DERBYSHIRE County Council

Resilient Network Plan

JULY 2018

AN ELEMENT OF THE HIGHWAY INFRASTRUCTURE ASSET MANAGEMENT SYSTEM

Document Information

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Document Issue Status

Table of Amendments

No	Approval Date	Section	Details	Author
0	25/07/2018	All	Cabinet Approval	NB
1	01/08/2020	See Review Schedule 1	First Review	PB
2	06/06/2023	See Review Schedule 2	Second Review	PB

Definitions Guide

TERM	DEFINITION
RN	Resilient Network
NH	Network Hierarchy
SRN	Strategic Road Network
DCC	Derbyshire County Council
TDAT	Transportation Data & Analysis Team
GIS	Geographic Information Systems
MRN	Major Road Network
HMEP	Highways Maintenance Efficiency Programme
DfT	Department for Transport
SAMS	Single Asset Management System
AADT	Annual Average Daily Traffic Flow

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BACKGROUND

Following the impact on the highway network of a succession of severe events, the Department for Transport (DfT), in 2014, produced the document Transport Resilience Review: A review of the resilience of the transport network to extreme weather events. Furthermore, the Highways Maintenance Efficiency Programme (HMEP) has developed a selection of products and services that promote efficient and effective working practices. These resources have been developed and based on the existing good practice of highway authorities. The long term implementation and management of the highway network is further supported by the Code of Practice for Well-Managed Highway Infrastructure which provides additional structure in developing good practice. The Code includes Recommendation 20 – Resilient Network which states: "Within the highway network hierarchy a 'Resilient Network' should be identified to which priority is given through maintenance and other measures to maintain economic activity and access to key services during extreme weather".

SCOPE OF THIS DOCUMENT

The main purpose of this document is to provide an all-weather, all circumstance network to keep Derbyshire in business.

The main objectives in establishing a Resilient Network are:-

- To develop, implement and embed good practice in relation to network resilience in order to protect the economic activity of the County, provide for emergency services and maintain access to key services for its residents during periods of extreme weather. The development of the Resilient Network directly supports the Council's Local Transport Goal "Supporting a local resilient economy".
- Ensures a risk based approach to an efficient and effective service delivery.
- Accords with best practice as advocated by the new Code of Practice for Well-Managed Highway Infrastructure which embraces developing a Resilient Network.
- Ensure that the development of the Resilient Network is systematic and repeatable to ensure that the overall process is auditable and transparent, whilst allowing future reviews to be carried out in a timely fashion.
- Maximises Derbyshire's DfT grant to provide a safe and reliable network.

DEVELOPMENT AND REVIEW OF DERBYSHIRE'S RESILIENT NETWORK

A five stage development process was devised to provide a documented methodology to support the creation and management of the Resilient Network in line with current best practice prior to the creation of the original RN, see Figure 1 overleaf. This was developed by a working delivery group formed of a cross section of experts from the authority to create and review the Resilient Network.

This included experts from the two greatest risks to the highway network, snow/ice and flooding and allowed alignment with Derbyshire's wider strategies, including the Council's Climate Change Adaption Plan, and the Local Flood Risk Management Strategy (LFRMS). The development of the Resilient Network expanded on the work previously completed to develop the Derbyshire Network Hierarchy.

