**Sample Winter Service Plan**

Date: xx/xx/20xx

*[INSERT TII Ref. No.]*

Winter Service Plan Template

Local Authority Logo & Technical Advisor Logo

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Preface

**Instructions for Use**

Local Authorities are required to prepare and complete the Winter Service Plan using the Winter Service Plan Template contained within AM-PAV-06051 Winter Service Manual. The Winter Service Plan Template contains:

1. text in black which must not be changed; and
2. text in grey shading which shall be used to guide the Local Authority in its completion dependent on the resources and approach taken by the Local Authority in order to deliver the winter service.

A Word version of this template is available at: https://www.tiipublications.ie/downloads/

**Introduction and Purpose**

This Winter Service Plan describes the policy, objectives, procedures and operational arrangements for the delivery of winter service and details the alert procedures and actions in the event of winter weather on sections of the national road network within the administrative area of [Local Authority]. The document serves a number of more specific purposes:

**Policy Document**

The Winter Service Plan sets out TII’s policy and objectives in the context of Local Authority winter service delivery.

The Winter Service Plan outlines the key objectives of TII and the responsibilities of the Local Authority in the management and delivery of winter service on the national road network, including the monitoring and reporting of salt stock levels.

**Quality Plan**

The Winter Service Plan forms part of the Local Authority’s Integrated Management System.

**Contingency Plan**

The Winter Service Plan is linked with the Local Authority’s and TII’s wider Network contingency objectives.

**Environmental Policy**

*Local Authority to insert statement on its Environmental Policy and reference to the Local Authority’s procedures and control measures relating to all aspect of winter service and severe weather operations.*

**Health and Safety Policy**

*Local Authority to insert statement on its Health and Safety Policy and reference to the Local Authority’s Method Statements and Risk Assessments relating to all aspect of winter service and severe weather operations.*

**Energy Management Policy**

*Local Authority to insert statement on Energy Management and reference to the Local Authority’s Method Statements and Risk Assessments relating to all aspect of winter service and severe weather operations.*

**Reference Documents**

*Reference shall also be made to the following documents:*

1. TII Publication AM-PAV-06051, Winter Service Manual
2. A Framework for Major Emergency Management – Guidance Document 14 – A guide to Severe Weather Emergencies – Department of the Environment, Heritage & Local Government.
3. NWSRG Practical Guides to Winter Service.

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*The distribution list shall include relevant Local Authority staff, sub-contractor staff, TII staff, TII’s Representatives, neighbouring Managing Organisations i.e. Local Authorities or TII’s adjoining Contractors, PPPs, Emergency Services and any other key stakeholders such as weather forecast providers. The internal document distribution shall include all decision makers and managers.*

*Where necessary, this distribution list can be included as a separate appendix to the document.*

*The above document control and document distribution tables shall be amended to comply with individual organisations’ own quality management procedures.*

*Documents shall preferably be distributed electronically and, to preserve format and maintain document control and security, PDF format is recommended.*

1. Introduction
   1. General

This section of the Winter Service Plan outlines the scope of the services provided, responsibilities for provision of those services and details the extent of the national road network on which the service is provided.

*[Local Authority]* shall ensure that the operational activities contained in this plan dovetail with *[neighbouring Managing Organisations].*

* 1. Policy

*[Local Authority]* shall ensure that total width of carriageways on the national road network within its administrative area are kept free of frost, ice and snow as far as is reasonably practicable.

The total width of carriageways can include:

1. main carriageway lanes
2. slip roads
3. hard shoulders
4. hard strips
5. turning lanes
6. roundabout carriageway lanes
7. link roads
8. bus lanes
9. central reserve crossovers
10. overbridge roads
11. underbridge roads
12. lay-bys
13. footways
14. integrated cycleways
15. footbridges
16. bus bays

*[Local Authority]* shall prevent frost, ice or snow forming on or bonding with the pavement surface using precautionary (anti-icing) treatments. Ice shall be defined as frozen water from any source on the carriageway surface.

In the event of *[Local Authority]* failing to prevent ice or snow forming on or bonding to the pavement surface, reactionary (de-icing) treatments shall be undertaken.

* 1. Performance Levels

The performance levels for precautionary (anti-icing) and reactionary (de-icing) treatments are defined in the table below. In the event of *[Local Authority]* failing to prevent ice or snow forming on or bonding to the pavement surface *[Local Authority]* shall undertake reactionary treatments.

|  |  |  |  |
| --- | --- | --- | --- |
| **Location** | **Treatment Type** | **Event** | **Performance Level** |
| Main carriageway lanes, slip road, hard shoulder, hard strips, turning lane, roundabout carriageway lanes, link roads, bus lanes, central reservation crossovers, overbridge roads, underbridge roads, lay-bys, bus bays | Precautionary Treatment  (Anti-icing) | Frost | All national routes to be kept free of frost at all times as far as reasonably practicable |
| Ice (including Freezing Rain) | All national routes to be kept free of ice at all times as far as reasonably practicable. |
| Snow | All national routes to be kept free of snow at all times as far as reasonably practicable. |
| Reactionary Treatment  (De-icing) | Routes/lanes abandoned due to snow or ice. | 24 hours to restore all surfaces following cessation of snow.  24 hours to restore all surfaces after the formation of ice. |
| Footways, integrated cycleways and footbridges | Reactionary Treatment  (De-icing) | Ice (including Freezing Rain) | Clear of ice within 24 hours. |
| Snow | Clear of snow within 48 hours of cessation. |

By achieving the performance levels for winter service, *[Local Authority]* shall as far as is reasonably practicable ensure the conditions to allow the safe movement of traffic, other users and the public on the national road network and keep to a minimum incidents and delays caused by winter weather.

* 1. Preparation of the Winter Service Plan

It is the responsibility of the Winter Service Manager to prepare the Winter Service Plan and undertake the duties of the Winter Service Manager as set out in the TII Winter Service Manual. The Winter Service Manager may also act as a Decision Maker.

* 1. Weather Warning Systems

The decision makers will use a combination of the following weather warning systems to aid in the delivery of the winter service.

|  |
| --- |
| Weather Warning Systems |
| Public Service Severe Weather Warning from Met Éireann |
| General Met Éireann Weather Forecast or Alert |
| Warning from other agencies |
| TII’s Road Weather Information System (RWIS) |
| Tidal surge warnings (e.g. Dublin Triton system) |

* 1. Winter Service Definitions

The following weather definitions are provided:

| Weather | Definition |
| --- | --- |
| Heavy Snow | More than 4cm per hour of snow for at least 2 hours |
| Blizzards/drifting snow | a. Moderate or heavy snow combined with winds of 50kph or more with visibility reduced to 200 metres or less or: -  b. Drifting snow giving rise to similar conditions |
| Very heavy snowfall, blizzards or drifting snow | Expected to give depths of 15cm or more potentially resulting in widespread dislocation of communications. Blizzards are severe when visibility is reduced to near zero. |
| Freezing rain or fog / widespread icy roads | Any atmospheric condition or state which gives rise to the accretion of ice on road surfaces |
| Heavy rain | Expected to persist for at least 2 hours and to give more than 6mm of rain per hour |
| Strong Gales | Repeated gusts of 110kph or more over inland areas, with a risk to high-sided vehicles being blown over. |
| Storms | Repeated gusts of 130kph or more over inland areas, which could cause cars to be blown out of their lane on the carriageway. |
| Fog | The official definition of fog is visibility of less than 1000 metres. Whereas for a motorist; visibility of less than 200 metres is more realistic. Severe disruption to transport occurs when the visibility falls below 50 metres. |

* 1. Winter Response Time

The Winter Response Time is defined as the time taken from the decision to begin the winter service response or snow clearance until the winter service vehicles are loaded, manned and ready to leave the Depot.

* The Winter Response Time for Precautionary Treatment on national routes shall be a maximum of 1 hour.
* The Winter Response Time for Reactionary Treatment including snow and ice clearance on national routes shall be a maximum of 1 hour.

The Winter Response Time shall not apply when the decision to mobilise is taken in advance as part of a Precautionary Treatment but in any case, shall not exceed one hour.

* 1. Winter Treatment Time

The Winter Treatment Time is defined as the time taken from leaving the Depot through to returning to the Depot after completion of the Precautionary Treatment routes.

* The Winter Treatment Time for Precautionary Treatment shall be a maximum of 2.5 hours.
  1. Winter Service Duties and Responsibilities

Winter service duties including precautionary salting, reactive salting, snow clearance and the management and maintenance of sufficient salt stock levels, are the responsibility of *[Local Authority]*.

Winter service duties including operational considerations, alert procedures and actions are the responsibility of *[Local Authority]*.

* + 1. Role of TII

TII are responsible for the following:

1. Setting the overall policy and objectives on the provision of winter services on the national road network and co-ordination of operations at a regional and national level at times of severe weather.
2. Overseeing operations management and performance.
3. Procurement of strategic salt supplies.
4. Provision of some TII provided depots.
5. Provision of some winter service vehicles and equipment to Local Authorities.
6. Provision of a Road Weather Information System (RWIS) to assist Local Authorities in deciding when treatment for frost, ice or snow is required on the national road network.
7. Liaison with the media.
   * 1. Role of [Local Authority]

*[Local Authority]* are responsible for:

1. Development of the Winter Service Plan.
2. Implementation of the Winter Service Plan and delivery of the winter service as defined in the plan.
3. Design of winter service treatment routes.
4. Liaison with weather forecasting services.
5. Day to day decision making and operational management.
6. Provision of all necessary winter service vehicles and equipment, excluding those detailed as being supplied by TII, to undertake and deliver the winter service.
7. Supply of plant, labour and materials.
8. Maintenance and operation of vehicles, depots and equipment.
9. Liaison with TII.
10. Reporting to TII.
11. Monitoring and reviewing performance.
12. Monitoring salt stocks (and stocks of other appropriate materials).
13. Liaison with neighbouring Managing Organisations to promote a coordinated service.
14. advising the general public.
15. reporting to the general public through the elected council.
16. Liaison with the media.
    1. Network
       1. Description of Network

*Include a description of the national road network within the Local Authority’s administrative area including general details or features that may impact on the winter service operations and areas most likely to be affected by severe weather.*

* + 1. Extent of Network

The extent of the national road network covered by this Winter Service Plan is shown in the following tables, with the detailed Network Map included within Appendix A.2.

