Midlands Connect

Major Road Network and Large Local Major Scheme Submission

Regional Evidence Base

July 2019

Contents

Midlands Connect

Executive Summary

What is the purpose of this report?

In the Autumn Budget 2018, the Government announced that the National Roads Fund would be £28.8 billion between 2020 and 2025. This fund is expected to be spent on the Strategic Road Network (SRN) (managed by Highways England) and local roads (managed by local highway authorities), with £3.5 billion to be spent on local roads through the delivery of Major Road Network (MRN) and Large Local Major (LLM) schemes. We refer to this funding period as 'MRN/LLM Period 1', with the expectation that 'MRN/LLM Period 2' would be between 2025 and 2030.

This report sets out how Midlands Connect has worked with its partners to identify the region's MRN and LLM priorities for submission to DfT to seek funding from the National Roads Fund.

What are MRN and LLM schemes?

There are two key factors that differentiate MRN and LLM schemes. MRN schemes must be located on the MRN itself[1], or directly supporting its operation (in the case of new links/bypasses) and, according to the guidance, schemes will be expected to be typically between £20 and £50 million in scale. LLM schemes can be costlier, with the funding ask typically over £50 million, and the schemes do not have to be located on the MRN. Any scheme seeking funding under either of these headings should support five objectives as set by DfT, which includes: reducing congestion, support the SRN, supporting all road users and unlocking housing and employment growth.

Midlands Connect have not been provided with an indicative funding envelope for our partnership. However, using population as a proxy, we would expect Midlands Connect to have around a 20% share of the £3.5 billion available for MRN and LLM schemes; equating to £600 million.

What is the role of Midlands Connect?

In December 2018, DfT published their Investment Planning Guidance for MRN and LLM programmes. The guidance states that Sub-National Transport Bodies (STBs) are required to submit up to 10 MRN and 2 – 3 LLM schemes to DfT, however there is no guarantee that any of the schemes will be funded. STBs are expected to develop a Regional Evidence Base (REB) that draws on work already undertaken, such as the work informing our 2017 Transport Strategy, to provide justification for the prioritised schemes.

What are the region's priorities?

Midlands Connect is putting forward 7 MRN schemes and 4 LLMs. Whilst the guidance specifies that 2 – 3 LLMs should be submitted, our assessment was unable to identify a top 3 as the top 4 schemes performed strongly and similarly. Given that we have only identified 7 MRN schemes when we have been asked to identify up to 10, we have considered it appropriate to replace our shortfall in MRN schemes with another LLM scheme as the overall funding request is similar.

[1] as designated by the Department for Transport (DfT)

How have we identified the priorities?

The Midlands Connect governance structure has emphasised the need to put forward a credible, deliverable programme first and foremost. It is imperative for the credibility of the Partnership that if a scheme is prioritised then it should be able to demonstrate by the LHA Sponsor that it can at least start to be delivered within the MRN/LLM Period 1. The requirement to be 'shovel ready' means that we have relied on schemes already being reasonable well-developed or, at least, at the optioneering stage with existing policy statement and/or political support, as well as the required local funding contribution being available. This has meant that the prioritisation process adopted for this initial funding period has emphasised deliverability over other objectives.

The MRN schemes submitted to Midlands Connect for consideration have therefore been subject to a rigorous deliverability assessment, which takes account of factors such as political support, requirement for land and robustness of programme. In addition, the security of local funding has also been considered as DfT has specified that a 15% local contribution is expected from LHAs to show commitment to delivering the scheme.

For LLM schemes, an additional assessment was included which sought to understand a scheme's strategic importance. This assessment was developed using our 2017 Strategy objectives and the MRN/LLM objectives within the DfT Investment Guidance. This assessment included consideration of factors such as alignment with the region's important economic hubs and corridors, whether the scheme supported the SRN and if the scheme unlocks housing and employment growth.

How much funding is the region asking for?

The total cost of our priorities MRN and LLM schemes is £739 million, and of this, the LHAs within the Midlands are asking for £596 million from DfT to support the delivery of the schemes. This is in line with the £600 million that is considered proportionate to the region.

What next?

Midlands Connect will not be the delivery body for any of the prioritised schemes identified in this REB (if scheme are successfully awarded funding). As the owners and operators of the roads and the scheme promotors, the LHAs will continue to develop the schemes through the various stages of DfT business case to secure the funding and then, if successful, deliver the physical infrastructure.

In the shorter-term, Midlands Connect will:

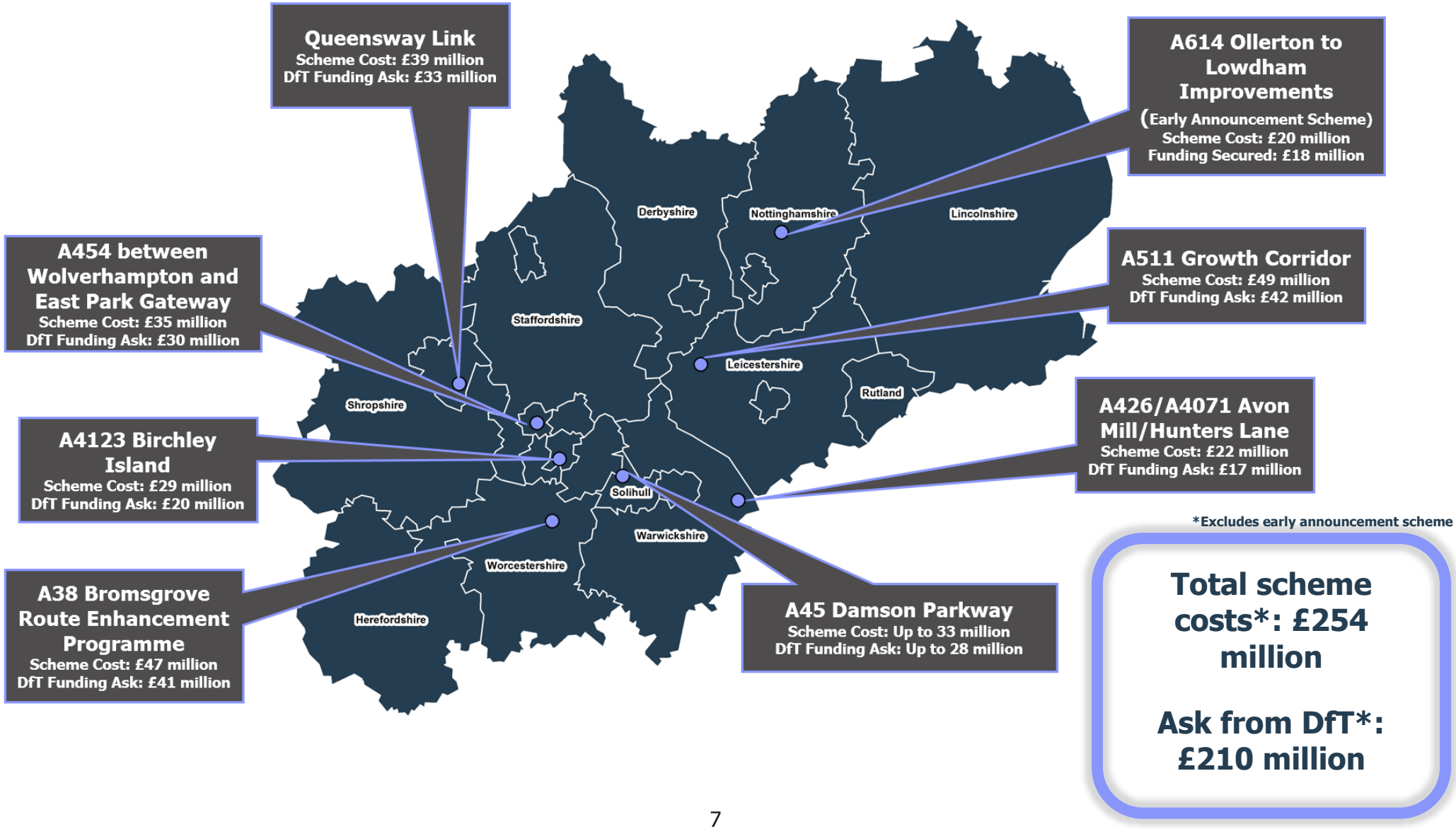
- Lobby the DfT to provide early-phase development funding for authorities to develop MRN schemes to a base level of understanding; to ensure that we have a wide pool of potentially deliverable schemes to choose from.
- Use the MRN Technology Strategy (development is in progress) to identify pilots and programmes which may be across multiple local authorities.
- Monitor the development of the MRN/LLM programme and report on progress to the Midlands Connect Steering Group and Strategic Board.

In the medium-longer term, Midlands Connect will:

- Enhance our evidence base further, particularly on our transport model and understanding of near-future development growth.
- At a high-level, undertake an overview of the current and future performance and needs of each of the 113 MRN routes identified in our regional MRN.
- Match the strategies at a route level to the identified database of scheme opportunities (currently standing 81 identified opportunities across the region) provided by LHAs to determine where there may already be thoughts on future interventions.
- Begin to assess the full long list of opportunities against their ability to come forward in the next funding period (assumed to be 2025-2030) and how they meet strategic objectives for the MRN.

Midlands Connect

Major Road Network Priority Schemes



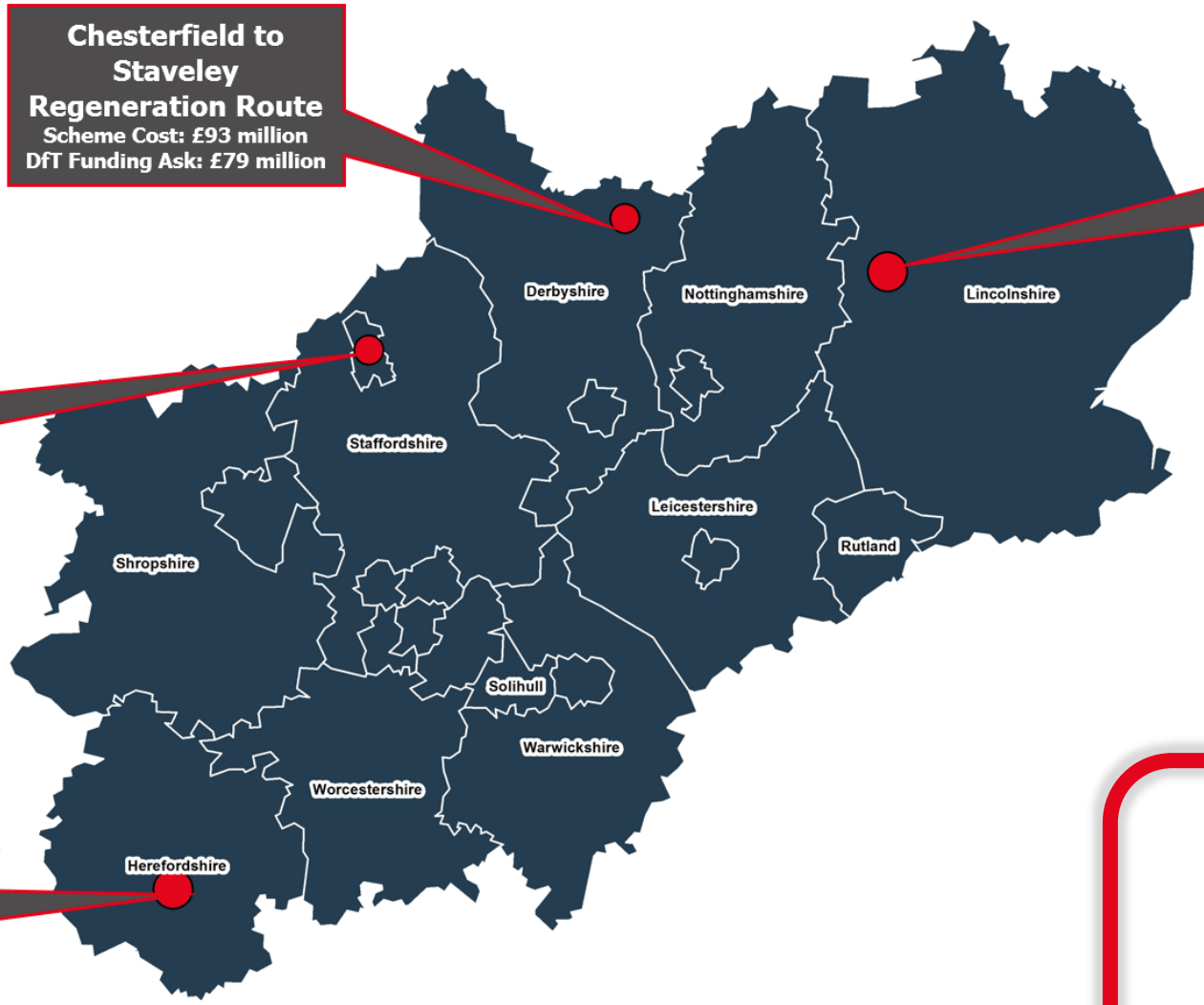
*Excludes early announcement scheme

Total scheme costs*: £254 million

Ask from DfT*: £210 million

Midlands Connect

Large Local Major Priority Schemes



Chesterfield to Staveley Regeneration Route
Scheme Cost: £93 million
DfT Funding Ask: £79 million

North Hykeham Relief Road
Scheme Cost: £153 million
DfT Funding Ask: £108 million

City East Link Road
Scheme Cost: £86 million
DfT Funding Ask: £65 million

*Based on latest information available

Hereford Bypass*
Scheme Cost: £153 million
DfT Funding Ask: £134 million

Note: Hereford Bypass is currently under review by Herefordshire Council.

Total scheme costs: £485 million

Ask from DfT: £386 million

Midlands Connect

Background

Funding Opportunity

In the Autumn Budget 2018, the Government announced that the National Roads Fund would be £28.8 billion between 2020 and 2025. This fund is expected to be spent on the Strategic Road Network (SRN) (managed by Highways England) and local roads (managed by local highway authorities), with £3.5 billion to be spent on local roads through the delivery of Major Road Network (MRN) and Large Local Major (LLM) schemes. We refer to this funding period as 'MRN/LLM Period 1', with the expectation that 'MRN/LLM Period 2' would be between 2025 and 2030.

There are two key factors that differentiate MRN and LLM schemes. MRN schemes must be located on the MRN itself[2], or directly supporting its operation (in the case of new links/bypasses) and, according to the guidance, schemes will be expected to be typically between £20 and £50 million in scale. LLM schemes can be costlier, with the funding ask typically over £50 million, and the schemes do not have to be located on the MRN. Any scheme seeking funding under either of these headings should support the five objectives as set by DfT (Figure 1).

Figure 1 MRN/LLM Objectives

In December 2018, DfT published their Investment Planning Guidance for MRN and LLM programmes. The guidance states that Sub-National Transport Bodies (STBs) are required to submit up to 10 MRN and 2 – 3 LLM schemes to DfT, however there is no guarantee that any of the schemes will be funded. DfT will ultimately decide on the national programme through an examination of deliverability, value for money and overall programme affordability.

Midlands Connect have not been provided with an indicative funding envelope for our partnership. However, using population as a proxy, we would expect the Midlands to have around a 20% share of the £3.5 billion available for MRN and LLM schemes; equating to £600 million. The total cost of our priorities MRN and LLM schemes is £739 million, and of this, the LHAs within the Midlands are asking for £596 million from DfT to support the delivery of the schemes. This is in line with the £600 million that is considered proportionate to the region.

The Midlands Connect governance structure has emphasised the need to put forward a credible, deliverable programme first and foremost. It is imperative for the credibility of the Partnership that if a scheme is prioritised then it should be able to at least start to be delivered within the MRN/LLM Period 1. The requirement to be 'shovel ready' means that we have relied on schemes already being reasonable well-developed or, at least, at the optioneering stage with existing policy statement and/or political support and a demonstration that the local funding contribution is secured. This has

[2] as designated by the Department for Transport (DfT)

meant that the prioritisation process adopted for this initial MRN period has emphasised deliverability over other objectives.

Whilst the process adopted has resulted in a programme that is deliverable, in MRN Period 1, it would have been more satisfactory if a larger pool of potential options were at a minimum level of development. From there prioritisation could have emphasised contribution to a wider set of objectives important to the Midlands. To ensure that the process for MRN/LLM 2 can adopt an objective led approach, Midlands Connect will be making the following recommendations to Government:

- It is vital that for future rounds of MRN/LLM funding, we understand the level of funding available to the Midlands to allow us to tailor a programme accordingly. Furthermore, this will allow local authorities to invest their limited revenue funding in schemes that, subject to business case, stand a good chance of being funded. This is particularly important given the wider background of cuts in funding and services being provided by local government.
- We also believe that the lower MRN funding threshold should be removed or significantly reduced to allow the most impactful and deliverable schemes to come forward instead of only funding schemes of a certain scale. This is particularly relevant to technology driven schemes which do not necessarily need significant physical infrastructure in order to deliver benefits.
- In recognition of the barrier to early scheme development, we recommend that DfT make funding available during MRN/LLM Period 1 to develop schemes ready for MRN/LLM Period 2 to allow regions to focus on delivering schemes in the right locations at the right time. This is of particular importance to smaller local authorities for which identifying development funding will be extremely challenging against the wider funding backdrop.

Roles and Responsibilities

Midlands Connect

Sub-National Transport Bodies (STBs), such as Midlands Connect, have been identified by DfT as being best placed to coordinate the MRN and LLM funding programme as they are the interface between national and local transport authorities. Giving STBs this responsibility ensures that the planning and prioritisation of investment is better coordinated at a local, regional and national level.

STBs are responsible for prioritising MRN and LLM schemes for submission to DfT, who will then consider the individual business cases for schemes. STBs are expected to develop a Regional Evidence Base (REB) that draws on work already undertaken, such as the work informing our 2017 Strategy[3], to provide justification for the prioritised schemes.

Local Highway Authorities

Local highway authorities (LHAs) are responsible for identifying schemes for us to consider for submission as a priority scheme. LHAs will remain responsible for the management of local roads and as such, they are responsible for the development and delivery of schemes. There is also a requirement for LHAs to provide funding contributions towards the construction of schemes to demonstrate their commitment to the development and delivery of schemes within MRN/LLM Period 1.

[3] Midlands Connect Strategy: Powering the Midlands Engine (March 2017)

We have worked closely with LHAs and the West Midlands Combined Authority during the development of the REB, and identification and prioritisation of schemes. Continual engagement has taken place to ensure schemes can be delivered and there is consensus for the prioritised schemes being submitted to DfT. We have also engaged with LHAs to understand the wider programme for road investment in the Midlands including major schemes already at programme entry or under construction.

Highways England

Highways England and LHAs already work closely due to the interactions between the SRN and local highway. We regularly engage with Highways England across all our technical projects and have continued this ethos with the development of our MRN and LLM programmes. We have worked with Highways England and LHAs to ensure that any concerns about schemes have been addressed or can be addressed as the schemes are refined as business cases develop.

Governance

It is of upmost importance to DfT and us that the prioritised schemes are supported by stakeholders and our partners. The process adopted to identify priority schemes has been taken through our governance procedures.

We have engaged with the Technical Advisory Group (TAG) throughout the development of our priority schemes. This Group is attended by LHA Officers, essential to the development of our MRN/LLM programme.

When we were confident that TAG supported each stage, we presented the outcomes to Steering Group and they recommended that they were taken to Strategic Board for endorsement. Our programme has been endorsed by Strategic Board.

For individual schemes, we have specifically asked LHAs to demonstrate that there is political commitment and support for the schemes. This has been demonstrated in various ways such as schemes being within local plans and policies, through cabinet reports or letters of support.

Figure 2 Governance

Regional Evidence Base

The Investment Guidance states that a REB should be developed to justify the priority MRN schemes for the region. It also states that STBs should demonstrate how the LLM schemes align with regional priorities and it suggests that the REB could be used. According to the Investment Guidance, the REB should:

- Facilitate a long-term strategic approach to the investment needs of a region to make best use of the funding available

- Provide a strategic overview of the MRN in the region
- Identify key considerations such as housing and industrial developments and priority opportunities
- Identify problems on the network that need to be resolved
- Support regionally balanced investment
- Utilised evidence from the earliest stages of development
- Consider other relevant problems such as environmental issues (e.g. noise important areas, air pollution hot spots and social impacts)
- Make use of existing data and analysis such as regional transport strategies
- Include the criteria and methodology used to prioritised schemes, with potential consideration of contribution to MRN objectives, deliverability within the MRN/LLM Period 1 and likely value of money
- Document the full list of schemes considered

We have used the investment guidance and available evidence to shape our REB.

Report Structure

- Why invest in the Midlands?
- Evidence availability
- Defining the Major Road Network in the Midlands
- Major Road Network priorities
- Large Local Major priorities
- Road programme
- Technology strategy
- Next steps

Appendices

- Appendix 1 - Technical evidence
- Appendix 2 - MRN route assessment
- Appendix 3 - MRN scheme assessments
- Appendix 4 – MRN indicative traffic flows
- Appendix 5 - LLM strategic alignment assessment
- Appendix 6 - LLM scheme assessment
- Appendix 7 - LLM indicative traffic flows

Midlands Connect

Why invest in the Midlands?

As stated in the Midlands Connect 2017 Strategy: The Midlands is the largest economic area outside of London, with an economy worth £233 billion in 2017. It attracts more inward investment and creates more start-up businesses than anywhere in the UK; outside of the capital. It is already home to six million jobs, and our companies export to 178 countries, worth £55 billion in 2018. A strong Midlands economy brings growth to the rest of the UK because the supplier and customer networks of our businesses spread far and wide.

Whilst the Midlands economy is strong it is not reaching its full potential, with productivity below the national average. If we can improve transport connectivity between towns and cities within the Midlands and with key centres elsewhere, then we could boost economic growth to the benefit of both the Midlands and UK plc.

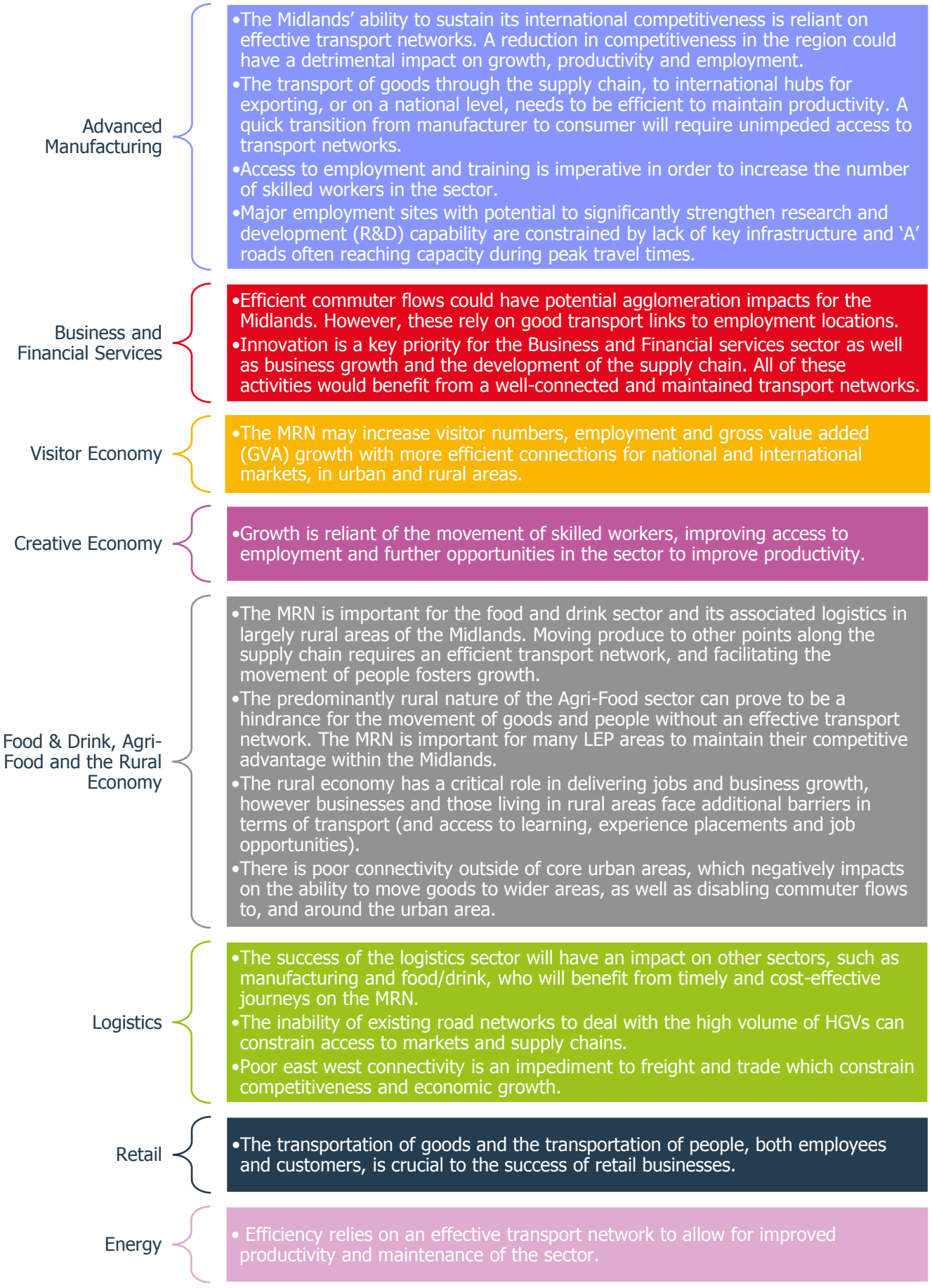
The locational advantage of the Midlands, at the heart of the country's strategic road network, is a significant contributing factor in achieving the region's success to date. For this to continue, and for the aims of the Midlands Connect partnership to be achieved, investment in infrastructure and connectivity is required.

This investment is needed in many forms. Alongside additional capital investment, making the most of opportunities also requires suitable, economically-driven investment structures and operational frameworks - not only to enhance the effectiveness of both current roads' investment, but also to maximise those of the future.

The MRN provides the framework to refocus investment in roads to better support the economy and meet the Midlands Engine's needs.

A review of the Strategic Economic Plans and Local Industrial Strategy across the region has identified several areas where the MRN will be crucial to the region's core industries, as shown in Figure 3.

Figure 3 Major Road Network Importance to region's core industries



The MRN provides the framework to refocus investment in roads to better support local and regional economies and meet the Midlands Engine's needs. To do this effectively the MRN needs to bring together the most important local authority roads - alongside the existing Strategic Road Network (SRN) in the Midlands - to deliver a better integrated, managed, and economically connected network. It is also paramount that the Midlands MRN has cross-boundary agreement with Wales, Transport for the North, England's Economic Heartland and the South West to make these ambitions and objectives an integrated reality.

Linked to the core principles and adoption of a transport and economic flow based MRN, a network that considers the above points can directly provide further economic benefit to the Midlands and the UK. Such an MRN will:

- Increase the reliability and resilience of the transport network, and therefore also economic actors, to external opportunities and threats.
- Support agglomeration economies by bringing firms closer together; and in so doing help economic centres thrive and differentiate themselves on a UK and global stage.
- Provide direct international connectivity, investment and trade, with integrated access routes to national and global markets.
- Enable people and firms to make the most efficient journeys across multiple modes, and to allow effective interchange.
- Release growth in key employment and housing sites, without hindering existing network functions.

Midlands Connect

Evidence Availability

Evidence Review

In line with the guidance and given the challenging timescales for submitting schemes to DfT, we have predominantly used the evidence informing our 2017 Strategy. At the beginning of the process, we reviewed the evidence against the MRN/LLM objectives to establish the availability and suitability of evidence for inclusion in the REB. This review identified some opportunities to enhance the REB for MRN/LLM Period 2, and more broadly.

For some objectives, it has not been possible to obtain consistent region-wide evidence due to the timescales but the 'top down' evidence has been supplemented by individual scheme evidence as provided by the LHA. Table 1 shows the evidence that is available to develop our regional view and identify priority schemes. Table 2 presents the opportunities to enhance the REB in future to allow us to be better prepared for MRN/LLM Period 2.

Table 1 Technical Evidence informing the REB 2019

Objective	Current REB
Reducing congestion	• Midlands Connect Highway Model[4] (Appendix 1 - Figure 31 to Figure 34) • Environmental constraints map (Appendix 1 - Figure 29) • Scheme-specific information
Support economic growth and rebalancing	• Priority economic hubs and corridors within the region (Appendix 2 - Figure 36) • Strategic employment sites (Appendix 2 - Figure 37) • Key ports, gateways and freight interchanges (Appendix 2 - Figure 38) • Cambridge Econometrics data for forecast GVA and employment at a district level
Supporting housing delivery	• Scheme-level information
Supporting all road users	• Scheme-level information
Supporting the Strategic Road Network (SRN)	• Midlands Connect Highway Model • TomTom data showing reliability and average speeds on SRN (Appendix 1 - Figure 27 and Figure 28) • Traffic Master data (2015) for most MRN links • Designated diversion routes for SRN (open source) (Appendix 1 - Figure 30)

[4] Midlands Connect Highway Model has a basis in the Midlands Regional Traffic Model developed and owned by Highways England

Table 2 Technical Evidence informing the REB for MRN/LLM Period 2

Objective	Future REB (current ideas)
Reducing congestion	• Updated Midlands Connect Highway Model to better represent the MRN • More detailed environmental constraints map to include other environmental considerations such Noise Important Areas and Clean Air Zones • Develop MRN Technology Strategy to identify schemes that support the environment (see later chapter)
Support economic growth and rebalancing	• Refined/consolidated regional view of employment ambitions and growth, with uncertainty assessment. One-to-one meetings with districts are underway to develop the database • Develop wider understanding of economic connectivity along MRN routes (e.g. supply chains) • Potential use of mobile phone data to understand connectivity to gateways and ports, and broader movements across the Midlands
Supporting housing delivery	• Region-wide view on housing ambitions and growth, with uncertainty assessment. One-to-one meetings with districts are underway to develop the database
Supporting all road users	• Region-wider view on collisions and safety issues on the MRN using STATS19 but approach to be defined to ensure comparison e.g. collisions per million vehicle miles
Supporting the Strategic Road Network (SRN)	• Updated Midlands Connect Highway Model to better represent the MRN

Midlands Connect

Defining the Major Road Network in the Midlands

Overview

The development of the MRN started in 2016 with the release of a report by Rees Jeffreys Road Fund[5]. The report made the case that the SRN (4,200 miles in length) was not sufficient in isolation to support the economy and important local authority managed 'A Roads' were identified as playing a crucial role in supporting the SRN and economy.

A total of 3,800 miles of local authority managed A-Roads were identified as being important nationally and regionally. The report made the case that together, these A-Roads and the SRN form an integrated network allowing people to seamlessly move across the country. The report called for a consistent approach to planning, managing and funding these roads to maximise their potential.

The National Road Fund (NRF) was identified as providing an opportunity to provide greater certainty over funding. This would allow local authorities to focus their resources on improving general road conditions, whilst the NRF to delivers larger improvements.

The report stimulated wide-spread interest in the formation of the MRN which led to DfT consulting on which roads should form part of the MRN and approaches to allocating funding. DfT used the consultation responses to inform their Investment Guidance and identify the nation's MRN. The MRN timeline is shown in Figure 4 and more information on each stage can be found in the following sections.

Figure 4 Major Road Network timeline

Rees Jeffreys

As mentioned above, Rees Jeffreys Road Fund Report identified 3,800 miles of local authority managed A-Roads as part of the MRN. This network was initially identified using traffic flows in 2014, followed by additional criteria relating to towns, population and growth patterns, as shown in Figure 5. The report recommended that local knowledge would be required to validate the network and the network would need to be refreshed in future due to changing circumstances (i.e. new road improvements, growth).

