
Appendix 1 - Winter Service Review Phase 2 - 2023

1 Introduction

- 1.1 Phase 2 of the Winter Service Review is about picking key factors to help group roads together and decide a priority order for those groups for winter services.
- 1.2 The purpose of grouping is to collect together those roads that have different but comparable need in terms of priority e.g. is a hospital comparable with a high school, are all health facilities equal, is the number of users relevant?
- 1.3 There is no set number of groups at the start of the process. Too few will not allow informed decisions and outcomes. Too many will have little difference between groups and will be cumbersome to administer.
- 1.4 The groups are described in this review as “Tiers”.
- 1.5 Different road users will likely have different priorities and therefore compromise will be necessary.
- 1.6 The level of service for each group [e.g. when roads will be treated and how] will be determined in subsequent phases of the review.
- 1.7 Phase 1 of the review looked at rates of spread for de-icing material [rock salt] and re-treatment criteria to help reduce salt usage. This has been completed and implemented within the existing winter service policy resulting in reduced salt usage, environmental impact and costs.

2 Principles

- 2.1 The ‘Well Managed Highway Infrastructure’ code of practice (2016) alongside the National Winter Service Research Group (NWSRG) Practical Guidance documents (updated 2019 to 2021), recommends using a risk-based approach to appropriately manage our roads and provide a reasonable level of Winter Service.
- 2.2 The National Winter Service Research Group (NWSRG) practical guidance documents are comprehensive and are an established industry standard.
- 2.3 Route Selection forms part of this guidance and is designed to assist authorities to review and amend their winter service routes based on local needs by adopting a risk and evidence-based approach. This approach is recommended in Well-managed Highway Infrastructure Section B.7 Winter Service.
- 2.4 This has been used as the basis for categorising the network within the hierarchy. This is a risk-based selection process that is tailored to the circumstances of this Authority. It follows the principles set out in the NWSRG Practical Guidance for Winter Service under Section 13, Route Selection and Optimisation, published in 2020. Using the principles outlined in this guidance, a consistent and transparent process has been established to demonstrate the categorisation of the winter service route network.
- 2.5 It is particularly important that an authority can demonstrate that its Winter Service Policy is reasonable and appropriate and that the Service is being delivered in line with policy. This report determines a winter service hierarchy for roads across Powys and establishes service levels to be applied which reflect defined criteria.

3 Legislation and Scope

- 3.1 The Highways Act 1980 Section 41(1A) places a duty on the Authority to ensure; so far as is reasonably practicable, that safe passage along a highway is not endangered by snow or ice (this amendment to the act was introduced under the Railways and Transport Safety Act 2003, Chapter 20 Part 6 Section 111).
- 3.2 Section 150 of the Highways Act 1980 Act places a duty upon Authorities to remove any obstruction of the highway resulting from accumulations of snow.
- 3.3 The Authority believes the current level of service meets the requirements on the current interpretation of “reasonably practicable” but there is a need to keep service provision under review, particularly in respect of any legal judgements, updated guidance or changing conditions.
- 3.4 The national code of practice, Well-Managed Highway Infrastructure, makes the risk-based approach more explicit, without specifying any prescriptive or advisory criteria or minimum standards. The guidance is designed to assist authorities review and develop their winter service based according to local needs by adopting a risk and evidence-based approach. There are many factors that can be considered when assessing risks in this respect and, although a number of these may be similar for authorities, local knowledge is essential in identifying particular risk. Using an evidence and risk-based approach, the assessment should consider network user requirements, making use of best available data and professional judgement.
- 3.5 This review covers mechanically propelled vehicle highways maintainable at the public expense as defined by Section 36(6) of the Highways Act 1980 but does not include:
 - 3.5.1 Trunk Roads – Welsh Government are the highway authority for the eight trunks roads across Powys [A40, A44(part), A458, A470, A479, A483, A487, A489(part)] and are responsible for setting service standards for these sections of highway.
 - 3.5.2 Rights of Way included on the Definitive Map;
 - 3.5.3 Other council assets e.g. access roads to council offices,
 - 3.5.4 Other public sector assets e.g. health board access roads to hospitals,
 - 3.5.5 Private assets e.g. private roads, supermarket car parks
- 3.6 Some sections excluded above may be treated by the council under separate agreements with the responsible organisation.
- 3.7 Footways and cycleways are categorised through a separate process and are not in scope.
- 3.8 Due to the varied nature and impacts of snowfall, specific snow routes have not been designated through this process. Snow events typically affect sections of route within each category and require a specific response that can only be determined as the event unfolds. The Winter Service Plan sets out the methodology for response to snow events in line with the priorities set out by this report and any identified welfare or community need responses.