The key interfaces are defined in the Interface Drawings which are included within Appendix A.3.

|  |  |
| --- | --- |
| Road | Extent |
| [N999] | From [x] to [y] |
|  |  |
|  |  |
|  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | From | To | Route Description | Plan |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

*The above table shall include details of all footways, bus lanes, bus bays and integrated cycleways to be treated. Plans shall be included in Appendix A.2 and appropriate cross references included in the above table.*

Under certain situations, winter service treatments may be undertaken on other adjacent networks. The arrangements are described in Section 2.9 Mutual aid.

* + 1. Local Problem & Vulnerable Areas

*Include here a description and location of any known problem or vulnerable areas or trouble spots such as:*

* *parts of the network at high altitude*
* *areas prone to low temperature/low humidity conditions where special measures may be required*
* *sections of road of a gradient that may result in problems in certain conditions e.g. jack-knifed lorries, stuck vehicles*
* *sections of road which have thin or porous asphalt*
* *areas commonly prone to climatic conditions such as strong cross winds that would result in drifting*
* *any structures where differential treatments or special measure may be required, including ramps, observation points, authorised vehicle access points*
* *areas where, from experience, particular problems arise where the service provision can be hampered*
* *areas prone to seepage, flash flooding, localised flooding and flood plains*
* *areas with a history of incidents during adverse conditions.*

*The process for review, identification and monitoring of problem areas shall be detailed, including an assessment of the effectiveness of any consideration and mitigation measures employed.*

|  |  |  |
| --- | --- | --- |
| Location | Problem | Special consideration and mitigation measures |
| [N999] |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

* + 1. Network Features

*The following table shall be completed, highlighting features that exist on the network such as:*

* *the location and type of emergency crossings (winter service vehicle turning facilities)*
* *the location and length of solid vertical barrier*

*Details of operation and maintenance of these features shall be included in Section 4.6 and appropriate cross-references included. Specifically, a cross reference to the details contained in the Network Contingency Plan on emergency crossing points (removable sections of barrier) shall be included.*

*Where none of the listed features exist, a positive statement to that effect shall be included here.*

|  |  |  |
| --- | --- | --- |
| Road | Location | Type |
| [N999] |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

1. Operations
   1. Introduction

This section of the Winter Service Plan contains detailed operational procedures for delivery of winter services on the national road network and details the alert procedures and actions in the event of winter weather on the network and includes arrangements for liaison and co-operation with *[neighbouring Managing Organisations]* to promote delivery of a consistent and co-ordinated service across all boundaries.

*Include area specific introduction as appropriate.*

* 1. General Arrangements and Decision Making
     1. Process

*Include a detailed description of the process including forecast, data gathering i.e. use of TII’s Road Weather Information System (RWIS) and other sources, decision, instruction, treatment, monitoring loop and command and control arrangements for winter service events. (Use of a flowchart process diagram is considered best practice).*

* + 1. Decision Maker (Definition of Roles)

*Include details of the decision maker(s) e.g. Winter Service Manager, Winter Service Duty Engineer and definitions of the role(s)*

* + 1. Duty Rota

*Include duty rotas for all personnel involved in winter service operations*

The Decision Maker Duty Rota is included at Appendix A.11.

* + 1. Guidance

*Local Authority shall take account of relevant TII’s advice, guidance and standards.*

* 1. Weather Forecasting and Road Weather Information System
     1. General Arrangements

*[Local Authority]* obtains weather forecasting service from TII’s Road Weather Information System (RWIS) *[include any other providers details]*. The services provided are *[services]*.

*Include details of suppliers and services for weather forecasting*.

*[Local Authority]* shall notify TII of any faults or suspected faults on the RWIS at the latest by 9.00am of each day. Contact details can be found in Appendix A.9.

* + 1. Roadside Weather stations used by TII’s RWIS on Network

*Include map*

* 1. Escalation

Winter weather events shall normally be managed by *[Local Authority]*.

*Define escalation arrangements*

* + 1. Establishment of Winter Service Desk

*[Local Authority]* shall establish a Winter Service Desk prior to the forecast commencement of severe winter weather that could cause disruption to the national road network or as soon as practicably possible in the event of un-forecast snow falls or severe weather.

The Winter Service Desk shall be established at [location]. The location shall be moveable to support remote working in the event of severe weather events and account for personnel changes in the rota.

The Winter Service Desk/control room will have the ability to communicate directly with TII’s RWIS, and neighbouring Managing Organisations and to listen to/watch local news/traffic media in order to plan and manage *[Local Authority]*’s operational response to the severe weather event.

The Winter Service Duty Engineer shall implement and co-ordinate all winter service responses. The Winter Service Duty Supervisor at each Depot shall co-ordinate the resource allocation to the specific actions required

Where decisions, and their implications, require oversight they will be referred to *[Local Authority]*’s on-call Decision Maker.

The Winter Service Desk duty rota is included at Appendix A.13.

* 1. Liaison and Communication
     1. Notification of Treatments

*[Local Authority]* shall undertake reporting of key events via the TII RWIS decision recording and reporting tools, including reports on severe weather occurring or being forecast on the national road network.

Each day during the winter season, *[Local Authority]* shall submit a daily action report to TII, setting out the following details:

1. action taken over the previous 24-hour period including any decisions not to treat
2. decisions not to change from previous plans or deviations from previous decisions
3. the predicted action to be taken over the next 24-hour period

*[Local Authority]* shall notify TII, An Garda Síochána (where required), adjacent road network maintainers and local road authorities of all proposed winter service actions to be taken during the winter season, once known, but not later than 16:00 each day.

*[Local Authority]* shall notify TII, An Garda Síochána (where required) and neighbouring Managing Organisations of all proposed treatments once known, but not normally later than 16:00 each day.

*[Local Authority]* shall, as soon as practicable and within 1 hour, notify TII, An Garda Síochána, neighbouring Managing Organisations of other actions including changes to planned treatments, reactive treatments and snow clearance.

The above requirements shall be satisfied via the TII RWIS road maintenance route planning, operations and diary functions.

A comprehensive external contact list can be found in Appendix A.9.

* + 1. Daily Reports

Before 11:00am each day, *[Local Authority]* shall provide a daily operational report to TII detailing the treatments carried out over the last 24 hours, any relevant issues that have arisen during that period.

The above requirements shall be satisfied via the TII RWIS road maintenance route planning, operations and diary functions.

* + 1. Hourly Updates

When weather conditions on the national road network are such that the flow of traffic is hindered, *[Local Authority]* shall provide TII with regular updates describing the current condition of the national road network and detailing the ongoing and proposed winter service operations.

*Daily Reports and Hourly Updates shall be satisfied via the road maintenance route planning, operations and diary functions of the TII RWIS unless agreement is reached with recipients for transmission by other means.*

* + 1. Media Liaison

In order to facilitate media liaison, *[Local Authority]* shall make available to TII such information as requested.

* + 1. Internal Communication Arrangements

Internal communication is by *[radio/cellular telephone]*.

The arrangements for backup communications are *[details]*.

*Include details of internal communication arrangements including contingency arrangements.*

A comprehensive internal contact list can be found in Appendix A.8.

* 1. Liaison with Road Projects

*Include advanced notification of any road projects across the national road network and contacts for any such projects in the table below to maintain continuity with all winter service actions.*

|  |  |  |  |
| --- | --- | --- | --- |
| Road | Location (e.g. junction to junction) | Type of project | Contact |
| [N999] |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

* 1. Records

Collection of good quality records is fundamental to defend against liability claims made in respect of winter service delivery. The table below demonstrates the detailed record information that *[Local Authority]* shall retain:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Information | Record Content | Format | Storage Media | Retention Period |
| Weather Forecast |  |  |  | 6 years following end of season |
| Actual Weather Conditions |  |  |  |
| Reports received |  |  |  |
| Decisions made |  |  |  |
| Instructions made |  |  |  |
| Confirmations |  |  |  |
| Actions taken |  |  |  |
| Liaison and communications log |  |  |  |
| Telephone conversations including with forecast provider |  |  |  |
| Material usage |  |  |  |
| Salt testing records |  |  |  |
| Weekly saturator output brine test results |  |  |  |
| Fleet breakdowns |  |  |  |
| Times taken to complete treatments |  |  |  |
| Use of additional resources (including reserve fleet and mutual aid) |  |  |  |
| Road closures/blockages die to weather conditions |  |  |  |
| Complaints received relating to conditions due to weather |  |  |  |

Records shall be available for inspection in accordance with TII requirements.