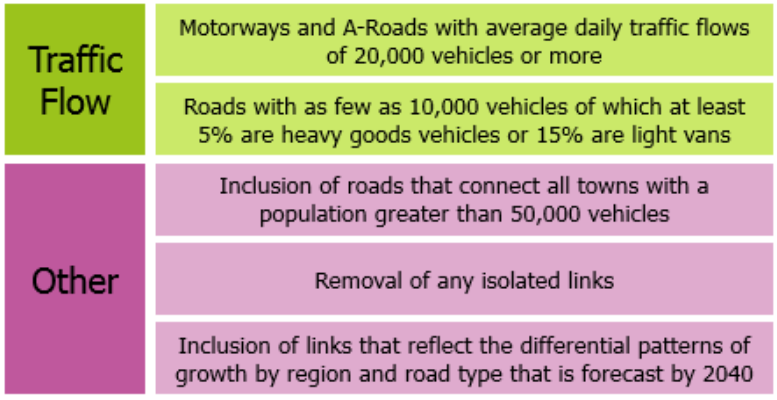


Figure 5 Rees Jeffreys MRN Definition

[5] A Major Road Network for England: A Rees Jeffreys Road Fund Study

The report also recognised the differing function that the MRN performs by diving the network into tiers. For example, some routes support urban areas and have several junctions and heavy flows, whilst others have higher speeds and provide connectivity between major urban areas.

DfT Consultation

In December 2017, DfT opened their MRN consultation with the release of the Proposals for the Creation of a Major Road Network Report. The consultation focussed on:

- How to decide which roads should be designated as MRN
- Which roads DfT had identified as being part of the MRN
- Who will be responsible for identifying schemes
- How should schemes be identified
- How will DfT decide which schemes receive funding

Identifying the MRN

The consultation proposed roads for inclusion as part of the MRN, informed by the criteria within the Rees Jeffreys Road Fund Report and some additional criteria. Traffic flows were used to identify heavily trafficked roads and roads important to the movement of goods. Other factors were then considered to ensure the network proposed was coherent and local and regional factors were accounted for. The other factors were:

- **Ensuring a coherent network** – adding links to join up stretches of road identified by traffic flows to form continuous sections and removing isolated links that form part of a corridor where most of the network did not meet the traffic flow thresholds
- **Linking economic centres** – ensuring major conurbations, airports, ports and other economic centres were connected by including roads that connect towns/cities with a population greater than 50,000 or lower in towns that are economically important in peripheral areas
- **Access to/resilience for the SRN** – access to the SRN and supporting the SRN during incidents

Roads that were de-trunked between 2001 – 2009, meaning that they were removed from the SRN and management of Highways England (previously known as Highways Agency) and were now managed by LHAs, were also included as part of the MRN, where appropriate. It also proposed that the MRN would be reviewed every five years to ensure that it reflected the latest levels of usage and economic importance.

Figure 6 Consultation definition of the MRN

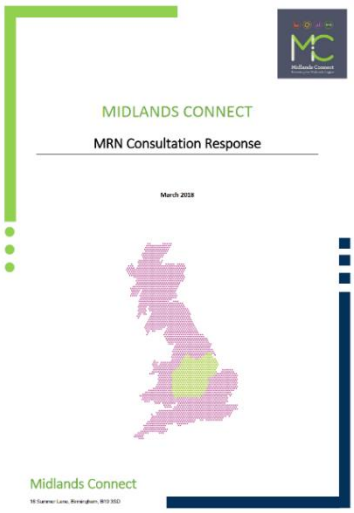
Eligible schemes

The consultation included a list of schemes eligible for funding including bypasses of towns/villages, major junction improvements and widening of existing MRN roads. It also set out how funding contributions from DfT would be a minimum of £20 million, with generally a maximum contribution

of £50 million, but in exceptional circumstances, up to £100 million may be appropriate where justifiable. The criteria for assessing the suitability of schemes for funding was also included and the consultation made it clear that MRN funding would not be available for roads that are:

- Not located on the MRN
- Are wholly on the SRN
- Public transport improvements unless part of a highway scheme
- Non-specific improvements across a local highway authority wide package of improvements

Our Response



In March 2018, Midlands Connect submitted two responses to the consultation – a joint one with other STBs[6] and our individual response[7] which included our proposed revisions to the MRN.

We supported the identification of an MRN, and the principles within the Rees Jeffreys Road Fund Report that the SRN and MRN should be treated as 'one network'. We also supported the expectation that STBs are best placed to identify the MRN investment needed in the region and LHAs should remain responsible for maintaining and operating the MRN.

We supported the majority of what DfT put forward for consultation, however we also called for the following:

- Continued engagement between DfT and STBs to define the MRN
- Involvement of STBs in the decision-making process, and monitoring and reporting process
- Availability of development funding to allow local authorities to develop schemes and provide a pipeline of schemes
- Identification of funding allocations at a regional level to allow a long-term investment programme to be developed
- Consideration of wider economic benefits (such as employment and housing), along with other outcomes for road users to ensure all road users benefit
- Flexibility with the cost thresholds for funding as schemes with a value less than £20 million could provide significant benefits

Defining our MRN

To respond to the DfT's proposed MRN, we also combined a quantitative and qualitative approach with evidence gathered from stakeholder workshops, our traffic model (Midlands Connect Highway Model[8]) and other available data sources. We identified roads for inclusion by using various criteria:

- Route classification – e.g. local authority A-Road, on a Primary Route Network
- Journey length – road carries a high proportion of regional and national journeys
- Traffic volumes – Average Annual Daily Flow of over 20,000 vehicles
- Freight traffic volumes – Average Annual Daily Flow of over 1,000 vehicles including HGVs accounting for more than 5% of all vehicles

[6] https://www.midlandsconnect.uk/media/1202/stb-joint-response-to-major-road-network-consultation-final-draft.pdf
[7] Midlands Connect MRN Consultation Response (March 2018): https://www.midlandsconnect.uk/media/1210/midlands-connect-mrn-consultation-response.pdf
[8] Midlands Connect Highway Model is a version of the Midlands Regional Traffic Model developed by Highways England but owned by Midlands Connect.

- Role in relation to the SRN/provides resilience or forms extension of SRN - e.g. direct connection with SRN, strategic spur (i.e. last mile to primary destination), a Highways England diversion route
- Supporting inter-regional connectivity – provides connectivity to adjacent regions and/or Wales
- Connectivity to key economic centres and regionally significant employment and transport hubs
- Performs outer ring road or bypass function around major towns/cities

The assessment against the criteria resulted in the network being divided into 'routes'. We supported the inclusion of most roads put forward by DfT, however we also identified a number of other routes for inclusion as part of the MRN, including some new roads under construction. The MRN that we put forward as part of our consultation response was 38%[9] (437 miles) larger than the network proposed by DfT[10].

MRN Routes

Route Identification

The work undertaken to identify our consultation response divided the MRN into routes. A logical approach was adopted to identifying the routes by considering the criteria used to define the MRN as well as identifying roads that:

- Provide connectivity between two parts of the SRN – 'fill the gap'
- Provide connectivity between two economic centres/major places
- Provide a continuous stretch of MRN without the SRN or other MRN routes intersecting
- Connect to economic centres from key radial routes
- Connect to an economic centre/major place to the SRN

This resulted in a total of 113 routes being identified as shown in Figure 8, some of which extend past the Midlands Connect boundary due to their characteristics.

[9] 38% is the net change as the Midlands Connect network comprised of removing some routes proposed by DfT and including additional routes.
[10] Midlands Connect's MRN consultation response can be found at: www.midlandsconnect.uk/publications/major-road-network-consultation-response/

Route Performance

To start developing our understanding of traffic conditions on the MRN and the need for investment, we assessed the routes against two factors – network performance and economic need. These factors were informed by the objectives of the MRN. The factors were underpinned by more detailed criteria, with the network performance being assessed quantitatively using data such as Traffic Master, and economic need assessed qualitatively informed by available datasets. The criteria are shown in Figure 7 and Appendix 2 provides detail on the approach used to assess the routes against the criteria.

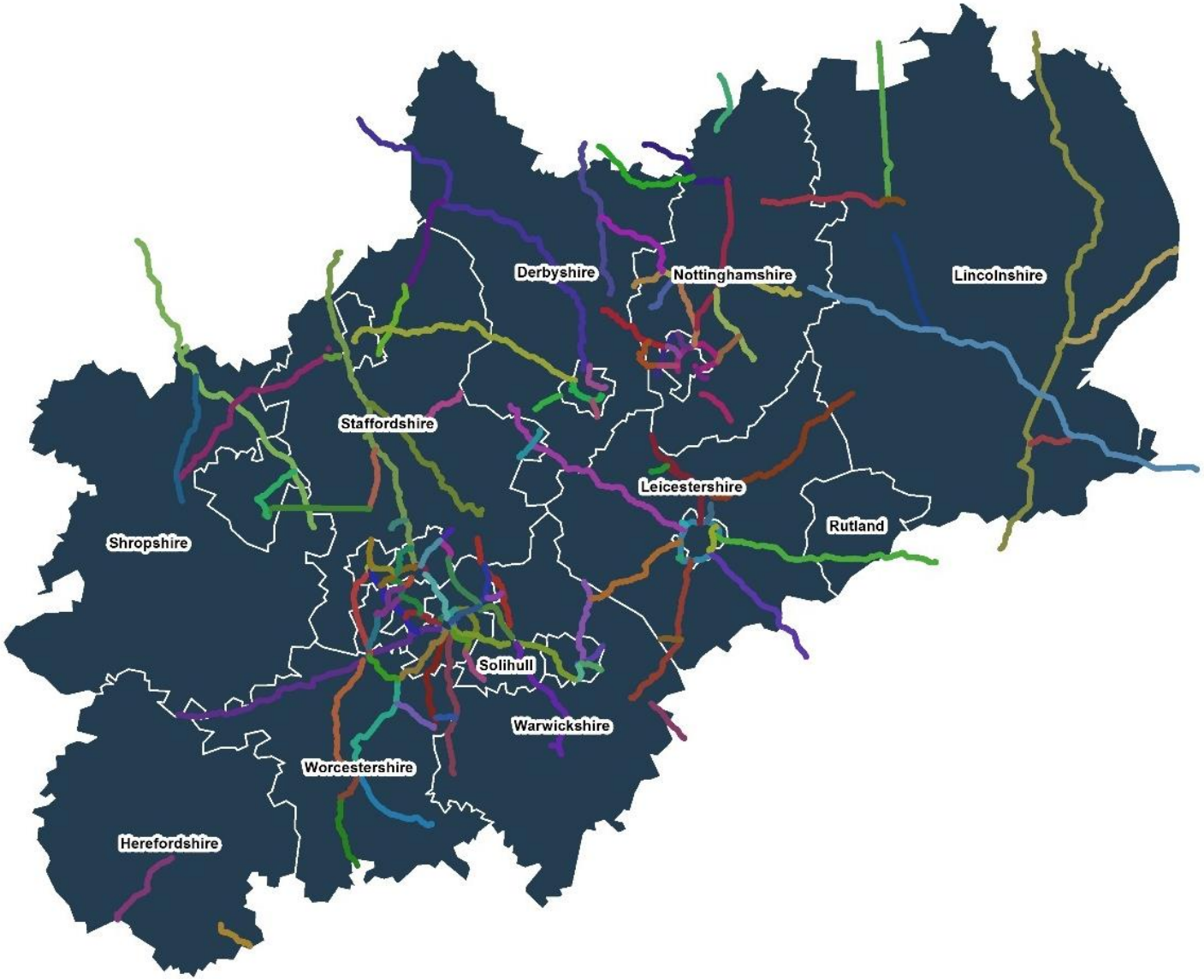
Figure 7 Route Assessment Criteria

Network performance	Economic need
	Improve access to the Strategic Road Network and provides resilience to the Strategic Road Network
No difference between day time and off-peak journey times	Improved access to the main economic centres in the region
Travel time in line with posted speed limit in urban areas or 60mph or more on inter-urban routes	Access to employment growth sites
Any journey time is no more than 20% of the average journey time by day	Improved access to commercial markets and global supply chains for freight and businesses
	Access to major housing locations

At this point, we have used datasets that are readily available from public sources or were collected for our 2017 Strategy. We would like to refresh our route assessments by using updated datasets and data that is better reflective of our region. We are in the process of obtaining additional data and the timescales for submission of our REB mean that it has not been possible for the route assessments to be used to identify priority schemes.

We will develop the route-level evidence over the coming years to develop our MRN/LLM Period 2 programme. An enhanced REB in the future will allow us to better overlay the problems on the network with the requirement for improvements to pinpoint the areas in need of investment the most; and which contributes to a wider, regional set of objectives.

Figure 8 MRN Routes in the Midlands

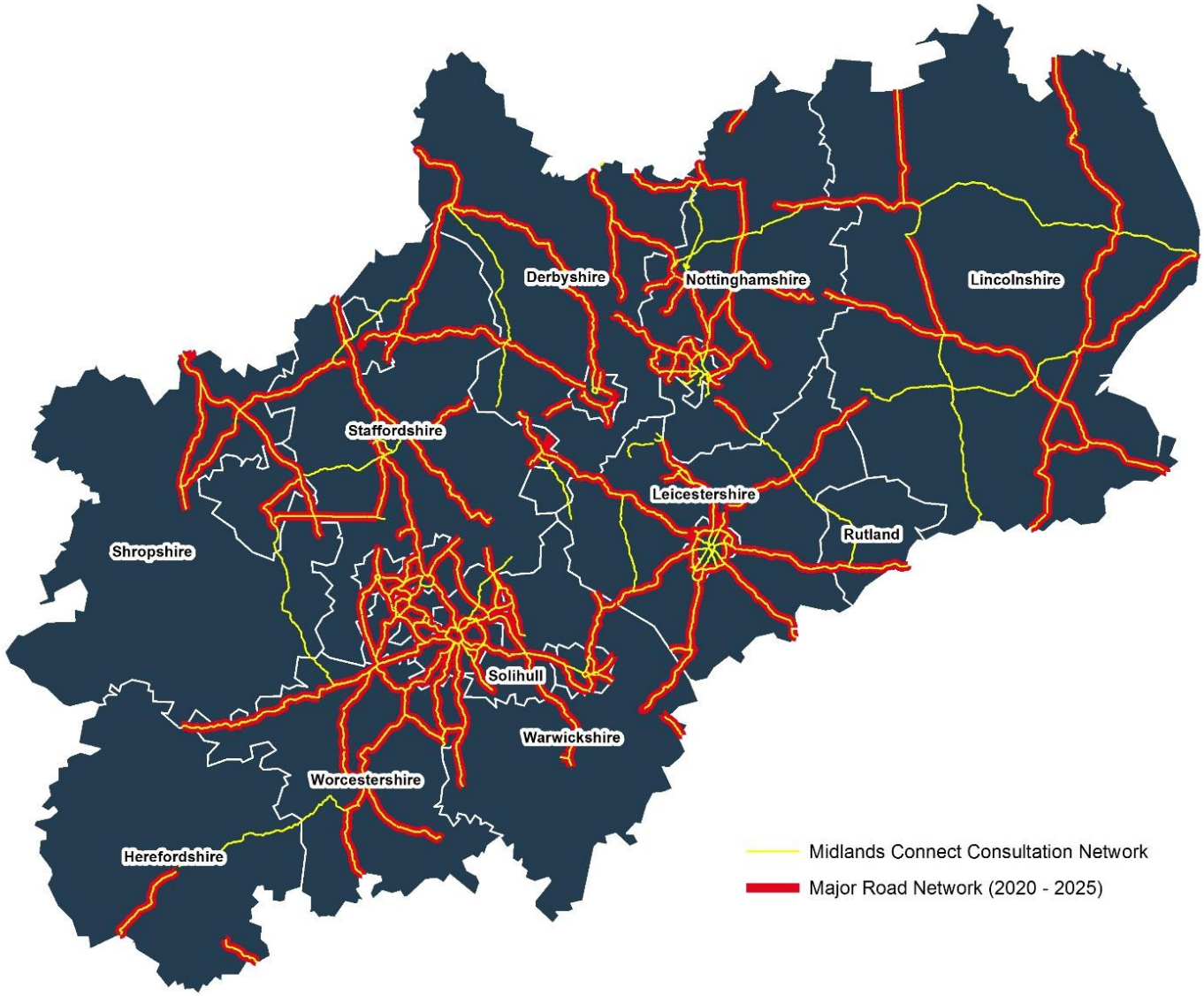


Final Midlands Connect MRN

DfT considered our feedback, along with others, and this resulted in a 5% net increase in the size of the network in the Midlands compared to the consultation network. Figure 9 shows the roads that we proposed for inclusion in the MRN and DfT's final network following the consultation feedback.

Being designated as part of the MRN provides roads with potential access to funding for transport improvements and we will support LHAs to unlock these funding opportunities. Whilst several roads that we identified as regionally important by Midlands Connect have not been formally designated as part of the MRN, we believe that our network includes the most economically important in the region and we will continue to support investment on these routes.

Figure 9 Midlands Connect consultation response network and DfT's Final MRN



Midlands Connect

Identifying Our Major Road Network Priorities

Major Road Network DfT Guidance

Overview

In December 2018, DfT published their Investment Planning Guidance for the Major Road Network and Large Local Majors Programmes. This guidance largely reaffirmed the information within the consultation document and provided further information including information on the assessment criteria, requirements for the REB and role of STBs. This section explains the key parts of the guidance of significance to the Midlands developing their REB and identifying priority MRN schemes.

Objectives

The MRN has five objectives which build on the commitments within the Government's Transport Investment Strategy. Within the guidance, DfT identify the criteria that schemes will be assessed against for each objective; shown in Table 3. The guidance recommends that STBs consider the criteria and objectives when developing their REB. We have considered these as part of our REB, with some assessable at a regional and scheme-level, and some at a scheme-level only.

Table 3 MRN Objectives and assessment criteria (Investment Guidance)

Objective	Criteria
Reducing congestion	• Alleviate congestion • Take account of impact on the environment including air quality, biodiversity, noise, flood risk, water quality, landscape and cultural heritage
Support economic growth and rebalancing	• Support regional strategic goals to boost economic growth in line with the Industrial Strategy • Improve access to new or existing employment sites • Improve international connectivity to e.g. ports and airports
Supporting housing delivery	• Support the creation of new housing developments by improving access to future development sites and boosting suitable land capacity
Supporting all road users	• Deliver benefits for public transport and non-motorised users (including pedestrians, cyclists and disabled people) • Reduce the risk of deaths/serious injuries for all users of the MRN
Supporting the Strategic Road Network (SRN)	• Improve end to end journey times across both networks • Improve journey time reliability • Improve SRN resilience

Eligible Schemes

The guidance specifies that only certain types of schemes are eligible for MRN funding. Schemes must be located on, or directly support, the MRN and the types of schemes eligible for this funding are:

- Bypasses or new alignments which alleviate congestion and make through journeys quicker, safer and more reliable.
- Missing links – new roads that link existing stretches of the MRN or SRN.
- Widening of existing MRN roads where there is a known congestion point or safety risk.

- Major structural renewals on roads, bridges, tunnels and viaducts on MRN roads, where significant works needs to be done to renew the carriage or prevent closure of weight restrictions.
- Major junction improvements such as grade separation that would improve the safety, performance or flow of an MRN road.
- Variable message signs, traffic management and the use of smart technology and data to raise the performance of the network.
- Package of improvements which may include elements of safety, widening, junction improvements and new alignment.

These schemes could include measures to support other road users such as incorporating cycling pedestrian facilities and/or a new bus lane as part of a new road alignment or widening scheme. The guidance is clear that public transport only schemes are not eligible for MRN funding due to other funding opportunities being available such as the Transforming Cities Fund.

Funding Requirements

We are required to submit up to 10 MRN schemes and funding from DfT will typically be £20 - £50 million for each scheme, although the guidance advises that the lower threshold will not be applied rigidly. Schemes seeking funding of over £50 million will be considered as Large Local Majors which is discussed in a later chapter. It is important to remember that there is no guarantee that the schemes submitted to DfT will receive funding.

To be eligible for funding, LHAs are expected to provide financial contributions towards the final cost of scheme, either through local or third-party funding sources. In general, DfT expect schemes to have a local or third-party contribution of at least 15% of the total scheme cost. This is to ensure that LHAs are committed to the delivery of the scheme to programme and budget.

Ready for Investment

We must submit information for individual schemes alongside our REB. This information varies based on when the scheme is aiming to start construction. The information required is aligned with business case stages, starting from pre-business case to Outline Business Case (OBC).

For schemes aiming to start construction early in the funding period (2020/21 and 2021/22), an OBC is required to be submitted with the REB, whereas for schemes aiming to start construction in 2024/25, an OBC is required by the end of 2021. Figure 10 presents the business case stages and timescales set by Dft.

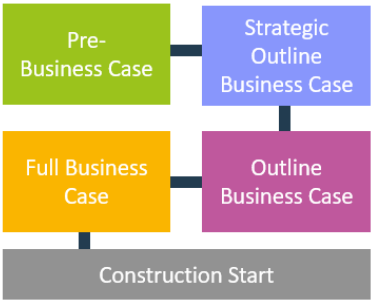
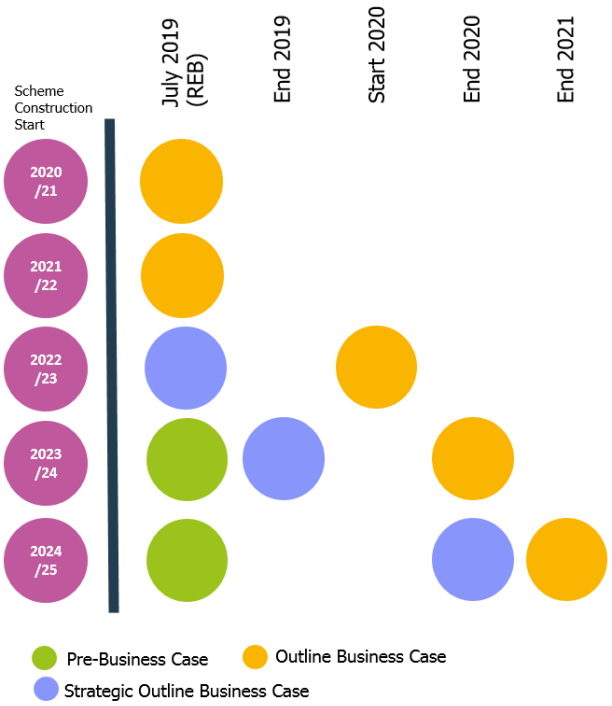


Figure 10 Business Case Stages and Timescales



Development Funding

The guidance states that schemes that are successful at the SOBC stage and are approved by DfT for inclusion in the programme will be eligible to apply for a contribution towards development funding. DfT will not make decisions about development funding until the timescales for reaching OBC are understood. DfT has requested that LHAs identify the potential contribution from DfT required as part of their SOBC submissions.

Through discussions with DfT, we have been made aware that for schemes already at OBC stage, there could be an opportunity for LHAs to be reimbursed for some of the costs incurred to develop the scheme from SOBC to OBC stage. The opportunity for this funding will be decided through discussions between LHAs and DfT.

Scheme Identification – Long List

Scheme Collation

In Autumn 2018, ahead of the Investment Guidance being released by DfT, we began the process to identify MRN schemes. We developed a proforma to capture information about schemes or ideas for intervention in a consistent manner. LHAs, that are part of our partnership, were invited to submit well-developed schemes for potential MRN/LLM Period 1 funding and schemes in the early development stages for future MRN funding periods. A total of 81 schemes or ideas for future interventions were submitted[11]; some of which needed further work to establish that they would fully meet the MRN funding eligibility criteria.

Early Announcement Schemes

In Summer 2018, DfT asked STBs to put forward schemes that could be delivered within the early part of MRN/LLM Period 1. We submitted a list of schemes to DfT and were pleased that the A614 Ollerton to Lowdham Improvements was successful in obtaining funding (subject to business cases). We have not included this scheme in our process, but it is presented in all maps to demonstrate the region's MRN programme. Other schemes that were part of our Early Announcement Submission have been automatically reconsidered, although more information was obtained, where available or required.

Initial Sifting

In the absence of any guidance from DfT, at that time, Midlands Connect used four key categories (shown in Figure 11) to undertake an initial sift of the 81 schemes. The categories focussed on the deliverability of the scheme within MRN/LLM Period 1 and eligibility of the scheme for funding. As a minimum, schemes needed to meet the first two categories.

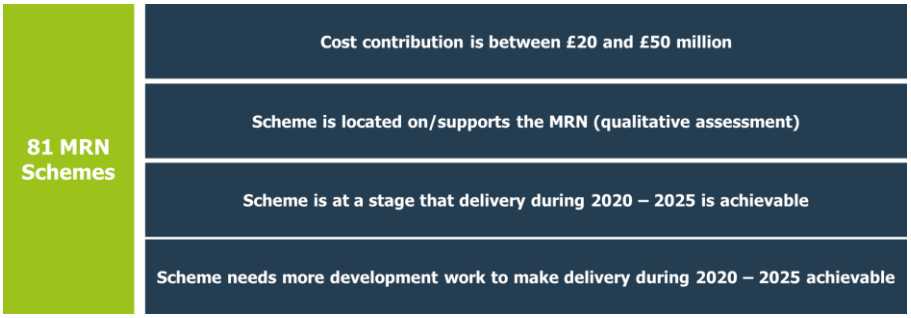


Figure 11 Initial MRN sift categories

[11] Excludes schemes that were initially MRN schemes and were more appropriate as LLM.

The outcome of this assessment was a list of schemes that fitted into one of the following groups:

- Group 1[12]: Scheme delivery during MRN/LLM Period 1 achievable or a rapid advancement of development work could enable delivery during MRN/LLM Period 1
- Group 2: Scheme requires significantly more development and unlikely to be advanced in MRN Period 1 and should be reconsidered for MRN Period 2.
- Group 3: Schemes that did not meet the cost contribution threshold and/or were not located on the MRN or supported the MRN

Sifting Outcome

The initial sift resulted in a shortlist of 19 schemes[13] that were within Group 1 and required further assessment to identify our 'top 10' priorities.

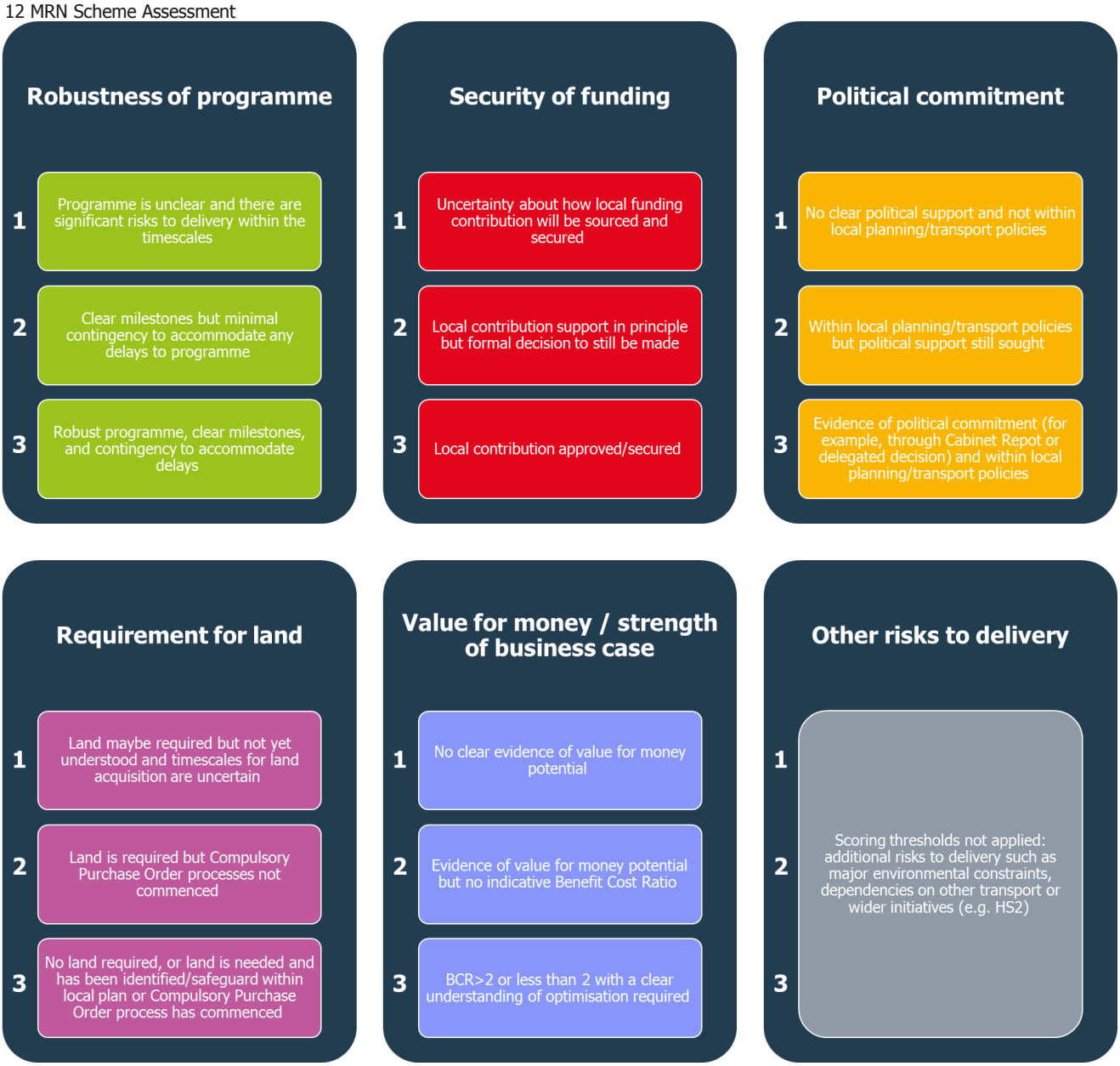
Scheme Assessment and Prioritisation

Assessment Criteria

With the MRN funding announcement and guidance only released in late 2018, we have focused on ensuring that the MRN schemes can be delivered during MRN/LLM Period 1 and then validating that they align to regional priorities and support MRN objectives. The shortlisted schemes were assessed against six criteria that focussed on deliverability. A three-point scale was developed for each of the six criteria, with each score given a qualitative definition. The six criteria are shown in Figure 12. The assessment criteria were discussed with our stakeholders and any feedback integrated.

[12] Referred to as Group 1 and Group 2 in previous Technical Advisory Group documents but simplified for presentational purposes.
[13] Excludes Shrewsbury Northern Relief Road which was awarded funding in January 2019.

Figure 12 MRN Scheme Assessment



Assessment Results

The 19 schemes were scored by Midlands Connect and the scores were then moderated by an independent external advisor. The assessment scores were also subject to review from the LHAs promoting the scheme. LHAs were given several opportunities to provide feedback and challenge the assessment by providing further evidence.

The scores have also been through our governance processes – Steering Group and Strategic Board, both of which include representatives from DfT. Table 4 presents the outcome of the assessment and Appendix 3 provides the scores for the top performing schemes.

The assessment showed that there were 7 schemes which scored higher than others, demonstrating their 'investment readiness' scoring at least 65%. These schemes are our prioritised schemes for submission to DfT, referred to as 'Tranche 1' schemes and are the most deliverable. Whilst the guidance states that STBs can submit up to 10 MRN priority schemes, our Steering Group and Strategic Board emphasised the importance of putting forward a credible programme and have

decided that there are only 7 schemes that have a strong potential for delivery in MRN/LLM Period 1.

The 12 remaining schemes form 'Tranche 2' and would require significant and rapid advancement of development works to be deliverable within MRN/LLM Period 1, but delivery within MRN Period 2 is more realistic. The schemes that did not make the 19 shortlisted schemes (Tranche 1 and 2) are known as 'Tranche 3' and form a long-list of future opportunities to be investigated for future MRN periods.

Table 4 MRN Assessment Results

Scheme Name	Promoting Local Authority	Assessment Result
A4123 Birchley Island	Sandwell Council	Priority Schemes (Tranche 1)
A38 Bromsgrove Route Enhancement Programme	Worcestershire County Council	
A426/A4071 Avon Mill/Hunters Lane Improvements	Warwickshire County Council	
Queensway Link	Telford & Wrekin Council	
A511 Growth Corridor	Leicestershire County Council	
A454 between Wolverhampton and East Park Gateway	Wolverhampton City Council	
A45/Coventry Road/Damson Parkway Junction	Solihull Metropolitan Borough Council	
12 schemes were identified as 'Tranche 2' – these will be reconsidered when developing our MRN Period 2 Programme. They can also become a 'stand-by' list for Period 1 if development has been independently accelerated by Scheme Sponsors and a Tranche 1 scheme cannot come forward in Period 1 as thought.		