4 Environment and Climate

- 4.1 As well as legal duties the Council declared Climate Change and Nature Emergencies in September 2020 and October 2022 respectively. This reinforces the need to consider environmental impacts when considering priorities.
- 4.2 The winter service has the potential to be a significant contributor with regard to environmental impacts given the reliance on vehicles and mined rock salt which have traditionally been heavily reliant on fossil fuel for production and use together with environmental impacts and pollution issues.
- 4.3 Managing environmental and climate impacts will be done for all elements of the winter service:

e.g. when purchasing salt it will be necessary to consider other alternatives with lower impacts; what is the most appropriate vehicle to use such as electric, hybrid etc; does the vehicle adequately control salt spreading to reduce over application.

- 4.4 Phase 1 of the review resulted in reduced salt usage by adopting options for lower rates of spread for salt applied to roads and for retreatments.
- 4.5 The key environmental and climate consideration for Phase 2 will be to avoid moving roads to a higher group or reducing the number of groups because it feels more comfortable. This could result in over-treatment for the required conditions and location, thus spreading more salt and using more fuel than needed.

5 Approach

- 5.1 Section 13 - Route Selection and Optimisation guidance of the NWSRG Practical Guidance for Winter Service under Section 13, is complementary to the latest code of practice “Well-managed Highway Infrastructure Section B.7 Winter Service” and is designed to assist authorities to review and amend their winter service routes based on their local needs by adopting a risk and evidence-based approach.
- 5.2 Assigning roads to a level of service category will not necessarily be determined by the road classification alone, but also by other factors that can be considered when assessing risks in this respect. Priorities for Winter Service need to be coherent with wider objectives for transport, integration and accessibility including strategies for public transport, walking and cycling.
- 5.3 Examples of criteria recommended by the guidance [para. 13.4.5] for consideration in selecting which parts of the network to treat and how to categorise are listed in Table 1 below. Each of these is considered in the relevant section.
- 5.4 The guidance recognises financial constraints as a factor in categorisation, for it is recognised that authorities cannot be reasonably expected to protect against ice and snow at all times on all parts of the network. The responsibility for the authority is to demonstrate that their policy is reasonable and meets their statutory duties in respect of the risks to road users posed by snow and ice
- 5.5 A five ‘Tier’ approach has been adopted to help assess and rank the priority of functions within any given criteria. The five Tier model (Tier 1 – High Priority to Tier 5 Low Priority) is considered to give sufficient opportunity to suitably differentiate between the various levels of priority required.
- 5.6 The approach considers a Primary Factor [Traffic Volume/Pedestrian and Cycle crossing Volume] to define a core criteria alongside Secondary Factors that look at other considerations to determine if a route warrants inclusion in a higher or lower Tier than determined by the Primary Factor.
- 5.7 Identification of a Factor in a Secondary category does not automatically require the route to be moved to a higher Tier but will be based on an assessment of perceived or known risk having regard to the risk relevant to other identified factors.
- 5.8 In some cases, physical or operating constraints mean it is impossible to treat some areas using routine operating practices. This is particularly the case where winter service vehicles are unable to turn, resulting in the need to carry out reversing manoeuvres, often in dark or inclement conditions. The provision of smaller vehicles or reversing assistants is considered to present a significant financial constraint. In such circumstances the service response will aim to get within 500 metres of the facility for precautionary treatment regimes

6 Route Assignment Criteria

- 6.1 The process of Route Assignment focusses on grouping sections into comparable and equitable groups based on defined factors or criteria. At this stage it does not consider if or when winter services will be applied or the manner in which it will be delivered.
- 6.2 Assessment of risk has been considered under six Secondary Factor criteria headings:
 - 6.2.1 Emergency Services;
 - 6.2.2 Health and Social Care;
 - 6.2.3 Routes of Local Importance;
 - 6.2.4 Education Facilities;
 - 6.2.5 Public Transport Interchanges;
 - 6.2.6 Services
- 6.3 Table 1 below sets out how the above criteria we have used relate to the example criteria set out in the guidance.