For subsequent reviews it was considered that the same essential principles would inform the review, along with any lessons learnt, and ongoing liaison with neighbouring authorities and other stakeholders.
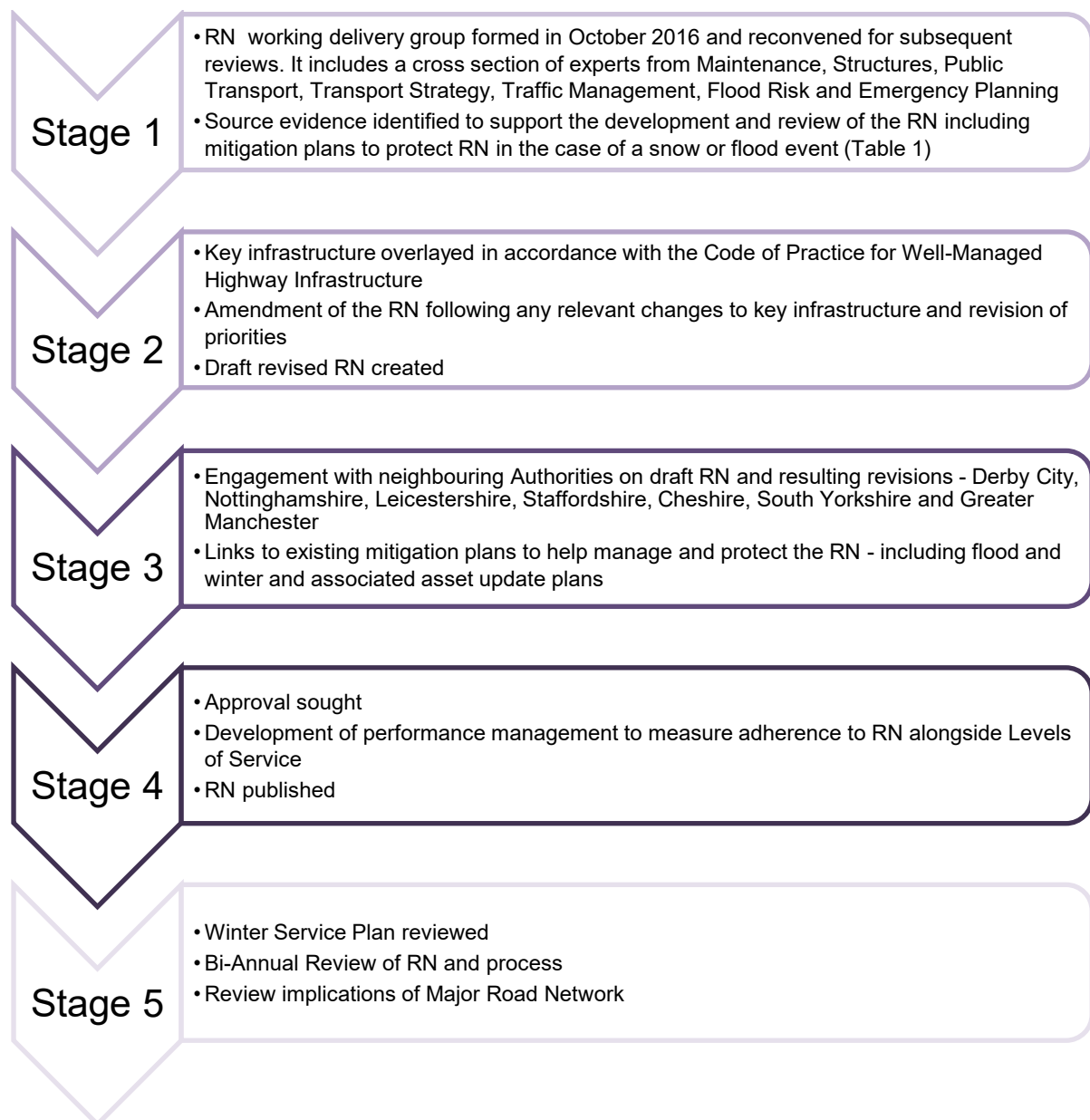
Stage 1
- RN working delivery group formed in October 2016 and reconvened for subsequent reviews. It includes a cross section of experts from Maintenance, Structures, Public Transport, Transport Strategy, Traffic Management, Flood Risk and Emergency Planning
- Source evidence identified to support the development and review of the RN including mitigation plans to protect RN in the case of a snow or flood event (Table 1)

Stage 2
- Key infrastructure overlayed in accordance with the Code of Practice for Well-Managed Highway Infrastructure
- Amendment of the RN following any relevant changes to key infrastructure and revision of priorities
- Draft revised RN created

Stage 3
- Engagement with neighbouring Authorities on draft RN and resulting revisions - Derby City, Nottinghamshire, Leicestershire, Staffordshire, Cheshire, South Yorkshire and Greater Manchester
- Links to existing mitigation plans to help manage and protect the RN - including flood and winter and associated asset update plans

Stage 4
- Approval sought
- Development of performance management to measure adherence to RN alongside Levels of Service
- RN published

Stage 5
- Winter Service Plan reviewed
- Bi-Annual Review of RN and process
- Review implications of Major Road Network

Figure 1: 5 Stage Development Process

Stage 1

A working delivery group was formed in October 2016 and reconvened for subsequent reviews covering key areas of activity:-

Working Delivery Group

Construction

Economic Activity

Traffic Management

Structures

Emergency Services

Emergency Planning

Public Transport

Flood Risk Management

Winter Service

Design

Climate Change

Maintenance

Utilities

The output was **the development of the resilient network**.

