Route Strategy Initial Overview Report

Solent to Midlands

May 2023

national highways

Contents

The routes

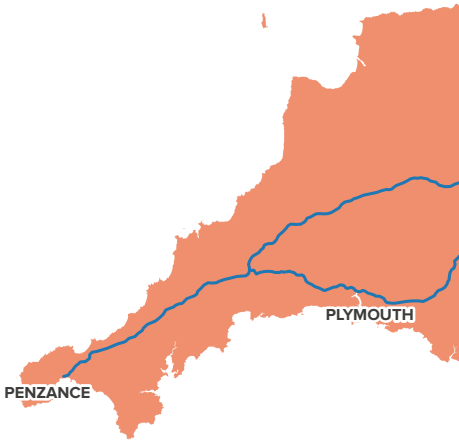
Routes

- London to Scotland West (North)
- London to Scotland East (North)
- South Pennines (East)
- South Pennines (West)
- North Pennines
- London to Leeds
- Midlands and Gloucestershire to Wales
- North and East Midlands
- South Midlands
- London to Scotland West (South)
- London to Scotland East (South)
- East of England
- Felixstowe to Midlands
- Kent Corridors to M25
- Solent to Midlands
- London Orbital and M23
- South Coast Central
- South West Peninsula
- Birmingham to Exeter
- London to Wales

Sub-national Transport Bodies

- England's Economic Heartland
- Midlands Connect
- South West Peninsula
- Transport East
- Transport for the North
- Transport for the South East
- Western Gateway

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.




N
BERWICK-UPON-TWEED
NEWCASTLE UPON TYNE
CARLISLE
MIDDLESBROUGH
YORK
LEEDS
PRESTON
KINGSTON UPON HULL
LIVERPOOL
MANCHESTER
SHEFFIELD
LINCOLN
STOKE-ON-TRENT
NOTTINGHAM
DERBY
GRANTHAM
NORWICH
SHREWSBURY
LEICESTER
WOLVERHAMPTON
PETERBOROUGH
BIRMINGHAM
COVENTRY
CAMBRIDGE
BEDFORD
IPSWICH
HEREFORD
MILTON KEYNES
LUTON
CHELTENHAM
COLCHESTER
OXFORD
SWINDON
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. Over 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 Solent to Midlands 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 Solent to Midlands route is a strategic route connecting the Solent coastal region with the Midlands and beyond. Connecting the Solent ports to the manufacturing areas of the Midlands, it sees a higher than average volume of freight. The A34 is the backbone of the route.

The route includes approximately 132 miles of the SRN. It lies to the west of London and runs from Northampton at the A43, passing Oxford and Newbury along the A34, to Southampton and Portsmouth on the M27 and A27. The M271 also forms part of this route, which passes through the counties of Northamptonshire, Oxfordshire, Berkshire, and Hampshire.

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.

Improving safety for all:

- The safety levels built into the route (based on the International Road Assessment Programme) are rated as either 1-star or 2-star, particularly on the A34
- Observed collision data show a number of locations where a higher number of people were killed or seriously injured on sections of the route, such as the A34 and the M27 junction
- Many collisions involve road users, particularly motorcyclists along the M3 and M27, and walkers, cyclists and horse riders along the A34 and M27 where the route interacts with the Sustrans National Cycle Network

Network performance

- Delays across the Solent to Midlands route, particularly along the A34 near Oxford, as well as along the M27, which is close to both Southampton and Portsmouth Ports

1 Highways England *Delivery Plan 2020 – 2025*, https://nationalhighways.co.uk/media/vh0byhfl/5-year-delivery-plan-2020-2025-final.pdf

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

Improved environmental outcomes

- Receptors may be more likely affected by adverse air quality and noise impacts around Oxford and the surrounding areas
- Greenhouse gas emissions and impacts on future climate changel
- Areas of outstanding natural beauty with environmental significance and cultural heritage on the route
- Severance of local communities by the SRN and informal crossing points

Growing the economy

- Connectivity between the North and South of England
- Connectivity from the route to the wider east-west strategic road network
- Growth of the Solent Freeport
- Increased traffic from housing and employment growth placed on the SRN, particularly on the Bicester, Oxford, Didcot, Winchester and Southampton sections

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 SRN's geotechnical assets
- Ensuring that drainage assets are maintained so that their good structural and service conditions can be upheld

A technology-enabled network

- The carbon agenda and the use of electric vehicles
- Emerging freight needs and alternate fuel technology
- Integration of communications with other network operators


DECATHLON
Eddie Stobart

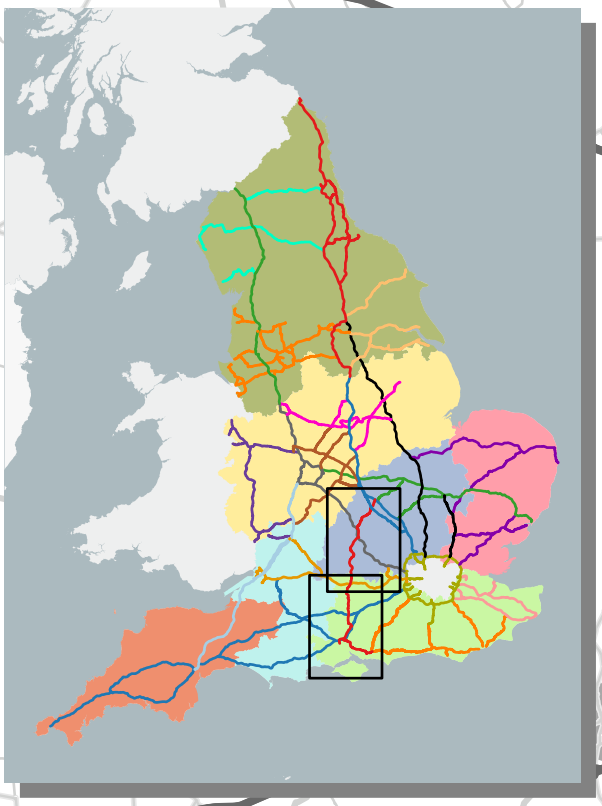


Figure 10: The route (1 of 2)

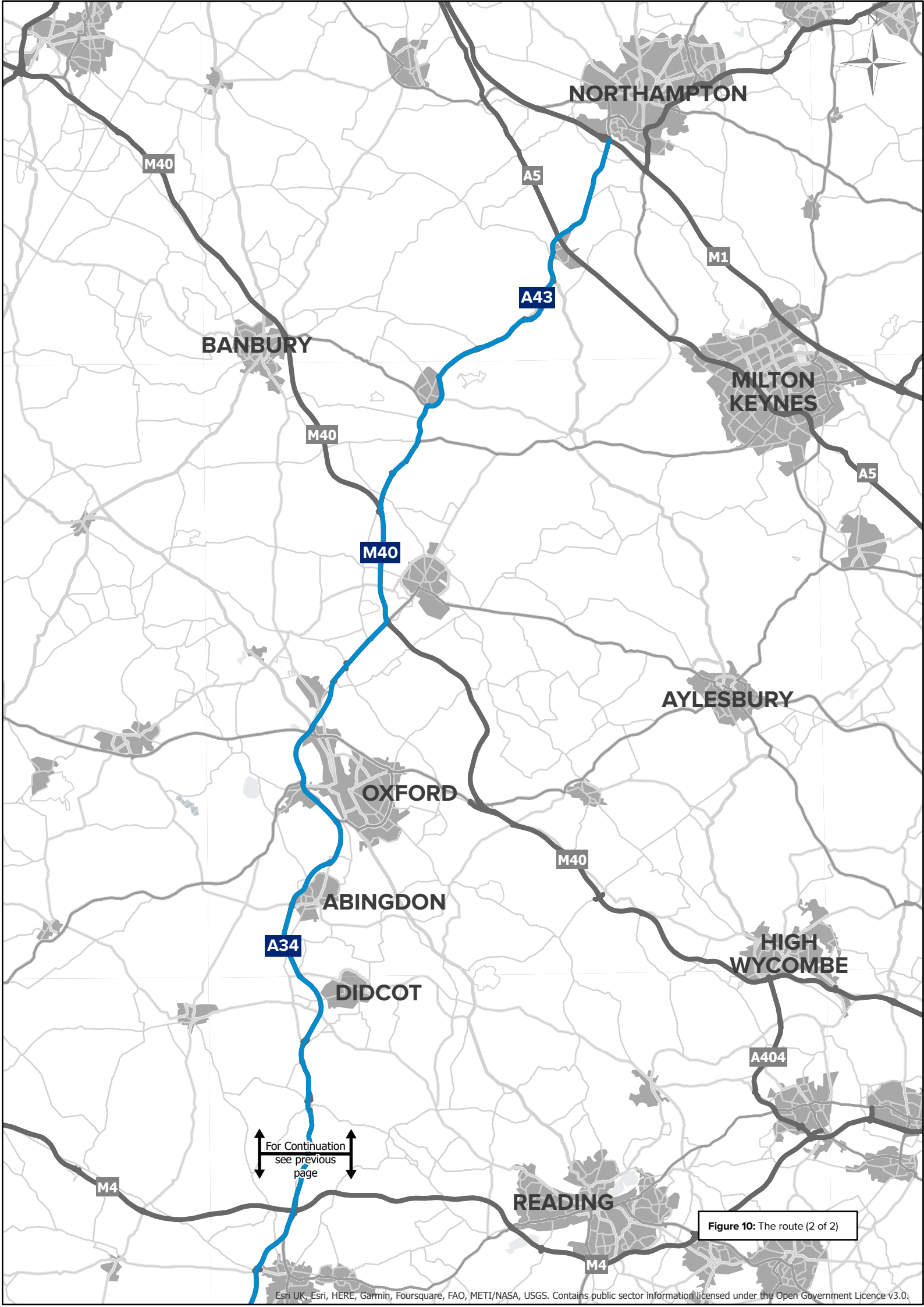


Figure 10: The route (2 of 2)

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	**Facilitate improved strategic access to the corridor from the wider road network by managing issues related to safety and congestion.** With a focus on supporting links with local and strategic centres via key SRN and MRN junctions including the A34/A303, the A43/M40 and junctions between the M4 and M40	✓	✓		✓		
B	**Support local access and active travel modes where infrastructure integrates with or impacts the strategic road network.** Promotion of non-motorised transport usage by improved access and safety on cycle routes along the A34 corridor in Oxfordshire and the M3/M27/ M271 in Hampshire	✓	✓				
C	**Maintain the strategic function of the corridor and manage the integration of local traffic needs to improve customer service.** We aim to support the strategic function of the A34, M3 and M27 where they provide a mixed strategic and local function near the urban areas of Oxford, Winchester and Southampton		✓		✓		
D	**Enable more efficient freight movements along the corridor, M3 and A27 to and from key gateways.** With a focus on Southampton, Portsmouth, and the wider Freeport. Encourage access to freight based multimodal interchanges in addition to recognising the importance of lorry parking facilities in strategically important locations for freight and logistics		✓		✓	✓	
E	**Support regionally significant planned developments** We aim to support sustainable future economic growth stemming from large housing and employment developments on the A43, the A34 between Bicester to Didcot and the M3/M27 between Winchester to Portsmouth				✓	✓	
F	**Be a better neighbour and protect residents and assets from adverse environmental impacts of the strategic road network.** Where the A34 passes in close proximity to homes, schools and other local facilities we aim to be a better neighbour by minimising adverse impacts and improve wellbeing for local communities and protected areas between the M4 and M40 junctions			✓		✓	

Ref.	Route objective	DfT's strategic objectives for our 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
G	**To support sustainable transport options in the North of the Route.** We aim to encourage connectivity to and from Oxford and surrounding towns including Didcot and Bicester, through improved integration with sustainable traffic modes to benefit local residents		✓		✓		
H	**To support sustainable transport options for the South of the Route.** We aim to encourage connectivity to and from Southampton and surrounding cities and towns including Portsmouth and Winchester, through improved integration with sustainable traffic modes to benefit local residents		✓		✓		

Next steps

The 20 route strategy Initial overview reports will combine with other related evidence to inform the broader SRN initial report[3] as part of the RIS process for the third road period (2025-2030). The SRN initial report 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. The DfT will consult on this *SRN Initial report*, which will serve to inform the RIS and *Strategic business plan*[4].

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 overview reports will also serve to inform the RIS and *Strategic business plan.*

3 National Highways 2023, *Strategic Road Network Initial Report*, https://nationalhighways.co.uk/futureroads
4 National Highways 2023, *Connecting the country; Our long-term strategic plan*, https://nationalhighways.co.uk/futureroads

Helping the nation to thrive

01 Introduction

Our strategic road network (SRN) is the backbone of the country. Over 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*[5] 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*[6].

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

5 National Highways (2023) *Connecting the country: Our long-term strategic plan to 2050* https://nationalhighways.co.uk/connectingthecountry

6 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*[7] that sets out our vision and proposed priorities for the third road period (2025-2030) and beyond.

The final Route strategy 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 Solent to Midlands. 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.

