter Constructional Plant will carry out treatment from an alternative access, should, for whatever reason, precautionary treatment not be able to be carried out in accordance with the Route Cards shown in WSP 2 of Appendix D.

For the majority of the Network there are alternative routes available to enable treatment routes to be completed by the de-icing vehicle allocated to that particular route. Network that Amey consider are most at risk from restricted access, due to weather or other related incidents, are those with no local suitable alternative routes.

Many of the routes interlink with each other, therefore, in a situation where access to a route cannot be gained by the constructional plant listed to carry out a treatment, there is a facility for another treatment route to carry out necessary treatment to a required section.

III. Locations of de-icing material loading and mixing points

All de-icing materials will be stored in Bargeddie Depot, this is also the loading point for all project roads.

9.1.2 Details of cycling facilities in urban areas

Details of cycling facilities within the project are provided in Annex WSP 2 to Appendix D, Non-Motorised User Facilities. These non-motorised user facilities are located adjacent to the M8/A8 and A725 carriageways.

The paths shall be treated at a rate of 0.0312L/M2 of brine at a minimum concentration of 20%.

The steel footbridges shall be treated with Potassium Acetate at the applicable rate in Appendix B, Table 3.

For the purpose of treating these footbridges, we shall use a combination of 25L Mountain Icebreaker Sprayer and 15L knapsack style sprayers.

We shall maintain a level of Potassium Acetate at the Shawhead area to allow for quick refilling of these items of plant, and shall assess the necessity of any further areas as the season progresses.

There are Non-Motorised User Facilities included within this plan that shall be transferred to the relevant Local Authority on 1st April 2018. Prior to this date, handover arrangements shall be established with the relevant Local Authority.

10 Snow and Ice Clearance

10.1 Snow Clearing

10.1.1 Description of Arrangements and Resources for snowfall

Amey will, so far as is reasonably practicable, ensure sufficient resources are available to prevent snow or ice from remaining on the Network, and put into place specific arrangements to ensure that these resources will be mobilised.

The WSDO, in discussion with the Winter Service Manager, will determine, from the 2-5 day weather forecast, the requirements to mobilise additional resources and fit ploughs. Winter Service shifts and the preparation of de-icing and ploughing equipment will be instructed by the WSDO, subject to prior approval by the WSM.

All Front Line, Reserve and Additional Winter Constructional Plant, apart from snow blowers, will be equipped with snow ploughs to effectively clear ice and snow. Non-salting vehicles fitted with ploughs, will also be mobilised to aid echelon ploughing on dual carriageways and motorways.

Conditions and de-icing spread rates for snow and ice clearance of carriageways are detailed in Appendix B Table 4 with Snow Clearance requirements shown in Appendix A Table 5.

Details of Constructional Winter Plant are provided in Section 12 of this document and Appendix D, Annex WSP 5.

The clearance procedure for dual carriageways and motorways will be echelon ploughing (2 or more vehicles moving in the same direction, one behind each other on different lanes). Where temporary vehicle restraint systems are installed on the network, a snow blower will be deployed to avoid ploughed snow creating a ramp at the barriers. Ploughing techniques to be adopted are shown in Figure 10/1.

Where hard packed snow and ice not exceeding 20mm thick has formed, and the air temperature is above minus 5°C, removal will be achieved by successive spreading of de-icing material. Below minus 5°C or where the snow or ice is more than 20mm thick, a single sized abrasive aggregate of particle size of 6mm, or 5mm sharp sand and having low fines content will be added to the de-icing material on a 1:1 ratio. Reversion to the use of de-icing material only will be made as soon as possible. Abrasive aggregates will be considered as a supplement on footway sections where de-icing material alone would provide an unacceptably slippery surface.

Ploughing Techniques
2 Lane Dual Carriageway Roads without Hard shoulders s: The method of clearance, on both carriageways, should be: (a) plough the left hand lane to the verge; (b) plough the right hand lane to the central reservation
2 Lane Dual Carriageway Roads without Hard shoulders and permanent concrete barrier in central reservation: The method of clearance, on both carriageways, should be: (a) plough the right hand lane to the left hand lane (b) plough the left hand lane to the verge;
2 Lane Dual Carriageway Roads with Hard shoulders: The method of clearance, on both carriageways, should be:

(a) plough the left hand lane to the hard shoulder; (b) plough the right hand lane to the central reservation.; (c) plough the hard shoulder to the verge
2 Lane Dual Carriageway Roads with Hard Shoulders Where temporary vehicle restraint systems are in place on hard shoulders The method of clearance, on both carriageways, should be: (a) plough the right hand lane to the central reservation; (b) plough the Left hand lane and snow blower operating behind will project snow over barrier
2 Lane Dual Carriageway Roads with Hard shoulders and permanent concrete barrier in central reservation (where ploughing to central reservation cannot be achieved): The method of clearance, on both carriageways, should be: (a) plough the right hand lane to the left hand lane (b) plough the left hand lane to the hard shoulder; (c) plough the hard shoulder to the verge
3 Lane Dual Carriageway Roads without Hard shoulders: The method of clearance, on all carriageways, shall be: (a) plough the centre lane to the left hand lane; (b) plough the left hand lane to the verge; (c) plough the right hand lane to the central reservation
3 Lane Dual Carriageway Roads where temporary vehicle restraint systems are in place on hard shoulders: The method of clearance, on all carriageways, shall be: (a) plough the centre lane to the left hand lane; (b) plough the left hand lane with snow blower following projecting snow over the restraint system; (c) plough the right hand lane to the central reservation
3 Lane Dual Carriageway Roads with Hard shoulders: The method of clearance, on all carriageways, shall be : (a) plough the centre lane to the left hand lane; (b) plough the left hand lane to the hard shoulder; (c) plough the right hand lane to the central reservation; (d) plough the hard shoulder to the verge
3 Lane Dual Carriageway Roads with Hard shoulders and permanent concrete barrier in central reservation (where ploughing to central reservation cannot be achieved): The method of clearance, on all carriageways, shall be : (a) plough the right hand lane to the centre lane; (b) plough the centre lane to the left hand lane; (c) plough the left hand lane to the hard shoulder; (d) plough the hard shoulder to the verge
3 Lane Dual Carriageway Roads with no Hard shoulders and permanent concrete barrier in central reservation (where ploughing to central reservation cannot be achieved): The method of clearance, on all carriageways, shall be : (a) plough the right hand lane to the centre lane; (b) plough the centre lane to the left hand lane;

(c) plough the left hand lane to the verge
4 Lane Dual Carriageway Roads with no hard shoulders: The method of clearance, on all carriageways, shall be: (a) plough lane 2 to lane 1; (b) plough lane 1 to the verge; (c) plough lane 3 to lane 4 (d) plough lane 4 to central reservation
4 Lane Dual Carriageway Roads where temporary vehicle restraint systems are in place on hard shoulders: The method of clearance, on all carriageways, shall be: (a) plough lane 2 to lane 1; (b) plough lane 1 with snow blower following, projecting snow over restraint system; (c) plough lane 3 to lane 4 (d) plough lane 4 to central reservation
4 Lane Dual Carriageway Roads with hard shoulders and permanent concrete barrier in central reservation (where ploughing to central reservation can not be achieved): The method of clearance, on all carriageways, shall be: (a) plough lane 4 to lane 3; (b) plough lane 3 to lane 2; (c) plough lane 2 to lane 1 (d) plough lane 1 to the hard shoulder (e) plough the hard shoulder to the verge
4 Lane Dual Carriageway Roads with no hard shoulders and permanent concrete barrier in central reservation (where ploughing to central reservation can not be achieved): The method of clearance, on all carriageways, shall be: (a) plough lane 4 to lane 3; (b) plough lane 3 to lane 2; (c) plough lane 2 to lane 1 (d) plough lane 1 to the verge
4 Lane Dual Carriageway Roads with no hard shoulders: The method of clearance, on all carriageways, shall be: (a) plough lane 2 to lane 1; (b) plough lane 1 to verge; (c) plough lane 3 to lane 4 (d) plough lane 4 to central reservation

Figure 10/1: Ploughing Techniques

During prolonged periods of snowfall at locations where the use of salt for de-icing is prohibited, ploughing will be continuous followed by repeated applications of de-icing chemical. If snow becomes hard packed, consideration will be given to applying 5mm sharp sand to aid traction while snow clearing operations are being carried out.

Ploughing routes will mirror the precautionary treatment routes and this activity will be carried out utilising the Echelon Ploughing technique.

10.1.2 Road Closure Procedure including use of Snow Gates

The Police will issue instructions to Amey to assist in road closures. When the Police, in consultation with the WSDO, consider that weather conditions have made a road unsafe to vehicular traffic, arrangements will be made with the Police to close the road. There are currently no snow gates within the Network site therefore all closures will be implemented using temporary barriers and adequate appropriate signage.

Having decided on the need to close a road, the Police will issue instructions to close the road. This decision will normally be relayed by the Police to the WSDO using a dedicated contact number. Amey will liaise, and co-operate, with the Police to man each end of the closure, if applicable, until a search of the section of road affected has been undertaken to ensure that no vehicles or pedestrians are trapped within the lengths of closure.

When a road is required to be closed, the WSDO will immediately notify the Traffic Scotland Control Centre by telephone. A written report will be submitted to the Scottish Ministers within 12 hours (or if outside of normal working hours then the morning of the next working day) of the Police instructing road closure.

The Police will normally notify the other Emergency Services of any road closures and will arrange for the provision of advance warning signs and/or will activate fixed or variable message signs where appropriate. The WSDO will also notify the adjoining Local Authorities and Operating Companies of any relevant closures.

Once it has been ascertained that no-one has been trapped within the closure length, the closure will be secured and all Amey personnel withdrawn except those involved in the clearance of snow.

When it is considered safe, the Police will request Amey to re-open the road. The WSDO will immediately inform Traffic Scotland and the Scottish Ministers of the reopening of the road.

10.1.3 Prolonged Snowfall Strategy

During prolonged periods of snowfall, ploughing will be continuous from the onset of snow to prevent a build-up of snow and compaction by traffic. Ploughing will continue until the Network is clear of snow and ice. Reserve and Additional Winter Constructional Plant will be used, as necessary, to supplement Front Line Winter Constructional Plant in snow conditions. The WSDO will liaise with Scottish Ministers Multi Agency Response Team (MART) throughout this period ensuring the provision of a coordinated response.

When planning and carrying out snow clearance, Amey will pay particular attention to the layout of the carriageway in terms of the overall number of lanes and the location of entrance and exit slip lanes. Snow clearance of slip roads will be co-ordinated with main carriageway clearance, and a clear path kept open between those entry and exit points where frequent lane changes are necessary.

For dual carriageways and wide single carriageway roads, echelon ploughing will be carried out utilising two snow plough vehicles moving in the same direction, one behind the other in adjacent lanes.

Irregular windrows caused by ploughing passes, especially those that weave from one lane to another are dangerous, and will be avoided, as they may tempt drivers to overtake by squeezing into the partly cleared lane. Lanes will be completely cleared, such that any windrows of snow remaining form a smooth and continuous line with no sudden encroachments into the cleared path. Clearance of snow from contiguous and remote laybys will be carried out once the main carriageway, junction areas and crossovers have been cleared of snow.

Care will be taken to avoid damage to road surfaces, road studs, roadside furniture and structures. At road works, traffic management equipment must not be disrupted. An accumulation of ploughed snow creating a ramp adjacent to safety fences (temporary and permanent) and concrete barriers will be avoided.

Where conventional ploughing or snow ploughing is not possible, for example:

- In exceptional circumstances when the snow on the road is deep and cannot be removed by conventional ploughing or snow blowing
- When de-icing treatment over packed snow is likely to provide an unacceptable surface, or
- When the traffic is insufficient to disperse the snow,

Amey will lift, remove and dispose of snow and ice and/or utilise snow blowers, with the snow being directed onto adjacent land (where Amey has obtained the prior agreement of the landowner and the Scottish Environmental Protection Agency). Such operations will be followed by de-icing treatment.

When snowploughing or snow blowing operations are undertaken care will be taken that snow does not build up across:

- Railway tracks or against gates
- Bridges
- Parapets
- Fences and safety fences (temporary and permanent)
- Walls and other boundaries

Speeds of ploughing vehicles will be regulated, particularly at features such as underbridges where snow could be thrown over the bridge parapet, and adjacent to the central reserve where snow could be pushed into the opposing carriageway. When ploughing snow, other vehicles will not be overtaken unless stationary.

We recognise that additional resources will be required for echelon ploughing in snow conditions. Winter Service operations will accord the highest priority and additional operatives will be rostered to crew additional shifts. Ploughing routes mirror our precautionary treatment routes are shown in Appendix C – Maps and Appendix D, Annex WSP 2 - Precautionary Treatment Routes.

10.1.4 Arrangements for Safe Clearance of Snow and Ice from Wide Single Carriageways

There are no wide single carriageways within the extent of the M8, M73, M74 Motorway Improvements project.

10.1.5 Arrangements for Safe Clearance of Snow or Ice Adjacent to Vertical Concrete Barriers and Temporary Vehicle Restraint Systems

Echelon ploughing operations will be coordinated to achieve clearance in one pass of at least all running lanes initially to the hard shoulder and then subsequently to the verge. An accumulation of ploughed snow creating a ramp adjacent to vertical concrete barriers or temporary vehicle restraint systems as a result of ploughing will be avoided by employing a snow blower where necessary.

10.1.6 Treatment Strategy for Footways, Footpaths and Cycle Facilities to be Detailed Including Location of Salt Bins where Applicable

There are currently no salt bins or self-help heap facilities within the Network.

All Footways and footbridges shall be cleared of all snow and ice by 08:00 or within two hours of snow ceasing to fall during the period 06:00 to 18:00 hours.

Cycling facilities shall be cleared of all snow and ice by 17:00 hours the following weekday (if the following day is a Saturday or Sunday then the area shall be cleared on the next Monday).

For reactive snow and ice clearance of all categories of footways, footbridges and cycle ways the following spread rates will apply:

- During snow clearance - 20g/m2
- Following clearance of ice and snow - 20g/m2

10.1.7 Plans Showing the Location of the Footways Footbridges and Cycle Facilities.

The location of the non-motorised user facilities are shown below:

11 DE-ICING MATERIALS

11.1 Details

11.1.1 Salt used for de-icing, including that used for the manufacturing of brine used in pre-wetting will be 6.3mm grading particle size and comply with the following:

I. 6.3mm grading particle size to BS 3247:1991 treated with an anti-caking agent,

II. Salt storage areas will be maintained to ensure the following:

- Salt is stored in dry conditions, such that moisture content does not exceed 4%.
- No sheer faces left on stockpiles.
- Salt stockpiles do not become contaminated.
- Salt stockpiles or adjacent operations do not affect the environment.

III. Testing arrangements are as follows:

a. Moisture content at existing salt stocks will be measured at monthly intervals throughout each Winter Period. The results will be recorded on an electronic data base which will be available for access at any time by the Scottish Ministers and PAG. Should the moisture content of salt used for de-icing exceed 4%, spread rates will be increased by 100% for spread rates up to and including 20gm/m2.

b. Within 10 days of new salt deliveries being made, salt will be tested in accordance with BS 3247:1991 and BS 812 at a UKAS accredited laboratory and results recorded to ascertain:

    a. Moisture content (1 test per 500 tonnes)

    b. Particle size distribution (1 test per 500 tonnes)

    c. Chloride content (1 test per 1500 tonnes)

    d. Soluble sulphate compounds (1 test per 1500 tonnes)

IV. Amey has developed a long standing agreement with national de-icing material suppliers detailed below:

Compass Minerals	Salt Sales Co.
Astbury House	Fort Road
Bradford Road	Kilroot
Winslow	Carrickfergus
Cheshire	County Antrim
CW7 2PA	BT38 9BT

V. Our salt will be supplied by Salt Sales Co

VI. 5000 tonnes of salt stock will be stored in Bargeddie. This includes the necessary 2700 Tonne for the M8 project, with the remainder for use within North Lanarkshire Council

VII. Our salt stocks will be replenished as it is used. Furthermore, if M8 stock falls below 90% by 21st December, an order shall be placed to replenish stock to 100%.

Alternative De-Icing Material: Amey will store 10,000 litres of Safecote liquid at Bargeddie depot to enable effective reaction to extreme low temperatures or extreme road surface conditions, in combination with abrasive aggregates.

11.1.2 Details of de-icing materials stocks are provided in Annex WSP 3 to Appendix D and take account of the minimum stock levels to be maintained as required by the Project.

12 WINTER SERVICE PLANT

12.1 Front Line Winter Service Plant permanently available within the O&M Works Site for the Winter Service

Front Line Winter Constructional Plant will undertake Winter Service Patrols, precautionary treatments and snow and ice clearance to the total width of carriageways including slip roads, hard strips, turning lanes, central reserve crossovers, lay-bys, bus bays and the like.

All front line plant will be fitted with brine saddle tanks to allow the use of pre-wetted salt.

The Company's front line Winter Service Plant for carriageways is detailed in Annex WSP 5, Table 1 of Appendix D.

Details of our front line Winter Service Plant for footways footbridges and cycling facilities shall be as referred to in Annex WSP 5, Table 2 of Appendix D.

12.2 Reserve Winter Service Plant

12.2.1 Reserve Winter Service Plant will be used to supplement front line plant during snow conditions and arising from breakdowns of front line plant.

All reserve carriageway plant will be fitted with brine saddle tanks to allow the use of pre-wetted salt.

Details of reserve winter plant are included in Annex WSP 5, Table 3 of Appendix D.

12.3 Additional Winter Service Plant

Details of additional Winter Service Plant available through the wider Amey business, sub-contractors and supply chain are included in Annex WSP5, Table 4 of Appendix D.

Additional Winter Service Plant available through contingency arrangements for the Winter Service for carriageways, footways, footbridges and cycling facilities is included in Annex WSP 5. This includes 24/7 contact details made available to the WSDO.

12.4 Loading Winter Service Plant

12.4.1 Details of all loading Winter Service Plant available within the O&M Works Site are included in Annex WSP 5, Table 5 of Appendix D and includes that available for:

- Front line;
- Reserve; and
- Additional winter service plant.

12.5 Calibration of Winter Service Plant

All calibration and re-calibration shall be independently carried out and certified. Calibration records for all salting vehicles will be held in the Central Office in accordance with our documented Quality Management System.

Calibration checks will be carried out at the final service before the winter maintenance season in September, and in January of each winter maintenance period.

Dynamic calibration will be carried out in accordance with the National Salt Spreading Research Document 'Best Practice Guidance for Salt Spreading' and BS 1622:1989 Test B and C.

Additional calibration and testing will be carried out after repairs to the spreading equipment and at other times when necessary to ensure the accuracy of de-icing material spreading.

All calibration will be undertaken to comply with the requirements of Schedule 4, Part 2 Paragraph 3.18.9 of the Project.

13 COMPOUNDS, DEPOTS AND FACILITIES

13.1 Details

Details of our office and depot facilities covering the network within the O&M Works Site are provided in Annex WSP 5, Table 6 of Appendix D.

14 MAPS DRAWINGS AND GEOGRAPHICAL INFORMATION

14.1 Maps

14.1.1 The Appendix C of this Winter Service Plan includes maps showing:

1. Precautionary treatment routes for carriageways, including on/off slips and depots
2. Precautionary treatment routes for footways footbridges and cycling facilities;
3. Reactive treatment routes for footways, footbridges and cycling facilities,
4. Winter Service Patrol routes
5. Ploughing routes for carriageways, including on/off slips and depots,
6. Road sensors including sensor types and where these sites are equipped with weather cameras
7. Salt bins
8. Vertical concrete barriers
9. Other facilities
10. Where route based forecasting is not used, climatic domains and the sensor used to generate domain forecasts

15 COMPILING AND MAINTAINING RECORDS

Records of decisions, amendments to decisions, actions taken and patrol communications will all be entered in an electronic log by the Winter Service Duty Officer. The Winter Service Duty Officer shall ensure that all winter service records (electronic and paper copies) are referenced, filed securely and maintained.

The spreader vehicle data-logger reports will be reviewed for completeness of data and effectiveness of applied treatment. A daily report on the previous 24 hours' winter service operations will be prepared by the Winter Service Duty Officer and submitted to the Winter Service Manager, highlighting any aspects where action may be required.

The following typical records will be held electronically:

- Decisions taken when and by whom
- Planned and actual treatment records
- Planned and actual response times achieved
- Planned and actual commencement times
- Planned and actual route treatment times
- Planned and actual spread rates
- Winter Service Plant down time and software faults
- Winter Service Plant deployment records (including GPS records) and driver operator logs
- Logs of telephone, e-mail and Airwave calls
- Loading point de-icing stocks and replenishment orders
- Ice prediction system records
- Weather forecasts and actual weather experienced
- Complaints from members of public and other road users
- Accidents resulting from winter conditions
- Road closures due to winter conditions
- Weights (and volumes as appropriate) of de-icing materials spread for each route; and
- A log of hours for each operative spent on "call-out" or "standby" shall be kept in accordance with the procedures in the Quality Plan.