The key evidence to support the development and review of the Resilient Network was agreed by the delivery group and sourced as per Table 1 overleaf.

Table 1: Key Evidence

Consideration	Description	Considered Essential	Non Essential/ Low Risk	Source	Format
Snow routes	Routes to provide indicative basis of RN -	✓	Use as a reference of roads to include where infrastructure dictates	Maintenance	PDF's available Routes digitised
Economic Activity	Locations of economic activity	✓	Industrial areas on a case by case basis	Planning	GIS
Public Transport	Locations of key bus service providers depots/garages	✓	Depots that house the majority of an operator's buses that run reduced routes in severe winter weather	Public Transport	GIS
Utilities	Key utility locations/sites • water treatment plants • electricity primary sub stations	✓	No action required, awareness that suppliers will also have their own emergency procedures in place	Emergency Planning	GIS
Hospitals/ community hospitals	• Main Hospitals • Minor Injury Units	✓	Community hospitals	Emergency Planning	GIS
Emergency services	Ambulance stations	✓	Ambulance stations on a case by case basis	Emergency Planning	GIS
	Police stations • Head Quarters • Divisional Head Quarters	✓	Remaining Police stations on a case by case basis Unlikely to include the community stations unless they overlap with the agreed RN	Emergency Planning	GIS
	Fire stations • Head Quarters • Manned stations	✓	Remaining fire stations on a case by case basis	Emergency Planning	GIS
DCC maintenance depots	6 no. countywide	✓		DCC Highways	GIS
Flood Zones/critical assets		✓	Be aware of where these intersect the RN	Flood Risk Team	GIS Layers

Consideration	Description	Considered Essential	Non Essential/ Low Risk	Source	Format
			for future risk mitigation measures		
Key petrol stations	Resilient petrol stations • National • Local?	×	Be aware of	Emergency Planning	GIS Layers
Links to HE network?	Key access to SRN • J29a • A38 at Horsley	✓	Yes J29a, No Horsley	HE	
Schools	All Schools	×	No schools included		
Road Use	Road usage based on AADT Network Hierarchy based on AADT to determine maintenance priorities	×	Not considered	TDAT	GIS Layers
Travel to work	Analysis of census data to determine travel to work into and out of Derbyshire	✓	Checked to ensure major travel patterns are accounted for	Transport Strategy	Report
Rail stations	Railway stations	×	Case by case basis		GIS Layers

Stage 2

All of the evidence was collated in spatial form to allow a GIS representation of the information for the delivery group to discuss and debate the proposed changes to the existing Resilient Network with reference to the Code of Practice Well-Managed Highway Infrastructure.

For the 2023 review, adjacent authority RNs were considered and it was noted that no changes to these had taken place since the 2020 review. Consequently, no changes were proposed to Derbyshire's existing RN which continues to ensure that appropriate links can be made that connect key infrastructure and locations with the local and strategic highway network, whilst ensuring that the resulting network is sufficient at times of an extreme event.

Un-adopted roads are not included in the RN on the basis that the county council has no jurisdiction and responsibility for the setting of service levels on such roads.