NWSRG Practical Guidance for Winter Service Section 13, Route Selection and Optimisation Examples of criteria for consideration in categorising highways for treatment [para. 13.4.5]		Traffic and crossing Volume	Emergency Services	Health and Social Care	Routes of Local Importance	Education Facilities	Public Transport Interchanges	Services
		Primary	Secondary					
A	The type of road i.e. motorway, A road, B road, C road, link road, unclassified, estate road etc.	✓						
B	Level of use of the road i.e. number of vehicles per hour and types of vehicles.	✓						
C	The speeds observed on the road, e.g. 85th percentile.	✓						
D	Network accessibility such as single road access to settlements, access to critical infrastructure e.g. power stations, dams, water treatment plants etc.				✓			✓
E	Access to key public services such as schools, hospitals, fire & ambulance stations whilst taking into the account the highway user e.g. public transport user, car driver etc.		✓	✓		✓	✓	✓
F	Consideration if to include public and school bus routes – these routes can be extensive and frequently changing. Factors to consider may include frequency of service, differences between rural and urban services					✓		
G	Topography is an important consideration, and this is an area where local knowledge can be invaluable. High ground should be considered which is likely to experience lower road surface temperatures (RST). Steep inclines providing limited traction, exposed areas prone to drifting. Consideration should also be given to locations near to water sources i.e. marshes, rivers, lakes and sea.				✓			
H	Hazardous locations which have been identified through collision records, third party claims or local knowledge.				✓			
I	Whether the road links to treated routes in adjacent authorities?				✓			
J	Does the road have a strategic significance i.e. is a diversion route of a strategic route (motorway or trunk road is closed). Is it used for a special event?				✓			
K	Climate – macro or micro climates				✓			
L	Consideration if footways and cycleways are to be treated – these can include a wide variety of routes and levels of use. Consideration may be given to times and locations of peak flow, which can affect sections such as the more major links to public transport. Guidance is available in the Winter Service on Footways and Cycleways section of the NWSRG practical guide [To be reviewed in a later Phase of the Winter Service Review]	✓						
N	Financial constraints – all winter service is provided within financial constraints and it is recognised that authorities cannot be reasonably expected to protect against ice and snow at all times on all parts of the network. The responsibility for the authority is to demonstrate that their policy is reasonable and meets their statutory duties in respect of the risks to road users posed by snow and ice	✓	✓	✓	✓	✓	✓	✓

Table 1

7 Primary Factor

Traffic Volume

7.1 Guidance criteria (Table 1) considered within this section include:

A	The type of road i.e. motorway, A road, B road, C road, link road, unclassified, estate road etc.
B	Level of use of the road i.e. number of vehicles per hour and types of vehicles.
C	The speeds observed on the road, e.g. 85th percentile.
L	Consideration if footways and cycleways are to be treated – these can include a wide variety of routes and levels of use. Consideration may be given to times and locations of peak flow, which can affect sections such as the more major links to public transport. Guidance is available in the Winter Service on Footways and Cycleways section of the NWSRG practical guide [To be reviewed in a later Phase of the Winter Service Review].
N	Financial constraints – all winter service is provided within financial constraints and it is recognised that authorities cannot be reasonably expected to protect against ice and snow at all times on all parts of the network. The responsibility for the authority is to demonstrate that their policy is reasonable and meets their statutory duties in respect of the risks to road users posed by snow and ice

- 7.2 The Council has adopted the County Surveyors Society Wales (CSSW) Risk Based Approach to Highway Management which primarily defines a hierarchical approach based on traffic volume i.e. number of users. The primary consideration for this is that risk increases as traffic volume increases [see CSSW Methodology paper for further background].
- 7.3 A baseline Powys hierarchy has been defined using this approach and forms the basis from which more specific hierarchies can be developed to reflect specific needs, such as the hierarchy for highway inspections.
- 7.4 The baseline hierarchy covers over 5,500km of highway network made up of over 26,500 individual sections. This includes A, B, C and unclassified roads. It does not include Trunk Roads which are the responsibility of Welsh Government.
- 7.5 Data for traffic volume [i.e. users per hour] and speed are not available for the majority of sections within the hierarchy as recommended by the Practical Guidance. The costs of collecting data for vehicle users is estimated at around £500 per site. Collecting data on the basis of a km interval would cost £3.25m; whilst a more rationalised approach of around 2,000 sites would still cost in the region of £1m. This is against an historical baseline winter service budget of £1.3m. Costs for collecting data for other users e.g. cyclists and pedestrians, is likely to be of comparable cost.
- 7.6 Collecting comprehensive user volume and speed data for the highway network is therefore not considered to be a reasonable expectation and a more pragmatic view has been used to assign each section to the relevant winter hierarchy category based on available data together with officer experience and judgement.

