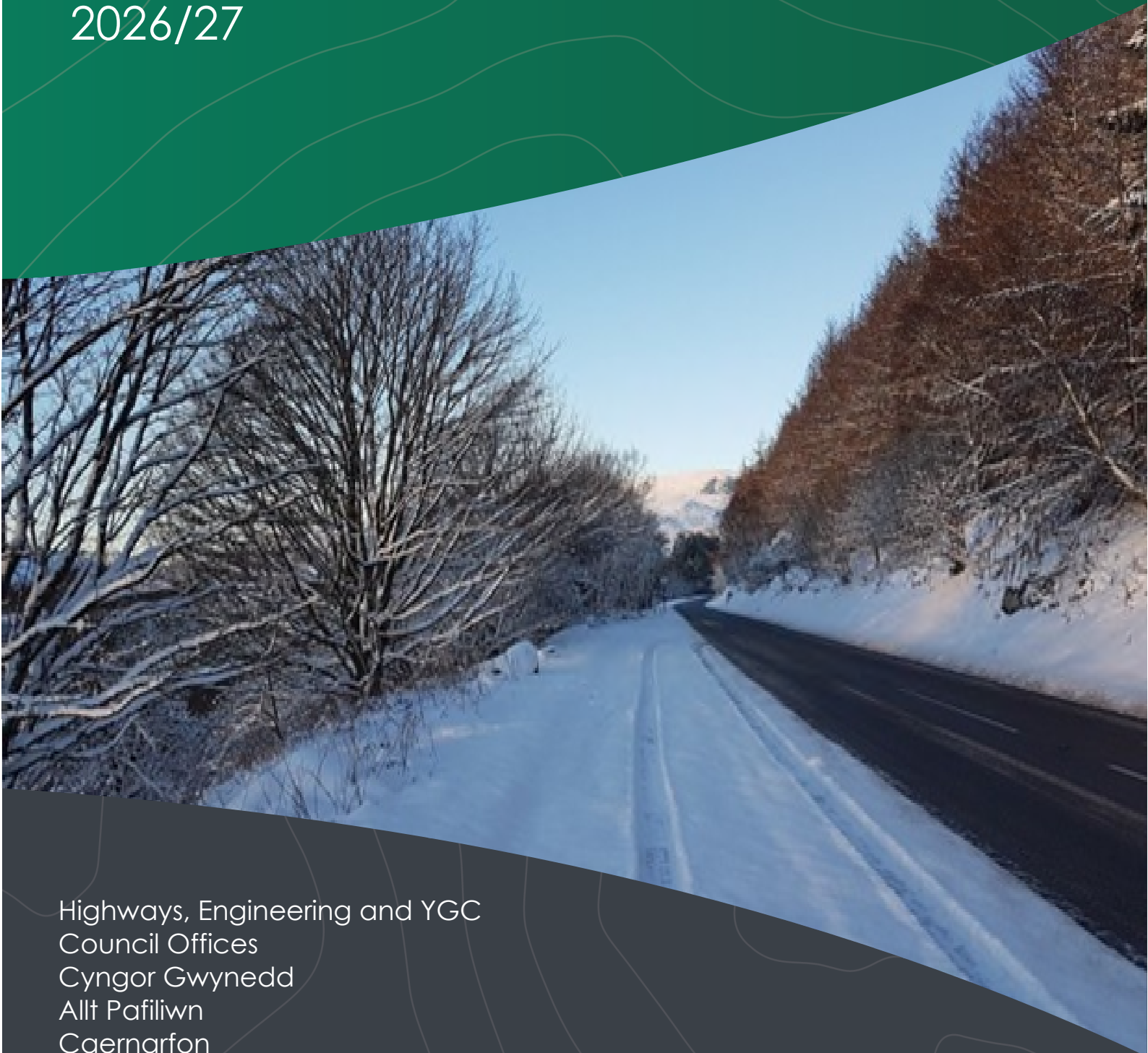




Cyngor
Gwynedd

Winter Service Plan

2026/27



Highways, Engineering and YGC
Council Offices
Cyngor Gwynedd
Allt Pafiliwn
Caernarfon
Gwynedd
LL55 1BN

gwynedd.llyw.cymru

WINTER SERVICE PLAN 2026/27

Disclaimer

No responsibility, whether directly or indirectly, will be accepted by Cyngor Gwynedd for any errors or mistakes made in technical data or information supplied by external bodies or individuals that is included in this document. It is the responsibility of the user of this document to ensure that technical data and health and safety instructions are valid before acting on such information. In addition, any claim made by a non-prescribed recipient or unauthorised user of this document, on any matter that might be deemed the responsibility for Cyngor Gwynedd, will not be accepted.