The Resilient Network remains unchanged and can be seen in Figure 3 overleaf.
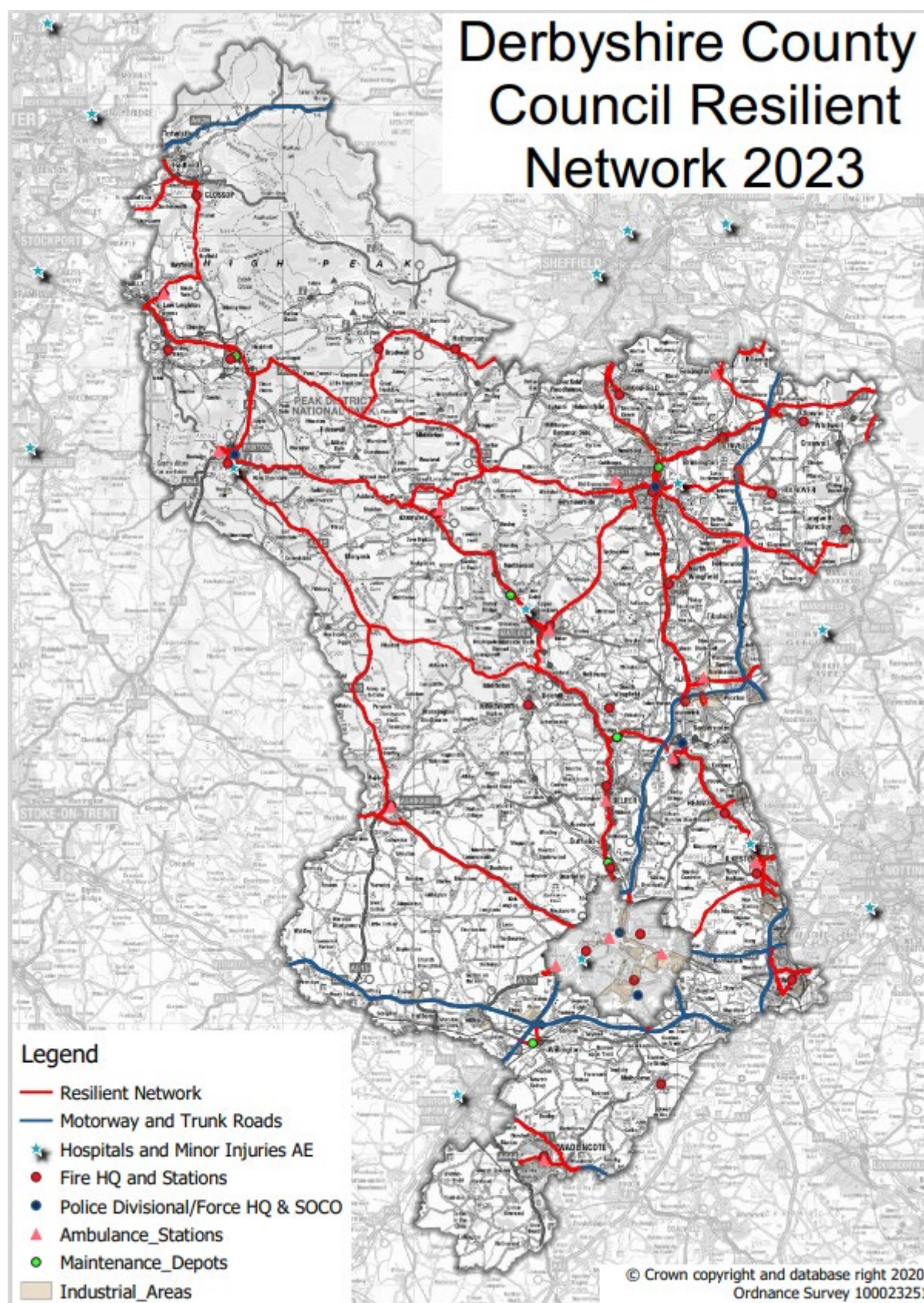
Figure 2: Resilient Network – June 2023

Table 2 provides a breakdown of the Resilient Network based on the Network Hierarchy that defines the strategic use of the highways network in Derbyshire. As can be seen the Resilient Network is composed predominantly of Network Hierarchy bands 1 to 3 with lower proportions for the remainder, as these link to the Strategic Road Network managed by National Highways, and also provide connectivity to areas of economic activity and access to key services.

Table 2: Resilient Network Breakdown

Network Hierarchy	Length (km)	Length (%)	Description
NH1	260.4	53.8%	AADT >= 9000
NH2	96.1	19.8%	AADT >= 6000 and AADT < 12000
NH3	102.8	21.2%	AADT >= 3000 and AADT < 8000
NH4	17.5	3.6%	Remaining Strategic Regional Routes, Main Distributor Roads and Secondary Distributor Roads
NH5	5.4	1.1%	Remaining Link Roads
NH6	1.5	0.3%	Remaining Local Access roads that are not a cul-de-sac
NH7	0.7	0.1%	Remaining Local Access roads that are a cul-de-sac
Total	**484.3***	**100%***	

* Subject to rounding errors

Stage 3

As previously the Resilient Network was compared with neighbouring authorities to ensure that there was cross boundary alignment as far as possible, although network priorities meant that some roads on adjacent RNs were not included when another alternative route was available. Adjacent authorities considered were:-

- Derby City
- Staffordshire County Council
- Leicestershire County Council
- Nottinghamshire County Council
- Sheffield City Council
- Cheshire County Council
- Greater Manchester authorities

For completeness the gaps between the adjacent authority RNs are compiled and explained in [Appendix A](#).