Prioritised Schemes

The total cost of the 7 prioritised schemes (based on capital costs within individual business cases/proformas) is £254 million, with £209 million requested from DfT to enable delivery. Table 5 shows the business case stage that each scheme is at, when the scheme is currently anticipated to open, the scheme cost and funding request. The early announcement scheme, A614 Ollerton to Lowdham Improvements has not been included in Table 5 as funding is already committed. The location of the prioritised MRN schemes are shown in Figure 13.

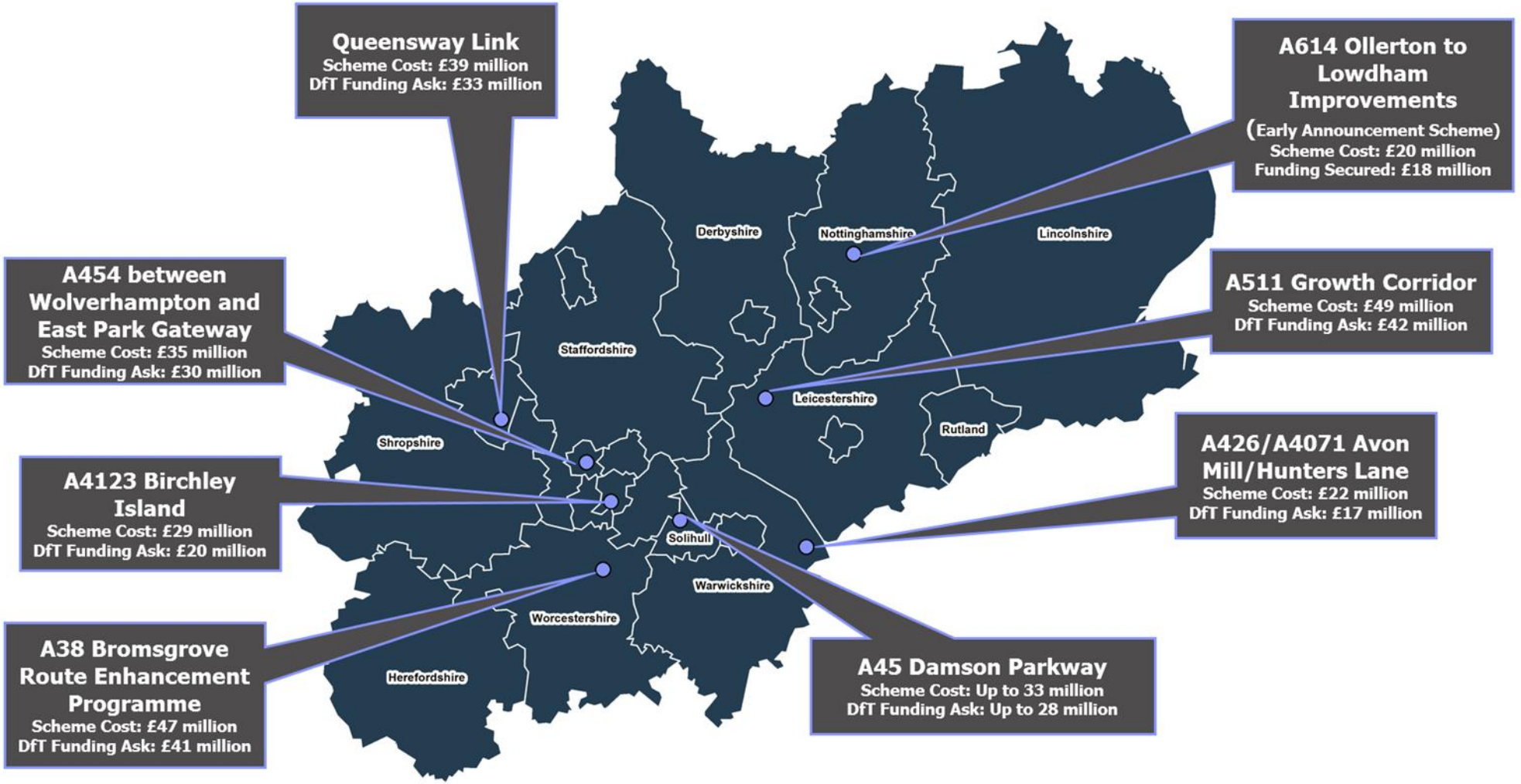
Table 5 Priority Schemes

Scheme Name	Scheme Development Stage	Anticipated Scheme Opening Year	Estimated Capital Cost (nearest million)	MRN Funding Ask (nearest million)
A4123 Birchley Island	OBC	2023	£29	£20
A38 Bromsgrove Route Enhancement Programme	SOBC	2025	£47	£41
A426/A4071 Avon Mill/Hunters Lane Improvements	SOBC	2025	£22	£17
Queensway Link	SOBC	2024	£39	£33
A511 Growth Corridor	SOBC	2024	£49	£42
A454 between Wolverhampton and East Park Gateway	OBC	2024	£35	£29
A45/Coventry Road/Damson Parkway Junction[14]	SOBC	2026	£33	£28
		Total	£254	£210

The following pages provide more information on the prioritised schemes and explain how they support the region and MRN objectives. For completeness, information about the A614 Ollerton to Lowdham, which has secured funding, has also been included. Scheme costs within the summaries are capital cost and both the funding request and scheme cost have been rounded to the nearest £million. For additional context, Appendix 4 provides a high-level summary of flows on the network in the scheme vicinity, as sourced from the MCHM.

[14] Currently at optioneering stage – figures are based on maximum cost and assumed 15% local contribution of maximum cost

Figure 13 Prioritised Major Road Network Schemes



A4123 Birchley Island, Sandwell

Scheme Description

- Provide a "hamburger" style junction with a single lane in both directions through the existing roundabout;
- Widening of the roundabout at all approaches;
- Introduction of signals on the A4034 Churchbridge and A4123 Wolverhampton approaches to make the roundabout fully signalised.

Scheme Cost	Outline Business Case	DfT Funding Request
£29 million		£20 million

Why? The need for investment

Reducing congestion and supporting all road users

The scheme will improve journey times and reliability at this extremely busy and well-known junction, which provides direct access to the M5 and a gateway to the Black Country and Birmingham. However, queuing is near constant, ranging from 10 to 70 vehicles at any one time.

Congestion also delays the 26 local bus services every hour that use the A4034 and A4123. Improvements to the junction would increase reliability for buses and integrate better with other transport improvements in the area, including the Wednesbury to Brierley Hill Metro Extension and Birmingham to Dudley Bus Rapid Transit, which will offer direct access to HS2 rail services from 2026. The scheme also makes it easier for pedestrians to cross the road and includes access for cyclists.

Supporting economic growth

Around 25 hectares of employment sites are located within one kilometre of the junction and are expected to be developed by 2021. This will increase traffic still further, strengthening the case for urgent improvements to the junction.

Birchley Island is an important gateway to Sandwell Borough, where jobs growth relies on attracting skilled labour from beyond the local authority boundary. Congestion at key locations like Birchley Island is compromising the economic strength of the area and deterring investment. Improving this strategic connectivity opens up more opportunities for businesses, suppliers and employees.

Supporting the Strategic Road Network

Birchley Island provides vital access to the MRN and SRN, especially the M5 at Junction 2. It's also a designated diversion route for the M5 Junctions 1-3 during congestion and incidents.

Highways England made improvements to the M5 Junction 2 exit slip roads in 2013 to prevent queuing on the main carriageway. These improvements, alongside other planned schemes on the M5 and M6, have put additional pressure on Birchley Island and strengthened the case for investment.

A38 Bromsgrove Route Enhancement Programme, Worcestershire

Scheme Description

A package of improvements on the A38 between B4094 Worcester Road to the south and M5 Junction 4 to the north:

- Increasing junction capacity;
- Widening the main carriageway;
- Signal optimisation;
- New pedestrian crossing facilities;
- Improvements to the existing footbridge and a new walking/cycling bridge.

Scheme Cost £47 million

Strategic Outline Business Case

DfT Funding Request £41 million

Why? The case for investment

Supporting all road users

The A38 separates Bromsgrove town centre from the railway station, making it difficult for pedestrians and cyclists to cross. A new walking/cycling bridge and upgrades to an existing bridge will make crossing easier, alongside new footways, cycleways and signal controlled crossing.

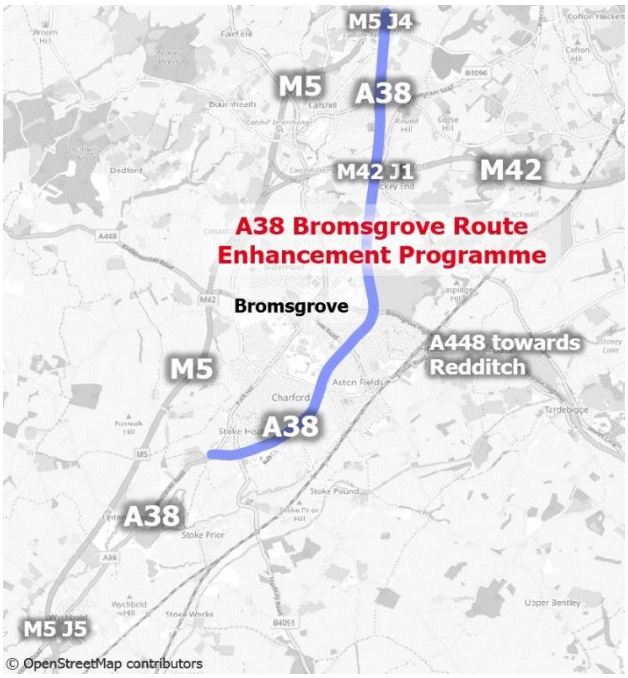
Reducing Congestion

The route has many different functions: a link to the SRN, bypass for Bromsgrove, distributor road within Bromsgrove and a local access route for residents and businesses. This makes the A38 congested and unreliable at key locations, impacting on its role as a strategic link to the SRN.

"Worcestershire has one of the fastest growing economies in the country and this scheme would be another example of the council's ambition to ensure the county is open for business."

Councillor Ken Pollock, Worcestershire County Council Cabinet Member Responsible for

Supporting economic growth



The scheme provides a more resilient alternative to the M5 to the South West, a key economic growth corridor in Midlands Connect's 2017 Strategy, enhancing connectivity to the South West and for local journeys around Bromsgrove, with a population of 99,000.

Supporting the SRN

The A38 is a designated diversion route for the M5 Junction 4-5 and M42 Junction 1-2 during incidents and road works. Both motorways are regularly congested during morning and evening rush hour, where speeds can fall below 40mph and journeys can take three times longer than usual.

Supporting housing growth

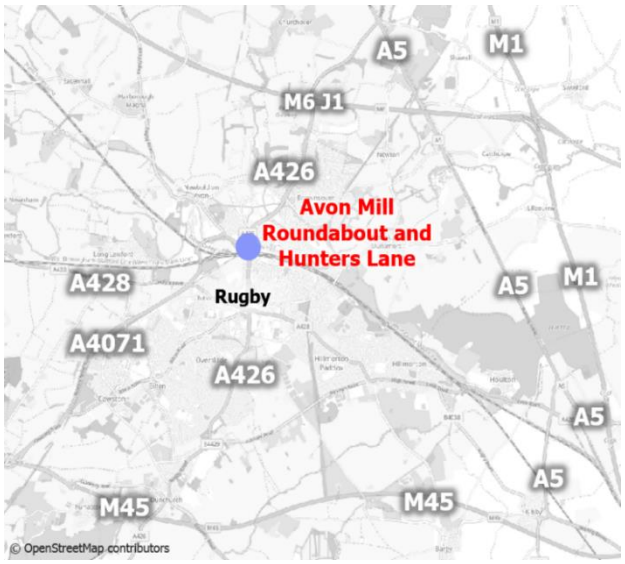
More than 10,000 homes and 28 hectares of employment land are expected close to the A38 corridor by 2030 as part of local plans for Bromsgrove and its border with Redditch. Congestion must be addressed to accommodate this planned and future growth.

A426/A4071 Avon Mill/Hunters Lane Improvements, Warwickshire

Scheme Description

A package of works to reduce congestion north of Rugby town centre:

- Enlargement of Avon Hill roundabout;
- Widening all the entries to three lanes;
- Widening or new/improved exits on A426 and A4071 Newbold Road;
- Replace Hunters Lane junction with a new roundabout;
- Short length of dual carriageway at Hunters Lane to connect the two roundabouts and a new River Avon bridge.



Scheme Cost	Strategic Outline Business Case	DfT Funding Request
£22 million		£17 million

Why? The case for investment

Supporting economic growth and housing

Rugby is close to Birmingham Airport and East Midlands Airport and is well connected to London and Birmingham by rail, driving housing and jobs growth in the town. Multinational firms Gap, Rolls Royce and Cemex have bases in the borough.

Rugby Borough Council's Local Plan includes 12,400 new homes, 110 hectares of employment land and 8,000m^2 of retail space by 2031. Several of these sites are close to the A426 Leicester Road corridor. Without these junction improvements there's a concern that the road won't be able to cope with the extra traffic and a risk that developments won't be granted planning permission.

Reducing congestion

Long queues on approaches to Avon Mill lead to unreliable journey times and creates a major bottleneck on the MRN. If improvements aren't made, more traffic will divert on to less suitable routes and its function as an MRN corridor will be compromised.

Supporting all road users

The scheme includes a new segregated foot and cycle way and a bridge parallel to the existing River Avon bridge. Crossings on the A426 Leicester Road will also be improved. The scheme completes a missing link in Rugby's Cycle Network Plan, giving cyclists better access to Rugby town centre and nearby Avon Valley School.

Supporting the Strategic Road Network

The scheme will improve access to the M6 at Junction 1 and the M45/A45 and wider access to the M1 and A5.

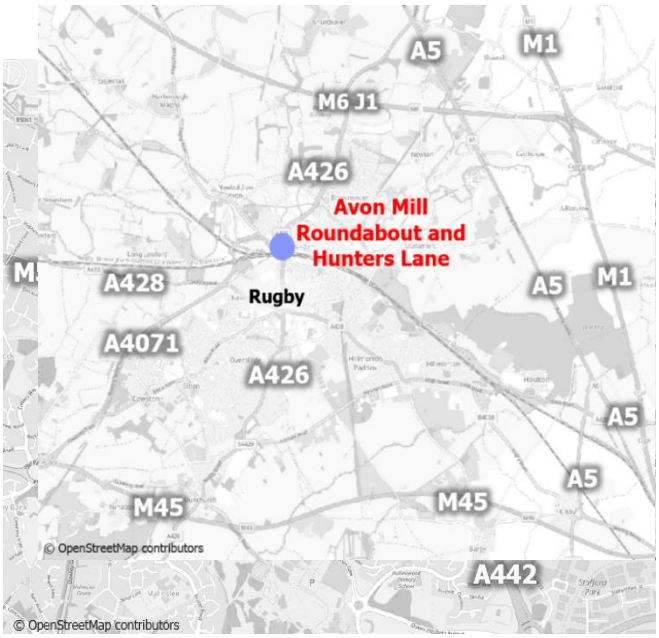
"We look forward to working with Midlands Connect and the Department for Transport to develop the Full Business Case for the scheme and hope to see it implemented as soon as possible."

Councillor Jeff Clarke, portfolio holder for transport and planning, Warwickshire County Council

Queensway Link, Telford

Scheme description

- A new road connection between the M54 and A5/A442, providing a faster connection to the M54 Junction 5;
- Avoids vehicles travelling between the M54 and A442 having to exit/enter at M54 Junction 5 and use local town centre roads to access the A442 Hollinswood Interchange.



Why? The case for investment

Scheme Cost	Strategic Outline Business Case	DfT Funding Request
£39 million		£ 33 million

Supporting economic growth

Nationally important employers such as Epson, Ministry of Defence Donnington, Lyreco and Muller are based in Telford, with Jaguar Land Rover's engine plant close by at M54 Junction 2. Better local and regional connections is therefore vital for these employers and their supply chains to thrive.

Queensway Link was included in a 2010 plan to improve transport links alongside the regeneration of Telford, to help reduce congestion at the M54 Junction 5 and reduce traffic through the town centre by directly connecting the M54 and A442.

Supporting housing growth

Around 2,700 new homes could be successfully delivered if the Queensway Link is completed, towards a total of 17,820 needed by 2031 as set out in Telford & Wrekin's local plan. This new link will improve access to and from new housing sites, such as Priorslee Urban Extension.

Reducing congestion

Queensway Link will help to reduce queues and delays at Forge Roundabout and Hollinswood Interchange, and discourage traffic from exiting the M54 at Junction 6 and using unsuitable local roads to avoid congestion. Traffic also uses town centre roads like Colliers Way and Priorslee Avenue to avoid congestion on A5 Rampart Way, both of which aren't suited to heavy traffic flows.

Supporting the Strategic Road Network

Queensway Link directly connects the Major Road Network to the Strategic Road Network, Telford town centre and the wider borough.

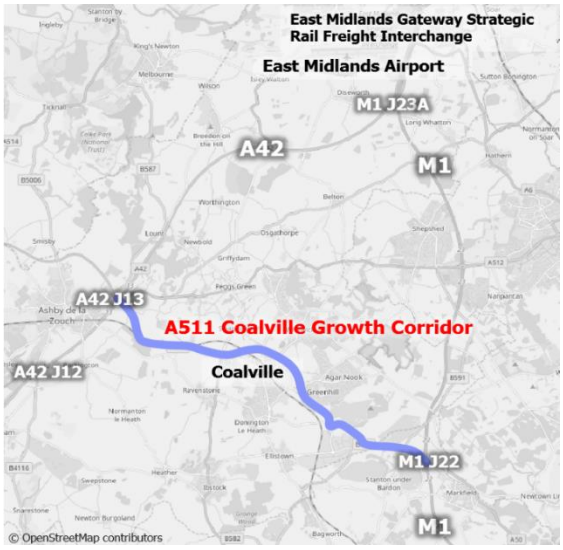
M54 Junction 5 is a designated diversion route for M54 between Junctions 4 and 7. This scheme helps improve the resilience of Telford & Wrekin's road network to help meet its ambitious economic growth targets.

A511 Coalville Growth Corridor, Leicestershire

Scheme Description

- Junction improvements at nine locations between A42 Junction 13 near Ashby-de-la-Zouch to M1 Junction 22;
- Localised widening;
- A new link road, connecting the A511 to Bardon Link Road, creating a new north-south link across Coalville.

Scheme Cost	Strategic Outline Business Case	DfT Funding Request
£49 million		£42 million



Why? The case for investment

Supporting economic growth

The A511 is both a local route through Coalville towards Leicester and an access route for freight traffic, located as it is at the centre of the UK logistics and distribution network. Unreliable journey times cause delays for freight traffic and major local employers including Amazon and Bardon Hill quarry.

North of the corridor, the M1 and A42 provide access to East Midlands Airport, the UK's largest pure cargo airport. Its cargo operation is growing and the UK's largest Strategic Rail Freight Interchange next to the airport is nearing completion. Improving the A511 corridor would support this growth and provide an alternative to the A42 and M1.

Improvements to the A511 are essential in advance of current HS2 proposals for a construction compound at A42 Junction 13, as traffic will be diverted to the A511 during the construction period. Failure to improve the A511 in time would mean the Coalville Transport Strategy can't be delivered until 2035.

Supporting housing growth

Improvements to the A511 Growth Corridor will increase access to thousands of new homes and new employment sites planned around Coalville. The growth corridor is one of five identified in Leicester and Leicestershire Local Enterprise Partnerships' Strategic Economic Plan, with 5,275 homes and 25 hectares of employment land possible along the corridor, if it receives proper investment. 3,500 homes are already committed to the south east of Coalville.

Supporting all road users

There is an air quality management area for Nitrogen Dioxide along the corridor which is caused by emissions from vehicles queuing at junctions. Reducing these queues would cut emissions and improve air quality.

"Coalville is at the heart of a rapidly growing logistics network, and Amazon is already here. Our proposals will help congestion and bus journey times, as well as support the M1 and M42 as a major gateway to East Midlands Airport"

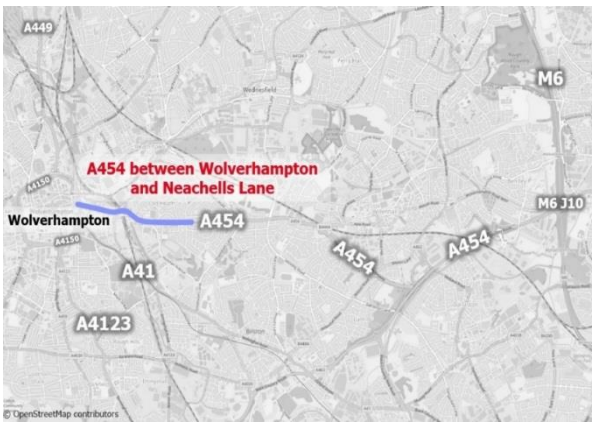
Cllr Blake Pain, lead member for environment & transport, Leicestershire County Council

A454 between Wolverhampton and East Park Gateway

Scheme Description

Significant improvements from Wolverhampton city centre eastwards towards the M6:

- Phase 1: conversion of a section of Walsall Street and Lower Walsall Street to one-way (westbound);
- Phase 2: carriageway widening and a new junction at Hickman Avenue.



Scheme Cost £35 million

Outline Business Case

DfT Funding Request £30 million

Why? The case for investment

Supporting economic growth and housing

The A454 is one of the main routes into Wolverhampton, serving residents, businesses and freight. It is part of two designated regeneration corridors in the Black Country, and improvements will support the new Canalside Quarter and Royal Wolverhampton developments. The scheme is important to make the Canalside development, one of the first "Black Country Garden City" sites, fully accessible.

The A454 corridor is also the spine of the mixed-used East Park Gateway Area, earmarked for 125 hectares of employment land and 1,030 homes.

A marked change in the Black Country highway network is vital to attract and retain businesses and accelerate these new developments.

Supporting the Strategic Road Network

The A454 provides a direct link between the Black Country and the M6 at Junction 10, with onward access to the M5, M42 and M54. Improving this corridor will maximise the benefits of the M6 Junction 10 improvements which are currently under construction.

Supporting all road users

The scheme includes segregated walking and cycling infrastructure, encouraging safer, more sustainable travel along the corridor. The work also improves access to Wolverhampton city centre, including the railway station which is undergoing a major redevelopment.

The scheme also falls within Wolverhampton Air Quality Management Area, so by reducing congestion and providing better walking and cycling routes, the scheme will improve air quality for almost 3,000 homes.

"Businesses in the Black Country are renowned for exporting world class products around the globe, so at a time of increased uncertainty, we must focus on the areas that we are in control of, including improving infrastructure. Birchley Island and the A454 provide crucial links with key routes round the Black Country, but are also frustratingly renowned pinch points."

Corin Crane, Chief Executive, Black Country Chamber of Commerce

A45 Damson Parkway Improvements, Solihull

Scheme Description

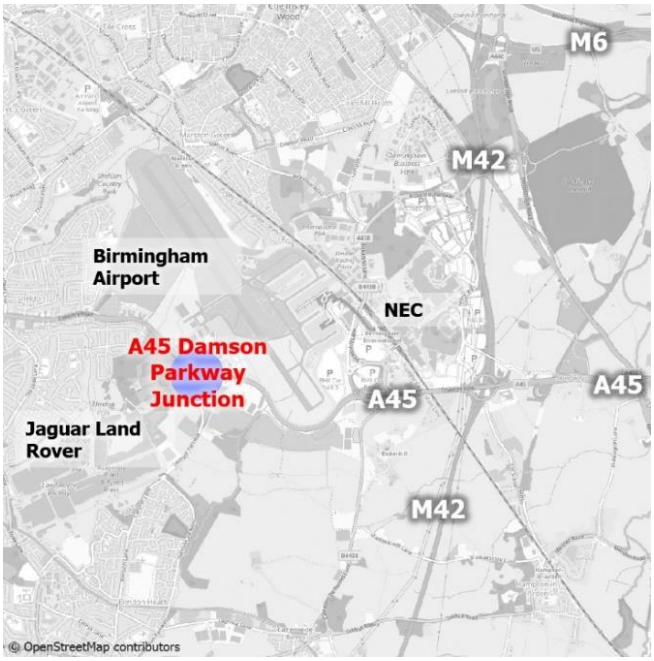
Improvements to a key junction close to Birmingham Airport. Options being considered include:

- Upgrading existing signals;
- Conversion to a roundabout;
- Smaller roundabouts/gyratory.

Scheme Cost £5 - 33 million *Option dependent*

Strategic Outline Business Case

DfT Funding Request Up to £28 million *(Option dependent)*



Why? The case for investment

Supporting economic growth

Damson Parkway is the nearest junction to Birmingham Airport's passenger terminal, sits next to its main cargo entrance, and is part of the main public transport route to the airport. The junction is also close to the National Exhibition Centre, Birmingham Business Park and is the main access point to Jaguar Land Rover's Solihull factory, forming part of the main route between the site and the M42.

Birmingham Airport is the airport of choice for people in the West Midlands, serving 13 million passengers in 2017, making it the third busiest outside London, generating £1 billion a year for the region's economy.

The airport has ambitions to increase passenger numbers to 18 million by 2033 as part of a £500 million expansion plan, bolstered by the airport becoming the first to be HS2-connected in 2026. This will dramatically enlarge its catchment area and generate substantial numbers of new jobs both at the airport, on development sites around it and the HS2 Interchange station.

Improvements to A45 at Damson Parkway will be essential to make sure access to the airport from Birmingham and Solihull is efficient.

Supporting the Strategic Road Network

Damson Parkway junction has an important role in supporting the M42 during incidents and roadworks. The M42 regularly suffers from low average speeds and longer than expected journey times. Improvements to the M42 Junction 6 are currently planned by Highways England and there's a risk that Damson Parkway could become a bottleneck if congestion issues aren't resolved.

Supporting all road users

The scheme provides an opportunity to improve poor cycling and pedestrian access at the junction. Two Sprint bus routes are also planned to pass through the junction.

A614 Ollerton to Lowdham Improvements, Nottinghamshire

Early announcement funding secured

In summer 2018, DfT asked STBs including Midlands Connect to put forward schemes that could be delivered early in the MRN period (2020-2025) and therefore needed an earlier funding decision.

Midlands Connect submitted schemes including the A614 Ollerton to Lowdham, and in October 2018, DfT awarded £18 million to Nottinghamshire County Council.

Scheme Description

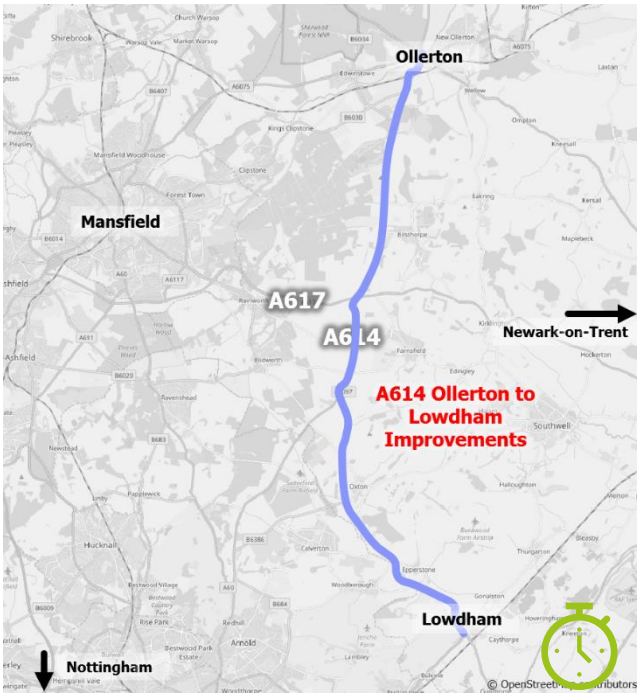
Improvements to six junctions along the A614 and A6097 between Ollerton and Lowdham:

- Enlarging Ollerton roundabout with wider approaches;
- Adding signals to Mickledale Lane and Deer Lane junctions in Bilsthorpe;
- Widening A614 approaches to White Post roundabout;
- New roundabout at A614/A6097 Warren Hill junction;
- Enlarging Lowdham roundabout with new approach lanes on A612 from Burton Joyce and Southwell.

Why? The case for investment

Supporting economic and housing growth

The scheme improves east-west connectivity between Worksop, Mansfield and Newark, and north-south connectivity between Nottingham, Worksop and the M1. The scheme will also make it easier for people in Nottinghamshire towns to access jobs at growth sites including Thoresby Colliery, Edwinstowe (250,000ft^2) and Bingham (15.5 hectares). The scheme also helps mitigate expected increases in traffic generated by new housing developments at Edwinstowe, Ollerton and Bingham.



Reducing congestion

Rush hour congestion is common and queues of 120 vehicles have been recorded at the Ollerton Roundabout, the worst performing of the junctions planned for improvement. Improving the junctions will reduce delays and congestion.

"Nottinghamshire County Council has worked hard with colleagues in Midlands Connect, together with invaluable support from local MPs Ben Bradley and Mark Spencer to press the government for this major new investment…this funding will open up fantastic new opportunities for the county, bringing new jobs, housing and infrastructure to local communities and businesses."

Councillor Kay Cutts, Leader, Nottinghamshire County Council

Midlands Connect

Large Local Major Scheme Priorities

Overview

Within the Investment Guidance, DfT announced that STBs would also be responsible for prioritising Large Local Major (LLMs) schemes, something which was not included in the original consultation document. This chapter sets out the following:

- Key elements of the Investment Guidance of importance to LLMs
- Process adopted to identify LLM schemes for consideration with the programme
- Approach used to assess the performance of each scheme
- List of prioritised schemes along with their justification

Investment Guidance

Eligibility

The LLM programme had previously been a funding route for local highway authority transport schemes that could not be funded through other funding routes such as Local Growth Fund or other devolved funding allocations. This principle has remained, however the guidance also specified that:

- The schemes should be single schemes that can be delivered or justified as a whole rather than being split into phases or smaller elements.
- LLMs do not have to be located on the MRN.
- The minimum cost contribution for potential consideration with the LLM programme is £50 million to align with the upper limit for MRN schemes.
- Only road schemes can be considered for the programme as the LLM programme is now funded through the National Roads Fund. As such, large public transport schemes will need to be funded through other funding sources such as Transforming Cities Fund or Devolution Deals.
- Schemes should aim for a local or third-party contribution of at least 15% of the total scheme cost.

Development Stage

The guidance is clear that LHAs need to be committed to developing their schemes to Outline Business Case stage by the end of 2021 at the latest. It is appropriate for this commitment to be reliant on receiving development funding as DfT will consider providing development funding for schemes selected for progression. The business case deadlines set for the MRN, as shown in Figure 10, are also applicable to LLMs.

Development Funding

As per the MRN schemes, LLM schemes could be eligible for development funding towards their OBC if the SOBC is successful. Schemes that are already at OBC stage could also secure retrospective development funding, although this will be based on the OBC being successful and would be agreed through discussions between DfT and LHAs.

Prioritisation Requirements

STBs have been asked to identify 2 – 3 potential LLM schemes that meet the eligibility criteria and are deliverable within MRN/LLM Period 1. If more than 2 – 3 schemes are identified, then STBs must identify their priorities. The guidance recommended that STBs consider the following as part of their prioritisation process:

- Strategic objectives outlines in the Transport Investment Strategy
- Regional priorities – linking to the Regional Evidence Base, if suitable
- Likelihood of value for money – based on the information available
- Confidence on deliverability

Scheme Identification – Long List

At the start of 2019, we began the process of identifying LLM schemes, for consideration within the prioritisation process, by developing a scheme proforma to capture information in a consistent manner. We received submissions for 9 LLM schemes[15] from LHAs.

Scheme Assessment and Prioritisation

Assessment Criteria

Drawing on the objectives within the guidance and our 2017 Strategy, a two-pronged assessment was adopted:

- Deliverability Assessment: In line with the MRN approach, it was of upmost importance that deliverability was considered as DfT had been clear that schemes needed to start construction during MRN/LLM Period 1.
- Strategic Assessment: Identification of how well the schemes align to the objectives within the guidance and the region's 2017 Strategy. Appendix 5 shows the rationale for the strategic assessment.

Each of the criteria were scored using a three-point scale with qualitative rationale established to guide the scoring. Figure 14 and Figure 15 present the two assessment approaches, along with the definition of each score.