* 1. Health and Safety

*Include a statement on Health and Safety covering the operational aspects of winter service e.g. treatment speed, ploughing, loading and off-loading, manning levels, driver’s hours and rest periods, PPE, staff welfare, rations, communications and the safety of other road users.*

* 1. Mutual Aid

*Include a statement explaining what mutual aid arrangements are in place.*

* 1. Review

*Include details of review procedures, including responsibility and criteria for review e.g. failure to meet service or performance standards, continuous improvement initiatives and end of season review.*

*Typical issues for the review may include:*

* *response and treatment times,*
* *decision making,*
* *command and control,*
* *escalation and Winter Service Desk,*
* *liaison and communications,*
* *weather forecasting and ice prediction,*
* *actual weather conditions,*
* *operational issues,*
* *records,*
* *health and safety,*
* *human resources,*
* *vehicles and plant, including any breakdowns or periods of non-availability,*
* *de-icing materials,*
* *Depots and facilities, other issues e.g. traffic flow, neighbouring Managing Organisation’s roads,*
* *areas for improvement.*
* *Identified problem areas on the national road network.*
  1. Winter Service Timetable

The following table sets out key dates in the delivery of winter service.

|  |  |
| --- | --- |
| **Key Date** | **Action** |
| 1st August or such later date in time which TII may approve. | Local Authority to submit draft Winter Service Plan to TII |
| 1st September or such later date in time which TII may approve | All staff to be fully trained in winter service activities |
| Dependent on Certification Procedure | TII to review / acknowledge / request further information on draft Winter Service Plan |
| Dependent on Certification Procedure | If required, revised Winter Service Plan to be submitted to TII. The submission and revision of the Winter Service Plan should continue until the Plan is Acknowledged by TII |
| 2nd Week in September | Plant and vehicles for Winter Service, including brine saturators and road fuel storage system to have completed any maintenance, be in place and operational |
| 15th September or such later date in time which TII may approve | Winter Service Plan assumed operational after Acknowledgement by TII. In any event the Local Authority will start to deliver winter service in anticipation of receiving Acknowledged status with further revisions to Winter Service Plan until Acknowledged by TII |
| 1st October or such later date in time which TII may approve | Local Authority to provide specified pre-season fuel and salt requirements |
| 1st October | Winter season commences |
| Weekly from 1st October | Local Authority to report weekly to TII via the RWIS diary portal and on the National Salt Management System |
| Monthly from 1st October | Monthly report to TII via the RWIS diary portal |
| 31st March | Finalise list of key issues to feed into winter service workshops and/or conferences arranged by TII |
| 30th April | Winter season concludes |
| 31st May | Annual end of year Winter Service report to TII |

*Include any other relevant dates in the table.*

1. Resources
   1. Introduction

This Section of the Winter Service Plan contains details of the resources available for delivery of winter services and the alert procedures and actions in the event of winter weather on the national road network including reserve and contingency arrangements.

*Include area specific introduction as appropriate.*

* 1. Human Resources
     1. Definitions

The following table defines the key personnel responsible for delivery of the services defined within this document.

|  |  |  |
| --- | --- | --- |
| Function | Title | Name |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

*The above table shall be completed to include all relevant Local Authority personnel. Where possible, consistency of naming shall be maintained. The table shall include:*

* *the person with overall responsibility (Winter Service Manager),*
* *the person who has day to day responsibility for winter service/severe weather and would be the first point of contact (Winter Service Duty Engineer)*
* *the person responsible for monitoring weather and road conditions and making decisions (Decision Maker).*
* *The person coordinating implementation of the Winter Service Plan (Winter Service Supervisor)*
* *The persons delivering on road winter service (Winter Service Operatives)*
  + 1. Training

*Include a general statement on training together with details of qualification standards for:*

* *Decision Maker*
* *Winter Service Manager*
* *Winter Service Duty Engineer*
* *Winter Service Supervisor*
* *Winter Service Operatives*

*Reference to training on this plan shall be included.*

Training Records are detailed at Appendix A.13.

* + 1. Organogram

*Include an organogram detailing the structure of the organisation responsible for delivery of the winter service.*

* + 1. Driver Numbers

*[Local Authority]* has *[number]* qualified drivers for winter service operations on the national road network as detailed in Appendix A.6.

* 1. Depots and Facilities
     1. Depots

A schedule of Depots covering the *[Local Authority]* national road network can be found in the Depots and facilities schedule which shall be included in Appendix A.7.

* + 1. Fuel

The following table indicates the fuel type (including grade) and details of supply and storage arrangements including minimum stock levels, in accordance with the TII Winter Service Manual

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Depot | Supplier | Fuel Type & Grade | Maximum fuel storage capacity (Gas Oil Litres) | Maximum fuel storage capacity (DERV Litres) | Minimum fuel storage (Litres) |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

*[Local Authority]* shall monitor fuel stock levels regularly during the winter period. [Local Authority] shall adhere to the requirements of fuel storage and minimum stock levels as specified in the TII Winter Service Manual.

*Include within the table below details of fuel supply contingency and pump maintenance arrangements.*

|  |  |  |
| --- | --- | --- |
| Depot | Contingency Arrangements | Pump Maintenance Arrangements |
|  |  |  |
|  |  |  |
|  |  |  |

* + 1. Other Facilities

A schedule of other facilities that are available to service the national road network can be found in Appendix A.7.

*Examples of "other facilities" include facilities that are provided for severe weather working or as contingency e.g. sleeping arrangements for prolonged periods of adverse weather.*

* 1. Vehicles and Plant
     1. Available Resources

A detailed schedule of vehicles and plant including operational spreaders, ploughs, loading shovels, snow blowers and reserve vehicles can be found in Appendix A.5.

*Include other vehicles and plant as appropriate.*

* + 1. Reserve Vehicle Arrangements

*Include details of the Local Authority’s arrangements for supplying reserve winter service vehicles to meet TII requirements. This shall include the numbers, types and locations of the vehicles and any other reserve duties on the vehicle in question.*

*Include detailed local arrangements and procedures for the use of reserve vehicles including details of arrangements for transporting vehicles to and from the network.*

*Include details of the Local Authority’s arrangements for supplying any other winter service vehicles necessary to meet TII requirements, including vehicles available to augment the minimum equipment resources.*

* + 1. Vehicle Maintenance Arrangements

*Include details of winter service vehicle maintenance arrangements. Arrangements shall detail who provides maintenance services, how these services are managed and call out procedures with appropriate references to the internal and external contact lists.*

*Arrangements for recording and reporting defects to be included here.*

* + 1. Arrangements for “Specialist” Equipment

*Include details for specialist equipment as appropriate e.g. specialist mixing equipment for alternative de-icing materials.*

*Detail any other equipment such as loading hoppers and weighbridges including arrangements for maintenance.*

* + 1. Arrangements with supply chain partners

*Include details of any supply chain partner arrangements including arrangements for further resources.*

* 1. De-Icing Materials
     1. Type and Specification
* 6.3mm salt, to UK BS3247:2011.
* Abrasives: 5 or 6mm sharp sand

*Additional specialist materials such as salt for brine production, alternative de-icers, etc. shall be specified where applicable.*

* + 1. Storage Locations

*Include details of storage locations and facilities. A reference to Appendix A.7 shall be included. Where defined supply profiles are used, these shall be included. Copy this table as required for each material used.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| De-icing Material (i.e. Dry salt/ABP) | Location | Type (barn) | Max (tonnes) | Min (tonnes) |
|  |  |  |  |  |
|  |  |  |  |  |

* + 1. Brine Production and Storage

*Include details of brine production and storage facilities.*

|  |  |  |  |
| --- | --- | --- | --- |
| Location | Type (saturation/storage only) | Capacity (L) | Min (L) |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

* + 1. Supply Arrangements

*Include details of supply arrangements including a primary and secondary supplier. Detailed evidence shall be given to confirm salt can be collected in a timely manner. Details of monitoring and stock control arrangements shall also be documented.*

* + 1. Reserve Arrangements

*[Local Authority]* shall ensure that it has sufficient provision of salt stock to ensure that stock and operational requirements are met at the start of the season and maintained with suitable provision re-stocking throughout the winter season.

The start of season stock levels, at a minimum, shall be sufficient for 63 treatments (based on 3 daily treatments for 21 days) for all national routes.

During the winter season minimum stock levels shall be sufficient for 36 treatments for all routes, except during April when this may be reduced to 18 treatments for all national routes.

*Include details of reserve arrangements.*

* + 1. Monitoring and Reporting

*[Local Authority]* shall monitor salt stocks (and stocks of other appropriate materials) weekly (daily when required during severe weather events) during the winter period and in accordance with the salt management requirements of TII and the Winter Service Manual. Output brine concentrations shall be recorded during each vehicle loading.

*Provide evidence to justify how each salt threshold level has been set. The reporting threshold definition will be the threshold for the automatic ordering of additional salt when necessary. Local Authorities will be asked to confirm salt stock profile for every week of the winter season on the National Salt Management System (NSMS).*

* 1. Winter Service Infrastructure Inventory
     1. Description

The winter service infrastructure inventory shall be stored in MS Excel containing detailed information relating to the Depots and winter service fleet. This inventory is a database which requires updating to reflect any changes. See Appendix A5 & A7 for details.

* + 1. Database

*[Local Authority]* shall create the inventory database before the operational winter season, and review/update the inventory information twice per year during the January/February and June/July periods each year.

1. Delivery of the Winter Service
   1. Introduction

*Include area specific introduction as appropriate.*

* 1. Treatment Methods

The main treatment methods available to *[Local Authority]* are outlined in the following table:

|  |  |
| --- | --- |
| Treatment type | Details |
| Dry Treatment | De-icer, most commonly sodium chloride salt, is spread in a dry form. Traditionally, this has been the main method utilised in the UK and Ireland for many years and this is still the method currently utilised by the majority of Local Authorities. |
| Pre-wetted Treatment | Granular de-icer, most commonly sodium chloride salt, is mixed with a brine solution at the point of spreading. A treatment additive may be included in either or both of the brine and dry components. Pre-wetted treatment is a development that is now in relatively wide use across the UK and Ireland. In certain situations and conditions, it can offer benefits over dry treatments, including reduced spread rates. |
| Treated Salting | Sodium chloride salt in granular form is mixed with a treatment additive. Commonly, the treatment additive comprises an Agricultural By-Product (ABP), either used alone or mixed with other chemicals. Treated salting is also a development that is now in wide use across the UK. Again, in certain situations and conditions, it can offer benefits over dry treatments, including reduced spread rates. |
| Direct Liquid Application (DLA) | Liquid de-icer is applied directly to the road surface, usually by spraying. This method has been used for many years in the UK to treat short sections of the network, such as certain bridge decks, that are particularly susceptible to infrastructure damage through corrosion. DLA on larger sections of the network is much less common practice ~~in Ireland~~ than the other treatment types discussed above. However, this technique is currently the subject of research and a number of on-going trials. |

*Include details of the treatment type(s) across the national road network e.g. salt, pre-wetted salt, treated salt, etc. A reference to Section 3.5 and Appendix A.4 shall be included.*

*Include details for the treatment of footways, bus stops, integrated cycleways and paved pedestrian areas where appropriate.*

*Selection of the appropriate treatment method, or combination methods shall consider the following:*

* *The ability to deliver the service over a wide range of conditions*
* *Initial capital costs of equipment purchase (if applicable)*
* *Economical and efficient spreading*
* *Ability to effectively deliver the service in accordance with policy and plans*
* *Ability to accommodate equipment and plant (e.g. brine production)*
* *Ongoing costs (e.g. storing and managing de-icers, maintenance)*
* *Service resilience (e.g. salt stocks in harsh conditions)*
* *Adverse impacts (e.g. vehicles, road assets and the environment)*
  1. Decision Making and Treatment Matrices

Decisions are made primarily in the interest of service delivery and continuity and takes account of weather and decision information from neighbouring Managing Organisations (as detailed in the Introduction of this Plan).

