Highways Resilient Network

Version: 3.0
Date Issue: February 2022
Review date: February 2024
Reference: Resilient Network
Team: County Highways
Protective Marking: Public

Warwickshire
County Council

Working for
Warwickshire

Contents

Introduction

If you live, work or pass through Warwickshire whether on foot, cycling, using public or personal transport you will use the largest and most visible asset Warwickshire County Council (WCC) is responsible for, the highway network.

The WCC 'Council Plan 2020-25' sets out the Councils priority areas for action and how they will be achieved. The plan focuses on keeping people safe and healthy, independent and engaged with their communities as well as creating a vibrant economy and an environment where businesses can thrive and everyone has access to jobs and training, and where there is a transport infrastructure that allows everyone to access these opportunities.

During periods of prolonged extreme weather the highway network can be disrupted. This was highlighted during the winters of 2013/14 where many areas of the Country suffered disruption due to the severe weather. In response, the Secretary of State commissioned an Independent Review of the resilience of the nation's transport network, resulting in the 2014 Transport Resilience Review by Department for Transport (DfT). This review made 63 recommendations; 14 of which were directed at Local Authorities.

The Transport Resilience Review recommended that Local Highway Authorities should "Identify a 'resilient network' to which they will give priority, in order to maintain economic activity and access to key services during extreme weather" (DfT, 2014). This has subsequently been supplemented by Well-Managed Highways Infrastructure (A Code of Practice) which further recommends; "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."

The resilient network is part of the winter maintenance network which is a defined network on which we undertake precautionary salting. The winter maintenance network is much more extensive covering approximately 47% of our total network.

The resilient network will also be used as a tactical tool with which priority can be given to minimise the impacts of extreme weather. This could include the following:

- Additional maintenance interventions/inspections may be used to ensure the asset continues to function.
- Prioritise funding to mitigate the onset of deterioration of the asset.
- Prioritise work programmes to reduce the risk of failure in the asset.
- Prioritise reactive maintenance in the case of extreme weather.
- Assisting in emergency planning events including recovering from an emergency event.

The resilient network will be used across our key highway assets –

- Carriageway
- Footway
- Structures
- Traffic Signals
- Street Lighting

This document sets out how Warwickshire County Council:

- Identifies the resilient network
- How resilient network is reviewed and updated
- How resilient network is to be communicated

Methodology

To identify the network to be included in the resilient network we have assessed the following data:

- Critical services (Shown in Appendix 1) including:
    - Urban City or Town;
    - Rural Town or Fringe;
    - Main Business Parks and Industrial Estates;
    - Emergency Services;
    - A&E Hospitals;
    - Public Transport Key Infrastructure;
    - Ministry of Defence sites;
    - Local Authority Highway Depots;
    - Critical Infrastructure, including COMAH sites

- Traffic Flow data
    - Data collated by WCC Transport Planning which covers approximately 45% of WCC network, some 1,800km.

Traffic flow data allowed us to analyse which roads were taking the most amount of traffic. The table below shows the vehicle flows in bands against length of network and the percentage of daily traffic.

	% traffic	KM	% network
6000 12hr flow total	71.17%	555	14.77%
5000 12hr flow total	77.04%	652	17.34%
4000 12hr flow total	82.25%	767	20.40%

Mapping this data allowed us to check there were consistent routes across the County whilst ensuring critical services were adjacent to high trafficked routes. Those critical services, not on high trafficked routes, were assessed to identify whether or not the adjacent highway should be included on the resilient network. A&E hospitals, entrances to COMAH sites and Ministry of Defence sites were automatically added to the network.

After analysing the routes for each banding there appeared a slight inconsistency across the County. A further band of 5,500 vehicles was trialed and this improved flow across the County.

	% traffic	KM	% network
5500 12hr flow total	73.06%	597	15.88%

To show cross boundary continuity adjoining highway authorities resilient networks will be reviewed and compared against WCC network. If a road passing through Warwickshire is not included in adjoining counties resilient network it will possibly be removed from WCC resilient network. Any roads which appear on adjoining authorities' networks, and not on WCC network, will possibly be added to our network. This will depend on the methodology used by the adjoining authority when compiling their resilient network. WCC will not add on a road if the adjoining authority has just used precautionary salting network.

Monitoring and Review

The network has been created using data currently available. To ensure the network is kept current and up to date a review will be undertaken every two years, or after any relevant events where lessons have been learnt, whichever is sooner.

This will involve the following:

- Review critical service locations and updating GIS information;
- Updating traffic flow data;
- Review adjoining Authority resilient networks;

Review Date	Comments	By
July 2018	Network reviewed post winter 2017/18 no changes made	SM
February 2022	Winter maintenance network extent reviewed and change made. Document reviewed in line with WCC Council Plan 2020-25 to ensure consistency. Cross boundary continuity checked. Appendix 1 (Critical Services) reviewed and updated. Note, the traffic flow data (as reviewed in 2018) remains in this document, this is due to a change to the way traffic flow data is made available to Teams, it is currently not possible to assimilate in line with this document. This will be re-examined at the next review.	BH

Consultation

The following groups have been consulted on during the formulation of the resilient network.

- Adjoining Highway Authorities – Birmingham City Council, Coventry City Council, Gloucestershire County Council, Leicestershire County Council, Northamptonshire County Council, Oxfordshire County Council, Solihull Metropolitan Borough Council, Staffordshire County Council, Worcestershire County Council
- Warwickshire Fire and Rescue

- West Midlands Ambulance Service
- Warwickshire Police
- CSW Resilience Team
- Network Rail
- Bus Operators
- Coventry and Warwickshire Local Enterprise Partnership
- Coventry and Warwickshire Chamber of Commerce

Appendices

Appendix 1 – Critical Services

Appendix 2 – Resilient Network Map