[15] Includes the schemes that were more suitable as a LLM scheme instead of a MRN scheme

Figure 14 LLM Deliverability Assessment Criteria

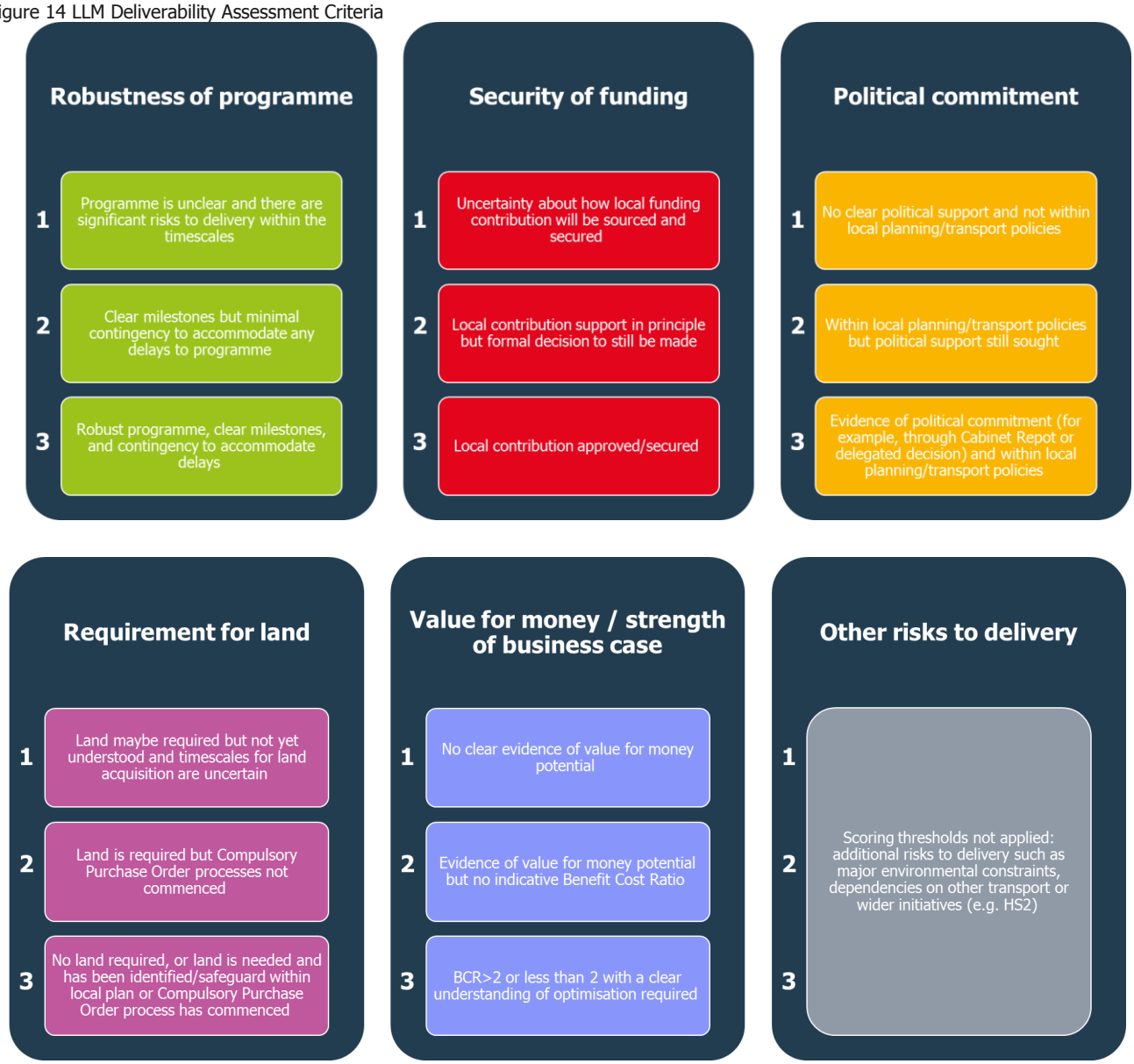


Figure 15 LLM Strategic Assessment Criteria

Assessment Results

The 9 schemes were scored separately by two of the Midlands Connect Technical team and the scores were then moderated by separate team member. The assessment scores were also subject to review from the LHAs promoting the scheme. LHAs were given several opportunities to provide feedback and challenge the assessment by providing further evidence. The scores have also been through our governance processes – Steering Group and Strategic Board, both of which include representatives from DfT.

Table 6 presents the outcome of the assessment and Appendix 6 provides the scores for each of the Tranche 1 schemes. The two highest performing schemes are North Hykeham Relief Road and Hereford Bypass. There next two highest performing schemes have the same scores and are joint-third. These are Chesterfield-Staveley Regeneration Route and City East Link Road.

Table 6 Assessment Results

Scheme Name	Promoting local highway authority	Assessment Result
North Hykeham Relief Road	Lincolnshire County Council	Prioritised scheme (Tranche 1)
Hereford Bypass[16]	Herefordshire County Council	
Chesterfield-Staveley Regeneration Route	Derbyshire County Council	
City East Link Road	Stoke on Trent City Council	
5 schemes were identified as Tranche 2. These will be reconsidered when developing our MRN Period 2 Programme. If a Tranche 1 scheme is unable to progress and a Tranche 2 scheme has been independently accelerated by the Scheme Sponsor to a point where they can demonstrate its deliverability within Period 1, then Midlands Connect may support the promotion of the Tranche 2 scheme.		

Given that there were more points available for the strategic alignment assessment (total of 21) than deliverability (total of 15), the overall scores were naturally weighted towards strategic alignment. It is critical that the investment programme we submit is deliverable within MRN/LLM Period 1. As such, we varied the weightings given to the two assessments to understand if the same schemes would still be identified as priorities.

When the importance of strategic fit and deliverability were adjusted, the two highest scoring schemes (Hereford Bypass and North Hykeham Relief Road) were insensitive to changes in the weighting, emphasising the strength of these schemes for inclusion in the programme. Chesterfield-Staveley Regeneration Route and City East Link Road were largely insensitive to changes in the weighting and only in the most extreme weightings were these schemes impacted. Varying the weightings given to the two assessments confirmed that we had identified the most deliverable schemes that also support regional priorities.

The guidance specifies that 2 – 3 LLMs should be submitted, however our assessment was unable to identify a top 3 as the top 4 schemes performed similarly. Given that we have only identified 7 MRN schemes when we have been asked to identify up to 10 schemes, we consider it appropriate to replace our shortfall in MRN schemes with an additional LLM scheme.

[16] Scheme currently under review by Herefordshire Council

Prioritised Schemes

The total cost of the prioritised LLMs from the Midlands Connect partnership (based on capital costs within the proformas/business cases) is £485m, with £386m requested from DfT to enable the delivery of the schemes. Table 7 shows the business case stage that each scheme is at, when the scheme is currently anticipated to open, the scheme cost and funding request, and Figure 16 presents the location of the schemes.

Table 7 Priority Schemes

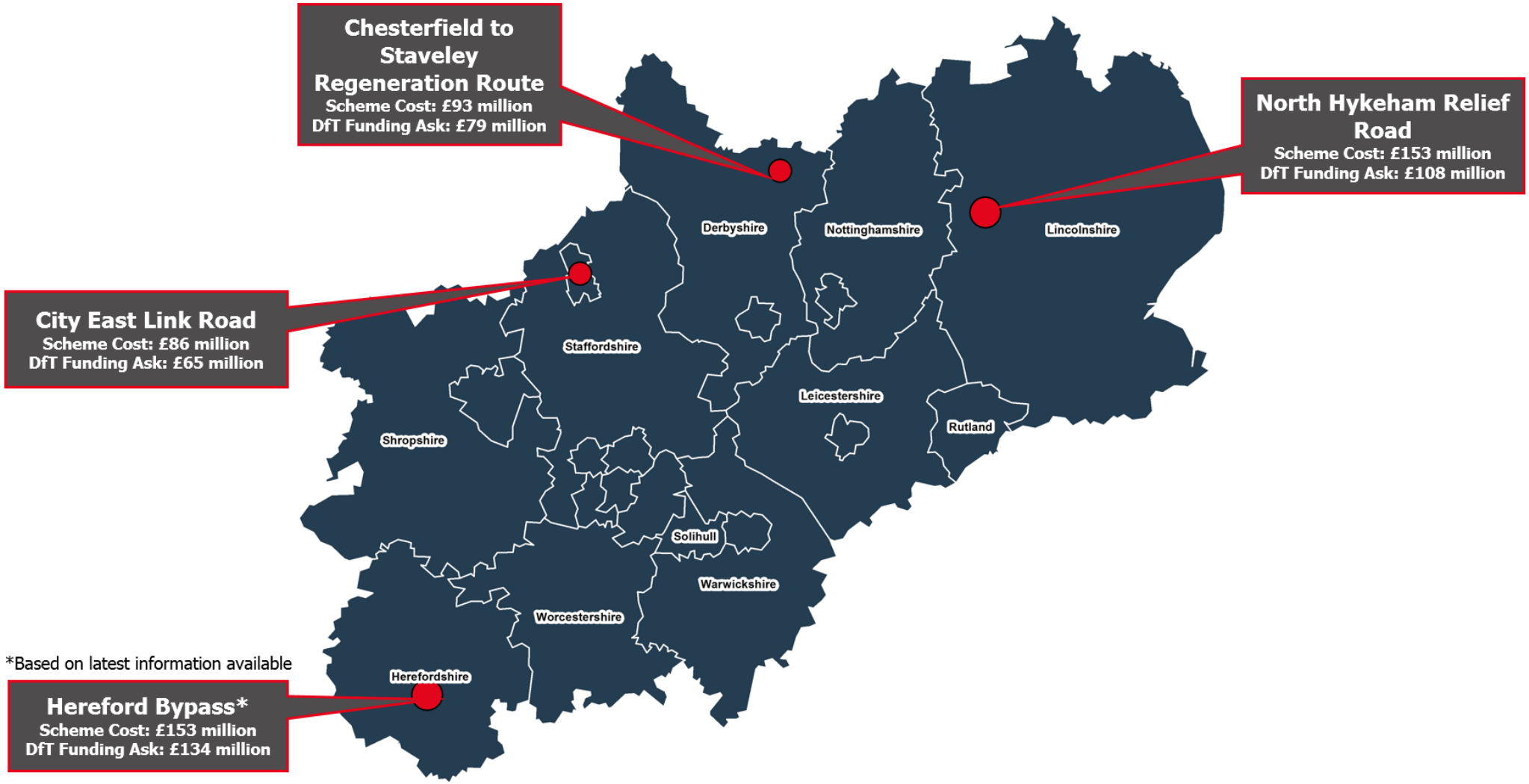
Scheme Name	Scheme Development Stage	Scheme Opening Year	Estimated Capital Cost (£millions)	MRN Funding Ask (£millions)
North Hykeham Relief Road	OBC	2026	£153	£108
Hereford Bypass[17]	SOBC not submitted	2024	£153	£134
Chesterfield-Staveley Regeneration Route	SOBC	2025	£93	£79
City East Link Road	SOBC	2025	£86	£65
Total			£485	£386

The following pages provide more information on the prioritised schemes and explain how they support the region and LLM objectives. Scheme costs within the summaries are also capital cost and both the funding request and scheme cost have been rounded to the nearest £million. Appendix 7 provides a high-level summary of flows on the network in the scheme vicinity, as sourced from the MCHM.

[17] Based on the most recent information available (May 2019), scheme under review and SOBC has not been submitted at this time.

Midlands Connect

Figure 16 Prioritised Large Local Major Schemes



*Based on latest information available

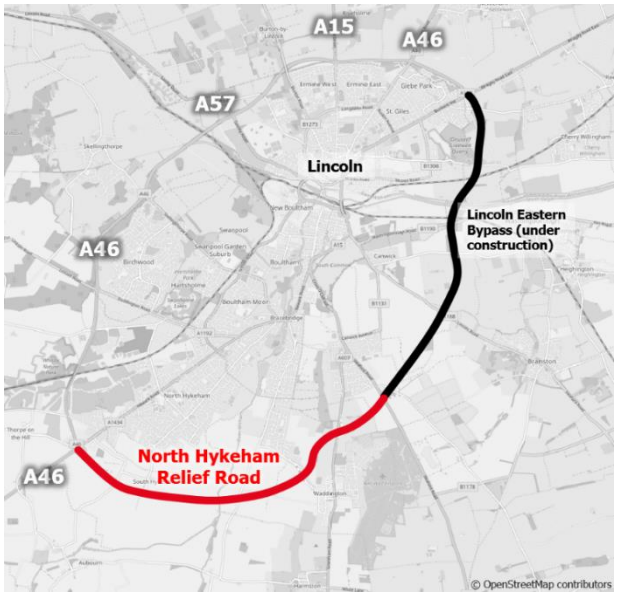
Note: Hereford Bypass is currently under review by Herefordshire Council

North Hykeham Relief Road, Lincolnshire

Scheme Description

- A new link to the south of Lincoln, connecting the A46 in the west to the A15 Lincoln Eastern Bypass, which is currently under construction;
- Includes four new junctions and completes the orbital ring road around Lincoln.

Scheme Cost	Outline Business Case	DfT Funding Request
£153 million		£108 million



Why? The case for investment

Supporting economic growth

The new route would improve access to ports at the Humber and Felixstowe, so vital to the Midlands and UK's export economy, with 95% of all exports travelling by sea. The existing A46/A15 is the main alternative to the A1 north towards the Humber ports, but is regularly congested, especially around Lincoln.

Lincoln is also affected by holiday traffic travelling to the Lincolnshire coast. Any incidents on the A46, A15 and A158 can cause major disruption because of the lack of alternative routes. A new route would therefore support Lincolnshire's tourism economy.

The scheme will also support five hectares of new employment land due to be delivered by 2036.

Supporting housing growth

There are plans for a 50% increase in the number of homes in Lincoln by 2036. Without this scheme, these targets will be difficult to reach, and it won't be possible to deliver the 2,000-home South West Quadrant housing development.

Supporting the strategic road network

The route would provide direct access to the A46 to the south west of Lincoln and offer an alternative north-south and south-north route from the A46. Midlands Connect is prioritising upgrades to the wider A46 corridor after identifying it as one of the country's most important trade routes. This scheme will help improve the resilience of the A46 to the west of Lincoln as part of a 20 year strategy to transform the route along its 155 mile length.

Supporting all road users

Congested routes around Lincoln leads vehicles to use smaller rural routes instead, causing noise, pollution and access problems for residents. This new high-standard route would alleviate some of these diversions.

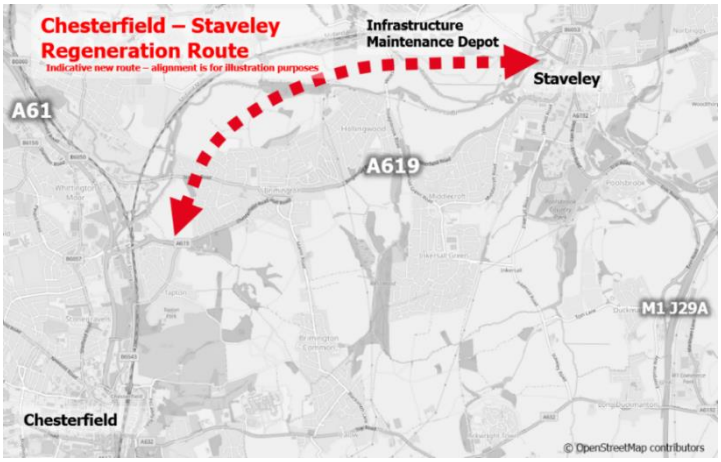
"We're glad to have Midlands Connect's support in pushing this project through and ensuring the region gets its fair share of the £3.5 billion investment pot available over the next five years"

Councillor Martin Hill, leader of Lincolnshire County Council

Chesterfield to Staveley Regeneration Route, Derbyshire

Scheme description

- New single carriageway, approximately 5.7 kilometres long, connecting the A619 north of Chesterfield town centre to the A6192 and A619 at Staveley;
- Alternative route to the existing A619, a single carriageway with variable speed limits (30/40mph) connecting Chesterfield to the M1.



Scheme Cost £93 million

Strategic Outline Business Case

DfT Funding Request £79 million

Why? The case for investment

Supporting economic growth

The regeneration of the Staveley Works Area following the decline of the mining, iron and steel industries is already a top priority for Derbyshire County Council. The area has already been invested in and it's part of a regeneration corridor in the Chesterfield local plan.

The new route is critical to the North Derbyshire Growth Zone with 5,700 new jobs earmarked in the Staveley and Rother Valley Corridor Area Action Plan.

The route also provides access to the proposed HS2 Infrastructure Maintenance Depot at Staveley, integral to Midlands Connect's priority of maximising the opportunities presented by HS2.

Regionally, the route will be an important connection to Derby and Nottingham to the south and the Peak District to the north.

Supporting new housing growth

The route will support 1,800 new homes through the Area Action Plan.

Supporting all road users

An Air Quality Management Area was designated in Brimington due to congestion on the A619 during rush hour. Removing traffic from the A619 will improve air quality.

The new route includes new crossing facilities and bridleway improvements for cyclists and pedestrians, and real time passenger information for public transport.

Moving traffic from the A619 to the new route will make the five regular bus services that use the A619 more reliable, encouraging more people to use public transport.

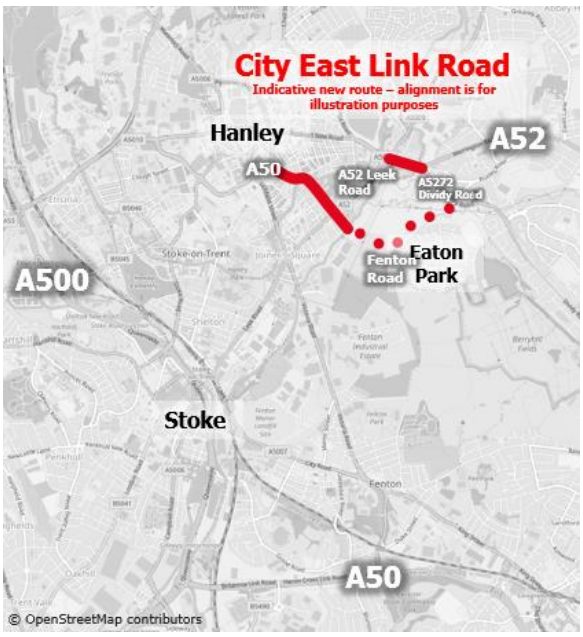
Supporting the Strategic Road Network

The existing A619 forms a corridor between the A61 and M1 Junction 30, which is a designated diversion route during incidents on the M1 Junction 29 to 30. The new, higher standard route would be another, more reliable alternative during disruption on the M1.

City East Link Road, Stoke-on-Trent

Scheme Description

- A new link to the south east of Hanley, with junction improvements, between A52 Leek Road and A5272 Dividy Road;
- Southwards spur to Eaton Park housing estate and Fenton Park industrial estate.



Scheme Cost	Strategic Outline Business Case	DfT Funding Request
£86 million		£65 million

Why? The case for investment

Supporting economic growth

Stoke-on-Trent and Staffordshire Enterprise Partnership has identified better connectivity as important to improving the overall attractiveness of the area for investment. The scheme would provide better access to employment sites in the city.

Reducing congestion

Existing routes such as the A50, A52, A5008 and A5272 suffer from significant congestion and delays. This new route will relieve congestion at critical pinch points, particularly where the A50 meets the A500. This will help to improve air quality and the noise impact of traffic. Stoke-on-Trent has been an Air Quality Management area since 2006 and is under Ministerial Direction to submit a plan to improve air quality by the end of 2019.

Supporting the Strategic Road Network

Journeys on the A50 can take three times longer than expected at peak times, with average speeds below 40mph. The scheme would support the A50 between Meir Interchange and Sideway Junction (A50/A500) and the A500 between Sideway and City Road by providing a more reliable diversion route during incidents and roadworks on the A50 and A500.

Supporting all road users

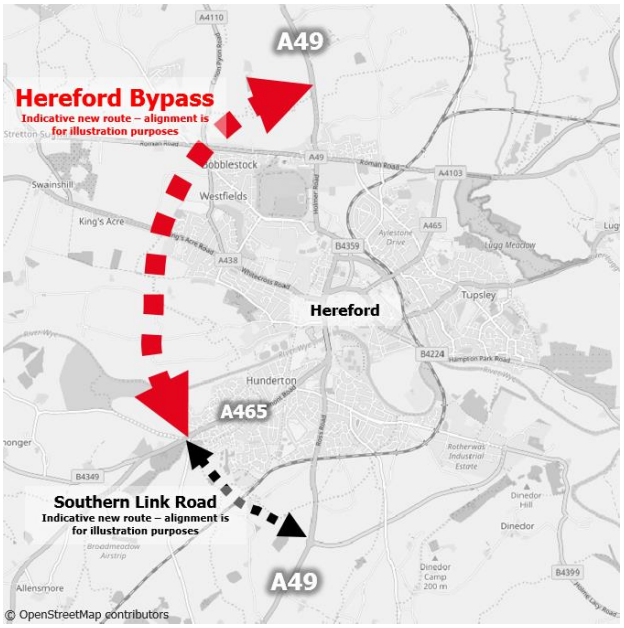
The scheme will lead to significant reductions in bus journey times using the Bucknall Road corridor as other vehicles divert to the new link road. The scheme includes new footpaths and dedicated cycle facilities, creating a direct link to the city centre from employment and residential areas to the south and east of the city.

Hereford Bypass, Herefordshire*

Scheme description

- A new route to travel between the north and south of Hereford, bypassing the town and connecting the A465 to the south west, with the A49 to the north;
- Tied in to the Southern Link Road, which would connect the A49 to the south of Hereford with the A465.

Scheme Cost	Submission to be confirmed	DfT Funding Request
£153 million		£134 million



Why? The case for investment

Supporting economic growth

Highways England has identified the bypass as essential to deliver the Three Elms employment site which, alongside the Hereford Enterprise Zone, could create 4,000 new jobs. The development of the enterprise zone is currently restricted because of the lack of capacity on the A49 through Hereford.

Supporting housing growth

The Local Plan Core Strategy includes 3,250 new homes by 2031, without the Southern Link Road. An extra 1,500 homes are possible with the Southern Link Road, with the remaining 1,750 relying on the delivery of Phase 2 of the Hereford Bypass (this submission). Post 2031, another 4,300 homes can be delivered but only with the full bypass in place.

Supporting the Strategic Road Network

The bypass connects to the existing A49 which is part of the SRN. The bypass is likely to become part of the SRN and a diversion route for the existing A49 trunk road through Hereford. The A465 to the south west, which the bypass could connect to, is currently a diversion route for the existing A49 to the south.

Supporting all road users

The Hereford Transport Package of which the bypass is part also includes improvements to walking, cycling, bus and public spaces to give residents more choice about how they travel. Taking traffic off the A49 through Hereford will reduce vehicle emissions and improve air quality.

*Following a change in administration, Herefordshire Council is reviewing the Hereford Bypass and Southern Link Road to determine next steps. A further decision will be made before the end of 2019.

Midlands Connect

2020-2025 Midlands Connect Regional Road Programme

Overview

The MRN and LLM schemes identified in this REB are only part of the road programme for the Midlands from 2020 – 2025. Formal inclusion of MRN and LLM schemes within our road programme will be subject to secure funding from DfT, however there are schemes in the Midlands that have funding committed (subject to business case approval as they develop) on the LHA managed roads and the SRN.

Developing a comprehensive road programme allows Midlands Connect to identify when parts of the network will be subject to potential construction disruption to avoid overlaps, how the improvements align at a regional level (e.g. are the schemes geographically concentrated) and, if and where, there are future 'gaps' in investment. It also helps to demonstrate that the region is securing its fair proportion of road investment.

There are five categories of schemes in the Midlands' road programme as shown in

Figure 24. The type of scheme is determined by its location (MRN, LHA managed roads or SRN) which drives the funding source.
As the MRN/LLM Period 1 covers 2020 – 2025, only road schemes that will be start construction or be completed post 2020 have been included. This is to provide the best reflection of investment during MRN/LLM Period 1.

Figure 17 Categories within the overall road programme

Committed Major Local Road Schemes

There are several schemes on LHA managed roads that have provisionally secured funding (subject to business case approval) through the Local Growth Fund or previous LLM Programme that are significant in size and need to be recognised within our programme. For these schemes, the road programme has been developed through engagement with DfT and the LHAs responsible for managing the network in the scheme location. The programme presented is indicative, based on the latest information available, and could be subject to change as the schemes progress through the business case stages. The Major schemes programme is shown in Figure 20.

Road Investment Strategy

The Road Investment Strategy (RIS) sets out Highways England's long-term plans for the SRN. The RIS is divided into five-year periods, with the first RIS covering the period from 2015 to 2020 (referred to as RIS1), and the next RIS period (RIS2) covering 2020 – 2025.

RIS 1

Within RIS1, Highways England set out a list of schemes for delivery and further development work, with £15 billion committed as part of RIS1. To inform the region's programme for 2020-2025, we have reviewed the schemes committed within RIS1 which are to be constructed during RIS2 and have engaged with Highways England and undertaken desktop research to identify the current status of the schemes. Only RIS1 schemes that are due to open beyond 2020 are included in our programme. The RIS1 committed schemes are shown in Figure 21.

RIS 2

With a record £25 billion being invested in England's SRN over the next five years, the Midlands must see the benefit of the increase in funds available. The plans for RIS2 are still to be announced by Highways England.

There were four schemes in the Midlands that were developed in RIS1 but did not have a commitment for construction during RIS2. The four schemes are shown in

Figure 18 RIS 1 development schemes for delivery in RIS 2

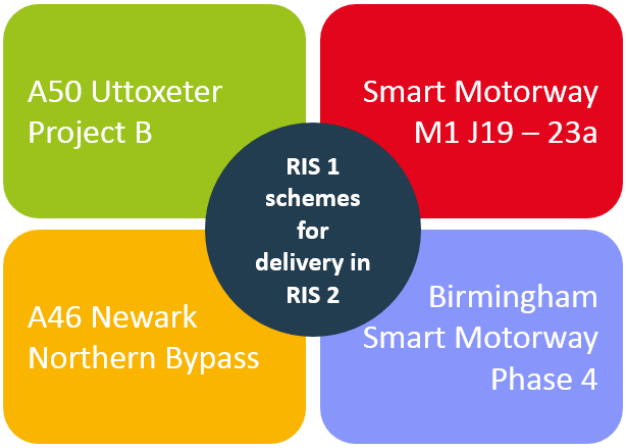


Figure 24. These schemes would add value to the region and Midlands Connect are committed to working with Highways England to secure their delivery during RIS2. We have not included these schemes in our road programme as we do not yet have an indication of their status or potential programme of works.
Alongside seeing the delivery of the four schemes, Midlands Connect would like to work with Highways England to identify other schemes that could be delivered during RIS2. It is important that both organisations also work together to develop a longer-term approach to corridor master planning (e.g. RIS3) to get the greatest economic and social benefits out of the region's transport system.

We produced a document earlier in 2019 which set out our priorities and expectations from RIS2; which can be found here:

https://www.midlandsconnect.uk/publications/ris2-priorities/

Major Road Network fund asks

The MRN programme (Figure 22) comprises the 7 prioritised schemes and the early announcement scheme. The indicative road programme is based on information within each business case developed by LHAs for submission to DfT. The scheme programmes presented are indicative and dependent on securing funding and refinement to programmes as the schemes progress.

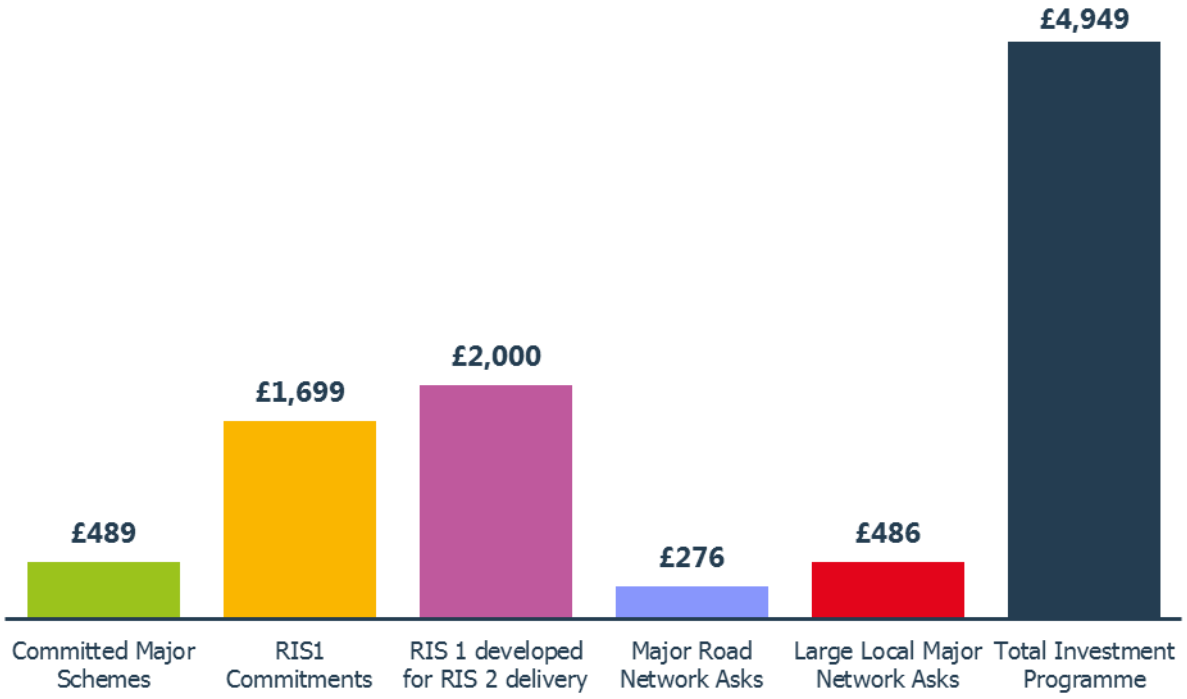
Large Local Major Scheme fund asks

The LLM programme (Figure 23) comprises the 4 prioritised schemes. As per the MRN schemes, the indicative road programme is based on information within each business case developed by LHAs for submission to DfT. The scheme programmes presented are indicative and dependent on securing funding and refinement to programmes as the schemes progress.

Total Investment Value Potential

Using information available from LHAs, Highways England and desktop research, it has been possible to approximate the value of investment in the region. Figure 19 shows the total cost of schemes by category. The cost of MRN schemes includes A614 Ollerton to Lowdham Improvements.

