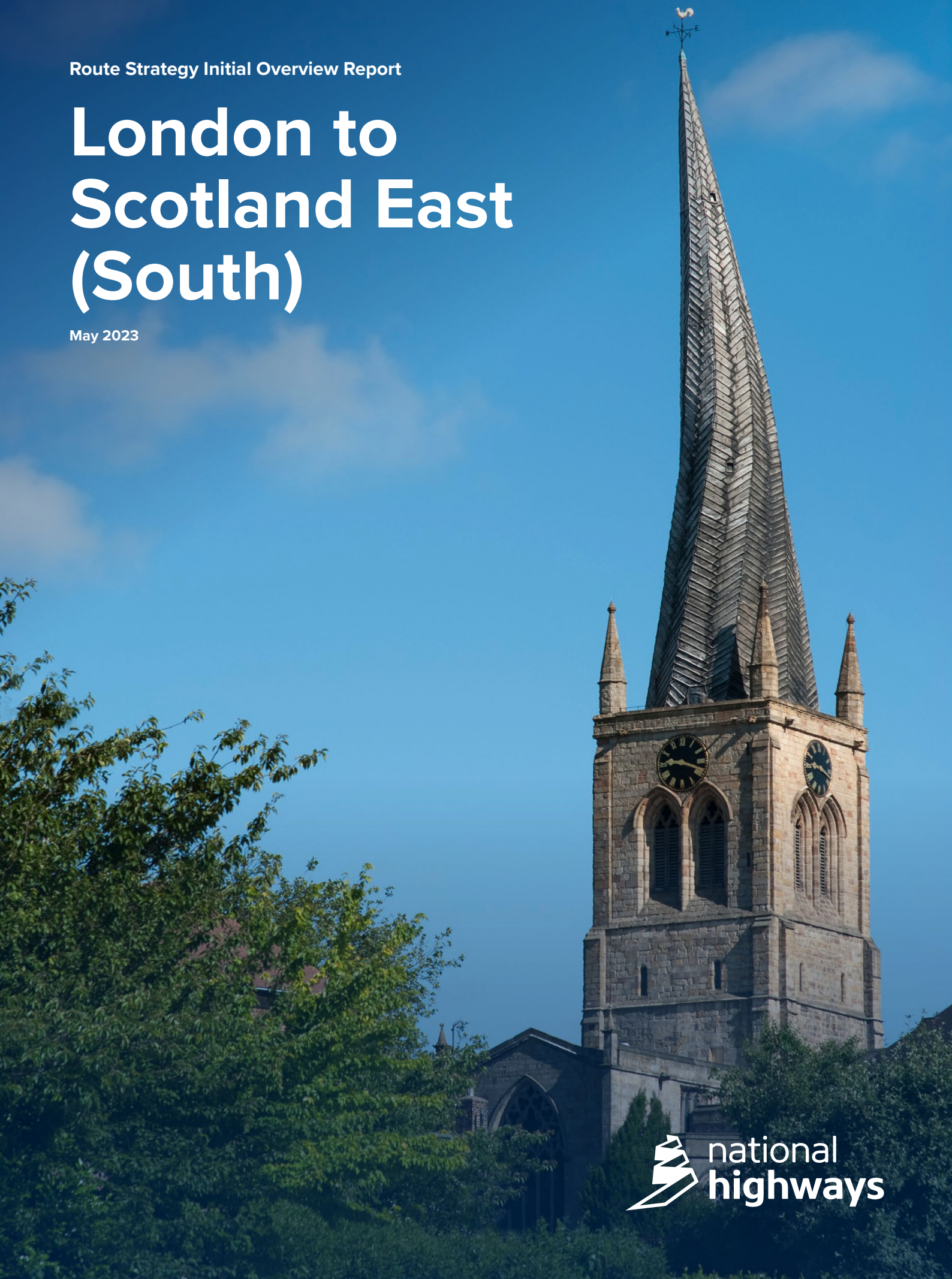
Route Strategy Initial Overview Report

London to Scotland East (South)

May 2023



national highways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Coventry
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&
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The SOUTH
London

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The routes

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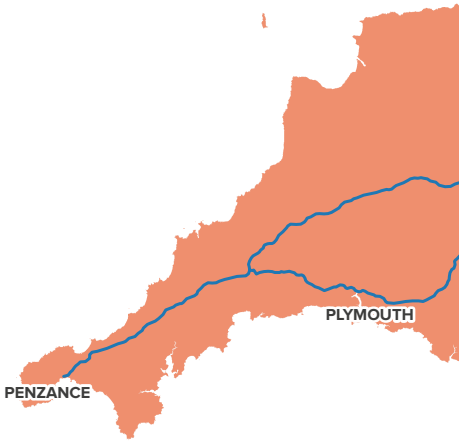
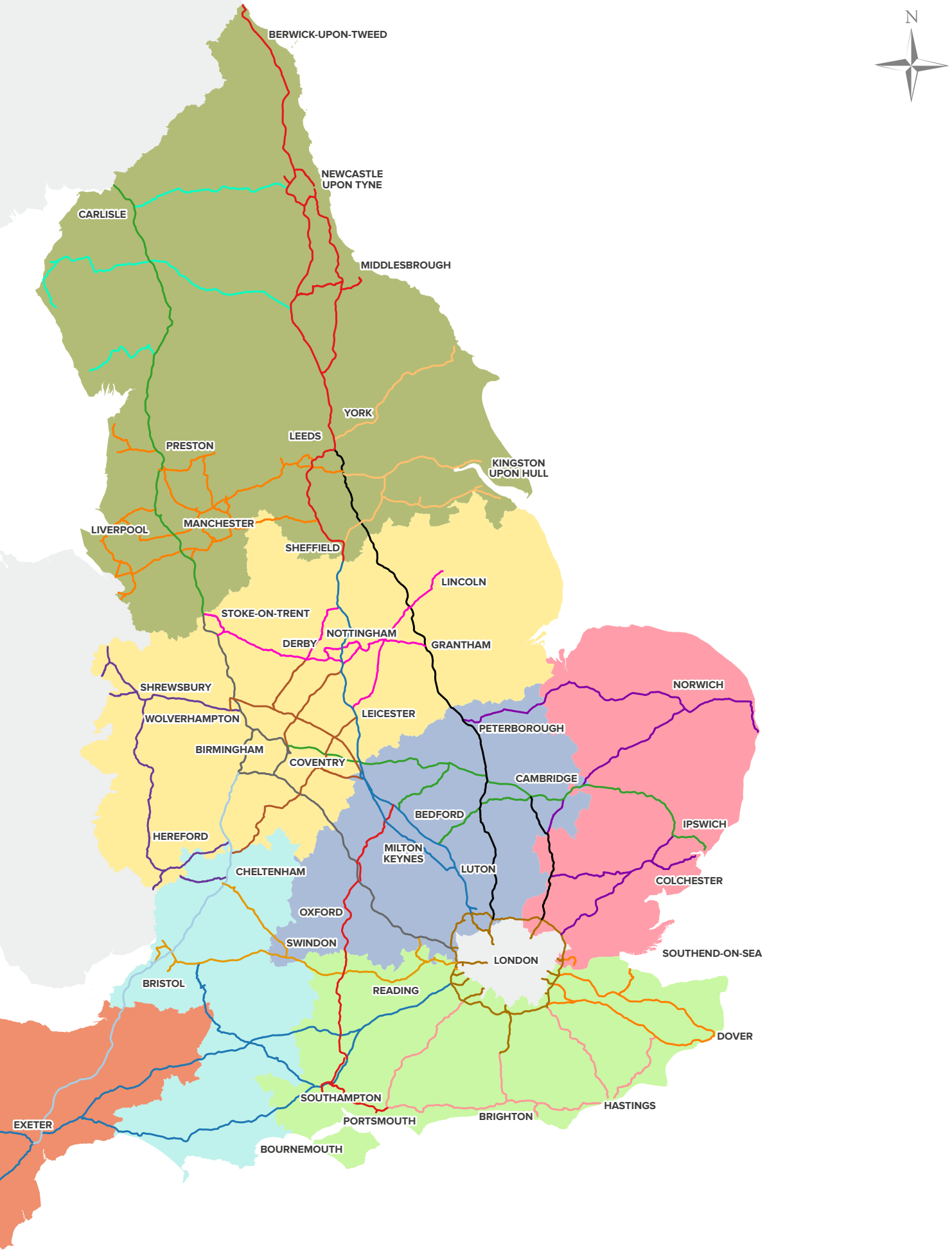
There are 17 routes relating to route strategies across our strategic road network (SRN). To take better account of our customers' end-to-end journeys, we have split some of the longer routes into sub-strategies across 20 reports.

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LINCOLN
STOKE-ON-TRENT
NOTTINGHAM
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PETERBOROUGH
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LONDON
SOUTHEND-ON-SEA
BRISTOL
READING
DOVER
SOUTHAMPTON
HASTINGS
BRIGHTON
PORTSMOUTH
EXETER
BOURNEMOUTH

Executive summary

Introduction

Our strategic road network (SRN) is the backbone of the country. More than 4,500 miles of motorways and major A-roads connect people, build communities, create opportunities and help the nation thrive. To plan for the future, we take a long-term view of our network and the trends that could impact transport, road travel, and personal and commercial mobility. Route strategies are at the centre of this dynamic future planning of our network, informing how we operate, maintain and renew our network. This report is the Initial overview report for the London to Scotland East (South) route and summarises the outcomes of the route strategy. The report builds on the first two rounds of route strategies in 2015 and 2017. It aims to be more forward looking, integrated and collaborative, while being dynamic enough to respond to the future needs of our customers and neighbours.

In this report, we detail the route context, current constraints on the route, and opportunities for improved connections with local roads and rail links. We set out intelligence-led route objectives aligned with the Department for Transport's (DfT's) six strategic objectives. These objectives aim to ensure the route can serve its function, while mitigating the identified constraints and challenges. They conclude with locations for further consideration to achieve the route objectives. The route objectives and locations for further consideration will be presented to the Department for Transport to inform future decision-making about investment planning through the Road investment strategy (RIS). It should be recognised that not all aspirations outlined in this report can be funded or delivered.

DFT'S SIX STRATEGIC OBJECTIVES FOR THE STRATEGIC ROAD NETWORK

- Improving safety for all
- Network performance
- Improved environmental outcomes
- Growing the economy
- Managing and planning the SRN for the future
- A technology-enabled network

For clarity, this document does not:

- identify committed schemes for delivery as part of future RIS periods. This will be part of the wider RIS setting process
- commit to the delivery of local plans or economic growth developments mentioned
- guarantee funding for any locations identified for further studying to understand the challenges and issues in more detail
- preclude the inclusion of other locations for consideration in the light of other evidence or imperatives

Customers and neighbours

Engagement with our customers and neighbours has been central to developing our route strategies. We have already gathered a wealth of evidence from the previous rounds of route strategies and through our ongoing monitoring of road condition and performance.

Our performance is monitored through the National Highways' Performance Framework. This Performance Framework was established at the start of the second road period (2020–2025) and sets out National Highways' commitments to 2025. It is outlined in the RIS2 *Delivery plan (2020–2025)*[1]. We will continue this monitoring approach into the third road period (2025–2030).

To add to this existing evidence, we carried out a detailed engagement programme for this round of route strategies to understand the current and future needs of those using and living alongside the SRN.

The route

The London to Scotland East (South) route provides part of a north–south strategic link between London and Scotland through the Midlands of England, serving many key towns and cities along the route, including Milton Keynes, Northampton, Leicester, Nottingham, and Derby. It comprises approximately 135 miles of the M1 and 45 miles of the A5.

This route strategy report can be read alongside other interacting route strategy reports, including:

- Felixstow to Midlands
- London to Scotland East (North)
- South Midlands

Challenges and issues

We have identified challenges and issues of those using the route and living alongside it. These correspond to the DfT's six strategic objectives, which are the strategic objectives for RIS3. They were agreed by National Highways and the DfT, and are set out in the RIS3 *Planning ahead*[2] document in December 2021.

Challenges and issues on the route have been identified which correspond to the the DfT's six strategic objectives:

Improving safety for all:

- The safety levels built in to the A5 (based on the International Road Assessment Programme) are rated as either 1-star or 2-star. By comparison, the M1 is rated as average (3-star) or better
- Observed collision data show a number of locations where a higher number of people were killed or seriously injured: on the M1 between Luton and Chesterfield, and on the A5 north of Milton Keynes
- The Road Safety Foundation has classified all of the M1 as 'low risk' and all of the A5 as 'low-medium risk'

Network performance

- Average morning peak delays on the M1 occur close to St Albans, Dunstable, Milton Keynes, Leicester and in the East Midlands Airport, Derby and Nottingham area
- Delays on the A5 tend to occur approaching roundabouts such as Tove Roundabout (A43) and Kelly's Kitchen (A4146) and approaching the traffic signals in Hockliffe
- Delays are adversely affecting reliability, especially south of Northampton

1 Highways England (2020) *Delivery Plan: 2020–2025.* https://nationalhighways.co.uk/delivery-plan/
2 Department for Transport (December 2021) *Planning ahead for the Strategic Road Network: Developing the third Road Investment Strategy.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1045938/planning-ahead-for-the-strategic-road-network-developing-the-third-road-investment-strategy.pdf

- Seasonal delays affect the route between Luton and Daventry, but less than some parts of the SRN nationally
- Interested parties consider there to be a lack of suitable alternative routes for north-south journeys following an incident or collision
- The M1 carries a high number of heavy goods vehicles, typically 10-15,000 per day in each direction, which account for at least 15% of vehicles

Improved environmental outcomes

- Maintain and protect Areas of Outstanding Natural Beauty, and other environmental and historic designations
- A large number of receptors which may be more likely to experience adverse air quality impacts are within 100 metres of the M1 in particular, and/or are within designated Air Quality Management Areas (AQMAs)
- A substantial number of receptors within 300 metres of the route which may experience higher noise and/or within a Noise Important Area (NIA)
- A desire to minimise greenhouse gas emissions
- A desire to build resilience to future climate change

Growing the economy

- The M1 is of particular strategic importance to the success of the UK economy
- The M1 and A5 are also important to the economy of the south Midlands, Milton Keynes, Bedfordshire, and Hertfordshire including the warehousing and logistics sectors
- Significant growth in economic activity and employment is expected along the route, particularly between East Midlands Airport and Hemel Hempstead
- Significant housing growth is expected close to many of the cities and towns along the route
- Deprivation levels are more widespread in the north of the route but there are pockets of deprivation elsewhere, including in many of the towns and cities (Index of Multiple Deprivation 2019)[3]
- Some interested parties are concerned about whether the SRN has sufficient capacity to cater for growth without adversely affecting network performance
- Potential to integrate road and rail provision to enable growth

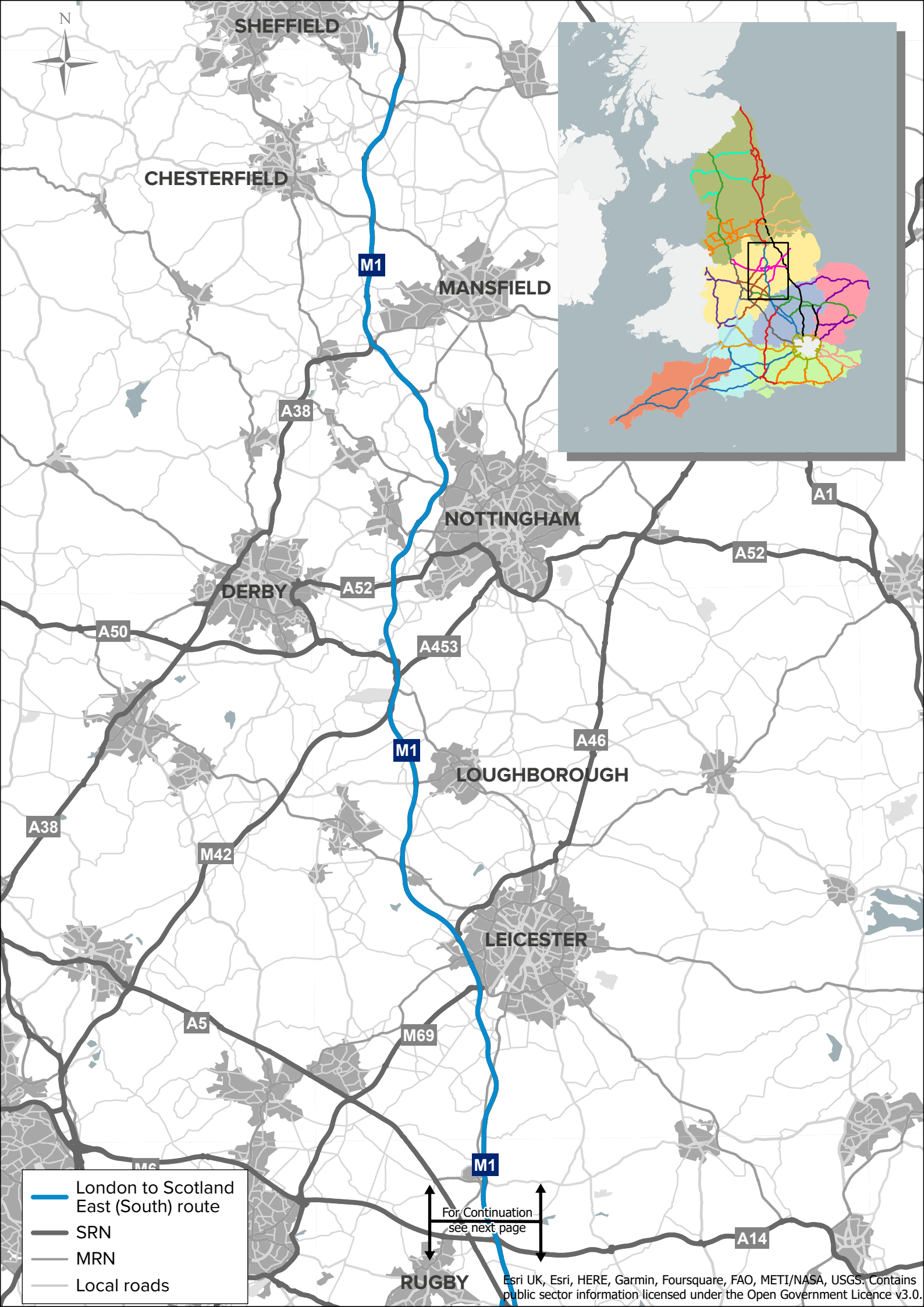
Managing and planning the SRN for the future

- Contributing toward the national target of 96.2% or more of carriageway being in good condition
- Maintaining the good condition of the strategic road network's geotechnical assets
- Ensuring that drainage assets are maintained so that their good structural and service conditions can be upheld
- Requirement for significant renewal of four structures

A technology-enabled network

- There is a lack of real-time information for road users during journeys on the A5
- Integration of traffic management between the SRN and local roads
- There is a need for more electric vehicle charging points
- Interested parties want more alternative fuelling facilities for heavy goods vehicles

3 Ministry of Housing, Communities & Local Government (September 2019) *English indices of deprivation 2019.* https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019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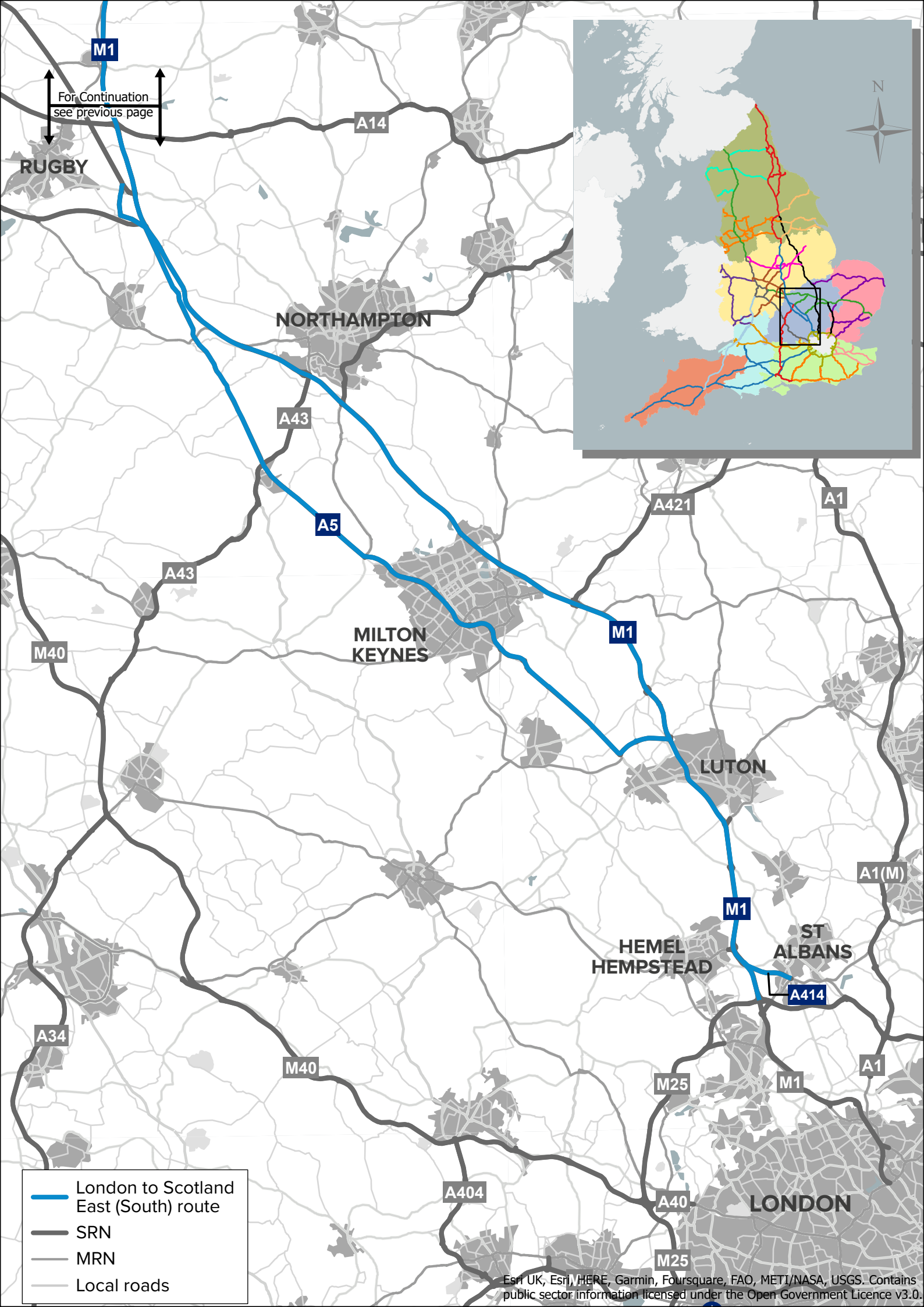
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Initial route objectives

We want to provide safer and more reliable journeys for all those who use or live alongside our network, and support the route in achieving the economic and housing growth ambitions of surrounding areas. Based on our engagement and data analysis, we have defined a set of objectives for the route. The table below shows the route objectives and how they contribute to the DfT's six strategic objectives for the SRN as a whole.

		DfT's strategic objectives for our network					
Ref.	**Route objective**	**Improving safety for all**	**Network performance**	**Improved environmental outcomes**	**Growing the economy**	**Managing and planning the SRN for the future**	**A technology-enabled network**
A	**Improving safety on the M1 and A5:** improve road safety on the A5 between Milton Keynes and Rugby and address locations with higher numbers of collisions on the M1 including around Luton, Leicester and Mansfield	✓	✓				
B	**Reducing the impacts of the SRN on adjacent communities:** be a better neighbour by safeguarding the environment and reducing adverse air quality and noise impacts on local communities adjacent to the M1 and A5 in Luton, Newport Pagnell, Leicester, Nottingham and north Nottinghamshire and Milton Keynes			✓			
C	**Reliable strategic north-south connections:** support reliable UK strategic north-south connectivity for people and goods between London and the south-east of England, the north of England and Scotland		✓		✓		
D	**Reliable strategic connections between the south-west, South Wales and the North:** support reliable UK strategic connectivity for people and goods between the South West, South Wales and the North of England and Scotland (via connections to the A38/ M42, A43 and A46 corridors)		✓		✓		
E	**Support essential access to cities, towns and international gateways:** support access for essential mobility of people and goods to the cities, towns and international gateways along the route: Sheffield, Nottingham, Derby, Leicester, Northampton, Milton Keynes, Bedford, Luton, Milton Keynes, Hemel Hempstead, East Midlands Airport and London Luton Airport		✓		✓		✓
F	**Support sustainable employment growth:** support regionally significant and sustainable employment growth close to the M1 and A5 including at East Midlands Gateway, Magna Park, Daventry International Rail Freight Terminal (DIRFT), Northampton, Milton Keynes and London Luton Airport		✓		✓		
G	**Supporting sustainable housing growth:** support regionally significant and sustainable housing growth close to the M1 and A5 including around Leicester, Derby, Northampton, Rugby, Bedford, Luton and Hemel Hempstead		✓		✓		

Next steps

The 20 route strategy Initial overview reports will combine with other related evidence to inform the broader *SRN initial report* as part of the RIS process for the third road period (2025-2030). The *SRN initial report*[4] includes an assessment of the current state of the network and user needs from it, potential maintenance and enhancement priorities, and future developmental needs and prospects. DfT will consult on this *SRN initial report*[4], which will serve to inform the RIS and *Strategic business plan*.

We will finalise the Route strategy overview reports following feedback on the publication of these Initial overview reports. They will be used as a forward planning tool by National Highways to help identify investment opportunities for enhancements, as well as to support decisions around operating and maintaining our network. Providing an understanding of the strategies for each route will also help inform the decisions taken by our interested parties. These finalised Route strategy reports will also serve to inform the RIS and *Strategic business plan*[5].

4 National Highways (2023) *Strategic Road Network Initial Report,* https://nationalhighways.co.uk/futureroads
5 National Highways' Strategic business plan will be published later in road period 2 (2020-2025)

Helping the nation to thrive

01 Introduction

Our strategic road network (SRN) is the backbone of the country. More than 4,500 miles of motorways and major A-roads connect people, build communities, create opportunities and help the nation thrive.

Our network provides safe, high-speed connections that:

- enable businesses to transport products and services
- provide access to jobs and suppliers
- facilitate trade and investment
- support commercial and housing development that is integrated with local roads and other modes of transport

The SRN also supports leisure journeys, connecting people and places, and will play a central role in delivering the social, economic and environmental needs of the nation, especially as we seek to reduce the carbon footprint of our network.

To plan for the future, we are taking a long-term view of our network and the trends that could impact transport, road travel and personal and commercial mobility. We consider factors ranging from climate change and low-carbon transport to increasing automation, digital technologies and changing travel preferences. Route strategies are at the centre of this dynamic future planning of our network. They build on our *Connecting the country: Our long-term strategic plan to 2050*[6] that sets out our vision and plan for the SRN until 2050, aligning with the Government's *Ten point plan for a green industrial revolution*[7].

Purpose of route strategies

Our route strategies are based on 17 routes across England, with some split into two sub-strategies where this better reflects our customers' end-to-end journeys.

There are 20 reports in total. We outline the objectives of each route along with the constraints faced and the current and predicted future performance based on analysis and widespread engagement with our customers and neighbours. Our customers and neighbours include:

- local authorities, devolved administrations, and Sub-national Transport Bodies
- other transport network operators (including local highway authorities, Network Rail, port and airport operators)
- operational partners (including, but not limited to, the emergency services)
- road users
- local communities
- other relevant interested parties with a significant stake in the long-term development of the network
- Members of Parliament

We also provide a list of locations for further consideration to inform investment planning across National Highways and for the Road investment strategy (RIS). We develop and publish these route strategies to:

- help us develop an understanding of the future state of the routes
- identify the locations for further consideration to inform our investment programmes and guide our vision

6 National Highways (2022) *Connecting the country: Our long-term strategic plan to 2050* https://nationalhighways.co.uk/connectingthecountry

7 HM Government (November 2020) *The Ten Point Plan for a Green Industrial Revolution: Building back better, supporting green jobs, and accelerating our path to net zero.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936567/10_POINT_PLAN_BOOKLET.pdf

- give a practical tool to National Highways as a whole, while supporting external interested parties who anchor their infrastructure planning and investment around our network
- help ensure that all investment delivers safer and more reliable journeys for our customers and neighbours

For clarity, this document does not:

- identify committed schemes for delivery as part of future RIS periods. This will be part of the wider RIS setting process
- commit to the delivery of local plans or economic growth developments mentioned
- guarantee funding for any locations identified for further studying to understand the challenges and issues in more detail
- preclude the inclusion of other locations for consideration in the light of other evidence or imperatives

Route strategy reports

These Route strategy initial overview reports have informed the *SRN initial report*[8] that sets out our vision and proposed priorities for the third road period (2025-2030) and beyond.

The final Route strategy overview reports will be published by the end of the RIS period, which covers 2020-2025. The three delivery phases of route strategies are shown in Figure 1.

Purpose of the report

This report is the route strategy for London to Scotland East (South). In this report, we detail the route context, current constraints on the route, and opportunities for improved connections with local roads and rail links. We set out intelligence-led route objectives aligned with the DfT's six strategic objectives. These objectives aim to ensure the route can serve its function, while mitigating the identified constraints and challenges. They conclude with locations for further consideration to achieve the route objectives.

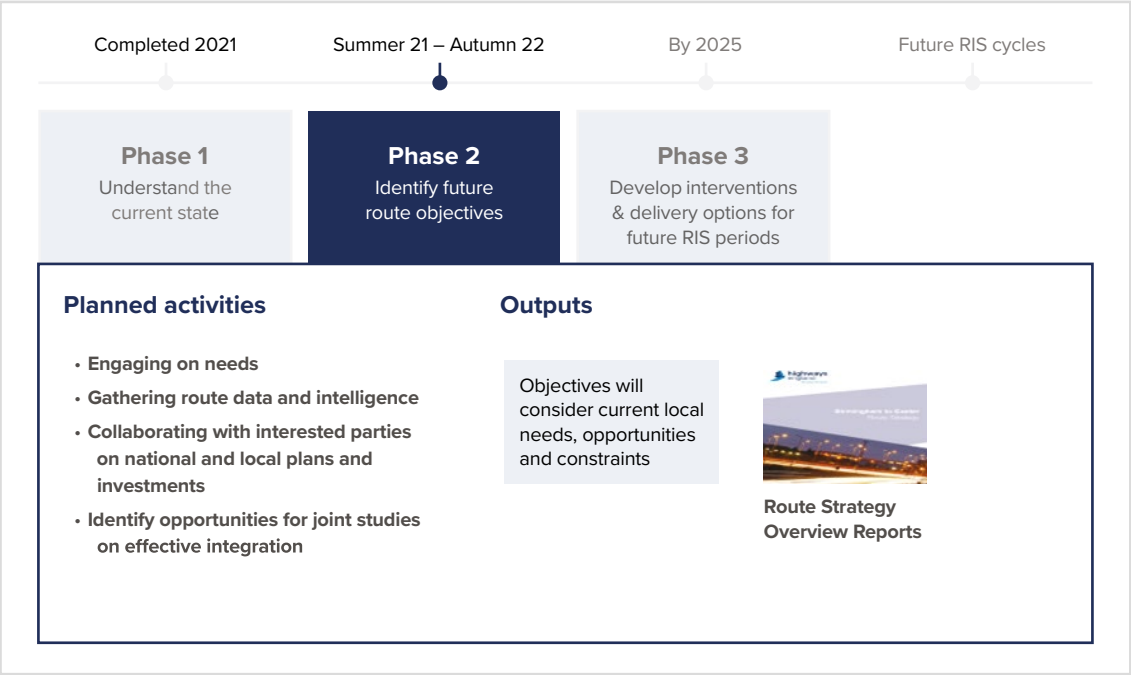


Figure 1: The route strategies delivery phases

8 National Highways (2023) *Strategic Road Network Initial Report,* https://nationalhighways.co.uk/futureroads

The route objectives and locations for further consideration will be presented to DfT to inform future decision-making about investment planning through the RIS. It should be recognised that not all aspirations outlined in this report can be funded or delivered.

The development cycle for the third Road Investment Strategy (RIS3)

Preparing route strategies is a requirement under the Infrastructure Act as well as a National Highways Licence requirement. The Licence sets out the Secretary of State for Transport's statutory directions and guidance to National Highways. It states that we must periodically prepare and publish route strategies covering the whole of the network to maintain an understanding of how the network is performing, while identifying any potential challenges. Each set of route strategies informs each RIS outlined by government, as well as supporting decision-making for the ongoing management and development of the network.

Route strategies are one of the key steps of research required by DfT to inform the setting of a RIS. Following the setting of RIS1 and RIS2, which covered the first road period (2015-2020) and second road period (2020-2025), we are now in our third round of route strategy planning informing RIS3 for the third road period (2025-2030) and beyond.

Looking across the whole of the SRN, our route strategies form one of the most important parts of the 'research' phase of the RIS3 development cycle. These strategies explore the current performance and future pressures on every stretch of the SRN, covering matters such as safety, reliability, congestion, environmental impacts, and local ambitions for economic and housing growth. Through the extensive engagement we have undertaken to inform the strategies, we provide insight to DfT and government into local, regional and national priorities for the SRN to support investment decisions for RIS3 and beyond. Grounded in evidence, the strategies identify the immediate needs of the network as well as highlighting longer-term issues or potential opportunities as shown in Figure 2.

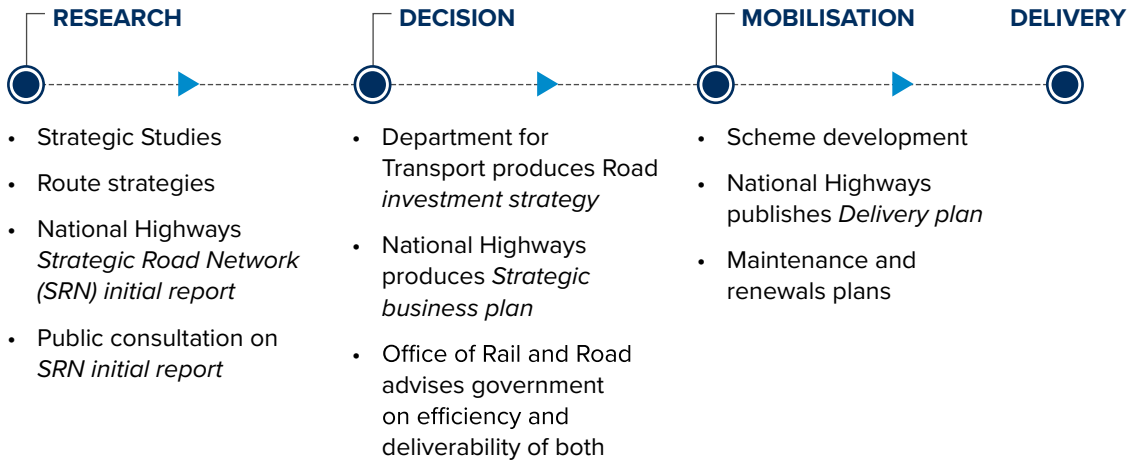


Figure 2: The RIS development cycle

We have developed a revised approach to route strategies, building on past versions, to ensure they respond to the current and future needs of our customers and neighbours. The approach for route strategies is outlined in our approach document *Vision for route strategies: Planning for the future of our roads*[9].

Our ambitions for route strategies, summarised in Figure 3, are to be forward-looking, widely supported, and integrated with other networks and modes of travel. They will consider the implications of local development plans and government ambitions and be dynamic to respond to the changing needs of our customers and neighbours in how they use and interact with our network. Such needs may evolve as a result of how people use our network due to COVID-19, environment considerations, or the need to support strategic connections and integrated solutions that connect locations, all of which will have an influence on the scale and type of future investments. We will work with interested parties to ensure that the route strategies are widely supported and integrated into regional and local strategies.

Engagement with customers and neighbours

Engagement with customers and neighbours has been central to developing our route strategies. We have already gathered a wealth of evidence from the previous rounds of route strategies and through our ongoing monitoring of road condition and performance.

Building on engagement to date, we have worked with Sub-national Transport Bodies, Office of Rail and Road, DfT, and Transport Focus to ensure a diverse range of people and their views are represented. This has allowed us to further improve our understanding of our customers and neighbours' requirements, helping us identify locations for further consideration to improve the SRN. We will continue to evolve this engagement process for future cycles of route strategies. We used a range of methods to gather information from customers and neighbours throughout the route strategies' evidence collection period, which ran from August to December 2021 (Figure 7). These included round tables, workshops, and an online feedback form and we designed the approach to be more inclusive by engaging with and learning from a wide range of interested parties.