7.7 The CSSW approach has defined six hierarchy categories based on user volumes for both carriageways and footways:

CSSW Hierarchy Level			
Carriageway	Users [AADT]	Footway	Users [AADT]
CHSR	Based on local importance rather than traffic flow but often in the range >20,000	FHVHU	> 10,000
CH1	10,000 to 20,000	FH1	5,000 - 10,000
CH2	5,000 - 10,000	FH2	1,000 - 5,000
CH3	1,000 - 5,000	FH3	500 - 1,000
CH4	200 – 1000	FH4	< 500
CH5	< 200	FH5	< 100

7.8 These hierarchy levels have been used as the primary basis for defining the Tiers of Winter Service hierarchy defined in the table below. Due to the limited number of CHSR and FHVHU hierarchy categories, they have been combined into a single Tier.

7.9 Whilst the Footway volumes [AADT] refer to movement along a footway, it is probable that a proportion of these will generate crossing manoeuvres and thus provide a starting point for identifying potential sites where the interaction between vehicle flow along the road and pedestrian crossing manoeuvres over the road may warrant inclusion in a higher tier.

7.10 As with road traffic volume, data is not available for pedestrian volumes or crossing manoeuvres. Costs for collecting the data are likely to be comparable with the roads data.

7.11 To help understanding what the user volumes might look like the figures below give a broad brush indication. Annual Average Daily Traffic [AADT] or flow is measured and calculated in a defined way. If we average the AADT figures across a 12 hour day the figures below show how many movements would be expected to occur with one minute for every minute of that 12 hour period.

AADT	Number of movements per hour averaged over 12 hours
20,000	1667
10,000	834
5,000	417
1,000	84
500	42
200	17
100	9

Number of movements per minute averaged over 12 hours
28
14
7
2
1

7.12 Whilst the primary factor contributing to risk is user volume, other secondary factors

may contribute to the level of risk sufficiently to require inclusion in a higher Tier than identified by user volume alone. Seven groupings have been identified for Secondary Factors as detailed below:

Primary Factor				Secondary Factors
Carriageway Hierarchy				
Tier 1	CHSR CH1	Strategic Road Primary Distributor	20,001+ 10,001- 20,000	Emergency Services Health and Social Care Routes of Local Importance Education facilities Public Transport Interchanges Services
Tier 2	CH2	Secondary Distributor	5,001- 10,000	
Tier 3	CH3	Link Road	1,001-5,000	
Tier 4	CH4	Local Access Road	201-1,000	
Tier 5	CH5	Minor Road	0-200	

7.13 Assessment of secondary factors is within each grouping. No weightings for secondary factors have been applied across groupings, albeit comparison across groupings has been considered, e.g. an emergency ambulance station would have the same priority as a hospital with accident and emergency facilities. Whilst in different groupings they would be assigned to the same Tier.

7.14 The allocation to of groupings and Tiers is summarised in Appendix 2.

8 Secondary Factors

8.1 Emergency Services [Secondary Factor]

8.1.1 Criteria considered within this section include:

E	Access to key public services such as schools, hospitals, fire & ambulance stations whilst taking into the account the highway user e.g. public transport user, car driver etc.
N	Financial constraints – all winter service is provided within financial constraints, and it is recognised that authorities cannot be reasonably expected to protect against ice and snow at all times on all parts of the network. The responsibility for the authority is to demonstrate that their policy is reasonable and meets their statutory duties in respect of the risks to road users posed by snow and ice

8.1.2 Ambulance, fire and police provide 24 hour emergency response and are assigned to Tier 1. Some voluntary facilities, such as St John's Ambulance, provide 24 hour support to the ambulance service and have also been assigned to Tier 1. No Coastguard facilities have been identified within Powys.