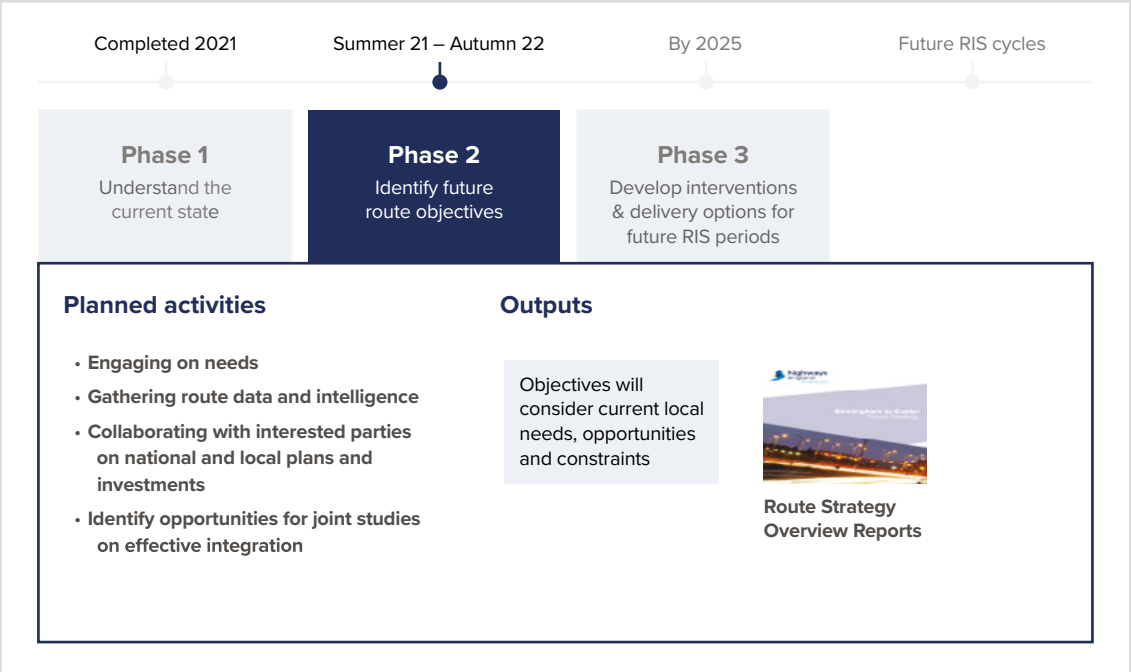


Figure 1: The route strategies delivery phases

7 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.

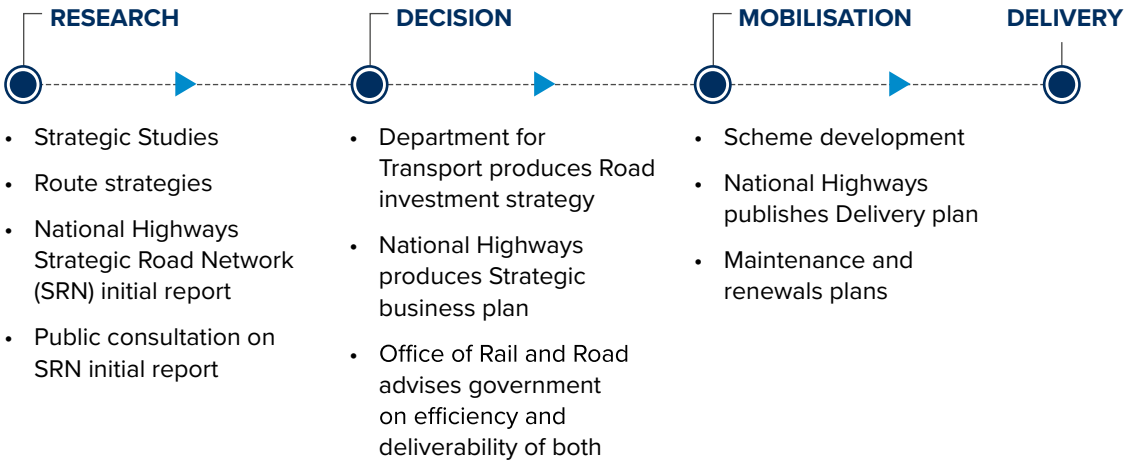


Figure 2: The RIS development cycle

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*[8].

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 ou 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, Department for Transport, 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*[9] 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.

8 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

9 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/

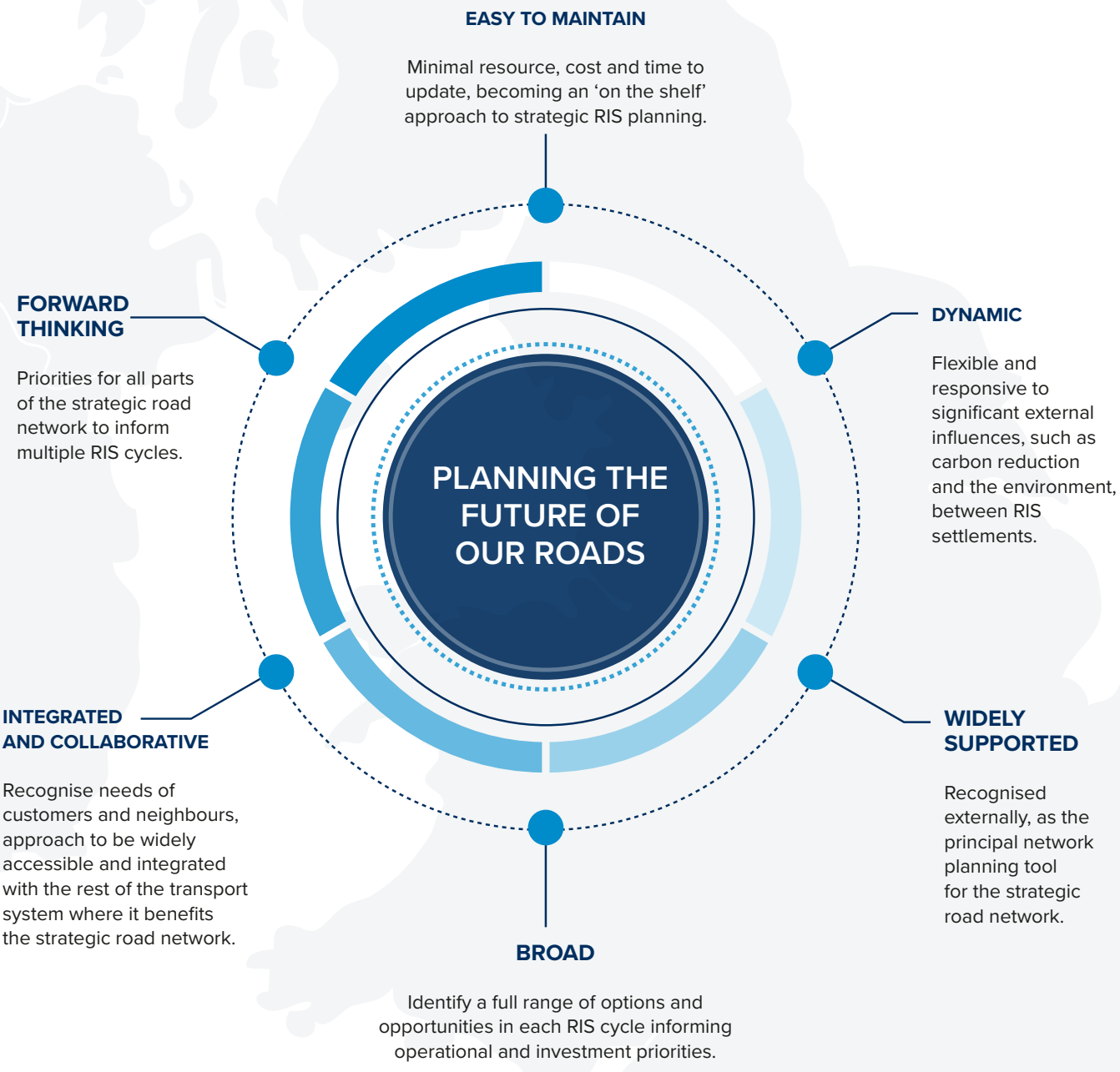


Figure 3: Our ambition for route strategies

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.

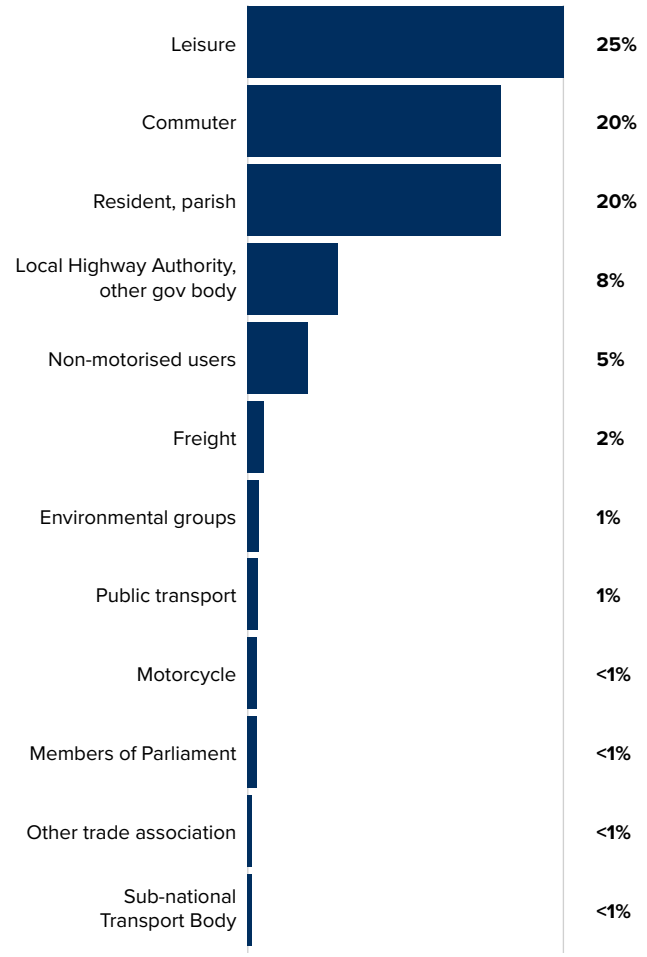


Figure 4: All responses to online tool by participant type

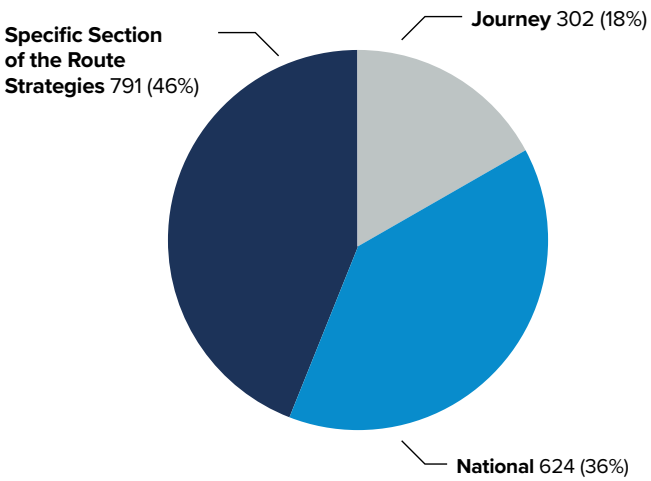


Figure 5: All response to online tool by type

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

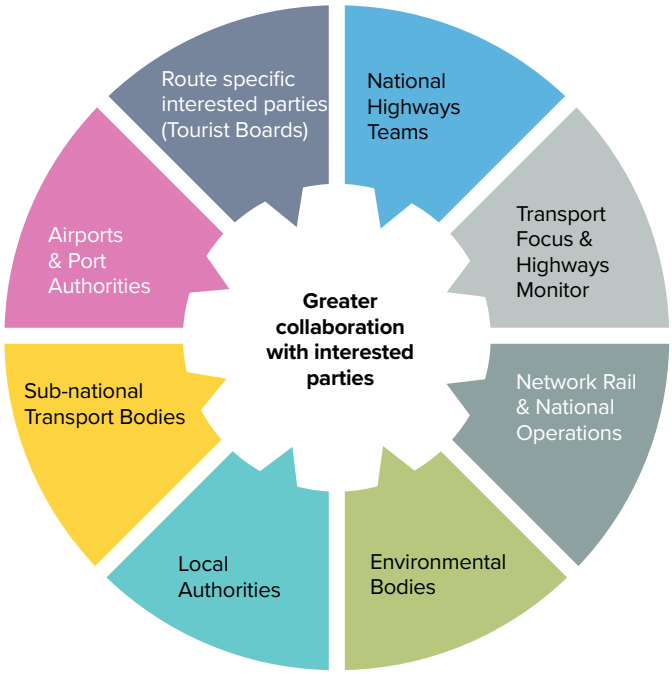


Figure 6: Interested parties involved in the route strategy engagement

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*[10] document in December 2021. They cover safety, network performance, environment, economy, management and planning for the future and technology.