Amey will maintain accurate salt stock monitoring records and will submit monthly salt stock reports to the Scottish Ministers on the first working day of each month during the Winter Service Period – and at such other times and frequencies as requested.

Each day during the Winter Service Period the WSDO will produce planned and actual reports for each precautionary treatment route; these will be held electronically and will typically include;-

- Summary forecast and actual weather data (Form 1 & Vaisala Navigator)
- Planned and actual spread rates (Form 1 & Form 6)
- Planned and actual commencement times (Form 1 & Form 6)
- Completion times for each route (Form 6)

- Amount of de-icing material spread for each route and the cumulative amount spread during the current Winter Service Period (Form 11)
- Snow plough usage (Form 11)
- Number of treatment days (capability) of de-icing material available from stock based on six treatments per route per day at 20 grams per sq. m (Form 11)
- The weather forecast accuracy (Vaisala Navigator)
- Spreading vehicle's data logging and reporting system output (Exactrack)
- Any other relevant information (Form 11)

Prior to 31 May each year the Winter Service Manager will submit a Winter Service report to the Scottish Ministers prepared for the immediately preceding Winter Service period ending 15th May. This report will review the previous Winter Service Operations and shall help inform the requirements for the subsequent Winter Service Plan.

16 SALT BINS

16.1 Stock level monitoring and replenishment procedures

There are no salt bins on the Network

17 SALT MEASUREMENT APPARATUS

17.1 Equipment and Location and Recording Methods

The axle weighing facility located in Bargeddie depot will be utilised to weigh spreaders before and after deployment.

18 ASSOCIATED DOCUMENTS

- Well-Maintained Highways – a Code of Practice for Highway Maintenance Management
- Well Managed Highways Infrastructure - a Code of Practice
- M8DBFO-PLANS-PL-007 - Disruption Risk Management Plan
- M8DBFO-Plans-PL-018 - O and M Manual
- Scottish Office Code of Practice - Winter Maintenance for Trunk Roads: 1993
- BS3247 - Specification for salt for spreading on highways for winter maintenance
- BS812 - Testing Aggregates

19 Documents / Records

Reference	Description	Responsibility for Records a) Retention of.. b) Disposal of..	Location Held / Storage Medium Electronic (E), Hard Copy (H)	Retention Period Years (Y) Months (M)	Why? (*)
M8DBFO-Plans-PL-006 Form 1	Proposed Action Form	Winter Service Duty Officer	E	Cont + 2Y	C
M8DBFO-Plans-PL-006 Form 2	Communications Log	Winter Service Duty Officer	E	Cont + 2Y	C
M8DBFO-Plans-PL-006 Form 3	Trunk Road Blockages	Winter Service Duty Officer	E	Cont + 2Y	C
M8DBFO-Plans-PL-006 Form 4	Accidents Resulting from Weather Conditions	Winter Service Duty Officer	E	Cont + 2Y	C
M8DBFO-Plans-PL-006 Form 5	Complaints Record Sheet	Winter Service Duty Officer	E	Cont + 2Y	C
M8DBFO-Plans-PL-006 Form 6	Response Times Achieved	Duty Supervisor	E	Cont + 2Y	C
M8DBFO-Plans-PL-006 Form 7	Construction Plant and Equipment Downtime	Duty Supervisor	E	Cont + 2Y	C
M8DBFO-Plans-PL-006 Form 8	Operators Record Log	Duty Supervisor	E	Cont +2Y	C
M8DBFO-Plans-PL-006 Form 9	Winter Service Patrol Report Record	Duty Supervisor	E	Cont +2Y	C
M8DBFO-Plans-PL-006 Form 10	Salting Route Dry Run Record Sheet	Duty Supervisor	E	Cont+2Y	C
M8DBFO-Plans-PL-006 Form 11	Transport Scotland Weekly Report	Winter Service Manager	E	Cont+2Y	C
M8DBFO-Plans-PL-006 Form 12	Monthly Salt Monitoring Report	Winter Service Manager	E	Cont+2Y	C

APPENDIX A: Forms

Form 1 Proposed Action M8 DBFO

Date: **Period:**

Domain Number	Domain Name	Min road Temp	Min Air Temp	Snow	Road Condition			Residual Salt			Frost
					Wet	Wet Patches	Dry	High	Med	Low	
1	**M8 DBFO**										

Forecast Weather Condition from Treatment Matrix:

Depot	Route Number	Domain Number	Description	Instructions	
				Rate of Spread	Time of Action
Bargeddie	1	1	M8		
Bargeddie	2	1	A8		
Bargeddie	3	1	M73		
Bargeddie	4	1	M74		
Bargeddie	5	1	A725		
Bargeddie	6	1	M8/A8/Local Roads		
Bargeddie	FP1	1	A8/M8 Paths		
Bargeddie	FP2	1	A725/M73 Paths		
PATROLS					
Bargeddie	A1	1	M8/A725		
	A2	1	M73,M74		
	B1	1	A8, B7071		

Winter Decision Maker	Name:	Time:
Checking Manager	Name:	Time:
Duty Officer Informed	Name:	Time:
Night Shift WSDO	Name (Hours)	

Comments:

Form 2 - Communications Log

Form 2 Communications Log M8 DBFO

From Noon		Winter Service Duty Officer(s):
Until Noon		

Date	Time	From	To	Means : (telephone/ mobile/radio)	Message/Instruction

Form 3 - Trunk Road Blockages

Form 3 Trunk Road Blockages						
Date	**Winter Service Duty Officer**	**Location**	**Length of Blockage**	**Time of Blockage**	**Time of re-opening**	**Comments**

Form 4 Accidents resulting from weather conditions

Date of Report:		Report Written by:	

Details of Accident

Date:		Time:	
Road No.:		Road Name:	
Town:		County:	
Details of accident:			
Details of damage:			

Details of Person(s) Involved:

Driver:		Address:	
Telephone No. (home)		Telephone No. (Mobile):	
Details Received by:		Telecom / Personal visit / On network / Letter / Other (delete as necessary)	

Details of Actions Taken:

Actions Taken (if necessary):	

Complaints Record Sheet (Members of the Public and Trunk Road users)

Message / Defect Record

Number:			
Date:		**Time:**	
Message for:		**Message from:**	
Taken by:		**Company:**	
☐ **Telephoned**	☐ **Please phone**	**Telephone:**	
☐ **Called in**	☐ **Returned call**	**Fax:**	
☐ **Will call back**	☐ **URGENT**		

Message:	
Road No.	**Location:**
Defect Description:	
Action:	

Name:		**Signature:**	
Date Completed:			

Form 6 - Response Times Achieved										
Date:			**Forecast Period:**							
Salting Route	**Time Called Out**	**Time treatment started**	**Response Time**	**Time Treatment Started**	**Time Treatment Complete**	**Treatment Time**	**Total Tonnage used**	**Salt tonnage used (70%)**	**Brine amount used (30%)**	**Comments**
1	**N/A**	**N/A**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**New Build**
2										
3										
4										
5										
6										
P1										
P2										
P3										
FP1										
FP2										
Total Treatment Routes Called Out =										
Total Treatment Routes Completed =										
Duty Supervisors Signature :										

Form 7 Constructional Plant and Equipment Mechanical Downtime and Hardware / Software Downtime and Faults	
Date:	**Period:**

Location	Fault	Downtime	Comments
Name:			
Date:			

Form 8 - Operator Record Log

Month			Date									Action	
October			1		9		17		25			Precautionary salting	
November			2		10		18		26				
December			3		11		19		27				
January			4		12		20		28				
February			5		13		21		29			Call-Out	
March			6		14		22		30				
April			7		15		23		31				
May			8		16		24						

Depot:		Route Number:	
Vehicle Registration:		Drivers Name:	

Operation Times Guide:											
Use 24 Hour Clock											
00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00
12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
With Time to Nearest 5mins											
00	05	10	15	20	25	30	35	40	45	50	55

Time of call out:		Time in Depot:		Time Out of Depot:	
Time Treatment Commenced:		Time Treatment Complete:		Time Back in Depot:	

Salting Delays

Time Treatment Stopped		Time Treatment Re-commenced		Time Treatment Stopped		Time Treatment Re-commenced	
Location:				Location:			
Reason for Stopping, e.g. Rain, Breakdown, etc				Reason for Stopping, e.g. Rain, Breakdown, etc			

Route Comments:		**Total Tonnage Out**	**Total Tonnage In**	**Total Tonnage Used**
Wet, Icy, blocked drains, gritter downtime				

Signed Operator:		Date:
Signed Supervisor		Date:

Form 9 - Winter Patrol Form

See appendix 4, Annex WSP 1 - Table 3

Form 10 - Salting Route Dry Run Record sheet

Form 10 - Salting Route Dry Run Record Sheet			
Date:		Depot:	
Gritter Type:		Gritter Reg.:	
Driver: (Print Name)		Supervisor: (Print Name)	
Vehicle / Gritter Check			
Defects found on Vehicle / Gritter:			
Snow Plough Blade Fitting			
Snow Plough Blade Type:		Snow Plough Blade Serial No.:	
Start Time of Fitting:		Finish Time of Fitting:	
Duration of Fitting:			
Problems in fitting snow plough:			
Defects found on snow plough:			
Route No.			
Time out of Depot		Time Start Route	
Time Finish Route		Time Back to Depot	
Route Treatment Time:		Planned Length:	
Planned Time:		Actual Length:	
Difference:		Difference:	
Problems found on Route:			

Weekly Winter Report
Transport Scotland
Buchanan House,
58 Port Dundas Road, Glasgow G4 0HF

Date:

Reporting Period:

Operating Company: AMEY - M8 DBFO

1. Salt Supplies

	Usage (t)
Usage in the last week	
Usage to date	
Current stock	
On order	
Number of treatment days (capability) of salt available for each deposit based on six treatments per route per day at 20g per square metre for current stock levels	

2. Liquid De-icer

Liquid De-icer Type	Depot	Usage	Current Stock
Qty required for one complete treatment of full network at spread rate of 0.0156 l/m2			

3. Actions

	Treatments	Patrols
Actions in the last 7 days	**of**	**of**
Actions to date	**of**	**of**

Experiences from the last 7 days :

4. 24-Hour Forecast Summary

24 Hour Domain Forecast for Amey M8DBFO

Valid from To

24 Hour Weather Summary

Minimum Temperature and Hazard Summary

Domain	Readiness Colour	Min RST	Time Below Zero	Min Air	Ice	Hoar Frost	Snow	Fog	Strong Wind	Rain

Details	
Wind (mph)	
Ice / Hoar Frost	
Snow	

5. Five-Day Forecast

2 to 5 Day Forecast for Amey M8DBFO

Hazard Summary	Friday 1200-1200	Saturday 1200-1200	Sunday 1200-1200	Monday 1200-1200
Readiness Colour				
Min RST				
Ice				
Hoar Frost				
Snow				
Fog				
Strong Wind				
Rain				

Weather Summary	
Friday	
Saturday	

Outlook for Sunday and Monday

6. Weather Sensors Update (Faults, Maintenance and Improvements)

7. Statistics

	Last 7 days	Winter 2017-18
Snow days on network		
Min RST Temp + Location		
Snow and/or Ice related incidents		
Snow and/or Ice related closures		
Snow and/or Ice related call outs		

Notes on above:

8. Mutual Aid:

9. Pressures and concerns:

10. AOB:

Salt Stock Monthly Monitoring Report

Contract - M8/M73/M74 Motorway Improvements DBFO	Reporting Month:
Salt used on the M8 DBFO project roads during reporting period	
Actual salt stocks held at the end of the reporting period	
Salt orders placed and deliveries received during reporting period	
Salt orders expected during next reporting period (include imports, dates, deliveries expected and tonnage expected	
Forecast usage during next reporting period	
Any other items to report (such as reduced treatment networks, any notable arrangements with local authorities, e.t.c.)	

APPENDIX B: WEATHER FORECAST AND ROAD CONDITION STATUS, REQUIREMENTS FOR DE-ICING MATERIAL SPREAD RATES

Table 1 - Decision Making Process for Winter Service

Decision Matrix			
	Predicted Road Conditions		
Road Surface Temperature	Wet	Wet Patches	Dry
May fall below 1°C	Salt before frost	Salt before frost (See note A)	No action likely, monitor weather (See note A)
Expected to fall below 1°C		Salt before frost (see note B)	
	Salt after rain stops		
	Salt before frost and after rain stops (see note C)		
	Salt before frost		Monitor weather conditions
Expected snow	Salt before snow		
Freezing Rain	Salt before rainfall (see note C)		
	Salt during rainfall (see note C)		
	Salt after rainfall (see note C)		
The decision to undertake precautionary treatments should, if appropriate, be adjusted to take account of residual salt or surface moisture.			

A. Particular attention should be given to any possibility of water running across carriageways and such locations should be monitored and treated as required.
B. When a weather warning contains reference to expected hoarfrost considerable deposits of frost are likely to occur and close monitoring will be required. Particular attention should be given to the timing of precautionary treatments due to the possibility that salt deposited on a dry road may be dispersed before it can become effective.
C. Under these circumstances rain will freeze on contact with running surfaces and full pre-treatment should be provided even on dry roads. This is a most serious condition and should be monitored closely and continuously throughout the danger period.

Table 2: Treatment Matrix

Treatment Matrix Spread rates for precautionary treatments		
Forecast weather condition	**Frost Susceptible/surface water run-off area (grammes/square metre)**	**Road Surface Wet (grammes/square metre)**
A. RST higher than plus 1°C	*0*	*0*
B. RST lower than or equal to plus 1°C but higher than minus 2°C	*10 to 20*	*10 to 20*
C. RST lower than or equal to minus 2°C but higher than minus 5°C	*10 to 20*	*10 to 20*
D. RST lower than or equal to minus 5°C	*20*	*20*
E. RST lower than or equal to plus 1°C but higher than minus 2°C following rain	*20*	*30*
F. RST lower than or equal to minus 2°C but higher than minus 5°C following rain	*30*	*40*
G. RST lower than or equal to minus 5°C following rain	*40*	*40*
H. Hoar Frost	*20*	*20*
I. Freezing Fog	*10*	*20*
J. Freezing Rain	*40 (See decision matrix)*	*40 (See decision matrix)*
K. Snow Accumulations up to 30mm	*30*	*40*
L. Snow Accumulations over 30mm	*40*	*40*
M. Hard Packed Snow/Ice	*See clearance matrix*	*See clearance matrix*

Table 3 - Precautionary Treatment Potassium Acetate Spreading Rates

CONDITIONS FORECAST	SPREAD RATE (litres/square metre)
Road surface temperature lower than or equal to plus 1°C but higher than minus 2°C	0.0156
Road surface temperature lower than or equal to minus 2°C but higher than minus 5°C	0.0312
Frost and road surface temperature lower than -5°C	a minimum of 0.0312 which should be increased with manufacturer's recommendations
Snow	
Freezing conditions after rain	

Table 3.1 - Precautionary Treatment Safetcote Spreading Rates

CONDITIONS FORECAST	SPREAD RATE (litres/square metre)
Road surface temperature lower than or equal to plus 1°C but higher than minus 2°C	0.0156
Road surface temperature lower than or equal to minus 2°C but higher than minus 5°C	0.0312
Frost and road surface temperature lower than -5°C	a minimum of 0.0312 which should be increased with manufacturer's recommendations
Snow	
Freezing conditions after rain	

Other alternative de-icing agent spreading rates in accordance with manufacturers recommendations

Table 3.2 - Precautionary Treatment Brine Spreading Rates

CONDITIONS FORECAST	SPREAD RATE (litres/square metre)
Road surface temperature lower than or equal to plus 1°C but higher than minus 2°C	0.0312
Road surface temperature lower than or equal to minus 2°C but higher than minus 5°C	0.0312
Frost and road surface temperature lower than -5°C	0.0312

Table 4: Snow or Ice Clearance Salt Spreading Rates

Clearance Matrix			
Minimum Salt Spread rates for Snow or Ice Clearance			
	Treatment		
Road Surface Condition	Spreading (grammes/square metre)	Ploughing	Blowing
	Salt		
Ice Formed	20 to 40	No	No
Snow covering of less than 30mm	20	Yes	No
Snow covering exceeds 30mm	20 to 40	Yes	No
Snow accumulations due to prolonged snowfall	20 to 40	Yes (continuous)	Where applicable
Hard packed snow/ice less than 20mm thick	20 to 40 (successive treatments)	No	No
Hard packed snow/ice	salt/abrasive (successive)	No	No

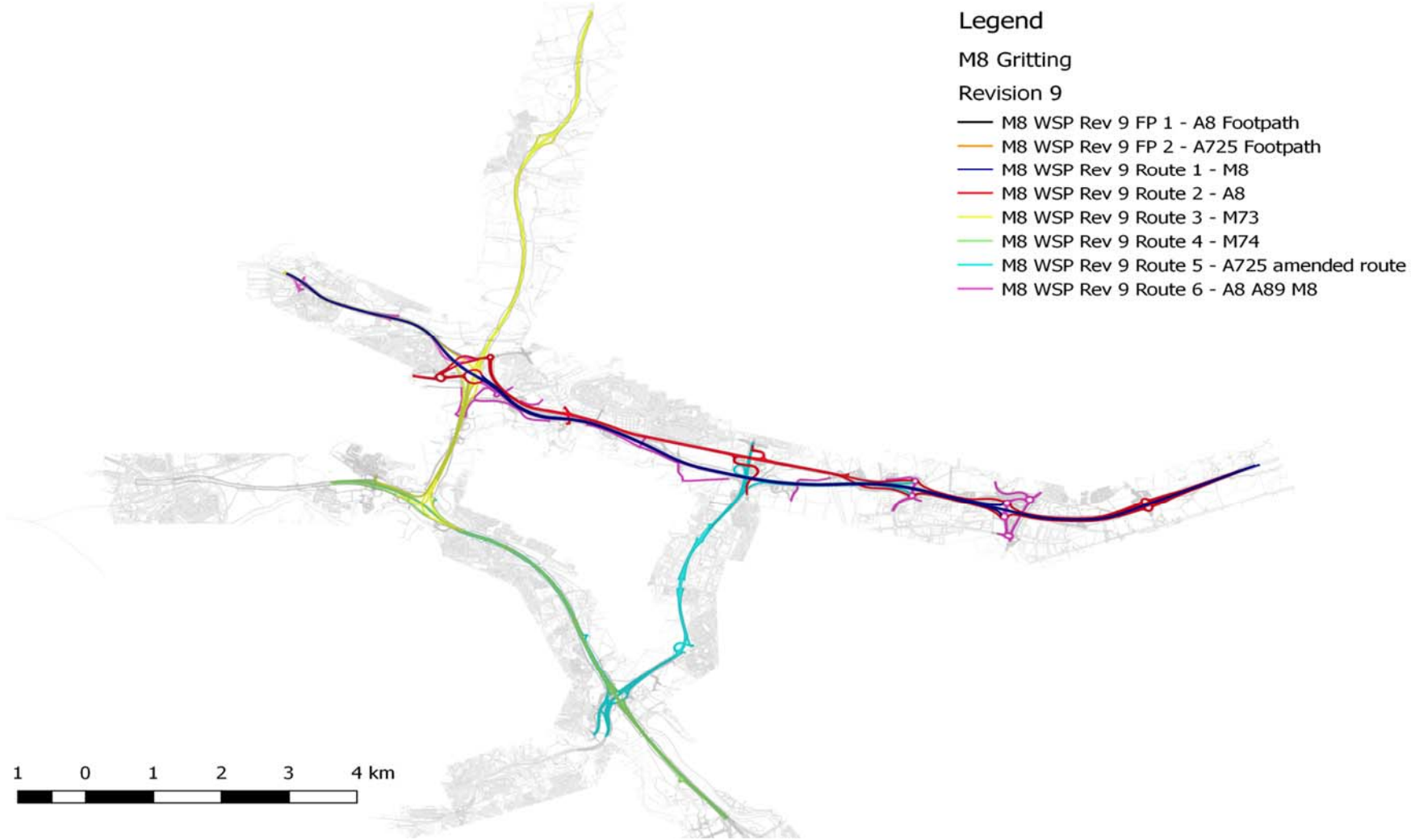
Table 5 - Snow Clearance

Condition Criteria	Category A Patrol Routes		Non Category A Patrol Routes	
	Dual carriageways and Motorways		Dual carriageways	Wide Single 2+1 (WS2+1) & Single carriageways
	Number of Existing Lanes		Number of Existing Lanes	
	2	3 or more	2	1 or 2 (WS2+1)
	Minimum number of lanes in each direction free from ice and snow as far as is reasonably practical		Minimum number of lanes in each direction free from ice and snow as far as is reasonably practical	
Snow at any time	1	2	1	1
Following clearance of minimum lanes of the cessation of snow fall all lanes are to be clear of snow	6 hours	6 hours	12 hours	12 hours