Figure 19 Total potential cost of the Midlands Connect area Roads Programme for 2020-2025[19]

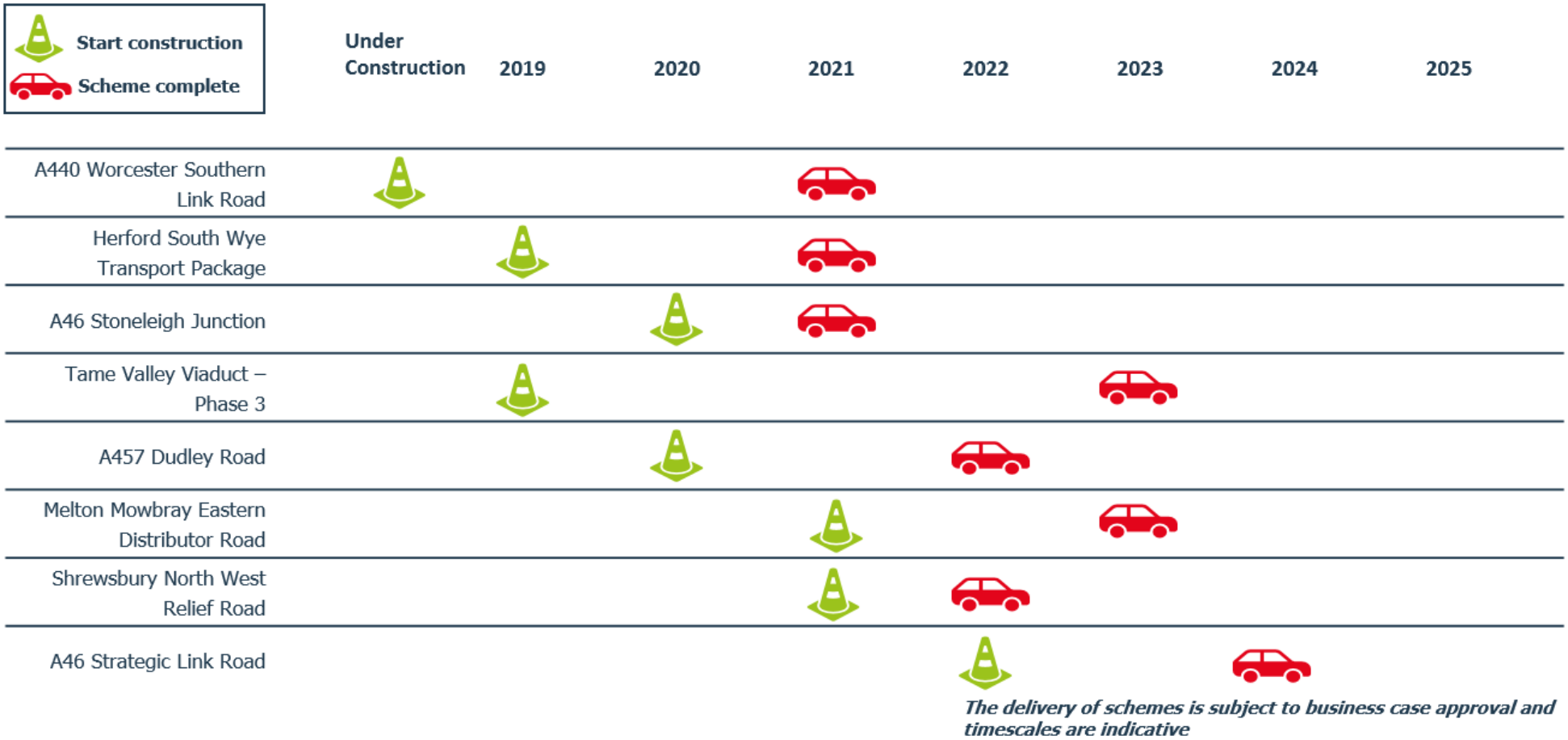


[19] Indicative scheme costs have been used for the 'RIS1 developed for RIS2 delivery' category, where no formal information yet exists.

Midlands Connect

Committed Major Road Schemes Programme

Figure 20 Major schemes programme [20]



[20] South Wye Transport Package currently under review by Herefordshire Council

Midlands Connect

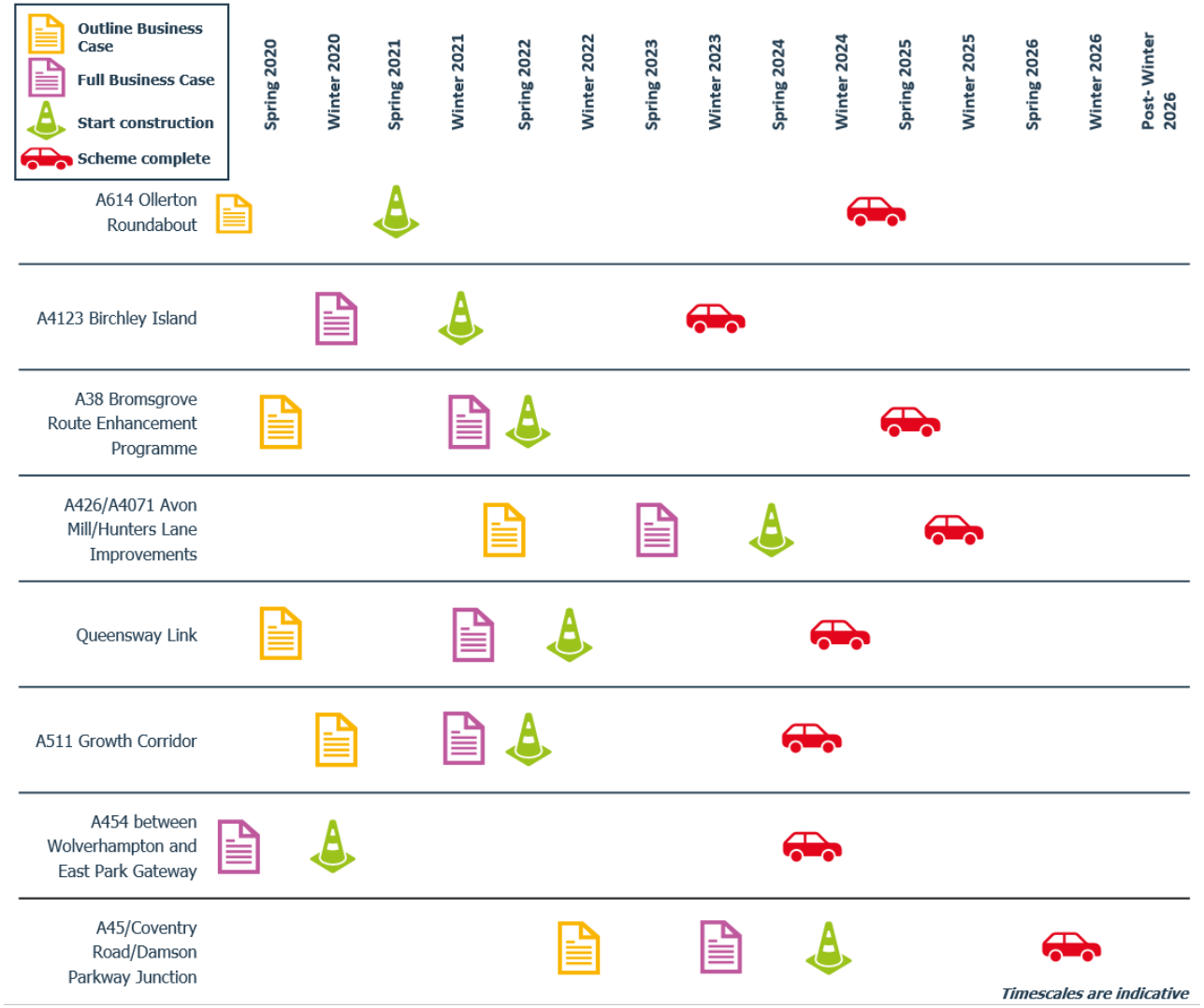
RIS 1 Commitments Programme

Figure 21 RIS 1 Commitments due to complete post-2020

Midlands Connect

Major Road Network Fund Asks Programme

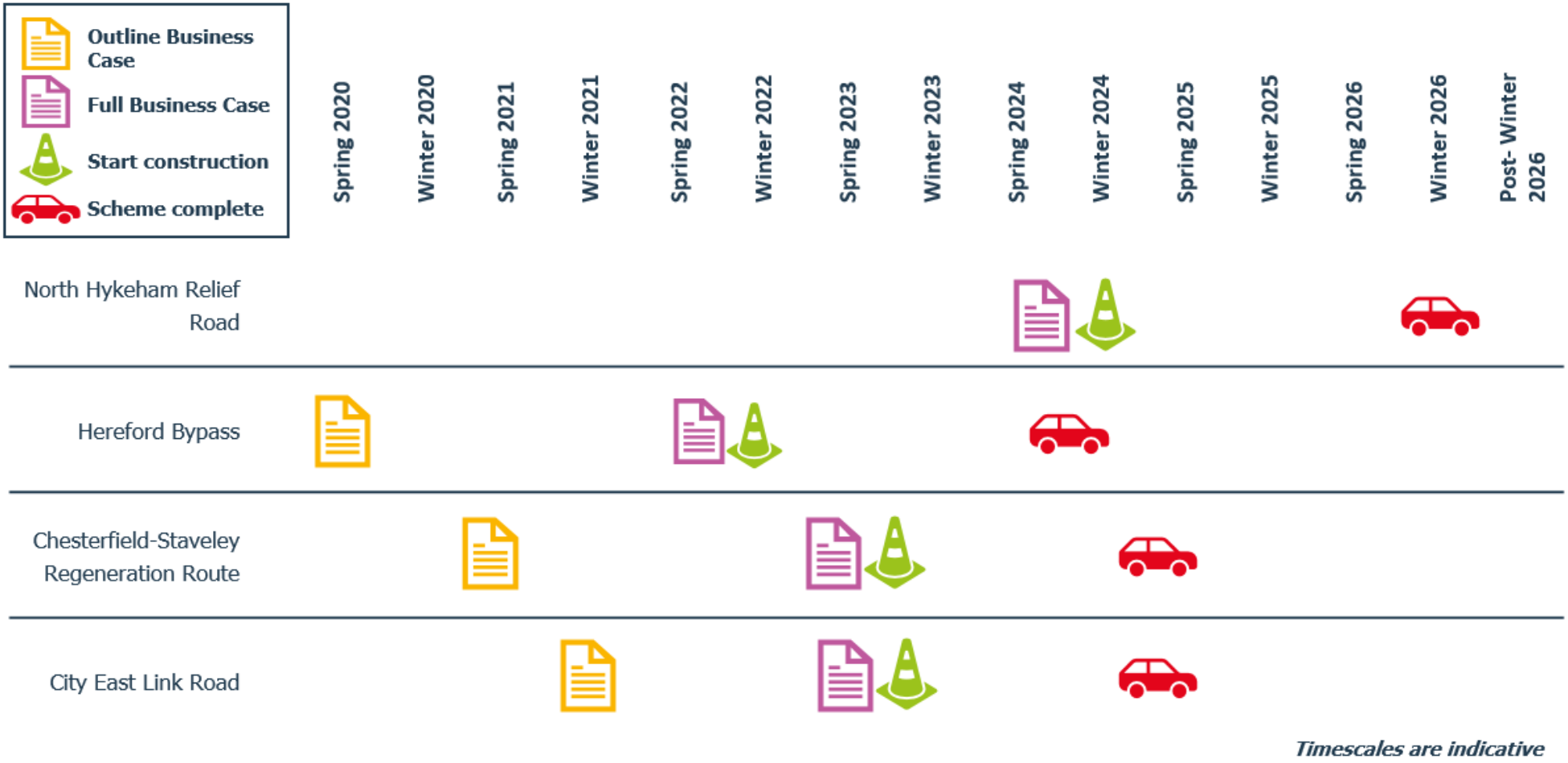
Figure 22 Major Road Network programme (including early announcement)



Midlands Connect

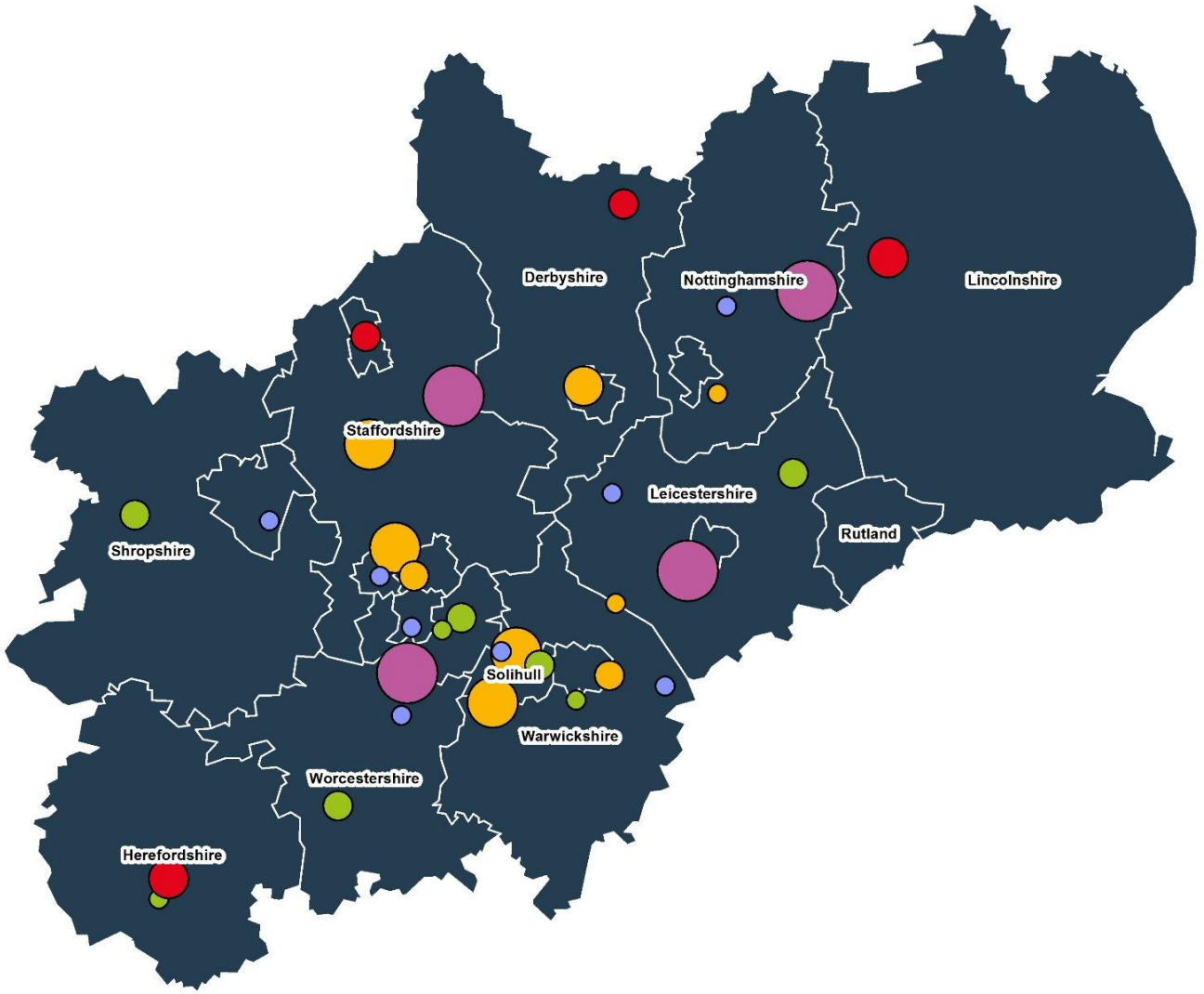
Large Local Major Scheme Fund Asks Programme

Figure 23 Large Local Major programme [21]



[21] Hereford Bypass currently under review by Herefordshire Council

Figure 24 Midlands Connect Road Programme (2020 – 2025)



Scale

<£50 million

£400 million +

Midlands Connect Road Programme 2020 – 2025

£5 billion

Midlands Connect

Technology Strategy

Role of Technology on the MRN

We are developing a MRN Technology Strategy, with the intention that it highlights how technology can be part of the toolkit for meeting the objectives set for the MRN. Technology-based improvements typically focus on smarter-thinking and decision-making, reducing the impact of travel on the environment and improving travel times and reliability without major physical infrastructure. All of which, would contribute to the objectives of the MRN.

The Investment Guidance states that variable message signs, traffic management and the use of smart technology and data to raise the performance of the network could be eligible for funding. However the funding thresholds restrict the opportunities for these improvements to be delivered in isolation. Currently DfT guidance states that only schemes on the MRN with a typical value of between £20 and £50 million are eligible for funding. This, inevitably, excludes the opportunity for technology solutions to come forward in their own right; albeit they could form part of a larger and more traditional infrastructure scheme.

We believe that there are technologies that could make a significant improvement to the performance of the MRN at a cost considerably less than £20 million. For example, in an urban setting a new technology is emerging which communicates an optimal speed for HGVs to travel at to reduce the number of red signals hit at junctions. This 'Green Light Optimal Speed Advice' (GLOSA) has been shown to have significant benefit to the average speed of HGVs and importantly reducing the amount of time they spend slowing down, speeding up and idling at junctions. In turn this reduces air quality impacts and has a knock-on impact to congestion and reliability for all road users. The outcomes of this technology all fit perfectly with the DfT's stated objectives for the MRN; but under its current rules it is ineligible to receive funding from the MRN pot as it would be a far smaller than the minimum scheme cost threshold.

Our MRN Technology Strategy will be used to highlight the role that this type of intervention can have and to lobby Government to reconsider its rules on what is eligible for funding. We will also use the strategy to identify where technology could be used to complement and add value to more traditional infrastructure options which are currently eligible for funding.

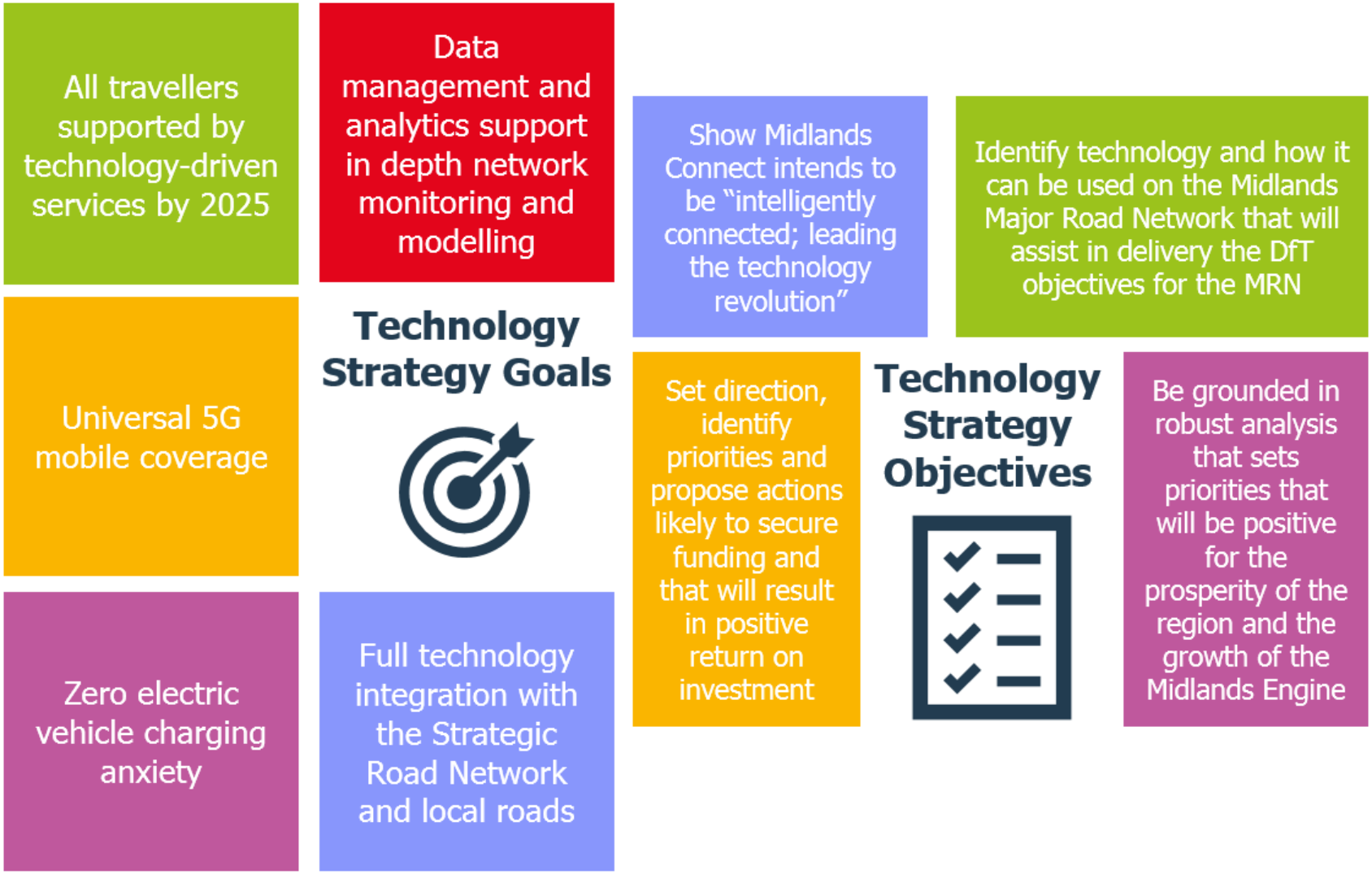
Strategy Objectives and Vision

Using a group of officers from across our partnership we have developed the following vision and objectives for the MRN Technology Strategy:

"Throughout the Midlands' Major Road Network standards of technology deployment will be consistent, seamless and contribute to the overall objectives of the network."

The point about consistency and seamlessness is an important one for consumers of technology and the vision can be further translated into the goal. Taking this vision, the Strategy should meet the bespoke objectives. The goals and objectives of the Strategy are shown in Figure 25.

Figure 25 Technology Strategy Goals and Objectives



Emerging Findings

Although not complete at the point of submitting this Regional Evidence Base, the Technology Strategy has identified both a long and short list of potential solutions which meet the above objectives. The technologies in Table 8 have been identified as important first-stage investigations as to where and when they can provide benefit to the future direction of the MRN.

Table 8 Emerging technologies to investigate further

Technology / Project
Provision of communications coverage (5G / 4G / IoT / comms)
Connected Vehicles service preparation and support
Variable Message Signs to provide driver information and a more optimal use of existing MRN capacity
HGV GLOSA (Green Light Optimal Speed Advice)
"Digital Roads" – data exchange, standards and asset management records
Road works and diversion route data collation and dissemination; particularly

The intention from this point is to identify where in the network these technologies could provide benefit and work with local highway authorities to develop pilots and programmes with which to approach DfT to see if funding can be made available. This work will be done as part of the overall Midlands Connect Strategy Re-fresh; happening from the start of FY 2020/2021.

Midlands Connect

What next?

Scheme development and delivery

Midlands Connect will not be the delivery body for any of the prioritised schemes identified in this REB. As the owners and operators of the roads and the scheme promotors, the LHAs will now continue to develop the schemes through the various stages of DfT business case to secure the funding and then, if successful, deliver the physical infrastructure.

Longer-term programme

This REB represents our partnership's first submission seeking funding for its infrastructure priorities under the 'Major Road Network' and 'Large Local Major' heading. For the reasons set out in this report, this first iteration has largely been focused on ensuring that we can present a credible, deliverable programme for the funding period 2020-2025. However, this has meant that we have not necessarily identified a programme that seeks to maximise both the national and regional objectives for the MRN/LLM.

In developing the REB, it would have been preferable if there were a wider pool of schemes available that met a minimum threshold for development and understanding, so that each could credibly come forward in the same programme period. Then Midlands Connect could have prioritised and promoted a programme which best met the regions needs from the network perspective. This has not been achievable for the MRN/LLM Period 1, largely because LHAs have had severe cuts to their available funding in recent years and therefore have not been able to invest in early-stage scheme development. Ultimately this means there has been a very small pool of potential schemes, sufficiently developed to credibly demonstrate they can be delivered between 2020-2025, available for the Midlands Connect Partnership to prioritise.

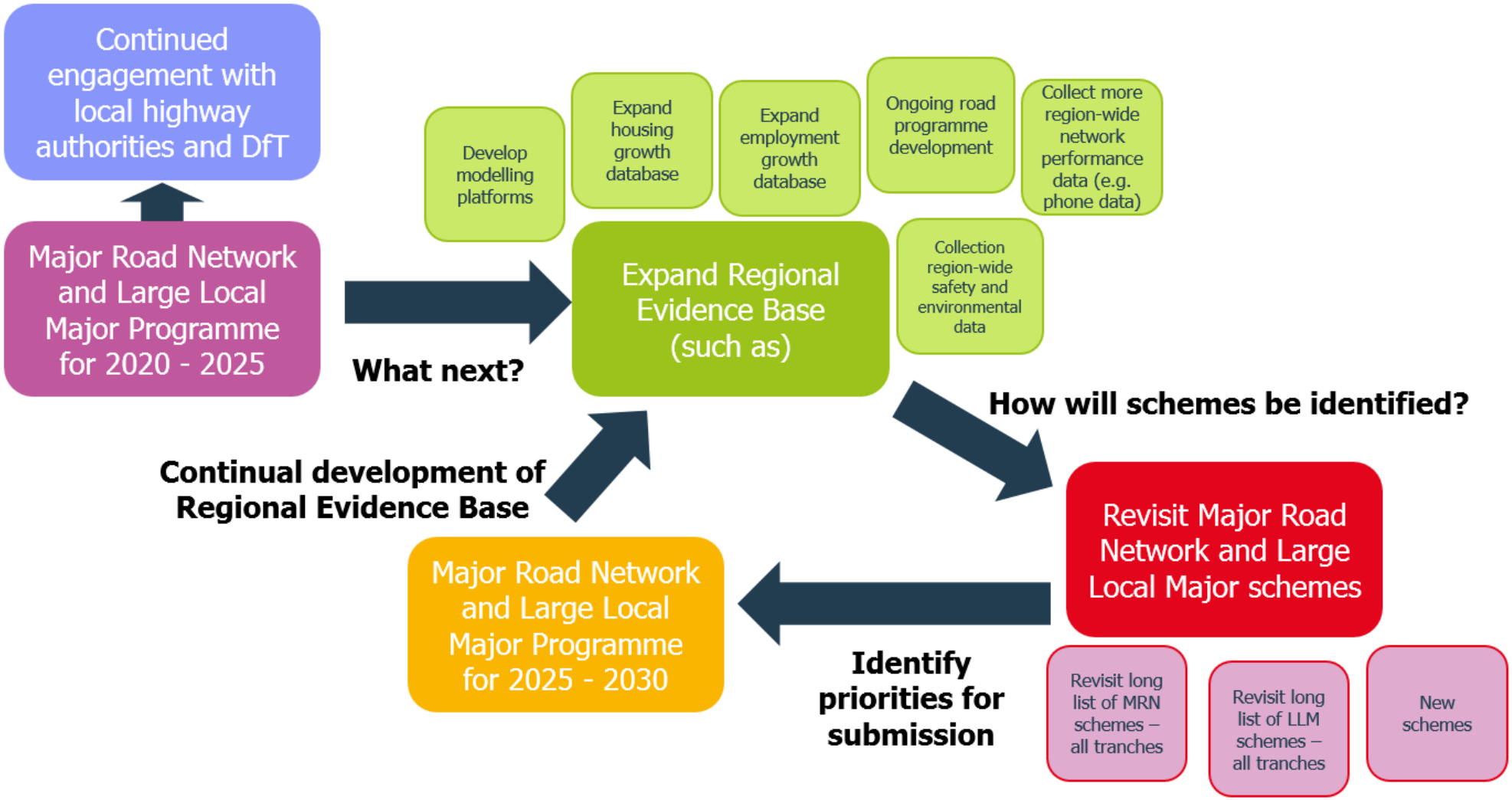
It is our intention to work with local authority partners and scheme promotors as part of the overall refresh of the Midlands Connect Strategy to firstly ensure that we have a wider pool of potential investable schemes for the next funding period (2025-2030) and then to develop an outline programme/sequencing strategy over a longer delivery time period.

To do so we will undertake a number of steps:

- We will lobby the DfT to provide early-phase development funding for authorities to develop MRN schemes to a base level of understanding; to ensure that we have a wide pool of potentially deliverable schemes to choose from.
- We will enhance our evidence base further, particularly on our transport model and understanding of near-future development growth.
- We will use the MRN Technology Strategy to identify pilots and programmes which may be across multiple local authorities.
- We will, at a high-level, undertake an overview of the current and future performance and needs of each of the 113 MRN routes identified in our regional MRN.
- We will match the strategies at a route level to the identified database of scheme opportunities (currently standing 81 identified opportunities across the region) provided by LHAs to determine where there may already be thoughts on future interventions.
- We will begin to assess the full long list of opportunities against their ability to come forward in the next funding period (assumed to be 2025-2030) and how they meet strategic objectives for the MRN.

The end result of this exercise will be that the next iteration of the MRN/LLM REB (likely required around 2023 for input to the 2025-2030 MRN/LLM programme) and Midlands Connect priorities will have a strong basis on what the region needs. An overview of the process is shown in Figure 26. We will also have developed a clear pipeline of MRN programme over a longer-term; which can be reassessed at regular intervals.