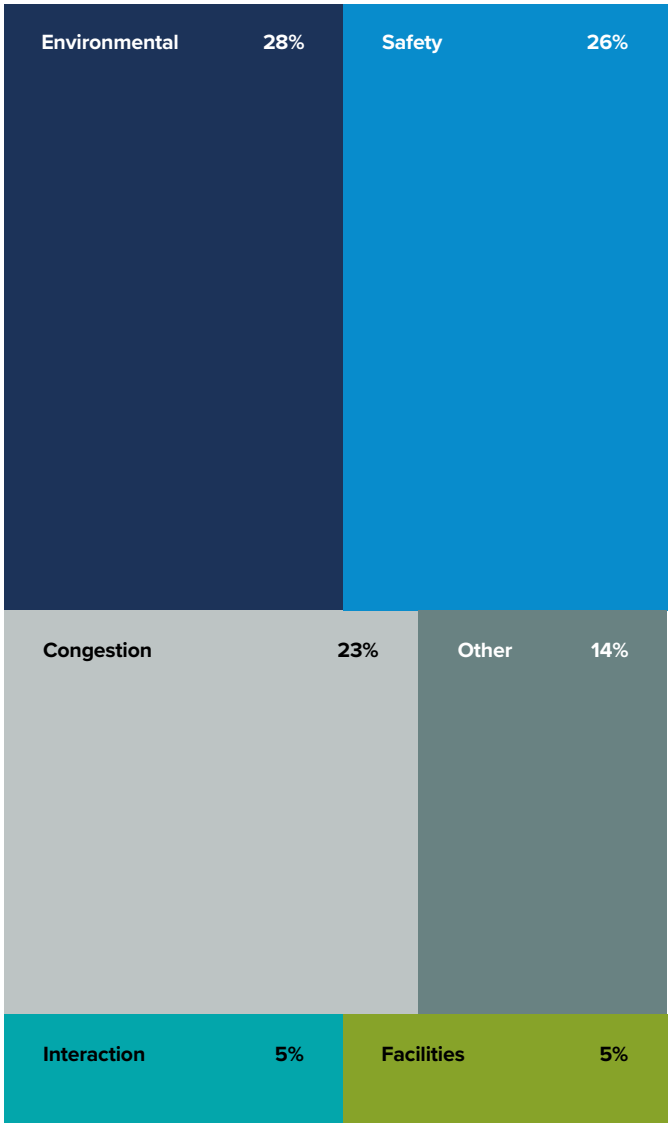


Figure 8: National themes from feedback through the online tool

10 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*[11]
- 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

11 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*[12]. 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

12 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 visa 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.

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[13]. 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.

13 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*[14] 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.

14 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)[15] 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.

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

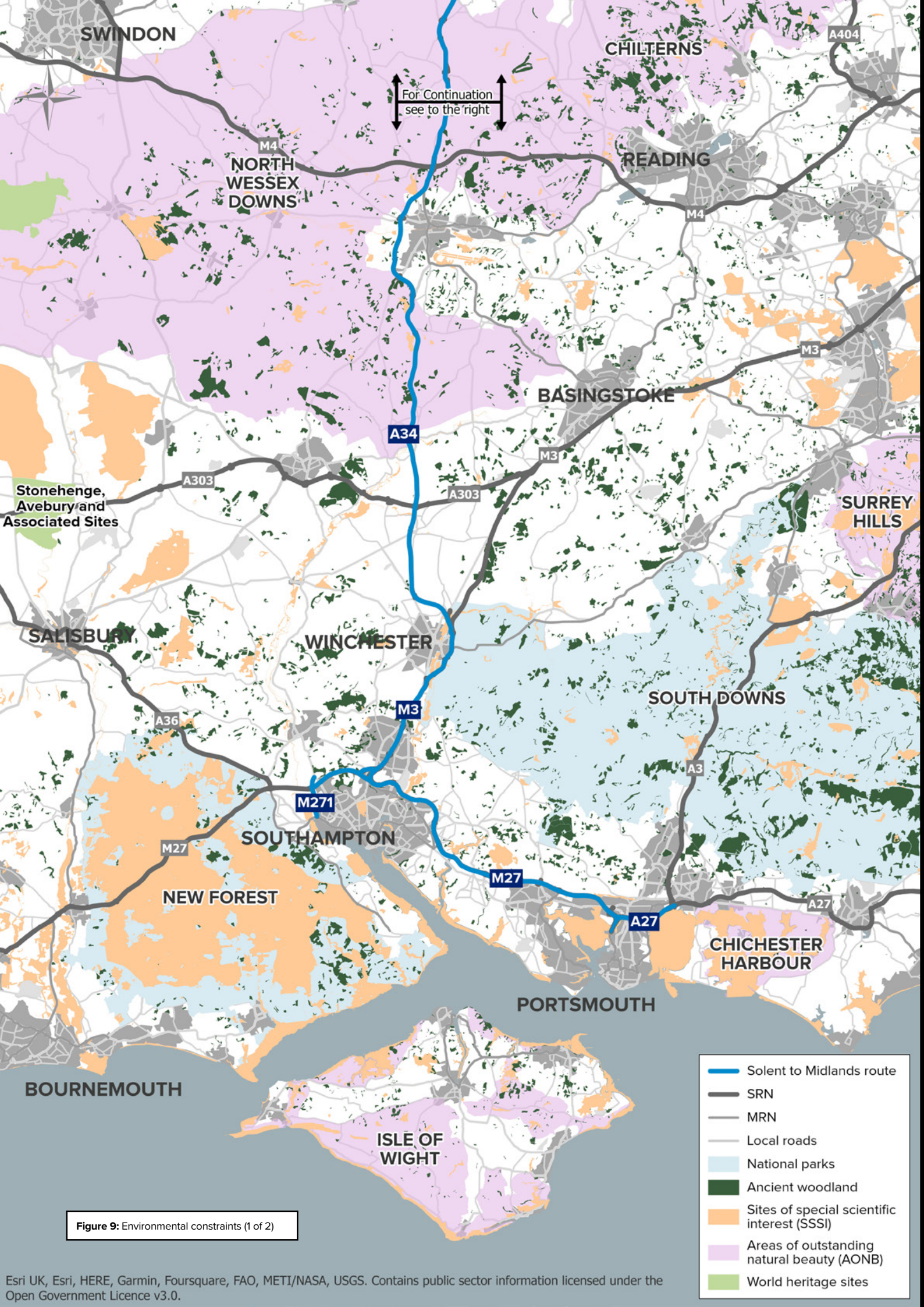


Figure 9: Environmental constraints (1 of 2)

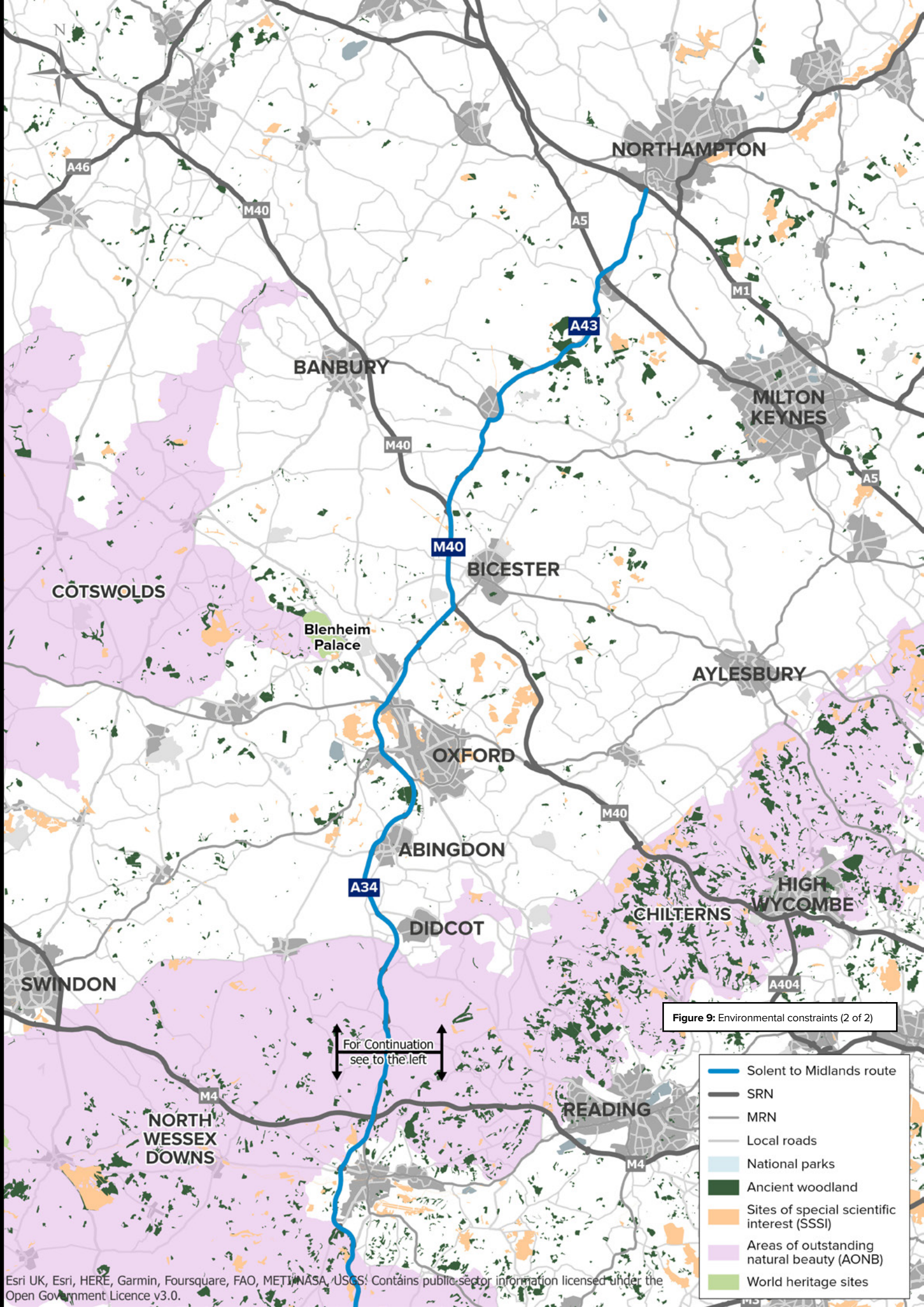


Figure 9: Environmental constraints (2 of 2)

Our network connects the country

02 The route

The Solent to Midlands route connects the Solent coastal region with the Midlands, and beyond. It is a strategic route connecting the Solent Ports to the manufacturing areas of the Midlands, and sees a higher than average volume of freight. The A34 is the backbone of the route.

The route includes approximately 132 miles of the strategic road network (SRN). It lies to the west of London and runs from Northampton at the A43, passing Oxford and Newbury along the A34, to Southampton and Portsmouth on the M27 and A27. The M271 also forms part of this route, which passes through the counties of Northamptonshire, Oxfordshire, Berkshire, and Hampshire.

The route includes key urban centres, namely Northampton, Oxford, Winchester, Southampton and Portsmouth, and local centres including Bicester, Abingdon, Didcot, Silverstone and Towcester. The route also passes through the North Wessex Downs Area of Outstanding Natural Beauty (AONB), and provides key strategic access to the ports in the Solent region.

The Solent to Midlands corridor mainly consists of dual carriageway. It provides key connections for strategic and freight traffic from the South Coast to the Midlands.

The SRN plays a crucial role in supporting the Solent region, particularly Southampton, Portsmouth and the wider Solent Freeport, which plays an important role in the regional and national economy. Local traffic also uses the SRN, particularly where the A34 passes urban centres, such as Oxford, Didcot and Winchester, while the M27 and M271 pass through Southampton. The Solent to Midlands route contains a number of key junctions that enable vital East-West connectivity via the M3, M4 and M40, as well as other junctions facilitating local connectivity. Aside from local centres, these junctions also enable access to major towns and cities, such as London, Reading, Swindon and Basingstoke.

The A34 plays a critical role in the north-south movement of traffic through Hampshire, Berkshire and Oxfordshire, providing further connections to the North of England via the M40 and M1. Collectively, these roads support a diverse economy across the Solent to Midlands route. They also enable local and strategic movements between Northampton, Silverstone, Bicester and the rest of the Solent to Midlands corridor.

The A34 is the busiest road in Oxfordshire, with levels of traffic on the A34 that are comparable to levels seen on motorways. Oxfordshire's economy is unique in its composition, with a diverse employment sector mix, two world-leading universities and cutting-edge research in areas including biotech and engineering, data science, medical instruments, quantum technology and robotics. This research is led through the Science Vale UK Enterprise Zone in Didcot, which is home to more than 450 businesses collectively, with plans to expand. The A34 serves Oxford, which has a population of approximately 152,000. Alongside 5,000 businesses, Oxford supports 121,000 jobs.

In the southern section of the route, Southampton and Portsmouth have a population of approximately 260,000 and 207,000 respectively. A further 39,000 people reside in the town area of Winchester near the A34/M3 Junction, which has a total population of approximately 118,000. The economy of Southampton is estimated to be worth £7.8 billion. In addition, the gross value added (GVA) per head of the population (in 2019) is higher than the national average with £30,865 and £30,239 respectively.

The Port of Southampton is a key international port that handles around 14 million tonnes of cargo each year. It is also the UK's second largest container terminal, handling more than 1.5 million containers each year. Both Southampton and Portsmouth Ports contribute to the freight movements along the Solent to Midlands corridor.

This route strategy is based on the road network as of the start of the second road period (2020-2025). During RIS1 and RIS2 the following schemes were opened to traffic:

- A271 / A35 Redbridge roundabout upgrade
- M27 Junctions 4 - 11
- A43 Abthorpe Junction

The M3 Junction 9 to 14 scheme has planned barrier replacement being undertaken. It had been identified as one of the schemes being paused as part of the Government's response to the Transport Select Committee's inquiry into the roll out and safety of smart motorways.