All decisions shall be subject to verification, continuous monitoring, recording & review by the Winter Service Manager.

All winter decisions shall be evidence based and shall be made in accordance with the guidance contained within the following decision and treatment matrices.

Decision making and treatment matrices for Precautionary Treatment are shown in the following pages.

During periods of forecast severe winter weather *[Local Authority]* shall remain in contact with *[forecast provider]* and shall also take account of information from its staff on the network and from CCTV in addition to information from TII’s Road Weather Information System (RWIS) when making decisions.

* + 1. Road Surface Wetness

For the purpose of allocating treatments, a distinction is made between dry, damp and wet road surfaces in the table below. The following definitions will be used when making the treatment decision.

|  |  |  |
| --- | --- | --- |
| Road Surface Wetness | | |
| **Definition** | **Description** | **Water film thickness**  **(for when using WFT instrumentation)** |
| Dry Road | A road that shows no signs of water or dampness at the surface but may be just detectably darker. It may have moisture contained in pores below the surface that is not ‘pumped’ to the surface by traffic. | 0 to 0.03mm  (=0-30 g/m2) |
| Damp Road | A road which is clearly dark but traffic does not generate any spray. This would be typical of a well-drained road when there has been no rainfall after 6 hours before the treatment time. | 0.03 to 0.05mm  (=30-50 g/m2) |
| Wet Road | A road on which traffic produces fine spray but not small water droplets. This would be typical of a well-drained road when there has been rainfall up to 3 hours before the treatment time. | 0.05 to 0.1mm  (=50-100 g/m2) |
| Very Wet Road and  Flowing Water on  Road\* | A road on which traffic produces droplets of water in the air to visibly flowing water on the surface | Greater than 0.1mm  (=>100 g/m2) |

*\*The amount of salt required to prevent ice from forming in these conditions is considered impractical for Local Authorities to deliver during normal precautionary salting operations*

*For further guidance in relation to water film thickness refer to the ‘Treatments for Snow and Ice’ section of the NWSRG Practical Guide.*

* + 1. Decision Matrix Guide

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **Predicted Road Conditions** | | |
| **Road Surface Temperature** | **Precipitation etc** | **Wet** | **Damp** | **Dry** |
| **May fall below 1℃** | **No rain**  **No hoar frost**  **No fog** | Salt before frost | Salt before frost  (see note A) | No action likely, monitor weather  (see note A) |
| **Expected to fall below 1℃** | **No rain**  **No hoar frost**  **No fog** |
| **Expected hoar frost**  **Expected frost** | Salt before frost  (see note B) | |
| **Expected rain**  **BEFORE freezing** | Salt after rain stops  (see note C) | | |
| **Expected rain**  **DURING freezing** | Salt before frost and after rain stops  (see note D) | | |
| **Possible rain**  **Possible hoar frost**  **Possible fog** | Salt before frost | | Monitor weather conditions |
| **Expected snow** | | Salt before snow fall | | |
| **Freezing Rain** | **Before rain** | Salt before rainfall (see note D) | | |
| **During rain** | Salt during rainfall (see note D) | | |
| **After rain** | Salt after rainfall (see note D) | | |
| The decision to undertake Precautionary Treatments shall, if appropriate, be adjusted to take account of surface moisture. *[Local Authority]* shall plan and mobilise precautionary treatments so as to complete the treatment as close to the forecasted time of freezing as possible.  All decisions shall be evidence based, recorded and require careful monitoring and review. | | | | |

1. Particular attention shall be given to the possibility of water running across carriageways and other running surfaces e.g. surface water off adjacent fields after heavy rains, washing off salt previously deposited. Such locations shall be closely monitored and may require treating in the evening and morning and possibly other occasions. Ideally the source of the run-off shall be diverted from the roadway.
2. When a weather warning contains reference to expected hoar frost, considerable deposits of frost can occur. Hoar frost usually occurs in the early morning and is difficult to cater for because of the probability that any salt deposited on a dry road too soon before its onset, may be dispersed before it can become effective. Careful monitoring is required under this forecast condition which shall ideally be treated just as the hoar frost is forming. Such action is usually not practicable and salt may have to be deposited on a dry road prior to but as close as possible to the expected time of the condition. Hoar frost may also be forecast at other times of the day, in which case the timing of salting operations shall be adjusted accordingly.
3. If under these conditions, rain has not ceased by early morning, crews shall be called out and action initiated as rain ceases.
4. Under these circumstances rain will freeze on contact with running surfaces and full Precautionary Treatment shall be provided even on dry roads. This is a most serious condition and shall be monitored closely and carefully throughout the danger period.
   * 1. Traffic Levels

For the purpose of allocating treatments, traffic levels are categorised into ‘Light’, ‘Medium’, ‘High’ and ‘Congested’. These categories relate to those anticipated around the time of the precautionary salting operation and are defined in the table below.

It should be noted that these categories are not the same as the traffic categories generally used for other road maintenance purposes.

|  |  |
| --- | --- |
| **Traffic Level Categories**  **(Relating to the period around the time of the precautionary salting operation)** | |
| **Traffic Level** | **Vehicles per lane per hour** |
| Light | Less than 20 |
| Medium | 20 to 250 |
| High | 250 or more and moving at normal traffic speeds |
| Congested | 250 or more moving slower than normal traffic speeds |

*Local Authority shall consider the effects of traffic levels on de-icer loss.*

*The target spread rates provided in the treatment matrices in Section 4.3.5 relate to the ‘Medium Traffic’ category. Research has shown that salt losses do not increase significantly for traffic levels beyond 250 vehicles per lane per hour, as long as this traffic is moving normally. However, it is likely that some precautionary salting operations undertaken by Local Authorities will include routes that fall into the ‘Light Traffic’ and ‘Congested Traffic’ categories. In these situations, it is important that spread rates are modified accordingly.*

*For further guidance in relation to the effects of traffic levels refer to the ‘Spread Rates for Precautionary Salting’ section of the NWSRG Practical Guide.*

* + 1. Spreader Capability

For precautionary treatments, the spread rates to be used depend upon the uniformity of de-icer distribution, measured in terms of spreader capability. This performance measure is used as part of the decision making process when deciding the spread rates required during treatments.

*Spreaders should be capable of being successfully calibrated to ‘good’ or ‘fair’ following the guidance as outlined in the ‘Spreader Management’ section of the NWSRG Practical Guide. Where this cannot be achieved, the recommended spread rates in the treatment matrices below cannot be followed and the Local Authority should make their own risk assessment regarding usage of the spreader.*

* + 1. Treatment Matrices

The treatment matrices below provide target spread rates for precautionary salt spreading in response to predictions of ice and frost formation on the *[Local Authority]* network.

The matrices assume ‘Medium Traffic’ around the time of the precautionary salting operation. For ‘Light Traffic’ situations, the spread rates provided in the matrices shall be increased by 25%. Research has shown that salt losses do not increase significantly in ‘High Traffic’ situations and it is therefore considered that the spread rates provided in the matrices are suitable for use in these situations. Undertaking precautionary salting operations in ‘Congested Traffic’ situations shall be avoided whenever practical considerations allow. However, when it is necessary to undertake precautionary salting operations in ‘Congested Traffic’, the spread rates provided in the matrices shall be increased by 20%.

*When utilising these rates, it is crucial that the content of all of the ‘Key Notes’ below is properly considered, as these notes provide information regarding the interpretation of the treatment matrices and discuss situations when the spread rates should be modified.*

***KEY NOTES:***

***Note 1 – ‘Rounding’***

*The spread rates provided in the matrices are derived from applied research and scientific analyses. It is recognised that Local Authorities may consider ‘rounding’ some of the spread rates in order to satisfy issues of practicability, which is an important factor in delivering an efficient and effective winter service.*

*However, during this process it is recommended that Local Authorities do not utilise lower precautionary spread rates than the lowest rates provided in the matrices, i.e. 8g/m² for dry salt and pre-wetted salt applications, and 7g/m² for treated salt applications.*

*In determining the spread rates to be used on their networks, Local Authorities should utilise the matrices as a basis, along with their experience and expertise in dealing with the conditions and circumstances prevailing in their local areas, so as to ensure that risks and resources are appropriately managed.*

***Note 2 – Interpolation within individual temperature bands***

*The amount of de-icer required to prevent frost/ice formation does not increase by way of step changes as surface temperature reduces. Therefore, when considering specific minimum road surface temperature predictions, Local Authorities may decide to interpolate between the relevant recommended spread rates shown in the matrices.*

***Note 3 – Higher spread rates***

*In certain weather and road conditions, the spread rates provided in the matrices may be higher than the spread rate(s) utilised by the Local Authority during their salting route optimisation exercises. Therefore, it may not be possible to deliver the recommended spread rate in a single application. In this situation, ensuring sufficient de-icing material is present on the road surface is likely to require more than one treatment.*

***Note 4 – Very low temperatures***

*Due to the amount of salt needed to prevent frost/ice from forming at very low temperatures, it is recommended that the use of alternative de-icing materials is considered on all roads when minimum road surface temperatures are predicted to fall below -7°C. These rates for salt are therefore shown in grey shading in the matrices. When spreading salt for these conditions (and when lower than -5°C in low humidity conditions), it is important that the timing of spreading operations allows sufficient time for the salt to enter solution before these temperatures are reached (see ‘Treatments for Extreme Cold’ section of the NWSRG Practical Guide for more information).*