Document Control

This is a controlled document and is allocated a unique reference on this page that is specific to a particular plan holder, as indicated on the distribution list that follows. Amendments to this document will be issued as complete pages – by e-mail to Council staff and by post to Councillors and Partner Organisations. All amended pages will be annotated with the date, month and year of the amendment. All amendments are to be written down by the holder of this plan on the supplied amendments page.

This document should not be photocopied – it contains colour- based information that may not copy as intended.

Document Approval

This document has been reviewed and approved by:

Councillor June Jones

Cabinet Member – Highways, Engineering and YGC



Steffan Jones

Head of Highways, Engineering and YGC



Document Control

Title	Winter Service Plan
Reference	PB/CGGG/SJ/EM - QA

Document History

Version	Date	Status - Changes
3.0	01.10.15	New version
4.0	01.10.18	New version
5.0	01.10.19	New version
6.0	01.10.20	New version with changes and additions (including the Council's response to COVID-19)
7.0	01.10.21	New version with changes reflecting the revised structure of the Road Maintenance Service
8.0	08.11.22	Modifications made to the Meirionnydd gritting circuit (Circuits 8, 9 and 16)
9.0	25.10.23	New version with changes reflecting the revised structure of the Department. Update to the Arfon and Meirionnydd circuits.
10.0	21.10.24	New version with changes to gritting circuits and the gritting fleet.
11.0	01.10.25	New version with changes to gritting circuits.
12.0	01.10.26	New version with changes to gritting circuits.

Contents

1. Winter Service Plan	6
2. Legislation and Guidance	8
3. The Area and Responsibilities	9
4. Organisation	10
5. Weather Forecasting and Ice Prediction System.....	11
6. Service Operating Procedures	13
7. Communication Plan	16
8. Priorities.....	17
9. Salt Management.....	20
10. Resources.....	21
Appendix I	24
Appendix II.....	25
Appendix III.....	26
Appendix IV	27
Appendix V.....	32

1. Winter Service Plan

1.1 Introduction to the Service

- 1.1.1 The purpose of the winter service is to aid road users by treating the highway network to mitigate the effects of ice and snow and to maintain traffic movements while minimising the impact of the service operations on the environment.
- 1.1.2 The Council aims to provide a winter service which will permit, as far as is reasonably possible, the safe movement of vehicular traffic on the more important parts of the highway network.
- 1.1.3 The objective is that a network of treated routes should be reasonably accessible for the majority of residents and businesses, supplemented by targeted provision of self-help facilities.
- 1.1.4 The service is essential for public safety and to the national and local economy in maintaining movement of vehicular traffic, cycles and pedestrians. Owing to limited resources and available finance, it is essential that the provision of winter service reflects the importance of traffic routes. It will not be reasonably practicable to provide the service on all parts of the network or to ensure all surfaces are kept free of ice or snow at all times, even on the treated parts of the network. Consequently, the main pre-salting routes have been established on the highways that will have the first priority.
- 1.1.5 The Council, as the Highway Authority, is responsible for providing a winter service on adopted public highways within the county. However, the Council also treats all the trunk roads within the county on behalf of the North and Mid Wales Trunk Road Agency (NMWTRA).
- 1.1.6 In addition, the Council also provides a winter service for a section of the A55 managed by UK Highways A55 Ltd, the client organisation for the A55 DBFO contract. The winter service operations for this contract are outlined in a separate Quality Procedure: 'Provision of Winter Service: Ref. HOHM-QP-014 - 08/26, Revision 11 (A55 DBFO)'.
- 1.1.7 It should be noted that the winter service provided by the Council does not guarantee that at any given time any highway will be free of ice or snow, even following treatment.

1.2 Introduction to the Plan

- 1.2.1 The purpose of this plan is to set out the principles that the Council uses to meet its obligations and duties in respect of its winter service. It lays down which categories of road are to be treated, in what order of priority and how quickly they should be treated. It is intended, through the use of this plan, to ensure that there is a uniform level of service throughout the county.
- 1.2.2 The plan reflects the Highway Asset Management Plan 2010 (HAMP) and the Highway Maintenance Manual (Version 1.2, 2024).

2. Legislation and Guidance

- 2.1 Section 41 of the Highways Act 1980 imposes a duty on highway authorities to maintain highways maintainable at public expense. Section 41(1A) which imposes a duty on highway authorities to ensure, so far as is reasonably practicable, that safe passage along a highway is not endangered by snow or ice.
- 2.2 Section 13.3 of the Council's Highway Asset Management Plan states that best practice would be to adopt and publish a Winter Service Plan which should be reviewed annually to take account of changing circumstances.
- 2.3 Under Section 150(1) of the Highways Act 1980, there is a requirement for the Highway Authority to remove any accumulation of snow which forms an obstruction, and Section 150(3) of the Act states that the following factors should be considered:

- the character of the highway and the nature and amount of traffic using it
- the nature and extent of the obstruction
- the resources of the workforce, vehicles and equipment available to the Highway Authority and extent to which those resources are being, or need to be employed on such work

- 2.4 In addition, the Traffic Management Act 2004 places a network management duty on all local traffic authorities in Wales to do all that is reasonably practicable to manage the network effectively in order to keep traffic moving.
- 2.5 Recommendations and advice for meeting the Council's obligations regarding winter service are contained in the UK Roads Liaison Group document 'Well-managed Highway Infrastructure' which superseded 'Well Maintained Highways – Code of Practice for Highway Maintenance Management'. These recommendations are designed to allow local authorities to meet their obligations economically, efficiently and effectively and in determining policy.