Thinking about how the SRN integrates with the surrounding rail and road network, including parts of the major road network (MRN) and local roads, we designed our engagement around the following objectives:

- to understand the current role of the SRN and how it could better support the aspirations of customers and neighbours of the future
- to gather views and seek evidence on current and future issues, challenges and opportunities – both local and strategic

We have also gained an in-depth understanding of what our road users want nationally from Transport Focus' *Strategic Roads User Survey 2021/22*[10] into road users' priorities for improvements to journeys on the SRN. This research was based on focus groups and interviews with all types of road users across the country, alongside a survey of more than 5,000 drivers. It asked for users' views on key issues, such as sustainability and electric vehicles, and the stress of driving on the SRN.

From this research, Transport Focus identified that the majority of road users want the focus of investment to be on keeping National Highways' existing roads in good order before building new ones. Their top priority for improvement to journeys on the SRN is road surface quality, followed by the safer design and upkeep of roads.

9 Highways England (2021) *Vision for route strategies Planning for the future of our roads*, https://nationalhighways.co.uk/media/w0vhd3un/vision-for-route-strategies.pdf
10 Transport Focus (2022) *Strategic Roads User Survey - 2021/22 Summary Report*, https://www.transportfocus.org.uk/publication/strategic-roads-user-survey-2021-22-summary-report/

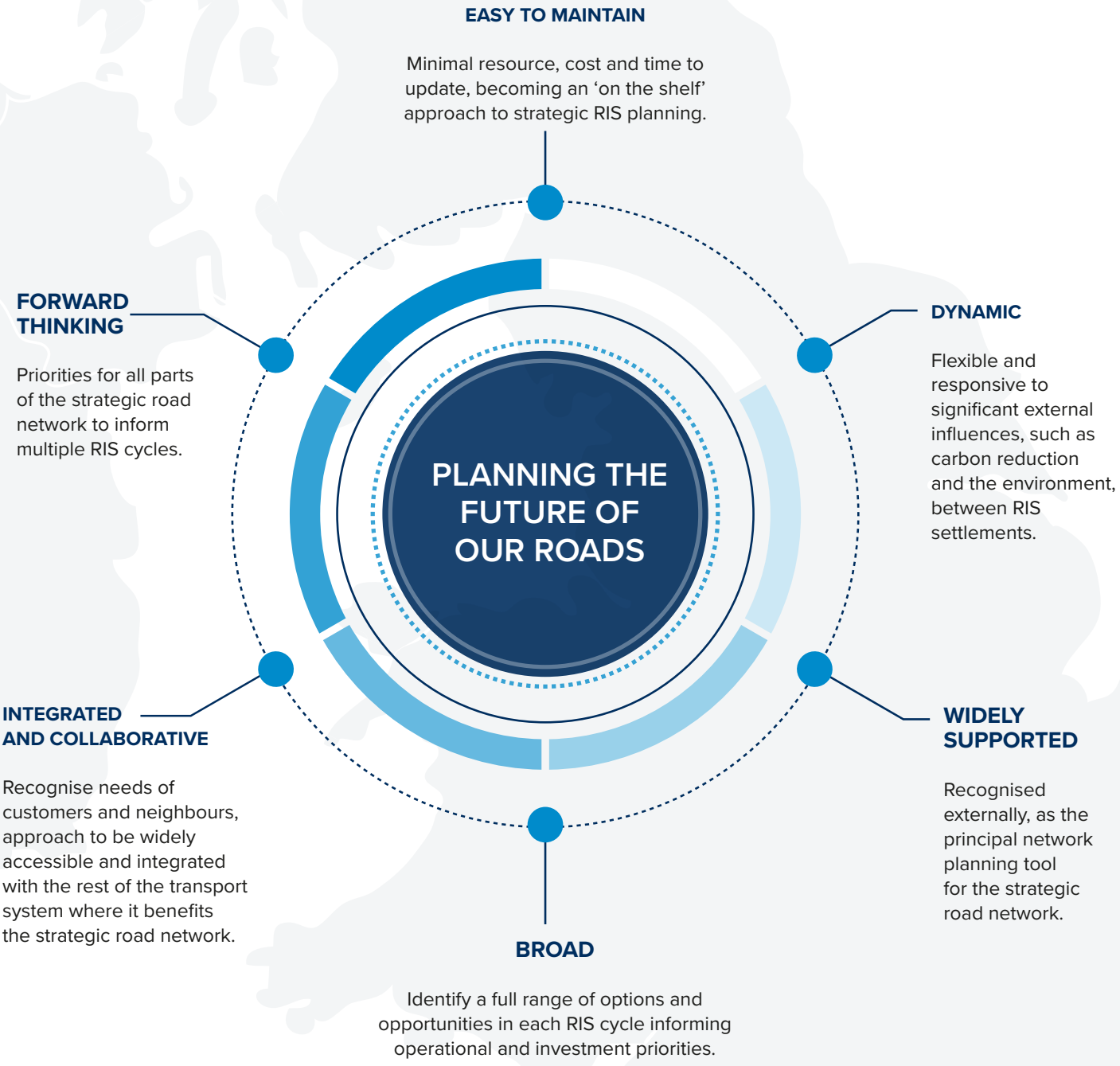


Figure 3: Our ambition for route strategies

Users also want to see better management of roadworks and of unplanned delays, such as incidents or breakdowns, and better information about unplanned disruptions to journeys. Walkers, cyclists and horse riders using the SRN highlighted concerns about the speed of traffic and want action on lighting and litter. This research will be used by Transport Focus to make recommendations about what National Highways should be required to deliver during the third road period (2025-2030).

The findings from the Transport Focus survey align with findings from our route strategies engagement with customers and neighbours across the SRN.

Engagement during workshops with interested parties (shown in Figure 6) identified the following national priorities:

- Better driver education aimed at teaching road users about new technology
- Deeper consideration of environmental constraints at the earliest stage of planning, and consideration for key environmental issues such as biodiversity, air quality and sustainable transport
- A resilient and reliable SRN to support economic growth
- Better integration between the SRN and local road network to improve journey times
- Greater support for the freight industry in terms of:
  - the future of low emission vehicles and commercial fleet
  - the impact of congestion on productivity, fuel cost, driver breaks, lorry park locations and delivery times
- Greater collaboration and early engagement with interested parties, and greater alignment between network operators, including consideration for joint funding opportunities

In addition, feedback on the SRN provided by communities and neighbours via the online tool, showed similar national priorities. The breakdown of the 1,700 responses we received via the online feedback tool are shown in Figure 4 and Figure 5.

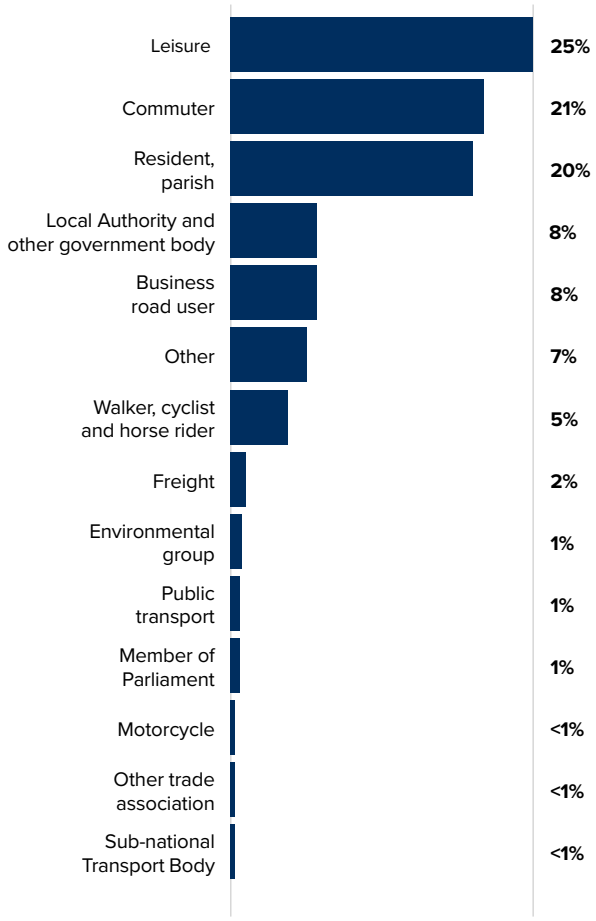


Figure 4: All responses to online tool by participant type

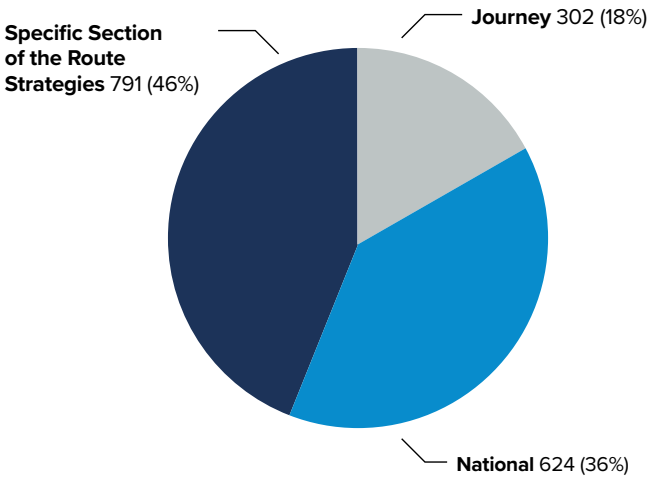


Figure 5: All response to online tool by type

A breakdown of the national issues and general feedback raised is shown in Figure 8, which highlights that, in terms of the issues identified:

- 26% were related to safety
- 23% were related to congestion
- 28% were related to the environment or carbon

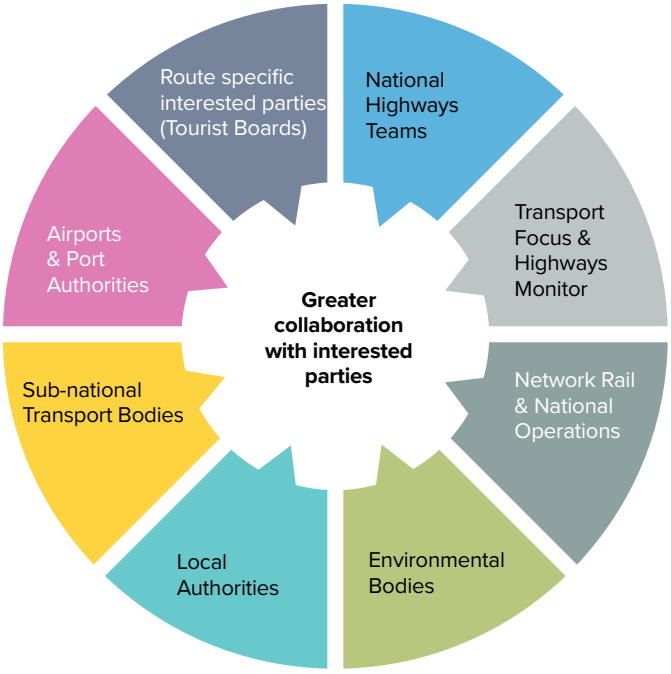


Figure 6: Interested parties involved in the route strategy engagement

Figure 7: Timeline of engagement with interested parties

DfT's strategic objectives for the strategic road network

DfT have published six objectives for the SRN. These are the strategic objectives for RIS3 (2025-2030) that have been agreed between National Highways and DfT and were set out in the *RIS3 Planning ahead*[11] document in December 2021. They cover safety, network performance, environment, economy, management and planning for the future and technology.

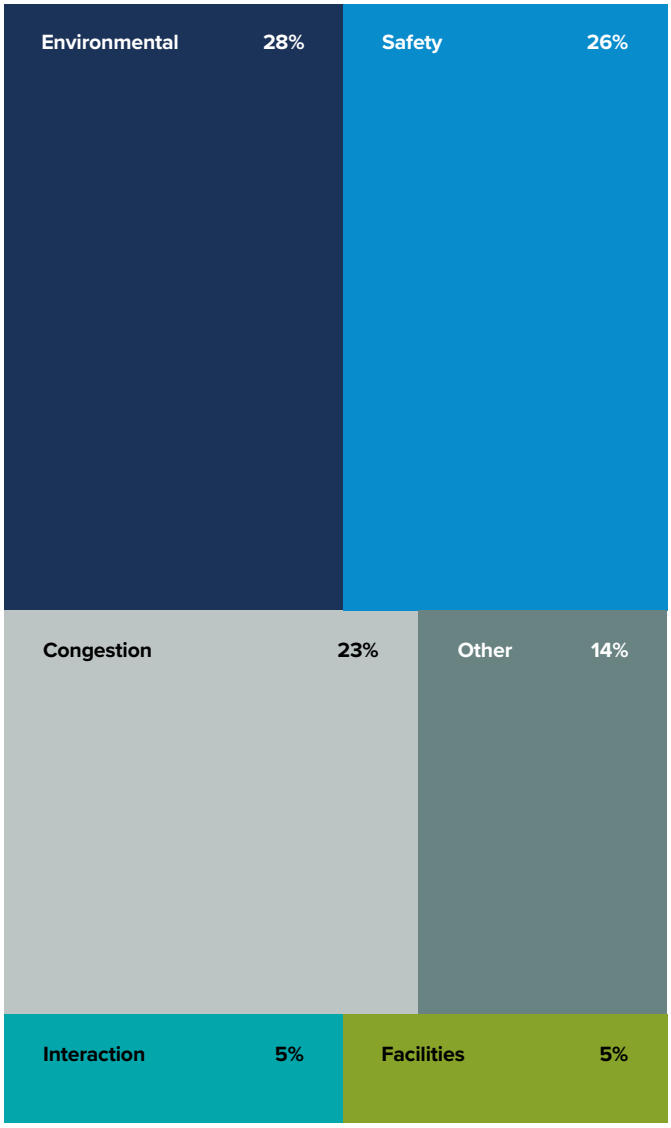


Figure 8: National themes from feedback through the online tool

11 Department for Transport (December 2021) *Planning ahead for the Strategic Road Network: Developing the third Road Investment Strategy.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1045938/planning-ahead-for-the-strategic-road-network-developing-the-third-road-investment-strategy.pdf

All our route strategies need to show how they contribute to the delivery of the DfT's six strategic objectives for our network, to ensure we meet future challenges. These help us create relevant, meaningful and effective strategies that address evolving concerns. Such concerns include decarbonisation, ecology, the need for new homes and the desire for a better-connected country.

This aligns with the Infrastructure Act 2015, where National Highways has a statutory obligation to have regard to the effect of its functions on the environment, and the safety of users of highways.

At a national level, National Highways has existing commitments and ambitions to contribute to the DfT strategic objectives, as outlined below. The strategies for each route are aligned with these. They include:

i) Improving safety for all

- Our safety approach

ii) Network performance

- Expectations over COVID-19 and travel demand
- Our ambition for supporting freight, logistics and the coach industry
- Our ambition for supporting end-to-end journeys for a variety of modes
- Our approach to trunking and de-trunking for SRN

iii) Improved environmental outcomes

- *Net zero highways: Our 2030 / 2040 / 2050 plan*[12]
- Our plan for net zero carbon travel on our roads covering emissions from the vehicles using the SRN
- Our approach to improved environmental outcomes

DFT'S SIX STRATEGIC OBJECTIVES FOR THE STRATEGIC ROAD NETWORK

- Improving safety for all
- Network performance
- Improved environmental outcomes
- Growing the economy
- Managing and planning the SRN for the future
- A technology-enabled network

iv) Growing the economy

- Our contribution to growing the economy and levelling up
- Our approach to spatial planning

v) Managing and planning the SRN of the future

- Our approach to asset management

vi) A technology-enabled network

- Our ambition for digital roads

12 National Highways (2021) *Net zero highways: our 2030 / 2040 / 2050 plan*. https://nationalhighways.co.uk/media/eispcjem/net-zero-highways-our-2030-2040-2050-plan.pdf

IMPROVING SAFETY FOR ALL

OUR SAFETY APPROACH: We are committed to reducing the number of road users killed or seriously injured on the strategic road network, by 50% (from the 2005-2009 baseline) by the end of 2025, with a long-term vision to eliminate harm arising from use of the SRN. We recognise:

- safety is National Highways' top priority. We believe that everyone who travels or works on our roads should get home safe and well
- billions of miles are travelled on the SRN each year, with the vast majority of these safe and reliable journeys
- our roads are some of the safest in the world, but we know there is more we can do. Every death or serious injury on our roads is a tragedy and we are committed to creating the safest roads in the world

NETWORK PERFORMANCE

EXPECTATIONS OVER COVID-19 AND TRAVEL DEMAND: COVID-19 has had the biggest single-year impact on road traffic since records began in 1949. But car traffic on the SRN is now back to approximately 95% of pre-pandemic levels.

At the time of writing, while the onset of COVID-19 and the rapid rise in homeworking initially decreased demand for both public and private transport, the greatest impact has been on public transport, with private vehicle travel the first mode to rebound. Homeworking has not noticeably reduced demand for the SRN. An estimated 43% of UK jobs can be done entirely from home, but nearly two-fifths of businesses expect 75% of their workforce to eventually return to their normal place of work.

It is unclear if the scale of homeworking will continue or how it will affect long-term travel demand. For the short-term, transport flow data has generally shown that traffic peaks have become flatter but broader, with traffic more evenly spread across the day, suggesting some behaviour change.

Continued hybrid working could see a redistribution of demand, flattening the daily morning and afternoon peaks, and instead creating a mid-week peak.

The pandemic has also brought wider uncertainties, such as whether these loosened physical ties to employment locations could see increases in suburban living, as workers that are more 'knowledge-based' than 'location based' take advantage of greater geographic mobility across the country.

Changes in leisure trends caused by the pandemic could also have implications for the SRN, such as the changing demand for high street retail or choices around domestic versus overseas holiday-making. Such needs may evolve, all of which will have an influence on the scale and type of future investments.

SUPPORTING FREIGHT, LOGISTICS AND THE COACH INDUSTRY: We continue to collaborate with our freight and logistics customers to better understand how the SRN can support their operations, and work with wider government in the delivery of their *Future of freight plan*[13]. We recognise that lorry parking and facilities are key to enabling freight and logistics businesses to operate safely and efficiently. A lack of parking and good quality facilities impacts the recruitment and retention of drivers into a sector that is crucial to the country's economy. We are keen to play our part in ensuring good quality facilities are in the right places and that we support the sector in recruiting and retaining a diverse pool of drivers.

Our ambition is to improve lorry parking by:

- intervening where the market is not meeting the demand for lorry parking (areas of high demand with insufficient facilities)
- working with operators to improve the quality of existing facilities
- ensuring our major projects consider the needs of lorry drivers

13 Department for Transport (June 2022) *Future of Freight: a long-term plan*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1085917/future-of-freight-plan.pdf

In addition to supporting lorry parking, we remain focused on:

- reducing congestion on the SRN, which affects the speed, reliability and cost of logistics, as well as driver safety when journeys exceed regulated driving time
- improving the suitability of alternative routes and diversions off the SRN
- supporting the industry in achieving net zero carbon emissions by facilitating the adoption of alternative fuels linked to parking facilities
- ensuring resilience on key freight routes, such as between ports, airports, wharves and rail freight interchanges
- increased data sharing on incidents, roadworks and diversions
- understanding changes in how our freight and logistics customers use the SRN so we can continue to provide the best possible service

IMPROVING END-TO-END JOURNEYS FOR A VARIETY OF MODES: The SRN plays an important role in supporting a wide range of customer journeys by different modes of transport. We are exploring how to support customers' end-to-end journeys by creating travel choices that deliver our target of net zero carbon customer journeys by 2050. We recognise our role in supporting an integrated transport network that allows our current and future customers to re-route, re-time, re-mode and reduce their journeys, especially at peak times and during major disruption.

Through understanding National Highways' role in influencing and improving travel, we will identify how to support customers utilise the right mode for the right journey. By working closely with operators, we will ensure our network supports bus and coach services.

And through the development of active travel networks we can help deliver health and wider social benefits.

Our focus is on delivering net-zero customer journeys by 2050 through behaviour change towards sustainable travel by:

- understanding travel behaviours to identify customer needs for end-to-end journeys, supporting the development of a travel demand management strategy
- ensuring our customers have the information they need to make the travel choices that are right for them
- improving integration of different modes of travel by working with key interested parties to deliver a range of active travel and public transport interventions
- using behaviour change and techniques to manage future travel demand and minimise disruption from major works
- continuously improving our offer for walkers, cyclists and horse riders

SRN TRUNKING/DETRUNKING: For RIS2 (2020-2025), we were asked to explore changes to the SRN to ensure the network aligns with RIS2 strategic priorities, reflected in the *Strategic business plan*. This plan relates to improving connections between main urban centres, to international gateways, to peripheral regions (for levelling up) and strategic cross-border routes (to strengthen union connectivity). It included a commitment to explore potential asset ownership changes between ourselves and local highway authorities that could be implemented no earlier than the start of RIS3 (2025-2030). DfT have produced a shortlist of 18 trunking and two de-trunking candidates, identified following the draft RIS2 public consultation in 2018, for us to assess desirability and viability of asset transfer. De-trunking is the process of returning a National Highways road to the local highway authority control and vice versa for trunking.

These candidates were put forward by a range of external interested parties, including local authorities, Local Enterprise Partnerships and Chambers of Commerce, then shortlisted by DfT. There is ongoing work to review the assessment evidence and recommendations, after which government ministers are expected to announce the candidates that will progress to the detailed development stage, which will be led by National Highways and incorporated in the forward study programme and wider RIS3 process.

IMPROVED ENVIRONMENTAL OUTCOMES

NET ZERO HIGHWAYS: NATIONAL HIGHWAYS' 2030/2040/2050 PLAN[14]. We are committed to being a Net Zero Carbon Company by 2050 (2040 for Maintenance and Construction emissions).

We published our ambitious net zero carbon plan in July 2021. It details how we will achieve net zero emissions for: our corporate space by 2030, our maintenance and construction emissions by 2040, and road user emissions by 2050. We're keen to support a sustainable future and know that road travel is vital to enabling a thriving net zero economy. Our plan strengthens the decarbonisation of the transport sector, which remains the biggest emitting sector of greenhouse gases in the country.

We also need to consider how the SRN will be resilient to climate change. Our route strategies will need to recognise that the schemes we construct are likely to be subjected to changes to the climate, such as flooding.

Our route strategies demonstrate how we will continue to connect the country and ensure that the SRN is environmentally sustainable and resilient to climate change. This includes understanding the right schemes and options that support integration across different modes of travel, improve the SRN's capacity through digital roads, and deliver broader environmental enhancements.

This will change the way we work both internally and with our supply chain and wider interested parties.

As part of our net zero commitment, we need to consider the contribution our schemes make to sustainable development. We are adopting the PAS2080 Carbon Management in Infrastructure Standard that will help us invest only where we can achieve our zero carbon goals. Guided by the PAS2080 Standard, we will use an investment hierarchy where we favour opportunities to deliver whole life value without undertaking construction. We will demonstrate that we have considered all interventions during our planning stages and that every effort is made to avoid negative impacts and maximise environmental benefits throughout the lifecycles of schemes. We will also work with government and the private sector to set out a clear proposition by 2023 for electric vehicle charging on our network. This will cover both customer need and the infrastructure required to deliver this.

More than ever we need to support the Government's wider plans for decarbonising transport. The SRN plays a pivotal role in supporting the transition to zero carbon cars, vans and heavy goods vehicles (HGVs), but we also recognise that we need to better integrate with other modes of transport too, including public transport and active travel.

NET ZERO CARBON TRAVEL ON OUR ROADS COVERING EMISSIONS FROM THE VEHICLES USING THE STRATEGIC ROAD NETWORK: We have set an ambition for all of our customers to be travelling using net zero transport by 2050, in line with the UK Climate Change Act. Many of the actions that will deliver this ambition are out of our direct control, but that does not mean we cannot play our part. Our priorities are to help roll-out solutions to decarbonise HGVs and support the uptake of electric cars and vans. We will also continue our work on integrating the SRN with other transport modes, while working to improve the efficiency of the network.

14 National Highways (2021) *Net zero highways: our 2030 / 2040 / 2050 plan*. https://nationalhighways.co.uk/media/eispcjem/net-zero-highways-our-2030-2040-2050-plan.pdf

Our actions relating to reducing emissions from road users of our network include:

- publishing our proposed approach to zero carbon HGV trials by the end of 2022
- publishing a blueprint for electric vehicle charging services on our roads by 2023
- integrating a strong modal shift programme in the third road period (2025-2030), building on our work to date

IMPROVED ENVIRONMENTAL OUTCOMES: We know there's a requirement to balance people's need to travel on our roads with doing all we can to protect and improve the environment. That means we will continue to consider a wider range of environmental factors in our future planning, such as improving biodiversity, protecting ancient woodlands, reducing pollution in Air Quality Management Areas, and protecting Sites of Special Scientific Interest. These will form part of our considerations during our early planning. In response to these emerging issues, our latest route strategies take a more balanced view on expanding the future capacity of the SRN. We now seek to develop strategies that produce balanced investment plans with schemes of different magnitudes, delivering across multiple objectives: safety, journey time improvements, network resilience, maintenance and renewals, technology, environmental enhancement, and integration with more sustainable transport modes. The outcome will be an SRN that supports the economy but also delivers on the wider environmental challenges.

GROWING THE ECONOMY

GROWING THE ECONOMY AND LEVELLING UP: The SRN is a vital part of England's – and the UK's – transport infrastructure. It facilitates the movement of people and goods nationally, regionally and locally through connections to the major road network and other transport infrastructure. The Government's levelling up agenda places emphasis on ensuring no community is left behind, particularly as we recover from the COVID-19 pandemic. With such a vital role in supporting the economy and facilitating connectivity - enabling access to jobs and homes, international gateways and supporting road-reliant sectors – National Highways and the SRN have a role to play in supporting the levelling up agenda and the wider aim of economic prosperity.

The Government is committed to strengthening transport connections across the UK. Sir Peter Hendy's *Union connectivity review*[15] was published in late 2021. The Review recommends the creation of UKNET, a strategic transport network spanning the entire United Kingdom based on a series of principal transport corridors between key urban and economic centres, including international gateways. The findings of this report have been considered in the context of our route strategies and will be a key objective for our cross-border routes and the roads connecting to important ports.

Additionally, the SRN plays a critical role in enabling international connectivity and trade by providing reliable and resilient access routes to global markets via the country's network of international ports, airports and the Channel Tunnel. Enhancing these links and supporting these gateway locations to thrive, including maximising the opportunities of Freeports, is a key part of National Highways' role in supporting the national economy.

15 Hendy, P. (November 2021) *Union Connectivity Review: Final Report.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1036027/union-connectivity-review-final-report.pdf

SPATIAL PLANNING: We recognise that businesses operate from the location that best suits their business requirements in terms of access to customers, the supply chain and employees. Location is equally critical to decision-making in the residential market, both for the house builder and the potential purchaser or occupier. In enabling new employment spaces and homes to be developed, at National Highways we engage fully and positively as a statutory consultee in the planning system.

This is in line with our statutory responsibilities as set out in our Licence, and in support of wider government policy and regulation. Our focus is on securing sustainable development, managing cumulative impacts of strategic growth, and minimising the potential for any negative impacts on the SRN.

MANAGING AND PLANNING THE SRN FOR THE FUTURE

We recognise that asset management is our core business. It is the service we provide to maintain, operate, and enhance the SRN safely, reliably and effectively for all our customers. We manage more than 4,500 miles of road, over 20,000 structures and 12 road tunnels, as well as drainage, earthworks, and technology equipment. We recognise that our customers rely on our roads to travel approximately 95 billion miles every year, and our work helps unlock housing and employment sites across the country. One of our main priorities is managing these assets effectively and efficiently, to deliver the outcomes our customers and interested parties want.

We have adopted an asset management approach in order to align our strategy and planning activities to create, maintain, operate, and renew all of the assets that make up our network. Asset management links all our activities and supports our three imperatives: safety, customer service and delivery.

We know that good asset management is about understanding our customers and interested parties, identifying what they need and then using our assets effectively to deliver the right level of service. We are working to understand what satisfies our customers, and what we can do to influence this.

Our vision is to create an approach and establish ways of working that make sure all our asset management activity is aligned by following the key principles set out in our asset management policy. We work across the whole asset lifecycle, understanding that asset decisions we make may affect future service provision. This means that we are planning and accounting for emerging and evolving challenges around customer expectation, climate change and new technology. Since the beginning of the second road period we have continued on our journey to increase our asset management maturity, and our organisational objectives have developed significantly in light of COVID-19 and the Government's carbon plans.

A TECHNOLOGY-ENABLED NETWORK

DIGITAL ROADS: Our ambition for digital roads is to continue to harness data, technology and connectivity of people to places and communities and networks to improve the way the SRN is designed, built, operated and used. Our recently published *Digital roads strategy* (September 2021)[16] sets out how we will harness data, technology and connectivity to improve the way the SRN is designed, built, operated and used. This will also support our ambitions to achieve net zero carbon on the SRN. We have established three themes: Digital design and construction, digital operations and digital for customer. These themes will continue to frame our vision towards 2030 and beyond, increasing connectivity, automation and data.

16 National Highways (2021) *Digital Roads.* https://nationalhighways.co.uk/our-work/digital-data-and-technology/digital-roads/

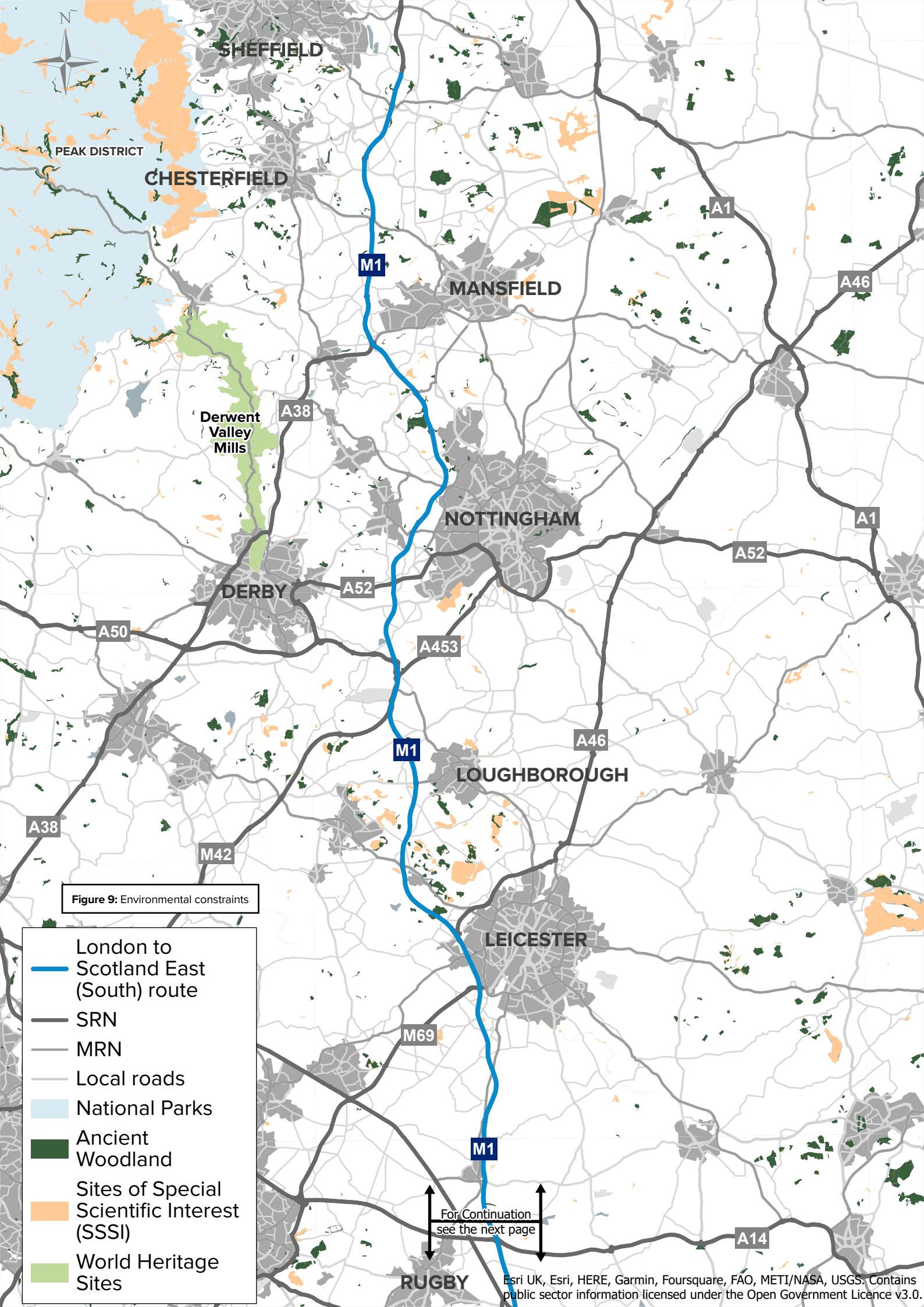
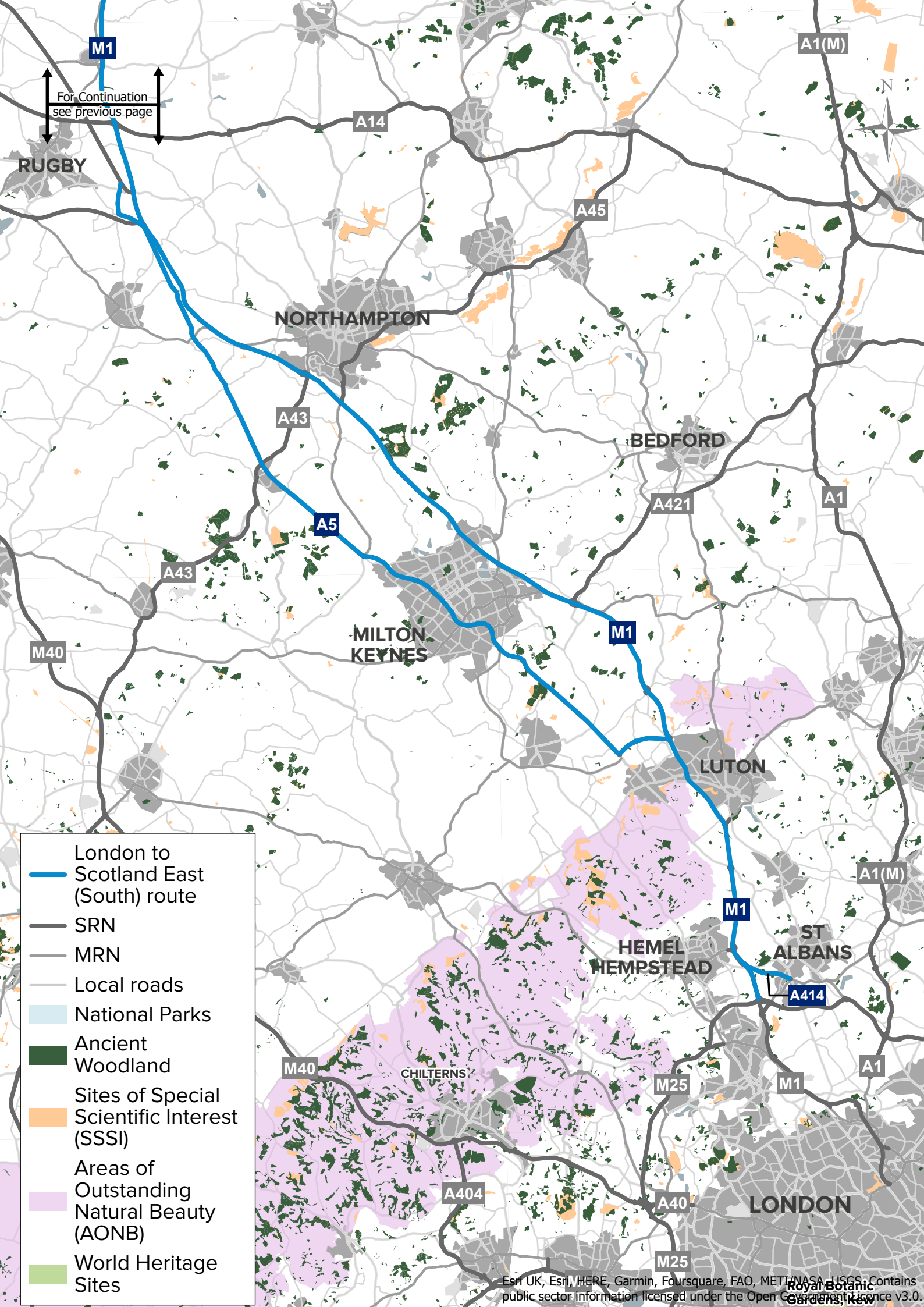


Figure 9: Environmental constraints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ALBANS
HEMEL
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CHILTERNS
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A404
A40
LONDON
M25
London to Scotland East (South) route
SRN
MRN
Local roads
National Parks
Ancient Woodland
Sites of Special Scientific Interest (SSSI)
Areas of Outstanding Natural Beauty (AONB)
World Heritage Sites
Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS, Contains public sector information licensed under the Open Government Licence v3.0.
Royal Botanic Gardens, Kew

Our network connects the country

02 The route

The London to Scotland East (South) route provides part of a north–south strategic link between London and Scotland through the Midlands of England, serving many towns and cities along the route, including Luton, Milton Keynes, Northampton, Leicester, Nottingham, and Derby. It comprises approximately 135 miles of the M1 and 45 miles of the A5.