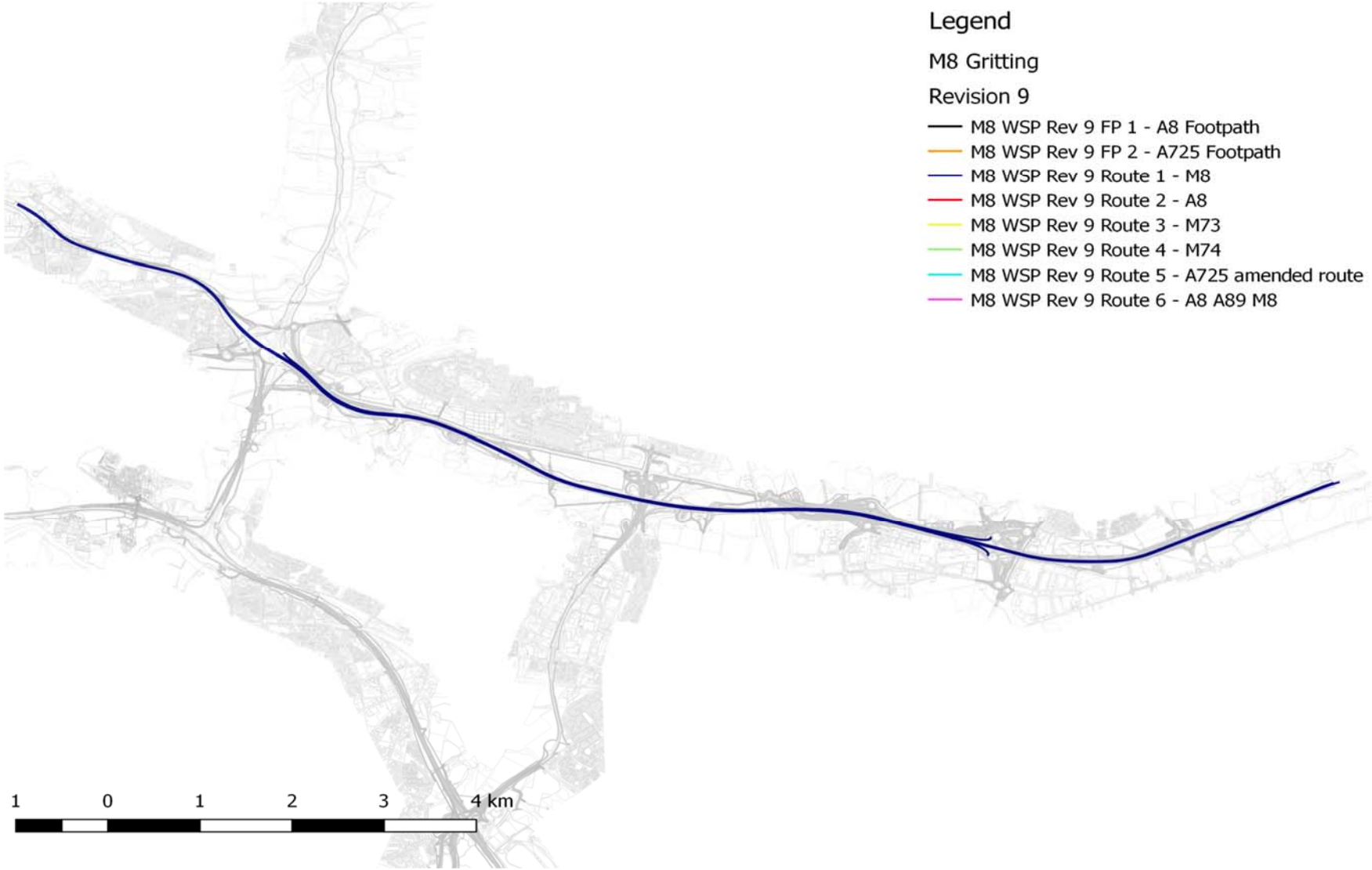
APPENDIX C: MAPS

(1) Precautionary treatment routes for carriageway, including on/off slips and depots

All Precautionary Treatment Routes

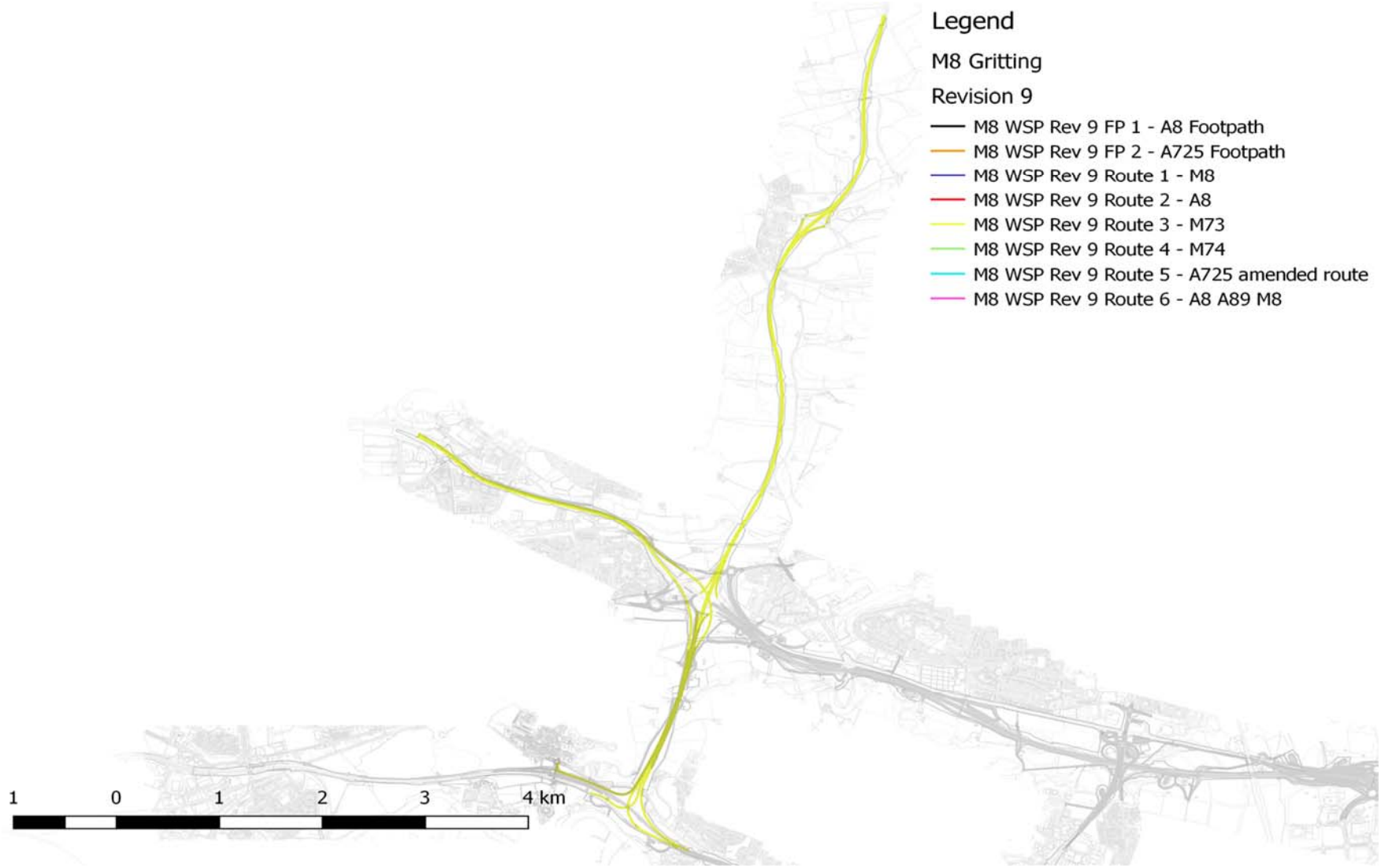


Route 1

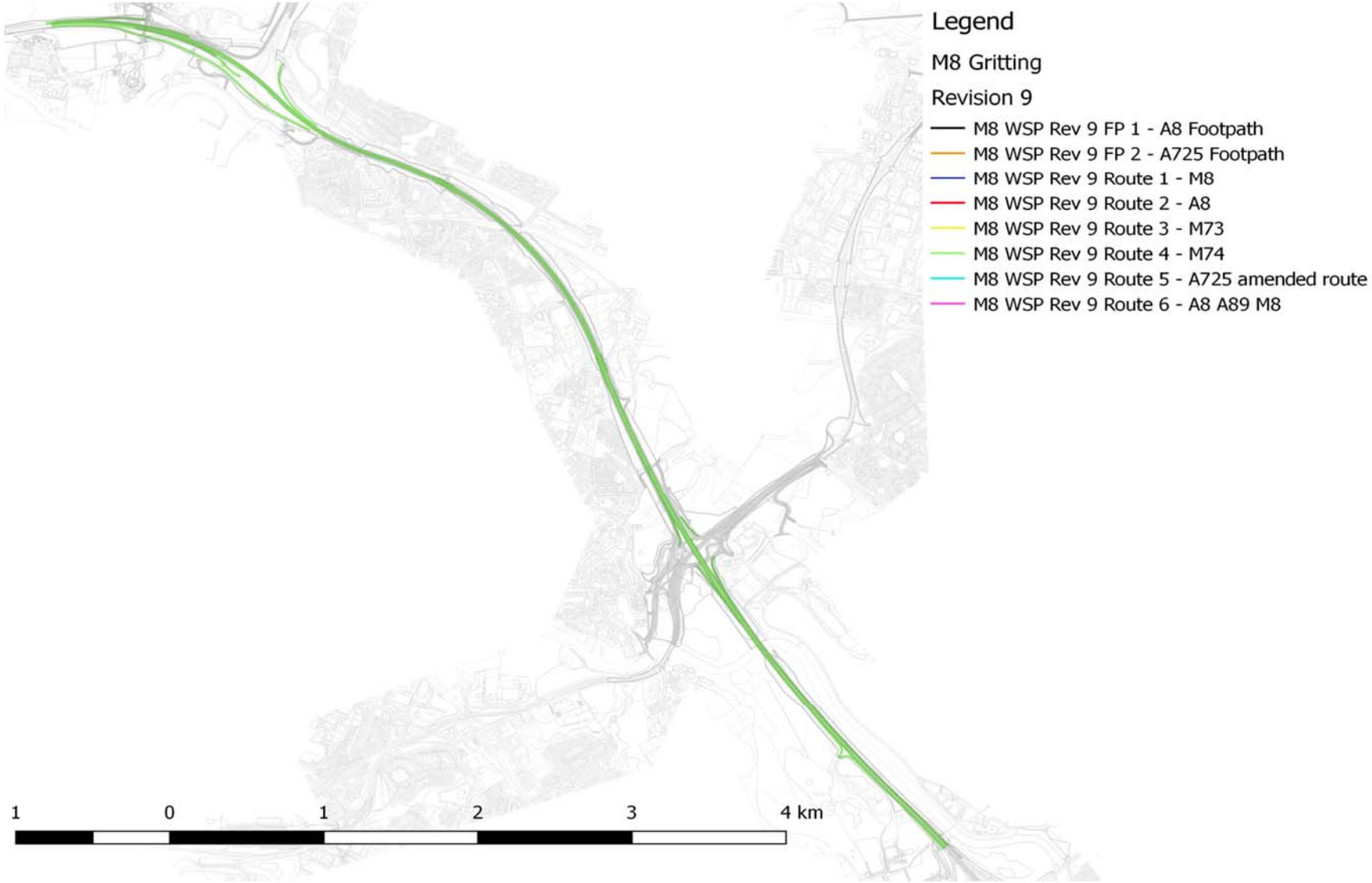


Route 2

Route 3

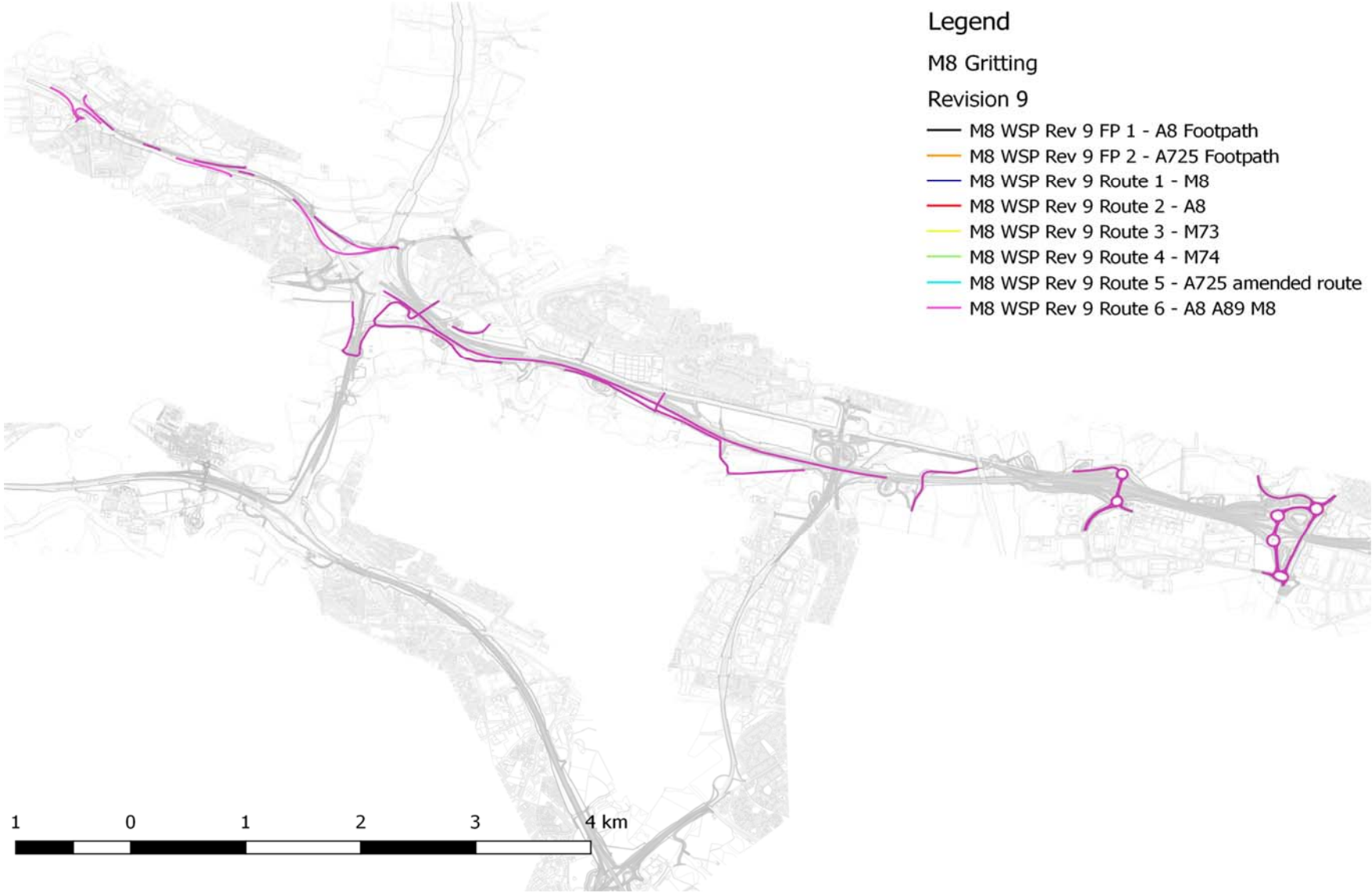


Route 4



Route 5

Route 6



(2) Precautionary treatment routes for footways, footbridges and cycling facilities

All Routes

Route FP1

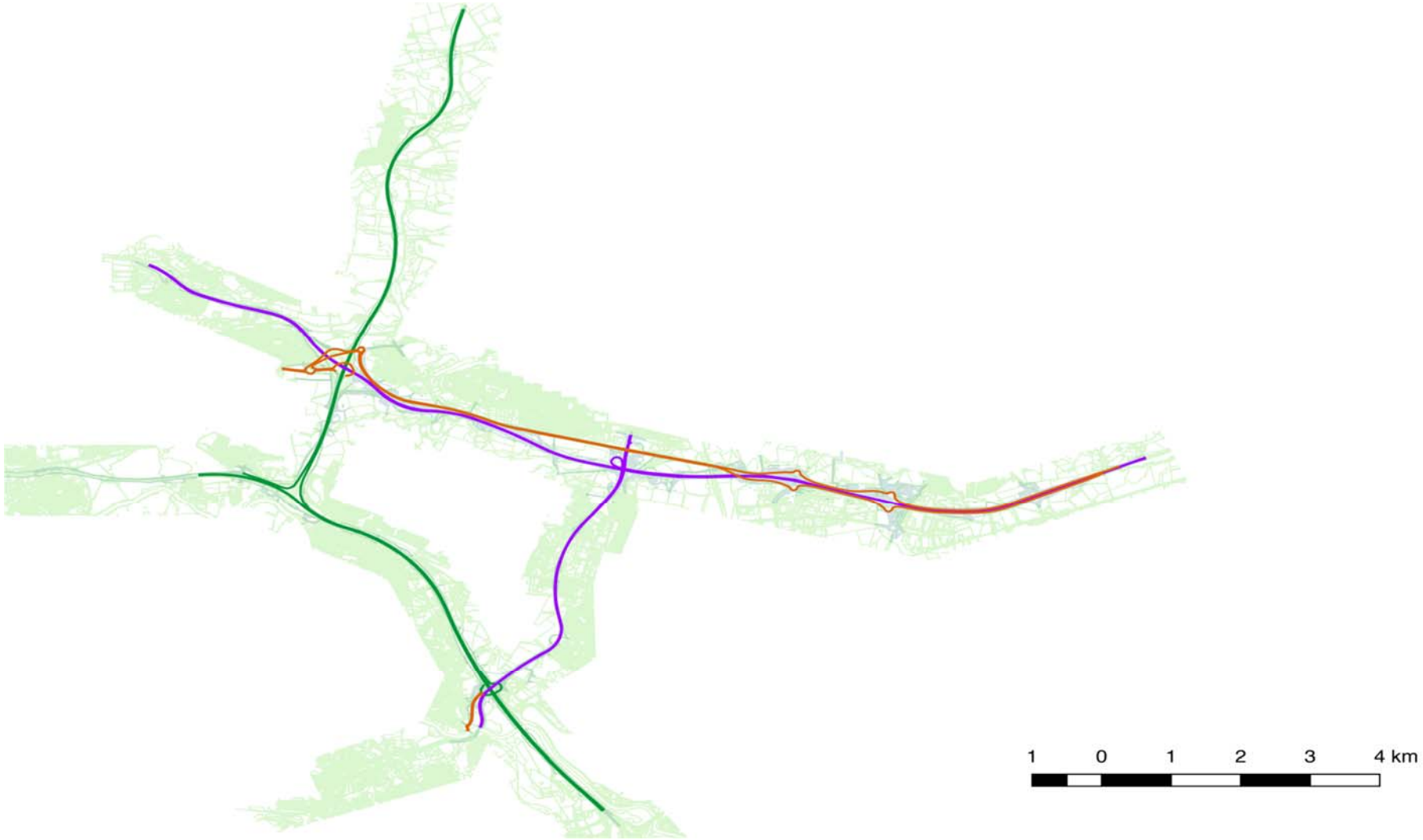
Route FP2

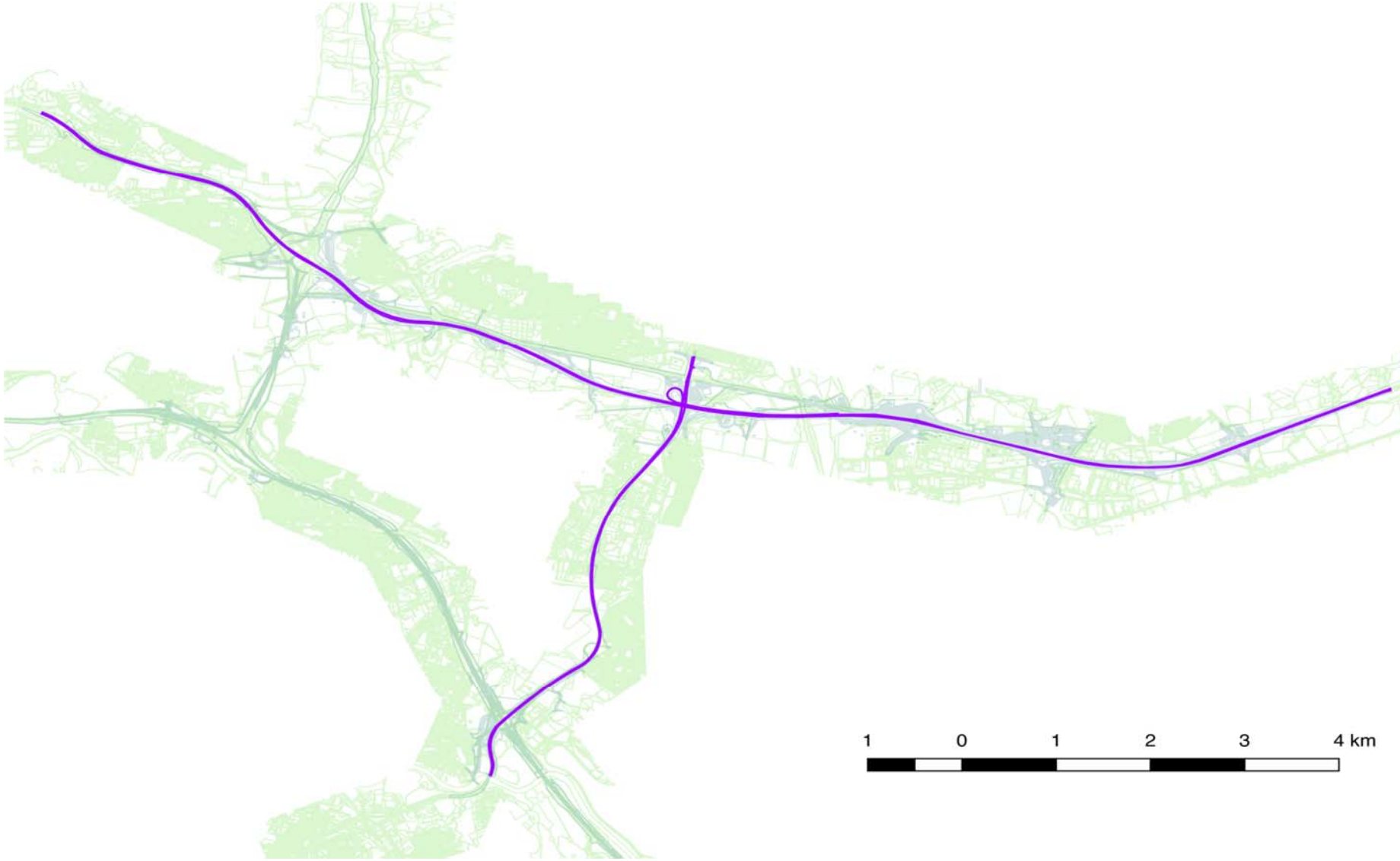
(3) Reactive treatment routes for footways, footbridges and cycling facilities