In January 2022, the Department for Transport (DfT) announced that it had accepted all of the committee's recommendations, including the pausing the roll out of new all lane running schemes to allow the collection of further data and stakeholder feedback.

The Department subsequently announced that plans for new smart motorways will be cancelled in recognition of the current lack of public confidence felt by some drivers and cost pressures due to inflation. Smart motorways earmarked for construction during the third Road Investment Strategy (2025-2030) and previously paused schemes will now not go ahead.

The following additional schemes are committed for the second road period:

- M27 Junction 8
- M3 Junction 9
- A34 Newbury to Oxford Enhancements
- A5 Towcester Relief Road

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

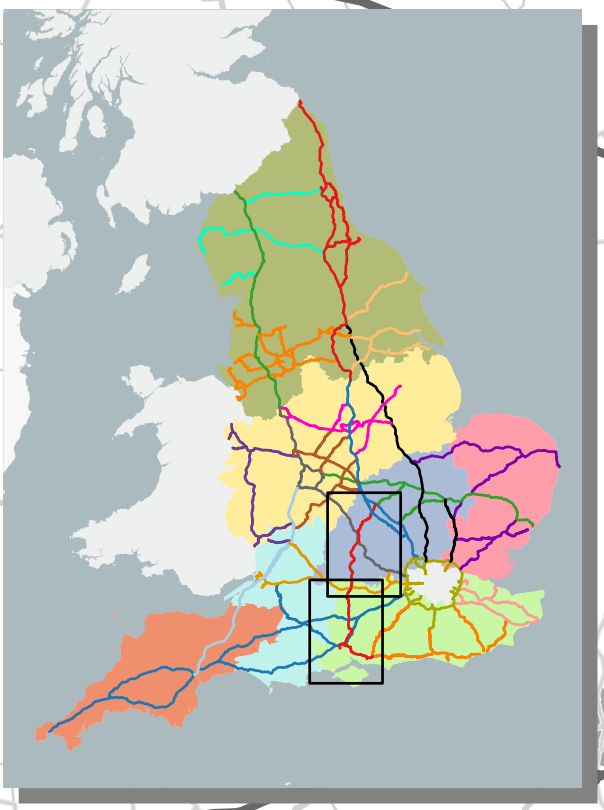


Figure 10: The route (1 of 2)

Figure 10: The route (2 of 2)

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 in the Solent to Midlands region

Early engagement with the Department for Transport, Office of Rail and Road, and Transport Focus informed and shaped our engagement with interested parties in the Solent to Midlands corridor. In addition to engagement with organisations with an interest in the strategic road network (SRN) across England, we designed engagement to gather evidence from a wide cross-section of interested parties, road users and communities at a route level to understand their needs for the future and to inform 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 Solent to Midlands corridor 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 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 Solent to Midlands corridor, 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*[16] to gain an understanding of the breadth of feedback.

16 Transport Focus, 2022, *Transport Focus Website,* https://www.transportfocus.org.uk/insight/strategic-roads-user-survey/

Key themes from engagement

We have drawn out the common themes that emerged from our engagement with our customers and neighbours on the Solent to Midlands corridor to inform our route objectives. The themes have been aligned with the DfT's six strategic objectives:

i) Views on: Improving Safety for All

- Improve resilience of the network around safety and congestion, particularly along the A34
- Safety at key junctions, particularly when merging

ii) Views on: Network performance

- Improve connectivity between the route and the wider east-west SRN, namely the connection between the London to Wales route, which connects with Solent to Midlands at the M4, the London to South West Peninsula route, which connects at the M3 and the M40

iii) Views on: Improved environmental outcomes

- Improve integration with public transport and walking and cycling to reduce severance and encourage shift from cars to sustainable transport modes along the corridor
- Increase shift to sustainable modes along the A34, notably local trips near urban centres (Oxford and Southampton), and strategic freight from road to rail
- Ensure the network responds to net zero carbon and environmental ambitions

iv) Views on: Growing the economy

- Improve provision for additional heavy goods vehicle (HGV)parking and freight facilities
- Improve connectivity as a key north-south route for freight and strategic traffic
- Future employment and housing growth across the A34 will add pressures this will add to the network
- Future growth of HGVs usage and expected increase in throughput at Southampton Port

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

- Improve connectivity to Southampton and Portsmouth port, along with the wider Solent Freeport

vi) Views on: Technology-enabled network

- Consider future technology requirements, including electric vehicle charging

Engagement quotes from customers and neighbours

"There are a number of priority junctions, which are not compliant with Design Manual for Roads and Bridges (DMRB) standards for lack of suitable deceleration and merge lanes."

(Route Strategies Engagement)

"Local rural roads take the brunt when closures are in place (no suitable diversion)."

(Route Strategies Engagement)

"A43/A5 Tove roundabout is congested particularly when there is a problem on M1 and traffic diverts through Towcester."

(Route Strategies Engagement)

"Opportunities for modal shift parallel to M3."

(Route Strategies Engagement)

"A303/A34 Bullington Cross Junction. - reduce congestion levels and incident numbers. and improve flow through the junction."

(Route Strategies Engagement)

"Safety at key junctions, particularly when merging (e.g. M27 jct4) and congestion at these junctions."

(Route Strategies Engagement)

"No hold ups, which is unusual for that time of day. Smooth road surface, few potholes, no roadworks."

(Transport Focus SRUS)

"Poor connectivity across M27 for active modes."

(Route Strategies Engagement)

"High volumes of freight, need for a corridor-wide approach to providing appropriate facilities for lorry parking to enable drivers to take their mandatory breaks."

Freight and heavy goods vehicles (HGVs) along the route

"Air quality is poor, two local primary schools adjacent to the A34 as it passes through the Botley area."

(Route Strategies Engagement)

"Growing logistics hubs in Andover and Basingstoke will put further pressure on A34 (especially junction with A303)."

(Route Strategies Engagement)

"HGV's struggle to climb Gore hill."

A34

"The new road variable speed limit signs are good and easy to read, the road works have finished and so the road is smooth and nice to drive on"

(Transport Focus SRUS)

"Quick journey, no traffic jams though it was busy"

(Transport Focus SRUS)

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 website data hub[17].

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.

SEE Area 3, National Highways Region South East & Midlands **National Highways Area 3 & 7**

Individual road M27, M271, A34, A43

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

*** 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

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


A34
MIDLANDS
M40)
11
(A420)
Swindon
30
R

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:

- England's Economic Heartland (EEH)
- Transport for the South East (TfSE)
- Midland Connect

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*[18], and within our *Strategic business plan*[19] and *Delivery plan*[20]. 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*[21], 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.

18 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
19 Highways England, 2020, *Strategic Business Plan: 2020 – 2025*, https://nationalhighways.co.uk/strategic-business-plan
20 Highways England, 2020, *Delivery Plan*: 2020 – 2025, https://nationalhighways.co.uk/delivery-plan/
21 National Highways, 2021, *Vision for route strategies,* https://nationalhighways.co.uk/media/w0vhd3un/vision-for-route-strategies.pdf

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

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.

The SRN on the Solent to Midlands route provides access to local roads via connections to the MRN. Near Oxford, the A34 provides connections to the A423, which leads into the A4142 ring road at the south east of Oxford City. Other connections to the MRN include the A339 at Newbury, the A31 and A33 at Winchester, and the A27 at Southampton.

England's Economic Heartland

England's Economic Heartland (EEH) published their Regional transport strategy titled *Connecting People, Transforming Journeys*[22] in 2020. The strategy outlines the framework for enabling green economic growth, in a way that also creates a net-zero transport network. The strategy further details the importance of working with partners, local Growth Boards and national initiatives, including the Oxford to Cambridge Arc.

The four 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 that lessens its environmental impact

These strategic priorities set out how the region can reduce reliance on private car usage through creating better connectivity within communities. It also details how the EEH 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 EEH vision of 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, while also benefiting the national and international economy.

Transport for the South East

TfSE published their Transport strategy for South East England in 2020. The Plan has been created with the support of the 16 local transport authorities within the TfSE area, along with the five local enterprise partnerships, 46 district and borough councils, and other key interested parties.

The Strategy sets out the TfSE's 30-year vision for the region, with their strategic goals and priorities. Their fifteen strategic priorities sit under three strategic goals; economy (to improve productivity and attract investment in the global marketplace), society (to improve health, safety, wellbeing, quality of life, and access to opportunities for everyone), or environmental (to protect and enhance the South East's environment).

22 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 **economic priorities** are as follows:

- Better connectivity between our major economic hubs, international gateways (ports, airports and rail terminals) and their markets
- More reliable journeys for people and goods travelling between the South East's major economic hubs and to and from international gateways
- A transport network that is resilient to incidents, extreme weather and the impacts of a changing climate
- A more integrated approach to land use and transport planning that helps our partners across the South East of England meet future housing, employment and regeneration needs sustainably
- A 'smart' transport network that uses digital technology to manage transport demand, encourage shared transport and make more efficient use of our roads and railways

The **social priorities** are as follows:

- A network that promotes active travel and active lifestyles to improve our health and wellbeing
- Improved air quality supported by initiatives to reduce congestion and encourage further shifts to public transport
- An affordable, accessible transport network for all that promotes social inclusion and reduces barriers
- To employment, learning, social, leisure, physical and cultural activity
- A seamless, integrated transport network with passengers at its heart, making it simpler and easier to plan and pay for journeys and to use and interchange between different forms of transport
- A safely planned, delivered and operated transport network with no fatalities or serious injuries among transport users, workforce or the wider public

The **environmental priorities** are as follows:

- A reduction in carbon emissions to net zero by 2050 at the latest, to minimise the contribution of transport and travel to climate change
- A reduction in the need to travel, particularly by private car, to reduce the impact of transport on people and the environment
- A transport network that protects and enhances our natural, built and historic environments
- Use of the principle of 'biodiversity net gain' (i.e. development that leaves biodiversity in a better state than before) in all transport initiatives
- Minimisation of transport's consumption of resources and energy

The strategic priorities set out in the TfSE strategy provide a clear framework that informs future decision-making. It intends to help create a "more productive, healthier, happier and more sustainable South East".

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 in 2017[23], and since then it has researched, developed and progressed transport schemes designed to deliver social, economic and environmental benefits.

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

The Strategy was refreshed in 2022. The new Strategic Transport Plan *'Fairer, Greener, Stronger'*[24] 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 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.

Through these studies, Midlands Connect has identified eleven priority locations for investment during the third and fourth road periods (2025 - 2035) 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 location identified on this route is the A45 Stanwick to Thrapston upgrade.

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.

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.

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

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. The route strategy follows on from existing studies covering freight traffic on the A34, such as the Solent to Midlands freight study that highlighted the importance of a multimodal relationship between road and rail in order to successfully accommodate freight traffic both now and in the future.

The Solent to Midlands route provides a number of connections to the surrounding MRN. Key roads include the A40, A44 and A420 near Oxford, the A339 connecting the SRN to Newbury, the A31 near Winchester, the A27 near Southampton, and the A335 that connects the SRN to Southampton Airport, and the A3 and A2047 that connect the SRN to the centre of Portsmouth.

Freight and logistics

The Future of Freight: a long-term plan (DfT June 2022)[25] 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 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.

There is generally a critically low level of lorry parking provision on the Solent to Midlands route. The route is in close proximity to several freight hubs, including the Ports of Southampton and Portsmouth, which will form part of the new Solent Freeport, and multiple freight distribution centres, which are connected to key sites in the Midlands via the M3, A34, M40 and A43. There are also several significant industrial sites and developments along the route, with the corridor serving sectors including construction materials and automotive, for example the BMW Mini site at Cowley.

Potential new areas for lorry parking sites include an additional lorry parking zone near to the Port of Portsmouth, close to M27 Junction 12 with the M275. The Solent Freeport is also likely to increase demand for lorry parking.

The National survey of lorry parking[26] undertaken by the Department of Transport in 2017 showed that the A34 leading north from the ports of Southampton and Portsmouth had high levels of offsite parking, and a high number of serious and critically utilised lorry parks. Although a lot of this is outside the '50km' defined distance from the ports, it is the logical route leading north from the ports.

The survey also highlighted that onsite utilisation for the South East as a whole was 84%, which is just 1% off being included in the critical level of parking. The critical utilisation for high off-site parking include the A34 corridor going north from Southampton.

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. 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.