3. The Area and Responsibilities

- 3.1 Gwynedd covers an area of approximately 985 square miles (2550 square kilometres), and its road network comprises Trunk Roads, Principal Roads, Non-Principal and Unclassified County roads. This network is mainly rural in character but with a significant urban element in the major towns. The Topography of the county is such that the altitudes of roads vary from sea level to 1,400 feet (427 metres). The network is made up of the following:

Type of Highway	Total (km)
Trunk	234
Principal (Class 1)	337
Non-Principal (Class 2 & 3)	1,110
Unclassified	1,345
Link Paths	40
Total	3,066

- 3.2 The Council's responsibility as the Service provider is as follows:

a.	Development of the Winter Service Plan for its specific routes.
b.	Implementation of the Winter Service Plan and delivery of services as defined in the Plan.
c.	Design of Winter Service treatment routes.
d. *	Day to day gathering of weather forecast and road condition information, decision-making and operational management.
e. *	Liaison with neighbouring service providers to ensure continuous and consistent service.
f. *	Communication of Winter Service Actions to all relevant parties.
g. *	Implementation of Winter Service Actions as communicated.
h. *	Reporting to NMWTRA.
i. *	Monitoring and reviewing performance.
j.	Provision of Plant, labour and materials.
k.	Maintenance and operation of vehicles, compounds and equipment.

* See **Appendix I:** NMWTRA/Partner Authority Winter Maintenance Procedures

4. Organisation

- 4.1 The Highways Maintenance Service operates its winter service in three operational areas, namely: Arfon, Dwyfor and Meirionnydd with area offices in Caernarfon, Pwllheli and Dolgellau.
- 4.2 Route planning, pre-treatment decisions and the operation of gritting vehicles and other plant as required to undertake precautionary salting on a 24-hour basis and respond to extreme weather conditions are the responsibility of the relevant Area Engineer.
- 4.3 The Head of Highways, Engineering and YGC has overall responsibility for the winter service throughout the county.
- 4.4 Outside normal office working hours, at weekends and at any other time when the offices are closed, an 'Out of Hours System' is in operation. This is manned by Highways Maintenance Service staff on a 24-hour rota system.

5. Weather Forecasting and Ice Prediction System

5.1 Winter Service Periods

5.1.1 The three distinct winter service periods are identified as follows:

MARGINAL RISK PERIOD	Severe weather not expected: October, April
LOW RISK PERIOD	Severe weather may occur: November, March
HIGH RISK PERIOD	Severe weather reasonably expected: December, January, February

5.2 Weather Forecasting

5.2.1 The Council is currently provided with winter weather forecasting and advisory services by MetDesk. The service is provided 24/7 and will run from 01 October to 30 April to correspond with the three winter service periods above and consists of the following:

- Morning summary issued in graph format by 07:00 each day containing a summary of actual weather that has occurred in the previous 36 hours and a preliminary forecast for the following 36 hours.
- 36 hours and 2 – 10-day text forecast and graph issued by 13:00 each day for each of the five climatic domains within the County.
- Review of the forecast by 19:00
- 24hr/day unlimited direct telephone access to a forecaster with local knowledge to discuss any aspect of weather conditions.
- MetDesk forecaster to phone stand by numbers for three areas should there be a significant change in the weather.

5.2.2 A plan showing the climatic domains and monitoring stations is included in **Appendix II**.

5.2.3 The weather forecasts are compiled by MetDesk from data received from radar, models and eight automatic road monitoring stations.

5.2.4 During normal working hours, weekends and public holidays the weather forecasting information is received via the MetDesk Website <http://www.metdesk.com>. Each relevant officer has an individual login so access can be monitored.

5.2.5 In the event of a marked change in the weather, MetDesk contacts the Duty Officers directly with any amendment to the forecast.

5.3 Ice Prediction System

5.3.1 The monitoring stations are located as follows:

Route No.	Location	Map Reference	Height (m)
A5025	Llansadwrn	SH 545 750	82
A4086	Mymbyr	SH 692 569	203
A4212	Celyn	SH 817 395	350
A499	Abersoch	SH 318 298	16
A499	Pontllyfni	SH 441 537	10
A493	Tywyn	SH 595 014	6
A494	Cefniddwysarn	SH 965 385	247
A5	Ogwen	SH 483 968	200

5.3.2 We are responsible for only six of the monitoring stations (Abersoch, Pontllyfni, Tywyn, Cefniddwysarn, Celyn and Ogwen).