8.2 Health and Social Care [Secondary Factor]

8.2.1 Criteria considered within this section include:

E	Access to key public services such as schools, hospitals, fire & ambulance stations whilst taking into the account the highway user e.g. public transport user, car driver etc.
N	Financial constraints – all winter service is provided within financial constraints and it is recognised that authorities cannot be reasonably expected to protect against ice and

	snow at all times on all parts of the network. The responsibility for the authority is to demonstrate that their policy is reasonable and meets their statutory duties in respect of the risks to road users posed by snow and ice
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- 8.2.2 Health and Social Care facilities will not necessarily generate high traffic volumes. The service(s) they provide however, may be critical for health care and warrant inclusion in a higher Tier than derived from traffic volume of the public highway access.
- 8.2.3 Facilities requiring 24 hour access such as Accident and Emergency; Minor Injury and those centres offering life dependent treatments or critical care such as Dialysis units are examples that warrant inclusion at the highest level. Where patients rarely access the facility overnight it is unlikely that it would warrant inclusion at a high level.
- 8.2.4 GP surgeries and hospitals that provide non-emergency services are in Tier 2.
- 8.2.5 Those facilities that provide more limited services of a non-essential nature such as dentists / chiropody, are in Tier 4. It is considered in the main that these will be on an appointment basis that can be re-scheduled if required.
- 8.2.6 Care / Nursing homes, sheltered housing, supported living and the like are generally residential. Such locations would be expected to have in place contingency arrangements to manage short duration weather events. Where specific events occur that need support these would be considered as part of a reactive support on an ad-hoc basis. They are therefore proposed to be placed in Tier 4.

8.3 Routes of Local Importance [Secondary Factor]

8.3.1 Criteria considered within this section include:

D	Network accessibility such as single road access to settlements, access to critical infrastructure e.g. power stations, dams, water treatment plants etc.
G	Topography is an import consideration and this is an area where local knowledge can be invaluable. High ground should be considered which is likely to experience lower road surface temperatures (RST). Steep inclines providing limited traction, exposed areas prone to drifting. Consideration should also be given to locations near to water sources i.e. marshes, rivers, lakes and sea.
H	Hazardous locations which have been identified through collision records, third party claims or local knowledge.
I	Whether the road links to treated routes in adjacent authorities?
J	Does the road have a strategic significance i.e. is a diversion route of a strategic route (motorway or trunk road is closed). Is it used for a special event?
K	Climate – macro or micro-climates
N	Financial constraints – all winter service is provided within financial constraints and it is recognised that authorities cannot be reasonably expected to protect against ice and snow at all times on all parts of the network. The responsibility for the authority is to demonstrate that their policy is reasonable and meets their statutory duties in respect of the risks to road users posed by snow and ice

8.3.2 A national road numbering system exists across the UK for “A” [Class 1] and “B” [Class 2] roads with locally derived numbers used for all other roads. A roads are generally identified by the travelling public as main roads that provide connectivity between main destinations. Around 238km of A roads and 604km of B roads exist across Powys. By using traffic volume as the Primary Factor, not all A roads across

Powys are included in the highest category of Tier 1. In order to meet expectations and enable a consistent easily identifiable message, i.e. that all A roads across Powys will receive the highest level of service, it is proposed that all A roads be included in Tier 1.

- 8.3.3 Some facilities identified under a Secondary Factor as being of higher priority than derived purely from traffic volume, may be located on a lower Tier route e.g. a facility categorised as Tier 2 which is located on a Tier 4 highway would need to be linked to the appropriate Tier 2 highway by upgrading intervening routes to Tier 2. They are identified as “Tier Connector Roads”.
- 8.3.4 Some vital services, such as accident and emergency health care, are provided out of county. Whilst most routes out of the county are likely to be via higher Tier routes, consideration has been given as to whether any cross-border routes warrant inclusion in a higher Tier.
- 8.3.5 As a rural county many smaller settlements will not be connected to key settlements via a higher Tier route. Connecting routes are unlikely to warrant inclusion in the highest Tiers but, will need to be appropriately assigned a linking route for treatment. Assessment has been based around classifications from the Powys and Brecon Beacons National Park Local Development Plans [LDP] with detail provided at Appendix 3. Settlements not specifically listed in either LDP will be categorised having regard to similar listed settlements.
- 8.3.6 Other criteria such as climate, topography, season traffic volume variations, accident history etc warrant consideration but, is concluded that they will only affect this assessment in exceptional circumstances. Further detail is provided below:
- 8.3.7 Climate has been considered as two elements: Macro-climate and Micro-climate.
- Macro-climate considers weather variations across larger areas. Powys is a large County where weather patterns can vary significantly thus requiring different responses at the same time. For this reason, the County has traditionally been split into three weather domain areas, each receiving a specific forecast. Macro-climate considerations have not had a significant impact on the allocation of routes to Tiers. This is primarily because they are linked with weather patterns rather than highway features and therefore are more important in operational decisions about when and how to implement winter services.
 - Micro-climate considers local natural or constructed features such as frost prone spots or large concrete bridge decks. The weather forecasts used in decision making take account of the worst-case scenario across weather domains but local knowledge may still identify areas prone to micro-climate variations that may warrant inclusion in a higher Tier.
- 8.3.8 Powys roads vary significantly in altitude from around 5 metres in the coastal region south of Machynlleth to 549 metres at Gospel Path south of Hay-on-Wye. Routes at higher altitude will generally be colder and may warrant inclusion in a higher Tier than allocated by traffic volume. Treating routes based on altitude alone is not considered practicable but there may be exceptional circumstances that warrant a higher altitude route being included in a different Tier.
- 8.3.9 Local topography can vary considerably over very short sections. Where this occurs on busier routes, the need to include them will likely already be covered by traffic volume. For those sections in lower Tiers identification and assessment will be on a local knowledge and needs basis, having regard to the potential risks.
- 8.3.10 Accident data may provide evidence of localised sites where variations to standard