The route, as shown in Figure 10, comprises the M1 from the M25 to Chesterfield, and the A5 from Dunstable to Rugby. It also includes a five-kilometre section of the A414 between M1 Junction 7 and the A414/A450 Park Street Roundabout which provides access to the M1 from St Albans. The route is heavily used by a mix of long-distance traffic and shorter trips to and from the numerous towns and cities along its length, as well as East Midlands Airport and London Luton Airport. As such it is significant locally, regionally, nationally, and internationally.

There is a broad range of economic activity along the corridor, with an above-average share of production (Gross Value Added, GVA) in businesses in sectors which are dependent on the strategic road network (SRN), particularly manufacturing, wholesale and retail, and transportation and storage. The connectivity benefits provided by the SRN are a key factor in the concentration of these sectors in the corridor, much of which lies within the internationally significant 'Golden Triangle' for logistics centres[17].

Manufacturing is particularly important in Derbyshire, with a quarter of GVA in this sector in some parts of the county. Transportation and storage is the dominant sector in Milton Keynes, much of Bedfordshire and Northamptonshire, and south Leicestershire. There are also clusters of professional services activity, including in St Albans, Luton, Rugby, Blaby and Nottingham.

The route, particularly the M1, intersects with many other parts of the SRN, particularly those providing east to west, or north-east to south-west, connectivity between the regions and countries of the UK[18]. These roads include:

- the A421 linking the M1 and A1 via Bedford
- the A43/A45 crossing the M1 at Northampton and linking to the M40, A14 and A1
- the M45/A45 to Rugby and Coventry
- the M6/A14 linking the M1 to the West Midlands from the south, and to the east of England and Felixstowe from the North
- the M69/A46 to Lincolnshire, Humberside, the West Midlands, the South Midlands, south-west and South Wales (the M1 between Junctions 21 and 21A forms a part of this strategic route)
- the A42/M42 to the West Midlands and south-west England and South Wales (via the M5)
- the A50/A453/A52 linking westwards to Derby and Stoke-on-Trent, and eastwards to Grantham and the A1
- the A38 serving Derby and connections to the A50 from the North

17 There is no formal definition of the 'golden triangle'. It is generally accepted to be an area bounded by Nottingham, Birmingham and Milton Keynes, served by the M1, M6 and M42 motorways.
18 These roads are on the Felixstowe to Midlands, South Midlands, Solent to Midlands and North & East Midlands routes.

The M1 between the M25 and Chesterfield is of varying standard, but it is predominantly four-lane All Lane Running (ALR) smart motorway. There are four short sections of Dynamic Hard Shoulder (DHS) smart motorway between Junction 10 (Luton) and Junction 13 (Bedford/Milton Keynes); and sections of three-lane conventional motorway between Junction 19 (Catthorpe) and Junction 23A (East Midlands Airport).

The M1 is well-served by motorway service areas, with nine on the route from Toddington (north of Luton) to Woodall (near Chesterfield).

The A5 is a single carriageway all-purpose trunk road, with the exception of the section through Milton Keynes (Great Brickhill-Stony Stratford) and the A5-M1 link (Dunstable Northern Bypass) which are dual carriageway. The A414 is a dual-carriageway all-purpose trunk road with south-facing slip roads to and from the M1[19].

This route strategy, including the description above, is based on the road network as of the start of the second road period (2020–2025). Since then, work has continued on conversion of the M1 between Junction 13 and Junction 16 to an All Lane Running smart motorway which opened to traffic in March 2023.

The following enhancement schemes opened to traffic during the first road period (2015 - 2020):

- A5 to M1 link, the Dunstable Northern Bypass (new road link)
- M1 Junctions 28-31 (upgrade to ALR smart motorway)
- M1 Junctions 24-25 (upgrade to ALR smart motorway)
- M1 Junctions 23A-24 (upgrade to controlled smart motorway)
- M1 Junction 19 improvement (Catthorpe)

We recognise that some of the journeys on this route are part of longer trips and therefore need to be considered alongside strategies on other routes.

19 Hereafter, the term ‘M1’ is used to refer to the M1 within the route and the A414 between the M1 and A450. Where relevant, specific reference is made to the A414.

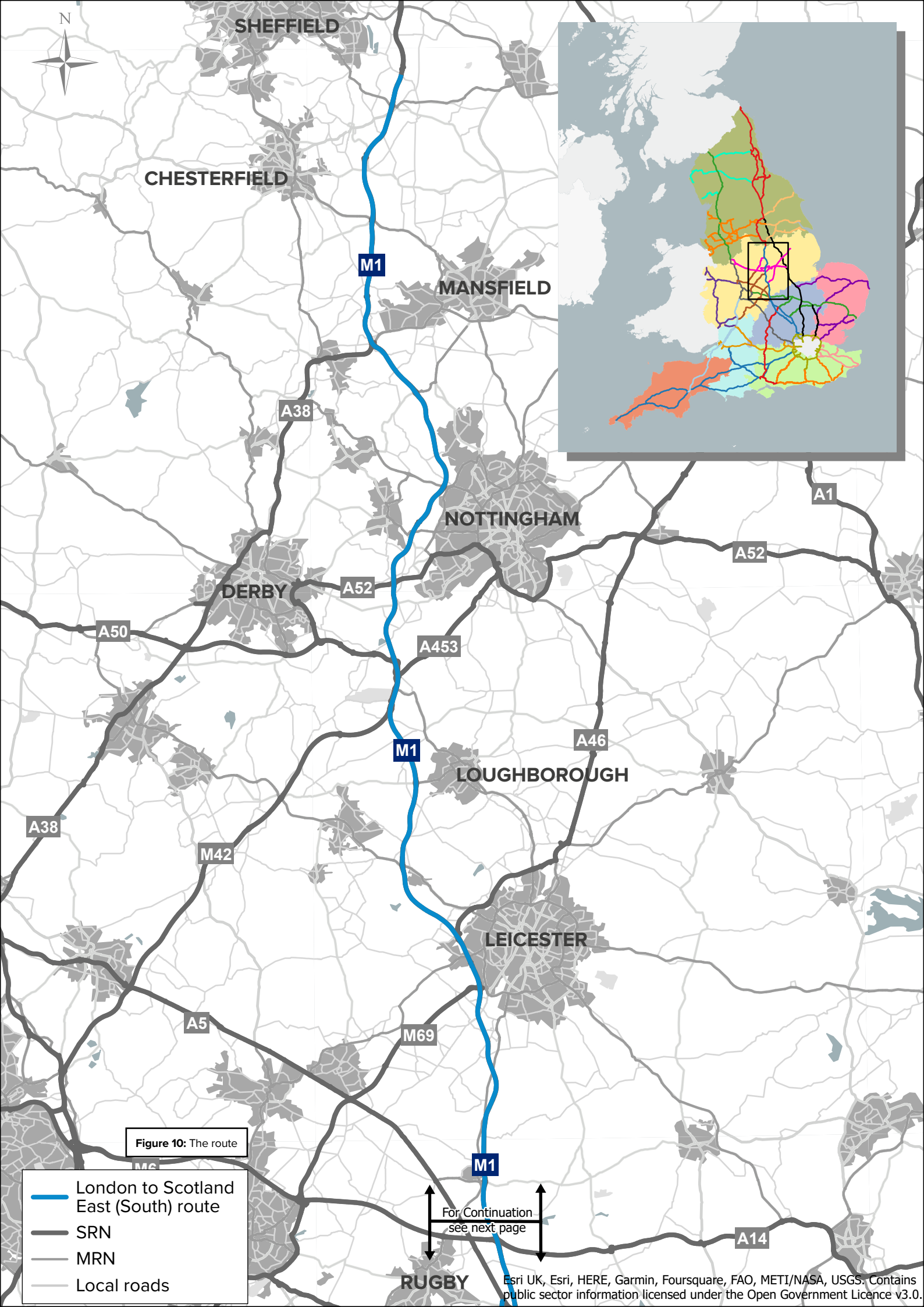
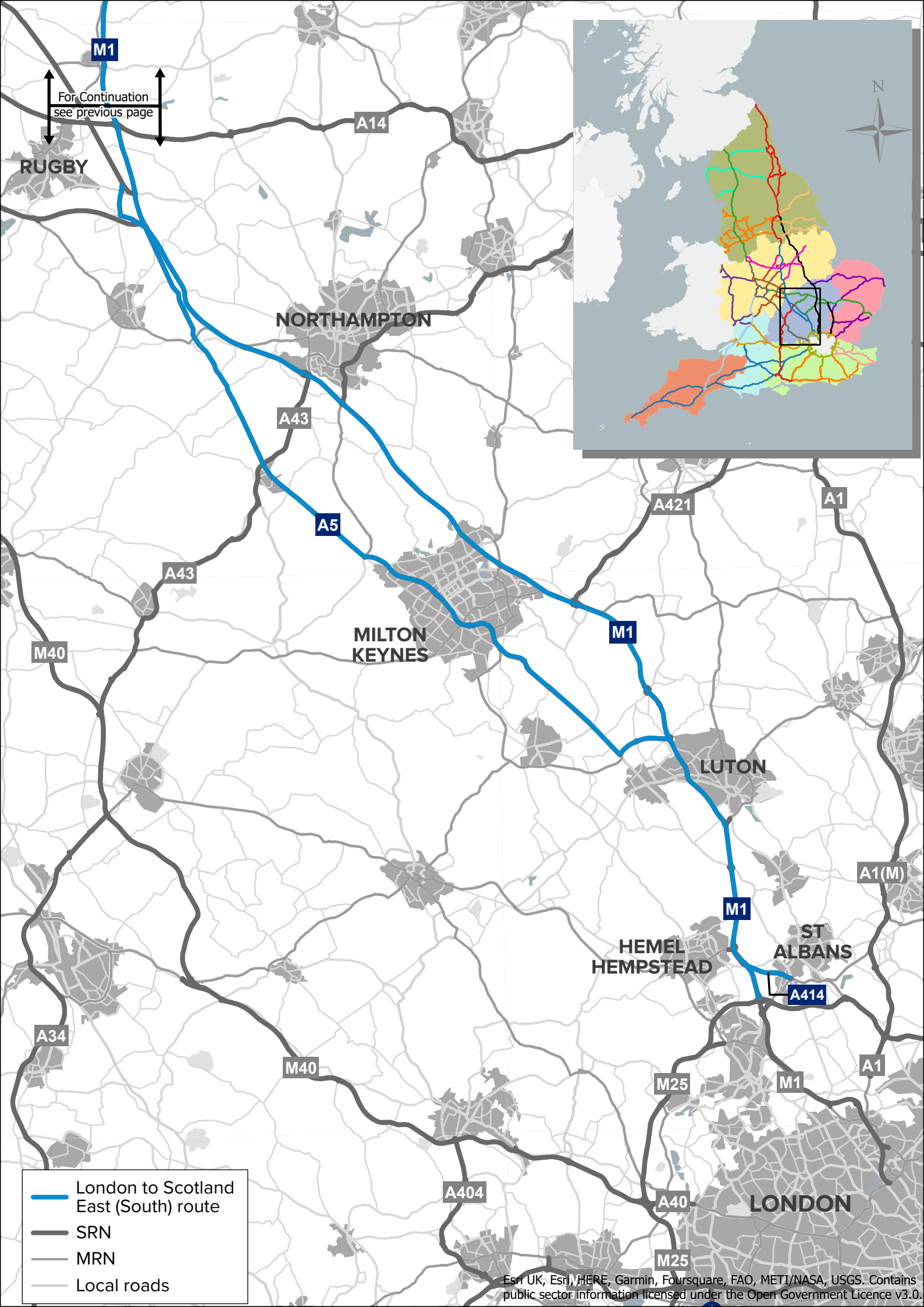


Figure 10: The route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London to Scotland
East (South) route
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Local roads
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Listening to your feedback

03 Engagement with customers and neighbours

Engagement with customers and neighbours has been central to developing our route strategies. The development of the route strategies is one of the key steps of initial research in the development of the Road investment strategy (RIS). This engagement, together with data analysis, will inform RIS3 (2025 to 2030) and beyond. It builds on a wealth of evidence from previous route strategies and our ongoing monitoring of road condition and performance.

Engagement with customers and neighbours along the London to Scotland East (South) route

Early engagement with the Department for Transport (DfT), Office of Rail and Road, Transport Focus, Midlands Connect and England's Economic Heartland (sub-national transport bodies) and Network Rail shaped our engagement with customers and neighbours along the London to Scotland East (South) route. We gathered evidence from a cross-section of Members of Parliament (MPs), interested parties, road users and communities at a route level to understand their needs for the future. This built on engagement that had taken place with national interested parties, such as environmental groups, organisations representing road users, business organisations and transport campaigning groups. This engagement has informed the development of the route objectives.

Engagement took place through:

MP roundtables: MPs were invited to a regional roundtable with the Roads Minister to share their views on priorities for our customers and neighbours within their constituencies.

Regional workshops: As part of a programme of workshops with interested parties at a national and regional level, we invited interested parties to workshops on route strategies for the London to Scotland East (South) route in late 2021. Attendees included local authorities, airports and port authorities, transport operators, and other key route-based interested parties, such as major businesses.

We designed the workshops to seek views on both current and future challenges and opportunities for the strategic road network (SRN), in relation to the DfT's six strategic objectives. Views were sought on how the routes interacted with the major road network (MRN), local roads, public transport, walking and cycling, and links to the wider SRN. Interested parties also provided insight into key growth proposals and locations along the route, including committed and emerging economic and housing growth and infrastructure proposals. Interested parties shared their own data, studies and observations of the route area.

Route strategies online feedback form: Local interested parties, road users and communities were invited to give their feedback on specific locations on motorways and A-roads and routes, and general comments on the road network, through the route strategies online feedback form. For the London to Scotland East (South) route, regional interested parties were invited to workshops or to use the online form to share their views and feedback.

The information gathered was a mix of evidence, studies and personal experience. All the evidence gathered through these engagement methods was considered alongside route analysis and data to inform the development of the route objectives. The evidence was supplemented by route-based information from Transport Focus' *Strategic Road User Survey*[20] to gain an understanding of the breadth of feedback.

Key themes from engagement

We have drawn out the common themes that emerged from our engagement with our customers and neighbours on the London to Scotland East (South) route to inform our route objectives. The themes have been aligned with the DfT's six strategic objectives:

i) Views on: Improving safety for all

- Locations where collision rates were perceived to be high were identified on the M1, particularly at junctions, including Junctions 6A, 15A, 21, 27 and 28. Collisions in the proximity of Tibshelf services (between Junctions 28 and 29) were also noted
- Concerns over collisions on the A5 were also raised, particularly the single carriageway sections and where the A5 passes through urban areas such as Towcester
- Delays at M1 Junction 21 (Leicester) leading to queuing back on the motorway in both directions, resulting in safety concerns
- Concerns over safety crossing the A5, for example at Weedon Bec
- Diversion of strategic traffic onto local roads during incidents or due to delays has safety and environmental impacts on local communities (for example along the A5). As a result, interested parties wish to see through-traffic kept out of local communities

ii) Views on: Network performance

- A desire for improved strategic connectivity along the M1 between the Midlands, North and South East, particularly in terms of providing reliable journey times and the lack of suitable alternative routes
- Delays on the SRN, particularly at locations on the M1 at Junction 11 (Hemel Hempstead), Junctions 21 to 21A (Leicester) Junction 24 (East Midlands Airport) and Junction 28 (South Normanton) causing delays, collisions, and increased emissions, as well as more traffic on local roads
- A lack of suitable alternative routes to the M1 once an issue has occurred, leading to long periods of disruption and traffic diverting onto local roads
- Delays at locations approaching at-grade junctions on the A5, was also raised, such as the junction with the A43 at Towcester, and at Hockliffe
- A lack of resilience on the M1 when there is an incident or collision, and a lack of alternative north-south routes, for example north of East Midlands Airport and in Hertfordshire
- A desire amongst interested parties to maintain good performance of the SRN to avoid strategic traffic diverting onto inappropriate local roads, leading to additional delays, emissions, and concerns over safety

20 Transport Focus (2022) *Roads User Survey website:* https://www.transportfocus.org.uk/insight/strategic-roads-user-survey/

iii) Views on: Improved environmental outcomes

- The impacts of the M1 on local air quality was raised in terms of its impacts of residents in Nottingham, Leicester, Blaby and north-west Leicestershire, and a desire to improve air quality in these and other areas including Air Quality Management Areas
- A small number of locations were identified by interested parties where the M1 or A5 currently acts as a barrier to walking, cycling or public transport services: the M1 at Hemel Hempstead and the M1 at Junction 13 (Milton Keynes south)
- A desire to ensure the management and enhancement of the SRN in the future responds to national net zero carbon targets and reflects local environmental ambitions, including by providing alternative modes of travel and encouraging a lower share of journeys to be made by car, and better managing the SRN
- A desire for more multimodal planning across different forms of travel and between different organisations to reduce the proportion of journeys made by car, thereby reducing carbon emissions and increasing active travel

iv) Views on: Growing the economy

- The particular significance of the SRN in the Midlands was noted in providing strategic connectivity for the logistics, minerals, and construction sectors which are an important part of the regional economy today and are also key growth sectors
- The importance of key economic growth areas such as around Junction 24 (East Midlands Airport, East Midlands Freeport and the planned High Speed 2 (HS2) station at East Midlands Parkway), Magna Park and Luton Airport
- Some interested parties expressed concern that insufficient capacity on the SRN around towns and cities such as Bedford, Hemel Hempstead, Milton Keynes and Leicester could constrain the expected high levels of future housing and employment growth in these locations
- The need to design the network for cyclists and pedestrians was raised. A view was expressed that the constrained nature of much of the A5 made this more difficult
- Improved walking and cycling facilities, and measures to reduce the severance effect of the SRN, could help to meet planned housing and jobs growth, for example at M1 Junction 13
- It was also considered by some interested parties as important to ensure that any increase in capacity of the SRN does not result in significant increases in unnecessary vehicle trips and/or less sustainable patterns of land use
- A desire for improved freight facilities on the SRN, particularly heavy goods vehicle (HGV) parking, better facilities for HGV drivers, and alternative refuelling facilities for lorries
- Concerns over the potential for additional traffic on the M1 due to the large number of new warehousing and distribution centres planned, for example at Junction 18, Crick

v) Views on: Managing and planning the SRN for the future

- Roads should be designed with consideration of how they are going to be maintained: 'design for maintenance'
- Schemes should be designed using materials that have an increased design life, therefore requiring less maintenance and less disruption to the network

vi) Views on: Technology-enabled network

- The opportunities presented by new technology were frequently raised in terms of how they could support environmental aspirations, for example by providing electric vehicle charging points
- Interested parties in the haulage and distribution sectors, as well as local authorities, expressed a desire for greater provision of alternative refuelling facilities to help the decarbonisation of the haulage sector
- New technology, and collaboration with local highway authorities, was also seen as enabling better integration of the management of local roads and the SRN , including 'last mile' HGV routing and improving driver information
- A view was expressed that in-vehicle technology should be promoted instead of roadside information provision

Engagement quotes from customers and neighbours

Figure 11: Quotes from customers and neighbours

Route satisfaction

Satisfaction scores have been obtained from Transport Focus through their Strategic Roads User Satisfaction Survey from the last 12 months to May 2022. It covers the roads in this route but it should be noted that the satisfaction scores may not fully align with the extent of the roads in the route. Figure 12 shows how satisfied drivers were with aspects of their journey and how they felt during their journey.

Additional comments and data from the Transport Focus survey of drivers on the SRN can be found on the Transport Focus data hub website[21].

The engagement themes and feedback from MPs, interested parties, road users and communities has been considered as part of the wider analysis in Chapter 5.

Strategic roads user survey satisfaction scores

The survey was not run between April 2020 and March 2021 due to COVID-19. It restarted in April 2021 with a new methodology, so results prior to March 2020 and from April 2021 are not directly comparable.

National Highways Region Midlands, East, **National Highways Area** Area 7 East Midlands, Area 8 Herts, Beds, Cambs, **Individual road** M1, A5

Last 12 months* ** May 2022 (last 12 months)

** result hidden as less than 75 responses

*** Before March 2019 and from April 2021 to February 2022 this is year-to-date, not past 12 months

Figure 12: Satisfaction scores from headline results

21 Transport Focus data hub: https://transportfocusdatahub.org.uk/


All routes
A5 (A43)
The Forum
Hulcote 1½
P 100 yds

Working with our partners

04 Network collaboration

The strategic road network (SRN) does not exist in isolation. Most journeys on the SRN are part of a longer journey, involving other road networks or different transport modes.

To deliver safe and efficient journeys for our customers and to support economic and housing growth, at National Highways we have built relationships with other organisations to ensure the SRN maximises its contribution to the overall transport system, which includes local roads, rail networks, links with the devolved nations and international connectivity. We work with other network operators (such as Network Rail), airports and ports, Sub-national Transport Bodies, Transport for Wales and Transport Scotland, as well as combined authorities and local highway authorities. This is in line with National Highways' Licence requirements to consider opportunities for collaborative solutions. We recognise that joint early planning of interventions outside our network will ultimately improve the SRN and deliver greater benefit to the customer than could be achieved alone, where this delivers value for money.

An integrated transport network

Route strategies recognise the role that the SRN plays within the wider transport network. In planning for the future of the SRN, we recognise the importance of working closely with other network planners and operators to ensure our transport networks work well together, and that our investment priorities are aligned where possible.

Sub-national Transport Bodies have a key role in their regions in creating transport strategy and identifying key areas for investment, including for highways. There are seven such bodies in England, who are tasked with developing transport strategies and studies for their particular area.

Through the collection of evidence with their local authorities and Local Enterprise Partnerships, their work highlights multimodal issues, needs and opportunities. A list of potential interventions for transport are then provided to the Secretary of State for Transport, including where to prioritise investment in the Major Road Network (MRN). We work closely with the Sub-national Transport Bodies on interdependencies and align our approaches where possible. The Sub-national Transport Bodies that cover the route are:

- Midlands Connect
- England's Economic Heartland

National Highways and sub-national transport bodies have worked together to develop an engagement framework. The need for closer working was highlighted as a priority in DfT's *Road investment strategy 2*[22], and within our *Strategic business plan*[23] and *Delivery plan*[24]. It enables National Highways and sub-national transport bodies to work together to achieve mutually beneficial outcomes for transport users, regional economies and the environment. Our approach to engagement is contained in *Our vision for route strategies*[25], which sets out a shared commitment for a continued open, constructive and collaborative relationship. This is supported by engagement and action plans for each Sub-national Transport Body, which are proving instrumental in ensuring consistency and transparency in the information we share. The plans are monitored and reviewed regularly, with annual reviews occurring ahead of each new financial year.

At a more local level we also work with local authorities, who are the highway authorities for local roads, including those on the MRN

22 Department for Transport (March 2020) *Road Investment Strategy 2: 2020-2025.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/951100/road-investment-strategy-2-2020-2025.pdf
23 Highways England (2020) *Strategic business plan: 2020-2025.* https://nationalhighways.co.uk/strategic-business-plan/
24 Highways England (2020) *Delivery Plan: 2020–2025.* https://nationalhighways.co.uk/delivery-plan/
25 Highways England (2021) Vision for route strategies: planning for the future of our roads. https://nationalhighways.co.uk/media/w0vhd3un/vision-for-route-strategies.pdf

This collaboration ranges from operational matters to more strategic issues to ensure that the overall highway network operates safely, efficiently and effectively, providing high quality and seamless customer journeys. The local authority planning teams work closely with our spatial planning teams. In enabling new employment spaces and homes to be developed, we engage appropriately as a statutory consultee in the planning system and the evidence collected through the route strategies will support this decision making.

Midlands Connect

Midlands Connect is the Sub-national Transport Body for the Midlands and is the transport arm of Midlands Engine (which acts as a focal point to drive economic growth in the region). It is a partnership of local authorities, Chambers of Commerce, Local Enterprise Partnerships, national agencies and airports

Midlands Connect published its first *Strategy*[26] in 2017, and since then it has researched, developed and progressed transport schemes designed to deliver social, economic and environmental benefits. The 2017 strategy was refreshed in 2022. Midlands Connect's new strategy, *Fairer, greener, stronger: a Strategic Transport Plan for the Midlands*[27], sets out an investment programme that improves strategic connectivity between the East and West Midlands, to neighbouring regions and to Wales.

This strategic investment will be complemented by improvements to local connectivity made by local authorities and regional economic growth plans from the Midlands Engine.

Midlands Connect has identified three grand challenges that strategic transport investment must help tackle to achieve its vision of a fairer, greener and stronger Midlands:

1. **Fairer:** Levelling up and strengthening the region and UK. Being ready for HS2; enhancing quality of life; and integrating transport networks
2. **Greener:** Decarbonising transport and adapting to climate change. Contributing to achieving 'Net Zero 'by 2050; ensuring resilient networks; and minimising the environmental impacts of new infrastructure
3. **Stronger:** Driving resilient economic growth. Providing fast and reliable transport connections; and enabling population and employment growth

The new *Strategic Transport Plan* sets out five priorities to improve regional connectivity:

- Aspirations for rail
- A future road network that is reliable, resilient and efficient for all
- Helping to move goods
- Responding to transport challenges in rural areas
- Maximising technology-related opportunities to improve connectivity

In terms of roads, Midlands Connect is seeking investment to improve the service to users of the SRN and MRN, make best use of technology and help to accelerate use of electric cars and alternatively fuelled goods vehicles, and to futureproof roads against the impacts of climate change and to protect the environment.

Midlands Connect has undertaken studies on a number of important trade and logistics corridors that, if enhanced, could catalyse business growth, boost productivity and support the development of new housing and export markets.

26 Midlands Connect (March 2017) *Midlands Connect Strategy: Powering the Midlands Engine.* https://www.midlandsconnect.uk/media/1224/midlands-connect-strategy-march-2017.pdf

27 Midlands Connect (April 2022) *Fairer, greener, stronger: a Strategic Transport Plan for the Midlands.* https://www.midlandsconnect.uk/strategy

Through these studies, Midlands Connect has identified eleven priority locations for investment during the third road period (2025-2030) and onwards where the SRN needs to 'work harder'. In most cases, specific solutions for these locations have not been identified, with multimodal solutions expected to be considered. The priority locations identified on this route are:

- the M1 at Leicester and West and North Leicestershire extra capacity (RIS4 pipeline schemes)
- M1 Junction 28

Improvements in the A46 in the Syston area (approximately seven miles from M1 Junction 21) is also one of Midlands Connect's priority locations.

England's Economic Heartland

England's Economic Heartland (EEH) published its Regional Transport Strategy titled *Connecting People, Transforming Journeys*[28] in 2021. The Strategy outlines the framework for enabling green economic growth, in a way which also creates a net zero transport network. The Strategy further details the importance of working with partners, local growth boards and national initiatives.

The four key priorities of EEH are:

- Achieving net zero carbon emissions from transport no later than 2050, with an ambition to reach this by 2040
- Improving quality of life and wellbeing through a safe and inclusive transport system accessible to all which emphasises sustainable and active travel
- Supporting the regional economy by connecting people and businesses to markets and opportunities
- Ensuring the Heartland works for the UK by enabling the efficient movement of people and goods through the region, and to and from international gateways, in a way which lessens its environmental impact

These strategic priorities set out how the region can reduce reliance on private car usage by creating better connectivity within communities. It also details how the Heartland will work to harness leading expertise in clean, green and smart technologies, allowing the region to have a competitive edge in global markets.

Whilst the transport strategy is ambitious, it aims to deliver the vision of EEH by supporting sustainable growth and improving the quality of life through a decarbonised transport network. This will encourage innovation and create further opportunities for local residents and the local economy, whilst also benefitting the national and international economy.

Interaction with the major road network and local roads

The major road network (MRN) is the middle tier of England's road network, comprising the busiest and most economically important local authority A-roads. It is key to supporting the economic vitality of England, particularly with its role, along with the SRN, of delivering 'first and last mile' connections and onward journeys. It acts as a connecting spine for the SRN, with one of the objectives in establishing the MRN being to support the SRN through improving journeys across both networks. The MRN represents the roads that our partners in local authorities and Sub-national Transport Bodies see as being strategically most important, along with the SRN.

28 England's Economic Heartland (February 2021) *Regional Transport Strategy: Connecting People, Transforming Journeys.* https://www.englandseconomicheartland.com/documents/405/Connecting_People_Transforming_Journeys_av.pdf

The relationship between the SRN and MRN is complex. The two networks connect people with economically important locations across England, as well as providing resilience for each other. Interventions on one network can also significantly influence travel behaviours on the other. Most SRN journeys involve elements of both networks.

It is therefore important that decisions about the SRN, MRN and other local roads are made in a joined-up way to ensure that the networks are consistent, coherent and complementary. We recognise that the key to the success of the Road Investment Strategy is ensuring the impacts of any interventions are appropriately considered across all networks as well as at their junctions. Both networks play a key role in customers' journeys, and they expect a seamless transition between the two. We are continually seeking to identify collaborative solutions that meet our obligations under the National Highways Licence to improve network performance and provide integration benefits. In developing the route strategies, we aim to ensure the planning for the SRN, MRN and other local roads is complementary.

In the southern part of the route, the MRN provides connections from the M1 or A5 to the A1(M) corridor and to Buckinghamshire, Bedfordshire and Hertfordshire. These include links to Hemel Hempstead (A414), Luton and London Luton Airport (A1081), Aylesbury (A505), Bedford (A421) and Milton Keynes (A421 and A4146). The A414/A41 and the A507 also link the M1 with the A1(M) and A1 respectively.

In the south Midlands, the MRN links the M1 to Wellingborough and Kettering (A509), Northampton (A508 and A4500), and Leicester (A563 and A50).

Further north, the MRN connects the M1 to Nottingham (A610), Mansfield (A608/A611, A38 and A617) and Chesterfield (A617).

Freight and logistics

The *Future of Freight: a long-term plan* (DfT June 2022)[29] sets out priorities for the UK's freight industry. It recognises that in 2019 the sector contributed 10% of the UK non-financial business economy and £127 billion gross value added (GVA) through more than 200,000 enterprises, noting that, with imports and exports comprising 63% of gross domestic product (GDP) in 2019, we are reliant on the freight and logistics sector for our economic wellbeing.

In the UK, around 1.65 billion tonnes of freight are lifted by all modes each year. Of this, approximately 400 million tonnes are carried by road through the Midlands region.

There is more warehousing space in the East Midlands than any other region, accounting for nearly 20% of the UK total[30] providing facilities for retail, transport, manufacturing, food and other sectors.

The route is home to a large number of national distribution centres, concentrated within the 'Golden Triangle'[31,32] of wholesale and retail, transportation and storage activities in the area bounded by Nottingham, Birmingham and Milton Keynes. These are grouped into three broad clusters:

- North Leicestershire and Nottinghamshire, for example Castlewood (South Normanton)
- south Leicestershire and Northamptonshire, for example Swan Valley (Northampton) and Magna Park (Lutterworth)
- Bedfordshire and Milton Keynes, for example the Milton Keynes logistics hub

There are also three intermodal rail freight terminals: Daventry International Rail Freight Terminal (DIRFT I & II), East Midlands Distribution Centre (EMDC) at Castle Donington, and SEGRO plc logistics Park (East Midlands Gateway).

29 Department for Transport (June 2022) *Future of Freight: a long-term plan.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1085917/future-of-freight-plan.pdf
30 UK Warehousing Association / Savills
31 There is no formal definition of the 'golden triangle'. It is generally accepted to be an area bounded by Nottingham, Birmingham and Milton Keynes, served by the M1, M6 and M42 motorways.
32 Office for National Statistics (April 2022) *The rise of the UK warehouse and the "golden logistics triangle".* https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/articles/theriseoftheukwarehouseandthegoldenlogisticstriangle/2022-04-11

A further six rail-connected sites are planned elsewhere on the route. There is therefore significant potential to carry freight by rail in the London to Scotland East (South) route.

East Midlands Airport has the largest dedicated air freight operation, is home to several international distribution companies, and handles over 440,000 tonnes of goods each year[33]. Distribution centres operate within and adjacent to the airport, including East Midlands Gateway (EMG).

The airport and EMG (known collectively as 'EMAGIC') is one of the three main sites comprising East Midlands Freeport, along with the Ratcliffe-on-Soar Power Station site and the planned East Midlands Intermodal Park (EMIP) south of Derby. Good strategic connectivity via the SRN and rail network will be important to the Freeport's ability to bring together investment and deliver economic regeneration in the area.

The locational advantages enabled by the M1 and A5, as well as other crossing roads, such as the A14 on the Felixstowe to Midlands route, are a primary reason for this clustering of distribution activity, meaning that many of these sites are located adjacent to, or close to, the route. Therefore, both roads serve a critical role in national, regional and local distribution networks. Indeed, the M1 is one of the busiest roads in the UK in terms of heavy goods vehicles, with typical volumes of 10,000 to 15,000 heavy goods vehicles per day in each direction.

The published *National Survey of Lorry Parking*[34] undertaken by the Department of Transport in 2017 showed that this part of the country therefore needs a high level of parking provision not only for heavy goods vehicles serving the large distribution centres, but because it is an important stop-off point for transit traffic moving from mainland Europe to Scotland, the North and Ireland.

The survey found that many of the most-used lorry parks tend to be on major freight arteries including the M1 and A5, and that those in the East Midlands were amongst the busiest in the UK. The level of inappropriate parking in lay-bys and local roads was also found to be high in the route.

The survey concluded that there is significant demand for additional supply of rest areas around Leicester, Milton Keynes and 'everywhere in between'.

Diversionary routes

To operate a resilient road network, we need to be able to effectively divert traffic off the SRN in the event of unplanned incidents (such as collisions or emergency roadworks), or as part of planned closures (such as planned improvement schemes). The MRN, along with the rest of the local road network, supports the SRN as diversion routes during these events.

We have agreed diversion routes for emergency events with local authorities, including the A5 as the Diversion Route for Unplanned Events (DRUE) for the M1. Diversion routes for planned events are discussed and agreed with local authorities on a case-by-case basis. These routes are dependent upon the nature of the incident, and the suitability and availability of the surrounding network. In some cases, the diversion route may not be suitable for certain types of traffic, such as heavy goods vehicles (HGVs), or non-motorway traffic, such as cycles and tractors. In other cases, diversionary routes may not be available due to events on the local road network. We work closely with local authorities to ensure that suitable diversion routes are available.

33 Midlands Airport website. https://www.eastmidlandsairport.com/about-us/cargo/
34 AECOM on behalf of the Department for Transport (2018) *National Survey of Lorry Parking*. https://www.gov.uk/government/publications/national-survey-of-lorry-parking

Network Rail and other network operators

The SRN plays an important role in the movement of passengers and freight across England, and it needs to be considered alongside the wider transport network. The rail network is also important in moving freight and people over longer distances and helping commuters travel into congested cities. Better integration between road and rail can help to transfer more journeys onto rail. This can help to relieve congestion on the SRN, as well as improve the environment by increasing the use of more sustainable transport modes.

At a strategic level we work closely with Network Rail and train operators to find opportunities to better integrate the two networks to benefit the movement of freight and people. This involves seeking opportunities to place rail stations in strategically important locations with easy access to the SRN.