25 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

26 Department for Transport, 2017, *National Survey of Lorry Parking,* https://www.gov.uk/government/publications/national-survey-of-lorry-parking

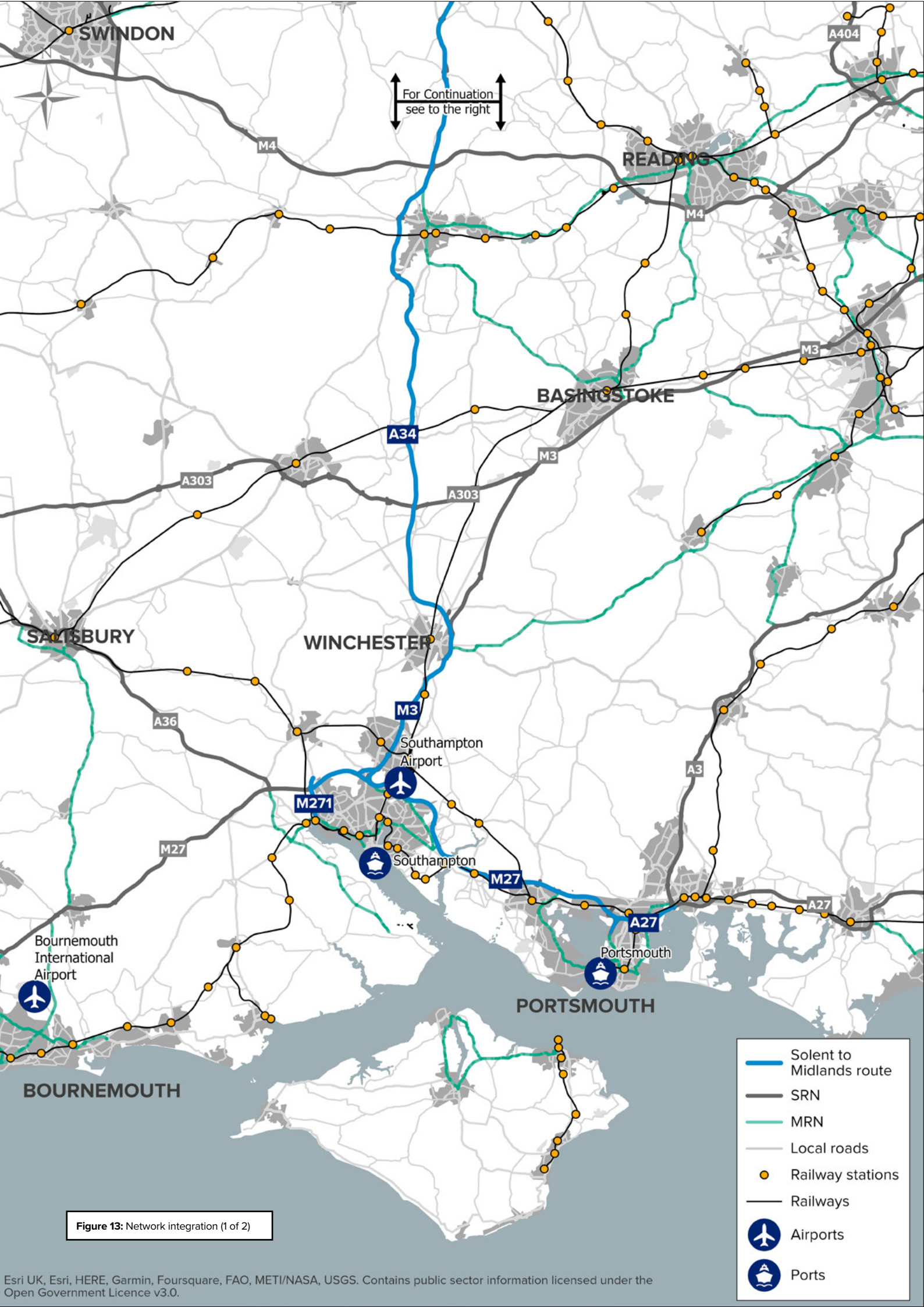


Figure 13: Network integration (1 of 2)

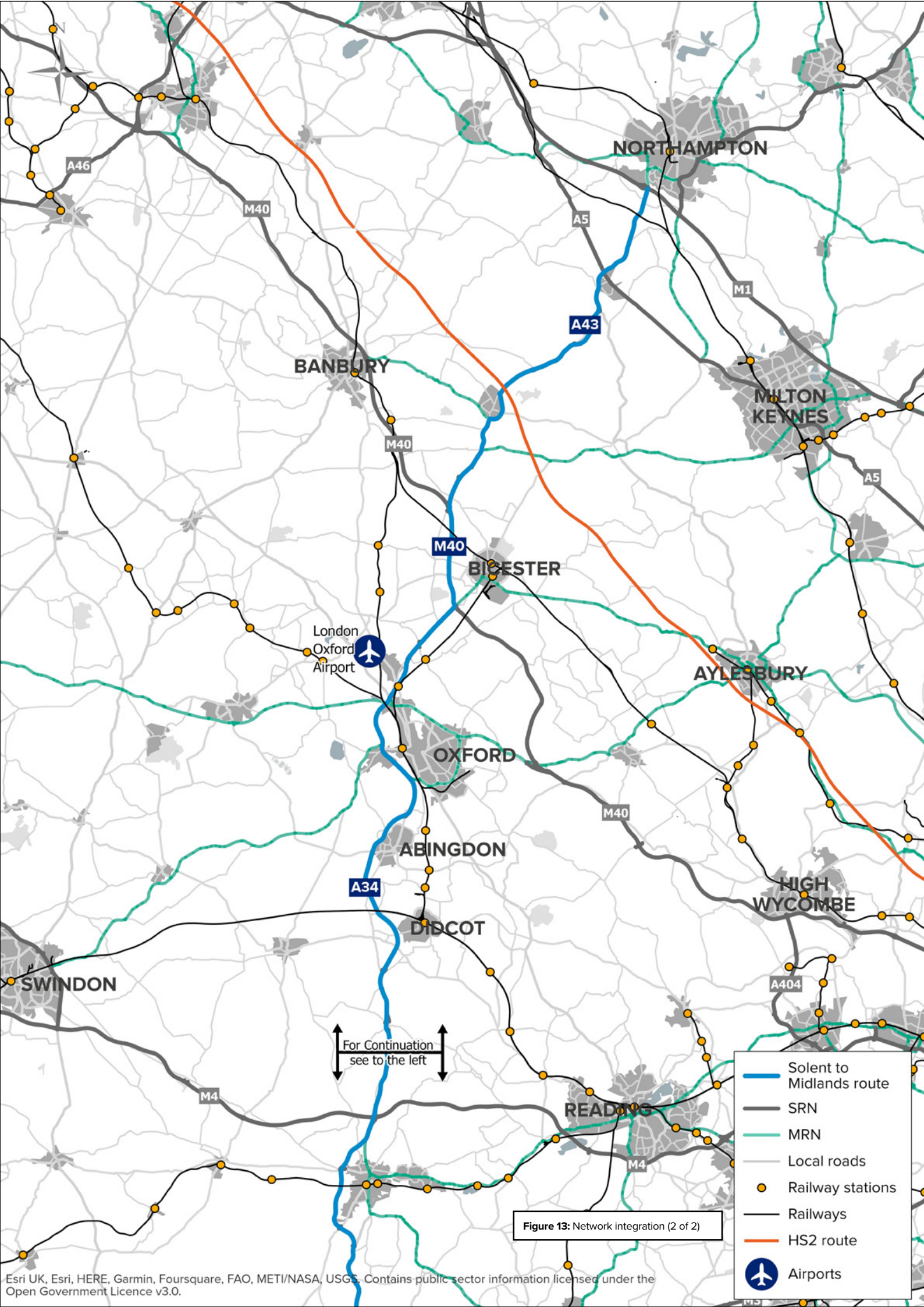


Figure 13: Network integration (2 of 2)

In the northern section of the Solent to Midlands route, diversion routes for the A34 take traffic through busy urban centres, such as Oxford, along with local roads that often go through rural areas. Environmental concerns were raised by interested parties, with concerns around the air quality near schools, and the impact of noise pollution to residents in and around Oxford, particularly resulting from diversion routes.

Similarly, strategic traffic is diverted through town centres in the southern section of the Solent to Midlands route, namely Winchester from the M3 and Southampton from the M27, which can lead to a mix of local and strategic traffic through local roads.

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 *Oxfordshire rail corridor study*[27] sets out plans for improvements to passenger rail services, with the possibility of the Cowley Branch line reopening. The plans aim to replace short SRN journeys with passenger rail journeys by increasing capacity on the railway. The study identified the following plans:

- Improve connections across Oxford, including Didcot Parkway, Oxford Parkway, Bicester Village, Banbury and Hanborough
- Improve connections between Oxford and economic hubs, namely Birmingham and Reading
- Support Oxford's strategic role in rail freight, which is expected to grow in the future

Committed works along the Solent to Midlands corridor also include the East West rail project, which aims to re-establish the rail link between Oxford and Cambridge, while introducing new services to London. Repairs are also taking place on the tracks of the western route, which will particularly benefit Didcot Parkway.

Planned rail schemes in the southern section of the Solent to Midlands route include the Southampton freight train lengthening scheme. This aims to increase line speeds by improving the existing signalling system, therefore allowing for longer freight trains to run between the Midlands and Southampton Port. This is expected to benefit both the economy and the environment.

In the northern section of the route, there are examples of important stations on the rail network that act as leisure and tourist gateways, particularly Oxford Parkway, Oxford, and Bicester Village. In the southern section of the route, important stations include for these purposes include Winchester, Southampton Airport Parkway, Southampton Central, and Portsmouth and Southsea. Our route strategies understand the key role the SRN plays in providing access to and from these rail services. There are currently proposals for an Oxfordshire Strategic Rail Freight Interchange to be located south-west of Junction 10 on the M40. This will aid the transfer of freight traffic from road to rail in the north of the route.

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.

27 https://www.networkrailmediacentre.co.uk/news/future-of-oxfordshire-rail-network-mapped-out-in-new-study

There are currently five park and ride sites serving Oxford, namely Oxford Parkway, Pear Tree, Redbridge, Seacourt and Thornhill. Pear Tree and Seacourt park and ride sites are the closest to the SRN, being 0.3 and 0.5 miles away from the A34 respectively. Pear Tree park and ride is located at the A34 Pear Tree Junction, whilst Seacourt is located at the Botley Junction of the A34.

Redbridge is located approximately 1 mile away from the A34 Junction at Kennington, whilst Oxford Parkway is located 1.6 miles away from the Pear Tree Junction. The furthest Oxford park and ride site from the Solent to Midlands route is Thornhill, which is located in the East of Oxford. This is 5.3 miles away from the nearest Junction at Pear Tree, or 5.5 miles away from the A34 Junction at Kennington, which is the south of Oxford.

In the south of the route, Portsmouth also has a park and ride site which is located about one mile from the SRN, and Winchester has four park and ride sites.

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 through cross-border routes, but also – via ports - to Northern Ireland. We work closely with Transport for Wales and Transport Scotland to ensure that our key cross-border routes are joined up effectively with those in Wales and Scotland to ensure seamless journeys for our customers.

Across the Solent to Midlands route, the A34 connects with the M4 and M40, providing an onwards connection to Wales and links directly into the London to Wales route strategy. The A34 also plays a crucial role in providing north south connectivity, enabling onwards journeys to the A43 where there are vital connections, to the North of England, and onwards to Scotland.

Where the Solent to Midlands corridor connects with the M1, this provides northern travel to cities such as Leicester, Nottingham, and Sheffield. Further connections beyond the M1 connect the Solent to Midlands corridor with Leeds, along with the A1 (M), which provides onwards connections to northern cities such as Newcastle and Edinburgh. These are important routes for both passengers and freight. The SRN is considered within this broader context.

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.

This is a fundamental aspect of route strategies, ensuring that future investment continues to facilitate these essential movements.

Along the Solent to Midlands route, this means that the A43, A34, M3, M271 and M27 need to be considered not only within the context of the local access they provide, but also the connectivity they provide to international gateways. The Solent Freeport is key in providing international connectivity, including both Southampton and Portsmouth Port. Similarly, Southampton airport in the southern section of the Solent to Midlands corridor, along with key urban centres, particularly Oxford, Didcot, and Bicester in the northern section of the corridor, are also key in connecting the route to international gateways.

The overall route provides onwards connectivity between the North and South of England, along with access to and from the Isle of Wight via Portsmouth. The route also provides East and West connectivity within England, in particular providing important connections to London.

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.

STATS19 data are the statistical data published by the Office for National Statistics about personal-injury road traffic collisions reported to the police. STATS19 remains the most detailed, complete, and reliable single source of information on road casualties covering the whole of Great Britain, in particular for monitoring trends over time.

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.

Road Safety Foundation (RSF) produce 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.

Using the latest available data it shows that the following sections of the route have a iRAP Star Rating. Where the A43 passes Silverstone, there is a 2-star rating. This is the same along the A43 at the A43/A5 Junction at Towcester, along with the approach to the M1 Junction. Similarly, there is a 2-star rating on the A34 parallel to Newbury. In the southern section of the route, a 2-star rating is given to the north section of the M271.

There is a concentration of collisions that involved someone being killed or seriously injured in the following sections of the route:

- North and south of the A43/A5 Junction
- The A43 and M40 either side of the A34/M40 and A43/M40 Junctions
- North and South of the A34/A303 Junction
- Junction 8 and 9 on the M27, prior to Smart Motorway upgrade

The latest available data shows that there are a number of collisions involving motorcyclists. There are a relatively high percentage of fatal and serious motorcycle collisions per mile road length along the M27 and M3 between Winchester and Southampton, when compared to the rest of the UK. This stretch of the route has a mix of strategic and local traffic due to the proximity of the ports.

Along the A34 between the M40 and M4, collisions involving walkers, cyclists and horse riders represent a relatively high proportion of all total fatal and serious collisions (14-25%) when compared to the rest of the UK, as per Road Safety Foundation data. This section of the A34 runs parallel to the Sustrans National Cycle Network, where interested parties have noted a number of informal crossing points across the SRN.

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

Safety issues are compounded by the mix of local and strategic journeys made on the route, as well as a high percentage of heavy goods vehicles (HGVs). Interested parties also highlighted that there is a variation in the approach to slip road implementation along the route. The volume of traffic expected in the near future mean shorter slip roads with sharp turns will not meet appropriate standards.