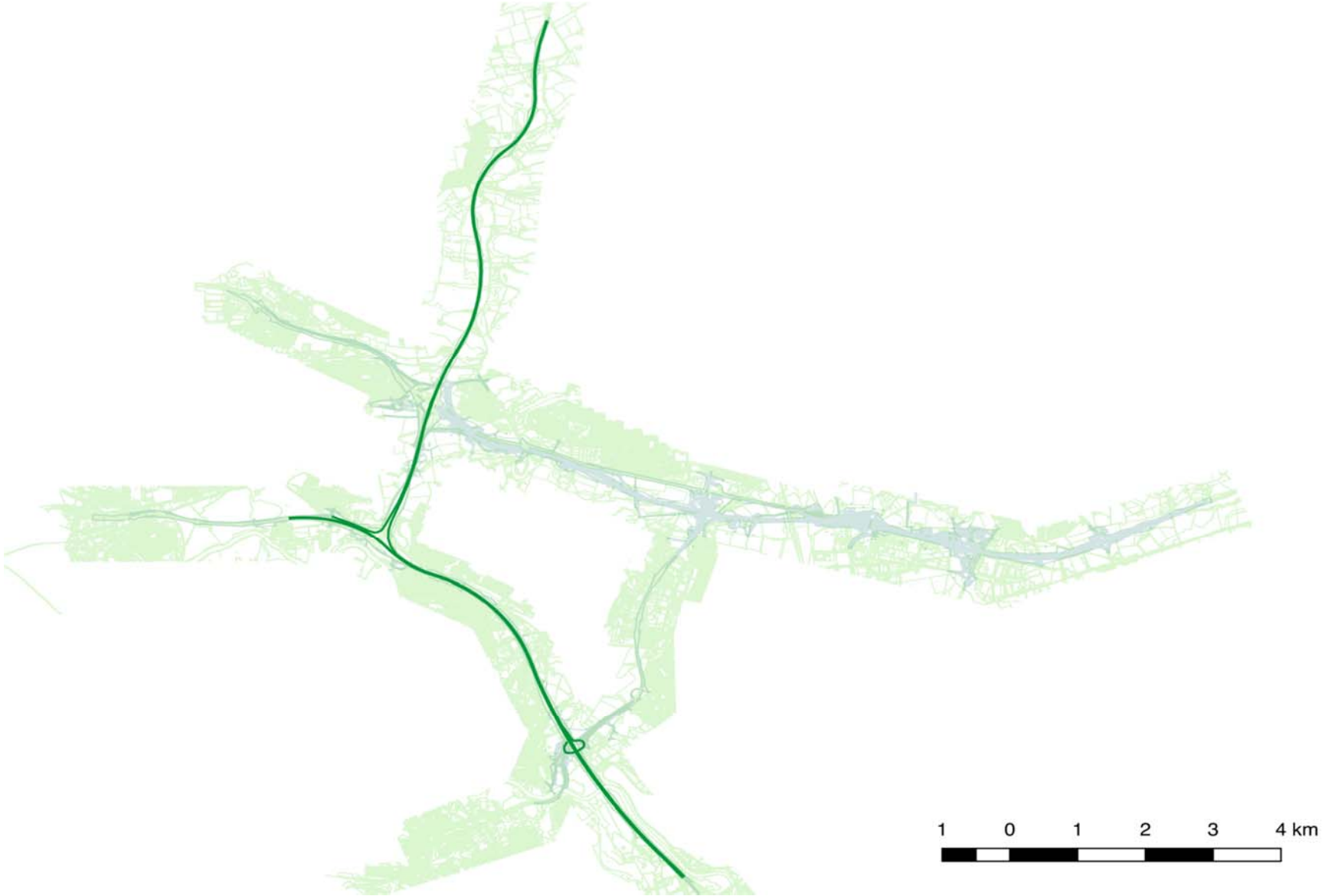
Reactive treatment routes for footways, footbridges and cycling facilities are as per (2) Precautionary treatment routes for footways, footbridges and cycling facilities

(4) Winter Service Patrol Routes

All Patrol Routes





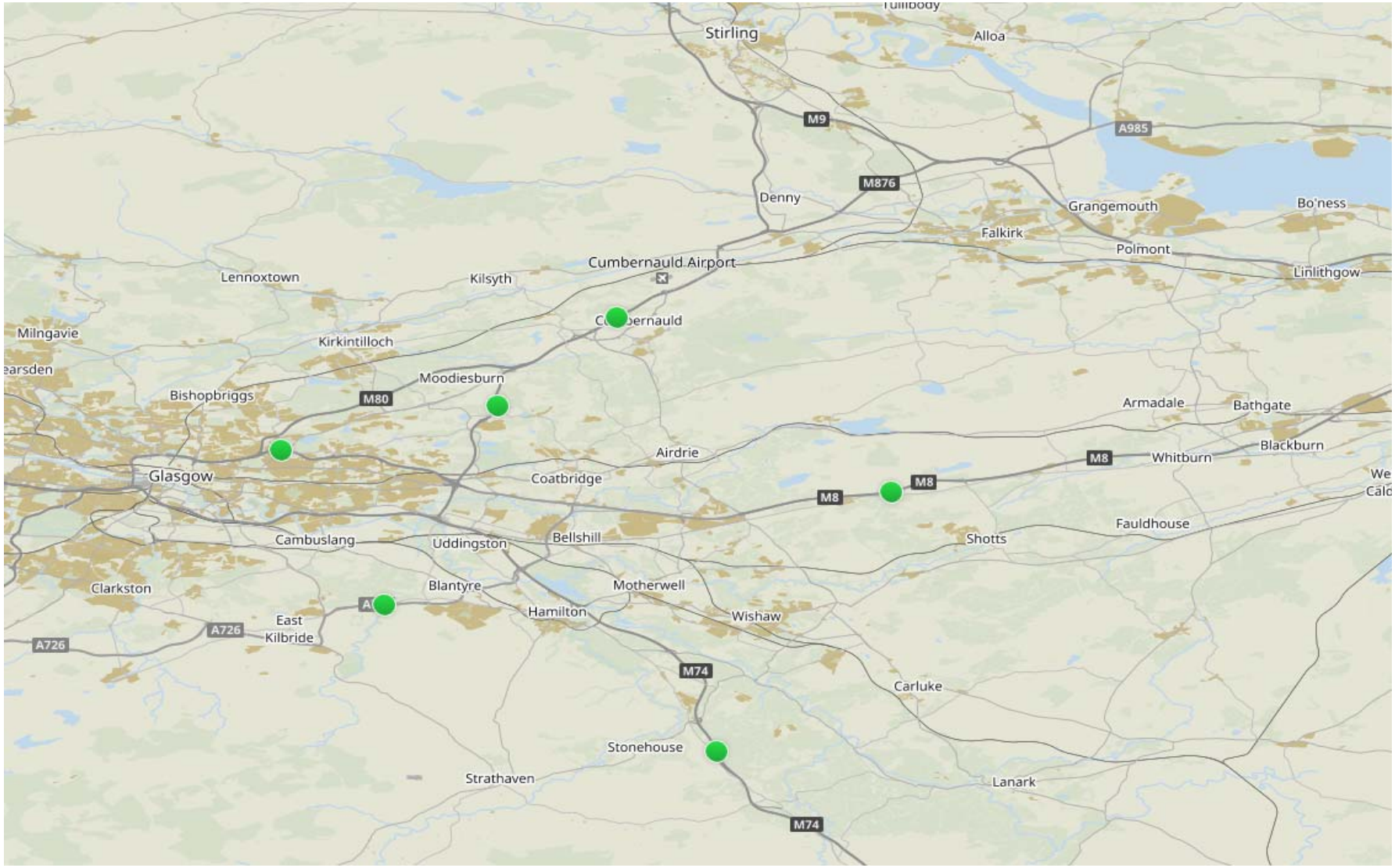


Patrol B1

(5) Ploughing routes for carriageways, including on/off slips and depots

Ploughing routes for carriageways, including on/off slips and depots are as per (1) - Precautionary routes for carriageways, including on/off slips and depots

(6) Road sensors including sensor types and where these sites are equipped with weather cameras



(7) Salt bins

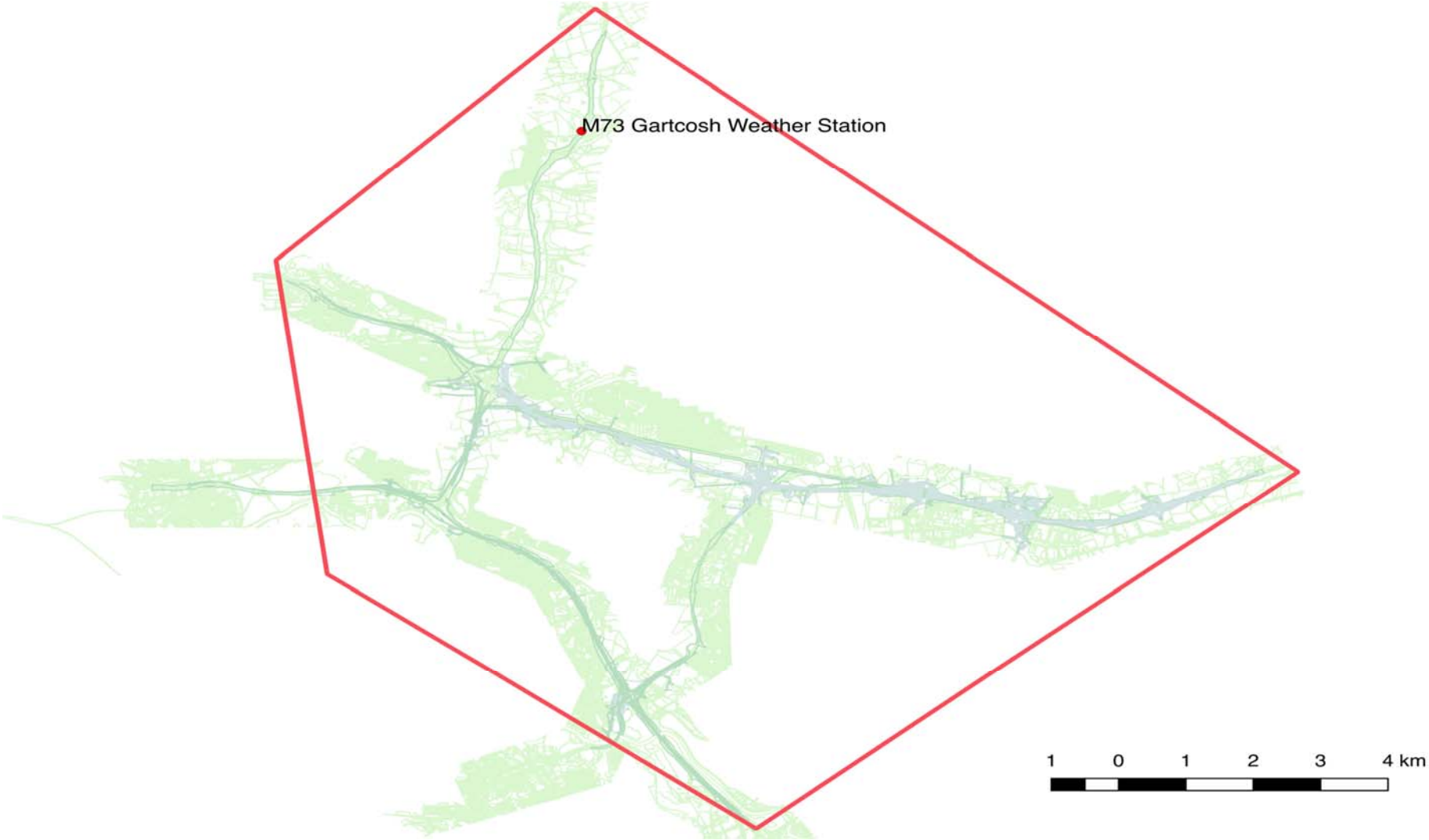
There are no salt bins within the extents of the M8, M73, M74 Motorway Improvements project

(8) Vertical concrete barriers

(9) Other facilities

Location of Potassium Acetate storage

(10) Where route based forecasting is not used, climatic domains and the sensor used to generate domain forecasts



APPENDIX D: WINTER SERVICE PLAN APPENDICES

ANNEX WSP 1: WINTER SERVICE PATROLS

Table 1 – Winter Service Plant for all Winter Service Patrols

Type and Registration No	Depot Location	Specification including Capacity	Route Details	Quantity
WV64 YHR	Bargeddie	12M2 8*4 Spreader	A1	1
VX64 JMU	Bargeddie	9M2 6*4 Spreader	A2	1
BL14 VKT	Bargeddie	6M2 4*2 Spreader	B1	1

Table 2 - Winter Service Patrol Routes

Category (A/B)	Route	Depot	Route Description	Depot to Route (km)	Time to Route (Mins)	Patrol Length (km)	Avg Speed (km/hr)	Route Time (mins)	Route to Depot (km)
A	A1	Bargeddie	M8 and A725	3.58	2.23	72	87	49	3.91
A	A2	Bargeddie	M73 and M74	3.45	4.4	51.75	83.5	37	5.63
B	B1	Bargeddie	A8, A89 and B7071	1.36	1.73	56.55	88.4	36.5	1.49

Patrol A1

Depot to Route (km)	3.58	Time to Route (mins)	2.2375
Route to Depot (km)	3.91	Route Time (mins)	48.99503
Patrol Length (km)	72.47	Route to Depot Time	3.665625
Route Average Speed (km/hr)	87.39092	Total Time	54.89815

Stage	Route	Description	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
1	-	Travel Bargeddie Depot to A8 E/B Shawhead Offslip	3.58	96	2.24
2	A725	Patrol A725 N/B Shawhead Junction to Kirkshaws Junction	0.16	47	0.20
3	-	Travel A725 N/B Kirkshaws Junction to A725 S/B Kirkshaws Junction	0.64	47	0.82
4	A725	Patrol A725 S/B Kirkshaws Junction to Clyde Bridge	5.94	80	4.46
5	-	Travel A725 S/B Clyde Bridge to A725 N/B Clyde Bridge	3.1	80	2.33
6	A725	Patrol A725 N/B Clyde Bridge to M8 E/B Link Road	4.97	80	3.73
7	M8	Patrol M8 E/B from A725 Link Road to Junction 6 Boundary	8.74	96	5.46
8	-	Travel M8 E/B Junction 6 Boundary to M8 W/B Junction 6 Boundary	13.51	96	8.44
9	M8	Patrol M8 W/B Junction 6 Boundary to Junction 10 Boundary	15.67	96	9.79
10	-	Travel M8 W/B Junction 10 Boundary to E/B Junction 10 Boundary	3.21	80	2.41
11	M8	Patrol M8 W/B Junction 10 Boundary to Eurocentral	9.54	96	5.96
12	-	Travel M8 E/B Eurocentral to A725 N/B M8 Slip	6.17	80	4.63
13	A725	Patrol A725 N/B M8 E/B slip to Shawhead Junction	0.82	64	0.77

14	-	Travel A725 to Bellziehill Services / Bargeddie Depot	3.91	64	3.67

Patrol A2

Depot to Route (km)	3.45	Time to Route (mins)	2.58
Route to Depot (km)	4.6	Route Time (mins)	37
Patrol Length (km)	64	Route to Depot Time	4.2
Route Average Speed (km/hr)	83.5	Total Time	43.78

Stage	Route	Description	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
1	-	Travel Bargeddie Depot to M73 Junction 1	3.45	80	2.59
2	M73	Patrol M73 N/B Junction 1 to Junction 3	9.76	96	6.10
3	-	Travel M73 N/B Jct 3 to S/B Jct 3	3.19	47	4.07
4	M73	Patrol M73 S/B Jct 3 to Jct 1	9.8	96	6.13
5	M74	Patrol M74 S/B Jct 4 to Jct 6	6.55	96	4.09
6	-	Travel M74 S/B Jct 6 to N/B Jct 6	2.9	47	3.70
7	M74	M74 N/B Jct 6 to Jct 3a	8.7	96	5.44
8	-	Travel M74 N/B Jct 3a to S/B Jct 3a	4.87	80	3.65
9	M74	Patrol M74 S/B Jct 3a to Jct 5	5.98	96	3.74
10	-	Travel M74 S/B Jct 5 to A74 Daldowie Layby / Bargeddie Depot	5.63	80	4.22

Patrol B1

Depot to Route (km)	3.6	Time to Route (mins)	2
Route to Depot (km)	3	Route Time (mins)	35
Patrol Length (km)	49.56	Route to Depot Time	3
Route Average Speed (km/hr)	90	Total Time	40

Stage	Route	Description	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
1	-	Bargeddie Depot to A8/A89 Bargeddie Roundabout	1.36	47	1.74
2	A8	A8 APR E/B from A89 Bargeddie Roundabout to M8 Junction 6 Merge	12	96	7.50
3	-	M8 E/B Jct 6 to M8 W/B Diverge to A8	14.45	96	9.03
4	A8	A8 APR W/B from M8 Junction 6 Diverge to A8/A89 Bargeddie Roundabout	11.8	96	7.38
5	A89	A89 W/B Bargeddie Roundabout to A8 Swinton Roundabout	1	64	0.94
6	A8(M)	A8(M) Swinton to Baillieston Roundabout	0.88	64	0.83
7	-	M73 S/B Baillieston Roundabout to A725 Raith Roundabout diverge to B7071	7.23	96	4.52
8	B7071	B7071 Raith to Hamilton Junction	7	96	4.38
9	A8(M) / A8	A8(M)/A8 Baillieston Roundabout to Baillieston Cross	0.8	64	0.75
10	-	A8 W/B Baillieston Cross to A8 E/B Baillieston Cross	0.15	47	0.19
11	A8	A8 E/B Baillieston Cross to Swinton Roundabout	0.32	64	0.30
12	A89	A89 E/B Swinton Roundabout to A8/A89 Bargeddie Roundabout	0.92	64	0.86

13	-	A8/A89 Bargeddie Roundabout to Bargeddie Depot	1.49	47	1.90

Table 3 – Winter Service Patrol Report Record

Winter Service Patrol Report Record

Patrol Route…… Date…… Information checked by ……

Winter Service Patrol start and end time	**Weather conditions for Winter Service Patrol route**		**Assessed road condition (by driver) (X)**				**Assessed residual salt level (by driver) (X)**			**Action implemented (use symbols provided below)***						**Route salted prior to patrol (X)**		
	Air (°C)	Road Surface temperature (°C)	Snow	Icy	Wet	Dry	High	Medium	Low	Action code	Treatment Type	Spread rate (g/m^2)	Approximate location of salting or other action	Treatment Start Time	Treatment End Time	Yes	No	Time of salting