5.3.3 Sensors installed at the weather stations store and relay information on air and road surface temperature, dew point, wind speed, precipitation and cloud cover.

6. Service Operating Procedures

6.1 Staffing Arrangement

6.1.1 For winter service purposes, the County is divided into three operational areas as follows:

- Arfon with an operating depot in Ciblyn, Caernarfon
- Dwyfor with an office in Pwllheli and an operating depot in Afonwen
- Meirionnydd with an office and a main operating depot in Dolgellau. There are also satellite operating depots located in Bala, Tywyn and Blaenau Ffestiniog.

6.1.2 Pre-treatment decisions during normal office hours are undertaken by designated officers within the Highways Maintenance Service in each of the three area offices. Verbal instructions are initially given for the proposed works which are then confirmed in writing.

6.1.3 Each Area Office operates an 'out of hours', on duty system whereby duty officers within the service are available outside office hours to react to changes in the weather conditions as information becomes available. Each officer is contactable via a designated emergency telephone number (**Appendix III**). In the event of a change in circumstances, the relevant officer relays the information, and any varied action as necessary, to the gritting operatives.

6.1.4 To ensure the appropriate level of competence, the training and development needs of all personnel should be established and reviewed annually including health and safety and appropriate vocational qualifications. Gwynedd duty officers attend specialist training on the interpretation of weather forecasts and the use of dedicated computer software, which is linked to the monitoring stations. The system provides historical and up-to-date information on road conditions, which is linked to MetDesk and is available to the Duty Officer 24 hours a day during the winter period. Operatives involved with the service on the ground receive an annual refresher training course in the general use of the equipment and familiarised with any new plant or equipment. Operatives are also trained and qualified to City & Guilds 6159: winter service operations qualification.

6.2 Cross Border Liaison

- 6.2.1 To maximise efficiencies some of Gwynedd's roads are salted by our neighbouring authorities.
- 6.2.2 Likewise, arrangements have been made where Gwynedd treats some roads within Denbighshire and Conwy.
- 6.2.3 In these circumstances the actions taken will be in accordance with the policy of the Authority undertaking the work.

6.3 Action

- 6.3.1 The action levels are as follows:

Patrol	Undertaken by Highway Inspectors for each area
Stand by	Of operatives at home to await call out
Stand to	Of operatives at depot to await instructions
Pre Salt	Undertaken by drivers only in gritting vehicles to apply salt at a specified rate of spread over the complete length of the scheduled routes.
Snow Clearing	Undertaken by driver plus one when ploughs are fitted. Salt is also applied in snow conditions but at a higher rate.

6.4 Operations

- 6.4.1 The winter service fleet of vehicles comprises purpose built gritting and demountable vehicles. The Fleet Manager is responsible for the maintenance of the winter maintenance fleet.
- 6.4.2 The fleet is maintained and serviced by Fleet Unit workshops located in each operational area.
- 6.4.3 Normal winter service precautionary gritting operations are carried out by single manned gritting vehicles.
- 6.4.4 To address the risk of working in potentially dangerous circumstances, all gritting vehicles are installed with a new 'telematics' system which identifies their location. The system provides a panic button in each vehicle which can send an alert to the relevant officer. Gritting data is

collected via the same tracking system. All gritting vehicles are supplied with specific mobile phones.

- 6.4.5 In addition we have introduced a recording system to ensure that the gritting vehicles arrive at the Depot after treatment.

6.5 Precautionary Treatment

- 6.5.1 A decision making matrix, considering various operational scenarios and which can be modified to take account of residual salt or surface moisture, is shown in **Appendix IV**.

7. Communication Plan

7.1 Internal Communication

- 7.1.1 Communications to facilitate the effective implementation of the Council's winter Service will primarily be by telephone. However, should events escalate, then relevant officers can attend the area offices if required to coordinate the Council's response. Under these circumstances, the Head of Department and /or the Assistant Head of Department will be regularly updated of events.

7.2 Communicating with the Public

- 7.2.1 Information regarding why, where and how the Council provides a winter service (including gritting route maps) and how to drive safely in wintry conditions is included on the Council's website:

<https://www.gwynedd.llyw.cymru/en-gb/parking-roads-and-travel/gritting-and-salt-bins>

- 7.2.2 The website includes contact details to report ice and snow during and out of normal working hours.
- 7.2.3 The Council also uses social media to disseminate any information about adverse weather conditions and its winter service to the public.

7.3 Emergency Services

- 7.3.1 The emergency services will be informed of the Council's winter service policy and how it's aims will be achieved prior to the start of each winter season. A copy of this Plan will be distributed to each of the relevant services.