Key challenges

- The safety levels built in to the route (based on the International Road Assessment Programme) are rated as either 1-star or 2-star, particularly on the A34
- Observed collision data show a number of locations where a higher number of people were killed or seriously injured on sections of the route, such as the A34 and the M27 junction
- Many collisions involve road users, particularly motorcyclists along the M3 and M27, and walkers, cyclists and horse riders along the A34 and M27 where the route interacts with the Sustrans National Cycle Network

Figure 14: 2020 iRAP star rating (1 of 2)

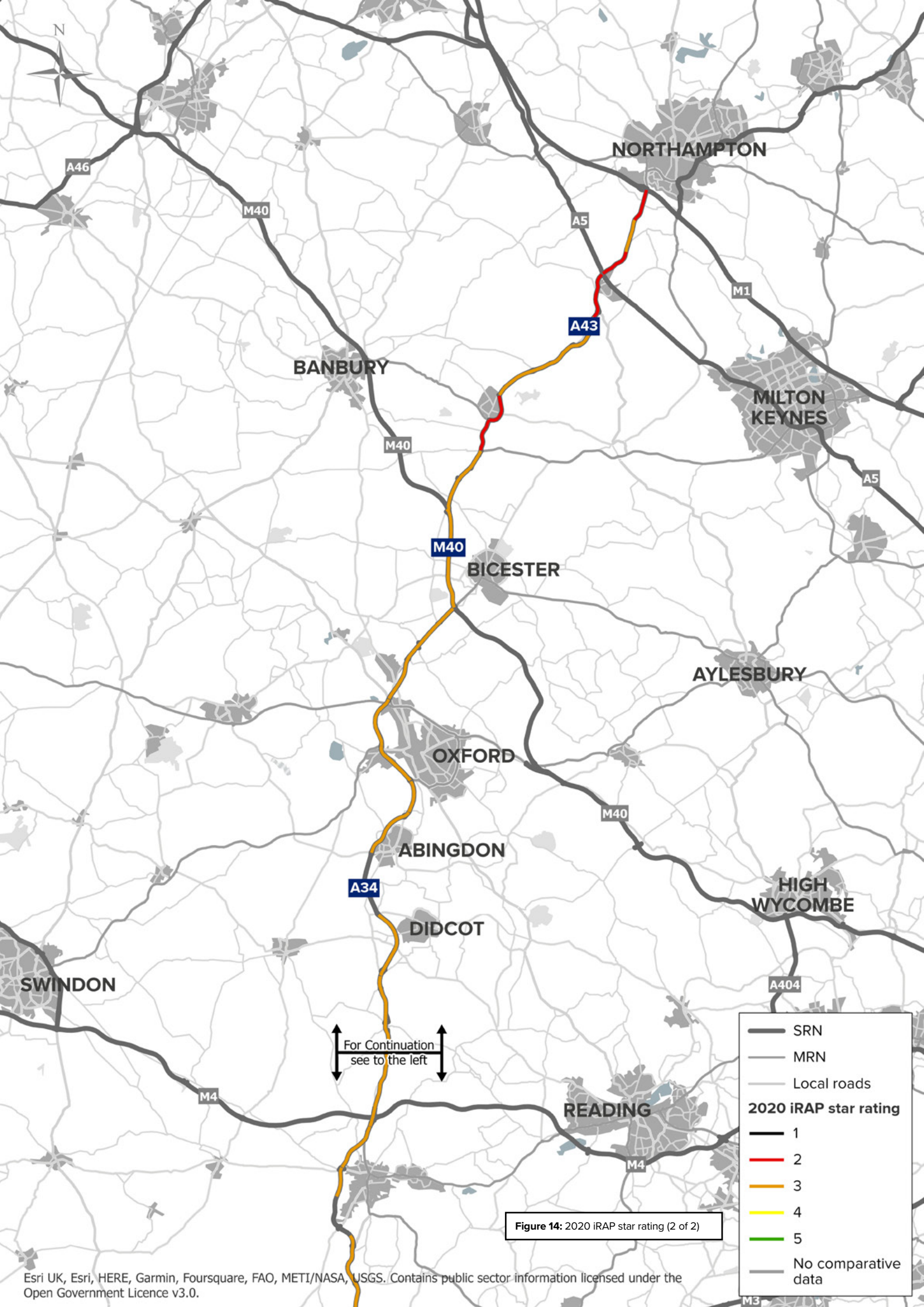


Figure 14: 2020 iRAP star rating (2 of 2)

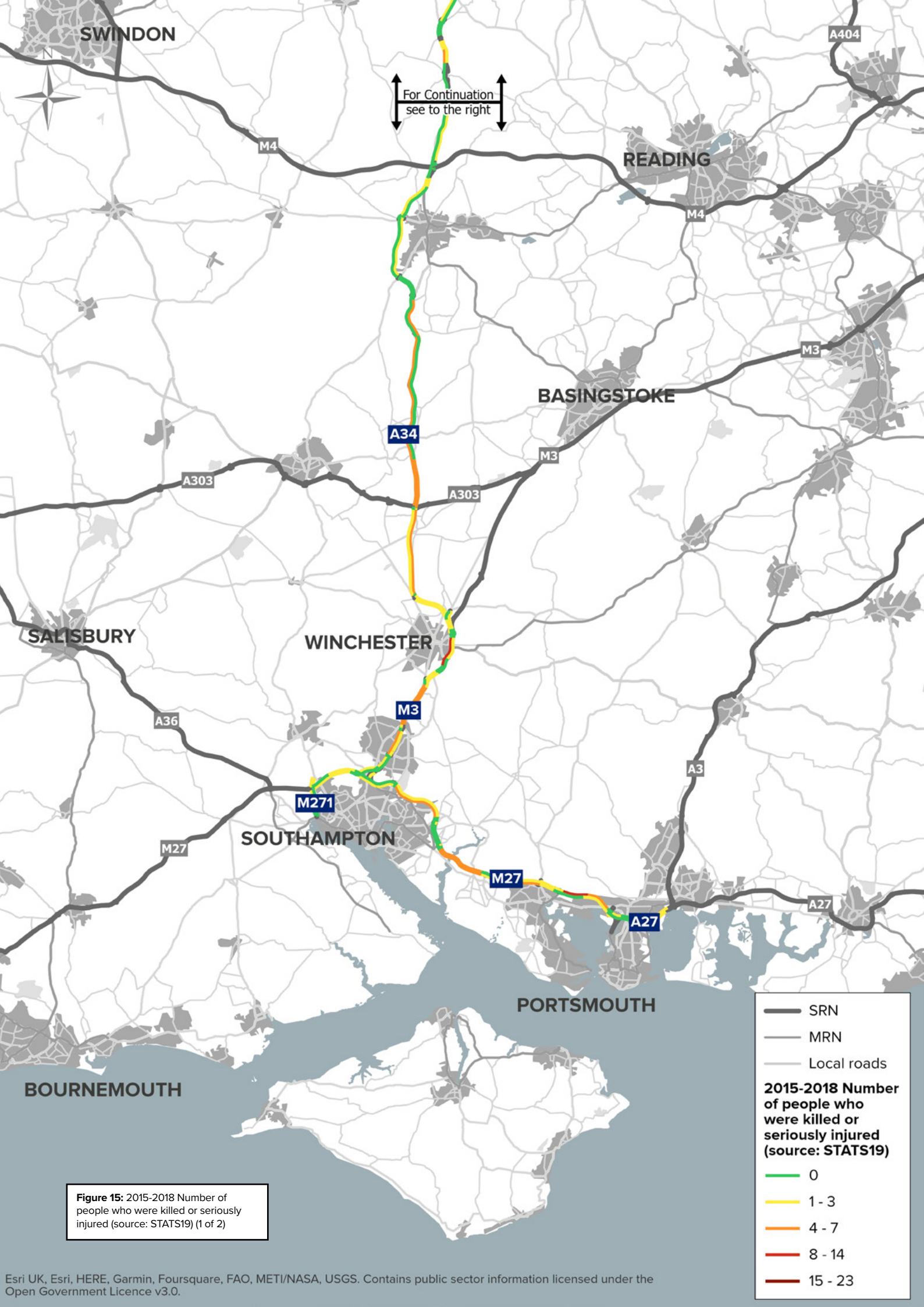


Figure 15: 2015-2018 Number of people who were killed or seriously injured (source: STATS19) (1 of 2)

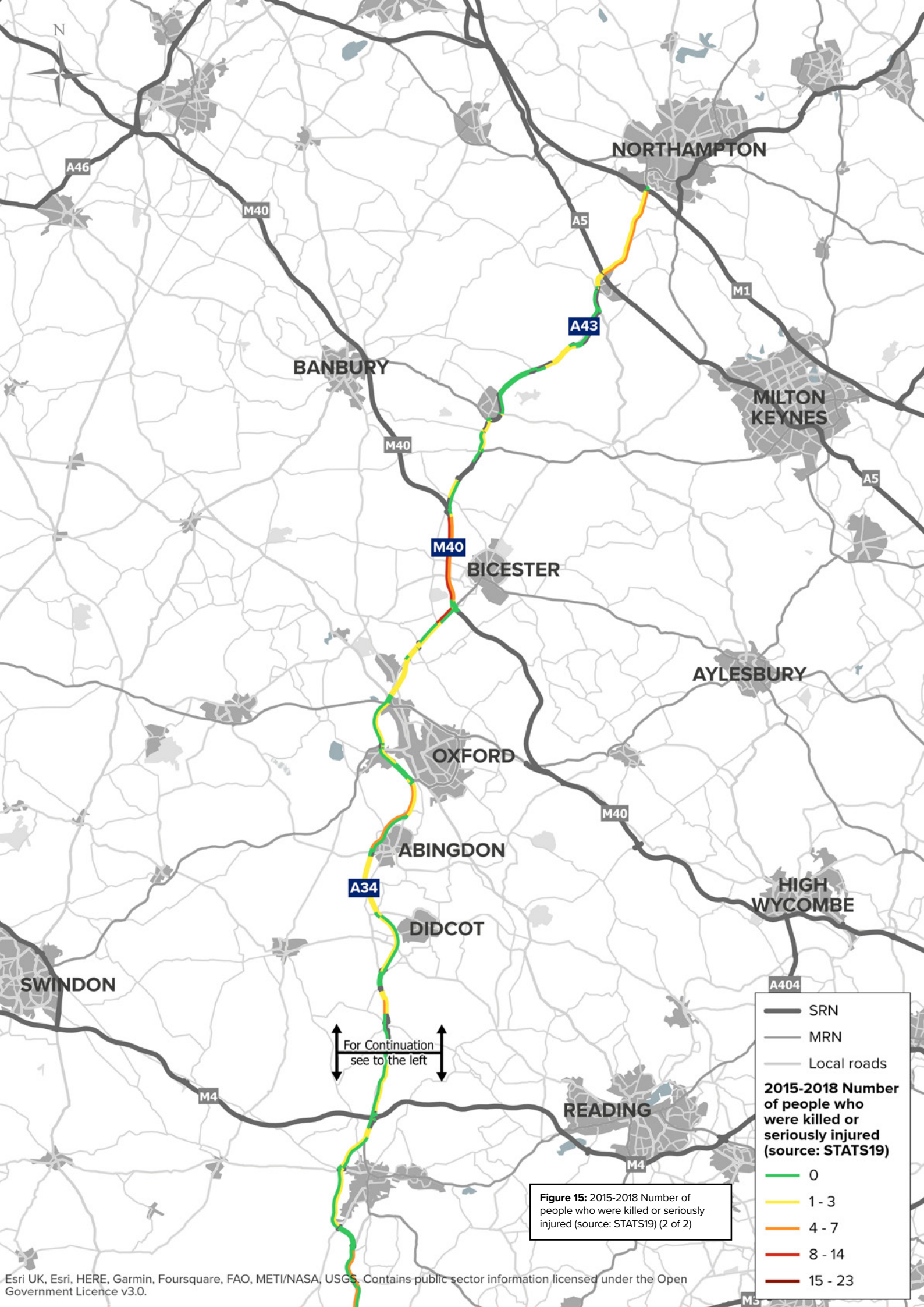


Figure 15: 2015-2018 Number of people who were killed or seriously injured (source: STATS19) (2 of 2)

2. Network performance

Network performance is measured by average delay, seasonal delay and journey time reliability. Many sections of the Solent to Midlands route experience one or more of these types of delay.

Oxford city centre is a key urban and employment area along the Solent to Midlands route, which heavily relies on the A34 for strategic and local journeys. As a result, congestion and delay is a common feature of the A34, which runs parallel to Oxford. Figure 16 shows the delay caused by congestion during the morning peak in 2019. The lengthiest delays experienced on the Solent to Midlands route are:

- A34 parallel to Oxford and Abingdon (up to 25 seconds pvpm)
- A43 (up to 25 seconds pvpm)
- A5/A43 junction (up to 50 seconds pvpm)
- M27 between Portsmouth and Southampton, prior to Smart Motorway upgrade (up to 50 seconds pvpm)

There are also congestion issues along the M27 and M271. Both are in close proximity to Southampton, while the M27 is also located near Portsmouth. Both roads will be key for supporting the Solent Freeport area. It has been noted that freight traffic is especially impacted by congestion along the M3 between Winchester and Southampton, where there is a large mix of strategic and local traffic.