The Network Rail Delivery Plan[35] presents a vision of "putting passengers and freight users first". This recognises that Network Rail can improve the daily lives of people across the country by striving to constantly improve the quality of its service across the whole railway system. Network Rail delivers its vision through a regional structure committed to responding to the needs of local customers and interested parties, more quickly than if such decisions were to be made at a national level.

The M1 corridor runs broadly parallel to the Midland Main Line, with services operating between major stations at Luton, Leicester, Derby and Nottingham, linking them with London St. Pancras and Sheffield. From 2022, Luton Airport Parkway station will be linked to London Luton Airport by an automated rapid transit system known as 'Luton DART'. Bus services operate from Leicester, East Midlands Parkway and Nottingham to East Midlands Airport.

South of Bedford, Thameslink services connect towns such as Flitwick, Harpenden and St Albans to central London and beyond.

The eastern leg of High Speed Two (HS2) will be built from the West Midlands to East Midlands Parkway by the early-mid 2040s. From here, HS2 trains will continue directly to Nottingham, Derby, Chesterfield, and Sheffield on the upgraded and electrified Midland Main Line.

The route also follows the southern part of the West Coast Main Line with fast services between London, the West Midlands, the north-west and Scotland, calling at Rugby or Milton Keynes. Semi-fast services also run via Milton Keynes to Northampton.

Local West Midlands Trains services currently operate between Bletchley and Bedford, crossing the M1 close to Junction 13. The opening of the Stage 2 of East West Rail (between Bicester to Bletchley) in 2024 will allow services to operate between Oxford and Bedford, with the planned Stage 3 allowing services to continue to Cambridge.

We also work with the operators and promoters of urban rapid transit systems where there are opportunities for better integration. For example, through the creation of park and ride sites to remove traffic from the road network.

35 *Network Rail Our Delivery Plan for 2019-2024* website: https://www.networkrail.co.uk/who-we-are/publications-and-resources/our-delivery-plan-for-2019-2024/

Strategic connectivity

The SRN plays a key social and economic role in connecting England with the devolved authorities of the UK, particularly Wales and Scotland, but also, via ports, Northern Ireland. We work closely with Transport for Wales and Transport Scotland to ensure our key cross-border routes are joined up effectively with those in Wales and Scotland to ensure easy journeys for our customers. This strategic connectivity is reflected in the Government's commitment to strengthening transport connections across the UK, guided by Sir Peter Hendy's *Union Connectivity Review*[36] published in late 2021. The report recommends the creation of UKNET, a strategic transport network spanning the entire United Kingdom. UKNET would be based on a series of principal transport corridors between key urban and economic centres, including international gateways. The findings of this report have been considered in our route strategies, particularly for our cross-border routes and roads connecting to important ports.

The route is entirely within England, but provides strategic connectivity to Scotland via the northern end of the M1 and A1(M)[37] and north Wales, including Holyhead port, via the M6.[38]As such it can play an important role in Union Connectivity, and is expected to form part of UKNET.

The M1 also forms part of long-distance routes between South Wales and the Midlands or North of England, in combination with the A46/M69 and M5/M42/A42.[39]

International connectivity

One of the objectives of the SRN is to support the important economic activity involved in international passenger and freight movement via good connections to ports and airports. A key aspect of route strategies is ensuring that future investment continues to support these essential movements.

The M1 is the primary SRN access to London Luton Airport (via Junction 10), and to East Midlands Airport and the three East Midlands Freeport sites (via Junctions 23A and 24). It also provides connectivity from the East Midlands, the North, north Wales and Scotland to London Heathrow and London Gatwick airports, and to the southern ports such as Felixstowe, the Port of London and Dover.

36 Hendy, P. (November 2021) *Union Connectivity Review: Final Report.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1036027/union-connectivity-review-final-report.pdf
37 See the London to Scotland East (North) route
38 See the South Midlands route
39 See the South Midlands route

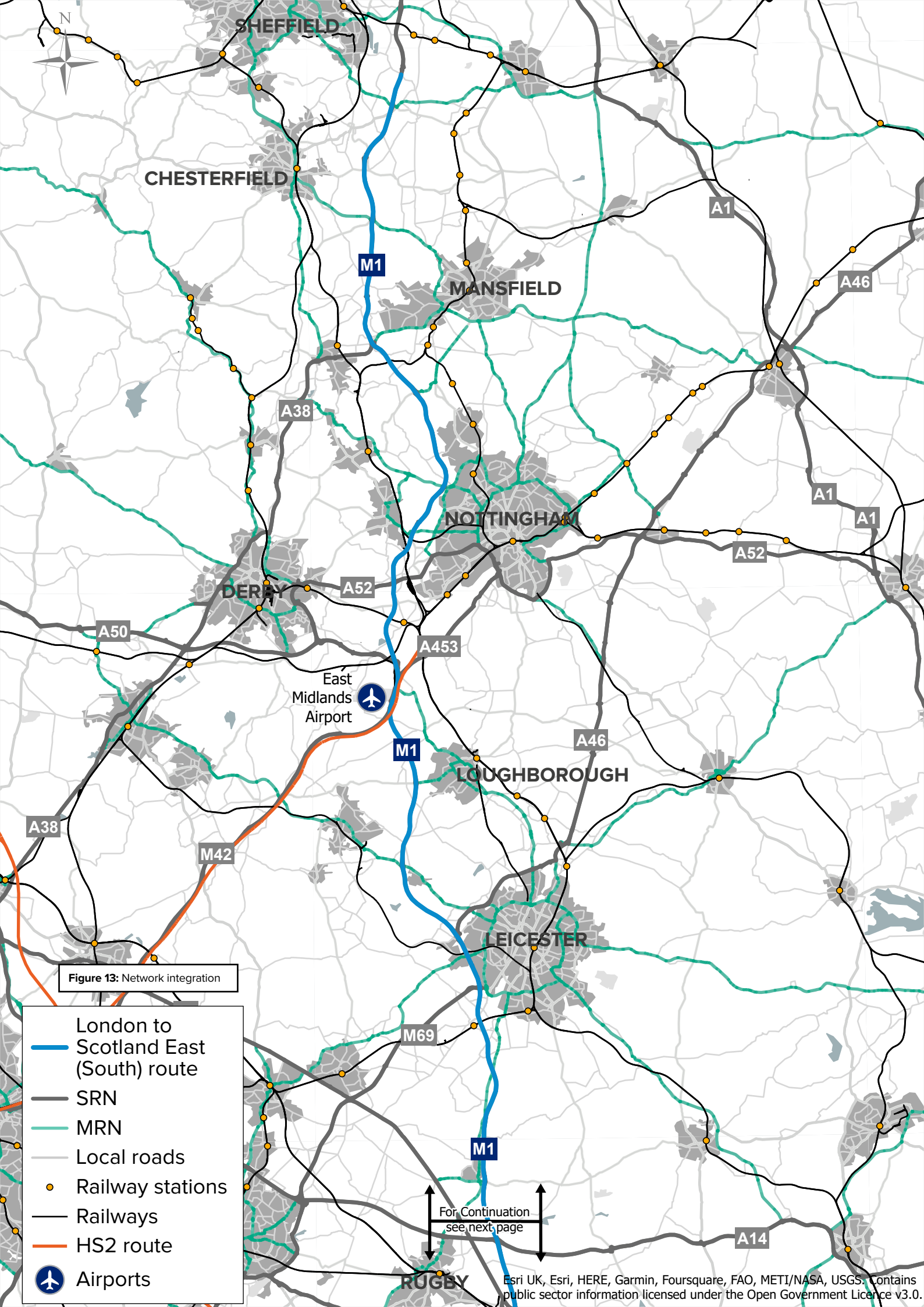
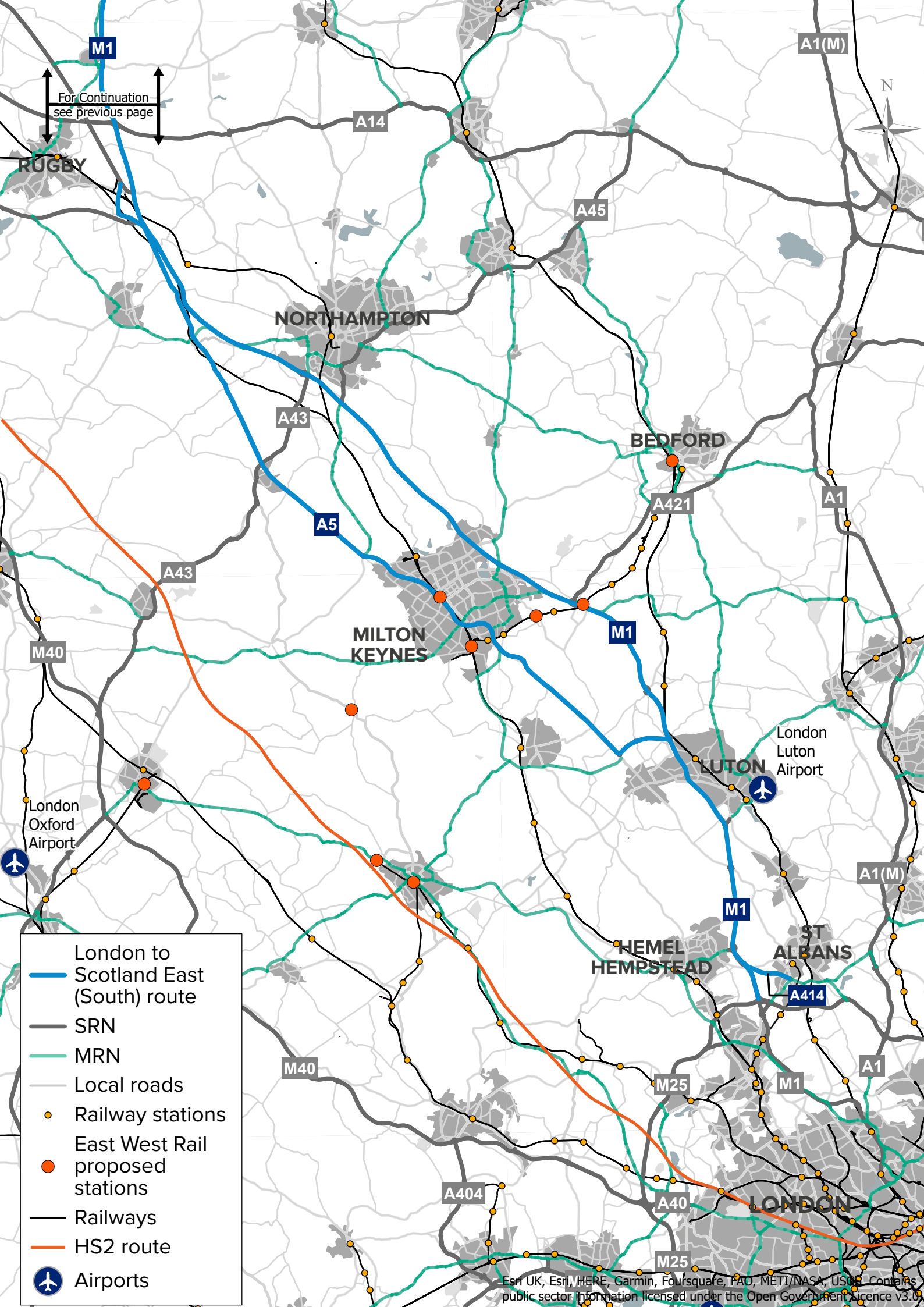


Figure 13: Network integration


M1
For Continuation
see previous page
A14
A1(M)
N
RUGBY
A45
NORTHAMPTON
A43
BEDFORD
A421
A1
A5
A43
M1
MILTON
KEYNES
M40
London
Luton
Airport
LUTON
London
Oxford
Airport
A1(M)
M1
ST
ALBANS
HEMEL
HEMPSTEAD
A414
M40
M25
M1
A1
A404
A40
LONDON
M25
London to Scotland East (South) route
SRN
MRN
Local roads
Railway stations
East West Rail proposed stations
Railways
HS2 route
Airports
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Challenges and issues on the route

05 Challenges and issues

We recognise that there are existing challenges and issues on the network and these are outlined against the Department for Transport's six strategic objectives as part of the route strategy evidence base.

1. Improving safety for all

The International Road Assessment Programme (iRAP) Star Ratings are based on road inspection data and provide a simple and objective measure of the level of safety which is 'built-in' to the road. The higher the star rating, the safer the road. iRAP Star Ratings are produced for each 100-metre section of road, based on detailed inspections of roadside features as well as traffic flow, speed, pedestrian and cyclist use, and crash data.

iRAP data helps us to predict future risk within a wider Safe System approach. Safe System thinking accepts that humans will make mistakes but considers what is within the scope of our influence to limit the injuries sustained. The iRAP approach to managing future risk complements the more traditional approach of analysing historical incident data provided by STATS19 as a means of predicting future collisions and casualties.

Data on road traffic casualties on the roads in Great Britain are collected via the STATS19 process. These statistics are collected by police forces, either through officers attending the scene of incidents, from members of the public reporting the incident in police stations after the incident, or more recently online and then validated and published annually by DfT. STATS19 road traffic collision and casualty data is published annually by DfT in the Autumn and provides details of the previous calendar year.

For the purposes of National Highways Route Strategies, the total fatal and serious injuries are aggregated by the section of road on which they occurred, based on the National Traffic Information Service (NTIS) network.

The NTIS network used for displaying traffic data is the full extent of the roads for which National Highways are the highway authority. The NTIS network is modelled for each side of the carriageway, such that NTIS links are one-directional and split at junctions. The data used only includes main carriageways; slip roads, roundabouts and other types of road are not modelled in this dataset. The length of an NTIS link can vary greatly depending on what part of the network it represents. Use of the NTIS network provides a common geometry which can be used to compare the STATS19 data with network performance and other metric data.

A combination of star ratings and historic data can help us to prioritise route treatments. Where the density of incidents resulting in death or serious injury is high, and the star rating is low (poor), it indicates something can be done to prevent future collisions where people are killed or seriously injured.

The Road Safety Foundation produces maps that show the statistical risk of fatal or serious injury crash occurring. The risk is calculated by comparing the frequency of road crashes that result in death and serious injury with how much traffic each road is carrying. For example. the risk on a road carrying 10,000 vehicles a day with 20 crashes is ten times the risk on a road that has the same number of crashes but which carries 100,000 vehicles.

The latest available iRAP data show that most sections of the M1 are rated as average (3-star) with the rest rated as 4-star[40].

Whilst sections of the A5 through Milton Keynes and parts of Towcester are rated as 3-star, the rest of the A5 in the corridor is rated as 1-star or 2-star (the least safe roads). The sections with a 1-star or 2-star iRAP rating are:

- between Tilsworth (Dunstable Northern Bypass) and Hockliffe
- between Old Stratford and Potterspury
- between Pattishall and Upper Stowe
- most of the section between Weedon Bec (the A45) and Daventry (the A428)

Although the M1 is classified as 3-star or better, STATS19 data show that there are concentrations of collisions where people were killed or seriously injured including on the M1 between:

- Junctions 10 and 11 (Luton/Dunstable)[41]
- Junction 14 (Milton Keynes) and Junction 15A (Northampton)
- Junction 20 (Lutterworth) and Junction 21 (Leicester)
- Junction 24A (Kegworth) and Junction 25 (Derby/Nottingham)
- Tibshelf Services and Junction 29 (Chesterfield)

There is also a concentration of collisions on the A5 between the A422 (H3 Monks Way) and Stony Stratford.

The latest Road Safety Foundation Crash Risk Mapping classifies the entire length of the M1 (between the M25 and Chesterfield) as 'low risk' and the entire length of the A5 (between Dunstable and Daventry) as 'low-medium risk'.

Improving safety and minimising collision rates is a key consideration for all our routes

The A5-M1 Link (Dunstable Northern Bypass), which opened in 2017, was not classified.

Interested parties raised concerns about safety at some M1 junctions, for example Junctions 6A, 15A, 21, 27 and 28, including traffic leaving the motorway backing onto the main carriageway, and also at junctions on the A5. The nature of the A5, particularly the single carriageway sections, is considered by interested parties to be a contributing factor to its poor safety record.

Safety is a particular concern for some interested parties where the A5 passes through urban areas such as Towcester, Weedon Bec, and at key junctions.

Key challenges

- The safety levels built in to the A5 (based on the International Road Assessment Programme) are rated as either 1-star or 2-star. By comparison, the M1 is rated as average (3-star) or better
- Observed collision data show a number of locations where there are a higher number of collisions in which someone was killed or seriously injured: on the M1 between Luton and Chesterfield, and on the A5 north of Milton Keynes
- The Road Safety Foundation has classified all of the M1 as 'low risk' and all of the A5 as 'low-medium risk'

40 Road Safety Foundation: https://roadsafetyfoundation.org/

41 Lane-changing has been identified as a predominant factor in the accident cluster at Junction 11 (see Highways England (2021) *Smart motorways: Incident and infrastructure investigation M1 Junction 10 to 13 Highways England response.* https://nationalhighways.co.uk/media/jdeov3wy/ccs0621670228-003_smart-motorways-reports_m1-j10-13.pdf)


KFC
DRIVE THRU
BURGER KING
WALKERS
TC 316
TC0316
SLOW
RE14 FLP

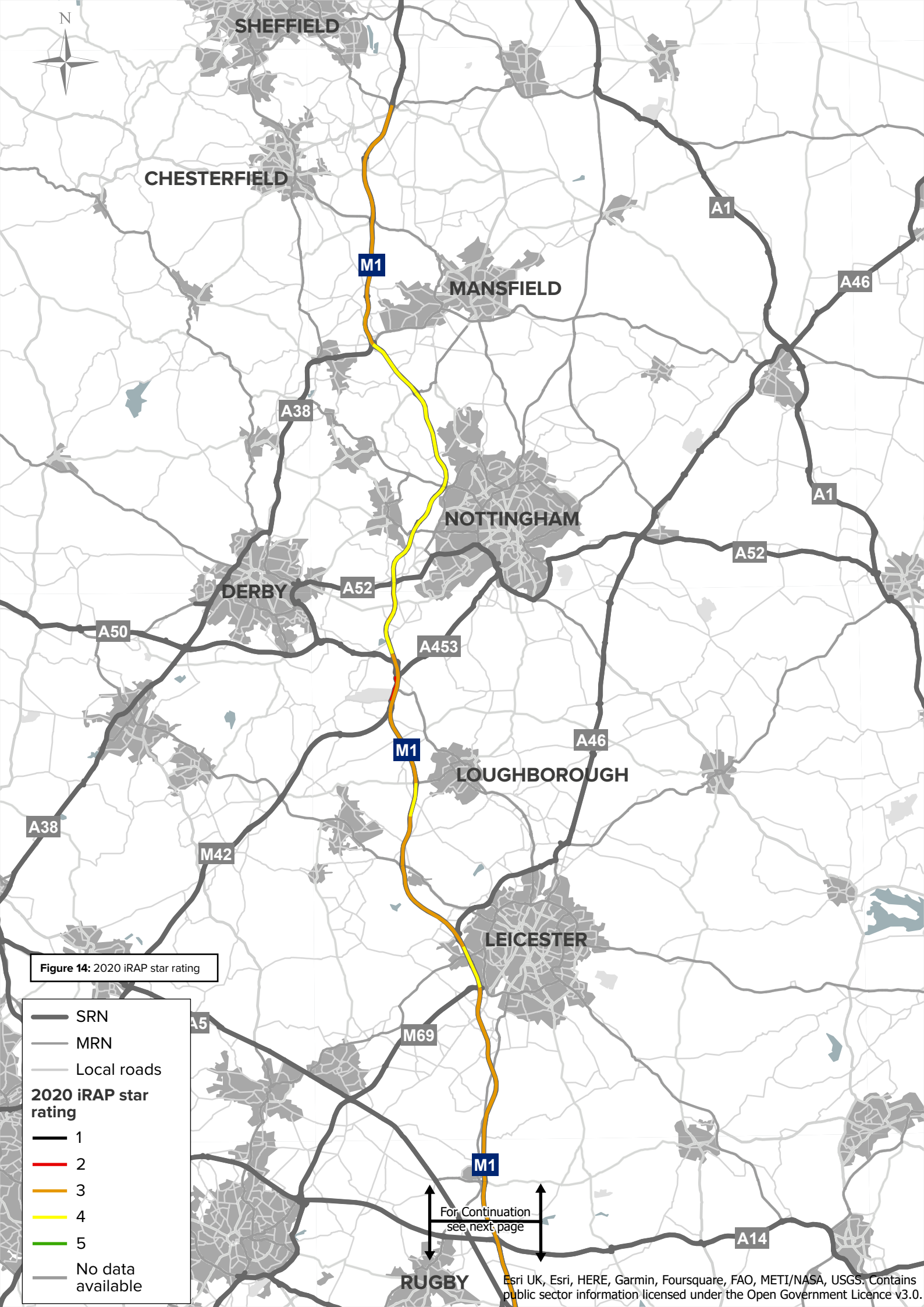
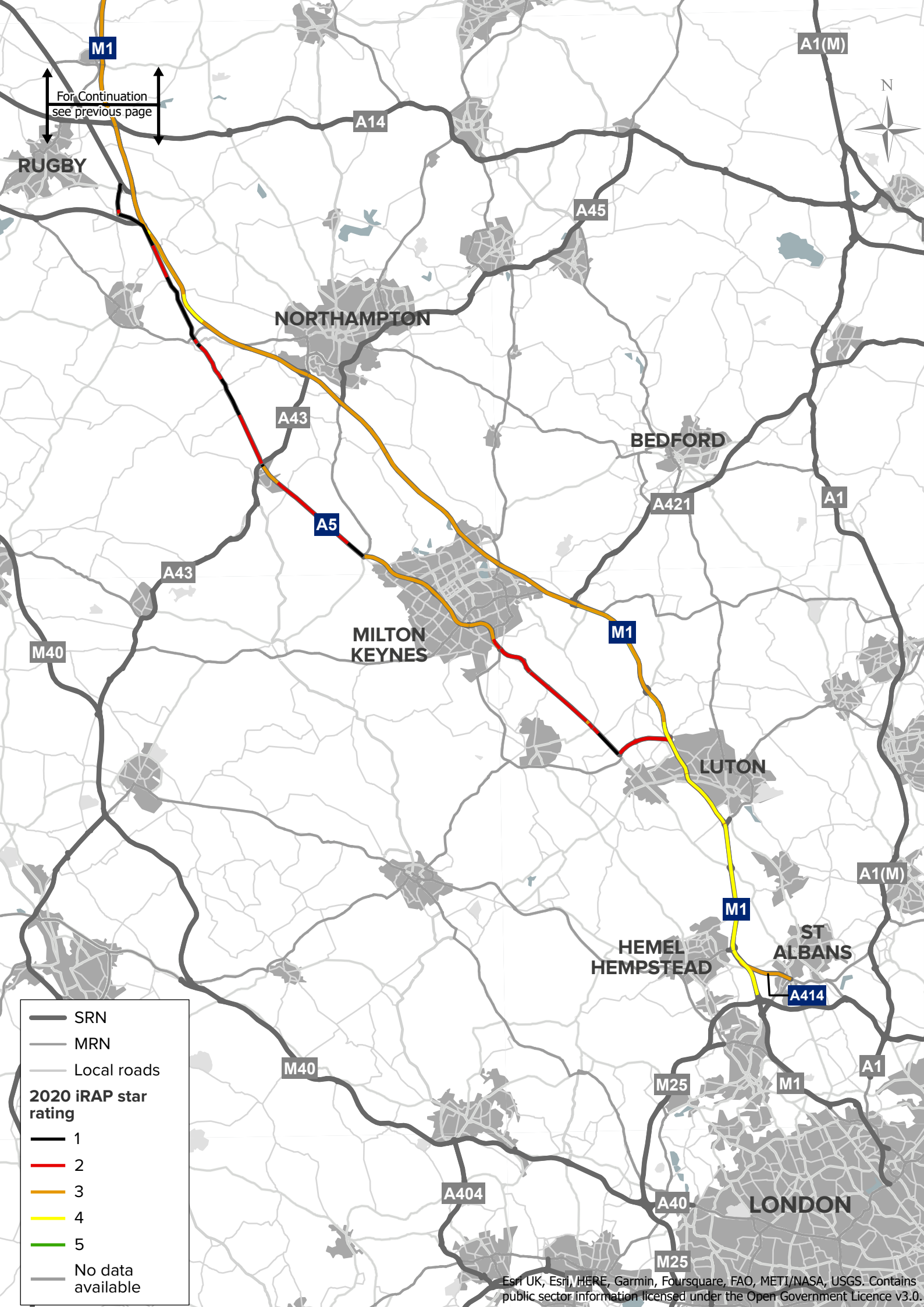


Figure 14: 2020 iRAP star rating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HEMPSTEAD
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SRN
MRN
Local roads
2020 iRAP star rating
1
2
3
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No data available
Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS. Contains public sector information licensed under the Open Government Licence v3.0.

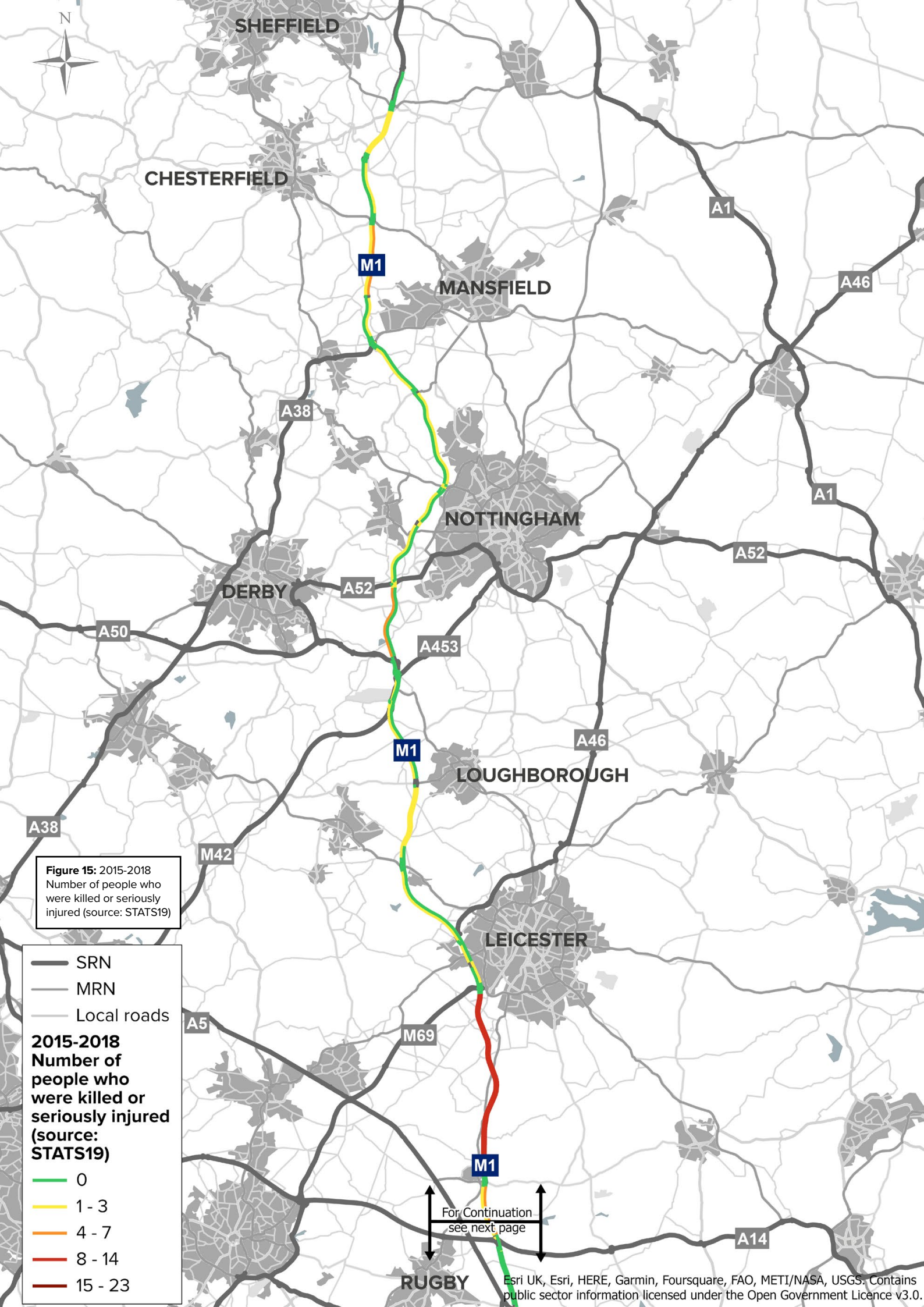
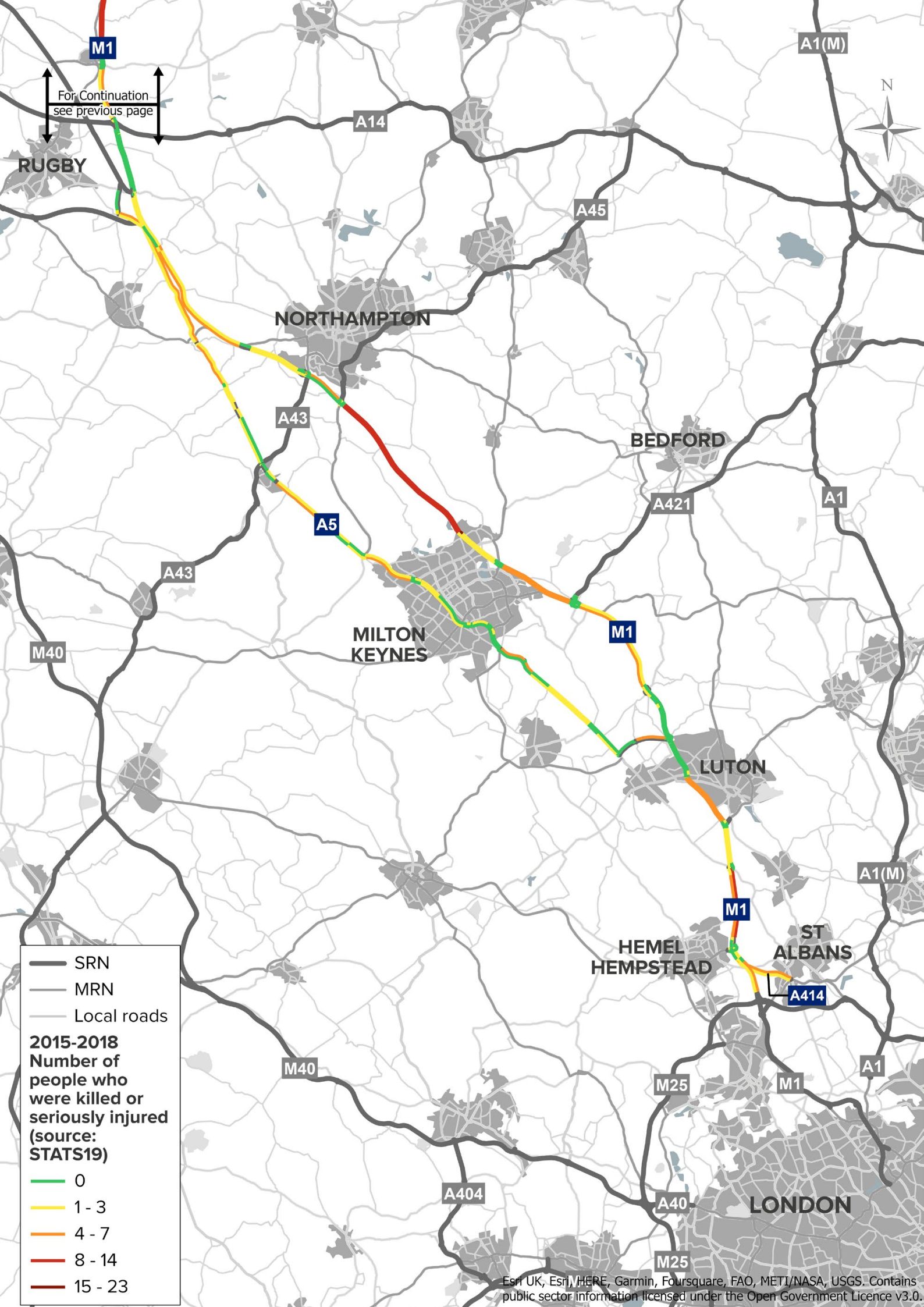


Figure 15: 2015-2018 Number of people who were killed or seriously injured (source: STATS19)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Number of
people who
were killed or
seriously injured
(source:
STATS19)
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4 - 7
8 - 14
15 - 23
Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS. Contains
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2. Network performance

Network performance is measured by average peak period delay, seasonal delay, and journey time reliability. Sections of the London to Scotland East (South) route experience one or more of these types of delay.

As shown in Figure 16, the greatest average morning peak delays on the M1 occur:

- between St Albans and Dunstable (Junctions 7 to 11A)
- around Milton Keynes (Junctions 13 to 15)
- around Northampton (Junctions 15 and 16)
- between Leicester and Markfield (Junctions 21 to 22)
- between East Midlands Airport and Derby/ Nottingham (Junctions 23A to 25)

Around Luton and Leicester, the average morning peak delay is over 25 seconds per vehicle per mile (pvpm). The observed delays on the M1 between Junctions 13 and 16 were in part due to roadworks for conversion to all-lane running smart motorway. Once completed, the scheme is expected to reduce the delays observed in 2019. On the A5, average morning peak delays are higher on the single carriageway sections north and south of Milton Keynes, and lower on the dual carriageway section through the city.

We want to improve journey times on route sections which currently experience high levels of delay and are expected to worsen in the future

Average peak period delays of over 25 seconds pvpm are observed in a number of locations including:

- approaching Hockliffe from the south
- approaching Kelly's Kitchen roundabout (A4146) from the south
- southbound between the A43 at Towcester and Stony Stratford roundabout
- northbound through Towcester approaching the A43

Post-opening evaluation[42] has shown that journey times and speeds on the Dunstable Northern Bypass show improvement compared to those on the old A5 through Dunstable. Journeys using Dunstable Northern Bypass are also more reliable compared to the old A5 through Dunstable.

Average peak period delay is measured in seconds per vehicle per mile and is the difference between observed average delay in the morning or afternoon peak period and the average delay during free flow conditions.

Seasonal delay refers to the difference between the average afternoon peak delay for Fridays in August 2019 (high demand in summer holidays) and the average delay during very low demand periods (in this case, Christmas day is used). This measure is designed to reflect the parts of the network that do not appear to have a problem on average over the year but have seasonal peaks.

Seasonal delay is of interest to tourist traffic, particularly people travelling to airports, or other destinations where arriving later than intended could have significant implications.

Reliability is the difference between the typical travel time, allowing for average peak period delays, and the observed travel time. This measures the amount of variation due to unexpected variations or unplanned events. Like delay, it is measured in seconds per vehicle mile. It is a concern for most drivers, but particularly affects just-in-time freight traffic and other strategic journeys.

42 National Highways (2022) *A5-M1 Dunstable Northern Bypass: One-year post-opening project evaluation.* https://nationalhighways.co.uk/media/hsdf42u4/a5-m1-dunstable-northern-bypass-1-year-after-pope-report.pdf

The M1 and A5 can be less susceptible to seasonal delays than some parts of the SRN. However seasonal delays are notable on the M1 between Luton and Northampton and on most of the A5 between Luton and Daventry.

On the M1 north of Northampton, reliability is fairly typical of other parts of the motorway network. However, south of Northampton, reliability is significantly worse, reflecting the higher traffic volumes. On the A5, the locations with the highest total delay (difference between the average peak period travel time and the speed limit travel time, totalled up for all journeys on that NTIS link) also experience the least reliability: approaching Stony Stratford (A508), Kelly's Kitchen (A4146) and Hockliffe.

Interested parties state that there is a lack of resilience on the M1 when there is an incident or collision, exacerbated by a lack of alternative north-south routes in some locations, for example north of East Midlands Airport and in Hertfordshire. Interested parties have also stated that congestion levels also contribute to incidents and collisions, worsening the problem, and that delays and incidents on the M1 and (particularly) the A5 cause traffic to divert onto unsuitable roads, affecting local communities.

There are high volumes of heavy goods vehicles using the M1, typically 10,000-15,000 per day in each direction. This means that heavy goods vehicles can account for at least 15% of vehicles and, on some sections of the M1 over 20%, compared to under 15% on many parts of the SRN. The highest heavy goods vehicle share is between Northampton and the A14 where heavy goods vehicles account for more than 25% of vehicles. Heavy goods vehicles account for less than 10% of vehicles on the A5 in this route (south of Daventry) but up to 25% between Daventry and Rugby.