*Action symbols:

1	Spot treatment as instructed by the Winter Service Duty Officer.	2	Spot treatment as determined by driver.
3	Route treatment as advised by the Winter Service Duty Officer.	4	Route treatment as determined by driver.
5	Attend to runoff or seepage on surface.	6	Remove obstruction (eg dead dog, fallen tree, and other obstructions.) from surface.
7	Pre-wetted Salt	8	Dry Salt
9	Potassium Acetate		

Weight out…… Weight in…… Total used……

Annex WSP 2: PRECAUTIONARY SALTING ROUTES

Route Number	Depot	Description	Depot to route (km)	Depot to Route (min)	Deicing Length (km)	Average Speed (km/hr)	Route Time (Mins)	Route to Depot (km)	Average Width of Route (m)	Route Tonnage at 10g/m2	Route Tonnage at 20g/m2	Route Tonnage at 30g/m2	Route Tonnage at 40g/m2	Treatment Type
1	Bargeddie	M8	2.91	2.18	39.60	64	59.10	9.3	8.95	2.625	5.25	7.88	10.5	Pre-Wet
2	Bargeddie	A8	1.3	1.74	32.87	59.72	77.83	1.47	9	2.03	4.06	6.09	8.12	Pre-Wet
3	Bargeddie	M73	5.58	5.16	36.77	63.54	73.4	5.2	10	2.55	5.11	7.66	10.21	Pre-Wet
4	Bargeddie	M74	5.5	5.16	33.35	60.93	82.78	10.7	8.8	2.05	4.1	6.15	8.2	Pre-Wet
5	Bargeddie	A725	3.56	3.3334	34.21	58.15	75.42	6.17	8.9	2.13	4.25	6.38	8.5	Pre-Wet
6	Bargeddie	A8/M8/ Local Roads	1.45	1.85	23.57	57.34	96.45	0.67	6.61	1.13	2.26	3.39	4.52	Pre-Wet
FP 1	Bargeddie	A8/M8 FP	3.63	4.63	6.07	8.08	95.19	4.36	3		537.3L (Combined)	-	-	Brine / Potassium Acetate
FP 2	Bargeddie	A725 FP	3.3	4.25	5.14	9.53	78.45	8.61	3.33		508L (Combined)	-	-	Brine / Potassium Acetate

Route 1

Depot To Route (KM)	2.91	Time to Route (Mins)	2.18
Route to Depot (KM)	9.30	Gritting Speed (KM/HR)	64.00
Route Length (KM)	70.83	Route Treated Length (KM)	39.60
Route Time (Mins)	59.10	Route Tonnage	10.50
Route Average Width (M)	8.95	Route Average Speed (KM/HR)	71.91

Action	Road	From	To	Main C/Way / Slip	Treated Lanes	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
TF	-	Bargeddie Depot	M8 E/B Baillieston Onslip			2.91	80	2.18
Grit	M8	M8 E/B Baillieston Onslip	M8 E/B Baillieston Onslip	Slip Road	Lane 1, Lane 2	0.73	64	0.68
Grit	M8	M8 E/B Baillieston	M8 E/B Shawhead Onslip	Main Carriage way	Hard Shoulder, Lane 1	3.67	64	3.44
Grit	M8	M8 E/B Shawhead Onslip	M8 E/B Eurocentral Offslip	Main Carriage way	Lane 2, Lane 3, Lane 4	2	64	1.88
Grit	M8	M8 E/B Eurocentral Offslip	M8 E/B Chapelhall Offslip	Main Carriage way	Lane 2, Lane 3	1.29	64	1.21
Grit	M8	M8 E/B Chapelhall Offslip	M8 DBFO E/B Jct 6 Boundary	Main Carriage way	Hard Shoulder, Lane 1, Lane 2	4.41	64	4.13
TF	M8	M8 DBFO E/B Jct 6 Boundary	M8 DBFO W/B Jct 6 Boundary			13.1	96	8.19
Grit	M8	M8 DBFO W/B Jct 6 Boundary	M8 W/B Chapelhall Onslip	Main Carriage way	Hard Shoulder, Lane 1, Lane 2	4.39	64	4.12
Grit	M8	M8 W/B Chapelhall Onslip	M8 W/B Eurocentral	Main Carriage way	Lane 2, Lane 3	1.62	64	1.52
Grit	M8	M8 W/B Eurocentral Onslip	M8 W/B Shawhead Offslip	Main Carriage way	Lane 3, Lane 4	1	64	0.94
Grit	M8	M8 W/B Shawhead Offslip	M8 W/B immediately after Shawhead Offslip	Main Carriage way	Lane 1, Lane 2, Lane 3	0.36	64	0.34
Grit	M8	M8 W/B Shawhead Offslip	M8 W/B Baillieston Lane Drop	Main Carriage way	Lane 2, Lane 3	3.87	64	3.63

Grit	M8	M8 W/B Baillieston Lane drop	M8 W/B 2nd baillieston off slip	Main Carriage way	Lane 2, Lane 3	0.49	64	0.46
Grit	M8	M8 W/B Baillieston Offslip	M8 W/B at M73 lane gain	Main Carriage way	Hard Shoulder, Lane 1, Lane 2	1	64	0.94
Grit	M8	M8 W/B at M73 lane gain	M8 W/B Jct 10 DBFO Boundary	Main Carriage way	Lane 2, Lane 3	2.89	64	2.71
TF	M8	M8 W/B Jct 10 DBFO Boundary	M8 E/B Jct 10 DBFO Boundary			3.31	80	2.48
Grit	M8	M8 E/B Jct 10 DBFO Boundary	M8 E/B Jct 10 Lane Gain	Main Carriage way	Lane 2, Lane 3	0.41	64	0.38
Grit	M8	M8 E/B Jct 10 Lane Gain	M8 E/B M73 High Loop Lane Drop	Main Carriage way	Lane 3, Lane 4	1.91	64	1.79
Grit	M8	M8 E/B M73 High Loop from the lane drop	M8 E/B Baillieston Onslip	Main Carriage way	Hard Shoulder, Lane 1, Lane 2	1.48	64	1.39
Grit	M8	M8 E/B Baillieston Onslip	M8 E/B Shawhead Overbridge	Main Carriage way	Lane 2, Lane 3	4.1	64	3.84
TF	M8	M8 E/B Shawhead Overbridge	M8 E/B Eurocentral Offslip			1.95	90	1.30
Grit	M8	M8 E/B Eurocentral Offslip	M8 E/B Chapelhall Offslip	Main Carriage way	Hard Shoulder, Lane 1	1	64	0.94
Grit	M8	M8 E/B Chapelhall Offslip	M8 E/B Chapelhall Offslip	Slip Road	Hard Shoulder, Lane 1, Lane 2	0.49	64	0.46
Grit	M8	M8 E/B Chapelhall Offslip	M8 E/B Chapelhall Offslip	Slip Road	Lane 1, Lane 2	0.44	64	0.41
TF	-	M8 E/B Chapelhall Offslip	M8 W/B Chapelhall Onslip			0.66	47	0.84
Grit	M8	M8 W/B Chapelhall Onslip	M8 W/B Chapehall Onslip	Slip Road	Lane 1, Lane 2	0.46	64	0.43
Grit	M8	M8 W/B Chapelhall Onslip	M8 W/B Chapelhall Onslip	Slip Road	Hard Shoulder, Lane 1, Hatching area	0.39	64	0.37

Grit	M8	M8 W/B Chapehall Onslip	M8 W/B Eurocentral Onslip	Main Carriage way	Hard Shoulder, Lane 1	1.2	64	1.13
TF	M8	M8 W/B Eurocentral Onslip	Bargeddie Depot			9.3	80	6.98

Route 2

Depot To Route (KM)	1.36	Time to Route (Mins)	1.74
Route to Depot (KM)	1.47	Gritting Speed (KM/HR)	59.72
Route Length (KM)	85.89	Route Treated Length (KM)	32.87
Route Time (Mins)	77.83409	Route Tonnage	8.12
Route Average Width (M)	8.999087	Route Average Speed (KM/HR)	66.21

Action	Road	From	To	Main Carriageway / Slip	Treated Lanes	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
TF	-	Bargeddie Depot	A8APR/A89 Bargeddie Roundabout			1.36	47	1.74
Grit	A8APR /A89	A8APR/A89 Bargeddie Roundabout	A8APR/A89 Bargeddie Roundabout (Full Circle)	Roundabout	Lane 1, Lane 2, Lane 2	0.3	47	0.38
Grit	A8 APR	A8APR E/B from A8/A89 Bargeddie Roundabout	A8 APR E/B Eurocentral North Roundabout Merge Slip Road	Main Carriage way	Hard Shoulder, Lane 1, Lane 2	6.35	64	5.95
Grit	A8 APR	A8 APR E/B Eurocentral North Roundabout Merge Slip road	A8 APR E/B Eurocentral North Roundabout Merge Slip road	Slip Road	Hard Shoulder, Lane 1, Lane 2	0.55	64	0.52
TF	-	A8 APR E/B Eurocentral North Roundabout Merge	A8 APR E/B Eurocentral South Roundabout Diverge			0.56	47	0.71
Grit	A8 APR	A8 APR W/B Eurocentral South Roundabout Diverge Slip Road	A8 APR W/B Eurocentral South Roundabout Diverge Slip Road	Slip Road	Hard Shoulder, Lane 1, Lane 2	1.15	64	1.08
Grit	A8 APR	A8 APR W/B Eurocentral South Roundabout Diverge	A8APR/A89 Bargeddie Roundabout	Main Carriage way	Hard Shoulder, Lane 1, Lane 2	5.78	64	5.42
TF	-	A8APR/A89 Bargeddie Roundabout	A8 APR E/B Showcase Offslip	Slip Road		1.58	96	0.99

Grit	A8 APR	A8 APR E/B Showcase Offslip	A8 APR E/B Showcase Offslip	Slip Road	Lane 1	0.33	47	0.42
Grit	A8 APR	A8 APR E/B Showcase Offslip	A8 APR E/B Showcase Offslip	Slip Road	Lane 1, Lane 2	0.11	47	0.14
TF	-	A8 APR E/B Showcase Offslip	A8 APR E/B Showcase Onslip			0.11	47	0.14
Grit	A8 APR	A8 APR E/B Showcase Onslip	A8 APR E/B Showcase Onslip	Slip Road	Lane 1	0.27	47	0.34
TF	-	A8 APR E/B Showcase Onslip	A8 APR E/B Shawhead Offslip			2.73	96	1.71
Grit	A8 APR	A8 APR E/B Shawhead Offslip	A8 APR E/B Shawhead Offslip	Slip Road	Lane 1	0.26	47	0.33
Grit	A8 APR	A8 APR E/B Shawhead Offslip	A8 APR E/B Shawhead Offslip	Slip Road	Right Turn Lane 1 and Right Turn Lane 2	0.13	47	0.17
TF	-	A8 APR E/B Shawhead Offslip	A8 APR E/B Shawhead Onslip			2.63	47	3.36
Grit	A725	A725 S/B Shawhead dedicated lane to A8 E/B Onslip	A725 S/B Shawhead dedicated lane to A8 E/B Onslip	Main Carriage way	Filter Lane	0.1	47	0.13
Grit	A8 APR	A8 APR E/B Shawhead Onslip	A8 APR E/B Shawhead Onslip	Slip Road	Lane 1	0.3	47	0.38
TF	-	A8 APR E/B Shawhead Onslip	A8 APR E/B Carnbroe Offslip			1.1	96	0.69
Grit	A8 APR	A8 APR E/B Carnbroe Offslip	A8 APR E/B Carnbroe Offslip	Slip Road	Lane 1	0.1	64	0.09
TF	-	A8 APR E/B Carnbroe Offslip	A8 APR E/B Carnbroe Onslip			1.53	96	0.96
Grit	A8 APR	A8 APR E/B Carnbroe Onslip	A8 APR E/B Carnbroe Onslip	Slip Road	Lane 1	0.1	64	0.09
TF	-	A8 APR E/B Carnbroe Onslip	A8 APR E/B Eurocentral north roundabout Diverge			1.1	96	0.69

Grit	A8 APR	A8 APR E/B Chapelhall North Roundabout Diverge	A8 APR E/B Chapelhall North Roundabout Merge	Main Carriage way	Lane 1, Lane 2	1.34	64	1.26
TF	-	A8 APR E/B Chapelhall North Roundabout Merge	A8 APR E/B Chapelhall North Roundabout Diverge			0.16	64	0.15
Grit	A8 APR	A8 APR E/B Chapelhall North Roundabout Diverge	A8 APR E/B Newhouse Offsip	Main Carriage way	Lane 1, Lane 2	1.41	64	1.32
Grit	A8 APR	A8 APR E/B Newhouse Offsip	A8 APR/M8 E/B Merge - Start of Chevrons	Main Carriage way	Lane 1, Lane 2	1.59	64	1.49
Grit	A8 APR	A8 APR/M8 E/B Merge - Start of Chevrons	A8 APR / M8 E/B End of Merge	Slip Road	Lane 1, Lane 2, Hatching areas	0.65	64	0.61
TF	-	M8 E/B from end of A8 Merge	A8 APR W/B slip from M8 at Jct 6 Newhouse			13.57	96	8.48
Grit	A8 APR	A8 APR W/B Slip from M8 at Jct 6	A8 APR W/B end of Jct 6 hatchings (2nd slip road)	Main Carriage way	Lane 1, Lane 2, Hatching areas	0.57	64	0.53
Grit	A8 APR	A8 APR W/B end of Jct 6 hatchings (2nd slip road)	A8 APR W/B Chapelhall South Roundabout Merge	Main Carriage way	Lane 1, Lane 2	3.13	64	2.93
TF	-	A8 APR W/B Chapelhall South Roundabout Merge	A8 APR E/B Newhouse Offslip			1.92	80	1.44
Grit	A8 APR	A8 APR E/B Newhouse Offslip	A8 APR E/B Newhouse Offslip	Slip Road	Lane 1, Lane 2	0.75	64	0.70
Grit	A73	A73 Newhouse Roundabout	A73 Newhouse Roundabout	Rounda bout	Lane 1, Lane 2	0.6	47	0.77
TF	-	A8 APR E/B Newhouse Offslip	A8 APR E/B Newhouse Onslip			0.14	47	0.18
Grit	A8 APR	A8 APR E/B Newhouse Onslip	A8 APR E/B Newhouse Onslip	Slip Road	Hard Shoulder, Lane 1	0.5	64	0.47

TF	-	A8 APR E/B Newhouse Onslip	A8 APR W/B Newhouse Offslip			15.31	96	9.57
Grit	A8 APR	A8 APR E/B Newhouse Onslip	A8 APR W/B Newhouse Offslip (single lane / h/s)	Slip Road	Hard Shoulder, Lane 1	0.36	64	0.34
Grit	A8 APR	A8 APR E/B Newhouse Offslip	A8 APR W/B Newhouse Offslip 2 lane & h/s)	Slip Road	Hard Shoulder, Lane 1, Lane 2	0.25	64	0.23
TF	-	A8 APR W/B Newhouse Offslip	A8 APR W/B Newhouse Onslip			0.13	47	0.17
Grit	A8 APR	A8 APR W/B Newhouse Onslip	A8 APR W/B Newhouse Onslip	Slip Road	Hard Shoulder, Lane 1	0.43	64	0.40
TF	-	A8 APR W/B Newhouse Roundabout Onslip	A8 APR W/B Chapelhall South Roundabout Diverge			1.82	96	1.14
Grit	A8 APR	A8 APR W/B Chapelhall South Roundabout Diverge	A8 APR W/B Eurocentra South Roundabout Merge	Main Carriage way	Lane 1, Lane 2	1.35	64	1.27
TF	-	A8 APR Eurocentral South Roundabout Merge	A8 APR W/B Shawhead Offslip			2.73	90	1.82
Grit	A8 APR	A8 APR W/B Shawhead Offslip	A8 APR W/B Shawhead Offslip	Slip Road	Lane 1	0.37	47	0.47
Grit	A8 APR	A8 APR W/B Shawhead Offslip	A8 APR W/B Shawhead Offslip	Slip Road	Lane 1, Lane 2	0.1	47	0.13
Grit	A725	A725 from A8 W/B Shawhead Offslip	A725 at B7070 North Road Merge	Across Junction	All lanes	0.1	47	0.13
Grit	B7070	B7070 North Road S/B from A725 filter lane	B7070 North Road S/B at end of hatching at access road	Main Carriage way	S/B Lane	0.1	47	0.13
Grit	B7070	B7070 North Road S/B at end of hatching at access road	B7070 North Road at end of new carriageway section	Main Carriage way	N/B & S/B Lanes	0.5	47	0.64

TF	-	B7070 North Road at end of new carriageway section	B7070 North Road N/B start of hatching at the hatching (at the access road)			1.87	47	2.39
Grit	B7070	B7070 North Road N/B start of hatching at the hatching (at the access road)	B7070 North Road at A725 Junction	Main Carriage way	Lane 1, Lane 2	0.1	47	0.13
Grit	A725	A725 from B7070 North Road Merge	A725 at A8 W/B Shawhead Onslip	Across Junction	All lanes	0.1	47	0.13
Grit	A8 APR	A8 APR W/B Shawhead Onslip	A8 APR W/B Shawhead Onslip	Slip Road	Lane 1	0.39	47	0.50
TF	-	A8 APR W/B Shawhead Onslip	A8 APR W/B Showcase Offsip			2.38	96	1.49
Grit	A8 APR	A8 APR W/B Showcase Offslip	A8 APR W/B Showcase Offslip	Slip Road	Lane 1	0.25	47	0.32
TF	-	A8 APR W/B Showcase Offslip	A8 APR W/B Showcase Onslip			0.67	47	0.86
Grit	A8 APR	A8 APR W/B Showcase Onslip	A8 APR W/B Showcase Onslip	Slip Road	Lane 1	0.2	47	0.26
TF	-	A8 APR W/B Showcase onslip	A89 W/B from M8 Diverge			1.52	80	1.14
Grit	A89	A89 W/B from M8 Diverge	A8 W/B Swinton Roundabout	Main Carriage way	Lane 1, Lane 2	0.49	64	0.46
Grit	A89	A89 W/B approach to Swinton Roundabout	A89 W/B Approach to Swinton Roundabout	Main Carriage way	Lane 1, Lane 2	0.11	47	0.14
Grit	A89	A8 Swinton Roundabout	A8 Swinton Roundabout	Roundabout	Lane 1, Lane 2, Lane 3	0.4	47	0.51
Grit	A8(M)	A8(M) E/B Swinton Roundabout	A8(M) E/B Baillieston Roundabout	Main Carriage way	Hard Shoulder, Lane 1, Lane 2	0.33	47	0.42
Grit	A8 APR	A8(M) Baillieston Roundabout	A8(M) Baillieston Roundabout	Roundabout	Lane 1, Lane 2	0.8	64	0.75

TF	-	A8(M) Baillieston Roundabout	A8(M) Baillieston Roundabout			0.3	37	0.49
Grit	A8(M)	A8(M) Baillieston Roundabout	A8(M) Swinton Roundabout	Main Carriage way	Hard Shoulder/ Hatching, Lane 1, Lane 2	0.31	64	0.29
TF	-	A8 Swinton Roundabout	A8 Swinton Roundabout			0.15	47	0.19
Grit	A8	A8 W/B Swinton Roundabout	A8 W/B Baillieston Cross (L1, L2)	Main Carriage way	Lane 1, Lane 2	0.35	47	0.45
TF	-	A8 W/B Baillieston Cross	A8 E/B Baillieston Cross			0.14	47	0.18
Grit	A8	A8 W/B Baillieston Cross	A8 Swinton roundabout	Main Carriage way	Lane 1, Lane 2	0.34	47	0.43
TF	-	A8 Swinton Roundabout	A8 Swinton Roundabout			0.1	47	0.13
Grit	A89	A89 E/B Swinton Roundabout	A89 E/B at A8 Roundabout	Main Carriage way	Lane 1, Lane 2	0.76	47	0.97
Grit	A89	A89 E/B from M8 slip	A89 W/B A8/A89 Bargeddie Roundabout	Main Carriage way	Lane 1, Lane 2, Lane 3	0.13	47	0.17
TF	-	A89 W/B from A8/A89 Bargeddie Roundabout	Bargeddie Depot			1.47	47	1.88

Route 3

Depot To Route (KM)	5.58	Time to Route (Mins)	5.23125
Route to Depot (KM)	7.8	Gritting Speed (KM/HR)	63.53749
Route Length (KM)	81.85	Route Treated Length (KM)	36.77
Route Time (Mins)	73.37388	Route Tonnage	10.21048
Route Average Width (M)	10.04134	Route Average Speed (KM/HR)	66.93117