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

Similar issues with traffic mix are particularly pertinent along the M27, as interested parties mention it often operates as a local road, rather than strategic. Seasonal delay may be of added significance to tourists and residents, particularly those travelling to airports or other destinations where arriving later than intended could have significant implications.

On the South Coast access to coastal towns and event days at local attractions result in higher traffic volumes being experienced in the summer months. This exacerbates congestion issues.

There are limited alternatives to travelling by car along the route. While buses operate, they are often affected by congestion, making their journey times unreliable, particularly along the A34 and M27.

Average 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 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 mile. It is a concern for most drivers, but particularly affects just-in-time freight traffic and other strategic journeys.

Moreover, some diversion routes are less suitable for HGVs, which means that incidents or planned roadworks can create additional disruption. The A34 has HGV percentages that are between 11% and 20% along the entire road, with the majority being between 16% and 20%. Diversion routes that are less suitable for HGVs can result in adverse environmental impacts on local communities.

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.

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.

Key challenges

- Delays across the Solent to Midlands route, particularly along the A34 near Oxford, as well as along the M27, which is close to both Southampton and Portsmouth Ports
- Delays are expected to worsen by 2031 at several locations

Figure 16: 2019 Average morning peak delay (source: NTIS) (1 of 2)

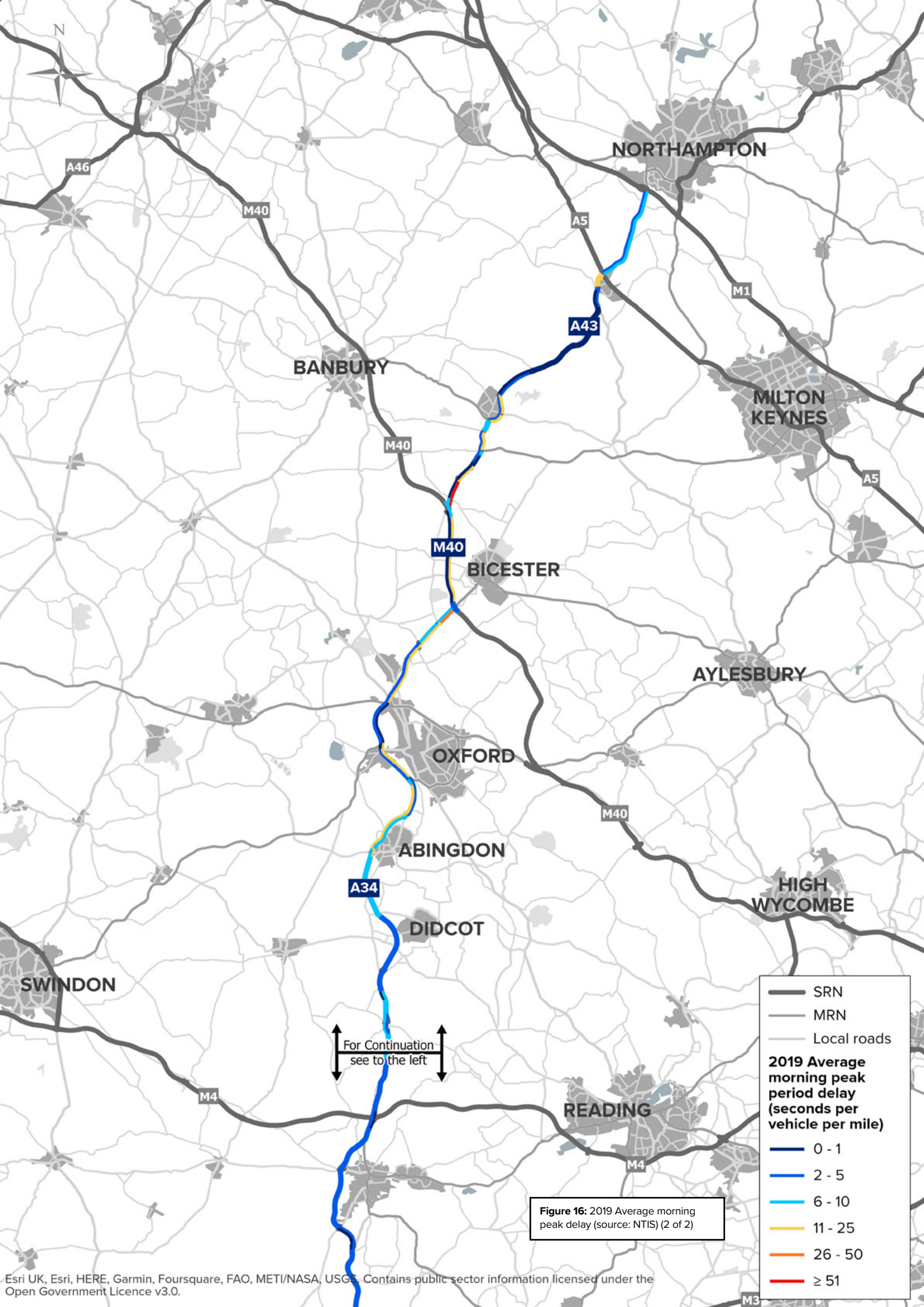


Figure 16: 2019 Average morning peak delay (source: NTIS) (2 of 2)

Figure 17: 2031 Forecast morning peak delay (source: RTM) (1 of2)

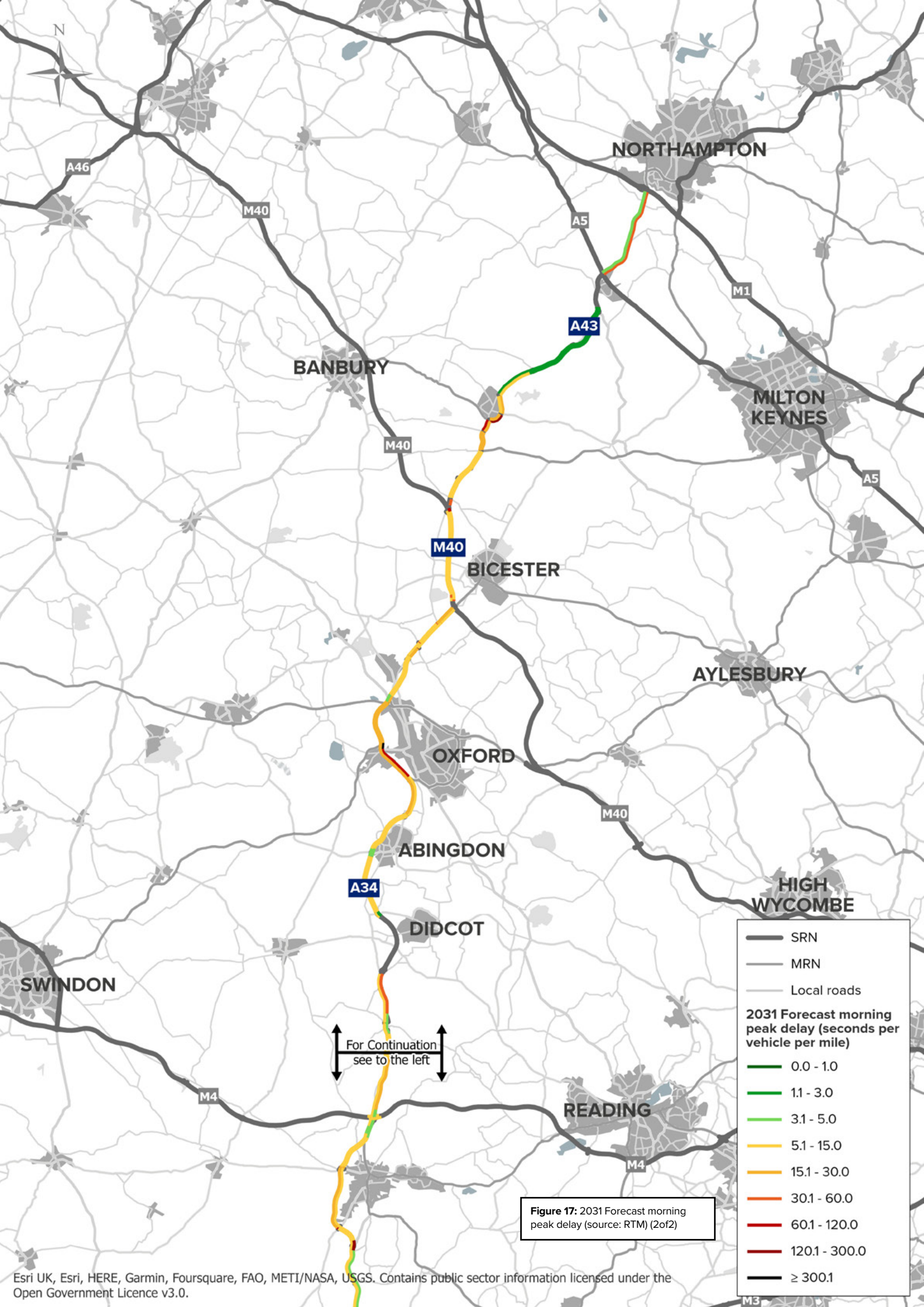


Figure 17: 2031 Forecast morning peak delay (source: RTM) (2of2)

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*[28] to show how we will meet the target of net zero greenhouse gas emissions.

With the strive to move to a zero carbon transport network in the imminent future, we should also consider better integration of transport modes. Additionally, there should be support for charging and refuelling sites for electric cars and freight along the Solent to Midlands corridor. The A34 which makes up a main section of the Solent to Midlands route has levels of traffic which are comparable to the levels which are seen on motorways. Therefore, limiting the local environmental impact is of key concern.

The Solent to Midlands route passes in close proximity to local communities and through protected areas at various points along the route.

Part of the route passes through the North Wessex Downs Area of Outstanding Natural Beauty (AONB), as well as crossing through Sites of Special Scientific Interest and Special Areas of Conservation in the southern section of the route. The A34 and M27 are key gateways to and from the ports, providing strategic links between Southampton and Oxford. Across the route there are multiple listed or environmental sites.

Noise Important Areas (NIAs) for roads are based on the Department for Environment, Food and Rural Affairs' strategic noise map results, and have been produced in line with the requirements set out in the noise action plans. There are NIAs identified in the southern section of the route, particularly along the M3 between Winchester and Eastleigh. Receptors have also been identified on this section of the

Air quality describes how polluted the air we breathe is. Low 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.

28 National Highways, *Net zero highways: our 2030 / 2040 / 2050 plan,* https://nationalhighways.co.uk/media/eispcjem/net-zero-highways-our-2030-2040-2050-plan.pdf

Solent to Midlands corridor, including the M27 between Southampton and Portsmouth, which may be more sensitive to adverse air quality and noise impacts.

There are numerous NIAs surrounding Oxford City Centre, and along the A43 near Silverstone. When there are incidents on the A34, people are forced to use diversion routes, which worsens environmental concerns for local areas.

A Special Area of Conservation exists near Oxford, crossing the A34 where there is an Air Quality Management Area (AQMA) declared across the city. The A34 that runs parallel to Oxford is also a location that may be more likely to adverse air quality issues.

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 to show how we will meet the target of net zero greenhouse gas emissions.

The latest climate projections from the Met Office has 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*[29] 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.

National Highways' carbon reduction strategy, Net zero highways, commits to cutting (rather than offsetting) greenhouse gas emissions to zero, for National Highways operations by 2030, for construction and maintenance by 2040, and for travel on the Strategic Road Network by 2050.

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

Severance occurs when busy roads inhibit or make it difficult for non-motorised users to cross the road network. It separates walkers and cyclists from amenities that lie on either side of the road, and can deter people from accessing businesses and properties. It is noted by interested parties that there are multiple informal crossing points operating along the Solent to Midlands, including the A34 at Whitchurch. Whilst newer dual carriageway sections tend to avoid urban areas, in places such as the A34 in the Oxford and Botley area and the M27 in the Porchester area, communities are divided by the SRN with a limited number of grade separated crossing points available. Interested party comments also raised that the M27 divides the urban area, therefore causing severance for walkers, cyclists and horse riders.

Key challenges

- Receptors may be more likely affected by adverse air quality and noise impacts around Oxford and the surrounding areas
- Greenhouse gas emissions coming from the route and the impacts on future climate change
- Areas of outstanding natural beauty with environmental significance and cultural heritage sites on the route
- Severance of local communities by the SRN and informal crossing points

29 Climate Change Committee, 2021, *Independent Assessment of Climate Risk,* https://www.theccc.org.uk/publication/independent-assessment-of-uk-climate-risk/

4. Growing the economy

The route supports north-south travel from Southampton and Portsmouth Ports to the Midlands and key urban centres along the route, providing strategic connectivity. It has a critical economic function in supporting the growth of the Solent to Midlands corridor. The connectivity that the route provides to the East and West of England via the M3, M4 and M40 is also vital in enabling strategic access to London, and other key cities.