National Highways has a suite of five regional traffic models (RTMs) covering England's strategic road network. The models allow us to identify future performance and delay on the network, assisting with the development of the route strategies.

The RTM models use projected growth, expected trends and changes to the network (including National Highway's RIS2 schemes) to forecast the performance of the network in 2031.

Where delays currently occur, they are forecast to increase further by 2031, particularly where there is planned development such as on the M1 between Luton and Milton Keynes, between Rugby and Loughborough, and between Nottingham and Mansfield. The largest increase is forecast between Luton and Milton Keynes where the average morning peak delay increases to over 30 seconds pvpm by 2031, as shown in Figure 17. Delays on the A5 are forecast to remain broadly similar to current levels by 2031.

Key challenges

- Average delays on the M1 occur close to St Albans / Dunstable, Milton Keynes, Northampton, Leicester and in the East Midlands Airport / Derby / Nottingham area
- Delays on the A5 tend to occur approaching at-grade junctions such as with the A43 at Tove Roundabout, Kelly's Kitchen (A4146) and the traffic signals in Hockliffe
- Reliability south of Northampton
- Seasonal delays affect the route between Luton and Daventry, but less than some parts of the SRN
- Interested parties consider there to be a lack of resilience for north-south journeys following an incident or collision
- The M1 carries a high number of heavy goods vehicles, typically 10,000-15,000 per day in each direction, which account for at least 15% of vehicles

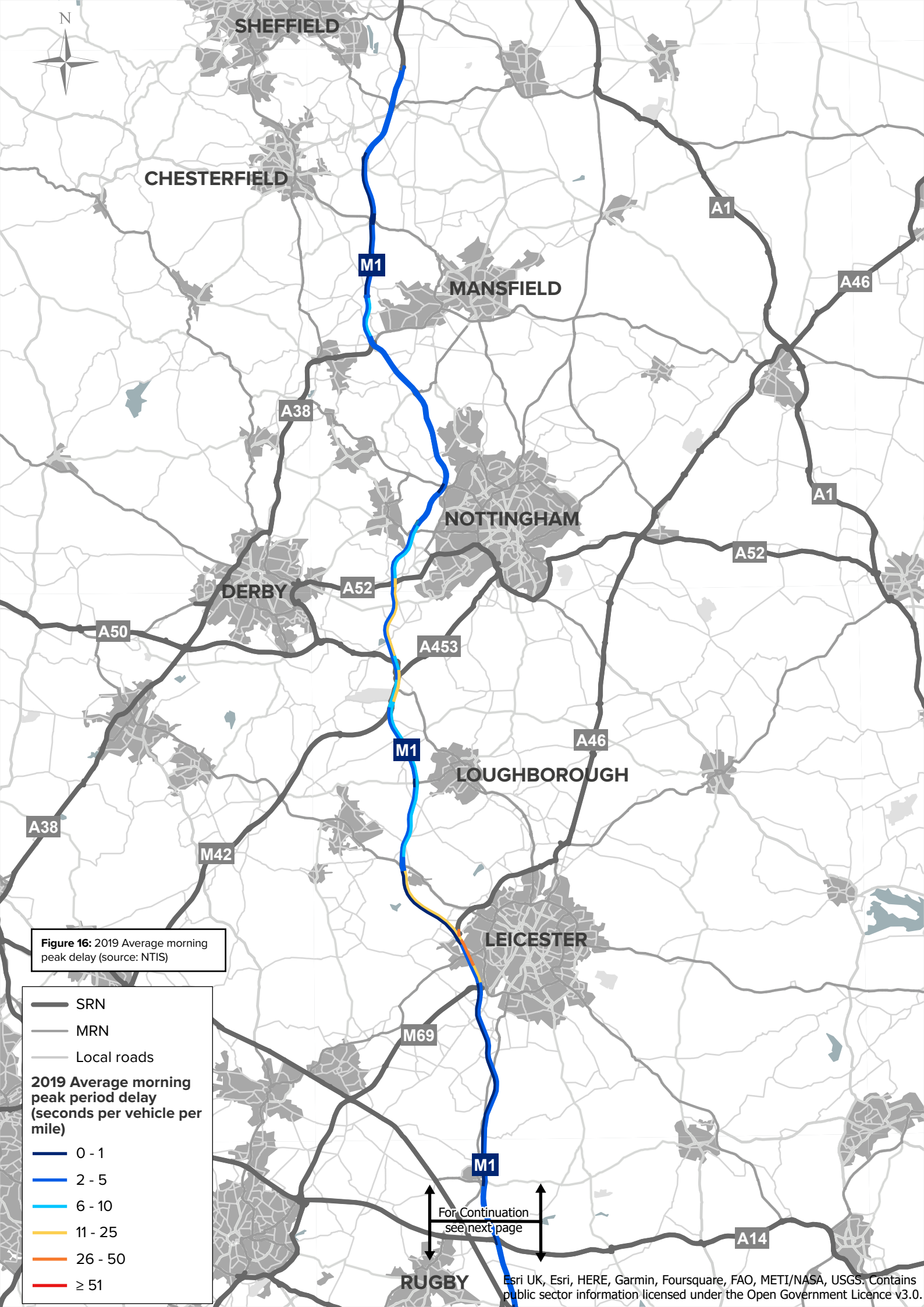
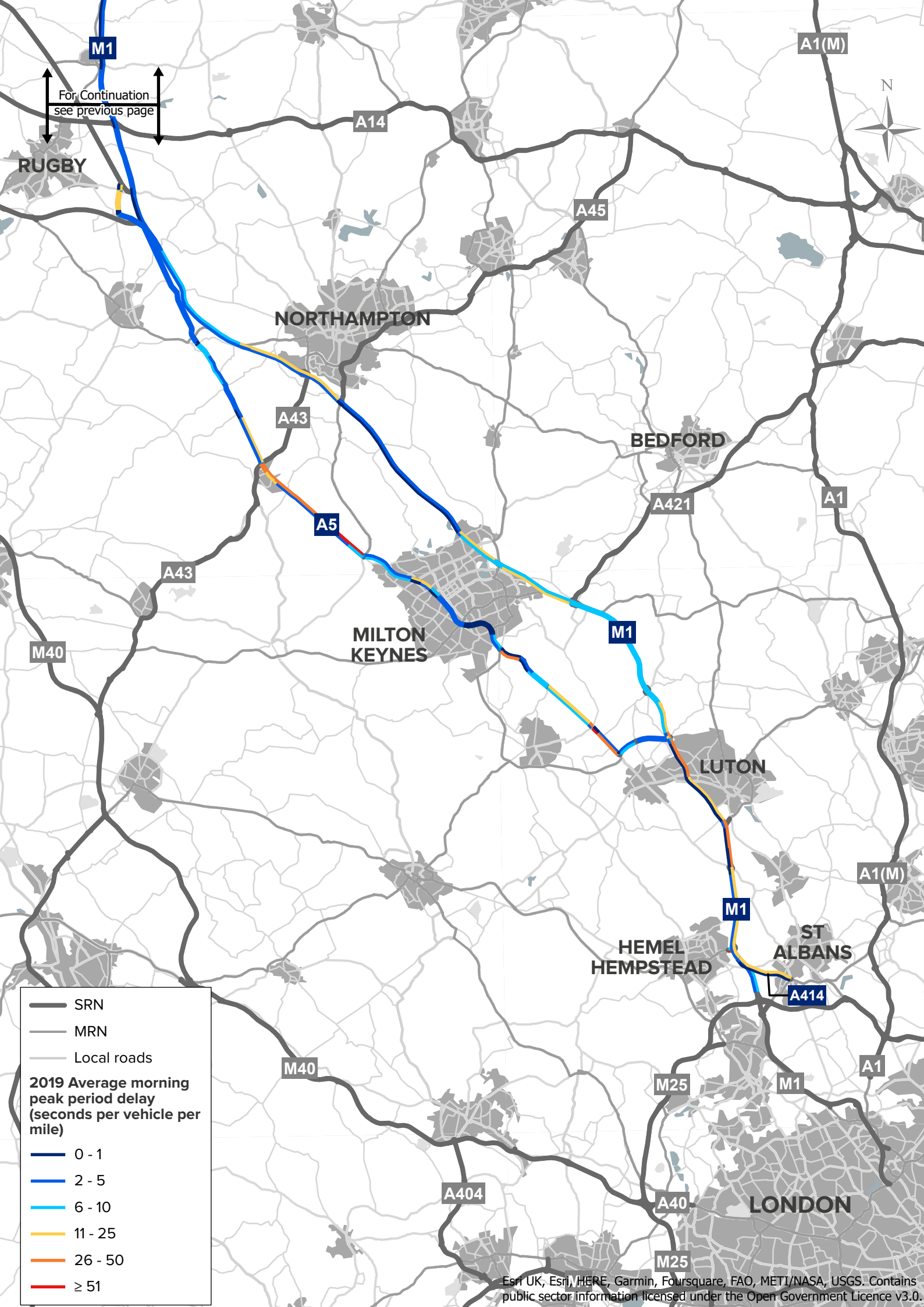


Figure 16: 2019 Average morning peak delay (source: NTIS)



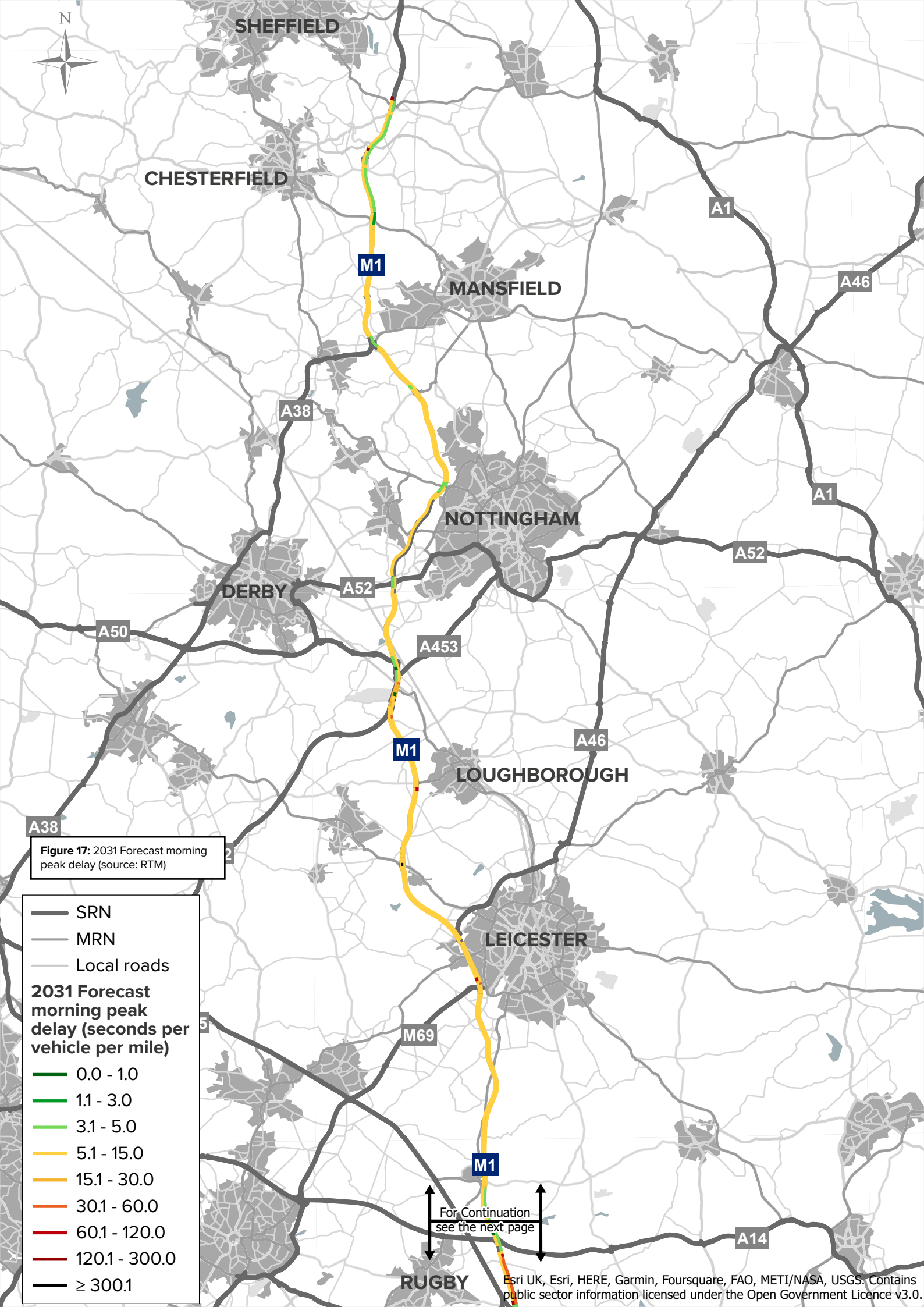
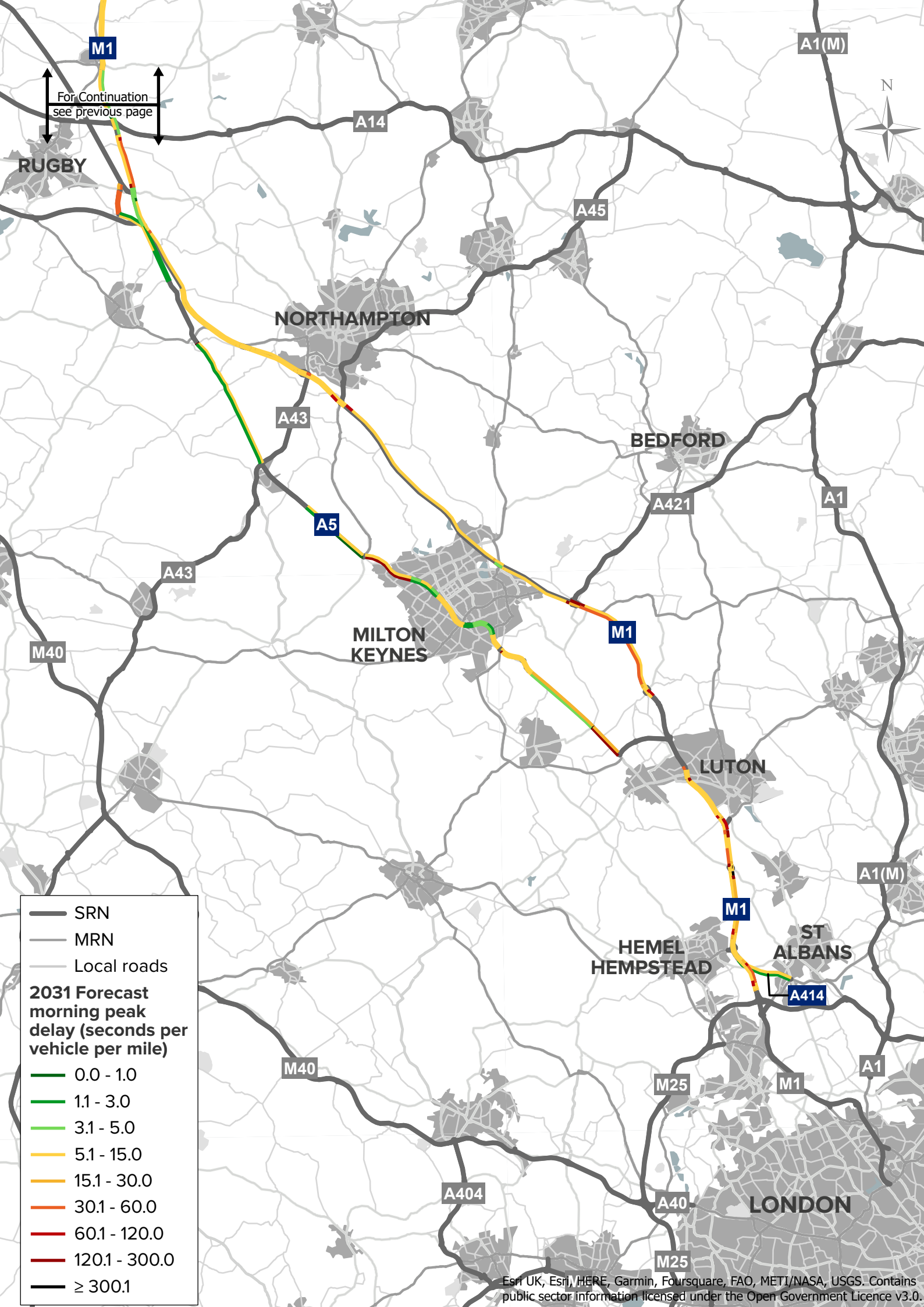


Figure 17: 2031 Forecast morning peak delay (source: RTM)



3. Improved environmental outcomes

Climate change is affecting society as a whole, and the transport sector is no exception. As the government-owned company tasked with building and maintaining the strategic road network, we need to show both how we can help tackle the causes of climate change and how we are preparing for a changing climate. In 2021 we published our *Net zero highways plan*[43] to show how we will meet the target of net zero greenhouse gas emissions.

The latest climate projections from the Met Office have helped us to understand how the climate is changing, including that summers will on average be hotter and drier, while winters will be milder and wetter and critically, that extreme weather will become more common. We have also seen, from reports such as the *Climate Change Committee*'s third and most recent independent assessment of climate risk, that there are key risks from a changing climate for infrastructure, such as risks to bridges from flooding and erosion and risks to subterranean and surface infrastructure from subsidence.

We are committed to net zero carbon construction by 2040 and net zero carbon travel by 2050. This will involve significant changes to the way we build and manage our network, including along the London to Scotland East (South) route. We will need to consider better integration with other transport modes and how to support the transition to electric cars and zero carbon heavy goods vehicles.

Interested parties would like to see reduced greenhouse gas emissions by providing alternative modes of travel, encouraging a lower share of journeys to be made by car, and better managing the SRN.

There are relatively few environmentally or historically sensitive locations close to the M1 or A5, but the route does pass close to parts of the Chilterns Area of Outstanding Natural Beauty, a small number of Natura and Ramsar sites,[44] and through areas of Green Belt to the west of Nottingham and between Milton Keynes and the M25.

Air quality describes how polluted the air we breathe is. Poor air quality can cause both short-term and long-term effects on the health of humans and other living beings. The amount of air pollution depends on the concentrations of different substances in the atmosphere, such as sulphur dioxide, oxides of nitrogen, and particulate matter. In the UK, the concentrations of these pollutants are regulated and regularly monitored. If a local authority identifies any locations within its boundaries where targets are not being achieved, it must declare an Air Quality Management Area (AQMA) and put together a plan to improve air quality in that area.

While noise is often an inevitable consequence of societal activities, it can have serious implications for human health, quality of life, economic prosperity and the natural environment. Elevated levels of noise, particularly from traffic, can be associated with heart attacks, strokes and hearing impairment, as well as sleep disturbance and annoyance. While there's no legal limit to road noise, environmental noise regulations in the UK require regular noise mapping and the creation of action plans for Noise Important Areas (areas exposed to the highest levels of noise).

Severance is where transport infrastructure or motorised traffic passes through settlements and acts as a physical or psychological barrier, limiting people's ability or desire to move through that area. This can reduce accessibility to key services, and damage local social networks and community cohesion.

43 National Highways (2021) *Net zero highways: our 2030 / 2040 / 2050 plan.* https://nationalhighways.co.uk/media/eispcjem/net-zero-highways-our-2030-2040-2050-plan.pdf

44 Natura sites formerly part of the Natura 2000 network of Special Areas of Conservation and Special Protection Areas in the European Union. From 1st January 2021 these sites retain their status outside the Natura 2000 network under the UK Conservation of Habitats & Species Regulations 2017 Regulations (amended 2019). Ramsar sites are wetlands of international importance that have been designated under the Ramsar Convention on Wetlands.

In terms of air quality, the sections of the route with the highest number of receptors within 100 metres of the route which may be more likely to experience adverse air quality impacts are:

- the M1 where it passes between Luton and Dunstable (Junctions 10 to 11A)
- the M1 at Leicester (Junctions 21 to 21A)
- the M1 at Long Eaton and Stapleford (either side of Junction 25)
- the M1 at South Normanton (Junction 28)
- the A5 between Milton Keynes (A422/ H3 Monks Way) and Old Stratford
- the A5 passing Potterspury and through Towcester

Many of these areas are within existing Air Quality Management Areas (AQMAs). The M1 and A5 also run close to, or through, other AQMAs including those at Broxtowe, Kegworth, Castle Donington, Copt Oak, Rugby and Northampton. Some of these AQMAs relate directly to traffic on the M1. There are a substantial number of receptors within 300 metres of the carriageway which may experience higher noise levels, most notably adjacent to:

- the M1 at Milton Keynes (Junctions 13 to 14)
- the M1 at Leicester (Junctions 21 to 21A)
- the M1 at Shepshed (north of Junction 22)
- the M1 at South Normanton (Junction 28)

Risk of flooding from surface water is the potential for surface water flooding which "happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead."[45] Locations along this route most at risk of flooding from surface water include:

- through Junction 10 (Luton / Luton Airport)
- between Junctions 15 and 16 (Northampton) including through the junctions and at Flore to the north of Junction 16
- Watford Gap motorway service area
- at Markfield (south of Junction 22)
- just north of Junction 28 (South Normanton)

Where possible we will seek to protect environmentally important locations and reduce air quality and noise impacts on communities served by the route

There are also several M1 junctions where sections of the roundabouts below the level of the main carriageway are most at risk of flooding, for example at Junctions 9 (Luton), 11 (Dunstable), 18 (Crick), 21 (Leicester), 22 (Markfield) and 25 (Derby/ Nottingham. The A5 is most at risk of flooding at Hockliffe, at the Flying Fox Roundabout, Fenny Stratford, Towcester and near Buckby Wharf. A small number of locations were identified by interested parties where the M1 or A5 currently act as a barrier to walking, cycling or public transport services: the M1 at Hemel Hempstead and at Junction 13 (Milton Keynes south).

Some interested parties stated a desire to protect local habitats, water quality and designated environmental areas, and to deliver improvements in local environmental conditions by adopting high standards of sustainable road design.

Key challenges

- Maintain and protect Areas of Outstanding Natural Beauty, and other environmental and historic designations
- A large number of receptors which may be more likely to experience adverse air quality impacts are within 100 metres of the M1 in particular, or are within designated AQMAs
- A substantial number of receptors within 300 metres of the route which may experience higher noise or within a Noise Important Area (NIA)
- A desire to minimise greenhouse gas emissions
- A desire to build resilience to future climate change

45 Environment Agency *Flood risk maps for surface water: how to use the map* website. https://www.gov.uk/government/publications/flood-risk-maps-for-surface-water-how-to-use-the-map#:~:text=Surface%20water%20flooding%20happens%20when,of%20lead%20local%20flood%20authorities. (The data takes account of the topography along the route.)

4. Growing the economy

The strategic north-south connectivity provided by the M1 is of vital importance to the success of the UK economy as a whole and the economies and businesses along the route.

The connectivity benefits provided by the strategic road network (SRN), particularly the M1, M6 and M42, are fundamental to the development of the internationally significant 'Golden Triangle' of freight warehousing and distribution activity. There are several large freight distribution centres along the route, including Magna Park (Lutterworth) and Daventry International Rail Freight Terminal (DIRFT).

The economy of the East Midlands has a high share of businesses in sectors which are dependent on the SRN, such as primary materials, manufacturing and construction, in addition to logistics. Interested parties have identified a need for more, and better quality, facilities for heavy goods vehicle drivers along the route to support the efficient operation of these sectors.

Other sectors, such as financial and other services, wholesaling, retailing, and health are also important, and rely on the M1 and A5 for their success.

In order to understand the economic and housing growth aspirations of the area along the route we have considered key growth locations, such as those held in Local Plans and Freeports.

Significant growth in economic activity and jobs is expected throughout the corridor, particularly in economic opportunity areas associated with the logistics sector. Locations where growth is expected include:

- around East Midlands Airport (including the Freeport sites)
- south Leicestershire and Northamptonshire
- Milton Keynes
- Luton (including around London Luton Airport)
- Hemel Hempstead

The strategic road network has a critical economic function in supporting national and cross-border connectivity and areas with high levels of deprivation

There are many large distribution centres along the route, such as Magna Park at Lutterworth, several of which have facilities for transferring goods between road and rail. A further six intermodal facilities are planned in the corridor, including at St Albans (Junction 7), Sundon Quarry (Junction 11A) and Northamptonshire (Rail Central).

There are also expectations of significant growth in housing and population in many locations along the route, including over 30 residential development sites expected to provide at least 1,000 homes each and totalling over 80,000 homes. Many of these sites are included in current Local Plans up to 2040. The areas expected to see most new homes are:

- Hemel Hempstead (east)
- north of Luton (Sundon)
- Milton Keynes (east, south-east, west)
- Houghton Regis
- Marston Vale
- Northampton
- Rugby and Daventry
- Towcester
- Leicestershire
- Derby
- Mansfield

Growth is expected to be especially high in Leicestershire, with up to 25,000 new homes in the second and third road periods (2020-2030), and a total housing need of 118,000 between 2011 and 2036. This will particularly affect M1 Junctions 21 to 23.

There are concerns amongst some interested parties that the current performance of the SRN (and other transport modes) at particular locations will constrain future development and growth, including around Leicester, Luton, Bedford, Hemel Hempstead and in the Bolsover area. In addition, new developments can also require new at-grade junctions to access them, for example on the A5. These additional junctions can cause delays to existing passing traffic.

East West Rail will serve Ridgmont station close to M1 Junction 13 as well as Bedford, offering an opportunity for integration between road and rail and to maximise the proportion of growth-related journeys which can be carried by rail. The route will also play an important role in providing access to stations on the eastern leg of High Speed Two (HS2) from the early-mid 2040s including East Midlands Parkway (within two miles of M1 Junction 24) as well as Derby and Nottingham.

The route passes through, or close to, some of the top 10% deprived areas in the UK (see Figure 22). These most-deprived areas can be found in many towns and cities, even those considered to be more affluent, and larger pockets of deprivation in parts of Leicester, Nottingham, Chesterfield and Milton Keynes[46]. There is also more widespread deprivation in the former coalfields of north Nottinghamshire (such as Sutton-in-Ashfield and Mansfield) and north-west Leicestershire.

The index of priority places for Levelling Up Fund places local authorities into categories 1, 2 or 3, depending on their identified level of need, with category 1 representing places deemed in most need of investment through this Fund[47]. Based on the 2022 categorisation, areas in the north of the route are likely to be classified as being more in need than those in the south. Larger settlements (Chesterfield, Derby, Leicester and Luton) also tend to be classified as more in need, but with exceptions (for example Northampton, Milton Keynes, Hemel Hempstead).

Key challenges

- The M1 is of particular strategic importance to the success of the UK economy
- The M1 and A5 are also important to the economy of the south Midlands, Milton Keynes, Bedfordshire, and Hertfordshire including the warehousing and logistics sectors
- Significant growth in economic activity and employment is expected along the route, particularly between East Midlands Airport and Hemel Hempstead
- Significant housing growth is expected close to many of the cities and towns along the route
- Deprivation levels are more widespread in the north of the route but there are pockets of deprivation elsewhere, including in many of the towns and cities
- Some interested parties are concerned about whether the SRN has sufficient capacity to cater for growth without adversely affecting network performance
- Potential to integrate road and rail provision to enable growth

46 Ministry of Housing, Communities & Local Government (September 2019) *English indices of deprivation 2019*. https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019

47 Department for Levelling Up, Housing and Communities (March 2022) *Levelling Up Fund Round 2: updates to the Index of Priority Places.* https://www.gov.uk/government/publications/levelling-up-fund-round-2-updates-to-the-index-of-priority-places

5. Managing and planning the SRN for the future

Maintaining the strategic road network

We deliver a comprehensive programme of maintenance to keep our assets in the right condition to provide our customers with the right level of service; ensuring that the road network remains safe and fully open for use. We collect data on the condition of all of our assets so that our teams of specialist engineers can fully understand their current condition and identify the optimum time to intervene, maintaining the asset and replacing parts before they fail and impact customer journeys.

Our asset inspections to collect much needed condition data are undertaken through a number of methods - survey vehicles collecting road surface condition for the whole of the network every year through to structures inspections (we undertake over 23,000 inspections of individual structures every two years). The majority of our asset routine maintenance activities, and the replacement of thousands of asset components as they near end of life, are undertaken at night to minimise customer disruption, meaning that most of this work is never seen.

Road surface

The measure for road surface condition was updated for 2022/23 onwards. The condition is reported as one of our Key Performance Indicators and now records the condition of all available lanes of the main carriageway based on three elements of the road surface condition namely: the levels of surface rutting (caused by wheel tracks being formed in the surfacing); skid resistance (how slippery the road is); and longitudinal profile (how bumpy the road feels). The target is for 96.2% or more of the road surface to be in good condition. At the time of publication, 96.7% of the road surface is good condition, thereby meeting the national surfacing condition target.

This route consists of 2,300 lane-kilometres of road surface. The surface condition across the route is considered to be sound, with 98% of pavement asset not requiring investigation for possible maintenance.

Bridges and structures

There are 1,660 structures on the route, including bridges and large culverts. According to an analysis of current data, 87% of our structures are in very good or good condition. By carrying out inspections of each individual structure every two years, we identify any defects that may require maintenance, thereby helping to ensure that structural components are replaced before they fail.

Figure 18 shows how investment in this route has improved the average condition scores of structures, since 2006. The average condition score is derived from asset inspections of structural components, accounting for the relative importance and size of each component. If no maintenance or renewals were planned, the scores would be expected to decline from 100 (perfect) as the structures deteriorate over time. We have a rolling renewals programme to replace asset components identified in our inspection programme, improving the structure condition to ensure all structures remain in a safe condition and fully open for use.

We have identified significant structures renewals for RIS3 relating to four structures on this route.

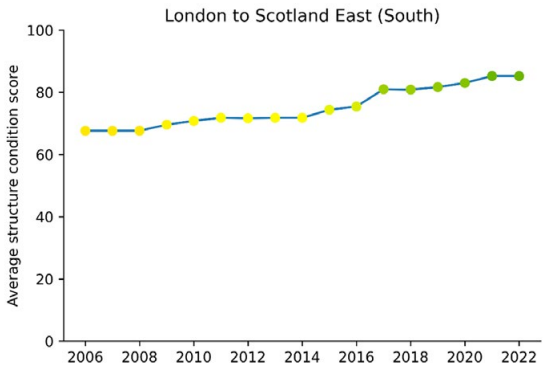


Figure 18: Average condition scores of structures, since 2006

Drainage

Drainage assets are a mixture of linear assets (for example underground pipes, channels, ditches, drains) and non-linear assets (for example gullies and chambers). At national level, 90% of the drainage assets are in good structural condition and 87% are in good service condition.

Geotechnical features

The geotechnical asset, comprising over 12,000 kilometres of earthworks embankments and cuttings carrying the road network, is assessed through a programme of inspections and rated for its ability to provide the right level of safe functionality. The condition assessment of this asset is that 99.6% is in good condition to continue to function correctly. We use the inspection surveys to identify where any of our geotechnical features may require maintenance now or in the future, to ensure they are never at risk of failure.

Future developments

We have been transforming our approach to maintenance through our Operational Excellence and Asset Management Transformation Programmes. Bringing our key asset maintenance decision making and planning activities back in-house so that our own staff are responsible for planning maintenance activities, along with improving the consistency of our end-to-end maintenance and asset replacement programmes, will bring significant benefits. Our asset management transformation also includes improved analysis to identify the investment required on the strategic road network during the third road period (2025-2030). The business case will provide evidence to support future maintenance investment, clearly articulating the costs and benefits of delivering an effective maintenance and asset replacement programme

Operations

We are establishing a nationally-consistent approach to the management of our operational capability through our Operational Excellence change programme. This will deepen our understanding of how our interventions impact on the performance of the network and on the journeys of our customers. We are using the latest analytical software to process traffic data and gain insight into:

- how our operational services can improve safety and provide security to road users
- how the attendance of a traffic officer has an impact on incident durations
- how information provided by National Highways can benefit road users who plan their journeys beforehand and then while on their journeys

By better understanding our current operational performance, we can create a baseline from which we can identify opportunities for improvement.

Key challenges

- Contributing toward the national target of 96.2% or more of carriageway being in good condition
- Maintaining the good condition of the strategic road network's geotechnical assets
- Ensuring that drainage assets are maintained so that their good structural and service conditions can be upheld
- Requirement for significant renewal of four structures

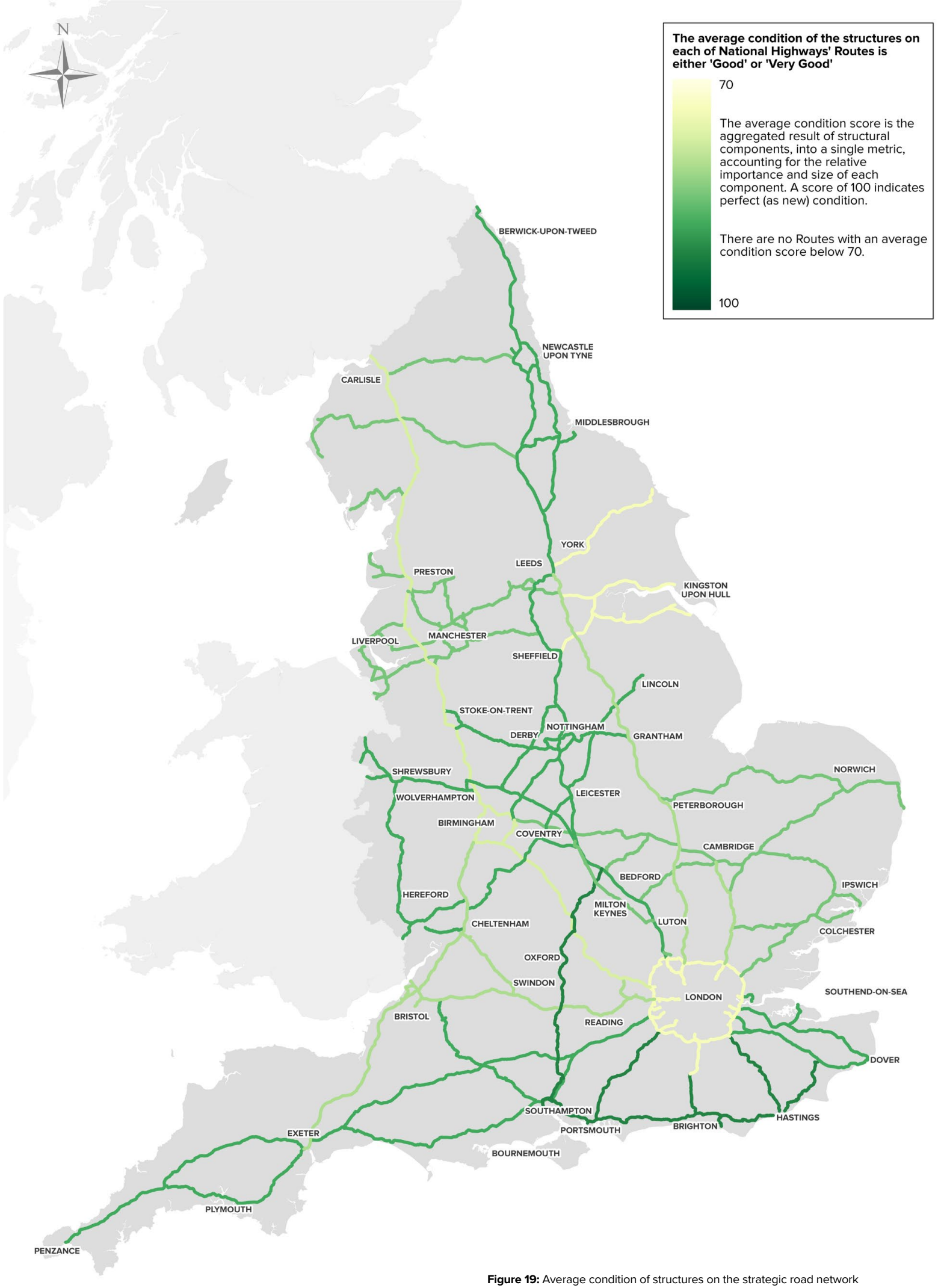


Figure 19: Average condition of structures on the strategic road network

6. A technology-enabled network

Facilities to improve journey quality and network efficiency on the strategic road network (SRN) are of key importance to our customers. High quality travel information before and during travel helps to:

- reduce day-to-day delays and maximise the efficiency of the SRN
- minimise the adverse impacts of incidents
- improve the quality of the journey experience
- allow people to make more informed travel choices including about when and how to travel

The provision of roadside information along the route varies between sections of smart motorway, sections of conventional motorway, and the A5, with potential to provide more information to drivers within the latter two categories.