The existing documents in Table 3 were also referenced in supporting the development of the Resilient Network in order to ensure that appropriate mitigation measures and emergency plans were in place to protect the Resilient Network.

Table 3: Links to Existing Reference Documents required to support the Resilient Network

Area	Document Reference
Climate Change Adaption	[2013-01-22 Climate Change Adaptation_tcm44-218687.pdf](#)
	[Derbyshire Climate Change Policy](#)
Emergency Planning	[Flood Response Policy](#)
	[Community Risk Register](#)
	Severe Weather Plan – this plan is restricted but copies can be requested
Travel to Work	[Travel to work](#)
Winter Service Documentation	[Winter Service](#)

Stage 4

Derbyshire was one of the first authorities in the region to establish and publish its own RN. Relevant cabinet member awareness sessions were held to provide the necessary background information prior to seeking formal Cabinet approval as part of the Highway Infrastructure Asset Management Policy in July 2018.

Even though the development of a Resilient Network is a key component of the Code of Practice for Well-Managed Highway Infrastructure, it could not be considered in isolation to a number of key policies that were developed these were:-

- Network Hierarchy
- Highways Infrastructure Asset Management Strategy and Plan

The resulting Cabinet Member awareness sessions were designed to not only provide context and background to the development of the Resilient Network, but to also provide the links and relationships to those policies indicated above. This also served in providing the timeline for the review of the Winter Service policy, which is key to maintaining and managing a Resilient Network.

Stage 5

A key component in maintaining an effective Resilient Network, is the bi-annual review taking on-board any lessons learnt from events that have affected the network, responding to changes in the use of the highways network and County Council priorities. This will also go towards amending and adapting the existing emergency prevention and response plans that provide the operational responses in support of the Resilient Network.

Major Road Network

The Major Road Network (MRN) consists of 'A' Class roads considered important to the local economy and have been given a higher categorisation by the Department for Transport. Although the MRN was not in existence when Derbyshire's Resilient Network was originally created in 2018 it has been considered in subsequent reviews.

The Resilient Network includes as many sections of the MRN as possible particularly on a cross-boundary basis to ensure regional connectivity. However, a small number have been considered and not included due to known difficulties during adverse winter weather, lack of adjacent authority RN and/or other alternative 'A' roads included on the RN are available that would give more benefit to the local population in adverse weather events. These are also identified in Appendix A

APPENDICES

APPENDIX A: Derbyshire's Resilient Network Gaps with the Major Road Network and/or Adjacent Authorities' Resilient Networks:

Location	Authority Area/ Major Road Network	Include? Yes/No	Reason
A6135 Sheffield Road, Eckington	Sheffield/ Major Road Network	No	Sheffield's PFI Contract is based on Service levels and therefore no RN exists
Acorn Way, Derby	Derby City	No	Other routes on Derby's RN are available nearby
A608 Breadsall	Derby City	No	Four other RN options to travel into/out of Derby from the North (A6, A61, A38, A6096).
A6005 Borrowash	Derby City	No	Two other RN options to travel into/out of Derby from the East (A6 & A52)
A610 Woodlinkin (Nottinghamshire boundary to A6007 Codnor)	Nottinghamshire/ Major Road Network	No	Although included in the MRN there is an alternative route (A608 & A6007) which gives benefit to more of the local population.
A53 South of Buxton	Major Road Network	No	Although included in the MRN this route's topography suffers during snow conditions leading to regular road closures in the winter.
A537 Cat and Fiddle Road	Cheshire East	No	This route's topography suffers during snow conditions leading to regular road closures in the winter.
Long Lane, Charlesworth	Tameside	No	Route is used as a short cut from Broadbottom to Charlesworth and onwards to other roads that suffer during snow conditions.
Moor End Road to C32 Briargrove Road	Stockport	No	Minor rural road (NH5) - low strategic importance for Derbyshire
Shiloh Road	Stockport	No	Minor rural road (NH6) - low strategic importance for Derbyshire