7.4 Cross Border Liaison

- 7.4.1 Pre-treatment decisions are conveyed within the Message Board system within the MetDesk Weather Forecast System. NMWTRA then collates the actions of all Partner Authorities (**Appendix I**).

8. Priorities

8.1 Pre-salting of Carriageway



- 8.1.1 Our aim is to provide a reasonable and practicable gritting service in advance of inclement weather on the most strategic/important roads in Gwynedd. These are known as Primary Routes and the Council aims to ensure that safe passage along those roads is not endangered by snow and ice. Pre-salting of carriageways is restricted to Primary Routes and is undertaken by gritting vehicles only.
- 8.1.2 The Primary Routes (the carriageways which will have first priority) are as follows:

- A55, A5, A487, A470, A494 Trunk Roads
- Principal A Roads and Strategic B Roads
- Other important connecting routes which: -
 1. Are through routes with high volumes of traffic; or
 2. Provide at least one access to centres which respond to emergencies or receive emergency admissions; or
 3. County Class II or III roads which provide at least one access to towns and villages

8.2 Post Salting of Carriageway

8.2.1 Post salting will only be carried out during extreme weather conditions or where adverse weather conditions persist and when the relevant routes have not been treated within the preceding 36 hours. Priority will be given to keeping Primary Routes open before considering work on treating and clearing Secondary Routes followed by the remainder of the County Roads.

8.2.2 The Secondary Routes (the carriageways which will have second priority) are as follows:

- Remaining County Class II Roads not included as first priority routes
- Other roads which provide at least one access to schools, training centres, or industrial areas
- Other County Class III Roads which provide at least one access to Hospitals or Day Health Care Centres
- Other roads identified as requiring treatment due to steep gradients or altitude.

8.2.3 Post-Salting treatment will only be carried out in hours of daylight and will only be affected when resources become available having due regard to the requirements of treating Primary Routes and prevailing weather conditions.

8.3 Salting of Footways, Cycleways,

8.3.1 There shall be no pre-treatment of footways, cycleways or multi-user paths. In addition, no post-treatment work of any sort will be considered until resources are available following keeping Primary and Secondary Routes in an acceptable condition. This includes the post treatment of main shopping areas.

8.3.2 See **Appendix V** for arrangements around Railway Crossings.

8.4 Snow Clearance

8.4.1 Snow clearance will first be carried out on the routes scheduled for pre-treatment salting. The remainder of the network will be treated during severe weather as resources become available.

8.5 Salt Bins

8.5.1 In addition to precautionary, reactive and supplementary gritting operations, the Council also provides and services salt bins. Salt bins are provided at specific locations on the highway network that are not on first priority gritting routes.

<https://www.gwynedd.llyw.cymru/map>

8.6 Response and Treatment Times

8.6.1 The response time, that is the period between a decision being taken to begin treatment and vehicles leaving the depot, is one hour both within and outside normal working hours.

8.6.2 All trunk roads in Gwynedd are treated within 2 hrs of commencement of salting.

8.6.3 The treatment time for primary routes shall be approximately 3 hours but every effort is made to reduce this by improving vehicle characteristics and capacity, depot and salt location and reducing free travel on routes.

8.6.4 For some routes, where more than 20 gms/m² is required to be spread, the route must be travelled twice in order to achieve the desired rate of spread. In these circumstances the route can take up to 6 hours to complete.

9. Salt Management

9.1 Storing Salt



9.1.1 The salt is stored in the following areas:

Location	Capacity (tonnes)
Cibyn Depot, Caernarfon	2,500
Afonwen Depot, Chwilog	3,000
Ffridd Arw, Dolgellau	3,800
Bala Depot	3,000
Blaenau Ffestiniog	4,500
Llandygai	4,000

9.1.2 The first four locations have purpose-built salt domes.

9.1.3 Salt is kept undercover at Blaenau Ffestiniog and Llandygai. These two stores are also classed as Welsh Government Strategic Stores.

10. Resources

10.1 Providing an effectual winter service is dependent on the efficient spreading of salt from purpose-built vehicles to act as a de-icer and the use of salt or a salt/grit mixture to minimise the effects of formed ice or packed snow. Lying snow is removed by ploughing or physical loading.