Action	Road	From	To	Main Carriageway / Slip	Treated Lanes	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
TF	-	Bargeddie Depot	Daldowie Road			5.58	64	5.23
Grit	Daldowie Road	A74 Rbt	M73 Jct (Treating only the filter lane)	Slip Road	Filter lanes	0.1	47	0.13
Grit	M73	M73 Jct 1 - Daldowie Rd Slip	M73 Jct 1 - Daldowie Rd Slip	Slip Road	Hard Shoulder, Lane 1, Lane 2	0.28	47	0.36
Grit	M73	M73 Jct 1 - Daldowie Slip	M74 S/B to M73 N/B Link Road	Slip Road	Hard Shoulder, Lane 1, Lane 2	0.82	64	0.77
Grit	M73	M73 from M74 N/B Link Road	M73 N/B to M8 Link Road lane drop	Main Carriage way	Hard Shoulder, Lane 1, Lane 2	0.92	64	0.86
Grit	M73 to M8	M73 N/B to M8 Link Road lane drop	M73 N/B to M8 W/B Link Road	Slip Road	Hard Shoulder/ hatching, Lane 1, Lane 2	1.33	64	1.25
Grit	M8	M8 from M73 Lane gain	M8 W/B Jct 10 DBFO Boundary	Main Carriage way	Hard Shoulder, Lane 1	2.94	64	2.76
TF	-	M8 W/B Jct 10 DBFO Boundary	M8 E/B Jct 10 DBFO Boundary			3.22	80	2.42
Grit	M8	M8 E/B Jct 10 DBFO Boundary	M8 E/B Jct 10 Onslip	Main Carriage way	Hard Shoulder, Lane 1	0.45	64	0.42
Grit	M8	M8 E/B Jct 10 Onslip (Lane Gain)	M8 E/B to M73 S/B Link Road	Main Carriage way	Hard Shoulder, Lane 1, Lane 2	1.91	64	1.79
Grit	M8 to M73	M8 E/B to M73 S/B Link Road	M8 E/B to M73 S/B Link Road -	Slip Road	Hard Shoulder, Lane 1,	2.12	64	1.99

			end of slip/start of lane gain		Lane 2/hatching			
Grit	M73	M73 S/B M8 lane gain	M73 S/B to M74 S/B Link Road	Main Carriage way	Hard Shoulder, Lane 1, Lane 2	0.78	64	0.73
Grit	M73-M74	M73 S/B to M74 S/B Link Road	M73 S/B to M74 S/B Link Road - First Lane gain	Slip Road	Hard Shoulder/ hatching, Lane 1, Lane 2	0.94	64	0.88
Grit	M73-M74	M73 S/B to M74 S/B Link Road - First Lane gain	M73 S/B to M74 S/B Link Road - Second Lane gain	Slip Road	Hard Shoulder, Lane 1, Hatching	0.32	64	0.30
TF	-	M73 S/B to M74 S/B Link Road - Second Lane gain	M74 N/B to M73 N/B Link Road			8.26	96	5.16
Grit	M74 to M73	M74 N/B to M73 N/B Link Road	M74 N/B to M73 N/B Link Road	Slip Road	Hard Shoulder, Lane 1, Lane 2	1.17	64	1.10
Grit	M73	M74 N/B to M73 N/B Link Road	M73 N/B M8 Lane Drop	Main Carriage way	Lane 3, Lane 4	0.93	64	0.87
Grit	M73	M73 N/B M8 Lane Drop	M73 N/B Jct 2 Baillieston Offslip	Main Carriage way	Lane 2, Lane 3	0.65	64	0.61
Grit	M73	M73 N/B Jct 2 Baillieston Offslip	M73 N/B Jct 3 DBFO Boundary (H/S, L1, L2)	Main Carriage way	Hard Shoulder, Lane 1, Lane 2	7.2	64	6.75
TF	-	M73 N/B Jct 3 DBFO Boundary	M73 S/B Jct 3 DBFO Boundary			3.03	47	3.87
Grit	M73	M73 S/B Jct 3 DBFO Boundary	M73 S/B Jct 2 Baillieston Onslip	Main Carriage way	Hard Shoulder/ hatching, Lane 1, Lane 2	7.24	64	6.79
Grit	M73	M73 Jct 2 S/B Baillieston onslip	M73 S/B end of high loop lane gain	Main Carriage way	Lane 2, Lane 3	0.63	64	0.59
Grit	M73	M73 S/B end of high loop lane gain	M73 S/B to M74 N/B Link road (L3, L4)	Main Carriage way	Lane 3, Lane 4	1	64	0.94

Grit	M73-M74	M73 S/B to M74 N/B Link Road	M73 S/B to M74 N/B Link Road slip to Daldowie	Slip Road	Hard Shoulder, Lane 1, Lane 2	0.75	64	0.70
Grit	M73-M74	M73 S/B Link Road to Daldowie	M73 S/B Link Road to Daldowie	Slip Road	Lane 1, Lane 2	0.3	64	0.28
TF	-	M73 S/B Link Road to Daldowie	M73 N/B Jct 1 Daldowie Onslip			0.5	47	0.64
Grit	M73	M73 N/B Jct 1 Daldowie Onslip	M73 N/B Jct 1 Daldowie Onslip (Right turn)	Slip Road	Lane 1	0.1	47	0.13
TF	-	M73 N/B Jct 1 Daldowie Onslip	M73 N/B M8 W/B Lane Drop	-		2	80	1.50
Grit	M73	M73 N/B M8 W/B Lane drop	M73 N/B Jct 2 Offslip	Main Carriage way	Hard Shoulder/ Hatching, Lane 1	0.57	64	0.53
Grit	M73	M73 N/B Jct 2 Baillieston Offslip	M73 N/B Jct 2 Baillieston Offslip	Slip Road	Lane 1, Lane 2	0.28	64	0.26
TF	-	M73 N/B Jct 2 Baillieston Offslip	M73 N/B Jct 2 Baillieston Onslip			0.26	64	0.24
Grit	M73	M73 N/B Jct 2 Baillieston Onslip	M73 N/B Jct 2 Baillieston Onslip	Slip Road	Lane 1, Lane 2	0.48	64	0.45
TF	-	M73 N/B Jct 2 Baillieston Onslip	M73 N/B Jct 2a Offslip			3.51	80	2.63
Grit	M73	M73 N/B Jct 2a Offslip	M73 N/B Jct 2a Offslip	Slip Road	Hard Shoulder, Lane 1	0.37	64	0.35
TF	-	M73 N/B Jct 2a Offslip	M73 N/B Jct 2a Onslip			0.1	47	0.13
Grit	M73	M73 N/B Jct 2a Onslip	M73 N/B Jct 2a Onslip	Slip Road	Hard Shoulder, Lane 1	0.35	64	0.33
TF	-	M73 N/B Jct 2a Onslip	M73 S/B Jct 2a Offslip			7.21	64	6.76
Grit	M73	M73 S/B Jct 2a Offslip	M73 S/B Jct 2a Offslip	Slip Road	Hard Shoulder, Lane 1	0.31	64	0.29
TF	-	M73 S/B Jct 2a Offslip	M73 S/B Jct 2a Onslip			0.1	47	0.13
Grit	M73	M73 S/B Jct 2a Onslip	M73 S/B Jct 2a Onslip	Slip Road	Hard Shoulder, Lane 1	0.42	64	0.39

TF	-	M73 S/B Jct 2a Onslip	M73 S/B Jct 2 Offslip			3.51	80	2.63
Grit	M73	M73 S/B Jct 2 Offslip	M73 S/B Jct 2 Offslip	Slip Road	Lane 1, Lane 2	0.48	64	0.45
Grit	M73	M73 S/B Jct 2 Onslip	M73 S/B Jct 2 Onslip	Slip Road	Hard Shoulder, Lane 1	0.26	47	0.33
Grit	M73	M73 S/B Jct 2 Onslip (Lane Gain)	M73 S/B M8 High Loop Lane gaiin	Main Carriage way	Hard Shoulder/ Hatching, Lane 1	0.37	64	0.35
TF	-	M73 S/B M8 High Loop Lane Gain	Bargeddie Depot			7.8	64	7.31

Route 4

Depot To Route (KM)	5.50	Time to Route (Mins)	5.16
Route to Depot (KM)	10.70	Gritting Speed (KM/HR)	60.93
Route Length (KM)	103.05	Route Treated Length (KM)	33.35
Route Time (Mins)	82.78	Route Tonnage	8.20
Route Average Width (M)	8.78	Route Average Speed (KM/HR)	74.69

Action	Road	From	To	Main Carriage way / Slip	Treated Lanes	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
TF	-	Bargeddie Depot	M73 S/B to M74 N/B Link Road			5.5	64	5.15
Grit	M73 to m74	M73 S/B to M74 N/B Link Road from the Daldowie slip	M73 S/B to M74 N/B Link Road (to the first slip)	Slip Road	Hard Shoulder, Lane 1, Lane 2/Hatching	0.77	64	0.72
Grit	M74	M74 N/B at M73 Lane Gain	M74 N/B Jct 3a (end of DBFO)	Main Carriage way	Hard Shoulder, Lane 1	0.54	64	0.5
TF	-	M74 N/B Jct 3a DBFO Boundary	M74 S/B Jct 3a DBFO Boundary			4.86	94	3.1
Grit	M74	M74 S/B Jct 3a	M74 S/B Jct 4 (2nd slip to the M73 N/B)	Main Carriage way	Lane 2, Lane 3	0.71	64	0.66
Grit	M74	M74 S/B Jct 4 (2nd slip to the M73 N/B)	M73 S/B Jct 4 First M73 Lane Gain	Main Carriage way	Hard Shoulder/ Hatching, Lane 1, Lane 2	1.21	64	1.13
Grit	M74	M74 S/B Jct 4 First M73 Lane Gain	M74 S/B Jct 4 Second M73 Lane Gain	Main Carriage way	Lane 1, Lane 2, Lane 3	0.28	64	0.26
Grit	M74	M74 S/B Jct 4 Second Lane Gain	M74 S/B Bothwell Services Offslip	Main Carriage way	Lane 2, Lane 3, Lane 4	2.56	64	2.40
Grit	M74	M74 S/B Bothwell Services Offslip	M74 S/B Bothwell Services Onslip	Main Carriage way	Lane 2, Lane 3	0.33	64	0.31
Grit	M74	M74 S/B Bothwell Services Onslip	M74 S/B Raith Offslip	Main Carriage way	Lane 2, Lane 3, Lane 4	0.44	64	0.41

Grit	M74	M74 S/B Raith Offslip	M74 S/B Raith Onslip	Main Carriage way	Lane 2, Lane 3	0.99	64	0.93
Grit	M74	M74 S/B Raith Onslip	M74 S/B Jct 6 DBFO Boundary	Main Carriage way	Lane 2, Lane 3, Lane 4	2.23	64	2.09
TF	-	M74 S/B Jct 6 DBFO Boundary	M74 N/B Jct 6 DBFO Boundary			10.46	96	6.54
Grit	M74	M74 N/B Jct 6 DBFO Boundary	M74 N/B Raith Onslip (end of lane gain	Main Carriage way	Lane 2, Lane 3	3.48	64	3.26
Grit	M74	M74 N/B Raith Onslip (End of lane Gain	M74 N/B Jct 4 Offslip	Main Carriage way	Lane 3, Lane 4	3.21	64	3.01
Grit	M74	M74 N/B Jct 4 Offslip	M74 N/B at M73 Lane Gain	Main Carriage way	Hard Shoulder/ Hatching, Lane 1, Lane 2	1.43	64	1.34
Grit	M74	M74 N/B M73 Lane Gain	M74 N/B Jct 3a DBFO Boundary	Main Carriage way	Lane 2, Lane 3	0.55	64	0.52
TF	-	M74 N/B Jct 3a DBFO Boundary	M74 S/B Jct 3a DBFO Boundary			4.86	96	3.0
Grit	M74	M74 S/B Jct 3a DBFO Boundary	M74 S/B to M73 N/B Link Road Lane drop	Main Carriage way	Hard Shoulder, Lane 1, hatching	0.42	64	0.39
Grit	M74	M74 S/B to M73 N/B Link Road	M74 S/B to M73 N/B Link Road (Merge with the Daldowie Rd Onslip)	Slip Road	Hard Shoulder, Lane 1, Lane 2/Hatching	0.68	64	0.64
TF	-	M74 S/B to M73 N/B Link Road	M74 S/B Bothwell Offslip			8.75	96	5.47
Grit	M74	M74 S/B Bothwell Services Offslip	M74 S/B Bothwell Services Onslip	Main Carriage way	Hard Shoulder, Lane 1	0.3	64	0.28
TF	-	M74 S/B Bothwell Services Onslip	M74 S/B Raith Offslip			0.5	96	0.31
Grit	M74	M74 S/B Raith Offslip	M74 S/B Raith Onslip	Main Carriage way	Hard Shoulder, Lane 1	0.88	64	0.83

TF	-	M74 S/B Raith Onslip	M74 N/B Hamilton Onslip			5	80	3.75
Grit	M74	M74 N/B Jct 6 DBFO Boundary	M74 N/B Raith Lane Gain	Main Carriage way	Hard Shoulder, Lane 1	3.5	64	3.28
TF	-	M74 N/B Raith lane gane	M74 N/B Fallside Road			0.5	96	0.31
Grit	M74	M74 N/B Under Fallside Road	M74 N/B Under Fallside Road	Main Carriage way	Hard Shoulder	0.2	64	0.19
TF	-	M74 N/B Under Fallside Road	M74 N/B Under Old Mill Road			1.52	96	0.95
Grit	M74	M74 N/B Under Old Mill Road	M74 N/B Under Old Mill Road	Main Carriage way	Hard Shoulder	0.15	64	0.14
TF	-	M74 N/B Under Old Mill Road	M74 N/B Jct 3a offslip to Daldowie			0.91	96	0.57
Grit	M74	M74 N/B Jct 3a offslip to Daldowie	M74 N/B Jct 3a offslip to Daldowie (to m73 merge)	Slip Road	Hard Shoulder, Lane 1	0.89	64	0.83
Grit	M74	M74 N/B Jct 3a Offslip to Daldowie from M73 Merge	M74 N/B Jct 3a Offslip - Daldowie Road	Slip Road	Hard Shoulder, Lane 1, Lane 2	0.38	47	0.49
Grit	M74	M74 N/B Jct 3a Onslip	M74 N/B Jct 3a Onslip (to the DBFO Boundary on the slip)	Slip Road	Hard Shoulder, Lane 1, Hatching	0.61	47	0.78
TF	-	M74 N/B Jct 3a Onslip	M74 S/B Jct 3a Offslip			4.89	96	3.06
Grit	M74	M74 S/B Jct 3a Offslip	M74 S/B Jct 3a Offslip	Slip Road	Hard Shoulder, Lane 1, Lane 2	0.58	47	0.74
TF	-	M74 S/B Jct 3a offslip	M74 A721 Onslip (Right turn)			1.14	47	1.46
Grit	M74	M74 S/B A721 Onslip (Right turn)	M74 S/B A721 Onslip	Slip Road	Lane 1	0.54	47	0.69
TF	-	M74 S/B A721 Onslip	M74 S/B Under Old Mill Road			0.85	96	0.53
Grit	M74	M74 S/B Under Old Mill Road	M74 S/B Under Old Mill Road	Main Carriage way	Hard Shoulder	0.15	47	0.19

TF	-	M74 S/B Under Old Mill Road	M74 S/B Under Fallside Road			1.58	96	0.99
Grit	M74	M74 S/B Under Fallside Road	M74 S/B Under Fallside Road	Main Carriage way	Hard Shoulder	0.12	47	0.15
TF	-	M74 S/B Under Fallside Road	M74 S/B Raith Offslip			1.62	80	1.22
Grit	M74	M74 S/B Raith Offslip	M74 S/B Raith Offslip	Slip Road	Hard Shoulder, Lane 1	0.17	47	0.22
TF	-	M74 S/B Raith Offslip	M74 S/B Raith Onslip			0.26	47	0.33
Grit	M74	M74 S/B Raith Onslip	M74 S/B Raith Onslip	Slip Road	Hard Shoulder, Lane 1, Lane 2/Hatching	0.36	47	0.46
Grit	M74	M74 S/B Raith	M74 S/B Hamilton (DBFO Boundary	Main Carriage way	Hard Shoulder, Lane 1	2.23	64	2.09
TF	-	M74 S/B Jct 6 DBFO Boundary	M74 N/B Hamilton Services Offslip			3.45	80	2.59
Grit	M74	M74 N/B Hamilton Services Offslip	M74 N/B Hamilton Services Offslip	Slip Road	Hard Shoulder, Lane 1	0.18	64	0.17
Grit	M74	M74 N/B Hamilton Services Offslip	M74 N/B Hamilton Services Offslip	Slip Road	Lane 1	0.11	47	0.14
TF	-	M74 N/B Hamilton Services Offslip	M74 N/B Hamilton Services Onslip			1.24	47	1.58
Grit	M74	M74 N/B Hamilton Services Onslip	M74 N/B Hamilton Services Onslip	Slip Road	Lane 1	0.1	47	0.13
Grit	M74	M74 N/B Hamilton Services Onslip	M74 N/B Hamilton Services Onslip	Slip Road	Hard Shoulder, Lane 1	0.24	64	0.23
TF	-	M74 N/B Hamilton Services	M74 N/B Raith Offslip			0.85	80	0.64
Grit	M74	M74 N/B Raith Offslip	M74 N/B Raith Offslip	Slip Road	Hard Shoulder,	0.3	64	0.28

					Lane 1, Lane 2			
Grit	M74	M74 N/B Raith Offslip	M74 N/B Raith Offslip	Slip Road	Lane 1, Lane 2, Lane 3	0.2	47	0.26
TF	-	M74 N/B Raith Offslip	M74 N/B Raith Onslip			0.26	47	0.33
Grit	M74	M74 N/B Raith Onslip	M74 N/B Raith Onslip	Slip Road	Lane 1 and hatchings	1.33	47	1.70
TF	-	M74 N/B Raith Onslip	Bargeddie Depot			10.7	80	8.03

Route 5

Depot To Route (KM)	3.56	Time to Route (Mins)	3.34
Route to Depot (KM)	6.17	Gritting Speed (KM/HR)	58.15
Route Length (KM)	76.47	Route Treated Length (KM)	34.21
Route Time (Mins)	75.42088	Route Tonnage (40g/m2)	8.50
Route Average Width (M)	8.874598	Route Average Speed (KM/HR)	60.83

Action	Road	From	To	Main Carriageway / Slip	Treated Lanes	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
TF	-	Bargeddie Depot	A8 E/B Shawhead Offslip			3.56	64	3.33
Grit	A8	A8 E/B Shawhead Offlsip	A8 E/B Shawhead Offslip (Left turn island)	Slip Road	Left Turn Filter	0.1	47	0.12
Grit	A725	A8 E/B Shawhead Offlsip	A8 W/B Shawhead onslip (2 lane section)	Main Carriage way	Lane 1, Lane 2	0.17	47	0.21
Grit	A725	A725 S/B Shawhead Offslip	A725 S/B Shawhead Offslip (Including right turning lane)	Main Carriage way	Lane 1, Lane 2, Right Turn Filter	0.11	47	0.14
Grit	A725	A725 S/B Shawhead W/B Offslip	A725 S/B M8 W/B onslip (start of slip)	Main Carriage way	Lane 1, Lane 2	0.58	64	0.54
Grit	A725	A725 S/B M8 W/B Onslip	A725 S/B M8 W/B Onslip (to the slip merge)	Main Carriage way	Slip Lane, Lane 1, Lane 2	0.28	64	0.26
Grit	A725	A725 S/B M8 W/B Onslip	A725 S/B Raith Merge in the underpass	Main Carriage way	Lane 1, Lane 2	3.74	64	3.5
Grit	A725	A725 S/B Raith Underpass	A725 S/B Raith Roundabout Lane gain	Main Carriage way	Hatching, Lane 1	0.72	64	0.67
Grit	A725	A725 S/B Raith Lane gain	A725 S/B DBFO Boundary	Main Carriage way	Lane 1, Lane 2	0.2	64	0.18
TF	-	A725 S/B DBFO Boundary	A725 N/B DBFO Boundary			3.1	80	2.3
Grit	A725	A725 N/B DBFO Boundary	A725 N/B Raith Onslip	Main Carriage way	Lane 1, Lane 2	1.19	64	1.11
Grit	A725	A725 N/B Raith Onslip	A725 N/B Orbiston Offslip	Main Carriage way	Lane 1, Lane 2, Lane 3	0.64	64	0.6