There is also potential to:

- better integrate the operation of roadside traffic information and management between the SRN and local road networks (including heavy goods vehicle (HGV) routing) to enhance the efficiency of the road networks as a whole
- provide more pre-journey information, integrated across all modes

Electric vehicle charging points are provided along the route, at all eight motorway service areas accessed directly from the M1. However, there are no charging points at Oval services close to Junction 16 or southbound at Newport Pagnell. The number of charging points at the motorway service areas is currently low compared to the traffic volumes using the route and interested parties would like to see more.

Most charging points are on the surrounding local road network, requiring vehicles to leave the SRN. There is a large concentration of charging points in central Milton Keynes. Interested parties in the freight and logistics sector would like more facilities for refuelling of HGVs using alternative fuels such as electricity, hydrogen, biofuels and natural gas.

There are currently very few public-access HGV refuelling sites in the UK, and none on the M1 itself. The only alternative fuel filling stations on the route are at DIRFT (near Junction 18) and the Red Lion Truck Stop (close to M1 Junction 16). A 2021 Midlands Connect study[48] identified priority locations for new alternative fuelling facilities for heavy goods vehicles in the Midlands. These include Trowell motorway service area as well as a number of other locations close to the SRN at:

- Alfreton (Derbyshire)
- Castle Donington (M1/A50/A42)
- Braunstone (Leicester)
- Brackmills Industrial Estate (Northampton)

The move towards ending the sale of new petrol and diesel cars by 2030, and the transition to electric vehicles for freight transport, will require a greater number of charging points in future. Interested parties also noted the need for refuelling facilities for all alternative fuels on the SRN, responding to any future developments in vehicle fuelling technology.

The Government's 2022 electric vehicle infrastructure strategy[49] sets out a vision for 2030 where charging infrastructure will be removed as both a perceived and real barrier to the adoption of electric vehicles. The Strategy outlines the intention to accelerate the rollout of high-powered chargers on the SRN through the £950 million rapid charging fund[50], aimed at increasing provision of electric vehicle charging.

Key challenges

- There is a lack of real-time information for road users during journeys on the A5
- Integration of traffic management between the SRN and local roads
- There is a need for more electric vehicle charging points
- Interested parties want more alternative fuelling facilities for heavy goods vehicles

48 Midlands Connect (June 2021) *Alternative Fuels: Beyond Fossils* https://www.midlandsconnect.uk/publications/alternative-fuels-beyond-fossils/
49 Department for Transport UK *electric vehicle infrastructure strategy* website: https://www.gov.uk/government/publications/uk-electric-vehicle-infrastructure-strategy
50 Office for Zero Emission Vehicles *Rapid charging fund* website: https://www.gov.uk/guidance/rapid-charging-fund

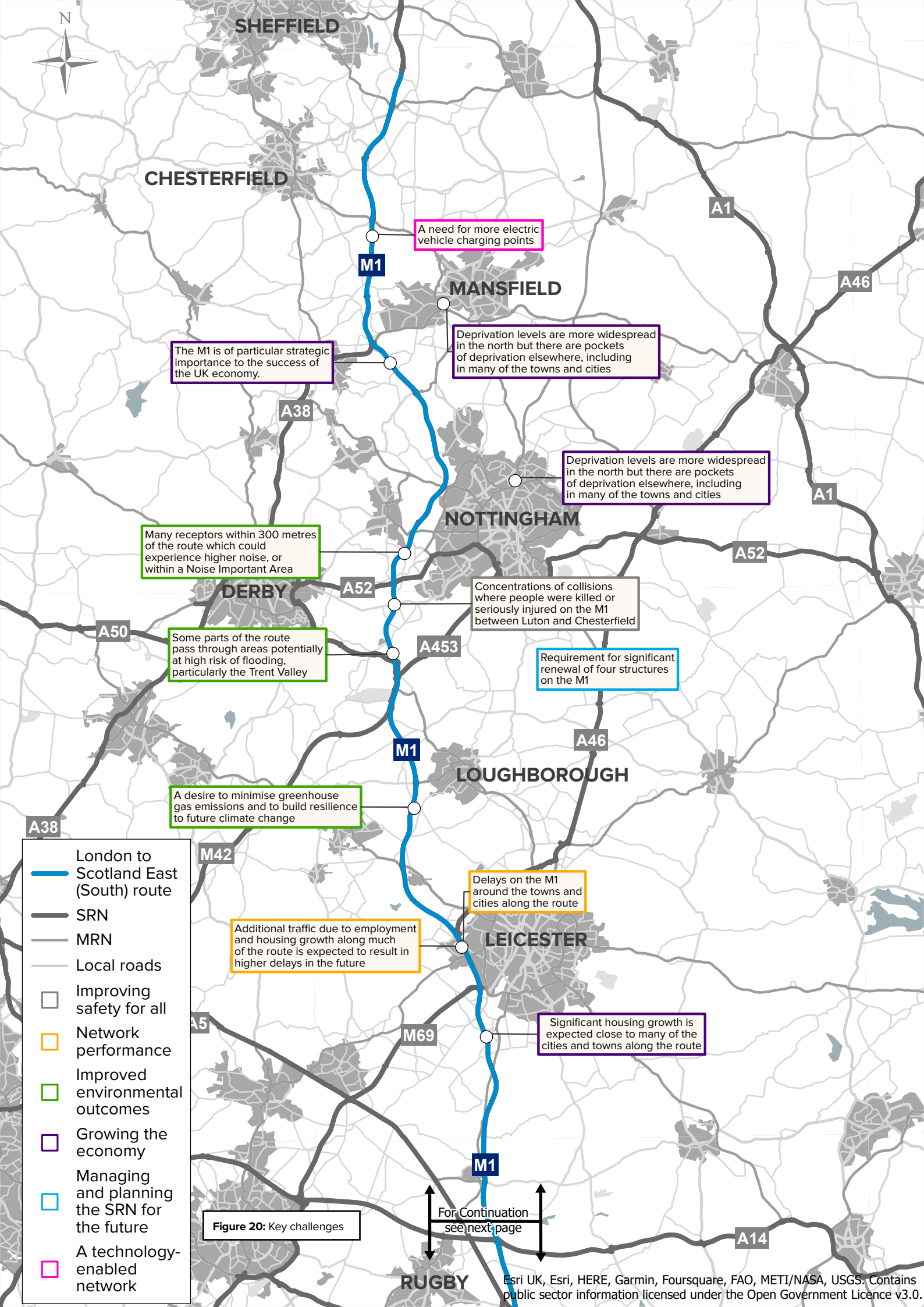
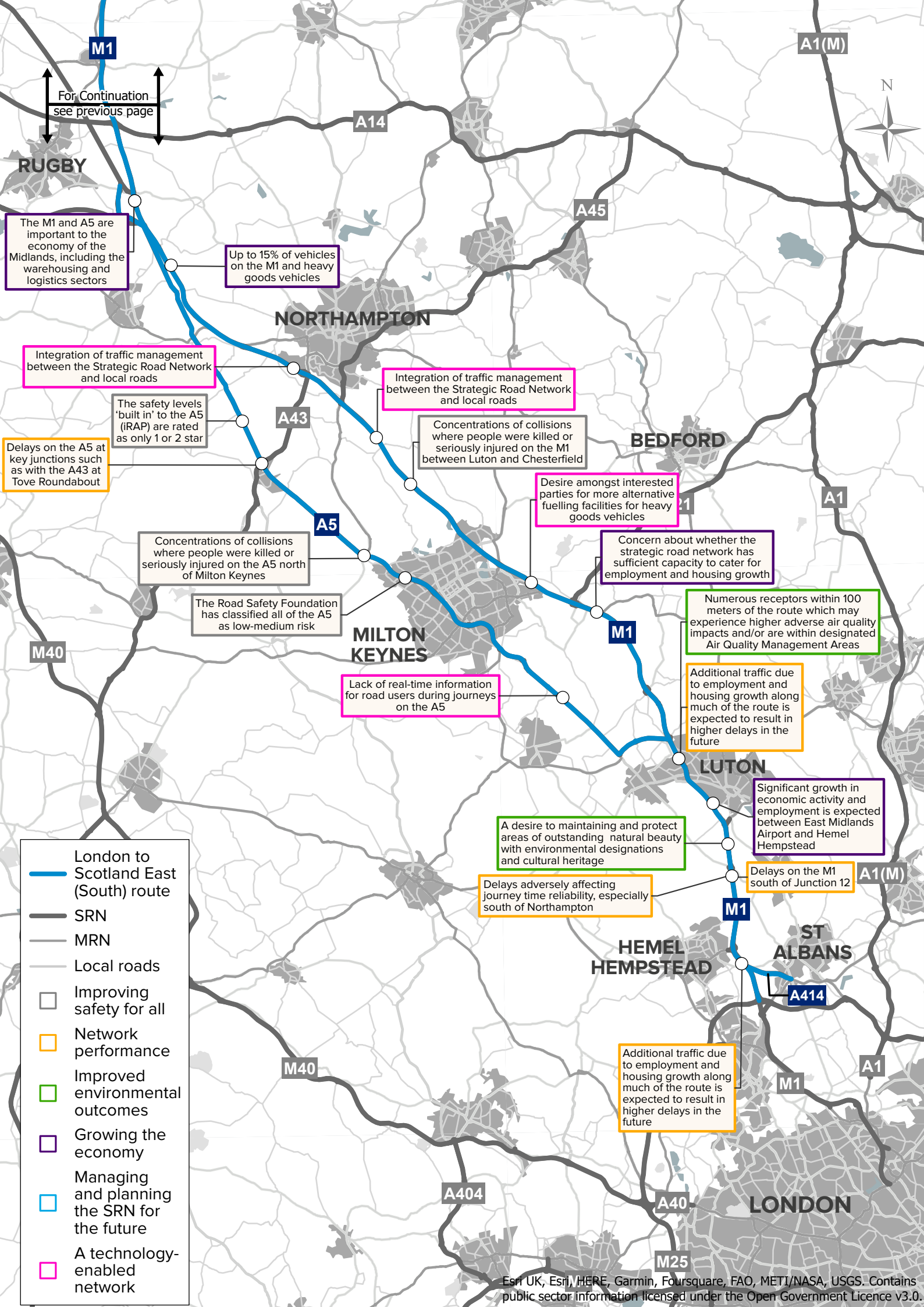


Figure 20: Key challenges


M1
For Continuation see previous page
RUGBY
A14
A45
A1(M)
N
The M1 and A5 are important to the economy of the Midlands, including the warehousing and logistics sectors
Up to 15% of vehicles on the M1 and heavy goods vehicles
NORTHAMPTON
Integration of traffic management between the Strategic Road Network and local roads
Integration of traffic management between the Strategic Road Network and local roads
The safety levels 'built in' to the A5 (iRAP) are rated as only 1 or 2 star
A43
Concentrations of collisions where people were killed or seriously injured on the M1 between Luton and Chesterfield
BEDFORD
Delays on the A5 at key junctions such as with the A43 at Tove Roundabout
Desire amongst interested parties for more alternative fuelling facilities for heavy goods vehicles
A1
A5
Concentrations of collisions where people were killed or seriously injured on the A5 north of Milton Keynes
Concern about whether the strategic road network has sufficient capacity to cater for employment and housing growth
The Road Safety Foundation has classified all of the A5 as low-medium risk
M1
Numerous receptors within 100 meters of the route which may experience higher adverse air quality impacts and/or are within designated Air Quality Management Areas
M40
MILTON KEYNES
Lack of real-time information for road users during journeys on the A5
Additional traffic due to employment and housing growth along much of the route is expected to result in higher delays in the future
LUTON
Significant growth in economic activity and employment is expected between East Midlands Airport and Hemel Hempstead
A desire to maintaining and protect areas of outstanding natural beauty with environmental designations and cultural heritage
Delays on the M1 south of Junction 12
A1(M)
Delays adversely affecting journey time reliability, especially south of Northampton
M1
HEMEL HEMPSTEAD
ST ALBANS
A414
Additional traffic due to employment and housing growth along much of the route is expected to result in higher delays in the future
M40
M1
A1
A404
A40
LONDON
M25
London to Scotland East (South) route
SRN
MRN
Local roads
Improving safety for all
Network performance
Improved environmental outcomes
Growing the economy
Managing and planning the SRN for the future
A technology-enabled network
Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS. Contains public sector information licensed under the Open Government Licence v3.0.

Our ambition for the route

06 Initial route objectives

We want to provide safer and more reliable journeys for all those who use or live alongside our network on the London to Scotland East (South) route, and help the region achieve its economic and housing growth ambitions. Based on our engagement and data analysis, we have defined seven route objectives for the area.

We developed the route objectives based on:

- feedback from customers and neighbours outlined in Chapter 3
- opportunities to collaborate with other network operators, outlined in Chapter 4
- constraints and challenges, as highlighted in Chapter 5
- how best to contribute to the Department for Transport's (DfT's) six strategic objectives

Each route strategy includes a series of specific route-based objectives. These objectives, informed by extensive data analysis and engagement with customers and neighbours, set out our ambition for each route. Although route objectives are route-specific, they should also be considered in the context of our commitments and ambitions for the whole network, as per our Licence agreement. This means that, while we may identify certain locations within a route for further consideration, we will seek to address these locations in line with our ongoing commitment to achieving our safety, environmental and technology obligations across the strategic road network.

It should be noted that there is overlap between the objectives, and we recognise they cannot be considered in isolation from each other. They should be considered alongside our asset plan.

The route objectives, their supporting narratives, and locations for further consideration will together inform the development of the Road investment strategy (RIS). They do not represent a commitment to road-based interventions but are intended to enable multimodal interventions to be explored as part of later study phases. It should be noted that the route objectives do not signify an assurance of investment in a particular route, nor do they remove the need to follow statutory processes.

As these are initial route objectives subject to wider feedback, we have not at this stage set out in detail how we will measure progress against them. Understanding how interventions and initiatives have addressed the challenges identified is a complex and long-term task and the approach to it will need to be devised alongside the wider performance specification for the third road period (2025-2030). We expect to set out our approach to this more clearly in the finalised route strategy overview reports to be published alongside our *Strategic business plan* and *Delivery plan* later in this second road period (2020-2025).

Route objectives and DfT's strategic objectives

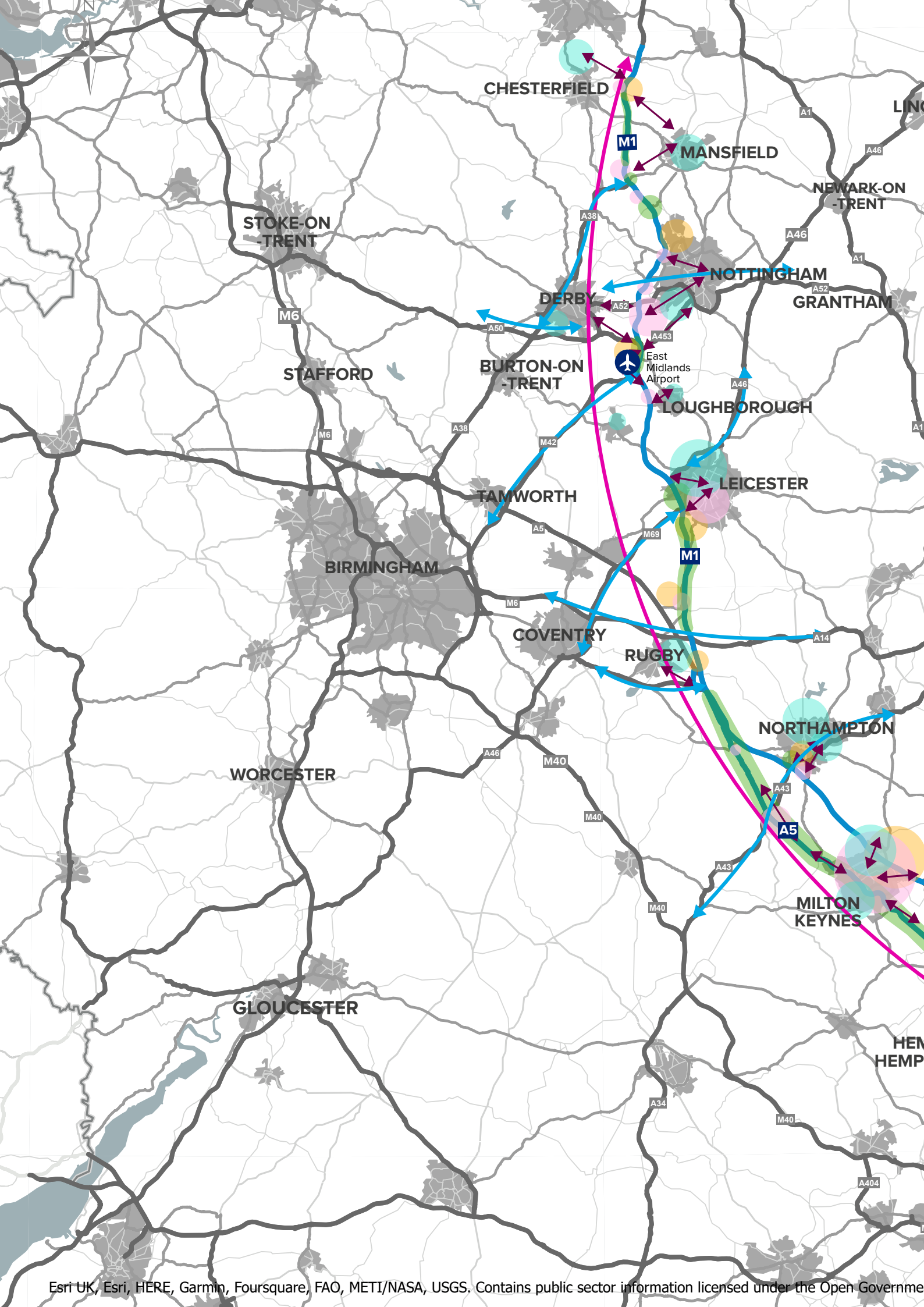
In Figure 21 we illustrate the seven route objectives on our route map and, in Table 1, we show how they contribute to the Government's strategic objectives for our network as a whole.

Table 1: How the route objectives map to the DfT's strategic objectives

	Ref.	Route objective
	A	**Improving safety on the M1 and A5:** improve road safety on the A5 between Milton Keynes and Rugby and address locations with higher numbers of collisions on the M1 including around Luton, Leicester and Mansfield
	B	**Reducing the impacts of the SRN on adjacent communities:** be a better neighbour by safeguarding the environment and reducing adverse air quality and noise impacts on local communities adjacent to the M1 and A5 in Luton, Newport Pagnell, Leicester, Nottingham and north Nottinghamshire and Milton Keynes
	C	**Reliable strategic north-south connections:** support reliable UK strategic north-south connectivity for people and goods between London and the South-East of England, the North of England and Scotland
	D	**Reliable strategic connections between the South West, South Wales and the North:** support reliable UK strategic connectivity for people and goods between the South West, South Wales and the North of England and Scotland (via connections to the A38/ M42, A43 and A46 corridors)
	E	**Support essential access to cities, towns and international gateways:** support access for essential mobility of people and goods to the cities, towns and international gateways along the route: Sheffield, Nottingham, Derby, Leicester, Northampton, Milton Keynes, Bedford, Luton, Milton Keynes, Hemel Hempstead, East Midlands Airport and London Luton Airport
	F	**Support sustainable employment growth:** support regionally significant and sustainable employment growth close to the M1 and A5 including at East Midlands Gateway, Magna Park, Daventry International Rail Freight Terminal (DIRFT), Northampton, Milton Keynes and London Luton Airport
	G	**Supporting sustainable housing growth** support regionally significant and sustainable housing growth close to the M1 and A5 including around Leicester, Derby, Northampton, Rugby, Bedford, Luton and Hemel Hempstead

DfT's strategic objectives for our route

Improving safety for all	Network performance	Improved environmental outcomes	Growing the economy	Managing and planning the SRN for the future	A technologyi-enabled network
✓	✓				
		✓			
	✓		✓		
	✓		✓		
	✓		✓		✓
	✓		✓		
	✓		✓		



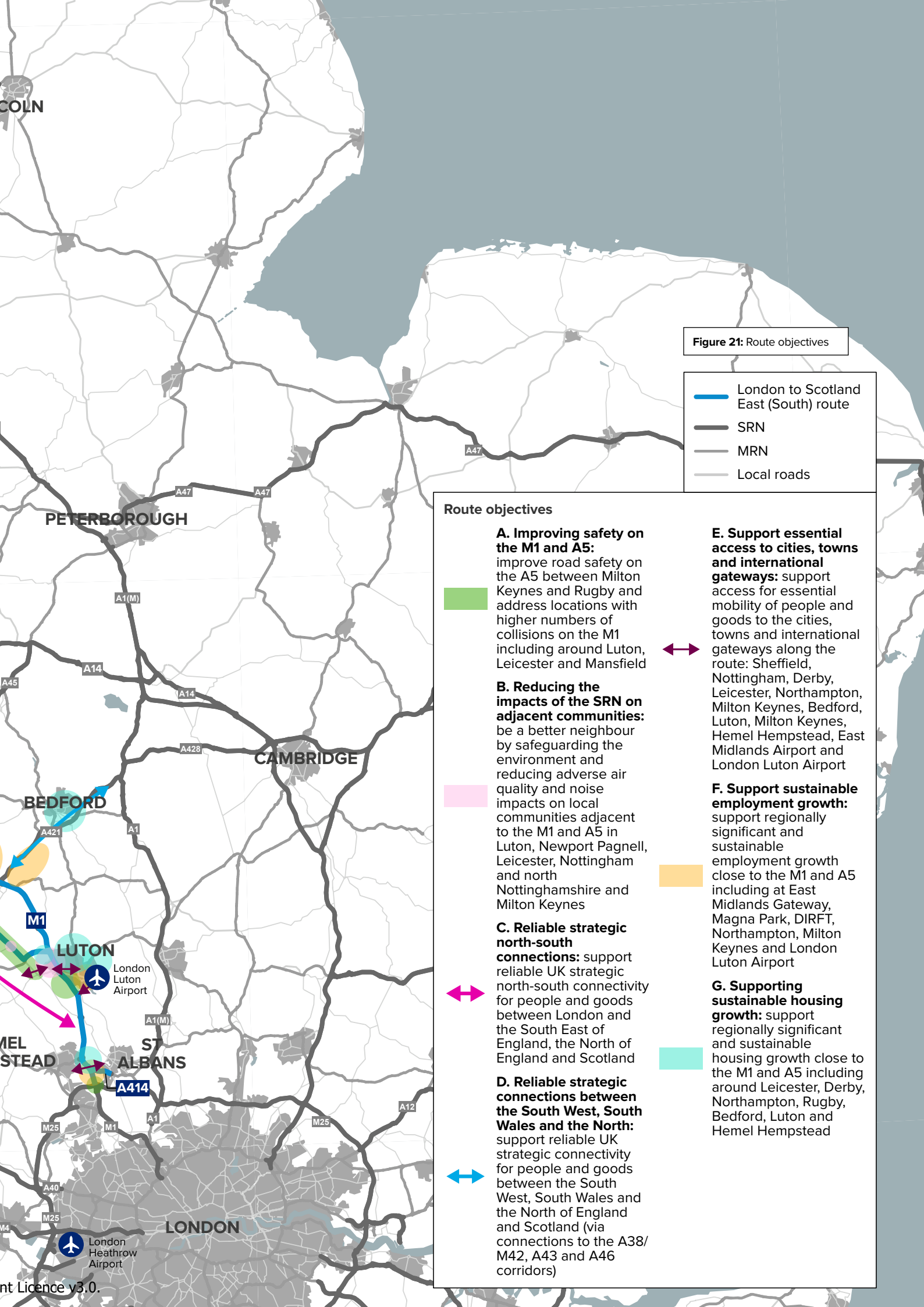


Figure 21: Route objectives

- London to Scotland East (South) route
- SRN
- MRN
- Local roads

Route objectives

A. Improving safety on the M1 and A5: improve road safety on the A5 between Milton Keynes and Rugby and address locations with higher numbers of collisions on the M1 including around Luton, Leicester and Mansfield

B. Reducing the impacts of the SRN on adjacent communities: be a better neighbour by safeguarding the environment and reducing adverse air quality and noise impacts on local communities adjacent to the M1 and A5 in Luton, Newport Pagnell, Leicester, Nottingham and north Nottinghamshire and Milton Keynes

C. Reliable strategic north-south connections: support reliable UK strategic north-south connectivity for people and goods between London and the South East of England, the North of England and Scotland

D. Reliable strategic connections between the South West, South Wales and the North: support reliable UK strategic connectivity for people and goods between the South West, South Wales and the North of England and Scotland (via connections to the A38/ M42, A43 and A46 corridors)

E. Support essential access to cities, towns and international gateways: support access for essential mobility of people and goods to the cities, towns and international gateways along the route: Sheffield, Nottingham, Derby, Leicester, Northampton, Milton Keynes, Bedford, Luton, Milton Keynes, Hemel Hempstead, East Midlands Airport and London Luton Airport

F. Support sustainable employment growth: support regionally significant and sustainable employment growth close to the M1 and A5 including at East Midlands Gateway, Magna Park, DIRFT, Northampton, Milton Keynes and London Luton Airport

G. Supporting sustainable housing growth: support regionally significant and sustainable housing growth close to the M1 and A5 including around Leicester, Derby, Northampton, Rugby, Bedford, Luton and Hemel Hempstead

A. Improving safety on the M1 and A5

Objective

Improve road safety on the A5 between Milton Keynes and Rugby and address locations with higher numbers of collisions on the M1 including around Luton, Leicester, and Mansfield.

Context

The International Road Assessment Programme (iRAP) and STATS19 data show that safety of the M1 is generally average or better, and typical of other UK motorways. However, there are a number of locations where there are more collisions, particularly near junctions and where there are high traffic volumes. The safety levels built in to the A5 (based on the iRAP) are rated as either 1-star or 2-star. By comparison, the M1 is rated as average (3-star) or better.

Our network considerations

The sections of the M1 with the highest number of collisions in which people were killed or seriously injured between 2015 and 2018 were:

- Junction 15 (Northampton) – Junction 14 (Milton Keynes)
- Junction 21 (Leicester) – Junction 20 (Lutterworth)

Other locations with higher numbers of collisions in which people were killed or seriously injured in the same period on the M1 included:

- Junction 28 – Junction 29 (Mansfield)
- Junction 24A - Junction 25 (Derby/Nottingham)
- Junctions 14 to 12 (Milton Keynes)
- Junction 11 - Junction 10 (Dunstable/ Luton)

On the A5 there is a concentration of collisions in which people were killed or seriously injured between Towcester and Dunstable, particularly between H3 Monks Way in Milton Keynes and Stony Stratford. The A5/A43 roundabout has also been identified by interested parties as a location with a higher collision rate.

Safety is a particular concern amongst interested parties where the A5 passes through urban areas such as Towcester, and at junctions on the M1 and A5; or where traffic diverts onto local roads and through local communities.

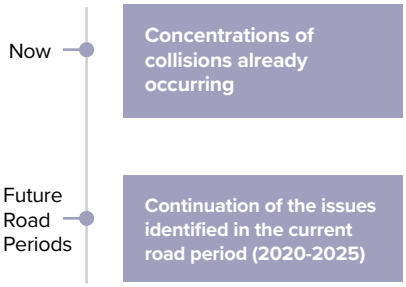
Outcomes

- Reduced number of collisions on the A5 and M1 in these locations
- Fewer delays due to collisions

DfT's Strategic objectives

- Improving safety for all
- Network performance

Timeframe based on the issues and constraints identified



B. Reducing the impacts of the SRN on adjacent communities

Objective

Be a better neighbour by safeguarding the environment and reducing adverse air quality and noise impacts on local communities adjacent to the M1 and A5 in Luton, Newport Pagnell, Leicester, Nottingham and north Nottinghamshire and Milton Keynes.

Context

The M1 and A5 run close to and, in the case of the A5, through a large number of communities and residential areas in cities, towns and villages.

The traffic using these roads can have impacts on people's health and quality of life in those areas, including noise, poor air quality and severance impacts. There is also the potential for the strategic road network (SRN) to affect sensitive historic or environmental areas.

Our network considerations

In terms of air quality, there are sections of the route which pass within 100 metres of receptors which may be more likely to experience adverse air quality impacts. These are mainly in the towns and cities, particularly Luton, Dunstable, Milton Keynes, Towcester, Leicester, Long Eaton, Stapleford, South Normanton as well as smaller settlements on the A5 such as Potterspury. Many of these areas are within existing Air Quality Management Areas (AQMAs).

The M1 and A5 also run close to, or through, other AQMAs including those at Broxtowe, Kegworth, Castle Donington, Copt Oak, Rugby and Northampton. Some of these AQMAs relate directly to traffic on the M1.

There are a substantial number of receptors within 300 metres of the route which may experience higher noise levels, most notably at Milton Keynes, Leicester, Shepshed (north of Junction 22) and South Normanton (Junction 28). There are numerous Noise Important Areas adjacent to the M1 and A5, reflecting the proximity of these roads to Chesterfield, Stapleford, Beeston, Long Eaton, Markfield, Blaby, Northampton, Luton, Houghton Regis and Dunstable as well as those locations listed above.

Environmental and safety impacts on local communities can increase when delays or incidents on the M1 or A5 cause traffic to divert onto the local road network. Where there is insufficient overnight parking provision, some areas, such as eastern Hemel Hempstead, suffer from inappropriate overnight lorry parking.

There are relatively few environmentally or historically sensitive locations close to the M1 or A5, but the route does pass close to parts of the Chilterns Area of Outstanding Natural Beauty, a small number of Natura and Ramsar sites, and through areas of Green Belt to the west of Nottingham and between Milton Keynes and the M25.

Some interested parties want to protect local habitats, water quality and designated environmental areas and to achieve environmental net gain and adopt high standards of sustainable road design. Some interested parties want to protect local habitats, water quality and designated environmental areas and to achieve environmental net gain and adopt high standards of sustainable road design.

Outcomes

- Improved air quality
- Fewer receptors affected by noise
- Improved public health and quality of life in communities adjacent to the M1 and A5
- Reduced impacts of flooding
- Protection of environmental assets

DfT's Strategic objectives

Improved environmental outcomes

Timeframe based on the issues and constraints identified

Now	**Some residential receptors already within areas experiencing noise and air quality impacts**
Future Road Periods	**Continuation of the issues identified in the current road period (2020-2025)**

C. Reliable strategic north-south connections

Objective

Support reliable UK strategic north-south connectivity for people and goods between London and the South East of England, the North of England and Scotland.

Context

The M1 is a key strategic north-south link for people and goods between Scotland and the North of England, the Midlands and southern England, including the southern ports such as Felixstowe, the Port of London and Dover. It has historically formed part of the Trans-European Transport Network.

The numerous roles of the M1, including catering for local traffic to and from the numerous large settlements along its length and for long-distance freight traffic, mean that it can become congested at peak times as traffic levels reach capacity. Journeys can be affected by delays and unreliability leading to increased costs for business and reduced access to employment, leisure or other opportunities.

Our network considerations

Numerous locations where delays occur have been identified on the M1, both on the mainline and at junctions, especially south of Northampton, but also around Leicester, East Midlands Airport and Nottingham.

Particular locations of note include:

- between St Albans and Dunstable (Junctions 7 to 11A)
- around Milton Keynes (Junctions 13 to 15) including Junctions 13 and 14
- around Northampton (Junctions 15 and 16)
- between Leicester and Markfield (Junctions 21 to 22)
- between East Midlands Airport, and Derby and Nottingham (Junctions 23A to 25)
- at Junction 26
- around Junction 29 and between Junction 29 and Junction 28
- at Junction 28

The delays on the M1 between Junctions 13 and 16 were in part due to roadworks for conversion an All Lane Running smart motorway. Once completed, the scheme is expected to reduce the delays observed in 2019.

The reliability of journey times on the M1 north of Northampton is fairly typical of other parts of the motorway network. However, south of Northampton, journey time reliability is worse, reflecting the higher traffic volumes. This affects the ability of businesses to operate efficiently and effectively, stifles inward investment and reduces access to leisure and other services.

Within the Midlands, traffic speeds and journey time variability are worst around M1 Junction 21A in the morning peak period (also Junctions 24, 28 and 31).

As traffic levels increase on the M1, so are forecast delays, particularly where there is planned development and particularly between Luton and Milton Keynes. Additional delays here, as well as between Rugby and Loughborough, and between Nottingham and Mansfield, would adversely impact the reliability of the M1 for strategic north-south journeys.

Given that the M1 and A5 are key freight corridors, providing sufficient, high quality, parking facilities for lorries (and coaches) is key to enabling freight and logistics businesses to operate safely and efficiently, supporting the regional and UK economies.

High Speed 2 (HS2) will deliver a step-change in north-south connectivity in the UK. A reliable SRN can play an important role in maximising the benefits of HS2 by providing reliable access to East Midlands Parkway station, as well as Derby and Nottingham, when services commence in the early-mid 2040s.

Outcomes

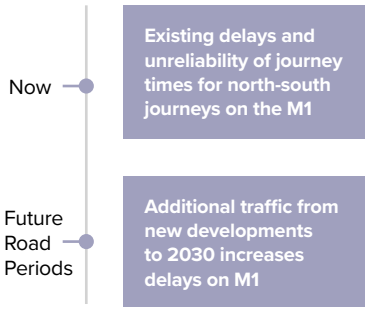
- Shorter, and more reliable journey times for longer-distance trips using the M1, including those between England and Scotland
- Reduced business transport costs, improved competitiveness of UK businesses and increased inward investment
- Enhanced access to leisure, education, training and other opportunities in the cities and towns adjacent to the M1 and A5
- Less traffic on inappropriate local roads in proximity of the M1 and A5
- Better facilities for lorry and coach drivers
- Improved access to HS2 stations in the East Midlands

DfT's Strategic objectives

Network performance

Growing the economy

Timeframe based on the issues and constraints identified



D. Reliable strategic connections between the South West, South Wales and the North

Objective

Support delivery of regionally significant and sustainable economic development and housing, whilst maintaining the safe and effective operation of the network.

Context

As well as the north-south role set out under Objective C, the northern section of the M1, from Junction 21, forms part of routes between the South- West and the North in combination with, for example, the A46, A38, A42/M42, A43 and A46 corridors. The main South West to North movements facilitated by the M1 are shown in Figure 21.

Congestion on the M1 can cause delays and unreliability on journeys between the South West, South Wales and the North.

Delays and unreliability can lead to increased transport costs for business, missed international connections and reduced access to opportunities for trade.

Our network considerations

Locations with delay have been identified on both the M1 mainline and at junctions, especially at peak times.

Entering and leaving the M1 at junctions is a particular issue, as can be crossing the M1 through congested junctions.

Within the Midlands, traffic speeds and journey time variability are worst around M1 Junction 21A in the morning peak period (also Junctions 24, 28 and 31).

Whilst the worst delays on the M1 is south of Northampton, there are notable issues:

- around Leicester Junction 21 - Junction 21A (the intersection with the M69/A46 route)
- East Midlands Airport and Nottingham (Junction 23A - Junction 25, the intersection with the A42/M42 route)
- Junction 25 (the intersection with the A52 Nottingham-Derby route)
- Junction 28 (the intersection with A38 route)

Outcomes

- Shorter and more reliable journey times for longer-distance trips using the M1, including those between countries of the UK
- Reduced business transport costs, improved competitiveness of UK businesses and increased inward investment
- Less traffic on unsuitable local roads in proximity of the M1 and A5

DfT's Strategic objectives

- Network performance
- Growing the economy

Timeframe based on the issues and constraints identified

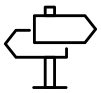
Now

Existing delays and unreliability of journey times for north-south west journeys on the M1

Future Road Periods

Additional traffic from new developments to 2030 increases delays on M1 north of Junction 23A


TURNERS
Alloga
Alloga



E. Support essential access to cities, towns and international gateways

Objective

Support access for essential mobility of people and goods to the cities, towns and international gateways along the route: Sheffield, Nottingham, Derby, Leicester, Northampton, Milton Keynes, Bedford, Luton, Hemel Hempstead, East Midlands Airport and London Luton Airport

Context

There are numerous large cities and towns adjacent to the M1 and A5 for which these roads are the primary highway access for many journeys.