***Note 5 – Salt chloride content***

*The spread rates provided in the matrices are based on the use of rock salt. If salt with higher purity is used, spread rates can be reduced. For example, the recommended spread rates can be reduced by 7.5% if salt purity is 99% or higher. However, a minimum spread rate of 8g/m² (7g/m² for treated salt) should be maintained in order to account for the inevitable variabilities that occur in coverage and losses.*

***Note 6 – Salt moisture content***

*The spread rates provided in the matrices relate to salt exhibiting a moisture content within the optimum range. Information relating to optimum moisture content of de-icing salt is provided in the ‘Salt Storage’ section of the NWSRG Practical Guide.*

*For pre-wetted and treated salting, the optimum moisture content is less than 4%.*

*The optimum moisture content range for dry salting is dependent upon its fines content. Where the maximum fines content (<0.3mm particle size) is less than or equal to 7.5%, the optimum moisture content for dry salting is within the range 1.5% to 4%. Where the maximum fines content is above 7.5%, the optimum moisture content is within the range 2% to 4%.*

*When undertaking precautionary salting operations with salt that falls outside of the optimum range, the spread rates provided in the matrices should be increased by 20%.*

***Note 7 – Porous Asphalt***

*When spreading on porous asphalt, the spread rates provided in the matrices should be increased by 25% and the increased spread rate should be maintained for a distance of 1 kilometre ‘downstream’ of each porous section (in two-way traffic situations, the increased spread rate should be maintained for a distance of 1 kilometre at both ends of each porous section).*

***Note 8 – Other negatively textured surfaces***

*With regard to its effects on de-icing materials, negatively textured surfacing can potentially exhibit similar properties to porous asphalt and Local Authorities may wish to consider increasing spread rates by between 10% and 25% on negatively textured surfacing that is less than two years old. However, the porosity of such surfacing varies considerably with type and over time, and experience indicates that it is often impractical and unnecessary to increase spread rates on negatively textured surfaces, especially where these comprise only relatively short sections of treatment routes.*

***Note 9 – Bridge decks***

*In certain weather conditions, some bridge decks can exhibit lower minimum surface temperatures than those of adjacent sections of road. Some bridge decks can also cool down at an increased rate compared to other road sections. Therefore, it is recommended that Local Authorities use their experience and/or a process of risk assessment to identify any bridge decks that exhibit significantly different thermal characteristics during winter conditions than the adjacent sections of road. It is further recommended that those Local Authorities that maintain such bridges obtain weather forecasts that include specific reference to the bridge deck temperatures and treat them accordingly. Due to the materials used in bridge construction, such treatment may include the use of alternative de-icing materials.*

***Note 10 – Traffic levels***

*The matrices assume ‘Medium Traffic’ around the time of the precautionary salting operation. For ‘Light Traffic’ situations, the spread rates provided in the matrices should be increased by 25%.*

*Research has shown that salt losses do not increase significantly in ‘High Traffic’ situations and it is therefore considered that the spread rates provided in the matrices are suitable for use in these situations.*

*Undertaking precautionary salting operations in ‘Congested Traffic’ situations should be avoided whenever practical considerations allow. However, when it is necessary to undertake precautionary salting operations in ‘Congested Traffic’, the spread rates provided in the matrices should be increased by 20%.*

*When undertaking precautionary operations in ‘Congested Traffic’ situations, it may be necessary to implement additional measures to aid the passage of spreaders and/or to consider undertaking additional treatments in order to ensure proper distribution of the de-icers.*

***Note 11 – Precipitation***

*Precipitation will adversely affect de-icing materials on the road surface, reducing their effectiveness and, along with the action of traffic, significantly increase the rate at which they are removed from the road surface. It is therefore recommended that, whenever practicable, treatments are delayed and undertaken after any predicted or actual rainfall has ceased and before freezing road surface temperatures are expected.*

*It is recognised that a band of frontal rain crossing the area presents a different situation to that of scattered showers, for example, and that it is sometimes difficult, or even impossible, to undertake and complete an operation in the available time period after the cessation of precipitation. In these situations, which can be some of the most challenging of all for decision makers, it will be necessary for winter service decision makers to use their judgement, along with all of the relevant information available to them, to determine the optimum timing for these salting operations.*

***Note 12 – Wind speed and direction***

*Wind speed and direction can affect the spreading of salt and, in dry conditions, also affect the length of time that the salt will remain on the road surface. When practical, it is therefore recommended that Local Authorities avoid spreading during the predicted high wind period, i.e. periods when mean wind speeds are predicted to be 30 km/h or more.*

*This issue is likely to affect some locations on the salted network more than others, and the precise effects of high winds are difficult to quantify due to the nature of the wind field close to the road surface and the number of variables involved which include, amongst other factors, the direction of the wind field relative to the salting vehicle, the treatment type being utilised (dry, treated or pre-wetted etc) and the grain size of the salt etc.*

*Local Authorities should also be aware that forecast mean wind speeds typically relate to those at a height of 10 metres above the ground and these are not likely to be the same as those closer to the ground and care should be taken when comparing wind data from RWIS to forecasts etc.*

*When treatments are carried out during high wind conditions, it is recommended that Local Authorities monitor residual salt levels and carry out re-treatments if and where necessary. If this issue is considered to pose a significant risk, Local Authorities may also wish to increase spread rates when carrying out precautionary salting operations during periods when forecast mean wind speeds are greater than 30 km/h.*

***Note 13 – Residual salt***

*Residual salt from previous operations can reduce the spread rates required to prevent frost/ice formation. However, if, when decision making, residual salt levels are relied upon to reduce instructed spread rates, it is important that such decisions are evidence based. As with all other pertinent information relating to winter service decision making, the supporting data should be recorded and retained.*

**Spread Rates for Dry Salting**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Target Spread Rates – Dry Salting (g/m²) Treatment Matrix** | | | | |
| **Road Surface**  **Temperature (RST)**  **when frost/ice is**  **predicted** | **Spreader Capability** | | | |
| **Fair** | | **Good** | |
| **Dry/Damp Road** | **Wet Road** | **Dry/Damp Road** | **Wet Road** |
| At or above -1.0°C | *8* | *8* | *8* | *8* |
| -1.1°C to -2.0°C | *8* | *11* | *8* | *8* |
| -2.1°C to -3.0°C | *9* | *17* | *8* | *13* |
| -3.1°C to -4.0°C | *12* | *23* | *9* | *17* |
| -4.1°C to -5.0°C | *14* | *28* | *11* | *21* |
| -5.1°C to -7.0°C | *20* | *39* | *15* | *30* |
| -7.1°C to -10.0°C | *27* | *54* | *20* | *40* |
| -10.1°C to -15.0°C | *38* | *75* | *28* | *56* |

**Spread Rates for Treated Salting**

*Treated salt incorporates an additive designed to improve performance and distribution (e.g. Agricultural By Product – ABP), as well as reducing the rate of salt loss after spreading. Before adopting the treated salt spread rates in the matrix below, Local Authorities should therefore satisfy themselves that the material is suitable for purpose and meets the manufacturer’s performance claims. This includes manufacturers providing evidence of appropriate independent testing etc.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Target Spread Rates – Treated Salting (g/m²) Treatment Matrix** | | | | |
| **Road Surface**  **Temperature (RST)**  **when frost/ice is**  **predicted** | **Spreader Capability** | | | |
| **Fair** | | **Good** | |
| **Dry/Damp Road** | **Wet Road** | **Dry/Damp Road** | **Wet Road** |
| At or above -1.0°C | *7* | *7* | *7* | *7* |
| -1.1°C to -2.0°C | *7* | *8* | *7* | *7* |
| -2.1°C to -3.0°C | *7* | *12* | *7* | *10* |
| -3.1°C to -4.0°C | *9* | *17* | *7* | *13* |
| -4.1°C to -5.0°C | *11* | *21* | *8* | *16* |
| -5.1°C to -7.0°C | *15* | *29* | *11* | *22* |
| -7.1°C to -10.0°C | *20* | *40* | *16* | *31* |
| -10.1°C to -15.0°C | *26* | *55* | *22* | *43* |

**Spread Rates for Pre-Wetted Salting**

*The spread rates in the matrix below apply to pre-wetted treatments comprising a 70:30 ratio by weight of dry salt to sodium chloride brine (sometimes denoted as FS 30), with a maximum dry salt component moisture content of 4% and a brine concentration of between 20 and 23%. Before adopting the pre-wetted salting spread rates in the matrix below, Local Authorities should therefore satisfy themselves that the treatments they are using meet these criteria.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Target Spread Rates – Pre-Wetted Salting (g/m²) Treatment Matrix** | | | | |
| **Road Surface**  **Temperature (RST)**  **when frost/ice is**  **predicted** | **Spreader Capability** | | | |
| **Fair** | | **Good** | |
| **Dry/Damp Road** | **Wet Road** | **Dry/Damp Road** | **Wet Road** |
| At or above -1.0°C | *8* | *8* | *8* | *8* |
| -1.1°C to -2.0°C | *8* | *10* | *8* | *8* |
| -2.1°C to -3.0°C | *8* | *16* | *8* | *12* |
| -3.1°C to -4.0°C | *11* | *21* | *9* | *17* |
| -4.1°C to -5.0°C | *14* | *27* | *11* | *21* |
| -5.1°C to -7.0°C | *19* | *37* | *15* | *30* |
| -7.1°C to -10.0°C | *27* | *53* | *21* | *42* |
| -10.1°C to -15.0°C | *n/a* | *n/a* | *n/a* | *n/a* |

**Brine or other Direct Liquid Applications**

*When deciding spread rates and conditions for which brine or other DLA treatments will be utilised, Local Authorities should consult with manufacturers to understand the capability of the spreading equipment.*

*A staged approach to implementing DLA treatments on selected routes should enable Local Authorities to build experience and assess the suitability of the treatment method before more significant capital expenditure.*

*Initial treatments should be carefully monitored to assess performance.*

*Brine spreading or other DLA treatments can provide a useful tool for a wide range of conditions, but may not be suitable under all conditions. A dry, treated or pre-wetted spreading capability must also be available for routes considered for liquid treatments.*

*Route characteristics most suitable for brine spreading include:*

* *High proportion of precautionary treatments in marginal surface temperatures above 2ºC.*
* *Infrequent snow and/or road surface temperatures below -5ºC.*