Grit	A725	A725 N/B Orbiston Offslip	A725 N/B Strathclyde Business Park Onslip	Main Carriage way	Lane 1, Lane 2	2.55	64	2.39
Grit	A725	A725 N/B Strathclyde Business Park Onslip	A725 N/B M8 E/B Offslip	Main Carriage way	Lane 1, Lane 2, Lane 3	0.8	64	0.75
Grit	A725	A725 N/B M8 E/B Offslip	A725 N/B Shawhead W/B Approach	Main Carriage way	Lane 1, Lane 2	0.3	64	0.28
Grit	A725	A725 N/B Shawhead W/B Approach	A725 N/B Shawhead W/B Approach	Main Carriage way	Lane 1, Lane 2, Right Turn Filter	0.12	47	0.15
Grit	A725	A725 N/B Shawhead W/B	A725 N/B Kirkshaws Road Junction	Main Carriage way	Lane 1, Lane 2	0.3	47	0.38
Grit	A725	A725 N/B Kirkshaws Road Junction Approach	A725 N/B Kirkshaws Road Junction Approach	Main Carriage way	Lane 1, Lane 2, Left Turn Filter	0.1	47	0.12
TF	-	A725 N/B Kirkshaws Road junction	A725 S/B Kirkshaws Road Junction			2.42	47	3.08
Grit	A725	A725 S/B Kirkshaws Road Junction	A725 S/B Shawhead Junction (L1, L2)	Main Carriage way	Lane 1, Lane 2	0.15	47	0.19
TF	-	A725 S/B Shawhead Junction	A725 S/B North Road Junction			0.17	64	0.15
Grit	A725	A725 S/B North Road Junction	A725 S/B North Road Junction (Left Out)	Slip Road	Filter Lane	0.1	47	0.12
TF	-	A725 S/B North Road Left In	A725 S/B North Road Left Out			2.71	47	3.45
Grit	A725	A725 S/B North Road Left Out	A725 S/B North Road Left out	Slip Road	Filter Lane	0.1	47	0.12
TF	-	A725 S/B North Road	A725 S/B Diamond Offlslip			1.18	64	1.10
Grit	A725	A725 S/B Diamond Offslip	A725 S/B Diamond Offslip	Slip Road	Lane 1, Lane 2	0.29	47	0.37
TF	-	A725 S/B Diamond Offslip	A725 S/B Diamond Onslip			0.1	47	0.12

Grit	A725	A725 S/B Diamond Onslip	A725 S/B Diamond Onslip	Slip Road	Lane 1, Lane 2	0.21	47	0.26
TF	-	A725 S/B Diamond Onslip	A725 S/B Bellziehill Offslip			0.2	64	0.18
Grit	A725	A725 S/B Bellziehill Offslip	A725 S/B Bellziehill Offslip	Slip Road	Lane 1, Lane 2	0.33	47	0.42
TF	-	A725 S/B Bellziehill Offslip	A725 S/B Bellziehill Onslip			0.16	47	0.20
Grit	A725	A725 S/B Bellziehill Onslip	A725 S/B Bellziehill Onslip	Slip Road	Lane 1, Lane 2	0.26	47	0.33
TF	-	A725 S/B Bellziehill Onslip	A725 S/B Orbiston Offslip			0.5	64	0.46
Grit	A725	A725 S/B Orbiston Offslip	A725 S/B Orbiston Offslip	Slip Road	Lane 1	0.26	47	0.33
TF	-	A725 S/B Orbiston offslip	A725 S/B Orbiston Onslip			0.28	47	0.35
Grit	A725	A725 S/B Orbiston Onslip	A725 S/B Orbiston Onslip	Slip Road	Lane 1	0.18	47	0.22
TF	-	A725 S/B Orbiston Onslip	A725 S/B Raith Offslip			0.4	64	0.37
Grit	A725	A725 S/B Raith Offslip	A725 S/B Raith Offslip	Slip Road	Lane 1, Lane 2	0.4	47	0.51
Grit	A725	A725 S/B Raith Offslip	A725 S/B Raith Offslip Roundabout Approach	Slip Road	Lane 1, Lane 2, Lane 3	0.15	47	0.19
Grit	A725	A725 Raith Roundabout	A725 Raith Roundabout	Roundabout	Lane 1, Lane 2, Lane 3	0.8	47	1.02
TF	-	A725 Raith Roundabout	A725 Raith Roundabout			0.2	47	0.25
Grit	A725	A725 S/B Raith Roundabout Onslip to start of the lane gane	A725 S/B Raith Roundabout Onslip	Slip Road	Lane 1, Lane 2/Hatching	0.44	47	0.56
TF	-	A725 S/B Raith lane gane	A725 N/B B7071 Offslip			3.43	80	2.57
Grit	A725	A725 Offslip to B7071	A725 Offslip to B7071	Slip Road	Lane 1, Lane 2,	0.31	47	0.39

					Right Turn Filter			
Grit	B7071	A725 Junction	A725 Raith Roundabout	Main Carriage way	Lane 1, Lane 2	0.22	47	0.28
TF	-	A725 Raith Roundabout	A725 Raith Roundabout slip to B7071			0.76	47	0.97
Grit	B7071	B7071 Raith Roundabout slip	B7071 Bothwell / Hamilton Junction	Main Carriage way	Lane 1, Lane 2	0.65	47	0.82
TF	-	B7071 Bothwell / Hamilton Junction	B7071 Bothwell / Hamilton Junction			0.19	47	0.24
Grit	B7071	B7071 Bothwell / Hamilton Junction	B7071 / A725 Junction	Main Carriage way	Lane 1, Lane 2	0.44	47	0.56
Grit	M74	B7071 / A725 Junction	B7071/M74 free flow	Slip Road	Hatching, Lane 1	1	64	0.93
Grit	M74	M74 N/B B7071 lane gane	M74 N/B Jct 4 Offslip to M73	Main Carriage way	Hard Shoulder, Lane 1, Lane 2	3.17	64	2.97
TF	-	M74 N/B Jct 4 Offsip to M73	M74 Onslip from A721 W/B			3.28	80	2.46
Grit	M74	M74 Onslip from A721 W/B	M74 Onslip from A721 W/B	Slip Road	Lane 1	0.03	47	0.03
TF	-	M74 Onslip from A721 W/B	M74 S/B M73 second lane gain			0.7	64	0.65
Grit	M74	M74 S/B M73 second lane gain	M74 S/B Bothwell Services Offslip	Main Carriage way	Hard Shoulder, Lane 1	2.74	64	2.56
TF	-	M74 S/B Bothwell Services Offslip	M74 S/B Bothwell Services Onslip			0.85	47	1.08
Grit	M74	M74 S/B Bothwell Services Onslip	M74 S/B Bothwell Services Onslip	Slip Road	Lane 1	0.1	47	0.12
Grit	M74	M74 S/B Bothwell Services Onslip	M74 S/B Bothwell Services Onslip	Slip Road	Hard Shoulder, Lane 1	0.1	64	0.09
Grit	M74	M74 S/B Bothwell Services Onslip	M74 S/B Raith Offslip	Main Carriage way	Hard Shoulder, Lane 1	0.54	64	0.50
Grit	M74	M74 S/B Raith Offslip	M74 S/B Raith Offslip	Slip Road	Hard Shoulder,	0.2	64	0.18

					Lane 1, Lane 2			
Grit	M74	M74 S/B Raith Offslip	M74 S/B Raith Offslip	Slip Road	Lane 2, Lane 3	0.18	47	0.27
TF	-	M74 S/B Raith Offslip	A725 / B7071 jct left turn			4.56	80	3.42
Grit	A725	A725 slip to B7071 left turn	A725 slip to B7071 left turn	Slip Road	Left Turn Filter	0.1	47	0.12
TF	-	B7071 from A725	A725 N/B Raith Roundabout Onslip			1.48	47	1.88
Grit	A725	A725 N/B Raith Onslip	A725 N/B Raith Onslip (L1, L2)	Slip Road	Lane 1, Lane 2	0.48	64	0.45
TF	-	A725 N/B Raith Onslip	A725 N/B Orbiston Offslip			0.51	80	0.38
Grit	A725	A725 N/B Orbiston Offslip	A725 N/B Orbiston Offslip	Slip Road	Lane 1	0.4	47	0.51
TF	-	A725 N/B Orbiston Offslip	A725 N/B Orbiston Onslip			0.33	47	0.4
Grit	A725	A725 N/B Orbiston Onslip	A725 N/B Orbiston Onslip	Slip Road	Lane 1	0.55	47	0.70
TF	-	A725 N/B Orbiston Onslip	A725 N/B Bellziehill Offslip			0.75	64	0.70
Grit	A725	A725 N/B Bellziehill Offslip	A725 N/B Bellziehill Offslip	Slip Road	Lane 1, Lane 2	0.23	47	0.29
TF	-	A725 N/B Bellziehill Offslip	A725 N/B Bellziehill Onslip			0.18	47	0.22
Grit	A725	A725 N/B Bellziehill Onslip	A725 N/B Bellziehill Onslip	Slip Road	Lane 1, Lane 2	0.37	47	0.4
TF	-	A725 N/B Bellziehill Onslip	A725 N/B Diamond Offslip			0.15	47	0.19
Grit	A725	A725 N/B Diamond Offslip	A725 N/B Diamond Offlslip	Slip Road	Lane 1, Lane 2	0.25	47	0.31
TF	-	A725 N/B Diamond Offslip	A725 N/B Strathclyde Business Park Offslip			2.19	47	2.79
Grit	A725	A725 N/B Strathclyde Business Park Offslip	A725 N/B Strathclyde Business Park Offslip	Slip Road	Lane 1, Lane 2	0.29	47	0.37

TF	-	A725 N/B Strathclyde Business Park Offsllp	A725 N/B Strathclyde Business Park Onslip			0.23	47	0.29
Grit	A725	A725 N/B Strathclyde Business Park Onslip	A725 N/B Strathclyde Business Park Onslip	Slip Road	Lane 1	0.17	47	0.21
TF	-	A725 N/B Strathclyde Business Park Onslip	A725 N/B M8 E/B Offslip			0.63	64	0.59
Grit	A725	A725 N/B to M8 E/B Link Road	A725 N/B to M8 E/B Link Road - first slip (H/S, L1, Hatching, L2)	Slip Road	Hard Shoulder, Lane 1, Hatching, Lane 2	0.8	64	0.75
Grit	M8	M8 E/B from A725 first slip	M8 E/B A725 lane gain	Main Carriage way	Hard Shoulder, Lane 1	0.39	64	0.36
Grit	M8	M8 E/B from A725 lane gain	M8 E/B Eurocentral Offlsip	Slip Road	Hard Shoulder, Lane 1	1.59	64	1.49
Grit	M8	M8 E/B Eurocentral Offslip	M8 E/B Eurocentral Offslip (H/S, L1, L2)	Slip Road	Hard Shoulder, Lane 1, Hatching / Lane 1, Hatching, Lane 2	0.91	47	1.16
TF	-	M8 E/B Eurocentral Offslip	M8 W/B Eurocentral Onslip			0.64	47	0.81
Grit	M8	M8 W/B Eurocentral Onslip	M8 W/B Eurocentral Onslip (H/S, L1, L2)	Slip Road	Hard Shoulder, Lane 1, Lane 2	0.63	64	0.59
Grit	M8	M8 W/B Eurocentral Onslip	M8 W/B Shawhead Offslip (H/S, L1)	Main Carriage way	Hard Shoulder, Lane 1	1	64	0.93
Grit	M8	M8 W/B Shawhead Offslip	M8 W/B Shawhead Offslip	Slip Road	Hard Shoulder, Lane 1, Hatching	0.27	64	0.25
Grit	m8	M8 W/B Shawhead Offslip	M8 W/B Shawhead Offslip	Slip Road	Hard Shoulder Lane 1, Lane 2/Merge	0.78	64	0.73
TF	-	M8 W/B Shawhead Offslip	Bargeddie Depot			6.17	80	4.6

Route 6

Depot To Route (KM)	1.45	Time to Route (Mins)	1.85
Route to Depot (KM)	0.67	Gritting Speed (KM/HR)	51.62
Route Length (KM)	92.17	Route Treated Length (KM)	23.57
Route Time (Mins)	96.45	Route Tonnage	4.52
Route Average Width (M)	6.61	Route Average Speed (KM/HR)	57.34

Action	Road	From	To	Main Carriageway / Slip	Treated Lanes	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
TF	-	Bargeddie Depot	A8/A89 Bargeddie Roundabout			1.45	47	1.85
Grit	A89	A89 W/B from A8/A89 Bargeddie Roundabout	A89 W/B at M8/A89 diverge	Main Carriage way	Lane 1, Lane 2	0.19	47	0.24
Grit	M8	M8 W/B Onslip from A89	M8 W/B Onslip from A89	Slip Road	Lane 1, Lane 2	0.76	64	0.71
Grit	M8	M8 W/B Onslip from A89	M8 W/B Onslip from A89	Slip Road	Hard Shoulder, Lane 1	0.23	64	0.22
TF	-	M8 W/B Onslip from A89	M8 W/B Jct 10 Offslip			1.85	96	1.16
Grit	M8	M8 W/B Jct 10 Offsip	M8 W/B Jct 10 Offslip, including left turning lane	Slip Road	Hard Shoulder, Lane 1, Left Turn Filter	0.36	47	0.46
TF	-	M8 W/B Jct 10 Offslip	M8 W/B Jct 10 Onslip			1	47	1.28
Grit	M8	M8 W/B Jct 10 Onslip	M8 W/B Jct 10 Onslip (including right turn)	Slip Road	Right Turn Filter and Lane 1	0.14	47	0.18
Grit	M8	M8 W/B Jct 10 Onslip	M8 W/B Jct 10 Onslip	Slip Road	Hard Shoulder, Lane 1	0.29	64	0.27
TF	-	M8 W/B Jct 10 Onslip	M8 E/B Jct 10 Onslip			3.59	64	3.37
Grit	M8	M8 E/B Jct 10 Onslip	M8 E/B Jct 10 Onslip	Slip Road	Lane 1 and merge	0.1	47	0.13
Grit	M8	M8 E/B Jct 10 Onslip	M8 E/B Jct 10 Onslip	Slip Road	Hard Shoulder, Lane 1	0.34	64	0.32

TF	-	M8 E/B Jct 10 Onslip	M8 E/B Jct 9 Offslip			0.77	64	0.72
Grit	M8	M8 E/B Jct 9 Offslip	M8 E/B Jct 9 Offslip including right turn	Slip Road	Hard Shoulder, Lane 1	0.44	47	0.56
TF	-	M8 E/B Jct 9 Offslip	M8 W/B Jct 9 Onslip			0.28	47	0.36
Grit	M8	M8 W/B Jct 9 Onslip	M8 W/B Jct 9 Onslip	Slip Road	Hard Shoulder, Lane 1	0.51	47	0.65
TF	-	M8 W/B Jct 9 Onslip	M8 W/B Jct 10 Offslip			1.1	64	1.03
Grit	M8	M8 W/B Jct 10 Offslip left turn	M8 W/B Jct 10 Offslip left turn	Slip Road	Right Turn Filter	0.1	47	0.13
TF	-	M8 W/B Jct 10 Offslip	M8 W/B Jct 10 Onslip			1	47	1.28
Grit	M8	M8 W/B Jct 10 Onslip	M8 W/B Jct 10 Onslip (Left turn)	Slip Road	Left Turn Filter	0.1	47	0.13
TF	-	M8 W/B Jct 10 Onslip	M8 E/B Jct 9 Offslip			5.41	64	5.07
Grit	M8	M8 E/B Jct 9 Offslip	M8 E/B Jct 9 Offslip (left turn)	Slip Road	Left Turn Filter	0.1	47	0.13
TF	-	M8 E/B Jct 9 Offslip	M8 E/B Under Wardie Road			2.89	64	2.71
Grit	M8	M8 E/B Under Wardie Road	M8 E/B Under Wardie Road	Main Carriage way	Hard Shoulder	0.14	64	0.13
TF	-	M8 E/B Under Wardie Road	M8 E/B Under Easterhouse Road			0.73	96	0.46
Grit	M8	M8 E/B Under Easterhouse Road	M8 E/B Under Easterhouse Road	Main Carriage way	Hard Shoulder	0.12	64	0.11
TF	-	M8 E/B Under Easterhouse Road	M8 E/B Offslip to A89			0.69	96	0.43
Grit	M8	M8 E/B Offslip to A89	M8 E/B Offslip to A89	Slip Road	Hard Shoulder, Lane 1 / Lane 1, Lane 2	0.68	64	0.64
TF	-	M8 E/B Offslip to A89	A8 APR Eurocentral North Roundabout			7.2	64	6.75
Grit	A8 APR	A8 APR Eurocentral North Roundabout	A8 APR Eurocentral North Roundabout	Roundabout	Lane 1, Lane 2	0.3	47	0.38

TF	-	A8 APR Eurocentral North Roundabout	A8 APR Eurocentral North Roundabout diverge to Eurocentral Overbridge			0.21	47	0.27
Grit	A8 APR Eurocentral Overbridge	A8 APR Eurocentral North Roundabout	A8 APR Eurocentral South Roundabout	Overbridge	Lane 1, Lane 2	0.17	47	0.22
Grit	A8 APR	A8 APR Eurocentral South Roundabout	A8 APR Eurocentral South Roundabout	Roundabout	Lane 1, Lane 2	0.3	47	0.38
TF	-	A8 APR Eurocentral South Roundabout	A8 APR Eurocentral South Roundabout diverge to Parklands Avenue			0.1		
Grit	Parklands Avenue	A8 APR Eurocentral South Roundabout	Approach to Shawfoot Road Junction	Main Carriageway	Lane 1	0.12	47	0.15
TF	-	Approach to Shawfoot Road Junction	Shawfoot Road Junction Exit			0.1	47	0.13
Grit	Parklands Avenue	Shawfoot Road Junction Exit	A8 APR Eurocentral South Roundabout	Main Carriageway	Lane 1	0.12	47	0.15
TF	-	A8 APR Eurocentral South Roundabout	A8 APR Eurocentral South Roundabout diverge to Townhead Avenue			0.1	47	0.13
Grit	Townhead Avenue	Townhead Avenue S/B from A8 APR Eurocentral South Roundabout	Townhead Avenue S/B at Renshaw Place Roundabout	Main Carriageway	Lane 1, Lane 2	0.36	47	0.46
TF	-	Townhead Avenue S/B at Renshaw Place Roundabout	Townhead Avenue N/B at Renshaw Place Roundabout			0.2	47	0.26
Grit	Townhead Avenue	Townhead Avenue N/B from Renshaw Place	Townhead Avenue N/B at A8 APR Eurocentral	Main Carriageway	Lane 1, Lane 2	0.35	47	0.45

			South Roundabout					
TF	-	A8 APR Eurocentral South Roundabout Townhead Avenue Merge	A8 APR Eurocentral South Roundabout Eurocentral Overbridge			0.1	47	0.13
Grit	A8 APR Eurocentral Overbridge	A8 APR Eurocentral South Roundabout	A8 APR Eurocentral North Roundabout	Main Carriage way	Lane 1, Hatching	0.16	47	0.20
TF	-	A8 APR Eurocentral North Roundabout	Access Track off North Roundabout			0.2	47	0.26
Grit	Access Track	Access Track off North Roundabout	Access Track off North Roundabout	Access Track	all lanes	0.4	47	0.51
TF	-	Access Track off North Roundabout	A8 APR E/B Chapelhall North Roundabout			1.86	80	1.40
Grit	A8 APR	A8 APR Chapelhall North Roundabout	A8 APR Chapelhall North Roundabout	Roundabout	Lane 1, Lane 2	0.35	47	0.45
TF	-	A8 APR Chapelhall North Roundabout	A8 APR Chapelhall North Roundabout Diverge to Chapelhall North Link Road			0.1	47	0.13
Grit	Chapelhall Link Road North	A8 APR Chapelhall North Roundabout	Chapelhall Link Road North	Link Road	Lane 1	0.11	47	0.14
Grit	Chapelhall Link Road North	Chapelhall Link Road North	Bo'ness Road North Roundabout	Link Road	Lane 1, Lane 2	0.1	47	0.13
Grit	Bo'ness Road	Bo'ness Road North Roundabout	Bo'ness Road North Roundabout	Roundabout	Lane 1, Lane 2	0.35	47	0.45