Figure 26 Preparing for the next MRN/LLM funding period



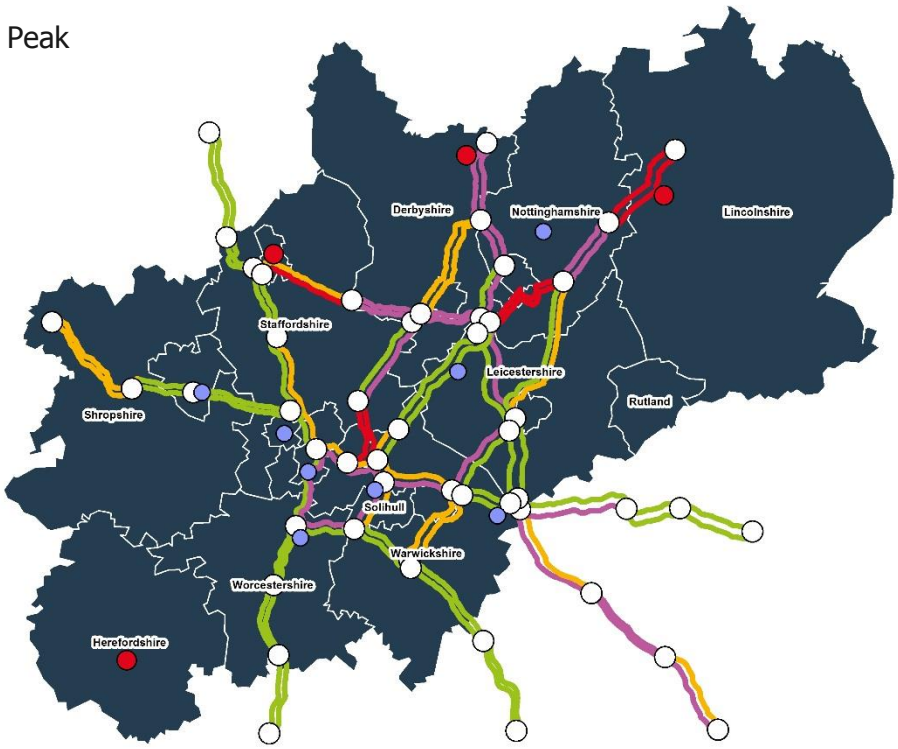
Appendices

Appendix 1: Technical Evidence

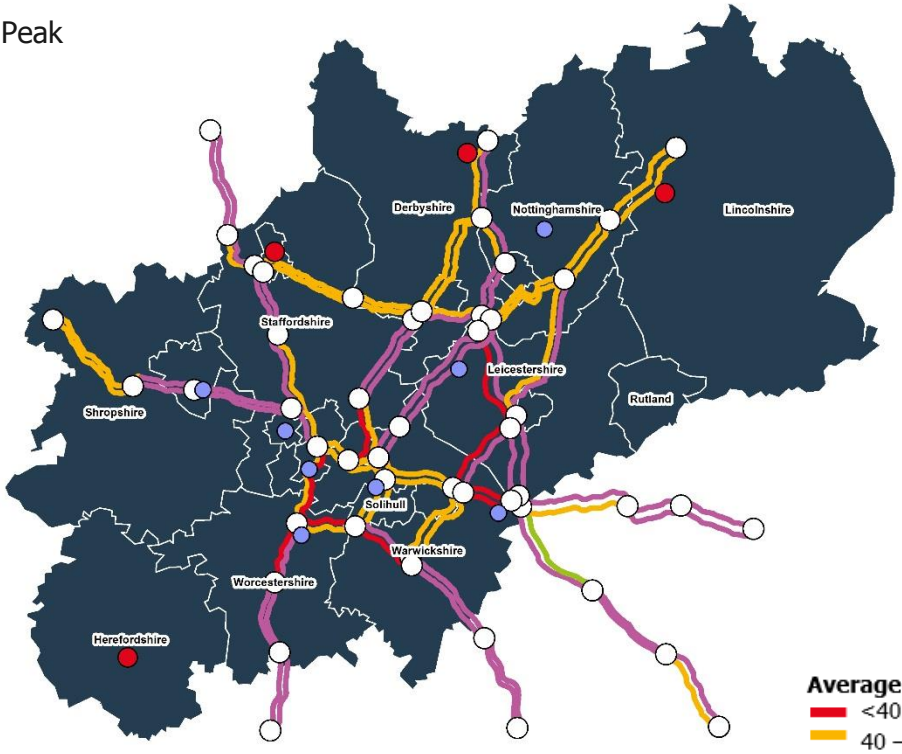
Average speed on the SRN

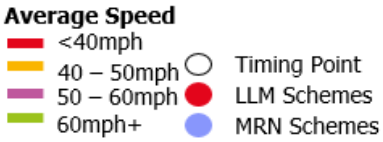
Figure 27 Average Speed on SRN (Source: TomTom): AM and PM Peaks

AM Peak



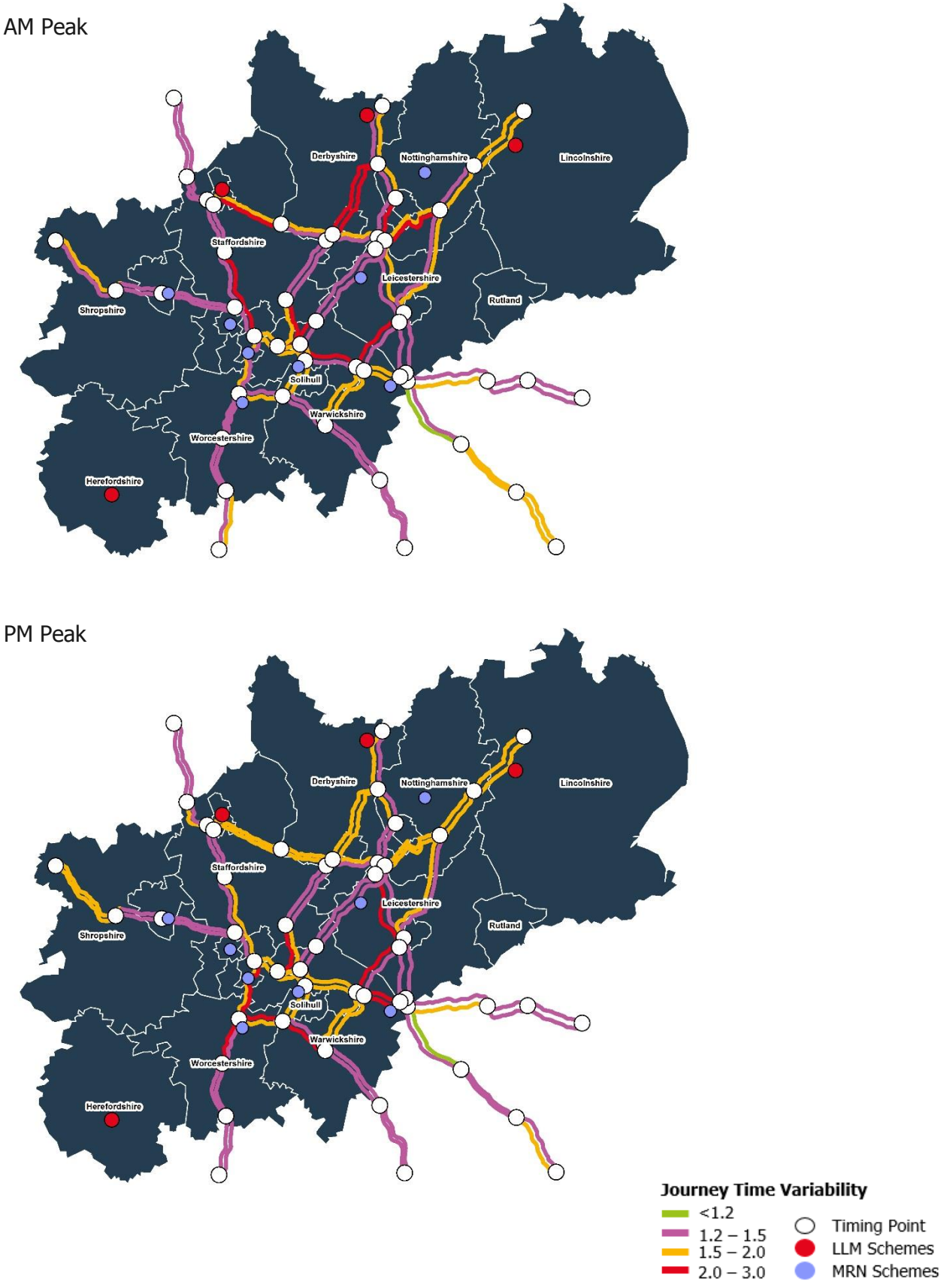
PM Peak





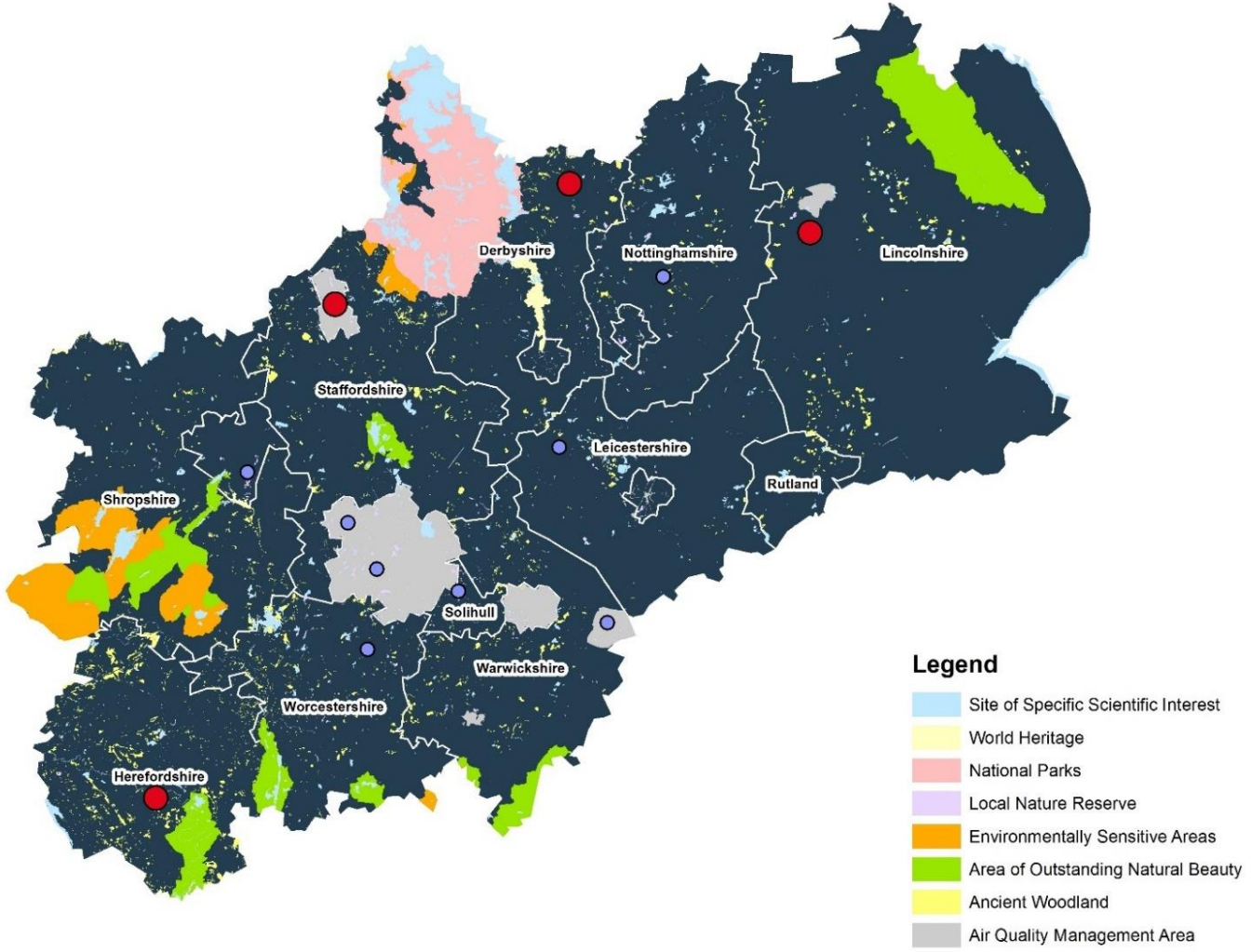
Journey time reliability on SRN

Figure 28 Journey time reliability on SRN (Source: TomTom): AM and PM Peaks



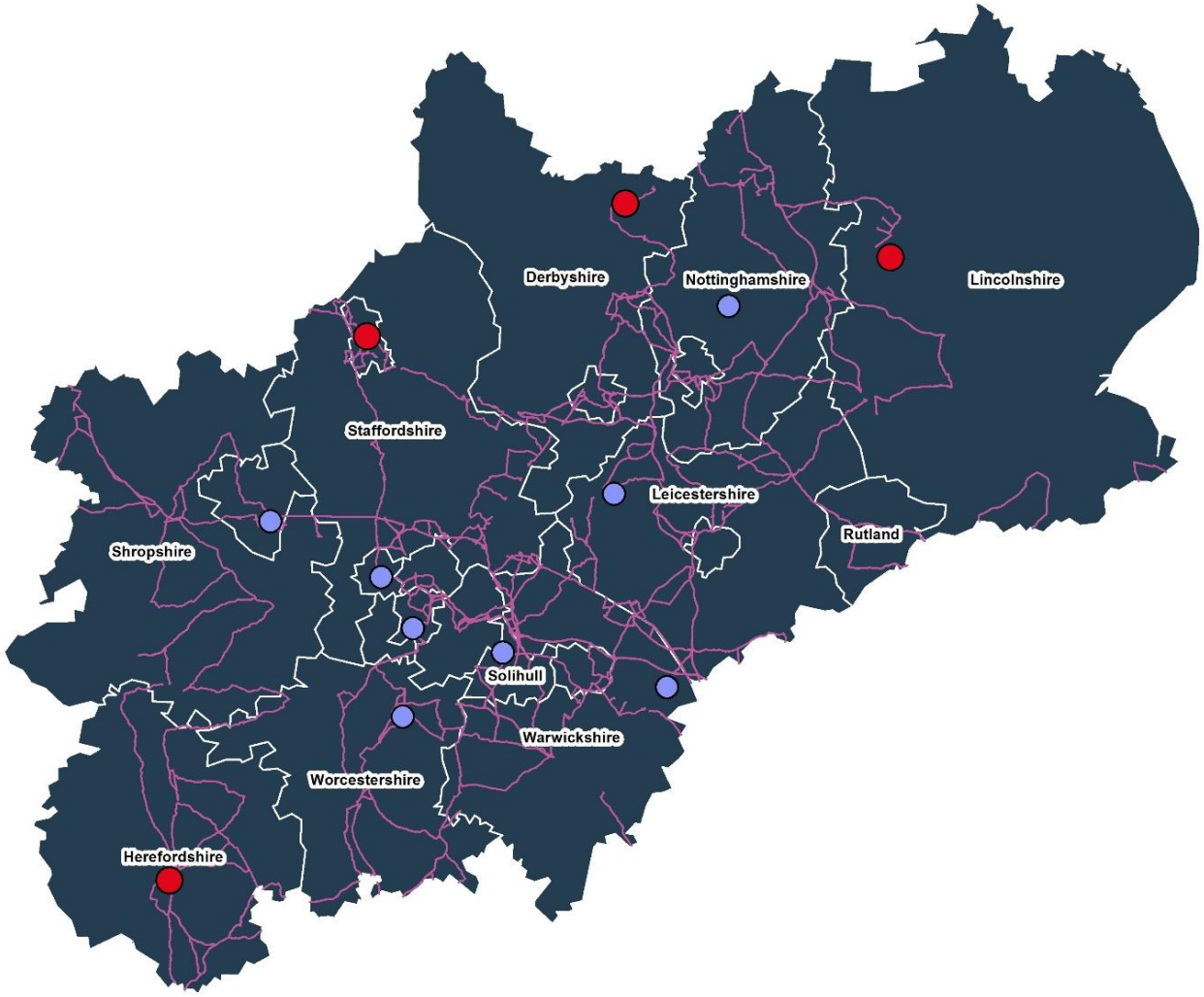
Environmental Constraints Map

Figure 29 Environmental Constraints Map (Source: Opensource data)



SRN Diversion Routes

Figure 30 Designated diversion routes for the SRN



Midlands Connect Highway Model Outputs

Figure 31 2015 AM Peak Actual Vehicles

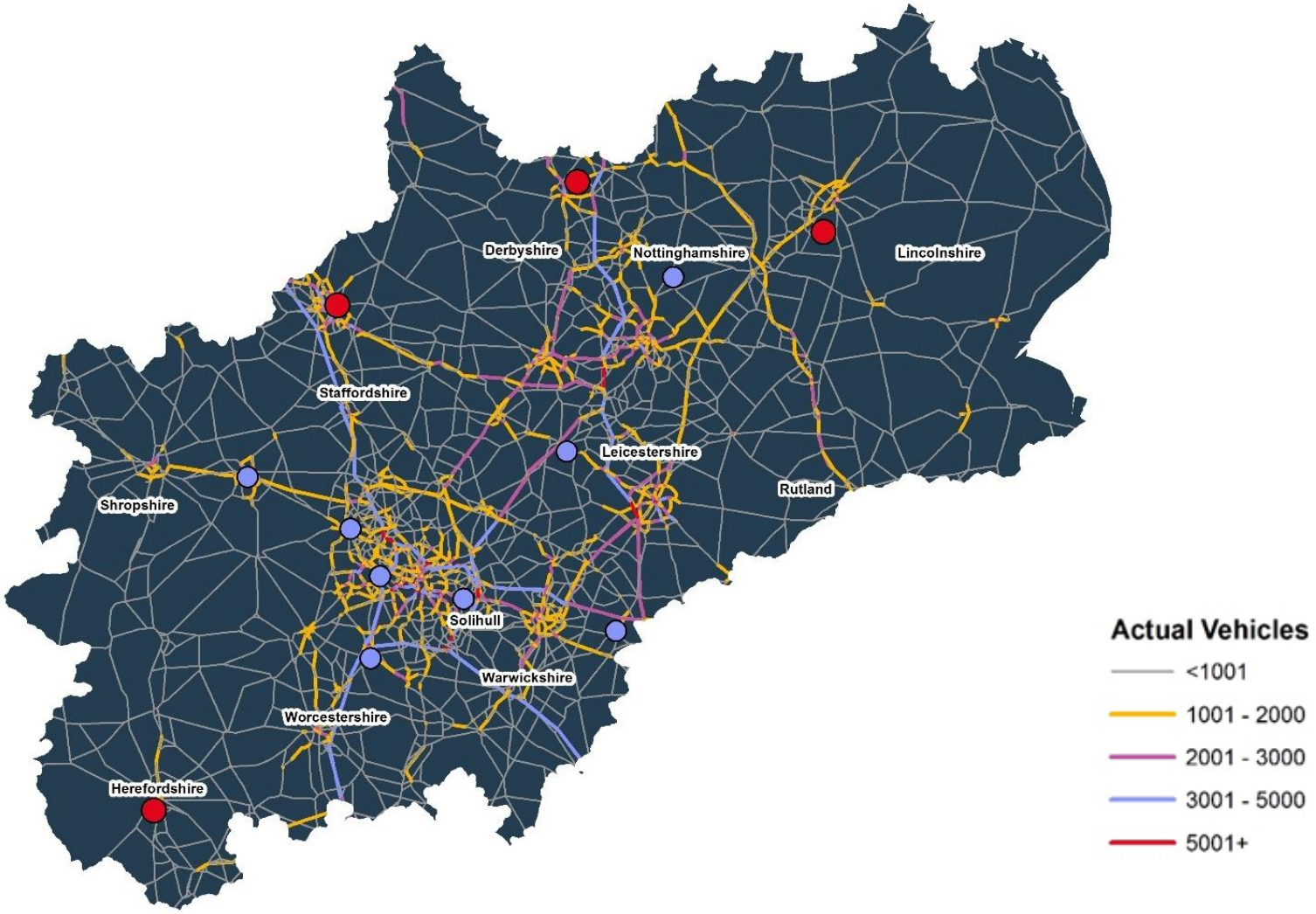


Figure 32 2015 PM Peak Actual Vehicles

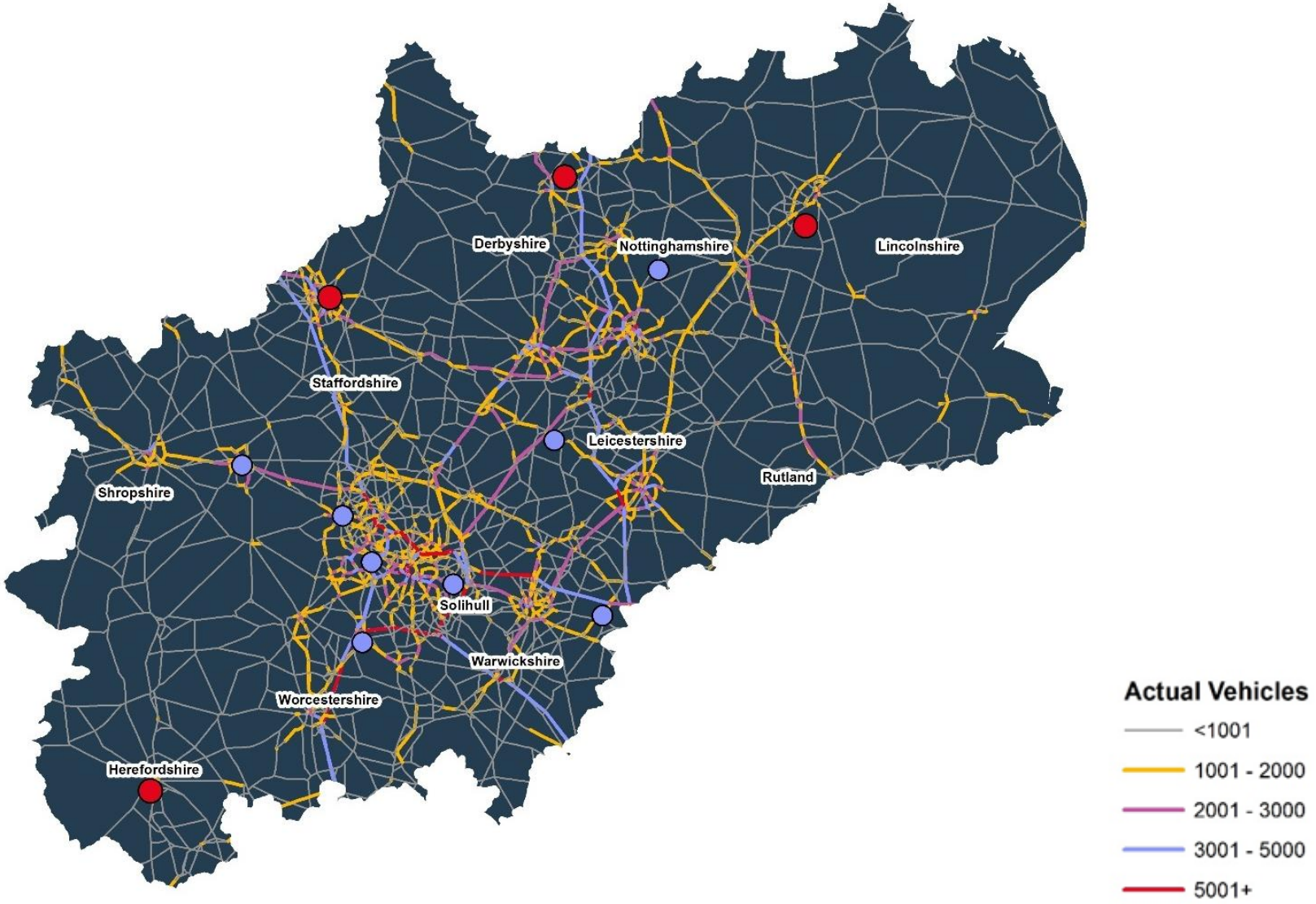


Figure 33 2031 AM Peak Actual Vehicles

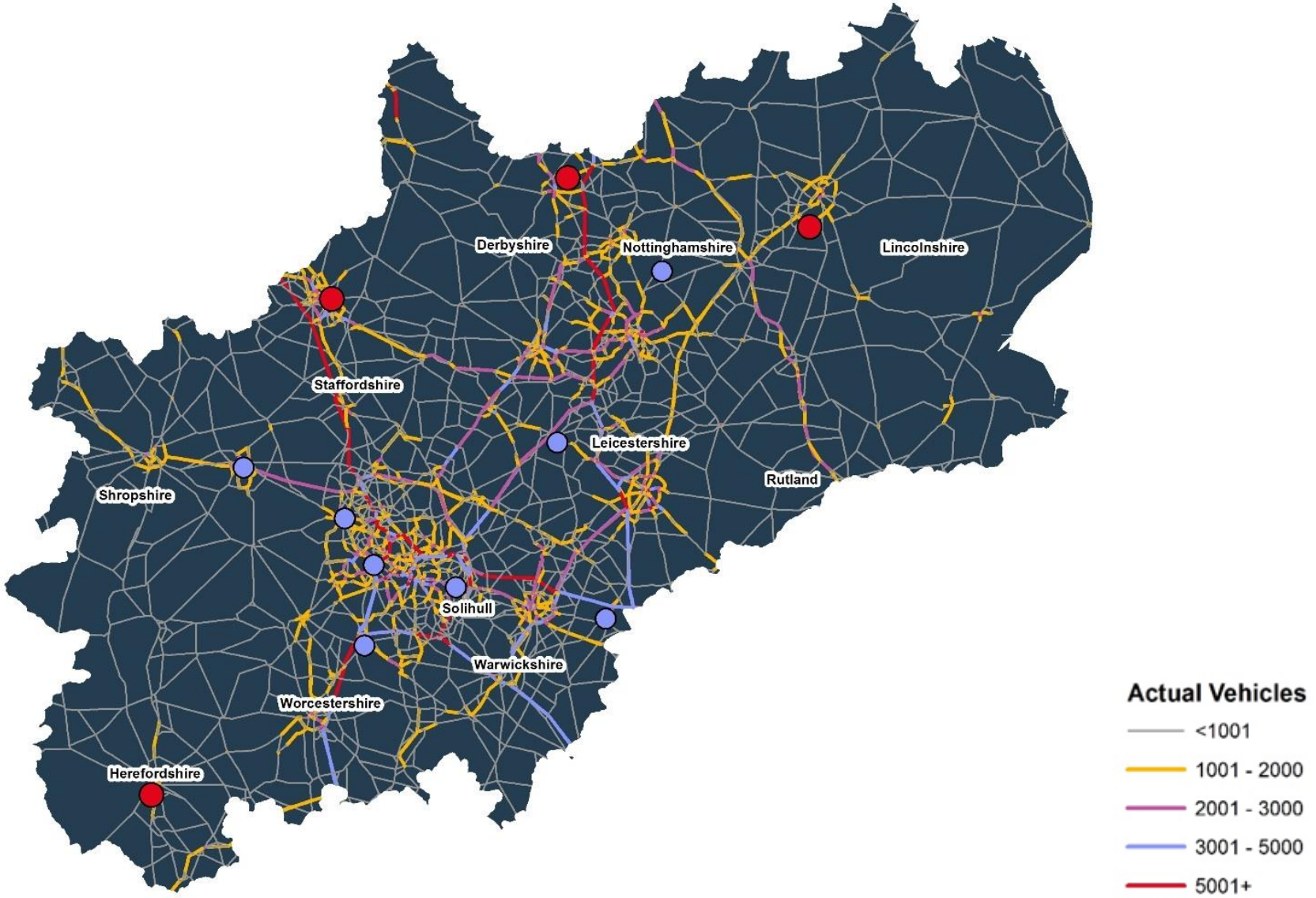
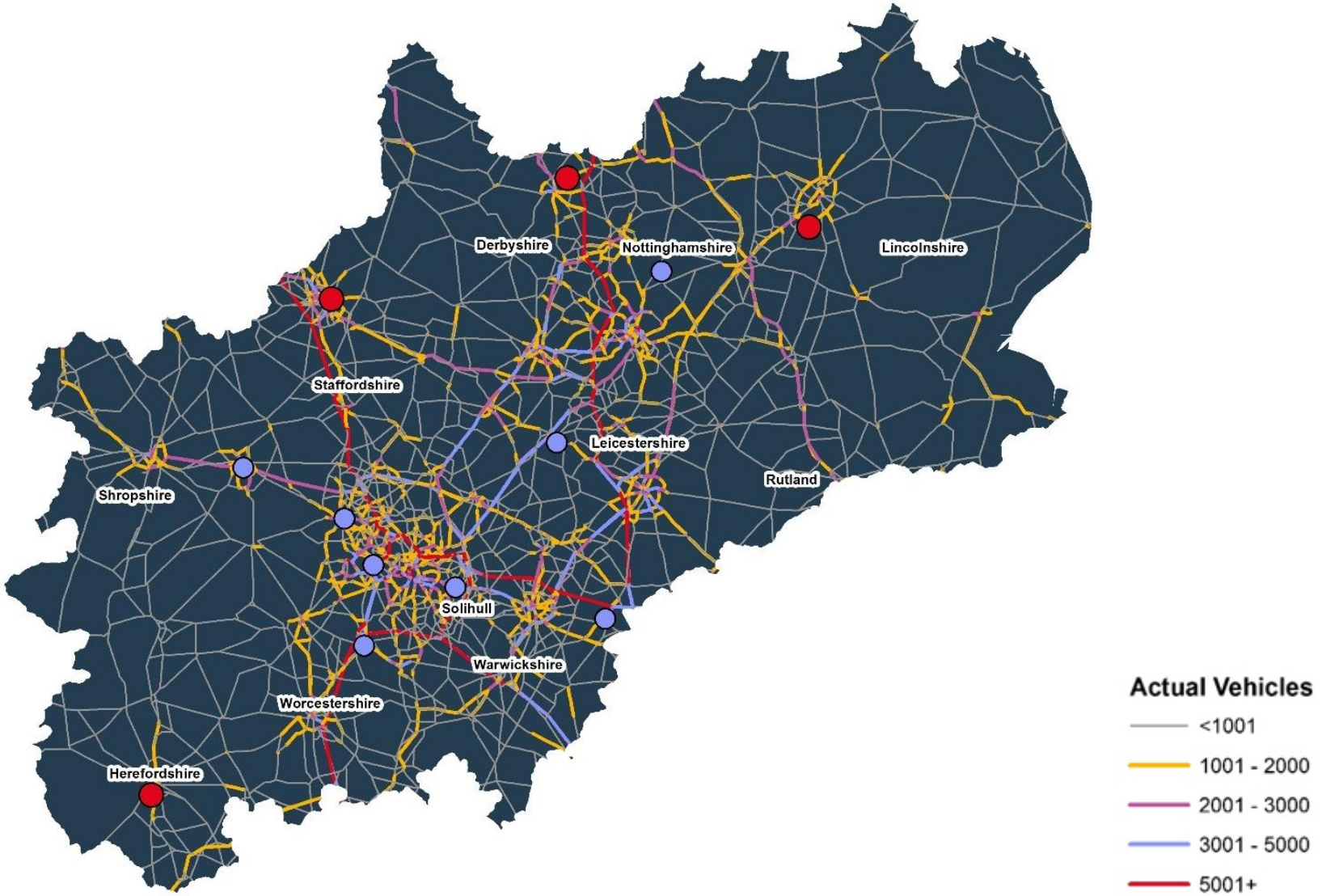


Figure 34 2031 PM Peak Actual Vehicles



Midlands Connect

Appendix 2: Major Road Network Route Assessment

Network Performance

To understand the performance of the MRN, the DfT guidance recommends using a strategic transport model, if available. Midlands Connect has access to the Midlands Connect Highway Model which has been used to understand traffic flows, journey times and journey time reliability on each route.

This data has been used to measure the performance of each route against the three conditional outputs relating to network performance. Table 9 presents the conditional outputs relating to journey times and journey time reliability and the thresholds for scoring. These Conditional Outputs have been derived based on the MRN objectives and Midlands Connect's Conditional Outputs (as reported in the 2017 Strategy).

Table 9 MRN Transport Conditional Outputs

Transport Conditional Output	CO1: No difference between day time and off-peak journey times	CO2: Travel time in line with posted speed limit in urban areas or 60mph or more on interurban routes	CO3: Any journey tie is no more than 20% of the average journey time by day
Score	Metric		
	Average AM, inter-peak and PM journey time vs. off-peak journey time	Off-peak journey time vs. speed limit journey time	Average AM, inter-peak and PM journey time within 20% of average
1	5% slower		90%+ within
2	5 – 15% slower		80 – 90% within
3	15 – 25% slower		75 – 80% within
4	25 – 50% slower		60 – 75% within
5	50%+ slower		Less than 60% within
Time-period definition (average hour): AM Peak: 07:00 – 10:00, Inter-peak: 10:00 – 16:00, PM Peak: 16:00 – 19:00			

A matrix-style approach has been adopted to compare the conditional output score with a representative traffic flow for the route to produce a high-level proxy for vehicle hour delays along the route over a 12-hour period. Table 10 shows the vehicle kilometre thresholds against the conditional output scores to show the overall scoring system. For example, if a route has up over 3.5 million vehicle kilometres travelled and has an off-peak journey time that is 5% slower than the speed limit (scores 1 based onTable2), then the overall score for Conditional Output 2 is a score of 2.

Table 10 Approximation of vehicle hour delays and overall conditional output score

Vehicle Kilometres travelled (million)	Conditional Output Score				
	1	2	3	4	5
Up to 0.5	1	1	1	2	2
0.5 – 1.5	1	1	2	3	3
1.5 – 2.5	1	2	3	4	4
2.5 – 3.5	2	3	4	5	5

Over 3.5	2	3	4	5	5

Need for intervention

Overview

The economic outcomes seek to ensure that MRN investment is scheduled according to the relative need. The outcomes are presented in Table 11, along with the high-level scoring categories, which are defined in more detail in the following sections.

Table 11 Transport economic outcomes

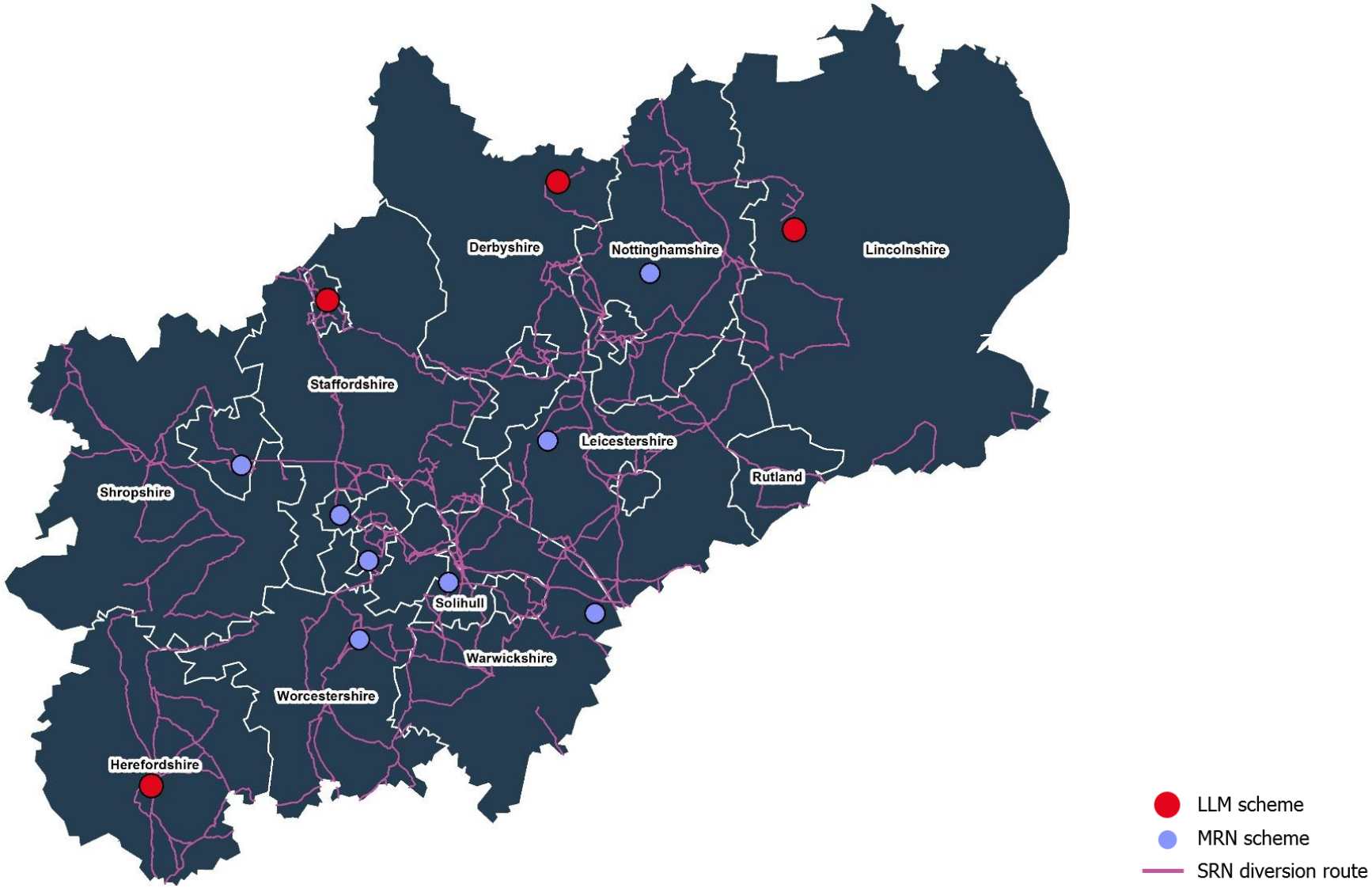
Economic Outcomes	Improve access to the SRN and provide SRN resilience	Improved access to the main economic centres in the region	Access to employment growth sites	Improved access to commercial markets and global supply chains for freight and businesses	Access to major housing locations
Score	**Metric**				
0	Does not form part of Highways England diversion route / no direct access to SRN	No direct benefit or improve connectivity to main economic centres	No direct or improved connectivity to the major employment sites	No direct benefit or improved connectivity to/from ports, airports or freight terminals	No direct benefit or improved connectivity to major housing locations
1	Complements the primary access to the SRN / forms part of a Highways England diversion route	Peripheral improvements to Midlands' connectivity to the main economic centres	Peripheral improvements to Midlands' connectivity to major employment sites	Peripheral improvements to Midlands' connectivity to/from ports, airports or freight terminals	Peripheral improvements to Midlands' connectivity to major housing locations
2	Forms the primary access to the SRN/ a complete designated Highways England diversion route	Provides direct access to a main economic centre	Provides direct access to the major employment sites	Provides direct access to/from ports, airports or freight terminals	Provides direct access to major housing locations

Improve access to the SRN and provides SRN resilience

A desktop review of published SRN diversion routes via MRN routes has been undertaken. This is presented in Figure 35. This evidence was collated from the Highways England Agreed Diversion Routes[22] website. It should be noted that this data was published in 2016 and does not include unpublished routes or updated routes since 2016.These diversion routes have been used to score each MRN route against this economic outcome. An assessment has been undertaken against the three scoring thresholds and the maximum score adopted in the final assessment. For example, an MRN route may not form part of a diversionary route (relevant to score 0), but it does form the primary access to the SRN (relevant to score of 2), in which case the route score would be 2.