treatment regimes are required. Accidents are routinely classified into personal injury accidents [PIA] and damage only. Accident data is monitored regularly and “cluster” sites mapped where a number of incidents have occurred in close proximity. Identification of a cluster site would be followed by a more detailed examination of the circumstances to determine appropriate action.

8.4 Education Facilities [Secondary Factor]

8.4.1 Criteria considered within this section include:

E	Access to key public services such as schools, hospitals, fire & ambulance stations whilst taking into the account the highway user e.g. public transport user, car driver etc.
F	Consideration if to include public and school bus routes – these routes can be extensive and frequently changing. Factors to consider may include frequency of service, differences between rural and urban services
N	Financial constraints – all winter service is provided within financial constraints and it is recognised that authorities cannot be reasonably expected to protect against ice and snow at all times on all parts of the network. The responsibility for the authority is to demonstrate that their policy is reasonable and meets their statutory duties in respect of the risks to road users posed by snow and ice

8.4.2 Access to education is seen as an important factor and pre-planned treatment of a single route only has historically been a priority. It is proposed to include these links in Tier 2. In extreme weather conditions schools will be closed and therefore placing these links in Tier 1 would draw resource unnecessarily.

8.4.3 A proportion of learners will access education via feeder transport routes utilising minor roads. Consideration has been given as to whether these should be included in a higher Tier than that derived by traffic volume. Other factors considered include the availability of other means for delivery education e.g. on-line learning, home study packs and the frequency with which routing requirements can change. It has been concluded that placing feeder routes in a high tier would require a significant and disproportionate resource. They are therefore proposed to be allocated according to the primary factor unless other secondary factors are relevant.

8.5 Public Transport Interchanges [Secondary Factor]

8.5.1 Criteria considered within this section include:

E	Access to key public services such as schools, hospitals, fire & ambulance stations whilst taking into the account the highway user e.g. public transport user, car driver etc.
N	Financial constraints – all winter service is provided within financial constraints and it is recognised that authorities cannot be reasonably expected to protect against ice and snow at all times on all parts of the network. The responsibility for the authority is to demonstrate that their policy is reasonable and meets their statutory duties in respect of the risks to road users posed by snow and ice

8.5.2 Access to public transport is important for many across Powys. As well as local services, a number of strategic interconnecting routes exist across the county. These

strategic services and many local services rely on six strategic public transport interchanges for connectivity. It is proposed that links to these should be included in Tier 2 to ensure that they can connect with the highest levels of winter service provision. This would not include for treatments of the hubs themselves. Away from the higher Tier routes it is not considered practicable or a reasonable use of resource to treat every public service bus route.