These locations are important as they are home to the majority of the population and employment, as well as education, health, leisure and retail facilities. They are also where much of the planned employment and housing growth is expected to occur (see Objectives F and G).

Efficient access by car to and from these locations will remain critical to the lives of many, even as an increasing share of trips is made by non-car modes.

Better access by public transport, walking and cycling is also important, and will help to reduce the share of journeys made by car; investment on the strategic road network (SRN) must be seen in the context of an integrated approach.

Many of the most-deprived areas along the route are in the towns and cities (see Figure 22). Better connections will improve access to employment, education and services, helping to increase social mobility and reduce deprivation. Efficient and reliable access is also important to the success of the two international airports on the route, both for the airports themselves and for UK businesses importing and exporting through them.

Connectivity from the M1, and the performance of the M1 itself, is critical to providing that access. Delays on the SRN at these locations can lead to more traffic using local roads, which can adversely affect local access to jobs and services by all modes of travel and constrain growth. Travel information to assist drivers is less good on the A5 than the M1. Better travel information where it is less good, and management of traffic on the SRN and local roads can also assist in improving access to towns, cities and the international gateways along the route.

Our network considerations

There are traffic delays on the mainline and at junctions on the M1 at peak times. Traffic conditions are often worst close to the economic centres and international gateways, as it is here that local and longer-distance traffic mix. Delays at junctions can adversely affect access to these locations, both for traffic using the SRN and vehicles crossing the SRN at these junctions.

The junctions serving the economic centres where delay is higher:

- Junction 29 (for Mansfield and Chesterfield)
- Junction 28 (for Derby)
- Junction 26 (for Nottingham)
- Junctions 24 and 24A (for Derby, Nottingham and East Midlands Airport)
- Junctions 21 and 21A (for Leicester)
- Junction 15A (for Northampton)
- Junction 13 (for Bedford and Milton Keynes)
- Junction 10 (for Luton and London Luton Airport)
- Junction 8 (for Hemel Hempstead)

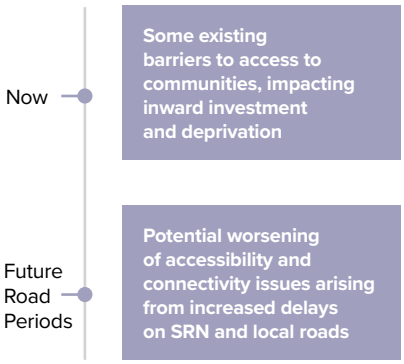
Outcomes

- Improved access to suppliers, markets and workforce for businesses leading to growth in economic output and productivity
- Increased access to employment, education training and leisure opportunities in the economic centres
- Reduced deprivation in cities and towns adjacent to the M1 and A5
- Enhanced vitality of economic centres, inward investment
- Supporting employment and housing growth

DfT's Strategic objectives

- Network performance
- Growing the economy
- A technology-enabled network

Timeframe based on the issues and constraints identified



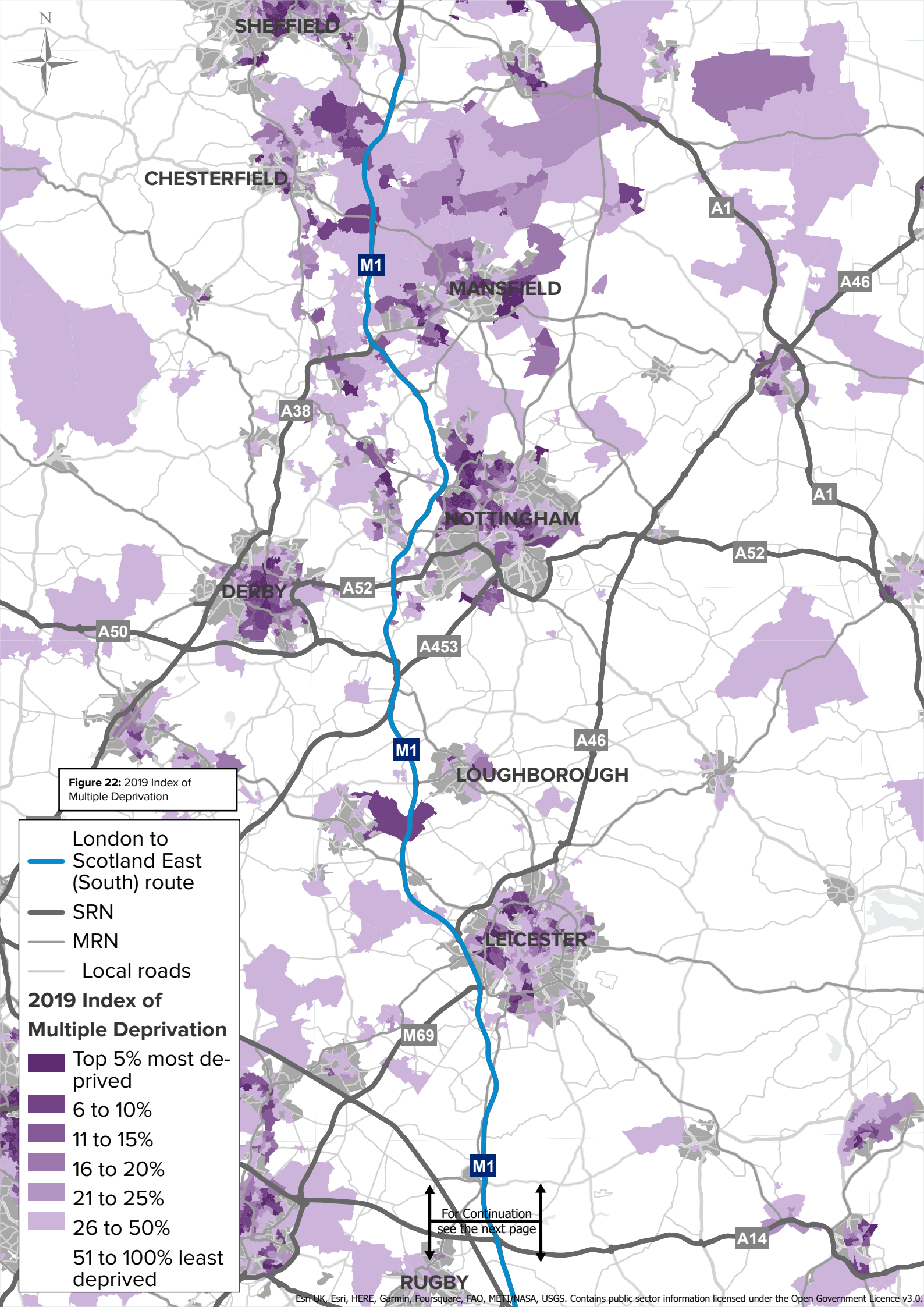
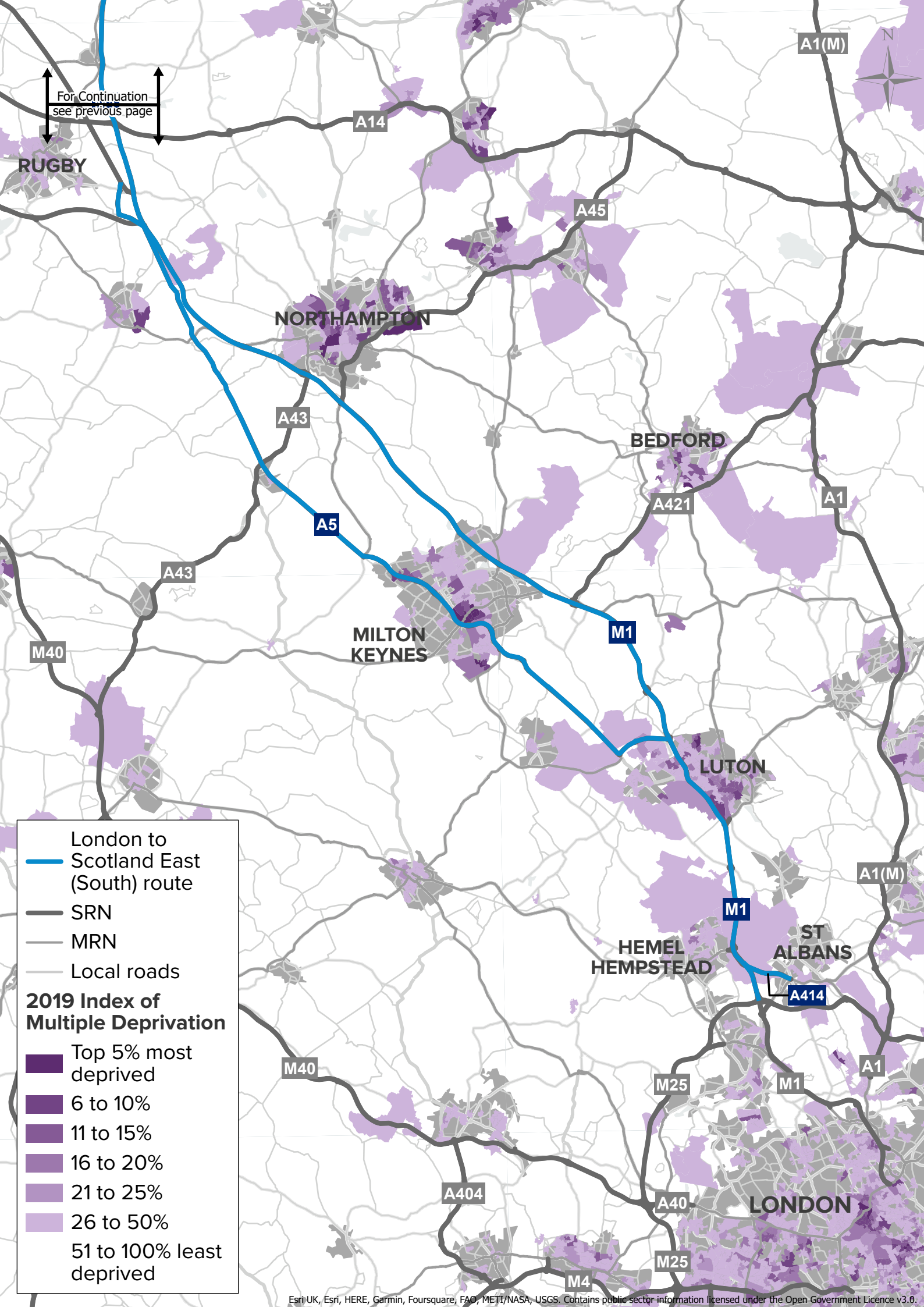


Figure 22: 2019 Index of Multiple Deprivation



F. Support sustainable employment growth

Objective

Support regionally significant and sustainable employment growth close to the M1 and A5 including at East Midlands Gateway, Magna Park, Daventry International Rail Freight Terminal (DIRFT), Northampton, Milton Keynes and London Luton Airport.

Context

The M1 and A5 are of particular importance to the UK logistics sector, centred around the internationally important 'Golden Triangle' in the south-east Midlands.[51,52]

There is forecast to be further development in strategic road network (SRN)-dependent sectors along the route, particularly warehousing and other distribution centres. There are also expectations of growth in other sectors including manufacturing, construction and professional services.

Development is expected to occur on sites close to the M1 and within the towns and cities served by the route. As a result, demand for travel on the SRN is likely to continue to increase. The locations where the most employment growth is expected are shown in Figure 21.

Through the Local Plan process, National Highways works with local authorities and developers to identify opportunities to promote developments that are, or can be made, sustainable; developments that allow for uptake of sustainable transport modes and support wider social and health objectives, and which support existing business sectors as well as enabling new growth.

New developments are likely to result in some additional demand for travel by private car and heavy goods vehicles, including on the M1 and A5. Whilst we recognise that the SRN is part of the transport provision needed to unlock new commercial development, we will act in a manner which conforms to the principles of sustainable development. National Highways expects promoters of development to enable a reduction in the need to travel by private car and prioritise sustainable transport opportunities ahead of capacity enhancements and new connections on the SRN.[53]

Some local authorities are concerned that current network performance and a lack of capacity on the SRN (and other modes) will constrain future development and growth along the corridor in locations including Hemel Hempstead, Luton, Bedford, Leicester, East Midlands Airport and in the Bolsover area.

Where the overall forecast demand at the time of opening of the development can be accommodated by the existing infrastructure, further capacity mitigation will not be sought.

Our network considerations

There are significant levels of commercial vehicle traffic on the M1. Heavy goods vehicle traffic is highest north of Junction 23A, between Junction 21 and Junction 21A (includes A46 traffic) and south of Junction 14 (Milton Keynes). This traffic is long-distance traffic and journeys to and from numerous freight distribution centres, in particular around Crick and Daventry International Rail Freight Terminal (DIRFT), Northampton and Milton Keynes.

With traffic growth, delays are forecast to increase across the route, particularly where there are planned developments such as on the M1 between Luton and Milton Keynes, between Rugby and Loughborough, and between Nottingham and Mansfield. The largest increase is forecast between Luton and Milton Keynes.

51 There is no formal definition of the 'golden triangle'. It is generally accepted to be an area bounded by Nottingham, Birmingham and Milton Keynes, served by the M1, M6 and M42 motorways.

52 Office for National Statistics (April 2022) *The rise of the UK warehouse and the "golden logistics triangle".* https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/articles/theriseoftheukwarehouseandthegoldenlogisticstriangle/2022-04-11

53 As per Department for Transport (December 2022) *Circular 01/2022 Strategic road network and the delivery of sustainable development.* https://www.gov.uk/government/publications/strategic-road-network-and-the-delivery-of-sustainable-development/strategic-road-network-and-the-delivery-of-sustainable-development#new-connections-and-capacity-enhancements

Outcomes

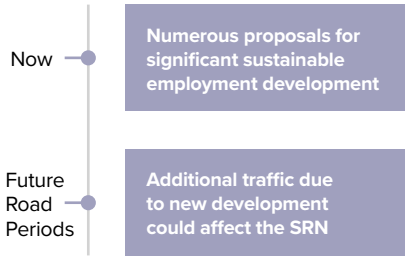
- Employment growth sites are delivered sustainably
- Increased employment, economic output and inward investment
- Improved access to employment opportunities, higher average wages

DfT's Strategic objectives

Network performance

Growing the economy

Timeframe based on the issues and constraints identified



G. Supporting sustainable housing growth

Objective

Support regionally significant and sustainable housing growth close to the M1 and A5 including around Leicester, Derby, Northampton, Rugby, Bedford, Luton and Hemel Hempstead.

Context

There is a significant unmet housing need at a number of locations along the route. For example, in Leicester and Leicestershire alone, there is a need for nearly 97,000 new homes (2011-2031), as well as up to 423 hectares of employment land. Across the England's Economic Heartland area in the corridor, an additional 110,000 new homes are planned between 2020 and 2031, in particular at Milton Keynes (24,000) and Northampton (19,000). The locations where the most housing growth is expected are shown in Figure 21.

As a result, there are many large sites identified for residential development in local plans, or longer-term proposals for residential development. Some of the larger sites include Rugby Radio Station, north Houghton Regis, Gateway Rugby, and east Hemel Hempstead.

Our approach to ensuring these developments are as sustainable as possible is the same as for employment development, recognising that the strategic road network (SRN) is only part of a wider transport system serving these locations. We will need to be satisfied that all reasonable options to promote sustainable transport modes, and to locate development in areas of high accessibility by sustainable transport modes (or areas that can be made more accessible) have been exhausted before considering options for new connections to the SRN.[54]

Our network considerations

- Key locations where network performance could constrain future development and growth are around Hemel Hempstead, Luton, Bedford, Leicester and in the Bolsover area.
- With traffic growth, delays are forecast to increase across the route, particularly where there is planned development such as on the M1 between Luton and Milton Keynes, between Rugby and Loughborough, and between Nottingham and Mansfield. The largest increase is forecast between Luton and Milton Keynes.

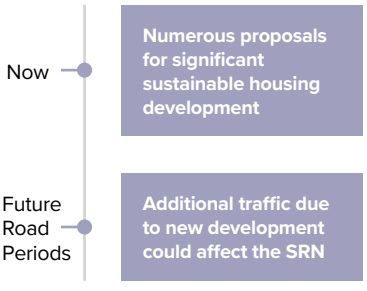
Outcomes

- Housing growth sites are delivered sustainably
- Housing need is met in these locations
- Housing inequality is reduced

DfT's Strategic objectives

- Network performance
- Growing the economy

Timeframe based on the issues and constraints identified



54 As per Department for Transport (December 2022) *Circular 01/2022 Strategic road network and the delivery of sustainable development.* https://www.gov.uk/government/publications/strategic-road-network-and-the-delivery-of-sustainable-development/strategic-road-network-and-the-delivery-of-sustainable-development#new-connections-and-capacity-enhancements

Table 2: Evidence used to inform objectives

	Objective	Extent	Chapter 3 Views raised by our customers and neighbours	Chapter 4 Integration with our partners' strategies and priorities	Chapter 5 Challenges and issues identified
A	**Improving safety on the M1 and A5:** improve road safety on the A5 between Milton Keynes and Rugby and address locations with higher numbers of collisions on the M1 including around Luton, Leicester and Mansfield	Sections of the M1 • at Luton/ Dunstable • between Milton Keynes and Northampton • between Lutterworth and Leicester • between Kegworth and (Derby/ Nottingham) • between Tibshelf Services and Chesterfield Also on the A5 between the A422 and Stony Stratford	Concerns of interested parties related to road safety on: • the M1, particularly at junctions, including Junctions 6A, 15A, 21, 27 and 28. Collisions in the proximity of Tibshelf services (between Junctions 28 and 29) were also noted. • the A5, particularly the single carriageway sections and where the A5 passes through urban areas such as Towcester. • the M1 at Junction 21 due to traffic queuing back on the motorway in both directions • Local roads due to diversion of strategic traffic onto local roads during incidents or due to delays	National Highways works with other operators, including Local Authorities, to ensure that the overall highway network works safely, reflecting that the safety of those who travel and work on our roads remains National Highways' top priority	Key challenges and issues related to this objective are: • The safety levels built in to the A5 (based on the International Road Assessment Programme) are rated as either 1-star or 2-star. By comparison, the M1 is rated as average (3-star) or better • STATS19 data show a number of locations where collisions in which someone was killed or seriously injured are higher on the M1 between Luton and Chesterfield, and on the A5 north of Milton Keynes • The Road Safety Foundation Crash Risk Mapping has classified all of the M1 as 'low risk' and all of the A5 as 'low-medium risk
B	**Reducing the impacts of the SRN on adjacent communities:** be a better neighbour by safeguarding the environment and reducing adverse air quality and noise impacts on local communities adjacent to the M1 and A5 in Luton, Newport Pagnell, Leicester, Nottingham and north Nottinghamshire and Milton Keyness	All parts of M1 an A5 passing adjacent to urban areas (and future urban areas)	Concerns of interested parties related to environmental impacts were: • The impacts of the M1 on local air quality in Nottingham, Leicester, Blaby and North West Leicestershire and Air Quality Management Areas. • The M1 or A5 acting as a barrier to walking, cycling or public transport services. • Ensuring coordinated management, planning and enhancement of the strategic road network to respond to national net zero carbon targets and reflects local environmental ambitions, including by providing alternative modes of travel	One of Midlands Connect's three grand challenges is to "Greener: Decarbonising transport and adapting to climate change. Contributing to achieving 'Net Zero 'by 2050; ensuring resilient networks; and minimising the environmental impacts of new infrastructure". England's Economic Heartland priorities include: Achieving net-zero carbon emissions from transport no later than 2050, with an ambition to reach this by 2040	Key challenges and issues related to this objective are: • Maintain and protect Areas of Outstanding • Natural Beauty, and other environmental and historic designations • A large number of receptors which may be more likely to experience adverse air quality impacts are within 100 metres of the M1 in particular, and/ or are within designated Air Quality Management Areas • A substantial number of receptors within 300 metres of the route experiencing higher noise and/or within an Noise Important Areas • A desire to minimise greenhouse gas emissions A desire to build resilience to future climate change

Objective		Extent	Chapter 3 Views raised by our customers and neighbours	Chapter 4 Integration with our partners' strategies and priorities	Chapter 5 Challenges and issues identified
C	**Reliable strategic north-south connections:** support reliable UK strategic north-south connectivity for people and goods between London and the South-East of England, the North of England and Scotland	Junctions on the M1 where delays are most notable (J31, J29, J28, J27, J25, J21, J15A, J13. Also where delays occur on the A5, notably at the key at-grade junctions (A5/A43, A508, Brackley Road, A4146 and A4012)	Concerns of interested parties related to reliable north-south journeys were: • A desire for improved strategic connectivity along the M1 between the Midlands, North and South East • Delays on the strategic road network (SRN), particularly at locations on the M1 at Hemel Hempstead), Leicester, East Midlands Airport and South Normanton • A lack of resilience on the M1 once an issue has occurred, and a lack of suitable alternative routes • Delays at locations approaching at-grade junctions on the A5, such as the junction with the A43 at Towcester, and at Hockliffe • A desire to maintain good performance of the SRN to avoid strategic traffic diverting onto inappropriate local roads	One of Midlands Connect's three grand challenges is Fairer: Levelling up and strengthening the region and UK. Being ready for High Speed 2; enhancing quality of life; and integrating transport networks The M1 provides a key strategic north-south connection linking the South East and South West to the North and Scotland	Key challenges and issues related to this objective are: • Average peak period delays on the M1 occur in the morning peak close to St Albans / Dunstable, Milton Keynes, Leicester and in the East Midlands Airport / Derby / Nottingham area • Delays on the A5 tend to occur approaching at-grade junctions such as with the A43 at Tove Roundabout, Kelly's Kitchen (A4146) and the traffic signals in Hockliffe • Delays are adversely affecting journey time reliability, especially south of Northampton • Seasonal delays affect the route between Luton and Daventry, but less than some parts of the strategic road network • The M1 carries a high number of heavy goods vehicles, typically 10-15,000 per day in each direction, which account for at least 15% of vehicles
D	**Reliable strategic connections between the South West, South Wales and the North:** support reliable UK strategic connectivity for people and goods between the South West, South Wales and the North of England and Scotland (via connections to the A38/ M42, A43 and A46 corridors)	The M1: • between J21 and J21A (as well as the A46 between the M1 J21A and A46); • at J15/15A (Northampton) • between J22A and J24A (A42, A50) • at J28 (A38)	Concerns of interested parties related to reliable north-south journeys were: • A lack of resilience on the M1 when there is an incident or collision, and a lack of alternative north-south routes, especially north of East Midlands Airport • Delay on the strategic road network, particularly at locations on the M1 including at Leicester, East Midlands Airport and South Normanton • Congestion at M1 junctions leading to delays joining, leaving or crossing the M1	The route provides important freight links between the South West, Midlands, Yorkshire and North East. The 'Trans-Midlands Trade Corridor' (the A46/ M69/A19) is a key priority for Midlands Connect	Key challenges and issues related to this objective are: • Average peak period delays on the M1 occur in the morning peak in the East Midlands Airport / Derby / Nottingham area • Average peak period delays also occur around Leicester where the A46/ M69 route crosses the M1 • Average peak period delays at other junctions where the M1 intersects other strategic road network and major road network routes

Objective		Extent	Chapter 3 Views raised by our customers and neighbours	Chapter 4 Integration with our partners' strategies and priorities	Chapter 5 Challenges and issues identified
E	**Support essential access to cities, towns and international gateways:** support access for essential mobility of people and goods to the cities, towns and international gateways along the route: Sheffield, Nottingham, Derby, Leicester, Northampton, Milton Keynes, Bedford, Luton, Milton Keynes, Hemel Hempstead, East Midlands Airport and London Luton Airport	The A5 from Rugby to the M1 at Dunstable M1 junctions and sections of the strategic road network and major road network connecting the M1 to the locations listed	Concerns of interested parties related to a supporting essential mobility were: • Concern that insufficient capacity on the strategic road network (SRN) around towns and cities could constrain the expected high levels of future housing and employment growth • The need to design the network for cyclists and pedestrians. • Improved walking and cycling facilities, and measures to reduce the severance effect of the strategic road network, could help to meet planned housing and jobs growth • Concerns over the potential for additional traffic on the M1 due to the large number of new warehousing and distribution centres planned (e.g. at Junction 18, Crick)	One of Midlands Connect's three grand challenges is Fairer: Levelling up and strengthening the region and UK. Being ready for HS2; enhancing quality of life; and integrating transport networks. One of Midlands Connect's priorities is 'helping to move goods' England's Economic Heartland priorities include: • Improving quality of life and wellbeing through a safe and inclusive transport system accessible to all which emphasises sustainable and active travel • Supporting the regional economy by connecting people and businesses to markets and opportunities In the southern part of the route, the major road network (MRN) provides connections from the M1 or A5 to the A1(M) corridor and to Buckinghamshire, Bedfordshire and Hertfordshire. The A414/ A41 and the A507 also link the M1 with the A1(M) and A1 respectively. In the south Midlands, the major road network links the M1 to Wellingborough and Kettering (A509), Northampton (A508 and A4500), and Leicester (A563 and A50). Further north, the MRN connects the M1 to Nottingham (A610), Mansfield (A608/A611, A38 and A617) and Chesterfield (A617).	Key challenges and issues related to this objective are: • Deprivation levels are more widespread in the north of the corridor but there are pockets of deprivation elsewhere, including in many of the towns and cities (Index of Multiple Deprivation 2019)

Objective		Extent	Chapter 3 Views raised by our customers and neighbours	Chapter 4 Integration with our partners' strategies and priorities	Chapter 5 Challenges and issues identified
F	**Support sustainable employment growth:** support regionally significant and sustainable employment growth close to the M1 and A5 including at East Midlands Gateway, Magna Park, Daventry International Rail Freight Terminal (DIRFT), Northampton, Milton Keynes and London Luton Airport	Sections of the M1 and A5 serving the locations listed	Concerns of interested parties related to a supporting employment growth were: • The particular significance of the strategic road network in the Midlands providing strategic connectivity for the logistics, minerals, and construction sectors • The importance of key economic growth areas such as around Junction 24, Magna Park and Luton Airport • A desire for improved freight facilities on the strategic road network, particularly heavy goods vehicle parking, better facilities for heavy goods vehicle drivers, and alternative refuelling facilities for lorries	One of Midlands Connect's three 'grand challenges' is "Stronger: Driving resilient economic growth. Providing fast and reliable transport connections; and enabling population and employment growth." There is more warehousing space in the East Midlands than any other region, accounting for nearly 20% of the UK total, and the route is home to a large number of national distribution centres, concentrated within the 'Golden Triangle'	Key challenges and issues related to this objective are: • The M1 is of particular strategic importance to the success of the UK economy • The M1 and A5 are also important to the economy of the south Midlands, Milton Keynes, Bedfordshire, and Hertfordshire including the warehousing and logistics sectors • Significant growth in economic activity and employment is expected along the route, particularly between East Midlands Airport and Hemel Hempstead • Potential to integrate road and rail provision to enable growth
G	**Supporting sustainable housing growth:** support regionally significant and sustainable housing growth close to the M1 and A5 including around Leicester, Derby, Northampton, Rugby, Bedford, Luton and Hemel Hempstead	Sections of the M1 and A5 serving the locations listed	Concerns of interested parties related to a supporting housing growth were: • Whether the strategic road network has sufficient capacity to cater for growth without adversely affecting network • The importance of ensuring that any increase in capacity of the strategic road network does not result in significant increases in unnecessary vehicle trips and/or less sustainable patterns of land use	One of Midlands Connect's three 'grand challenges' is "Stronger: Driving resilient economic growth. Providing fast and reliable transport connections; and enabling population and employment growth."	Key challenges and issues related to this objective are: • Significant housing growth is expected close to many of the cities and towns along the route • Some interested parties are concerned about whether the strategic road network has sufficient capacity to cater for growth without adversely affecting network performance • Potential to integrate road and rail provision to enable growth

Unlocking regional potential

07 Locational areas for consideration and potential collaboration

We know the importance that investment in our network can make locally, regionally and nationally. It can make areas more attractive for inward investment, unlock new sites for employment and housing and facilitate regeneration. It can also ease congestion, improve our customers' journeys and support environmental improvements in urban and rural communities along our network.

In this chapter, we outline our proposed locational areas for further consideration, which will be explored in future road periods to achieve the London to Scotland East (South) route objectives and the Department for Transport's (DfT's) six strategic objectives. These do not represent a commitment as funding will be considered as part of the development of the third *Road Investment Strategy* (RIS) and other investment processes.

Furthermore, they do not represent a final list of our potential investment locations and will be refined in our final Route strategy overview report, published alongside our RIS3 *Strategic business plan* and *Delivery plan* for 2025-2030.

Alignment with government objectives

Route strategies are aligned to the DfT's six strategic objectives and will also contribute to the RIS3 performance metrics set as part of the RIS-setting process.

Improving safety for all

Safety is our top priority and we are committed in the second road period (2020-2025) to reducing the number of road users killed or seriously injured on the strategic road network (SRN), by 50% (from the 2005-2009 baseline) by the end of 2025, with a long-term vision of zero harm. This includes our contractors adopting a safe system approach to ensure roadworker safety. Our operational and strategic planning teams continue to work to prevent incidents from occurring and are focussed on reducing incident severity through a package of activities to promote safer roads, safer people, safer vehicles and coordinated collision response. We are also learning from other organisations and interested parties about what works best and collaborate with them to improve safety for all. Safety is embedded in our study programme to inform future investment priorities for RIS3 and beyond.

Network performance

Our operational and strategic planning teams continue to explore what steps can be taken to make journeys more reliable and not subject to delay, as well as safer, while protecting and respecting the environment. This involves working with our partners such as Sub-national Transport Bodies and other operators such as Network Rail to consider interventions to improve network performance as we recognise the SRN does not stand alone from other transport infrastructure, in particular local roads, and users expect journeys to be seamless regardless of transport mode or ownership. Through our study programme we will identify appropriate types of intervention recognising the need for integration, environmental and digital consideration balanced against costs.

Improved environmental outcomes

We are continuously working to ensure our roads work more harmoniously with the communities that live alongside them and the environments that surround them. We embed environmental considerations into all our activities, ranging from infrastructure design to scheme delivery and ensuring we meet our statutory obligations, and the way we manage and operate our network. In developing our intervention programmes, we will consider a broad range of interventions including technology enabled solutions and integration with other operators' networks as we understand the gravity of the climate situation and are committed to playing its part in reducing carbon emissions. Our carbon policy commitments are:

- As a net zero Britain will still travel by road in 2050, we will ensure a properly maintained, future-ready road network, that is fitted to support the transition to electric vehicles, is key to reducing emissions from transport
- This programmatic coordinated delivery approach will act as a catalyst for: production management, off-site construction, reducing network disruptions, unlocking economies of scale, and supporting delivery of Net Zero targets
- It will also help us understand how interventions should be delivered, either through grouping or as standalone projects
- We expect this approach will create opportunities for increased efficiencies, and enable us to deliver more within our funding. We also expect this approach to help us support the Government's long-term aims for the nation, such as contributing to net zero carbon, and social value

Growing the economy

We recognise that the SRN is a significant economic asset for the UK and is essential for people to access jobs, and for businesses and logistics firms moving goods around the country. Our regional planning teams continue to work closely with local planning authorities to support sustainable growth and development aspirations, including integration with other modes. We also continue to work with businesses to understand their needs such as quality lorry parking facilities and ensuring reliable and resilient integration with ports, airports and rail terminals through which we access global markets. The SRN also has a role in achieving the Government's moral, social and economic programme of levelling up the United Kingdom. Our forward intervention programme will seek to support the growth agenda where possible and appropriate.

Managing and planning the SRN for the future

We recognise that our network is complex and varied and requires careful stewardship to keep it in good condition. Our ongoing maintenance programme is essential to safety and keeping our roads open, while our renewals activity allows us to maintain, safeguard and modernise all our assets, and provide increased resilience in relation to extreme weather. Research and data help us to understand what our network needs over the short and long term and to inform our planning. We continue to be committed to delivering our work in a way that minimises disruption to our customers and maximises value to taxpayers.

A technology-enabled network

In designing our intervention programmes, we will consider our Digital Roads vision for how we harness data, technology, and connectivity to improve the way the SRN work is designed, built, operated and used for the future. This will enable safer journeys, faster delivery and an enhanced customer experience for all, recognising the specific challenges of delivering technology and relevant information in more rural and remote parts of the network. The vision is structured around three themes: Design & Construction; Operations; Customers. The approach embeds digital, data and technology across the intervention programmes, providing the building blocks for a digital future for roads.

Programmatic approach to investment

As part of our new route strategies process, we are developing a more programmatic approach to how we develop our investment plans. This will help us determine the complexity of potential investments and what high value interventions are more deliverable.

This programmatic coordinated delivery approach will act as a catalyst for; production management, off-site construction, reducing network disruptions, unlocking economies of scale and supporting delivery of Net Zero targets.

It will also help us understand how interventions should be delivered, either through grouping or as standalone projects.

We expect this approach will create opportunities for increased efficiency, enable us to deliver more within our funding and in collaboration with other investment programmes.

We also expect this approach to help us support the Government's long-term aims for the UK, such as contributing to net zero carbon.

Figure 25 shows how the route objectives defined in the route strategies, along with the associated cluster analysis of performance metrics, help to refine an initial set of locations for future investigation. Further iterations of sifting as information and analysis evolves will help to inform the Government's setting of RIS3 (2025-2030) and beyond. The input from route strategies early on in this process will ensure that all schemes which are ultimately taken forward align with the route objectives.

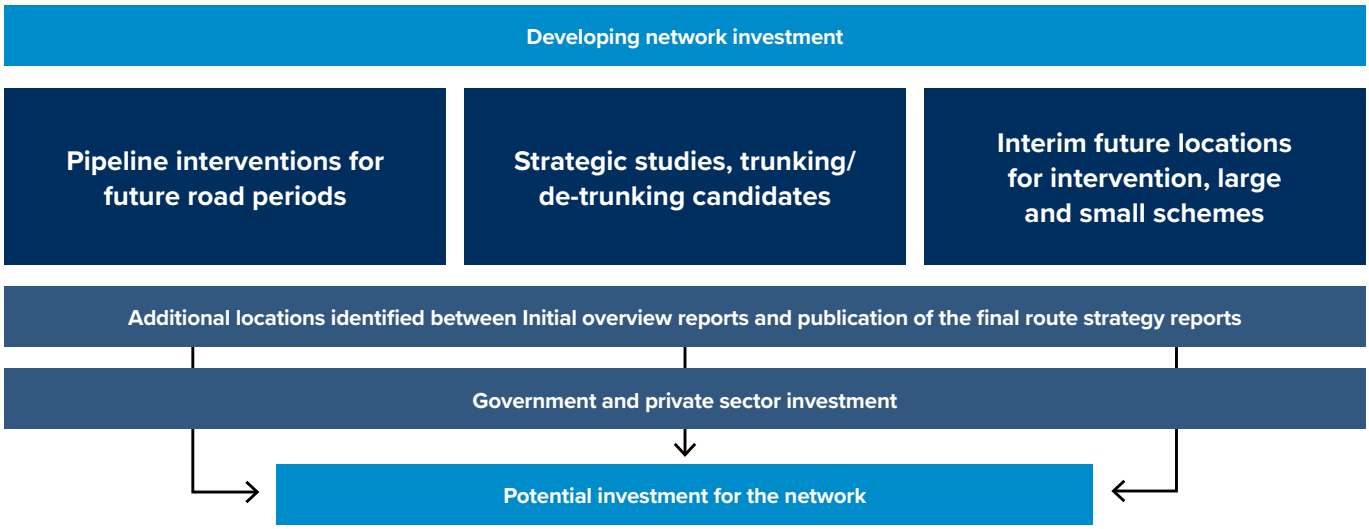


Figure 26: Process to identify potential investment on the network

Types of investment and funding sources

There are a variety of funding streams which enable us to invest in our network and which form part of our investment planning. These are summarised in the following section, along with the current committed schemes associated with each funding source for the London to Scotland East (South) route. Key funding sources could include:

- RIS Funding – a funding stream administered by National Highways, set by the Government's publication of the RIS:
  - RIS2 schemes are committed by DfT to be delivered as part of the *Road Investment Strategy*, as outlined in the following RIS2 table. The statement of funding confirmed that £24 billion will be provided during the second road period (2020-2025) to deliver this work, noting that some RIS2 commitments will continue into the third road period (2025-2030)
  - RIS4 (2030-2035) pipeline schemes, previously earmarked for RIS3 (2025-2030), will continue to be developed in line with our statutory processes and considered for inclusion within RIS4. These are potential future schemes originally identified by National Highways and set as part of RIS2 by DfT. These schemes are not currently committed for construction.
- Maintenance funding and asset renewal – within National Highways there is funding set aside for network maintenance and renewing ageing assets across the network. The budget for these is included in the RIS settlement
- Potential targeted funding streams that may be made available to National Highways during the third road period (2025-2030) as part of the wider RIS settlement, focused on making improvements that will make the biggest difference and deliver lasting benefits
- Other external sources of funding for delivering infrastructure enhancements on, or close to, the SRN including government, third parties, private sector developments, and inward investment

RIS2

The following schemes are committed for the second road period (2020-2025) on the London to Scotland East (South) route:

Scheme number	Scheme	Description	Start of works	Open for traffic
Committed for the second road period (2020-2025)				
1	M1 Junctions 13-16	We are improving the 23-mile section of the M1 between Junctions 13 and 16 by upgrading it to an all-lane running (ALR) motorway. This will relieve congestion, smooth the flow of traffic, and improve safety and journey times, as well as improving the predictability of journey times along this stretch of the M1	2018-19	2022-23
2	A5 Towcester Relief Road	We are supporting local partners to provide a new single-carriageway road between the A5 and A43 to the south of Towcester. The developer-led scheme will ease congestion and improve air quality in Towcester town centre, and unlock land for new housing	2021-22	Second road period (2020-2025)
3	M1 Junctions 10-13[54]	Upgrading the dynamic hard shoulder running to all lane running	Cancelled	Cancelled

RIS4 pipeline

The following uncommitted schemes are in the pipeline for the fourth road period (2030-2035) on the London to Scotland East (South) route:

Scheme number	Scheme	Description
1	M1 Leicester Western Access	Improvements to improve safety and reduce traffic congestion on the M1 at Junction 21 and between Junctions 21 and 21A. This will also support planned housing growth in the Leicester area

Other notable schemes

The A5 in Towcester has longstanding issues with the high levels of traffic passing through its historic town centre, causing environmental, safety and accessibility concerns to residents and businesses.