*Brine spread rates, shown below, have been developed based on a comparison with rates successfully implemented in other European countries and experience from the ongoing brine spreading trials in Scotland.*

*Important general notes when considering the spread rates include:*

* *The spread rates below are dependent on a brine concentration in the range of 20 to 23%, with a recommended target concentration of 23%.*
* *Maintaining the correct brine concentration is critical for effectiveness of brine treatments, with the amount of salt spread directly proportional to this concentration. If the brine concentration is below the target range, less salt will be spread onto the carriageway and lower concentration brines are also more likely to freeze in extreme cold conditions. If the brine concentration exceeds 23%, there is a risk of salt re-crystallising within the pumps, pipes and nozzles of the spreader, particularly at very low temperatures.*
* *Other spreading equipment to that used in these trials may offer different spreading performance. When deciding spread rates and conditions for which liquid spreading will be used, Local Authorities should consult with manufacturers to understand the capability of the spreading equipment.*

|  |  |  |
| --- | --- | --- |
| **Brine spread rates for frost events** | | |
| **Road Surface Temperature (RST) when frost/ice is predicted** | **Target Spread Rates – Brine Spreading (ml/m²)** | |
| **Dry/Damp Road** | **Wet Road** |
| At or above -2.0°C | *10* | *20* |
| -2.1°C to -5°C | *20* | *30* |
| -5.1°C to -7.0°C | *30* | *N/A* |
| Key notes:   * Spread rates are for road surface wetness up to 0.1mm thick, i.e. a road on which traffic produces fine spray. * Roads can remain wet after rain for significant periods (2-3 hours) before effective brine treatments are possible. * Brine concentration must be monitored and kept within acceptable agreed ranges (typically 20-23% but saturator technology may enable tighter tolerances) * All brine spreaders must be calibrated; this includes monitoring the discharge rate and carrying out a visual check of the distribution. | | |

* 1. Spreading Techniques & Operational Considerations
     1. General

*Include details of the spreading techniques, for different types of carriageway and location and describe the approach taken to ensure adequate treatment of all parts of the carriageway.*

*Include operational considerations as appropriate e.g. treatment of special structures, treatment during peak traffic flow periods, road works, treatment within tunnels, road over road bridges, operations near railways and innovative trials. Full details shall also be included in the route schedule (Appendix A.4) and a cross reference included within this Section.*

* + 1. Treatment Spread Rates by Location

Where hard shoulders, carriageway marginal strips, footways, integrated cycleways or pedestrian areas are adjacent to and contiguous with the carriageway, they may be treated at the same rate and during the same treatment as the carriageway.

Where a treatment is carried out specifically for hard shoulders, carriageway marginal strips, footways, integrated cycleways or pedestrian areas, or where the location of these areas are such that they are not treated at the same time as the carriageway, they shall be treated at the salt spread rates set out in the table below.

|  |  |
| --- | --- |
| **Location Salt Spread Rate** | |
| Hard shoulder or carriageway marginal strips | 50% of value in Treatment Matrix Guide |
| Footways, integrated cycleways and pedestrian areas | 25 gm/m2 |
| Porous Surfacing | 125% of value in Treatment Matrix Guide |

* + 1. Special Considerations
    2. Low Humidity

*[Local Authority]* shall give special consideration to Precautionary Treatments during low humidity conditions.

*Include full details of the practical measures proposed*.

* + 1. Freezing Rain

*[Local Authority]* shall give special consideration to the treatments required before during and after freezing rain.

*Include full details of the practical measures proposed including details of the Advanced Preparation and planning for pre-treatment arrangements, procedures for warning motorists and closing roads where appropriate and necessary. The procedure shall include details of reactive treatment arrangements and materials to be used, for example a salt/abrasive mix.*

*Although the treatment response for freezing rain is the same as snow, the Local Authority shall include additional details considered for operational response and monitoring.*

* + 1. Sustained Low Temperatures

*Include full details of procedures for dealing with circumstances where temperatures of less than -10℃ are sustained, for example, the addition of calcium chloride.*

*For further guidance in relation to sustained low temperatures, refer to the ‘Treatments for Extreme Cold’ section of the NWSRG Practical Guide.*

* + 1. Salt Heaps / Salt Bins

*Include full details of locations of salt heaps or salt bins on the national road network and describe their re-supply arrangements.*

* 1. Treatments for Snow and Ice
     1. General

It is impractical to spread sufficient salt to melt anything other than very thin layers of snow and ice. Ploughing is the only economical, efficient, effective and environmentally acceptable way to deal with all but very light snow.

* + 1. Preparation before ice and snow

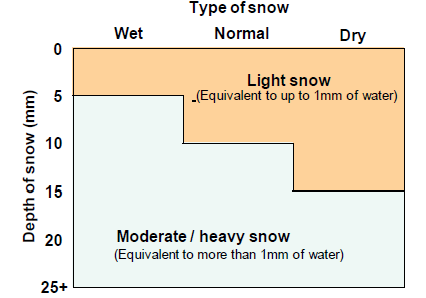
To prepare for and facilitate ice and snow treatments the following shall be considered:

* When snow is forecast, ploughs and snow blowers shall be prepared and positioned in order that snow clearance can start without delay as and when required.
* To facilitate the breakup and dispersal of ice and snow by trafficking, treatments shall be made before snowfall or freezing rain so that sufficient de-icer is present on the surface to provide a debonding layer.
* Although it will increase salt usage, before snowfall and where practicable, consideration shall be given to spreading salt as close to the forecasted event on as much of national road network as possible. This will provide a debonding layer and facilitate the breakup and dispersal of snow by traffic before subsequent treatments take place.
  + 1. Depths of snow (light snow, moderate to heavy snow)

Two main snowfall categories are defined here – ‘light’ snow and ‘moderate/heavy’ snow. ‘Light’ snow is taken to be snow equivalent to 1mm of water (or less) while snowfalls equivalent to more than 1mm are considered to be ‘moderate/heavy’, as shown in the diagram below.

The reasons for this are:

The highest *practicable* spread rates are considered to be 40g/m² of dry salt. When combined with the action of traffic, this is sufficient de-icer to melt snow depths which are equivalent to 1mm of water at temperatures down to -2˚C. Generally, there is approximately 1mm of water in 5mm depth of wet snow, 10mm depth of ‘normal’ snow and 15mm depth of dry, powdery snow.



* + 1. Precautionary Treatments before snow or freezing rain

Spread rates for Precautionary Treatments before snow or freezing rain are given in the table below.

|  |  |
| --- | --- |
| **Treatments Before Snow or Freezing Rain** | |
| **Weather conditions** | **Spread Rates (g/m²)** |
| **Light to Moderate/Heavy snow forecast** | *Spread:*   * *20-40g/m² of dry salt, or* * *20-40g/m² of pre-wetted salt, or* * *15-30g/m² of treated salt* |
| **Freezing rain forecast** | *Spread:*   * *20-40g/m² of dry salt, or* * *20-40g/m² of pre-wetted salt, or* * *15-30g/m² of treated salt* |
| *Note 1: In situations where time constraints dictate, a treatment of 20g/m² across the whole of the scheduled network before the commencement of snowfall or freezing rain will typically prove more advantageous than a treatment of 40g/m² on only part of the network.* | |

* + 1. Treatments during snowfall or freezing rain

Spread rates for Precautionary Treatments during snowfall or freezing rain are given in the table below.

|  |  |  |
| --- | --- | --- |
| **Treatments During Snowfall or Freezing Rain** | | |
| Plough to remove as much material as possible e.g. slush, snow, compacted snow  Ploughing should be down to as close to the level of the road surface as possible  Ploughing should start and, where necessary, be continuous to prevent a build-up of snow  As snow melts under the action of salt, keep ploughing to remove slush | | |
| **No ice or compacted snow on surface** | **Ice or compacted snow on surface** | |
| *To provide a debonding layer, spread:*   * *20-40g/m² of dry salt, or* * *15-30g/m² of treated salt or* * *20-40g/m2 of pre-wetted salt* | **Is traffic likely to compact subsequent snowfall before further ploughing is possible?** | |
| **YES** | **NO** |
| To provide a debonding layer, spread:   * 20-40g/m² of dry salt, or * 15-30g/m² of treated salt or * 20-40g/m2 of pre-wetted salt | No de-icer should be spread |

* + 1. Treatment when thin layers of ice (up to 1mm) have formed

When a thin layer of ice has formed, including after freezing rain, treatments shall be made in accordance with the following table.

|  |  |
| --- | --- |
| **Treatment for Thin Layers of Ice (Less Than 1mm Thick)** | |
| **Forecast weather and road surface conditions** | |
| **Lower of air or road surface temperature**  **Above -5ºC** | *Spread:*   * *40g/m² of dry salt, treated salt or pre-wetted salt, or* * *40g/m2 of salt/abrasive mix* |
| **Lower of air or road surface temperature**  **At or below -5ºC** | *Spread:*   * *40g/m2 of salt/abrasive mix (50:50)* |
| *Note 1: Salt is ineffective in the short term at temperatures below -7°C. Abrasives only should be used when it is expected to be below -7°C for long periods. Other de-icers are available for low temperatures (refer to the ‘Treatments for Extreme Cold’ section of the NWSRG Practical Guide).* | |

* + 1. Treatment for thicker layers of ice or compacted snow

When thicker layers of ice have formed, including after freezing rain, treatments shall be made in accordance with the following table.

|  |  |
| --- | --- |
| **Treatment for Layers of Compacted Snow and Ice** | |
| Plough to remove as much material (e.g. slush, snow, compacted snow) as possible from the top of the compacted layer | |
| **Medium Layer Thickness**  **(1 to 5 mm)** | **High Layer Thickness**  **(greater than 5mm)** |
| *For initial treatment, spread:*   * *40g/m2 of salt/abrasive mix (50:50)*   *For successive treatments, spread:*   * *20g/m2 of salt/abrasive mix (50:50)* | *For initial treatment, spread:*   * *40g/m2 of abrasives only*   *For successive treatments, spread:*   * *20g/m2 of abrasives only*   *After traffic has started breaking up the layer, spread:*   * *20g/m2 of salt/abrasive mix (50:50) so salt can penetrate the layer and reach the road surface* |

* 1. Snow Clearance
     1. General

Ploughing down to the road surface is preferred as this minimises salt usage and makes salt treatments more effective. However, snow ploughs shall be set to avoid risk of damage to the plough, the road surface, street furniture and level crossings.