[22] https://data.gov.uk/dataset/01e2a489-6901-4cbc-84f3-09df7653464c/highways-england-agreed-diversion-routes

Figure 35 SRN Diversion Routes

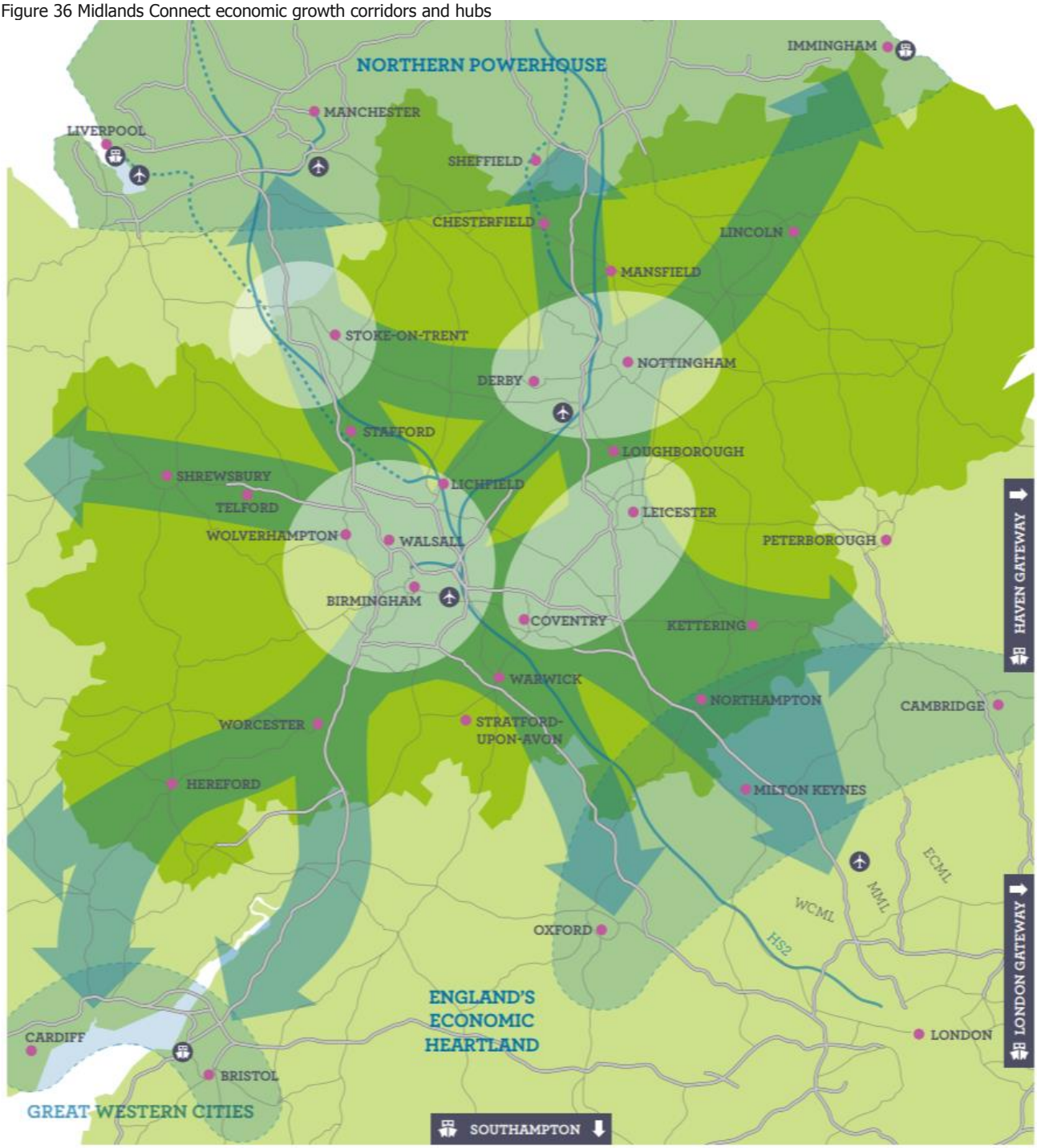


Midlands Connect

Improved access to the main economic centres in the region

An assessment of the routes potential to improve access to the main economic centres in the region has been undertaken. The assessment has used the Hubs and Corridors (as shown in Figure 36) reported our 2017 Strategy to undertake the assessment. The economic centres and corridors identified as being supported by the MRN route have been documented.

Figure 36 Midlands Connect economic growth corridors and hubs



Access to employment growth sites

It is recognised that the level of employment growth supported by the MRN network will vary based on the location of the scheme (i.e. a scheme could directly unlock a site or support wider growth across an area). To fully understand the extent to which the MRN could support employment growth relies on having access to up-to-date information from our partners. This is something that we are still in the process of collecting and as such, it was too premature to use it in the route analysis.

Instead, the assessment of a route against the outcome has been based on the employment site database held by Midlands Connect. A total of 80 strategic employment sites (significant sized sites) were identified by our 2017 Strategy as shown in Figure 37. At this stage, the certainty of sites coming forward has not been considered as an up-to-date view on this will be collected as part of the ongoing work to develop our employment site database.

The role that the MRN plays in supporting each employment site has been considered and documented based on the following process:

- Employment sites that are in proximity to the MRN routes have been identified.
- Each employment site has been given a score based on the potential access the MRN route
- provides. Scores range from 0 to 2 as shown in Table 12.
- The number of jobs at each employment site has then been multiplied by the access score to
- provide a weighted number of jobs supported for each site. This has then been totalled to provide an overall number of jobs supported by each route. Table 12 provides an example of how the process works.
- This total has then been given a score of between 0 and 2 based on the thresholds set out in Table 13.

Table 12 Transport economic outcomes

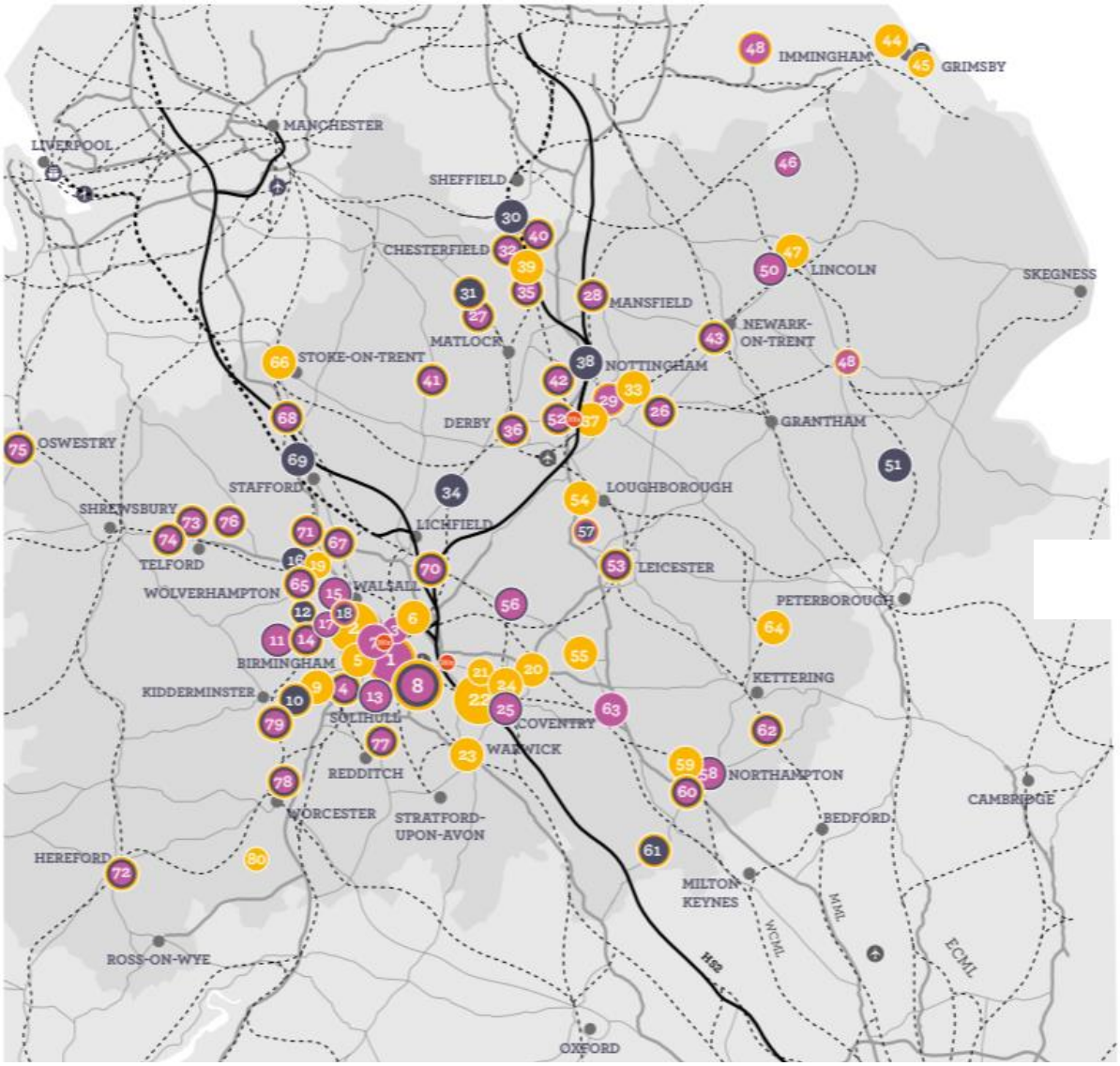
Site	Number of jobs	No direct benefit or improved connectivity to major employment sites	Peripheral improvements to Midlands' connectivity to major employment sites	Provides direct access to major employment sites	Total employment supported weighted based on score
		Score = 0	Score = 1	Score = 2	
1	10,000	✔			0 x 10,000 = 0
2	1,000			✔	1 x 1,000 = 1,000
3	5,000		✔		1 x 5,000 = 5,000
				Total employment supported	6,000

Table 13 Final employment score thresholds

Number of jobs supported (weighted)	Overall score for employment outcome
<5,000	0
5,000 – 10,000	1
10,000+	2
Example routes score = 1 as 6,000 jobs supported	

For MRN Period 2, the information informing this assessment and approach to the assessment will need to be reviewed. It is anticipated that information will be available at a more local level and we will better understand the phasing and certainty of growth within all LHAs.

Figure 37 Strategic Employment Sites



Birmingham and Solihull

1. Birmingham Curzon HS2
2. City centre Enterprise Zone
3. HS2 Washwood Heath maintenance depot
4. Longbridge
5. Paradise
6. Peddimore – employment proposal
7. Snow Hill
8. UK Central
9. Birmingham Smithfield
10. Birmingham Life Sciences Campus (Selly Oak and south Edgbaston)
11. Aston Manufacturing Hub
12. Perry Barr
13. East Birmingham (Bordesley Park)

Black Country

14. Brierley Hill sites (Waterfront, Archill & Harts Hill)
15. Darlaston Existing EZ Sites
16. I54 plots (remaining)
17. Park Rose Industrial Estate, Smethwick
18. Sandwell Gateway Regeneration Opportunity
19. Wolverhampton Business Park

Coventry and Warwickshire

20. Ansty Park & Phase 2
21. City Centre South
22. Coventry Friargate
23. Tournament Fields, Warwick
24. Whitley Business Park
25. Whitley South

D2N2

26. A46 Corridor sites
27. A6 Enterprise Corridor
28. Berry Hill
29. Broadmarsh and Southern Gateway
30. Callywhite Lane
31. Cawdor Quarry
32. Chesterfield town centre, Waterside, HS2 station and A61 Growth Corridor
33. Creative Quarter, Nottingham
34. Drakelow Park
35. Former Biwater
36. Infinity Park, Derby
37. Nottingham Enterprise Zone
38. Rolls Royce site, Hucknall
39. The Avenue
40. Peak Resort
41. Ashbourne Airfield Expansion
42. Stanton Ironworks Regeneration
43. Newark Growth Sites

Greater Lincolnshire

44. Able Marine Energy Park
45. Europarc
46. Land at Hemswell Cliff
47. Lincoln Science and Innovation Park
48. Normanby Enterprise Park
49. Sleaford Enterprise Park
50. Teal Park, North Hykeham
51. Food Enterprise Zone, Holbeach

Leicester and Leicestershire

52. East Midlands Gateway
53. Leicester Strategic Regeneration Area
54. Loughborough Science and Enterprise Park
55. Magna Park
56. MIRA Enterprise zone and Technology Park
57. Coalville Growth Area

Northampton

58. Northampton South East (Houghton Gate and Martin's Farm)
59. Northampton Town Centre (not waterside)
60. Northampton Waterside enterprise zone
61. Silverstone
62. Wellingborough Stanton Cross

South East Midlands

63. DIRFT III, Daventry District
64. Priors' Hall at Corby

Stoke-on-Trent and Staffordshire

65. Enterprise Zone, I54
66. Ceramic Valley Enterprise Zone
67. Kingswood Lakeside
68. Meaford
69. Redhill Employment Park
70. Lichfield Employment Site
71. Bericote Four Ashes

The Marches

72. Hereford Enterprise Zone
73. Hortonwood
74. Hortonwood West
75. Oswestry Innovation Park
76. Telford T54

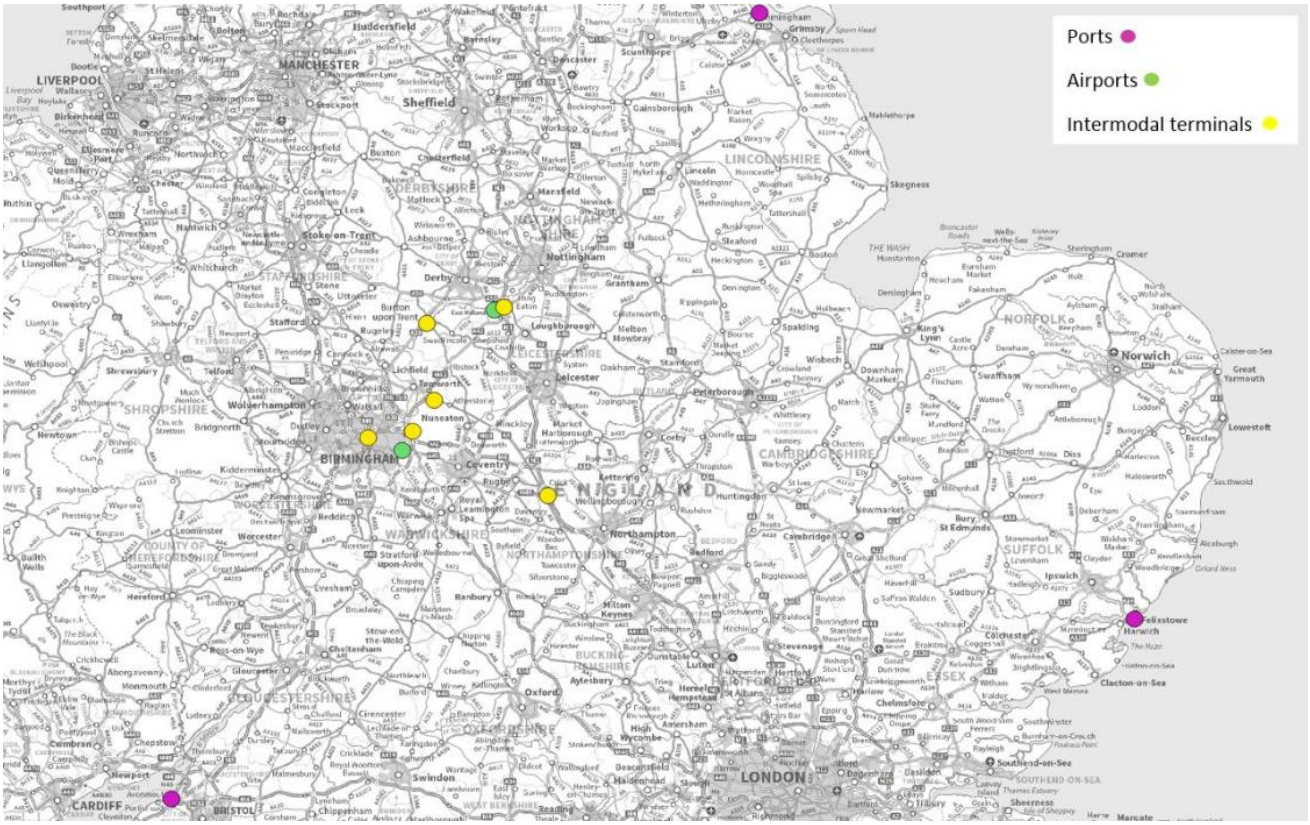
Worcestershire

77. Redditch Eastern Gateway
78. Worcester Technology Park
79. Kidderminster
80. Malvern Hills

Improved access to commercial markets and global supply chains for freight and businesses

The outcome has been scored using information within the 2017 Strategy and Freight Narrative Report developed to inform the Strategy. Access to Birmingham Airport, East Midlands Airport, Bristol Port, Felixstowe Port, Humber Ports and intermodal freight terminals has been considered when scoring each route. The scoring approach documents which ports, airports and intermodal terminals each route supports. Figure 38 presents these geographically.

Figure 38 Commercial markets for freight and businesses



Access to major housing locations

For MRN Period 1 it has not been possible to complete an assessment against supporting housing across the region. This is due to needing housing data at a regional scale, which we do not currently have access to. We are, however, in the process of collecting information on housing growth including the phasing and certainty of housing delivery.

In principle, the approach to assessing this outcome would be similar to the approach adopted for the employment growth sites by identifying the sites supported and the nature of the support (i.e. direct access, support due to general improvements to road capacity).

For MRN Period 2, the information informing this assessment and approach to the assessment will need to be reviewed. It is anticipated that information will be available at a more local level and we will better understand the phasing and certainty of housing growth within all LHAs.

Transport performance vs. need for investment

Following the transport conditional outputs and economic outcomes being scored, the scores have been combined using a matrix approach to provide an overall score for each route. This approach

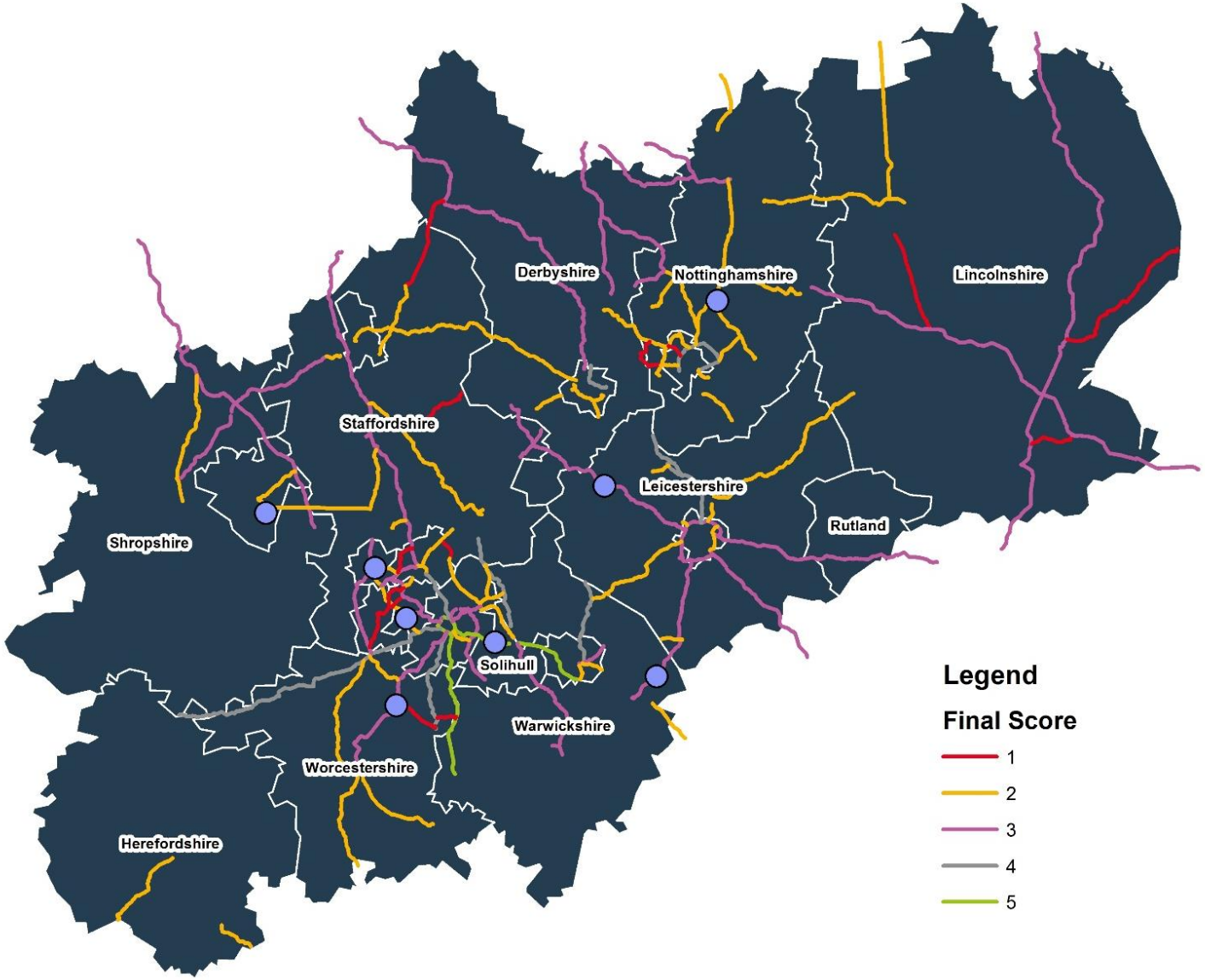
seeks to ensure that the routes with the worst network conditions that have the greatest economic importance are recognised as priorities for investment / priority for identifying improvements. The scoring thresholds that have been adopted are presented in Table 14. For example, if a route scored a 1 for its economic outcome and a 3 for its transport conditional outputs, then the route would receive a final score of 3.

Table 14 Transport performance vs. need for investment

Economic outcome score	Transport Conditional Output Score				
	1	2	3	4	5
0	1	1	1	1	1
1	2	2	3	3	4
2	2	3	4	5	5

Figure 39 shows the final scores that each of the 113 routes received; giving a high-level representation of how each route performs when assessed against a balance of transport 'problem' and 'economic opportunity'. These routes scores will need to be reviewed in preparation for MRN Period 2. The review, as a minimum, would include using more up to date employment growth information, an assessment against supporting housing growth and potentially more recent Traffic Master data.

Figure 39 MRN Route Assessment (with MRN schemes)



Midlands Connect

Appendix 3: MRN Scheme Assessment

Major Road Network Assessment – Prioritised Schemes (Tranche 1)

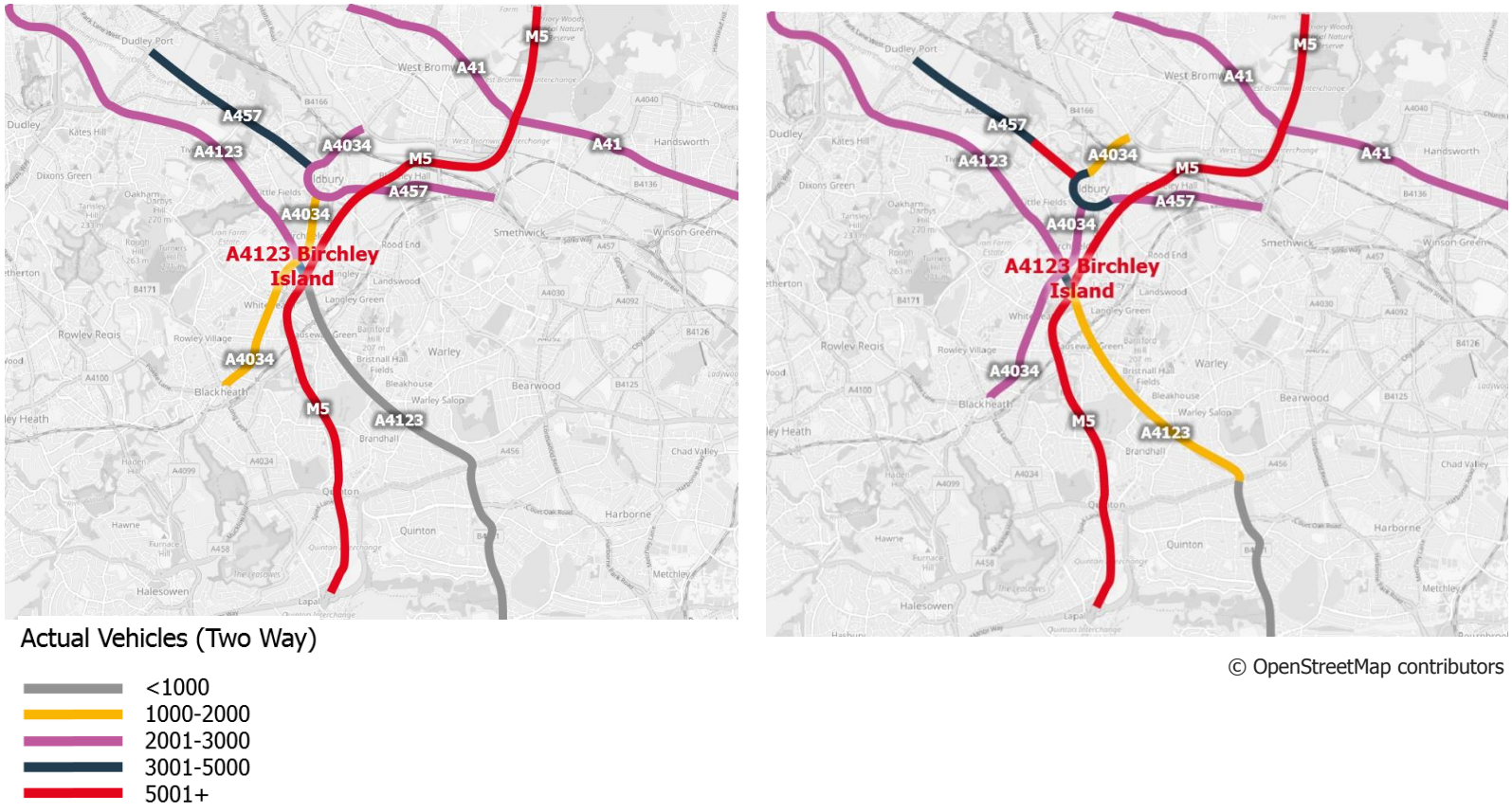
Table 15 MRN Assessment – Tranche 1

Scheme Name	Promoting Local Authority	Robustness of programme (score out of 3)	Security of funding (score out of 3)	Political commitment (score out of 3)	Requirement for land (score out of 3)	Value for money / strength of business case (score out of 3)	Total
A4123 Birchley Island	Sandwell Council	3	3	3	3	3	15
A38 Bromsgrove Route Enhancement Programme	Worcestershire County Council	3	3	3	3	2	14
A426/A4071 Avon Mill/Hunters Lane Improvements	Warwickshire County Council	3	3	3	2	3	14
Queensway Link	Telford & Wrekin Council	3	2	2	3	3	13
A511 Growth Corridor	Leicestershire County Council	3	3	3	2	2	13
A454 between Wolverhampton and East Park Gateway	Wolverhampton City Council	3	1	3	2	3	12
A45/Coventry Road/Damson Parkway Junction	Solihull Metropolitan Borough Council	3	2	2	1	2	10

Appendix 4: MRN Indicative Traffic Flows[23]

A4123 Birchley Island, Wolverhampton

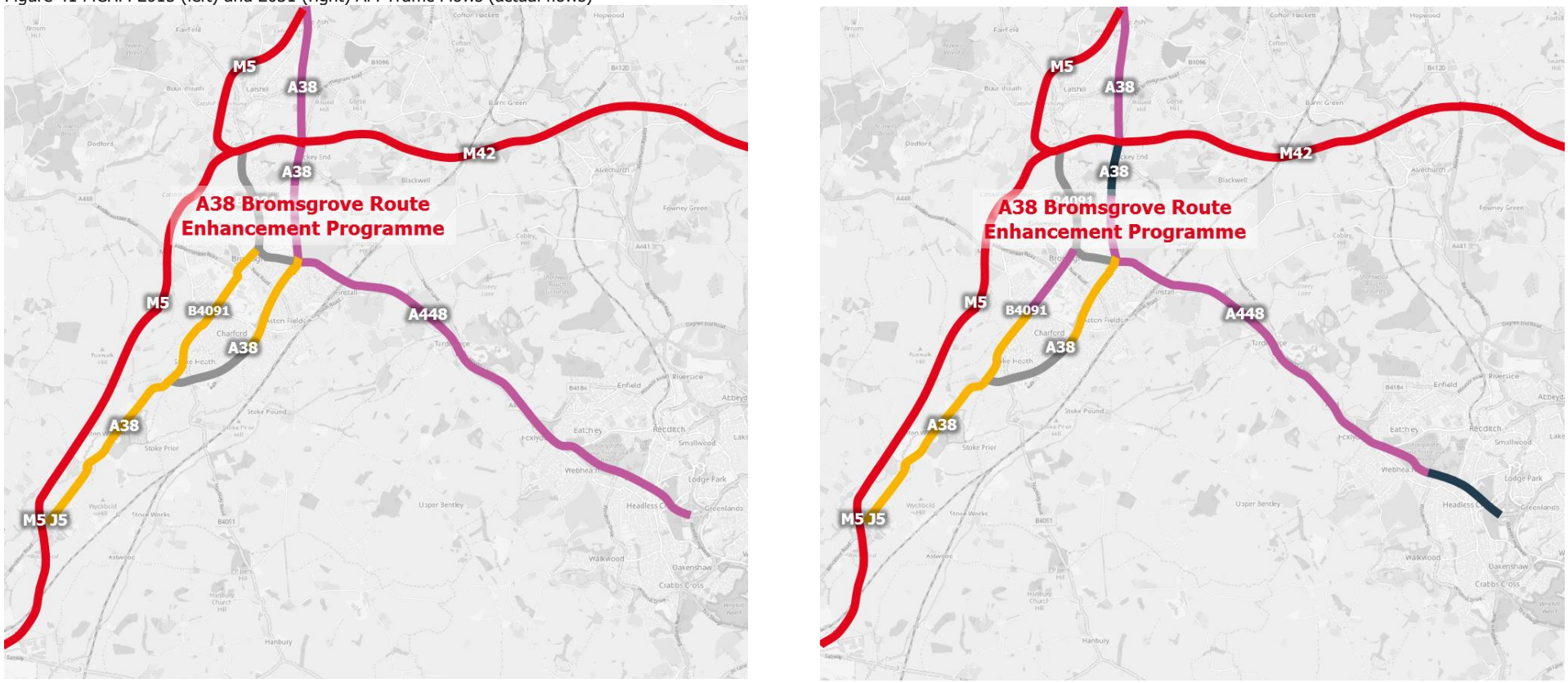
Figure 40 MCHM 2015 (left) and 2031 (right) AM Traffic Flows (actual flows)



[23] Traffic flows are based on the MCHM for 2015 and 2031 AM peaks. Flows have been simplified for presentational purposes (i.e. there may be several more links in the model than represented in these maps.