10.2 The workforce available and their locations are as follows:

Area	Number of Workers	Number of Mechanics (Highways)
Arfon	12	4
Dwyfor	14	5
Meirionnydd	25	5
Total	51	14

10.3 The Council's winter service resources (gritters and equipment) and their locations are as follows:

Location	Purpose built	Ploughs	Demountable Units	Snow blowers	Spare purpose built
Cibyn	5	8	2	0	1
Afonwen	6	8	0	0	1
Dolgellau	3	6	2	0	2
Bala	3	4	1	0	0
Llan Ffestiniog	3	4	0	0	0
Tywyn	2	2	0	0	0
Total	22	32	5	0	4

10.4 Details of the gritting fleet (purpose built, demountable and spare gritters only) are as follows:

Arfon Area

Fleet No	Reg No	Model	Type of vehicle	Make
3542	CE68EGZ	MAN 18.250	4×4	Romaquip
3541	CE68EGY	MAN 18.250	4×4	Romaquip
3548	CX73AZF	Volvo FE 6x4	6×4	Romaquip
3564	CX74BCY	Volvo 6X6	6×6	Romaquip
3546	CN71OXM	MAN TGS 26.430	6×4	Romaquip
3553	CX74BBK	Volvo 18t	4×4	Romaquip

Dwyfor Area

Fleet No	Reg No	Model	Type of vehicle	Make
3554	CX24BBN	Volvo 18t	4×4	Romaquip
3537	KU68BYN	Volvo FE	6×4	Romaquip
3538	KU68BYO	Volvo FE	6×4	Romaquip
3539	KU68BYP	Volvo FE	6×4	Romaquip
3540	CE68EGX	MAN 18.250	4×4	Romaquip
3556	CX74BBU	Volvo 18t	4x4	Romaquip
3543	CN71OXS	MAN TGM 18.250	4×4	Romaquip

Meirionnydd Area

Fleet No	Reg No	Model	Type of vehicle	Make
3558	CX74BCE	Volvo 16t	4×4	Romaquip
3559	CX74BCF	Volvo 16t	4×4	Romaquip
3560	CX74BCK	Volvo 16t	4×4	Romaquip
3561	CX74BCO	Volvo 16t	4×4	Romaquip
3550	CX74BBE	Volvo 18t	4×4	Romaquip
3551	CX74BBF	Volvo 18t	4×4	Romaquip
3552	CX74BBJ	Volvo 18t	4×4	Romaquip
3555	CX74BBO	Volvo 18t	4×4	Romaquip
3557	CX74BBV	Volvo 18t	4×4	Romaquip
3562	CX74BCU	Volvo 18t	4×4	Romaquip
3563	CX74BCV	Volvo 18t	4x4	Romaquip
3544	CN71OXT	MAN TGM 18.250	4×4	Romaquip
3536	KU68BYM	Volvo FE (Sbar)	6x4	Romaquip

Appendix I

North and Mid Wales Trunk Road Agency Weather Plan

The North & Mid Wales Trunk Road Agent (NMWTRA) is a partnership agreement between the eight local authorities of Ceredigion, Conwy, Denbighshire, Flintshire, Gwynedd, Powys, Wrexham and Ynys Môn (the Partner Authorities). Cyngor Gwynedd is the lead authority for the partnership and is engaged through the Welsh Government Managing Agent Agreement (WGMAA) as Agent responsible for managing a wide range of trunk road services on behalf of Welsh Government (WG), the Highway Authority. These services are in turn delivered by the Partner Authorities (PA's) Service Provider Units (SPU) or procured through frameworks with the private sector. The lead authority has established a Trunk Road Management Unit (TRMU) to implement and manage the WGMAA requirements which are expressed in further detail through the Welsh Government Trunk Road Maintenance Manual (WGTRMM).