Due to the Towcester Relief Road being built between the A5 and A43, National Highways is now able to investigate options for improving Towcester town centre and to encourage through traffic, particularly goods vehicles, to use the new link road and A43 as an alternative to the A5.

Consultation on a range of options was undertaken in the summer of 2022. The measures are primarily aimed at improving conditions for pedestrians and cyclists and reducing the visual and physical impacts of the A5 on the town centre.

The provisional target date for the start of construction is late 2024 to early 2025.

54 Plans for new smart motorways have now been cancelled and previously paused smart motorways will now not go ahead.

Strategic studies, trunking and de-trunking

National Highways undertakes Strategic Studies to analyse complex problems that may need to be addressed over multiple road periods. Strategic Studies can involve close working with key partners including STBs and the DfT, the consideration of options for improvements, and can be used to help to decide on whether to fund any proposed improvements in the future.

The study areas of four Strategic Studies include parts of the London to Scotland East (South) route as follows:

- the A1 East of England study (covered the M1 and A5 from Milton Keynes to the M25)
- the Role of the Urban SRN study (which comprised a series of reports on selected locations including Milton Keynes)

National Highways was asked to explore changes to the SRN to ensure the network aligns with RIS2 strategic priorities reflected in the *Strategic business plan*[55]. This plan relates to improving connections between main urban centres, to international gateways, o peripheral regions (for levelling up) and strategic cross-border routes (to strengthen union connectivity). It included a commitment to explore potential asset ownership changes between ourselves and local highway authorities that could be implemented no earlier than the start of RIS3. The DfT has produced a shortlist of 18 trunking and two de-trunking candidates, identified following the draft RIS2 public consultation in 2018, for us to assess desirability and viability of asset transfer. De-trunking is the process of returning a National Highways road to the local Highway Authority control and vice versa for trunking. These candidates were put forward by a range of external stakeholders including local authorities, Local Enterprise Partnerships and Chambers of Commerce, then shortlisted by the DfT. There is ongoing work to review the assessment evidence and recommendations, after which government ministers are expected to announce the candidates that will progress to the detailed development stage, which will be led by National Highways and incorporated in the forward study programme and wider RIS3 process.

Locations identified through route strategies for future investigation

National Highways undertakes route studies to investigate locations across the network. In addition, locations of interest have been raised by interested parties through the route strategy engagement process.

To supplement this, as part of the route strategies process outlined in this document, National Highways has used cluster analysis to identify further locations for future investigation and undertaken an exercise to align these locations to the route objectives for the London to Scotland East (South) route.

The cluster analysis allows decision-makers to easily identify which sections of roads should be prioritised for further investigation. The assessment is a two-part process. In the first part, for each route strategy, the objectives are defined geospatially. This allows us to identify over which sections of the SRN the objectives converge, therefore quickly identifying the links that helps us to achieve the maximum number of objectives. The second part of the assessment uses our understanding of the network from performance data to allow a further filter to remove links that are already performing well. This results in a filtered shortlist of SRN links or sections of roads that should be prioritised for further investigation. These have been grouped into areas of interest where they are in close proximity geographically. Should a location not be identified for further investigation as part of this initial process, this does not preclude it from being added to the list of areas of interest in the future.

The use of regional traffic models for the 2031 scenario has enabled the identification of locations for further investigation based on the forecast network operation in the future, to plan the future of the network beyond the current RIS3 cycle. Typically, this has resulted in the extension of some areas of interest, as shown in the table of locations overleaf. In the final publication version of the route strategy reports, additional data from the regional traffic models will also be considered, to enable the identification of locations for further investigation in future roads periods.

There will be further development of any proposed mitigation at each location in line with National Highways' internal processes. In order to fund any proposed improvements National Highways will draw upon the funding streams as previously identified.

55 Highways England (2020) *Strategic business plan: 2020-2025.* https://nationalhighways.co.uk/strategic-business-plan/

Route strategies and regional traffic models

The route strategies have utilised the National Highways regional traffic models (RTMs) to identify future performance and delay on the network, which is the best data currently available.

Working with key stakeholders and interested parties, we have set out a number of potential candidate intervention locations which may require further development upon validation to check their alignment with the route strategy objectives.

New national traffic growth forecasts have now been released by the Department for Transport and as we carry out this exercise, we will consider how updated growth forecasts will impact on the identified areas for further investigation.

Alongside these more traditional road improvement schemes we will also need to support and encourage modal shift through transport integration and embrace emerging technologies to improve the performance of the network.

The impact on carbon and the environment will be central to all our thinking on which interventions are proposed to be taken forward.

Identified locations for future investigation and collaboration

Our analysis has set out the potential constraints and opportunities across the network and, in parallel, we are developing a RIS programme that is resilient to changing priorities, and responsive to the environmental agenda.

We have a wide range of potential intervention types within our toolkit, including both non-road and road-based solutions, to help us achieve our objectives. These could include:

Potential non-road interventions:

- Supporting wider network initiatives to improve the customer experience, such as provision and enhancements of facilities for the freight industry and electric vehicle charging
- Exploiting technology to improve safety and network operation, including roll out of connected corridors
- Delivering a portfolio of measures to encourage active travel
- Making environmental enhancements to minimise the impact of the SRN on surrounding communities
- Encourage modal integration and influencing demand for vehicles, particularly at interfaces with urban centres

Potential roads interventions:

- In addition to Lower Thames Crossing, we will continue to progress those remaining schemes in RIS1 and RIS2[56] that will not be in construction at the end of RP2, as well as the RIS4 pipeline, in line with government aspirations
- The pipeline schemes announced in RIS2 is the most developed portfolio of potential interventions and we propose a renewed focus to ensure schemes: are resilient with an acceptable Value for Money; consider the Carbon Management in Infrastructure standard; are affordable, with lower cost options being developed; are environmentally responsible; are deliverable; and, have strong stakeholder support and / or are a good strategic fit (e.g., ports, levelling up)

We will also develop a significant portfolio of smaller safety and congestion interventions that improve localised issues as well as route treatments that address comparably poor safety performance (International Road Assessment Programme 1-star and 2-star roads) along selected All Purpose Trunk Road corridors.

56 Plans for new smart motorways have now been cancelled and previously paused smart motorways will now not go ahead

Table 3 and Figure 24 show the areas identified for further investigation, where interventions at these locations have the potential to help us achieve the majority of route objectives.

In line with National Highways' internal processes we will draw upon a wide range of funding streams, further developing any proposed intervention to the issues identified, exploring:

- Collaboration and integration opportunities
- Synergies with existing planned schemes
- Opportunities with asset and maintenance priorities as set out in Chapter 5.5.

As part of the ongoing evolution of the route strategies toward final publication we will further strengthen its role in being a strategic planning tool for interested parties who have a stake in the SRN and its future.

Table 3: Areas of interest for further investigation

Area location	Area of interest	Area issues	Now	Future road periods
Hemel Hempstead area	A	There is evidence of **average peak period delays and unreliability** on the M1 close to St Albans and Hemel Hempstead that adversely affect **journey times** and **journey time reliability** for strategic north-south journeys as well as local trips. The M1 has an important role in providing **access** to St Albans (via Junction 7 and the A414) and Hemel Hempstead (via Junction 8 and the A41). Significant **employment and housing growth** is expected to the east and north of Hemel Hempstead.	✓	✓
Luton to Rugby[57]	B	There are **concentrations of collisions** where someone has been **killed or seriously injured on the M1** between Junctions 10 and 11 (Luton / Dunstable) and Junctions 13 to 15A (Milton Keynes to Northampton). There are also concentrations of **accidents on the A5** between Dunstable and Rugby, in particular between Milton Keynes and Stony Stratford. The M1 and A5 have potential **noise and air quality impacts** where they pass close to large numbers of receptors including at Luton, Dunstable, Milton Keynes, Towcester, Northampton, and villages on the A5 such as Hockliffe and Potterspury. **Heavy goods vehicles** account for a high share of traffic on the M1 in this area. Significant average peak period **delays** around Milton Keynes and Northampton increase journey times. Significant unreliability **on the M1** between Luton and Northampton affect local and long-distance journeys, including those crossing the M1 (for example on the A43 at Junctions 15 and 15A). There are also **average peak period delays and unreliability on the A5** at approaches to at-grade junctions such as with the A43 at Tove Roundabout, Old Stratford, Kelly's Kitchen (A4146) and the traffic signals in Hockliffe. There are areas with higher levels of **deprivation** in parts of Milton Keynes. Significant **growth in economic activity and employment** is expected in Luton and at Luton Airport, in Dunstable, Houghton Regis, Milton Keynes, Northampton, DIRFT (Daventry), Crick and Magna Park (Lutterworth). Large numbers of **new homes** are expected to the north of Luton (Sundon), at Dunstable, Milton Keynes, Towcester, Bedford, at Marston Vale and in Northampton which will impact the M1 junctions serving those locations.	✓	✓
Lutterworth to Leicester	C	There are **concentrations of collisions** where someone has been **killed or seriously injured on the M1** between Junctions 20 and 21 (Lutterworth to Leicester). There are a large number of receptors at Lutterworth which may potentially be affected by **noise and air quality** impacts. **Average peak period delays on the M1** at Leicester (Junctions 21-21A) affect long-distance journeys on the M1 and A46 and M69 corridor and access to Leicester, where there are pockets of above-average **deprivation**. Extensive **employment growth**, particularly in the warehousing and logistics sector is expected, including at Leicester. **Extensive, housing growth** is also expected Rugby.	✓	✓

57 The performance of this section of the M1 as described in the table and elsewhere in this report is based on network data from 2019 and 2020 (other than the 2031 RTM delay forecasts). During early 2019 work on the M1 Junctions 16-19 smart motorway scheme was nearing completion. Since 2018, work has been ongoing on the M1 Junctions 13-16 smart motorway scheme. Temporary speed reductions and traffic management will therefore have affected the performance data collected for the Luton to Rugby section of the M1. Further, completion of the M1 Junctions 13-16 scheme in March 2023 is expected to address many of the performance issues between these junctions. Further investigation of this section will therefore be based on performance data collected of the completed M1 Junctions 13-16 scheme.

Area location	Area of interest	Area issues	Now	Future road periods
Leicester area	D	There are a large number of receptors at Leicester, Markfield, and Shepshed which may potentially be affected by **noise and air quality** impacts; there are numerous Noise Important Areas designated in Markfield. Extensive **employment growth**, particularly in the warehousing and logistics sector is expected, including in Magna Park (Lutterworth). **Extensive, housing growth** is also expected around Leicester, Loughborough and Coalville affecting Junctions 21 to 23.	✓	✓
East Midlands Airport	E	There are **concentrations of collisions** where people have been **killed or seriously injured on the M1** between Junctions 24 and 25 (Kegworth to Derby and Nottingham). The M1 passes large numbers of receptors at Kegworth, which may potentially be affected by to **noise and air quality** impacts. Some of these areas are within existing designated Air Quality Management Areas and Noise Important Areas. There are **average peak period delays on the M1** around East Midlands Airport and Nottingham (Junctions 24 to 25) that affect access to these locations, and longer-distance traffic, including that crossing the M1, for example on the A42 and A453 route south of Nottingham. **Extensive employment growth**, particularly in the warehousing and logistics sector, is expected, including at East Midlands Airport, and East Midlands Gateway (part of East Midlands Freeport).	✓	✓
Stapleford area	F	The M1 passes large numbers of receptors at Long Eaton, Sandiacre, Stapleford, Trowell, Kimberley, and Hucknall which may potentially be affected by **noise and air quality** impacts. Some of these areas are within existing designated Air Quality Management Areas and/or Noise Important Areas. There are pockets of higher **deprivation** in Nottingham. Large numbers of **new homes** are planned around Derby and Nottingham.	✓	✓
North Nottinghamshire	G	There are **concentrations of collisions** where people have been **killed or seriously injured on the M1** between Junctions 28 and 29 including at Tibshelf Motorway Service Area. The M1 passes large numbers of receptors in Selston, South Normanton, and Lane End which may potentially experience **noise and air quality** impacts. **Average peak period delays on the M1** between Junctions 28 and 29 affect north-south journeys and traffic entering and leaving the M1 at South Normanton (Junction 28). There are areas of **deprivation** in the former coalfield areas including in Mansfield and Sutton-in-Ashfield. **Growth in employment** and economic activity is expected at South Normanton, and large numbers of **new homes** are expected around Mansfield and Chesterfield.	✓	✓

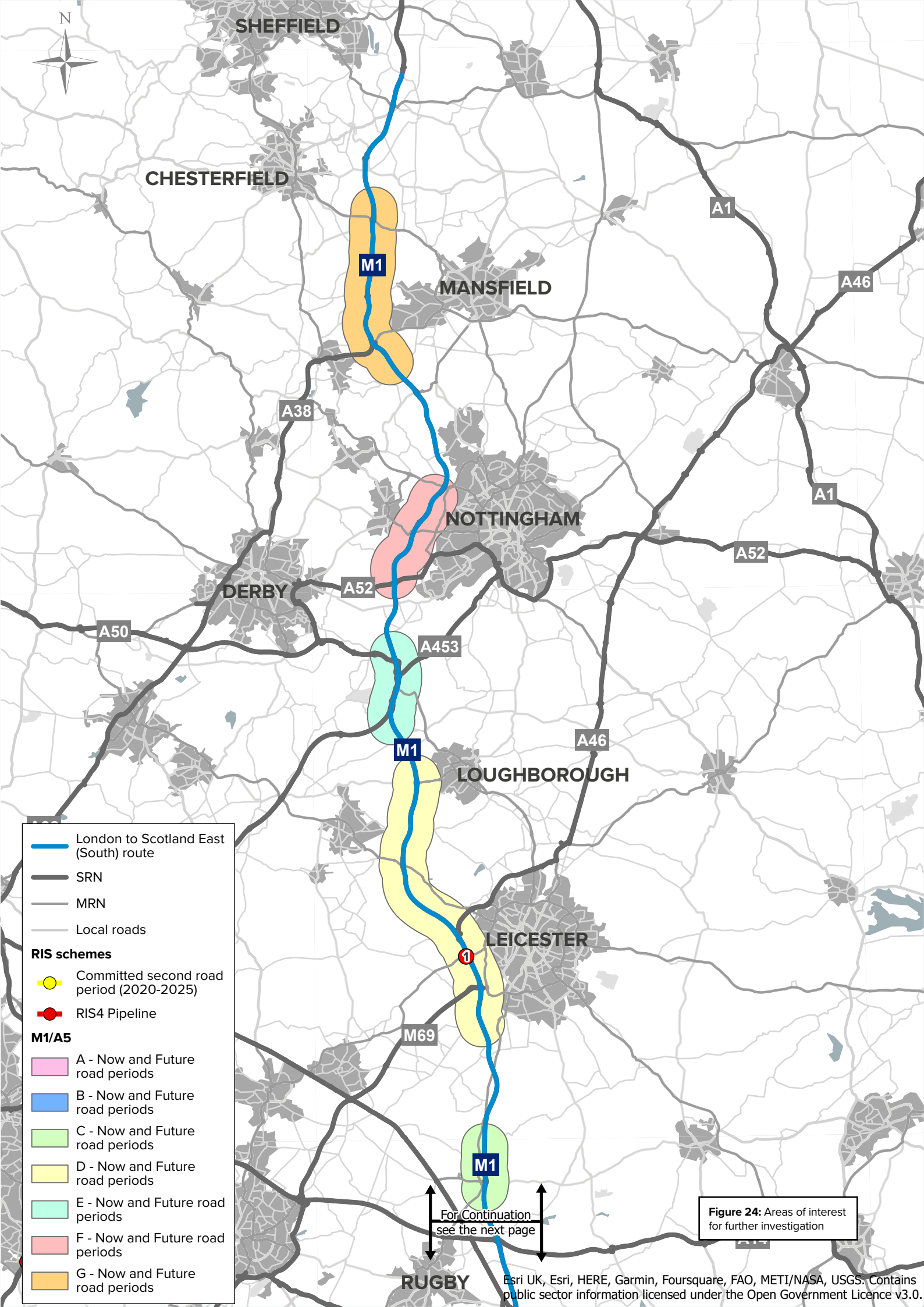
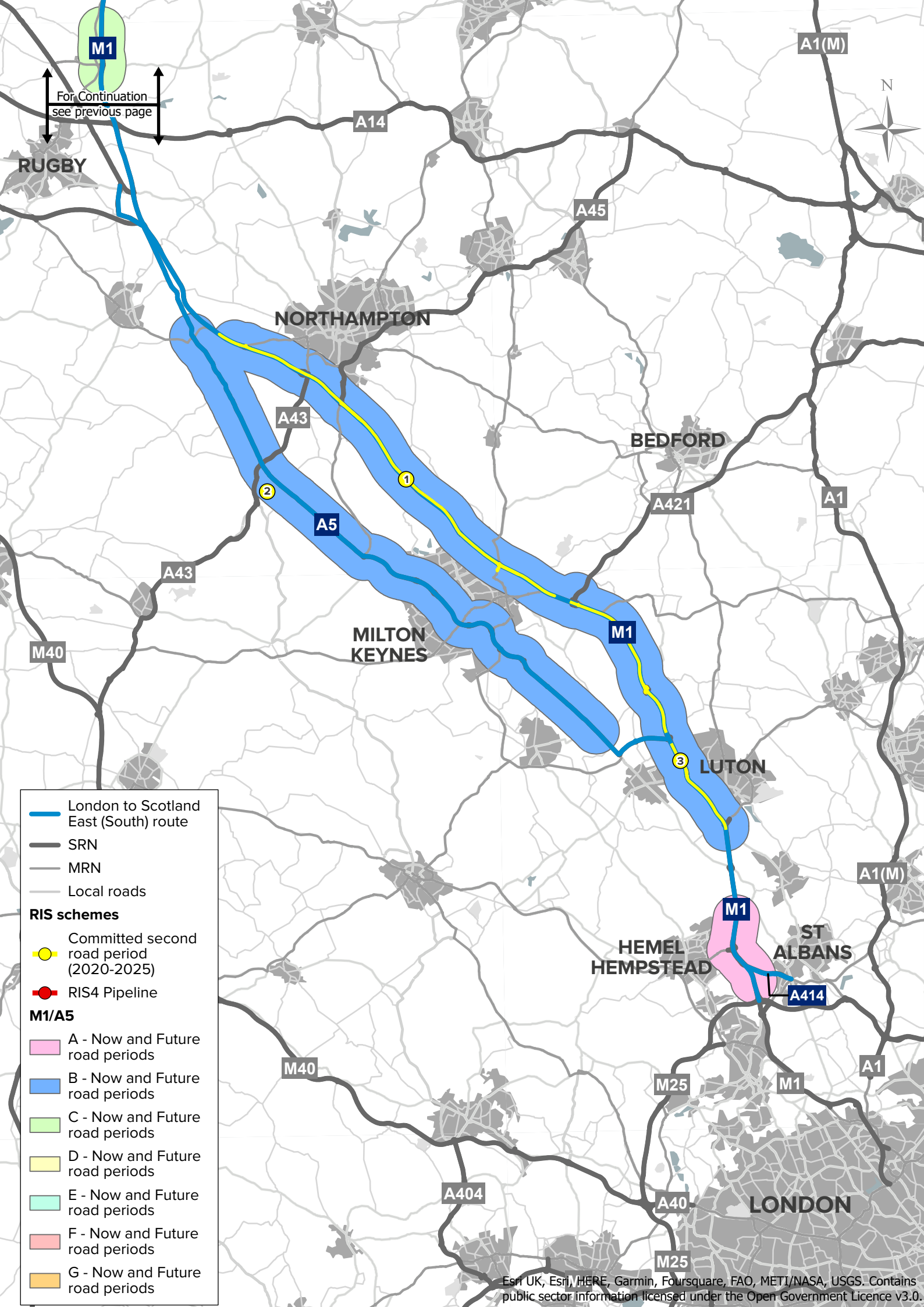


Figure 24: Areas of interest for further investigation


M1
For Continuation
see previous page
RUGBY
A14
A1(M)
N
A45
NORTHAMPTON
A43
BEDFORD
A421
A1
A5
1
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3
A43
M40
MILTON
KEYNES
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LUTON
A1(M)
M1
HEMEL
HEMPSTEAD
ST
ALBANS
A414
M40
M25
M1
A1
A404
A40
LONDON
M25
London to Scotland East (South) route
SRN
MRN
Local roads
RIS schemes
Committed second road period (2020-2025)
RIS4 Pipeline
M1/A5
A - Now and Future road periods
B - Now and Future road periods
C - Now and Future road periods
D - Now and Future road periods
E - Now and Future road periods
F - Now and Future road periods
G - Now and Future road periods
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What happens next

08 Next steps

Our route strategies allow informed decisions to be made about our network. They have informed our *Strategic Road Network* (SRN) *initial report*, which sets our vision and priorities for the third road period (2025–2030) and beyond (from 2030). They are a forward planning tool for National Highways and our interested parties in their decision making, helping identify locations on our network for further consideration to inform investment opportunities, as well as to support decisions in prioritising potential solutions to enable us to continue to operate and maintain our network.

Alignment

They also align with the National Highways *Connecting the country: Our long-term strategic plan to 2050*[58] which sets out our 2050 vision for the SRN to be part of a seamlessly integrated transport system that meets our customers' needs by connecting the country safely and reliably, delivering economic prosperity, social value and a thriving environment. *Our long-term strategic plan to 2050* describes the short, medium and long-term steps to 2050 we believe are needed to make our vision a reality over successive road periods and has been informed by extensive horizon scanning, foresight analysis and engagement with key stakeholders across nine focus areas. The route objectives identified in the route strategies, which also respond to the needs of stakeholders, road users and communities, and the locations for further consideration to achieve these objectives are aligned with the 2050 vision.

Informing the next stage of planning

The route objectives and locations for further consideration will be used to inform our study programmes and consider opportunities for developing integrated and collaborative solutions with our interested parties.

The extensive engagement we have undertaken ensures feedback from our customers and neighbours is used to inform investment decisions. They will help us consider the interaction of our SRN with other transport networks, including the major road network and local roads. We also expect interested parties will use our route strategies to inform their wider investment programmes, supporting collaborative decision making.

For both the Route strategy initial overview reports and *Our long-term strategic plan to 2050*, there will be an opportunity for stakeholders, road users and communities to provide their feedback. This will be alongside DfT's separate consultation on the *SRN initial report* published at the same time.

The 20 finalised Route strategy reports and *Our long-term strategic plan to 2050* will be published by 2025, the end of the current road period (2020-2025), informing the *Strategic business plan* and *Delivery plan*.

Provide your feedback

To find out more about our route strategies and the development process, please visit our website: nationalhighways.co.uk/our-roads/our-route-strategies/

58 National Highways (2022) *Connecting the country: Our long-term strategic plan to 2050.* https://nationalhighways.co.uk/connectingthecountry

Glossary of terms

Term	Acronym	Description
Active users and active modes of transport		Active users and active modes of transport refers to walkers, cyclists and horse riders.
Air quality management area	AQMA	If a local authority identifies any locations within its boundaries where the Air Quality Objectives are not likely to be achieved, it must declare the area as an Air Quality Management Area (AQMA). The area may encompass just one or two streets, or it could be much bigger. The local authority is subsequently required to put together a plan to improve air quality in that area - a Local Air Quality Action Plan.
Area of Outstanding Natural Beauty	AONB	An area of outstanding natural beauty (AONB) is one of the classes of land protected by the Countryside and Rights of Way Act 2000 (CROW Act). It protects the land to conserve and enhance its natural beauty.
All Lane Running	ALR	All Lane Running (ALR) motorways apply controlled motorway technology, permanently converting the hard shoulder as a running lane, and feature emergency areas.
A-roads		Major roads intended to provide large-scale transport links between regional towns and cities.
Assets		National Highways assets include our infrastructure such as pavements, structures and tunnels
At-Grade Junction		An at-grade junction is a junction where **two or more roads converge, diverge, meet or cross at the same height,** as opposed to an interchange, which uses bridges or tunnels to separate different roads.
Clean Air Zone	CAZ	A clean air zone (CAZ) defines an area where targeted action is taken to improve air quality, and resources are prioritised and co-ordinated to deliver improved health benefits and support economic growth.
Collisions		The severity of a collision is based on the severity of the most severely injured casualty and is broken down into: • Slight collision: One in which at least one person is slightly injured but no person is killed or seriously injured • Serious collision: One in which at least one person is seriously injured but no person (other than a confirmed suicide) is killed • Fatal collision: A collision in which at least one person is killed

Term	Acronym	Description
Department for Transport	DfT	Department for Transport (DfT) plan and invest in transport infrastructure to keep the UK on the move. DfT work with agencies and partners to support the transport network that helps the UK's businesses and gets people and goods travelling around the country.
Design-Build-Finance-Operate arrangements	DBFO	With a design-build-finance-operate arrangement, the private party provides financing and design, then builds and operates the facility. The public partner provides funding while the project is being used or is active.
Diversionary Routes		National Highways agreed diversion routes represent the recommended routes for road users when a section of road has been closed.
Dynamic Hard Shoulder	DHS	Dynamic Hard Shoulder Running (DHS) motorways apply the controlled motorway technology and temporarily increase capacity by utilising the hard shoulder, and feature emergency areas. The hard shoulder is some of the time, but not always, used as a live running lane, with electronic signs to guide drivers when it is safe to use for live running.
Economic opportunity areas	EOAs	EOAs were developed to give us a more refined understanding of the types of priority economic growth opportunities that exist around the SRN and around the wider road and broader transport network. They are defined in terms of their common economic function and the spatial features of the location. These key growth areas are grouped by broad 'theme' (such as international gateways, multi-modal transport hubs, tourism destinations and housing locations) and their relative reliance on the SRN.
Freeport		Freeports are special areas within the UK's borders where different economic regulations apply. Freeports in England are centred around one or more air, rail, or seaport, but can extend up to 45 kilometres beyond the port(s)
Heavy Goods Vehicle	HGV	A heavy goods vehicle (HGV) is a large vehicle intended for the transportation of heavy loads.
Growth Boards		Growth Boards have been established by some counties as a joined-up way of managing local future growth and supporting economic recovery.
International connectivity		Transport connectivity of the United Kingdom with Europe and the rest of the world.
In-vehicle Technology		This can be in-car systems that typically take the form of a touchscreen or display that is mounted on the dashboard. It can be a collection of hardware and software, which can provide information, data and connectivity to infrastructure to support the customer experience. It can also be the data and technology capability to enable the operation of the car (this might be connected services, autonomous capability, parking sensors, cameras etc.). It can be any technology within a vehicle.

Glossary of terms

Term	Acronym	Description
Levelling up		Levelling up is a moral, social and economic programme for the whole of government. It places emphasis on ensuring no community is left behind.
Local Road Network		England's road network consists of motorways, major 'A' roads, and local classified and unclassified roads. The vast majority of motorways and major 'A' roads for the strategic road network (SRN) and are managed by National Highways. All other roads are managed by local authorities and make up the local road network (LRN)
Major Road Network	MRN	The major road network (MRN) is the middle tier of England's road network, comprising the busiest and most economically important local authority A-roads.
National Highways Licence		The Licence sets out the Secretary of State's statutory directions and guidance to National Highways.
Noise Action Plans		Noise action plans provide a framework to manage environmental noise and its effects. They also aim to protect quiet areas in agglomerations (large urban areas) where the noise quality is good. Noise Action Plans provide a framework for the local management of the Important Areas.
Noise Important Areas		Noise Important Areas (NIAs) for roads and railways are based upon the strategic noise maps results and are produced in line with the requirements set out in the noise action plans.
Office of Rail and Road	ORR	The Office of Rail and Road (ORR) is the independent safety and economic regulator for Britain's railways and monitor of National Highways
Park and ride		A park and ride offers parking with public transport connections that allows commuters and other people heading to city centres to leave their vehicles and transfer to bus, rail or car share for the remainder of the journey.
Platooning		Heavy Goods Vehicle (HGV) platooning is the use of technology to allow HGVs to travel safely in close proximity at speed with the driver of the lead vehicle controlling the speed, acceleration and braking of the whole 'platoon'.
Receptor (Air quality and Noise)		Location which is sensitive to noise/air quality issues
Regional Traffic Model	RTM	National Highways has a suite of five regional traffic models (RTMs) covering England's SRN. The models allow us to identify future performance and delay on the network, assisting with the development of the route strategies
Reliability		Reliability is the difference between the typical travel time, allowing for recurring delays, and the observed travel time. This measures the amount of variation due to unexpected variations or unplanned events. Like delay, it is measured in seconds per vehicle per mile. It is a concern for most drivers, but particularly affects just-in-time freight traffic and other strategic journeys.
Road investment strategy	RIS	A Road investment strategy (RIS) is a strategy that outlines a long-term programme for National Highways' motorways and major A-roads with the stable funding needed to plan ahead.

Term	Acronym	Description
Road period		The defined period of time over which the Government gives a funding commitment. The length of a road period will be specified at the beginning of the RIS development process. Road periods will be multi-year in order to provide the supply chain with increased certainty of investment and intent. Based on current practice within the other infrastructure sectors, it is expected that road periods will continue to be five years in length, though the actual length will be decided by the Government of the day.
Route objectives		Objectives for each route, informed by engagement and analysis, to support the current and future needs of customers and neighbours.
Safe System approach		The Safe System is the current best practice safety culture in road safety, developed over many years and derived most notably from the Swedish Vision Zero and Dutch Sustainable Safety strategies. A best practice road safety culture approach based on the principles that humans make mistakes which could lead to serious injury or death for which it is a shared responsibility of the road user, road managers, vehicle manufacturers, etc. to take appropriate actions to ensure road collisions do not lead to serious or fatal injuries.
Seasonal delay		Seasonal delay refers to the difference between the average afternoon peak delay for Fridays in August 2019 (high demand in summer holidays) and the average delay during very low demand periods (in this case, Christmas day is used). This measure is designed to reflect the parts of the network that do not appear to have a problem on average over the year but have seasonal peaks. Seasonal delay is of interest to tourist traffic, particularly people travelling to airports, or other destinations where arriving later than intended could have significant implications.
Severance		The separation of people from facilities and services they use within their community.
Sites of Special Scientific Interest	SSSIs	A Site of Special Scientific Interest (SSSI) is the land notified as an SSSI under the Wildlife and Countryside Act (1981), as amended. SSSI are the finest sites for wildlife and natural features in England, supporting many characteristic, rare and endangered species, habitats and natural features.
Smart motorway		A smart motorway is a section of motorway that employs active traffic management (ATM) techniques to increase capacity through the use of technology including variable speed limits. There are three types of smart motorway: 1. Controlled Motorway: variable speed limits with the hard shoulder operating as it would on a conventional motorway. 2. Dynamic Hard Shoulder (DHS) Running: Variable speed limits with the hard shoulder selectively opened as a running lane during periods where traffic levels are too high for only three lanes of running traffic. When activated, vehicles can use the hard shoulder as a running lane. 3. All Lane Running (ALR): variable speed limits with the hard shoulder removed and converted to a permanent running lane. Smart motorways have a whole system of inter-related safety features, not present on conventional motorways, working together to help keep drivers and their passengers moving safely. The system includes: • variable speed limits to help keep traffic moving, reducing frustrating stop-start traffic and making journeys quicker • clearly signed and orange-coloured emergency areas set back from the road and with telephones linking directly to our control rooms • detection systems to monitor traffic for changes in flows • CCTV cameras that our operators are able to move and zoom to monitor and manage congestion and incidents, where notified. The system has the ability to see 100% of the carriageway • signs and signals to provide better information to drivers which can alert drivers to hazards ahead and display Red X signs to close lanes to other traffic when a stopped vehicle is identified • enforcement cameras to deter the minority who break speed limits and ignore Red X signs • radar stopped vehicle detection

Glossary of terms

Term	Acronym	Description
Spatial planning		Spatial planning decides how land should be used or protected. It also organises, designs and makes decisions on where new homes, roads and other infrastructure should be built. Spatial planning aims to make places attractive, safe and environmentally friendly. National Highways is a statutory consultee in the planning system and we encouraged others to seek early advice from us if their development proposal is likely to impact the strategic road network.
Special Areas of Conservation	SACs	A Special Area of Conservation (SAC) is the land designated under Directive 92/43/ EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.
STATS19		Data on road traffic casualties on the roads in Great Britain are collected via the STATS19 process. These statistics are collected by police forces, either through officers attending the scene of incidents, from members of the public reporting the incident in police stations after the incident, or more recently online and then validated and published annually by DfT. STATS19 road traffic collision and casualty data is published annually by DfT in the Autumn and provides details of the previous calendar year. These reports have used the data available at the time of analysis, 2015-2018.
Statutory consultee		Statutory consultees are those organisations and bodies, defined by statute, which local planning authorities are legally required to consult before reaching a decision on relevant planning applications.
Strategic Rail Freight Interchange		A large multi-purpose rail freight interchange and distribution centre linked into both the rail and road system.
Strategic Road Network	SRN	The strategic road network (SRN) covers more than 4,500 miles of motorways and major A-roads.
Strategic Traffic / Strategic journeys		Long distance traffic / journeys
Sub-national Transport Bodies	STBs	Sub-national Transport Bodies (STBs) have a key role in formulating transport strategy and identifying investment priorities at the sub-national level, including for highways. There are seven STBs in England, which are tasked with developing transport strategies and studies for their region. Through the development of their evidence bases with their constituent local authorities and Local Enterprise Partnerships, their work highlights multi-modal issues, need and opportunities, with investment priorities provided to the Secretary of State for Transport.
Transport-related social exclusion		Where limited access to transport or other issues with the transport system means that people cannot fully participate in society in the way they would like
Trunking / De-trunking		De-trunking is the process of returning a National Highways road to the local highway authority control and vice versa for trunking
UNESCO World Heritage Site		Inscription as a UNESCO World Heritage Site is an acknowledgement of the global significance of such places.

Term	Acronym	Description
Union connectivity		Transport connectivity between the nations of the United Kingdom.
Variable Messaging Signs		The Traffic Signs Regulations and General Directions 2016 (TSRGD) define a variable message sign as a device "...capable of displaying, at different times, two or more aspects...". These aspects may take the form of a sign prescribed by the TSRGD, a legend in accordance with Schedule 16 to TSRGD, a non-prescribed temporary sign or a blank grey or blank black face. Thus, the expression "variable message sign" (VMS) encompasses all types of variable sign from simple flap-type signs to complex light-emitting panels
Vulnerable Road User		Walkers, cyclists and horse riders

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