A38 Bromsgrove Route Enhancement Programme, Worcestershire

Figure 41 MCHM 2015 (left) and 2031 (right) AM Traffic Flows (actual flows)



Actual Vehicles (Two Way)

- <1000
- 1000-2000
- 2001-3000
- 3001-5000
- 5001+

A426/A4071 Avon Mill/Hunters Lane Improvements, Warwickshire

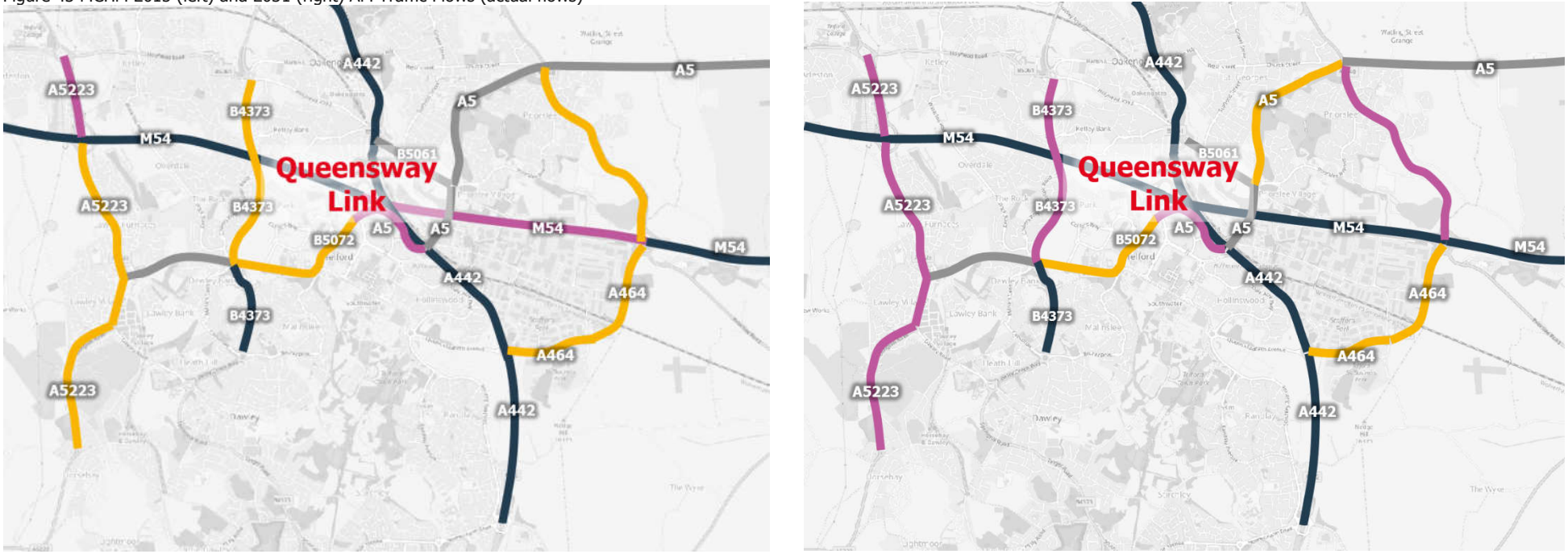
Figure 42 MCHM 2015 (left) and 2031 (right) AM Traffic Flows (actual flows)

Actual Vehicles (Two Way)

- <1000
- 1000-2000
- 2001-3000
- 3001-5000
- 5001+

Queensway Link, Telford and Wrekin

Figure 43 MCHM 2015 (left) and 2031 (right) AM Traffic Flows (actual flows)

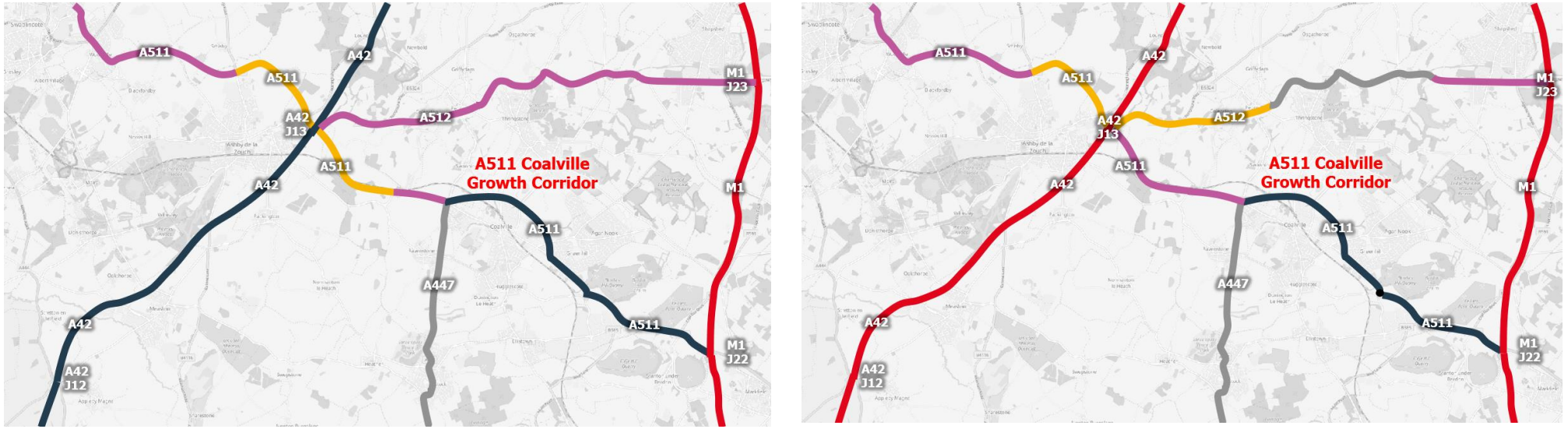


Actual Vehicles (Two Way)

- <1000
- 1000-2000
- 2001-3000
- 3001-5000
- 5001+

A511 Growth Corridor, Leicestershire

Figure 44 MCHM 2015 (left) and 2031 (right) AM Traffic Flows (actual flows)

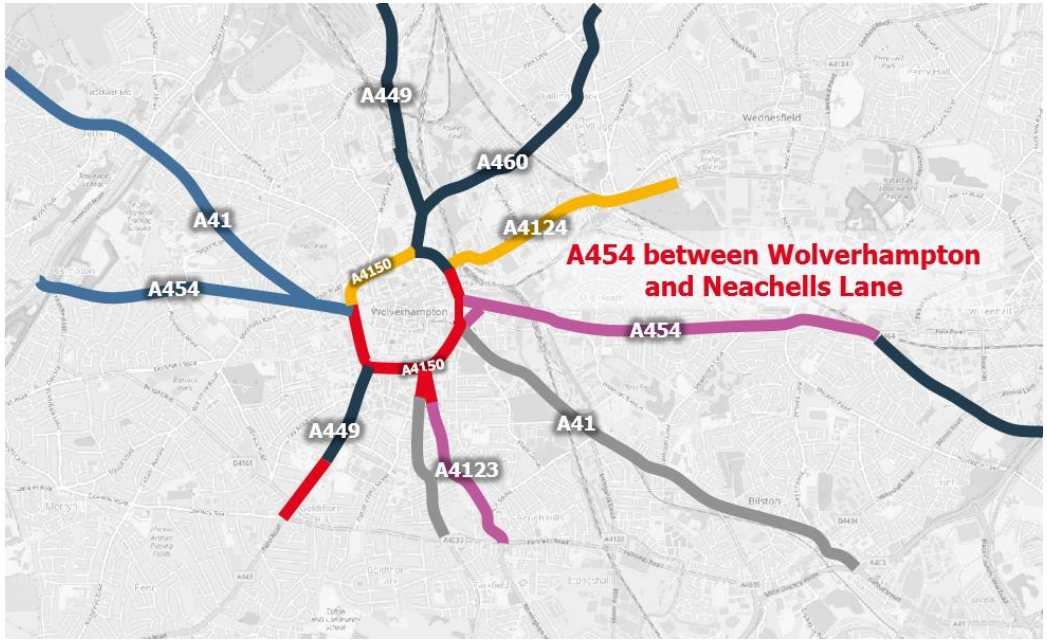


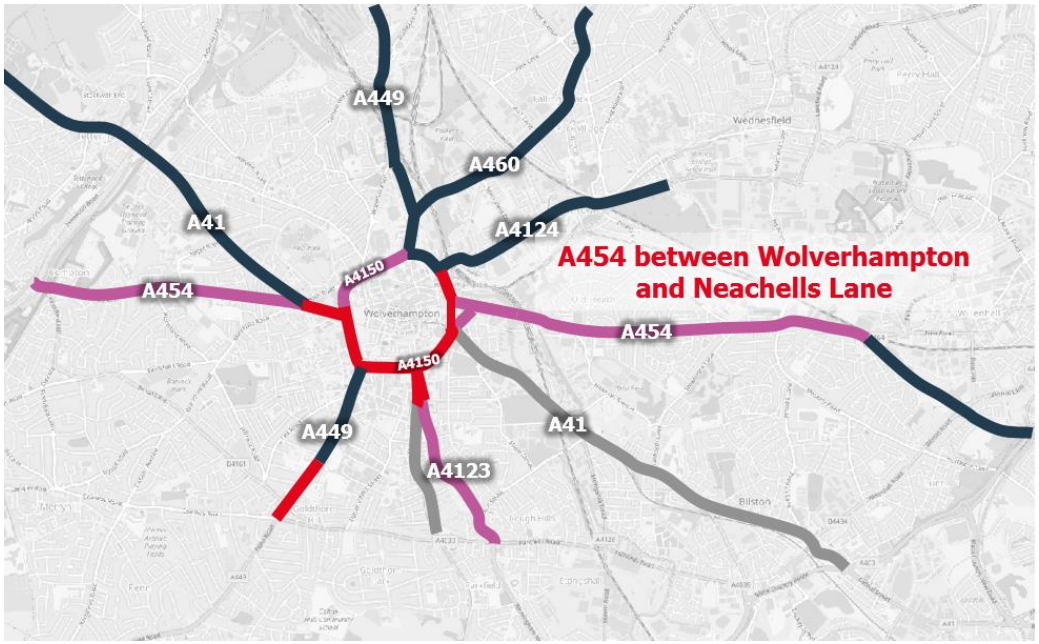
Actual Vehicles (Two Way)

- <1000
- 1000-2000
- 2001-3000
- 3001-5000
- 5001+

A454 between Wolverhampton and East Park Gateway, Wolverhampton

Figure 45 MCHM 2015 (left) and 2031 (right) AM Traffic Flows (actual flows)



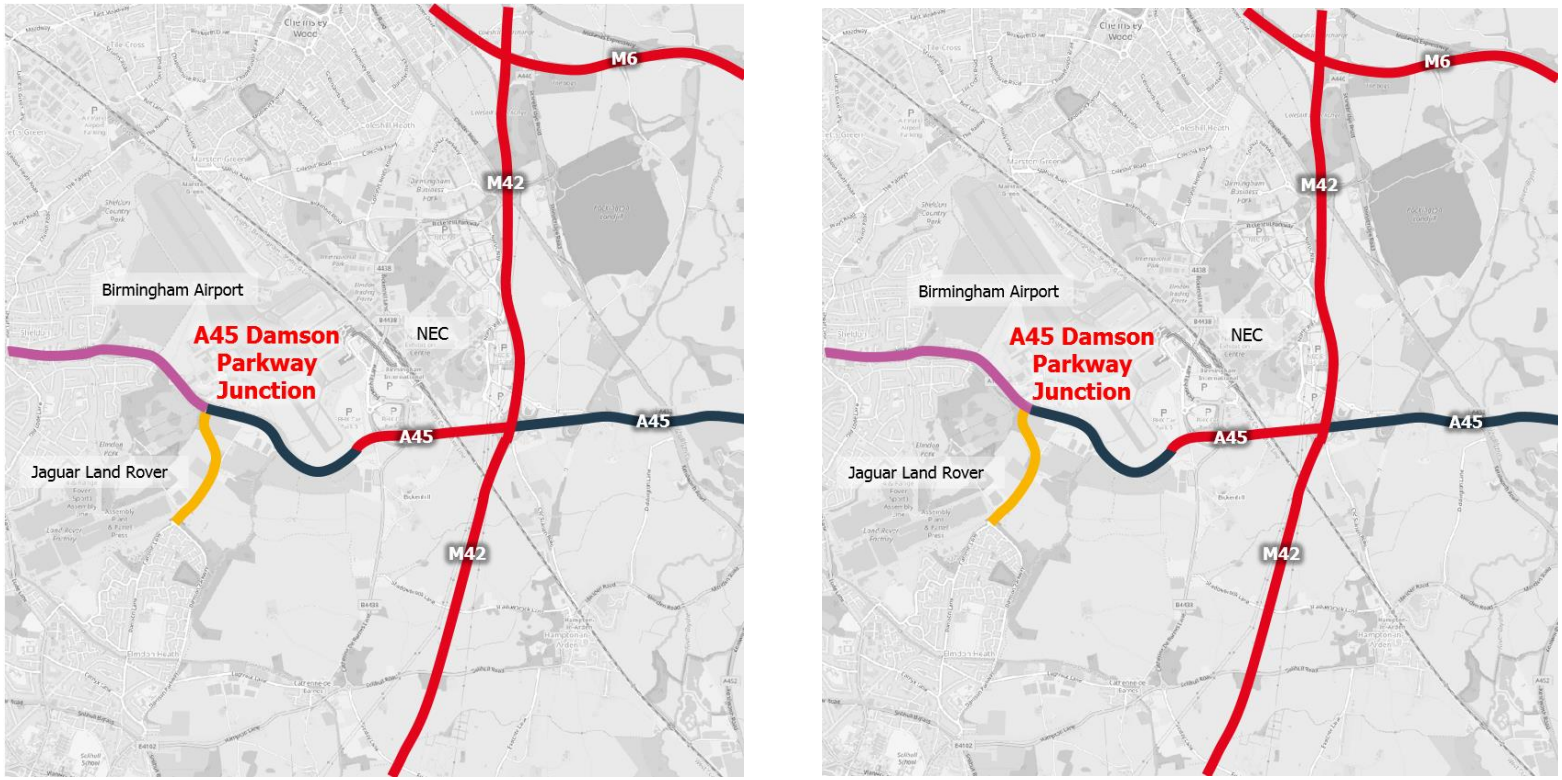


Actual Vehicles (Two Way)

- <1000
- 1000-2000
- 2001-3000
- 3001-5000
- 5001+

A45/Coventry Road/Damson Parkway Junction, Solihull

Figure 46 MCHM 2015 (left) and 2031 (right) AM Traffic Flows (actual)

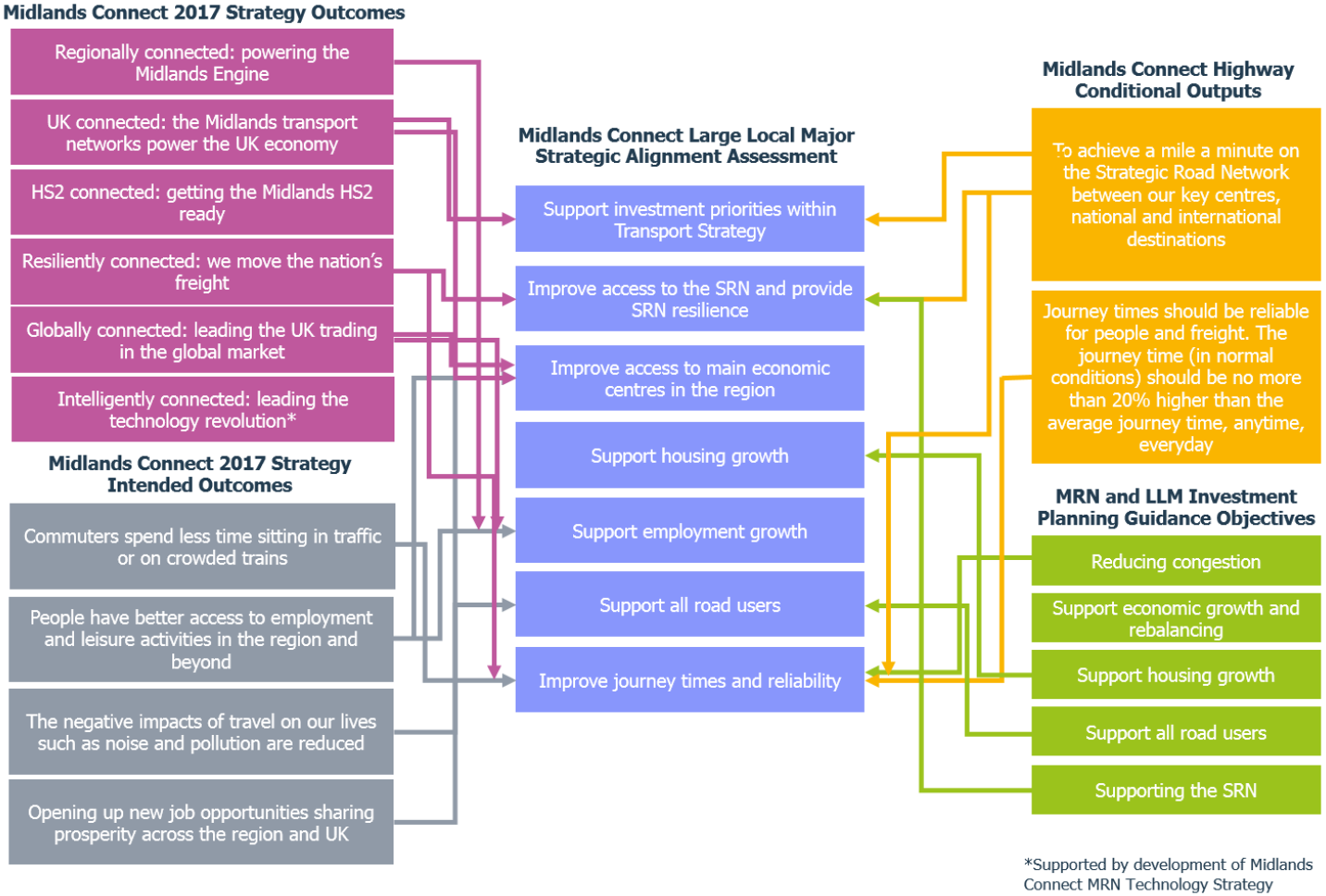


Actual Vehicles (Two Way)

- <1000
- 1000-2000
- 2001-3000
- 3001-5000
- 5001+

Appendix 5: Large Local Major Strategic Alignment Assessment

Figure 47 Defining the Large Local Major strategic alignment assessment using MRN/LLM Investment Guidance and Midlands Connect objectives



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Appendix 6: LLM Scheme Assessment

Large Local Major Assessment – Prioritised Schemes (Tranche 1)

Table 16 LLM Strategic Alignment Assessment – Tranche 1

Scheme Name	Promoting Local Authority	Strategic Alignment							
		Supports investment priorities within 2017 Strategy (score out of 3)	Improve access to the SRN and provides SRN resilience (score out of 3)	Improved access to the main economic centres in the region (score out of 3)	Supports housing growth (score out of 3)	Supports employment growth (score out of 3)	Supports all road users (score out of 3)	Improved journey times and reliability (score out of 3)	Total strategic alignment score
North Hykeham Relief Road	Lincolnshire County Council	3	3	3	3	3	3	3	21
Hereford Bypass	Herefordshire County Council	3	3	2	3	3	3	3	20
Chesterfield-Staveley Regeneration Route	Derbyshire County Council	2	3	2	3	3	2	3	18
City East Link Road	Stoke on Trent City Council	2	2	3	2	2	2	3	16

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Table 17 LLM Deliverability Assessment – Tranche 1

Scheme Name	Promoting Local Authority	Deliverability						Total Assessment Score (Strategic Alignment + Deliverability)
		Robustness of programme (score out of 3)	Security of funding (score out of 3)	Political commitment (score out of 3)	Requirement for land (score out of 3)	Value for Money / strength of business case (score out of 3)	Total deliverability score	
North Hykeham Relief Road	Lincolnshire County Council	3	3	3	3	3	15	36
Hereford Bypass	Herefordshire County Council	3	2	3	3	3	14	34
Chesterfield-Staveley Regeneration Route	Derbyshire County Council	2	2	3	2	2	11	29
City East Link Road	Stoke on Trent City Council	2	3	3	2	3	13	29

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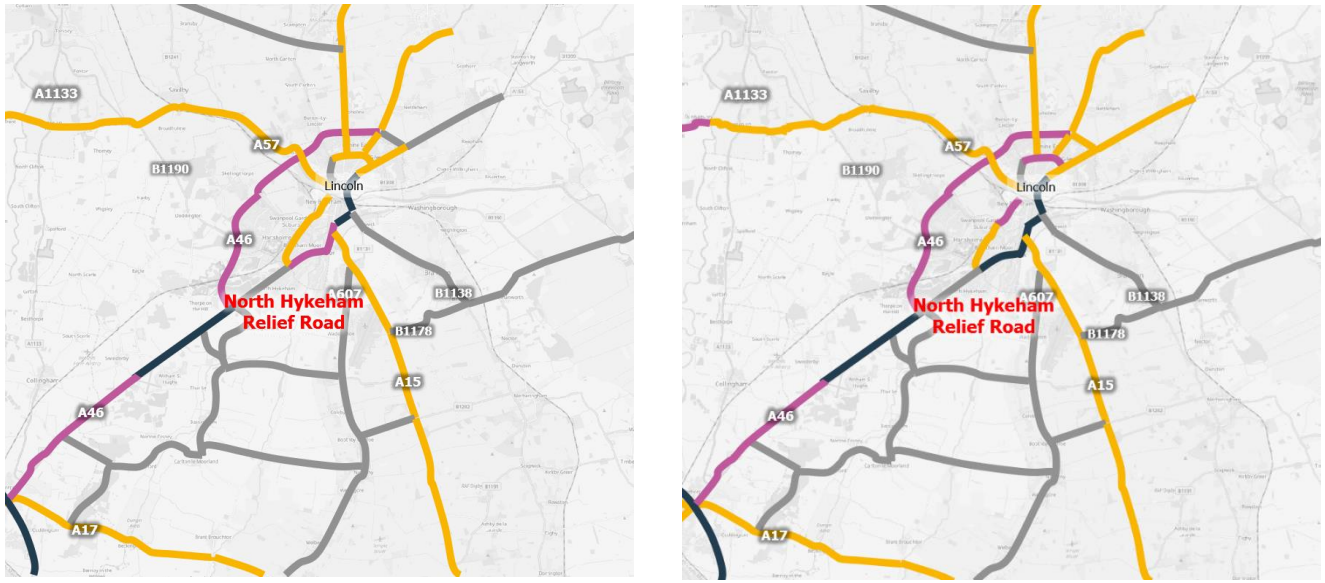
Appendix 7: LLM Indicative Traffic Flows[24]

North Hykeham Relief Road, Lincolnshire

Figure 48 MCHM 2015 (left) and 2031 (right) AM Traffic Flows (actual)



Actual Vehicles (Two Way)

- <1000
- 1000-2000
- 2001-3000
- 3001-5000
- 5001+

[24] Traffic flows are based on the MCHM for 2015 and 2031 AM peaks. Flows have been simplified for presentational purposes (i.e. there may be several more links in the model that represented in these maps.

Hereford Bypass, Herefordshire[25]

Figure 49 MCHM 2015 (left) and 2031 (right) AM Traffic Flows (actual)

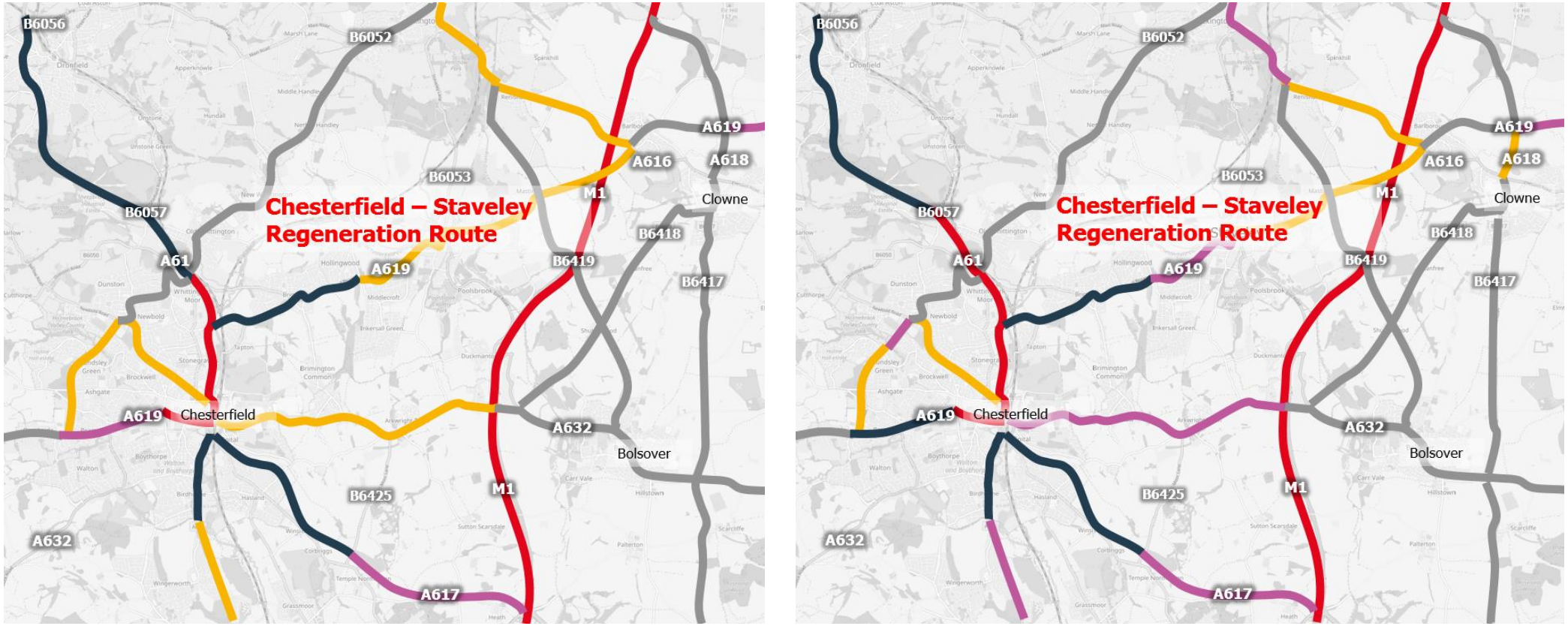
Actual Vehicles (Two Way)

- <1000
- 1000-2000
- 2001-3000
- 3001-5000
- 5001+

[25] Scheme under review by Herefordshire Council

Chesterfield-Staveley Regeneration Route, Derbyshire

Figure 50 MCHM 2015 (left) and 2031 (right) AM Traffic Flows (actual)

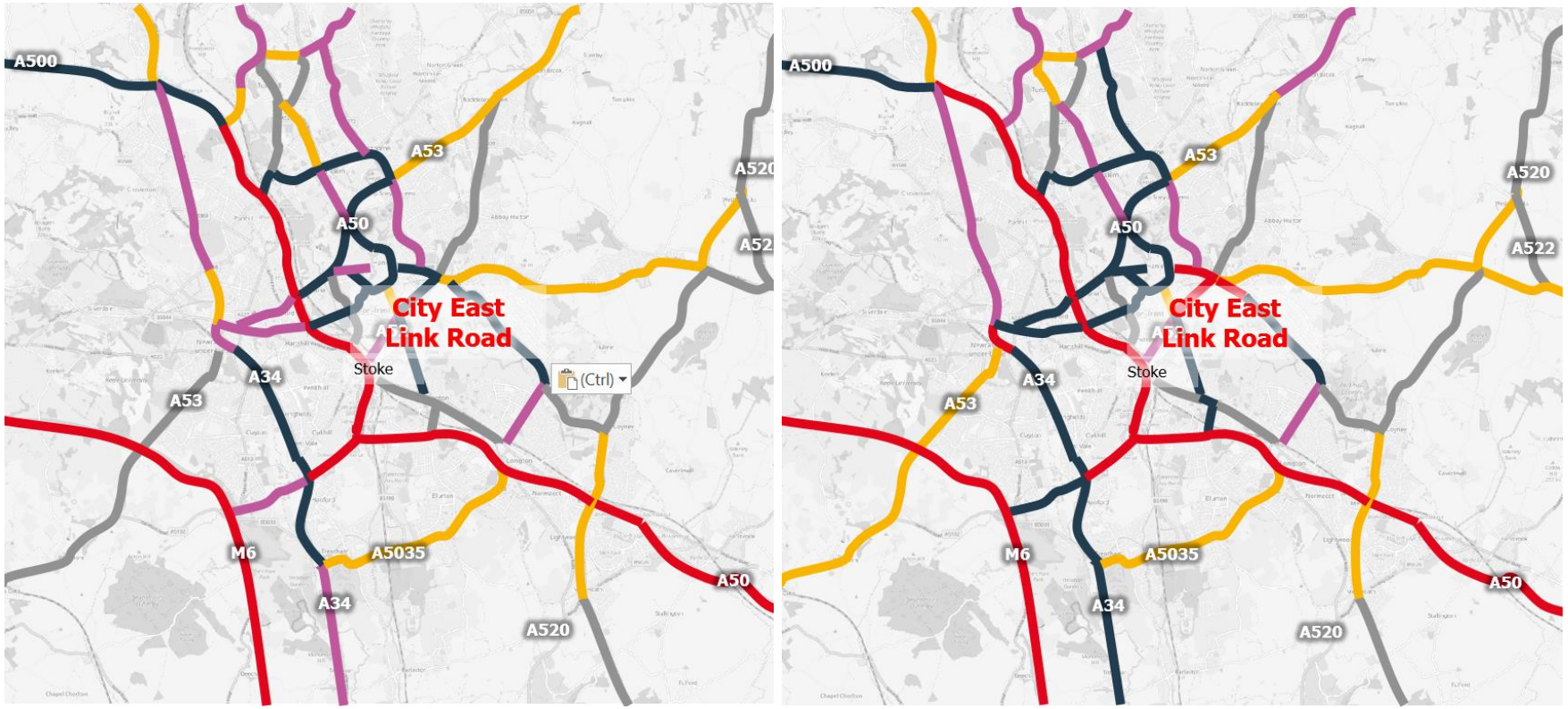


Actual Vehicles (Two Way)

- <1000
- 1000-2000
- 2001-3000
- 3001-5000
- 5001+

City East Link Road, Stoke-on-Trent

Figure 51 MCHM 2015 (left) and 2031 (right) AM Traffic



Actual Vehicles (Two Way)

- <1000
- 1000-2000
- 2001-3000
- 3001-5000
- 5001+

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