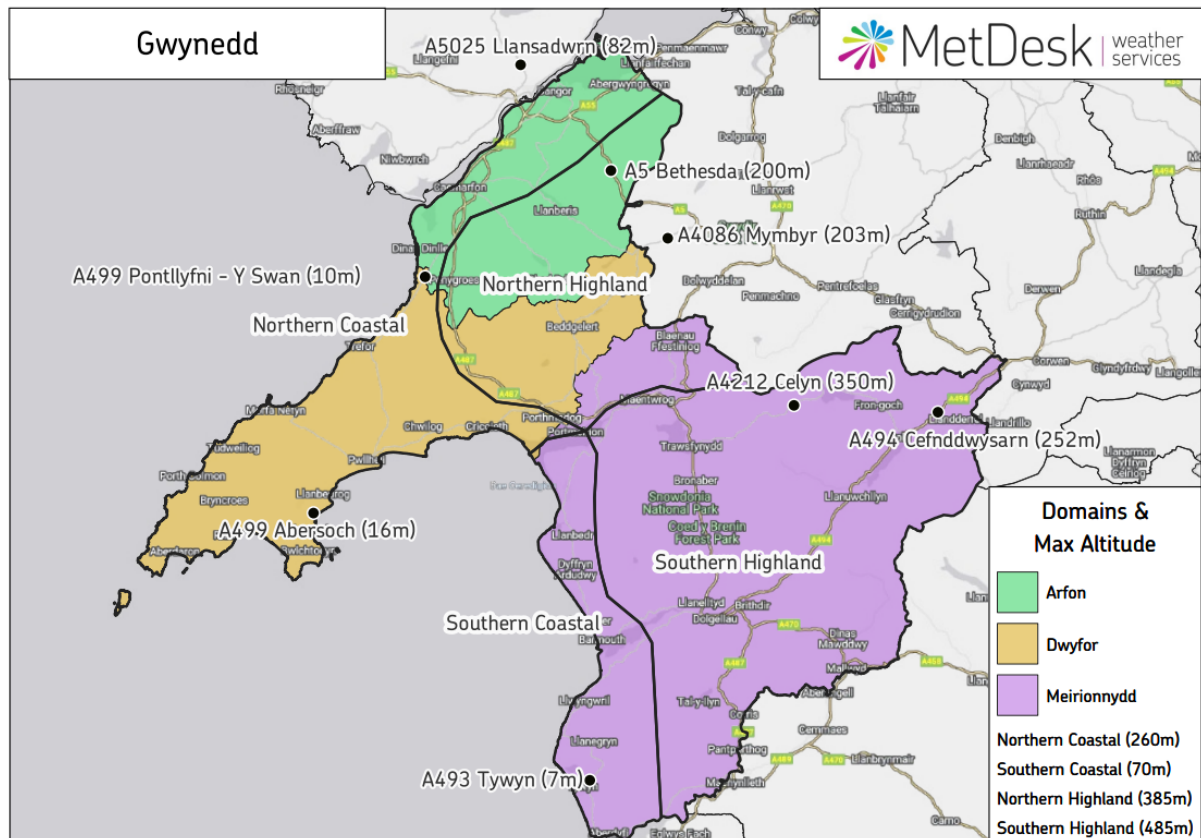
In April 2016, NMWTRA introduced a revised Service Delivery Agreement (SDA) with the PA's within which in Annex 1, Volume C provides the specification for Adverse Weather Services to be delivered by the PA's. The specification was developed in conjunction with the South Wales Trunk Road Agent (SWTRA) and provides a common approach between Agents in so far as is possible given the different service models for delivery. In order to optimise winter maintenance operations on a predominantly rural single carriageway network NMWTRA operates an integrated County and Trunk Road route delivery model whereas SWTRA which has a high motorway and dual carriageway network has trunk road only route delivery model.

The winter maintenance season 2026/27 will utilise forecasting services provided by METDesk. In conjunction with the WGTRMM and the SDA, this Adverse Weather Plan describes the policy objectives, procedures and operational arrangements for the delivery of an adverse weather service and details the alert procedures and actions in the event of adverse weather on the trunk road network in North and Mid Wales.

The NMWTRA Partner Authorities together provide an integrated and holistic service across both the county and trunk road networks for delivering the adverse weather response, which provides additional resilience benefits.

Appendix II

Climatic Domains and Monitoring Stations



Appendix III

24 hr Emergency Telephone Numbers

Area	Number
Arfon	01286 677067
Dwyfor	01766 810382
Meirionnydd	01341 422592

Appendix IV

Decision Matrix Guide

		Predicted Road Conditions		
Road Surface Temperature	Precipitation etc.	Wet	Wet Patches	Dry
May fall below 1°C	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°C	No rain No hoar frost No fog		Salt before frost (see note B)	
	Expected hoar frost Expected fog			
	Expected rain BEFORE freezing	Salt after rain stops		
	Expected rain DURING freezing	Salt before frost and after rain stops (see note C)		
	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 C)		
	During rain	Salt during rainfall (see note C)		
	After rain	Salt after rainfall (see note C)		

Notes

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

Treatment Matrix Guide

This matrix has been reproduced from WGTRMM 2016 Section 1.1.22 as follows:

Table 1.1.22 - Welsh Government Salt Treatment Matrix						
Weather Conditions, Road Surface Conditions, Road Surface Temperature (RST)	Air Temperature	Required Treatment				
		Dry Salting (g/m ²)	Pre-wetted Salting (g/m ²) (see Note 1)	Pre-Coated Salting (g/m ²)	Pre-coated / Pre Wetted Combination (g/ m ²)	Ploughing
(MARGINAL CONDITIONS) Frost or forecast frost, RST at or above minus 2°C and dry or damp road conditions. (Note 4 if porous / open textured surfacing) (* the option of a Dry Salting		(8)* 10 (12)	10 (12)	10 (10)	10 (12)	No
Frost or forecast frost, RST at or above minus 2°C and wet road conditions. (Note 3 if wet and lightly trafficked) (Note 4 if porous / open textured surfacing)		10 (15)	12 see Note 2 (15)	10 (12)	12 see Note 2 (15)	No