8.5.3 The Regional Strategic Network (e.g. Trawscymru bus services) will be Tier 2.

8.5.4 Core local bus network with high frequency bus services will be Tier 3.

8.5.5 Feeder Services (rural services / town services / demand response) will form part of Tier 4

8.6 Services [Secondary Factor]

8.6.1 Criteria considered within this section include:

D	Network accessibility such as single road access to settlements, access to critical infrastructure e.g. power stations, dams, water treatment plants etc.
E	Access to key public services such as schools, hospitals, fire & ambulance stations whilst taking into the account the highway user e.g. public transport user, car driver etc.
N	Financial constraints – all winter service is provided within financial constraints and it is recognised that authorities cannot be reasonably expected to protect against ice and snow at all times on all parts of the network. The responsibility for the authority is to demonstrate that their policy is reasonable and meets their statutory duties in respect of the risks to road users posed by snow and ice

8.6.2 Sites considered to be Critical Infrastructure are assessed on a case-by-case basis. Examples of such infrastructure would be electric substations / main sewage treatment works. Experience suggests that such critical utility infrastructure does not routinely require inclusion in a higher Tier. Support may be required however at specific times such as during periods of extended inclement weather e.g. water treatment plants can operate for a number of days before essential deliveries are required. Where difficulties are being experienced, operators will request support to treat minor access routes. Therefore, inclusion in a higher Tier by default would not be an appropriate allocation of resource. The Winter Service Plan will outline a level of ad-hoc support in such instances.

8.6.3 Access routes to Council service hubs for winter as well as recycling & waste service hubs are assigned to the highest Tier so that these key services can be maintained and offer shared resource in support of winter service delivery.

8.6.4 Continued access to Retail Services is important. Access to key retail and commercial areas will generally be reflected by higher volumes of traffic and it is felt that consideration of this alone is sufficient to allocated roads to Tiers. Prioritisation for footway and cycle routes is to be reviewed separately in a separate Phase.

8.6.5 Car parks with Pay& Display in Main Towns and Key Settlements [as defined in the LDP's] provide parking for access to Services and are therefore included in Tier 2.

9 Categorisation

9.1 It is not realistic or practical to treat the entire road network across Powys on the same basis. The call on resources must be assigned on a priority basis, with a network of

priority routes.

- 9.2 “Well-Managed Highway Infrastructure: A Code of Practice” recommends that a Local Authority should have a Resilient Road Network which identifies all critical routes within the County which are classed as priority in severe weather incidents. It should include both the Minimum Winter Network and the Precautionary Salting Network.
- 9.3 Winter service operations comprise precautionary pre-planned treatments aimed at managing the formation of ice or accumulation of snow. In some circumstances, treatments will be in reaction to events e.g. when temperatures fall below forecast and cause ice to form.
- 9.4 Levels of winter service defined for the Powys road network are:
 - 9.4.1 **Minimum / Emergency Network** – This comprises the core routes that the winter service would aim to cover during periods of prolonged severe winter weather and/or when resources are scarce e.g. personnel [pandemic], salt, or fuel shortages.
 - 9.4.2 **Precautionary Network** – This comprises the routes that the winter service would aim to cover in normal circumstances in-line with the approved winter service policy. Typically this is when freezing conditions are expected to affect the road surface. Treatment is generally undertaken ahead of forecast incidences.
 - 9.4.3 **High Network** – This comprises a sub-category of the Precautionary Network and includes high ground [typically over 200 metres that are likely to experience lower road surface temperatures (RSTs) more frequently.
 - 9.4.4 **Community Network** – This network extends the Precautionary Network in exceptional conditions where prolonged periods of ice or snow etc exist unbroken beyond 24 hours from the initial onset. Practical and resource implications mean that these routes will usually only be treated during normal working hours and when they do not impact on resource availability for higher priority treatment networks.
 - 9.4.5 **Ad-hoc Networks** – These comprise all other routes not included in any other Network. Grit bins and salt heaps are provided at various locations, usually in villages or on untreated roads, so that users can assist keep roads and pavements in their area free from ice. Grit bins and salt heaps will be placed at locations which are locally important. During exceptional periods available resource will be deployed to assist on a local needs basis.

9.5 The Table below shows an example of the Route Assignment and Categorisation matrix:

		Route Assignment				
		Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Categorisation	Minimum / Emergency Network					
	Precautionary Network					
	Community Network					

	Ad-hoc response					
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10 Abbreviations / Glossary / List of relevant publications

10.1 CSSW - County Surveyors Society Wales

10.2 NWSRG - National Winter Service Research Group

10.3 Practical Guidance - National Winter Service Research Group [NWSRG] Practical Guidance for Winter Service

10.4 Well-Managed Highway Infrastructure: A Code of Practice – UK Roads Liaison Group