

Sunderland City Council
Resilient Highway Network
March 2022

Review

The review involved reviewing neighbouring authorities plans, critical service locations, winter gritting route changes and updating GIS information. The review was undertaken between March 2021 and March 2022.

1. Background

Resilience is high on the Department for Transport's (DfT) agenda. The severe winter weather of 2013/14 had a major impact on transport systems, including local roads, which in some parts of the country were flooded for prolonged periods. As a consequence of this disruption, the Secretary of State for Transport commissioned a Transport Resilience Review, which was published in July 2014. All 63 recommendations were supported by the DfT. A key one for local roads was that:

“Local Highway Authorities identify a ‘resilient network’ to which they give priority in order to maintain economic activity and access to key services during extreme weather”

This recommendation aligns with the council's own strategies including the winter maintenance plan and flood risk management strategy. The development of a resilient network plan directly supports the City's Transformational Priorities: Economic Growth, Health and Wellbeing, and Skills/Educational Attainment.

2. Current Practice

Whilst the council has long had robust systems in place to respond effectively to severe weather emergencies and therefore improve highway resilience, it does not currently have a defined Resilient Highway Network. However, in addition to the national road classification system (which is intended to direct motorists towards the most suitable routes for reaching their destination by identifying roads that are best suited for traffic), the council already follow a tiered approach (Maintenance hierarchy) to the management and planned maintenance of our 1,230 km of highway network.

Our maintenance hierarchy is also used to help determine the Winter Maintenance Network which includes all classified routes. This network defines the precautionary salting routes and totals about 310 km on priority A (25% of the network) and 271 km on priority B (22% of the network) which totals 581km approximately 47% of the whole highway network. The minimum winter network

gritted in the past has been the priority A although both this and priority B have been reduced from ten routes each to eight routes each in the last seven years.

The brief for a Resilient Highway Network is somewhat different to that for our winter maintenance plan, which has been developed to allow the council to discharge its duties under the Highways Act 1980 (also Traffic Management Act 2004, which requires authorities to introduce systems to ensure the safe and expeditious movement of traffic; to monitor same and identify potential causes of congestion) by ensuring, so far as is reasonably practical, safe passage along the highway without danger from snow or ice, fallen trees, flooding and other hazards. Our winter plan is therefore more about preparing for, and reacting effectively to forecast and/or actual weather conditions.

3. Proposed Resilient Highway Network

A Resilient Highway Network may be defined as the portion of a local authority's highway network that is absolutely vital to maintaining economic activity and access to key services during extreme weather emergencies and other major incidents. It is not designed to link every community in Sunderland. The purpose of defining such a network is to identify the *most* critical routes (and associated highways assets, such as bridges and drainage systems) so that planned whole asset maintenance on that part of the network may be prioritised. In doing so, we can ensure that our defined Resilient Highway Network is less prone to failure and in turn improve the council's resilience to extreme weather events, industrial action and major incidents.

A resilient network should be a much narrower definition than that used to prioritise general network maintenance. It ought to equate to less than 10% of the overall network and ideally around 5%. Defining a Resilient Highway Network that is significantly larger than that would be unaffordable and lead to less resilience as existing resource is spread more thinly. If a greater share of existing resource is diverted to focus on a larger resilient network, it would have a detrimental effect on overall network condition. For those reasons, officers are of the view that it is not appropriate to adopt our Winter Maintenance Network or Minimum Winter Network as the council's definition of our Resilient Highway Network. Similarly, definitions including all classified roads (e.g. all A, B and C roads) and locally important roads (bus routes) should be discounted as this would equate to more than 20% of our highway network respectively. Consideration was also given to using the Primary Route network (PRN) as the Resilient network but this was considered to be too small and disparate although priority should be given to the PRN as these roads carry the most traffic. The proposed Key Route Network has been identified as the Primary Route Network and Key Routes which is the Principal Road network (A class) along with the A19 and A194(M) (which are managed by Highways England) as well as corridors to neighbouring authorities and links to the Port of Sunderland.. These are covered in Tier 1 and Tier 2.

It is therefore necessary to create a new 'network' for highway resilience purposes. The DfT Incentive Fund mechanism requires local authorities to define, document and publish the criteria used. Given the overall purpose of defining a resilient

network, it is proposed that the overarching aims of Sunderland's Resilient Highway Network should be:

- ☐ to protect economic activity;
- ☐ to protect access to key services; and
- ☐ to protect access to key infrastructure.

A tiered approach to the management and maintenance of the network has therefore been used, with the principal road network forming the base of the resilient network.

Tier 1 : Principal Road (A Classification) Network – 89km (7.2% of network)

Tier 2 : Tier 1 + B & C roads & hospitals & emergency service sites – approx. 210km (17% of network)

Tier 3 : Tier 2 + any further roads connecting with key infrastructure, such as main transport facilities and main employment hubs.

Tier 4 : Tier 3 + any bus routes not already included

If the above approach is adopted, in addition to mapping against these criteria, officers will need to liaise with neighbouring highway authorities to ensure that our respective resilient networks connect where this is appropriate. It will also be necessary for officers to identify critical assets on those routes. The network and any identified critical assets will then need to be incorporated into the maintenance regimes of all highway assets which may, depending on the asset, include:

1. the prioritisation of existing maintenance resources in the event of incidents on the network that require an immediate or urgent response.
2. additional maintenance interventions to ensure the asset continues to function (for example, an increased drainage cleansing frequency);
3. the prioritisation of existing maintenance resource to mitigate the onset of deterioration of the asset; and
4. fast-tracking any works already in the programme to reduce the risk of failure of the asset.

Conclusion

1. In order to comply with the recommendations of the Department for Transport the council should adopt the criteria set down above and therefore adopt the network shown in Appendix A.
2. In addition the council should adopt maintenance regimes that are prioritised to take account of the resilient network.

Recommendation

To adopt a resilient network in Sunderland following the processes as described above and the resulting plan shown in Appendix A. To adopt appropriate maintenance regimes for critical assets identified on the resilient network. To review the resilient network in 2 years time.

Appendix

- A. GIS map illustrating resilient network
- B. Key Routes Methodology (NECA)