Grit	Woodhall Mill Road	Woodhall Mill Road N/B at Bo'ness Road North Roundabout	Woodhall Mill Road N/B end of splitter island diverging roundabout	Main Carriage way	Lane 1	0.1	47	0.13
Grit	Woodhall Mill Road	Woodhall Mill Road at Bo'ness Road North Roundabout	Woodhall Mill Road adjacent to football pitches on approach to Calderbank (including both sides at islands)	Main Carriage way	N/B and S/B Lanes	0.6	64	0.56
TF	-	Woodhall Mill Road approach to Calderbank	Woodhall Mill Road S/B approach to Bo'ness Road North Roundabout			1.16	64	1.09
Grit	Bo'ness Road	Bo'ness Road North Roundabout	Lancaster Avenue Roundabout	Main Carriage way	Hatching, Lane 1	0.15	47	0.19
TF	-	Lancaster Avenue Roundabout	Bo'ness Road S/B			0.2	47	0.26
Grit	Bo'ness Road	Bo'ness Road S/B from Lancaster Avenue	Bo'ness Road North Roundabout	Main Carriage awy	Lane 1, Lane 2	0.14	47	0.18
TF	-	Bo'ness Road North Roundabout	Bo'ness Road North Roundabout Overbridge diverge			0.15	47	0.19
Grit	Bo'ness Road	Bo'ness Road Overbridge from North Roundabout	Bo'ness Road Overbridge to end of bus layby north of M8	Main Carriage way	Lane 1, layby	0.12	47	0.15
Grit	Bo'ness Road	Bo'ness Road Overbridge from end of bus layby north of M8	Bo'ness Road Overbridge to beginning of bus layby south of M8	Main Carriage way	N/B and S/B Lanes	0.38	47	0.49
Grit	Bo'ness Road	Bo'ness Road Overbridge from beginning of bus layby south of M8	Bo'ness Road South Roundabout	Main Carriage way	Lane 1, Layby/Lane 2	0.12	47	0.15
Grit	Bo'ness Road	Bo'ness Road South Roundabout	Bo'ness Road South Roundabout	Roundabout	Lane 1, Lane 2	0.34	47	0.43
Grit	Bo'ness Road	Bo'ness Road South Roundabout	Bo'ness Road exit from South Roundabout	Main Carriage way	Lane 1, Hatching	0.1	47	0.13

TF	-	Bo'ness Road exit from South Roundabout	Bo'ness Road approach to south roundabout			1.27	47	1.62
Grit	Bo'nes s Road	Bo'ness Road approach to south roundabout	Bo'ness Road approach to south roundabout	Main Carriage way	Lane 1, Lane 2	0.1	47	0.13
TF	-	Bo'ness Road approach to south roundabout	Bo'ness Road exit to McNeil Drive			0.1	47	0.13
Grit	McNeil Drive	McNeil Drive diverge from Bo'ness Road South Roundabout	McNeil Drive diverge from Bo'ness Road South Roundabout	Main Carriage way	Lane 1, Hatching	0.1	47	0.13
TF	-	McNeil Drive diverge from Bo'ness Road South Roundabout	McNeil Drive approach to Bo'ness Road South Roundabout			1.25	47	1.60
Grit	McNeil Drive	McNeil Drive approach to Bo'ness Road South Roundabout	McNeil Drive approach to Bo'ness Road South Roundabout	Main Carriage way	Lane 1, Lane 2	0.1	47	0.13
TF	-	Bo'ness Road South Roundabout	Bo'ness Road South Roundabout exit to Bo'ness Road Overbridge			0.1	47	0.13
Grit	Bo'nes s Road	Bo'ness Road South roundabout Exit to Bo'ness Road Overbridge	Bo'ness Road South roundabout Exit end of bus layby south of M8	Main Carriage way	Hatching, Lane 1	0.17	47	0.22
TF	-	Bo'ness Road bus layby south of M8	Bo'ness Road bus layby north of M8			0.34	47	0.43
Grit	Bo'nes s Road	Bo'ness Road bus layby north of M8	Bo'ness Road North Roundabout	Main Carriage way	Lane 1, Lane 2/layby	0.11	47	0.14
TF	-	Bo'ness Road North Roundabout	Chapelhall Link Road North			0.1	47	0.13
Grit	Chapel hall Link Road North	Bo'ness Road North Roundabout	Chapelhall Link Road North at end of island at Bo'ness Road	Main Carriage way	Lane 1, Hatching	0.1	47	0.13

Grit	Chapelhall Link Road North	Chapelhall Link Road North	Chapelhall Link Road approach to A8 Chapelhall North Roundabout	Main Carriage way	Lane 1	0.1	47	0.13
Grit	Chapelhall Link Road North	Chapelhall Link Road approach to A8 Chapelhall North Roundabout	Chapelhall Link Road approach to A8 Chapelhall North Roundabout	Main Carriage way	Lane 1, Lane 2	0.1	47	0.13
TF	-	A8 APR Chapelhall North Roundabout	A8 APR Chapelhall North Roundabout exit to Chapelhall Link road			0.11	47	0.14
Grit	Chapelhall Link Road	A8 APR Chapelhall North Roundabout	A8 APR Chapelhall South Roundabout	Main Carriage way	Lane 1, Hatching	0.14	47	0.18
Grit	A8 APR	A8 APR Chapelhall South Roundabout	A8 APR Chapelhall South Roundabout	Roundabout	Lane 1, Lane 2	0.35	47	0.45
TF	-	A8 APR Chapelhall South Roundabout	A8 APR Chapelhall South Roundabout exit to Chapelhall Link Road South			0.1	47	0.13
Grit	Chapelhall Link Road South	A8 APR Chapelhall South Roundabout	Bo'ness Road South Roundabout	Main Carriage way	Lane 1, Lane 2/hatching	0.24	47	0.31
TF	-	Bo'ness Road South Roundabout	Bo'ness Road South Roundabout exit to Chapelhall Link Road south			0.32	47	0.41
Grit	Chapelhall Link Road South	Bo'ness Road South Roundabout	A8 APR Chapelhall South Roundabout	Main Carriage way	Lane 1, Lane 2	0.24	47	0.31
TF	-	A8 APR Chapelhall South Roundabout	A8 APR Chapelhall South Roundabout exit to Chapelhall Link Road			0.16	47	0.20
Grit	Chapelhall Link Road	A8 APR Chapelhall South Roundabout	A8 APR Chapelhall North Roundabout	Main Carriage way	Lane 1, hatching	0.15	47	0.19

TF	-	A8 APR Chapelhall North Roundabout	Carnbroe Road Access Track			7.15	64	6.70
Grit	Carnbroe Road Access Track	Carnbroe Road Access Track	Carnbroe Road Access Track	Access Track	All Lanes	0.84	47	1.07
TF	-	Carnbroe Road Access Track	A8 Bankhead Farm Access Bridge			4.9	64	4.59
Grit	Bankhead Farm Access Track	A8 Bankhead Farm Access Bridge	A8/A725 Cycleway	Access Track	all lanes	1.79	47	2.29
TF	-	A8/A725 Cycleway	A8 Bankhead Farm Access Bridge			1.62	47	2.07
Grit	Bankhead Farm Access Track	A8 Bankhead Farm Access Bridge	A752 Cycleway	Access Track	all lanes	0.88	47	1.12
TF	-	A752 Cycleway	M8 W/B Shawhead Offslip			10.9	64	10.22
Grit	M8	M8 W/B Shawhead Offslip	M8 W/B Baillieston Offslip	Main Carriage way	Hard Shoulder, Lane 1	3.88	64	3.64
Grit	M8	M8 W/B Baillieston Offslip	M8 W/B Baillieston Offslip	Slip Road	Hard Shoulder, Lane 1, Lane 2	0.9	64	0.84
TF	-	M8 W/B Baillieston Offslip	Bredisholm Road, Bargeddie			3.49	47	4.46
Grit	Bredisholm Road	Bredisholm Road, Bargeddie	Bredisholm Road, Baillieston	Access Track		1.87	47	2.39
TF	-	Bredisholm Road, Baillieston	Bredisholm Road, Bargeddie - at the junction at railway bridge			1	47	1.28
Grit	Access Track	Bredisholm Road, Bargeddie - at the junction at railway bridge	Access Track at cycleway west of A752	Access Track		1.21	47	1.54

TF	-	Access Track at cycleway west of A752	Access Track at Bargeddie SUDS Pond			2.58	47	3.29
Grit	Access Track	Access Track at Bargeddie SUDS Pond	Access Track at Bargeddie SUDS Pond	Access Track		0.36	47	0.46
TF	-	Access Track at Bargeddie SUDS Pond	Bargeddie Depot			0.67	47	0.86

Depot To Route (KM)	3.63	Time to Route (Mins)	4.63
Route to Depot (KM)	4.36	Gritting Speed (KM/HR)	8.08
Route Length (KM)	28.02	Route Treated Length (KM)	6.07
Route Time (Mins)	95.19	Route Litres (Brine)	465.29
		Route Litre (Potassium Acetate)	72.01
Route Average Width (M)	3.00	Route Average Speed (KM/HR)	17.66

Action	From	To	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
TF	Bargeddie Depot	Bredisholm Road Baillieston	3.63	47	4.63
Spray	bredisholm road , baillieston footpath	bredisholm road baillieston footpath	0.1	10	0.60
TF	Bredisholm Road, Baillieston footpath	Braehead West Footpath (at south of Bredisholm Road Bridge)	1.41	47	1.80
Spray	Braehead West Footpath (at south of Bredisholm Road Bridge)	Braehead West Footpath (at south of Bredisholm Road Bridge)	0.232	10	1.39
TF	Braehead West Footpath (at south of Bredisholm Road Bridge)	Aitkenhead West Footpath	0.797	47	1.02
Spray	Aitkenhead West Footpath	Aitkenhead West Footpath	0.32	10	1.92
TF	Aitkenhead West Footpath	Footpath between A752 and A8 Slip	0.01	47	0.01
Spray	Footpath between A752 and A8 Slip	Footpath between A752 and A8 Slip	0.02	10	0.12
TF	Footpath between A752 and A8 Slip	Aitkenhead East Footpath	0.007	47	0.01
Spray	Aitkenhead East Footpath	Aitkenhead East Footpath	0.267	10	1.60
TF	Footpath to east of A8 slip	Footbridge to Showcase Cinema	0.27	47	0.34
Handspray	Kirkwood Footpath and Footbridge - Showcase	Kirkwood Footpath and Footbridge - Showcase	0.549	4	8.24
TF	Kirkwood Footbridge – Showcase	Kirkwood Footbridge - Showcase	0.549	4	8.24
TF	Kirkwood Footbridge – Showcase	Bargeddie Depot - Refill Potassium Acetate	1.2	47	1.53
TF	Bargeddie Depot	Kirkshaws Road	4.2	47	5.36
Spray	Kirkshaws Road	West of North A725 Overbridge	0.59	10	3.54
TF	West Of North A725 Overbridge	East Of North A725 Overbridge	0.02	47	0.03
Spray	A8 Footpath eastwards to Eurocentral	A8 Footpath at Carnbroe	1.269	10	7.61

Handspray	A8 Carnbroe footpath and bridge	A8 Carnbroe footpath and bridge	0.431	4	6.47
TF	A8 Carnbroe footpath and bridge	A8 Carnbroe footpath and bridge	0.431	4	6.47
Spray	A8 Carnbroe Bridge	A8 Eurocentral	1.18	10	7.08
TF	A8 Eurocentral	A8 Eurocentral North Cycletrack	0.5	47	0.64
Spray	A8 Eurocentral North Cycletrack	A8 Eurocentral North Cycletrack*	0.267	10	1.60
TF	A8 Eurocentral North* Cycletrack	A8 Shawhead Refill Area	3.7	47	4.72
TF	A8 Shawhead Refill Area	North Road	0.5	47	0.64
Handspray	Footpath approaching north Road Overbridge and the Overbridge	Footpath approaching noorth Road Overbridge and the Overbridge	0.26	4	3.90
Handspray	Footbridge over A725 North Road (North Bridge)	Footbridge over A725 North Road (North Bridge)	0.114	4	1.71
Tf	Footbridge over A725 North Road (North Bridge)	North Road	0.374	4	5.61
Spray	A725 North Road footpath from North bridge	North Road limit of LMA	0.466	10	2.80
TF	North Road	Bargeddie Depot	4.36	47	5.57

*Treatment to Chapelhall Woodland facility will be carried out dependant on suitable access (tie ins) until handover to the L.A. 0.2km facility with a spray quantity of 10L.

Depot To Route (KM)	3.33	Time to Route (Mins)	4.25
Route to Depot (KM)	8.61	Gritting Speed (KM/HR)	9.53
Route Length (KM)	30.04	Route Treated Length (KM)	5.14
Route Time (Mins)	78.45	Route Liters (Brine)	496.42
		Route Litres (Potassium Acetate)	12.17
Route Average Width (M)	3.33	Route Average Speed (KM/HR)	22.97

Action	From	To	Distance (KM)	Average Speed (KM/HR)	Time (Mins)
TF	Bargeddie Depot	Easterwood Footpath	3.33	47	4.25
Spray	Easter Wood Footpath	Easter Wood Footpath	0.21	10	1.26
Handspray	A725 South overbridge and approaches	A725 South overbridge and approaches	0.175	4	2.63
Travel	A725 South overbridge and approaches	A725 South overbridge and approaches	0.175	4	2.63
Spray	Strathclyde Business Park Footpath Link	Strathclyde Business Park Footpath Link	0.46	15	1.84
Handspray	Footbridge over north calder water	Footbridge over north calder water	0.02	4	0.30
TF	Footbridge over north calder water	Footbridge over north calder water	0.02	4	0.30
TF	Footbridge over north calder water	Footbridge over north calder water	0.02	47	0.03
Spray	A725 Access Track - adjacent to Strathclyde Business Park	A725 Access Track - adjacent to Strathclyde Business Park	0.364	10	2.18
TF	A725 Access Track - adjacent to Strathclyde Business Park	Orbiston Footpath to A725	3.17	47	4.05
Spray	A725 Footpath Orbiston	A725 Footpath Raith	0.682	10	4.09
Spray	Strathclyde Park	Raith Overbridge	0.313	10	1.88
Handspray	Raith north Footbridge	Raith north Footbridge	0.024	10	0.14
Spray	Raith Inner Footpath	Raith Inner Footpath	0.477	10	2.86

Handspray	Raith South Footbridge	Raith South Footbridge and ramp	0.172	10	1.03
Spray	Raith South Footbridge	B7071 /A725 Junction Footpath	0.103	10	0.62
Spray	B7071 /A725 Junction Footpath	B7071 Bellshill Road/ Hamilton Road Junction	0.421	10	2.53
TF	B7071 Southbound Path	B7071 northbound path	0.2	5	2.40
Spray	B7071 Bellshill Road/ Hamilton Road Junction	B7071 /A725 Junction Footpath	0.334	10	2.00
Spray	B7071 Footpaths at Industrial Estate	B7071 Footpaths at Industrial Estate	0.09	10	0.54
TF	B7071 Bellshill Road	Access Track at Strathclyde Park	1.29	47	1.65
Spray	Access To Kilmalie house	Access To Kilmalie house	0.72	10	4.32
Handspray	Kilmalie House	A725 Oriston	0.078	4	1.17
TF	Kilmalie House	A725 Oriston	0.078	4	1.17
TF	Access To Kilmalie house	Access Track off M73	8	47	10.21
Spray	Access Track off M73	Access Track off M73	0.5	10	3.00
TF	Access Track off M73	Swordale Place Footpath	8.61	47	10.99
Spray	Swordale Place Footpath	Swordale Place Footpath	0.14	10	0.84
TF	Swordale Place Footpath**	Bargeddie Depot	5.91	47	7.54

**The Rutherglen to Coatbridge Railway Line Access Track will be treated at the end of this route, dependant on suitable access until hand over to third party. 0.06km treatment length, at a treatment quantity of 6 litres

ANNEX WSP 3
OPERATIONAL SALT STOCK LEVELS

Table 1: Minimum Salt Stock Levels at Start of Season 2017-2018

Minimum Salt Stock Level (tonnes)
2,700

De-icing Material (i.e. Dry salt / ABP)	Location	Type (barn / open)	Min (tonnes) 1st Oct
Dry Salt (6.3mm Rock)	Bargeddie	Barn	5000
Dry Salt (Marine)	Bargeddie	Open	27

Table 1A –Brine Production and Storage

Location	Type (saturator / storage only)	Capacity (L)	Min (L)
Bargeddie	Saturator/store	20,000	10,000

Table 1B –Alternative De-Icing Materials Storage

Location	Material	Capacity (L)	Min (L)
Bargeddie	Safecote	10,000	3,000
Bargeddie	Potassium Acetate	3,000	1,000

ANNEX WSP 4
NOT USED

ANNEX WSP 5
WINTER SERVICE PLANT

Table 1: Frontline Winter Service Plant permanently available and located in the O&M Works Site for the Winter Service for carriageways shall be as Table 1

Type of Winter Service Plant	Vehicle Registration	Depot Location	Vehicle Capacity	Route Details	Plant Use* (i), (ii) (iii)
8 x 4 Spreader	WV64 YHU	Bargeddie	12m^3	Precautionary treatment Route 1	(i), (ii) & (iii)
8 x 4 Spreader	WV64 YHS	Bargeddie	12m^3	Precautionary treatment Route 2	(i), (ii) & (iii)
8 x 4 Spreader	WV64 YHT	Bargeddie	12m^3	Precautionary treatment route 3	(i), (ii) & (iii)
8 x 4 Spreader	WV64 YWR	Bargeddie	12m^3	Precautionary treatment route 4	(i), (ii) & (iii)
8 x 4 Spreader	WU67 HXN	Bargeddie	12m^3	Precautionary treatment route 5	(i), (ii) & (iii)
4 x 2 Spreader	BG14 TVF	Bargeddie	6m^3	Precautionary treatment route 6	(i), (ii) & (iii)

Please refer to Annex WSP 2 for precautionary treatment route details

Please refer to Appendix B for patrol route details

Key:

(i) precautionary treatment;

(ii) snow clearance up to 100 millimetres; and

(iii) Arrangements to comply with Section 3 of this Part 2 of these O&M Works Requirements.

Table 2: Front line Winter Service Plant permanently available and located in the O&M Works Site for the Winter Service for non motorised user facilities shall be as Table 2

Type of Winter Service Plant	Registration Number	Depot Location	Vehicle Capacity	Number of Vehicles	Plant Use
Mitsubishi L200 Pickup	VU65 VTM VU65 VTK	Bargeddie	500L Hilltip SprayStriker Sprayers	2	(i), (ii)

Key:

(i) precautionary treatment;

(ii) Snow Clearance

Table 3: Reserve Winter Service Plant permanently available and located in the O&M Works Site for Winter Service for carriageway, non motorised user facilities and shall be as table 3

Type of Winter Service Plant	Registration Numbers	Depot Location	Vehicle Capacity	Number of Vehicles	Plant Use
6 x 4 Spreader	VN11 PHF	Bargeddie	9m^3	1	(i)
Transit 3.5t pick up, 2 men & manual spreader	LN14 EKR LN14 EHV	Bargeddie	1.5 tonnes	2	(ii)
Multi-Hog tractor, mechanical spreader, snowplough and snow blower	PO64 HVW	Bargeddie	700 litre Sprayer / 1 Tonne Salt	1	(i), (ii)

Key:

(i) carriageways; and

(ii) footways, footbridges and cycle facilities

Table 4: Additional Winter Service Plant provided through contingency arrangements with another party, the detail of the arrangement in respect of mobilisation

Type of Winter Service Plant	Registration Number	Depot Location and Operator	Vehicle Capacity	Number of Vehicles	Provider name and mobilisation arrangement details where third party provider
4*2 Spreader	VX57 KZK	Amey Public Services Bargeddie	6M3	1	APS Duty Engineer, on call 24/7 on rota basis

Table 5: Loading Service Plant permanently available and located at each loading point shall be as Table 5

Type of Winter Service Plant	Registration Number	Depot Location and Operator	Vehicle Capacity	Number of Vehicles
JCB Telehandler	MK16 DSZ	Bargeddie	1 cub m	1
Case 721C Loading Shovel	(Serial No JEE0124798)	Bargeddie	3 cub m	1

Table 6: The O&M Works Contractors Office and Depot Details

Compound, Depot or Facility Name	Owner	Postal Address	Purpose	Access Arrangements	Contact Details	Facilities
Bargeddie Depot	Leased (North Lanarkshire Council)	Amey, Langmuir Road, Bargeddie, G69 7TU	Main O&M Office and Depot	Open during treatments. Direct access from Langmuir Road	*Redacted*	Full Operational Facilities

ANNEX WSP 6 - LOCATION OF EXISTING ROAD / ICE SENSORS AND WEATHER STATIONS

Table 1: Location of Ice Sensors

Ice Station Number	Route	Site Name	Findlay Irvine / Vaisala	Surface Type	Camera
1	M73	Gartcosh	Vaisala	SMA	None
2	M8	Riddrie	Findlay Irvine	HRA	None
3	M8	Duntilland	Vaisala	SMA	Bi-Directional
4	A725	Crossbaskets	Findlay Irvine	SMA	None
5	M74	Canderside	Vaisala	SMA	None
6	M80	Old Inns	Vaisala	SMA	None

Note: Only sensor no.1 above situated on M73 Gartcosh is located within the O&M Works Site however sites 2, 3, & 6 are located nearby on the routes noted. All stations listed above will be interrogated regularly and information from these will be used when determining the decision on treatment.

APPENDIX E
NON MOTORISED USER FACILITIES

Non Motorised User Facilities

The non motorised user facilities are as per the O&M scheme reference drawings and are detailed in Appendix D