Where possible, snow shall be ploughed to the low side of the carriageway and the build-up of snow on the high side of the carriageway shall be avoided. This is to avoid the later run-off from windrows or piles of snow from entering the traffic lanes, where it may dilute treatments and/or refreeze.

Drainage shall not be obstructed when ploughing and windrows or piles of snow shall be removed or be positioned to allow melt water to reach the drains. Where possible*, [Local authority]* shall remove piles of snow so that melted snow does not overload drainage systems or run back onto the road and refreeze to form sheet ice, particularly where drainage is blocked or piles of snow are to the high side of the road. Accumulations of snow at central reserves, especially those with vertical concrete barriers, shall be cleared where they create a hazard or impede drainage.

Windrows shall be avoided at junctions, entrances and level crossings. *[Local Authority]* shall contact Irish Rail before ploughing commences on roads that include level crossings. Windrows shall be removed or ploughed back when further periods of heavy snow are anticipated. This will provide space to plough the further snowfalls.

When planning and carrying out snow clearance on motorway and dual-carriageway routes, *[Local Authority]* shall ensure smooth merging/diverging of vehicles from the main carriageway can occur. Lanes shall be completely cleared and the windrows of snow remaining shall form a smooth and continuous line without sudden encroachments into the cleared path. Windrows may be left on hard shoulders but there shall be intermittent clear openings left in windrows at maximum intervals of 1km to provide refuge for broken down or abandoned vehicles.

All lanes shall be cleared by *[Local Authority]* as soon as possible and the hard shoulders, road markings and reflective studs cleared thereafter. Clearance work shall proceed continuously.

* + 1. Ploughing & Clearance Techniques and Operational Considerations

*Include details and procedures for ploughing, including clearly defined decision points for the fitment of ploughs and commencement of ploughing, and plough height settings.*

*Include specific details of any sections of road of more than three lanes and describe the approach taken for snow clearance including specific details of which order lanes are to be ploughed in.*

*Include procedures for bulk removal of snow including any identified areas where snow can temporarily be stockpiled.*

*Include operational considerations as appropriate e.g. maintenance of snow fences, operation of snow gates, use of emergency crossings, road over road bridges, AIL (Abnormal Indivisible Load) movements and operations near railways.*

*Provide evidence of snow clearance capacity to restore any abandoned lanes within 48 hours following cessation of snow. For a network-wide event, provide evidence as to how it is proposed to achieve this exercise, if necessary, through the use of additional vehicles, reserve fleet, additional hire fleet, additional drivers etc.*

*Include strategy for snow clearance from footways, bus lanes, integrated cycleways, pedestrian bridges, paved pedestrian areas and the like.*

In all cases the defined treatment routes will be adhered to, and where conditions demand a more intensive treatment in specific areas, *[Local Authority]* shall achieve this by increasing the amount of resources in use in that area unless, in exceptional circumstances, agreed with TII.

* + 1. Snow clearance and vertical concrete safety barriers

The presence of vertical concrete safety barrier/other solid barrier on the national road network can pose problems regarding snow clearance whereby traditional ploughing techniques may not be applicable. Ploughing to the left using echelon techniques is the preferred method of snow removal adjacent to central reservation vertical concrete barriers. Lanes shall not be abandoned or used for stacking snow without the written approval of TII.

A schedule identifying the locations of vertical concrete/other solid barrier on the *[Local Authority]* network and a clearance plan for each location is included in Appendix A.14.

*Local Authority to produce a schedule identifying the locations of vertical concrete/other solid barrier on their network and a clearance plan for each location in Appendix A.14, if applicable. This schedule shall also be cross referenced to Appendix A.4 - route drawings and schedules. Alternatively, the schedule may form part of the route schedules.*

* + 1. Aftercare and follow up Treatments

*Include details of aftercare and follow up treatments e.g. clearing side roads and lay-bys.*

* + 1. Arrangements for use of snow blowers

Where *[Local Authority]* proposes the use of a snow blower, approval is required from TII who shall be contacted, and approval sought.

*[Local Authority]* has *[number]* operatives qualified to operate snow blowers as detailed at Appendix A.6.

*Include full detailed arrangements and procedures for the use of snow blowers including details of transport arrangements.*

* 1. Footways, bus lanes and integrated cycleways
     1. Introduction

*Include area specific introduction as appropriate.*

* + 1. Policy
       1. Treatment of Footways and Integrated Cycleways

*The treatment of footways, integrated cycleways pedestrian bridges, paved pedestrian areas and the likes shall normally be co-ordinated with neighbouring Managing Organisations. Include specific details of treatment policy.*

* + - 1. Bus lanes Response and Treatment Times

*The treatment of bus lanes and bus stop areas shall be in line with adjacent networks.*

* + 1. Routes

*Details of all routes to be treated are contained in Section 1.10.2.*

* + 1. Operations

*Include details for the treatment of footways, bus lanes, bus bays, integrated cycleways, pedestrian bridges, paved pedestrian areas and the likes where appropriate.*

*Include details of the spreading technique(s) for footways, bus lanes, bus bays, cycleways, pedestrian bridges, paved pedestrian areas and the likes.*

* + 1. Resources

*Include details of personnel and equipment resources to be utilised in the treatment of footways, bus lanes, bus bays, integrated cycleways, pedestrian bridges, paved pedestrian areas and the likes.*

***APPENDICES & SCHEDULES***

*NOTE: The Local Authority may include certain appendices within a box of reference material and not append these directly to the plan. Where this is applicable a note shall be added at the start of the appendix. The Local Authority shall agree an acceptable approach with TII and confirm the location of the box of reference material.*

1. Definitions and Abbreviations

*Include key definitions of all key terms and abbreviations used.*

1. Network Map

*The network map shall include, as a minimum, the following:*

* *Overall extent of the national road network*
* *Local road boundaries*
* *Details of adjoining networks or PPP schemes*
* *An Garda Síochána boundaries*
* *Treatment routes*
* *Weather forecast domains*
* *Ice Prediction outstations*
* *Depot locations*
* *Network features (snow gates, emergency crossovers, snow fences, vertical concrete barriers, rivers, streams and brooks, costal defences, bridges, open areas and forest areas)*

*In addition, consideration shall be given to including the following information:*

* *Topographical features such as height and areas of dense population*
* *Location of network contingency supply facilities (plant, salt, fuel etc.)*

*The plan shall be to a scale, and of a size, to allow the above information to be displayed. Separate maps shall be included within this appendix to detail footway and cycle track treatments.*

1. Interface Drawings

*Include Interface Drawings which define the key interfaces on the network*

1. Route Drawings & Schedules

*Include route details, including unique reference, length, treatment time, salt usage, vehicle, base, instructions and inclusions/exclusions.*

*A sample route schedule is shown below:*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| [Local Authority’s] Winter Service Route Schedule (2020/2021) | | | | | | |
| Route Number | | Route Description | |  | | |
| Base Depot | |  | | Vehicle Type | |  |
| Salt Usage (@ 25gm2) | | tonnes | | Vehicle VRN | |  |
| Treatment Time | | hrs:mins | | Vehicle Capacity | | m3 |
| Special Route Features | |  | | | | |
| Part | Description (inclusions/exclusions and other special considerations) | | Action (Travel/Salt) | Distance (Travel) | Distance (Treat) | Distance (Cumulative) |
| 1 |  | |  |  |  |  |
| 2 |  | |  |  |  |  |
| 3 |  | |  |  |  |  |
| 4 |  | |  |  |  |  |
| 5 |  | |  |  |  |  |
| Totals | | | |  |  |  |

*Description column shall include full and specific details of individual exclusions and inclusions such as lay-bys.*

*Where appropriate, include special ‘snow ploughing’, extra effort routes or supplementary high-level routes.*

*Include details for local problem areas or areas requiring special consideration due to e.g. different surfacing types*

*Where appropriate, separate ‘route cards’ giving more detailed instructions to drivers shall be prepared and included within this appendix.*

*Each treatment route card should be specific for each route, detailing the route to be driven and any specific hazards or increased risks that may be encountered on that route. Each treatment route should be issued to the drivers of the route on a laminated card and kept in the machine(s) used on each route.*

*The treatment route card should also show a map for the treatment route, to accompanying the driving instructions. The drawing should be to a scale, and of a size, to allow the information to be displayed clearly and concisely, and show*

* *The depot location*
* *Those parts of the driving route when treatment is to be applied indicated in red*
* *Those parts of the driving route when treatment is not to be applied indicated in grey*

*Any cross-boundary arrangements should incorporate the cross-boundary road(s) into the route treatment cards.*

*Separate cards (with maps) should be prepared to detail footway, footpath and cycle track treatments.*