Frost or forecast frost, RST below minus 2°C and above minus 5°C and dry or damp road conditions (Note 3 if damp and lightly trafficked) (Note 4 if porous / open textured surfacing)		15 (20)	15 (20)	10 (15)	15 (20)	No
Frost or forecast frost, RST below minus 2°C and above minus 5°C and wet road conditions (Note 3 if wet and lightly trafficked) (Note 4 if porous / open textured surfacing)		20 (25)	20 see Note 2 (25)	15 (20)	20 see Note 2 (25)	No
Frost or forecast frost, RST at or below minus 5°C and above minus 10°C and dry or damp road conditions (Note 3 if damp and lightly trafficked) (Note 4 if porous / open textured surfacing)		20 (25)	20 (25)	15 (20)	20 (25)	No
Frost or forecast frost, RST at or below minus 5°C and above minus 10°C and wet road conditions (existing or anticipated) (Note 3 if lightly trafficked) (Note 4 if porous / open textured surfacing or particularly low temperatures at lower end of temperature band)		2x15 (2x20)	2x15 see Note 2 (2x20)	25 (2x15)	2x15 see Note 2 (2x20)	No
Light snow forecast (<10mm)		10-20	10-20 see Note 2	10-15	10-20 see Note 2	No
Medium / heavy snow or freezing rain forecast (>10mm)		2x20	see Note 2	2x15	see Note 2	No
Freezing rain falling		20 (successive)	see Note 2	15 (successive)	see Note 2	No

After freezing rain		20 (successive as required)	see Note 2	15	see Note 2	No
Ice formed (minor accumulations)	above minus 5°C	20	see Note 2	15	see Note 2	No
Ice formed	at or below minus 5°C	2x20	See Note 2	2x15	see Note 2	No
Snow covering exceeding 30mm		10-20 (successive)	see Note 2	10-15 (successive)	see Note 2	Yes
Hard packed snow / ice	above minus 8°C	20 (successive)	see Note 2	15 (successive)	see Note 2	No
Hard packed snow / ice	at or below minus 8°C	Salt/abrasive (successive)	see Note 2	Salt/abrasive (successive)	see Note 2	No

Undertake precautionary salting at an appropriate spread rate in advance of predicted / forecast freezing temperatures.

Rates of spread for precautionary treatments may be adjusted to take account of residual salt or surface moisture. Refer to WGTRMM 2.2.22.

If the indicated spread rate cannot be accurately applied due to limitations of the equipment or calibration difficulties, the next higher spread rate should be used. (For example: when indicated 12g/m² use 15g/m²).

Equipment shall be calibrated and adjusted to ensure that the required spread rates throughout the salting route (with varying loads) does not fall below the minimum rate specified, this is particularly important for the lower spread rates indicated.

Where a double treatment is necessary the initial first treatment shall be at the highest spread rate possible within the limitations of the spreader for the route length. For example, 2x15g/m² applied as 1x20g/m² +1x10g/m².

Notes:

- 1) Spread rates for pre-wetted salt is the combined weight of dry rock salt and brine combined at 70:30 proportion by weight respectively. Refer to WGTRMM Part 2 regarding the addition of Agricultural By Products (ABP's) within the brine (10% by volume maximum) or use of pre-coated salt (3% by weight of salt).
- 2) When ice has formed or snow is lying, dry or pre-coated salting is the preferred treatment unless the road is closed to traffic when pre-wetted salting may be used. Pre-wetted and pre-coated salting is a more effective treatment in advance of such conditions. Pre-coated and dry salting should be undertaken when roads are wet from recent or anticipated precipitation.
- 3) Treatments should be carried out, whenever possible, after traffic has dispersed standing water. Successive normal or half rate treatments (for pre-wetted, pre-coated and dry salt) may be considered, based on operational experience for lightly trafficked roads at the lower end of the temperature bands indicated and climatic variations experienced.
- 4) Where a surfacing is of an open texture and /or porous or surface water is evident the higher spread rate (indicated in brackets) should be used. Where temperatures may reach the lower end of the temperature bands, light traffic or a more cautious approach to treatment is required based on operational experience, local knowledge, uncertainty of weather forecast and timings the higher spread rate (indicated in brackets) may be used.

Appendix V

Network Rail – Requirements at Level Crossings

For railway purposes, salt must not be used to clear level crossing surface due to the risk of wrong sided track circuit failures.

Essentially, Network Rail can determine where a train is on its network by the use of track circuits (low current passing through a section of track, when a train passes over this location - the current is short circuited thereby activating equipment such as signals). But when salt is present this can cause a short circuit creating a track circuit failure (indicating a train is present when it is not) or in extreme cases cause a wrong side track circuit failure (saying a train is not present when in actual fact it is) which can cause catastrophic results.

Section B.7.5.43 of the Roads Liaison Group, 'Well-Managed Highway Infrastructure: Code of Practice for Highway Maintenance Management' (2016 Edition) states that:

“Network Rail recommends that salting should not be undertaken between the stop lines of level crossings, even when covered with snow.

Before ploughing over a level crossing, the driver must stop and telephone the signalman for permission to proceed and then inform the signalman when past the crossing.”