*See below for a sample layout for a treatment route card.*

**ROUTE CARD FOR PRECAUTIONARY TREATMENT ROUTE No. XXX**

**Depot**: XXX

**Drivers/Teams:** Insert names of drivers & their team(s)

**Vehicle:** XX tonnes, registration plate

**Average Speed for route:** XX km/hr

**Average spread width for the route:** XX m

**Route Tonnage at 10 / 20 / 40 gms/m2:** XX / YY / ZZ tonnes

Insert a map of the treatment route

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Road** | **Road Surface Material** | **From** | **To** | **Route Risks / Hazards** | **Action** | **Free run (km)** | **Spreading Distance (km)** | **Average Speed (km/hr)** | **Time (mins)** |
| R999 | HRA | Depot / Starting point for driving | Start of the R999 westbound off-ramp to the N99 | Sharp RH bend at Doyles bar | Travel | 0.000 | -- | 00 | 00.0 |
| N99 | Porous Asphalt | Start of the R999 westbound off-ramp to the N99 | End of the dedicated westbound off-ramp to R998 | Increase spread rate by 25% | Salt | -- | 0.000 | 00 | 00.0 |
| R998 | HRA | End of the dedicated westbound off-ramp to R998 | End of Regional Road at XX junction | Travel | 0.000 | -- | 00 | 00.0 | R998 |
| Spot Location | HRA | E.g. a particular crossroad, junction, or other, that requires a temporary increased spread width | | ‘Boost’ spread at junction with R997 | Salt | -- | Boost / Blast | 00 | 00.0 |
| L9995 | HRA | Start of local road at XX junction | Landmark on L995 | Steep and winding descent | Salt | -- | 0.000 | 00 | 00.0 |
| L9995 | HRA | Landmark on L995 | Junction of L995 and L998 | Parked vehicles on LHS of junction | Salt | -- | 0.000 | 00 | 00.0 |
| L9998 | HRA | Junction of L995 and L998 | Depot / Finishing point for driving | Steep incline | Travel | 0.000 | -- | 00 | 00.0 |
|  |  |  | **Totals** | | **0.000** | **0.000** |  |  | **00.0** |
|  |  |  | **Route Efficiency** | | **XX%** |  |  |  |  |

1. Vehicles and Plant Schedule

*Include spreaders, ploughs, loading shovels, snow blowers, pumps, jetting equipment, sweepers and other specialist plant for use in both winter and severe weather conditions. A sample Vehicle and Plant schedule is shown below:*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Operational Vehicle Schedule | | | | | | |
| Owner | Location | Type | Capacity | VRN or ID | Plough No | Route |
| *[Local Authority /Hired]* | *[name]* | *[type of vehicle]* | *[m3 for spreaders]* | *[VRN of Identification Number]* | *[no.]* | *[route reference]* |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Reserve Vehicle Schedule | | | | | | |
| Owner | Location | Type | Capacity | VRN or ID | Plough No | Route |
| *[Local Authority /Hired]* | *[name]* | *[type of vehicle]* | *[m3 for spreaders]* | *[VRN of Identification Number]* |  | *[route reference]* |
|  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Additional Vehicle Schedule – e.g. Temporary Hire Vehicles | | | | | | |
| Owner | Location | Type | Capacity | VRN or ID | Plough No | Route |
| *[Local Authority /Hired]* | *[name]* | *[type of vehicle]* | *[m3 for spreaders]* | *[VRN of Identification Number]* |  | *[route reference]* |
|  |  |  |  |  |  |  |

1. Operatives Schedule

*Refer to AM-PAV-06051 – Winter Service Manual in the completion of this schedule.*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Operative Schedule | | | | | | | | | |
| Base | Name | Contact details | Winter Qualification held and their coverage | Winter Qualification Number | Qualification Expiry | Driving Licence No | Driving Licence Category | Driver CPC Modules completed |
| *[base location]* | *[name]* | *[phone number details]* | *[details]* | *[reference]* | *[date]* | *[reference]* | *[reference]* | *[Driver CPC and modules taken with dates]* |
|  |  |  |  |  |  |  |  |  |

1. Depots and Facilities Schedule

*Include details of all Depots and other facilities including full postal address, contact details, and facilities available e.g. salt storage, loading hoppers, fuel storage, back-up power supply, communications, garaging, workshops, welfare, etc.*

*A sample Depot schedule is shown below:*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Depot and Facilities Schedule | | | | | | |
| Depot or Facility Name | Owner /Lessor | Postal Address | Purpose | Access Arrangements | Contact Details | Facilities |
| *[name]* | *[TII/MMaRC/*  *Local Authority]* | *[address]* | *[description]* | *[details]* | *[telephone, fax, radio call sign]* | *[comprehensive list]* |

1. Internal Contact List

*Include contact information for the key personnel within the organisation.*

1. External Contact List

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Role | Organisation | Telephone | Fax | Email |
| *[name]* |  | *TII* |  |  |  |
| *[name]* |  | *TII* |  |  |  |
| *[name]* | Weather Forecaster | *[organisation]* |  |  |  |
| *[name]* | Outstation O&M | *[organisation]* |  |  |  |
| *[name]* | Salt supplier | *[organisation]* |  |  |  |
| *[name]* | Vehicle Maintenance | *[organisation]* |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

1. Standard Forms

This appendix includes the following standard forms:

i) Notification of Proposed Treatments

ii) Daily Operational Update

iii) Hourly Operational Update

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *[Local Authority name and logo]* | | | | *[address line 1]*  *[address line 2]*  *[address line 3]*  *[address line 4]*  *[telephone]*  *[fax]*  *[email]* | | | | | | | |
| **Distribution List** | | | | | | | | | | | |
| *[name, organisation, fax number/email]* | | | | | | | | | | | |
| **NOTIFICATION OF PROPOSED TREATMENTS for *[Local Authority]* on Network** | | | | | | | | | | | |
| **For the 24-hour period started at 12:00 hrs on** | | | | |  | | | | | | |
| **Minimum Air Temperature** | | **Minimum RST** | | | | | | **Time RST zero** | | | |
|  | |  | | | | | |  | | | |
| **Winter Service Action Required:** | | | **YES** | | |  | | | **NO** | |  |
| **Proposed Treatment** | | | | | | | | | | | |
| **Route No** | **Route Description** | | | **Spread Rate (g/m2)** | | | **Start Time** | | | **Comments** | |
|  |  | | |  | | |  | | |  | |
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| **Additional Comments** | | | | | | | | | | | |
|  | | | | | | | | | | | |
| **Actioned by:** | | | |  | | | **Verified by:** | | |  | |
| **Date & Time:** | | | |  | | | **Date & Time:** | | |  | |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *[Local Authority name and logo]* | | | | | *[address line 1]*  *[address line 2]*  *[address line 3]*  *[address line 4]*  *[telephone]*  *[fax]*  *[email]* | | | | | |
| **To** | | | | | | | | | | |
| Transport Infrastructure Ireland (TII) | | | | | | | | | | |
| **DAILY OPERATIONAL REPORT for *[Local Authority]* on Network** | | | | | | | | | | |
| **For the 24-hour period started at 12:00 hrs on** | | | | | | |  | | | |
| **Operational Summary** | | | | | | | | | | |
| **Route No** | **Proposed Treatment** | | | | | **Actual Treatment** | | | | **Comments** |
| **Spread Rate (g/m2)** | | **Start Time** | **Finish Time** | | **Spread Rate (g/m2)** | | **Start Time** | **Finish Time** |
|  |  | |  |  | |  | |  |  |  |
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|  |  | |  |  | |  | |  |  |  |
| **Additional Comments** | | | | | | | |  |  |  |
|  | | | | | | | | | | |
| **Recorded by:** | |  | | | | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *[Local Authority name and logo]* | | | *[address line 1]*  *[address line 2]*  *[address line 3]*  *[address line 4]*  *[telephone]*  *[fax]*  *[email]* | | |
| **To** | | | | | |
| Transport Infrastructure Ireland (TII) | | | | | |
| **HOURLY OPERATIONAL UPDATE for *[Local Authority]* on Network** | | | | | |
| **Date** | | | | **Time** | |
|  | | | |  | |
| **Network Summary** | | | | | |
|  | | | | | |
| **Network Status Summary** | | | | | |
| **Road No** | | **Condition** | | | **Ongoing Operations** |
|  | |  | | |  |
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|  | |  | | |  |
| **Operational Report** | | | | | |
|  | | | | | |
| **Recorded by:** |  | | | | |

1. Decision Maker Duty Rota

*Rota of personnel who have the authority to make decisions in relation to the provision of winter service, i.e. Decision Maker, on operational issues relating to the Local Authority’s winter service.*

**Local Authority Name**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Week starting Monday | Duty Engineer’s Initials | Week starting Monday | Duty Engineer’s Initials | Week starting Monday | Duty Engineer’s Initials | Week starting Monday | Duty Engineer’s Initials |
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| **Duty Engineer’s Name & Initials** | **Office Phone No** | **Office E-mail Address** | **Mobile No** |
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Send to: CAFO, Met. Éireann, Glasnevin Hill, Dublin 9. Attention: Duty SMO. E-mail: [forecasts@met.ie](mailto:forecasts@met.ie)

1. Winter Service Desk Decision Makers

*Personnel, usually senior managers, who have the authority to make decisions in relation to the provision of winter service during periods of severe winter weather when the Winter Service Desk is established, i.e. Decision Maker, on operational issues relating to the Local Authority’s winter service during periods of severe winter weather.*

1. Training Records

*Refer to the TII Winter Service Manual and record staff other than the operatives defined in Appendix A.6 with relevant training of winter service delivery. Training shall be recorded and evidenced in respect of winter service decision making, weather forecast interpretation, etc.*

1. Solid Vertical Barrier Schedule and Clearance Plan

*– may be inserted within a box of reference*

|  |  |
| --- | --- |
| **Solid Vertical Barrier Location Schedule** | |
|  | |
| Solid Vertical Barrier Reference Number: [Reference to Network map] | |
| Location | *[Location in relation to: marker posts or key features]* |
| Cross Sectional Position | *[Location in Verge or Central Reserve]* |
| Distance from Adjacent Running Lane | *[Distance from Barrier to nearest running lane]* |
| Construction of Adjacent Verge | *[Grass / Hardened / Filter Drain / V-Channel etc.]* |
| Number of Running Lanes | *[Number of Running Lanes adjacent to barrier]* |
| Hard Shoulder Details | *[Details of any hard shoulder present – Width, any other features]* |
| Slip Roads Present | *[Details of any diverging/merging slip roads present at the location]* |
| Large Hatching Areas | *[Details of any large hatching areas present – for example near diverge/merge tapers]* |
| Resources Required for Echelon Ploughing | *[Resources required for echelon ploughing including any plant required for bulk clearance]* |
| VMS Available | *[Details of VMS present - Mobile VMS required or barrier in location with permanent VMS]* |
| Additional Non-Dedicated Vehicles | *[Details of non-dedicated vehicles that will assist in clearance]* |
| Assistance from External Sources | *[Details of assistance required from such entities as Gardaí etc.]* |