There are a number of employment developments, derived from local plans and interested party feedback, planned across the region. There are also a substantial amount of housing developments planned along the route in Bicester, Didcot, Southampton and Portsmouth. Bicester is due to have the largest housing development with 10,600 houses, Didcot will have a further 5,700, Southampton 4,900, and Portsmouth 2,300. Key local plans reviewed include the Oxfordshire local transport and connectivity plan, South Oxfordshire joint plan, Winchester Local Plan, South Northamptonshire Local Plan and Southampton adopted core strategy. The network is key to realising the potential of development sites by managing any additional traffic created. This is particularly important along the A43, A34 and M27, all of which are relied upon by the urban centres, as mentioned above. Large employment sites are planned at Silverstone on the A43, and at Science Vale in Didcot. In addition, there are growing logistics hubs in Andover and Basingstoke, which will likely increase HGV volumes along the route.

Traffic from Oxford City Centre heavily relies on the A34 for strategic and local journeys. Considering the projected growth in traffic in future years with proposed housing and employment developments, it is expected that this will add a significant number of new journeys onto the network. Delays are expected to worsen in the future, particularly at the junctions where the A34 and A43 meet the M40.

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

There is expected to be an increase in local traffic from the increased growth, particularly with the plans to remove through traffic from the centre of Oxford in Oxfordshire County Council's Local travel plan. In addition, interested parties have expressed concern for the layout of the junctions and associated implications around safety and further increases in congestion along the A34.

There are also plans for a new town in Micheldever near Winchester. The plans propose the development of 6,000 new houses, along with workplaces, shops, schools and other facilities. The A34/ M3 Junction at Winchester is already experiencing capacity and delay issues, as well as safety issues. A reliable and efficient SRN is important to support the sustainable developments in settlements like the new proposed town of Micheldever. This in turn will enhance the local and regional economy.

The Port of Southampton is a key international port, which handles around 14 million tonnes of cargo each year. It is the UK's second largest container terminal, handling more than 1.5 million containers each year. The port contributes around £1 billion to the UK economy. The Union connectivity review identifies both Southampton and Portsmouth as strategic seaports. Interested parties also highlighted their value during engagement on the M271. Portsmouth International Port creates a total of 5,600 jobs, 2,400 of which are in the local area. The port is worth £390 million to the national economy, and £189 million to the local economy.

Both ports play an important role in the local and national economy, and there are plans for both to grow.

We recognise that the success of these ports to the national economy will depend on the continuing performance of the Solent to Midlands route. Freight traffic through the Port of Southampton is expected to sharply increase in the future, and is a key concern of interested parties. Interested parties' feedback on the M271 also discusses the important role the SRN plays in the local economy, including as a result of offering connectivity to both ports. The M27 and M271 are in close proximity to and therefore heavily relied upon by the ports.

The Department for Transport's June 2022 report, The future of freight: A long-term plan, sets out priorities for the UK's freight industry, recognising 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. With imports and exports making up 62.9% of GDP in 2019, the plan noted the reliance on the freight and logistics sector for our economic wellbeing.

The planned growth along the coastal region of the route is in line with the priorities of the UK government's levelling up agenda. The index of priority places for the 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. Some areas in Southampton and Portsmouth that are ranked level 2 are among the most deprived areas in the UK.

Key challenges

- Connections between the North and South of England provided by the route
- Connections provided by the route to the wider east–west strategic road network
- Traffic from housing and employment growth adding pressure on the SRN, particularly on the Bicester, Oxford, Didcot and Winchester Southampton sections

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 right through to structures inspections, where 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 has been updated for 2022/23 onwards. The condition is reported as one of our Key Performance Indicators and shows 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) with a target of 96.2% or more in good condition. At the time of publication, the road surface had a score of 96.7% in good condition, thereby meeting the national surfacing condition target.

This route consists of approximately 1,100 lane-kilometres of road surfacing. 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 457 structures across the route, including bridges and large culverts. According to an analysis of current data, 92% 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 below 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 on 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, and these schemes affect nine structures in this route.

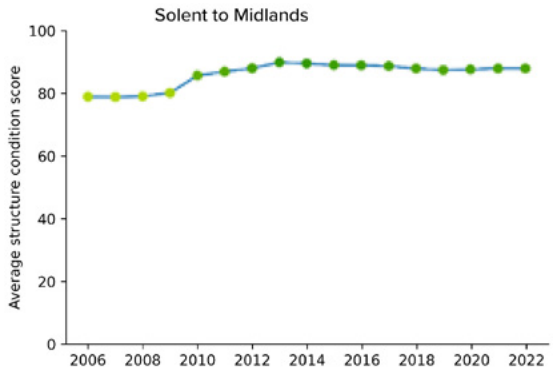


Figure 18: Average condition scores of structures, since 2006

Drainage

Drainage assets are represented by both linear assets (for example underground pipes, channels, ditches, drains) and nonlinear 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 99.61% 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 the improved analysis to identify the investment required on the strategic road network during the next road period. 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

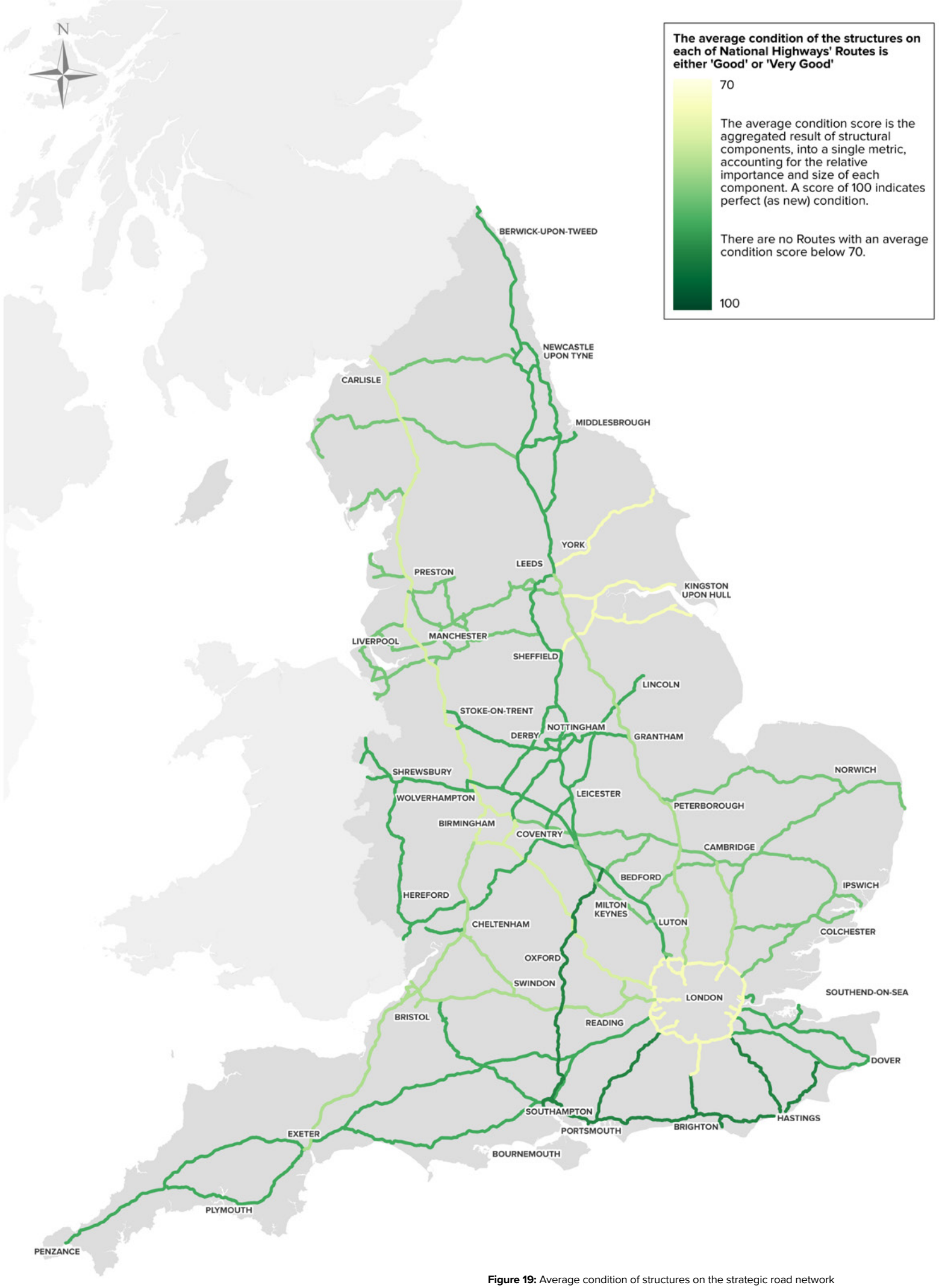


Figure 19: Average condition of structures on the strategic road network

6. A technology-enabled network

Facilities to improve journey quality and network efficiency on the strategic road network (SRN) are of key concern to our interested parties, road users and communities. High quality travel information before and during travel helps to:

- Reduce day-to-day delays and improve reliability of the SRN
- Minimise the adverse impacts of incidents
- Improve the quality of journey experience
- Allow people to make more informed travel choices including about when and how to travel

The route has some provision of electric vehicle charging points, with the majority located in the urban centres, namely Oxford city centre, Bicester, Newbury and Southampton. There are also several charging points on the stretch of M3 between Winchester and the M27 Junction.

Few are located within the northern section of the A34 where the road is parallel to Abingdon and Didcot, and at the A34/M4 Junction. There are currently none between the A34/ M4 and A34/ M3 Junction. This may discourage the uptake of electric vehicles by users of these roads.

Similarly, further provision of alternative fuel supply locations may help the decarbonisation of freight traffic.

We will support improved communications and facilities for all

Key challenges

- The carbon agenda and the use of electric vehicles
- Emerging freight needs and alternate fuel technology
- Integration of communications with other network operators

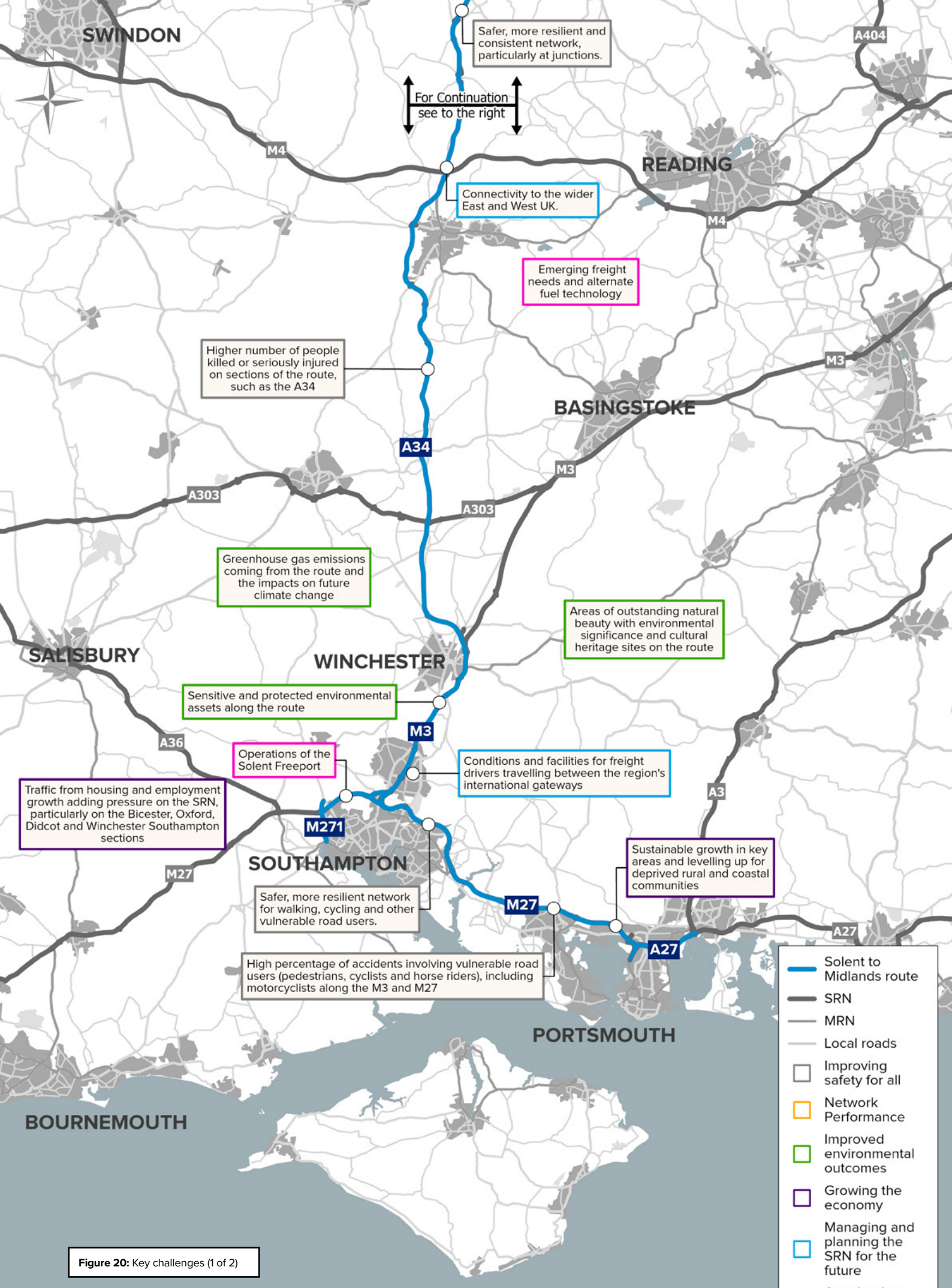


Figure 20: Key challenges (1 of 2)

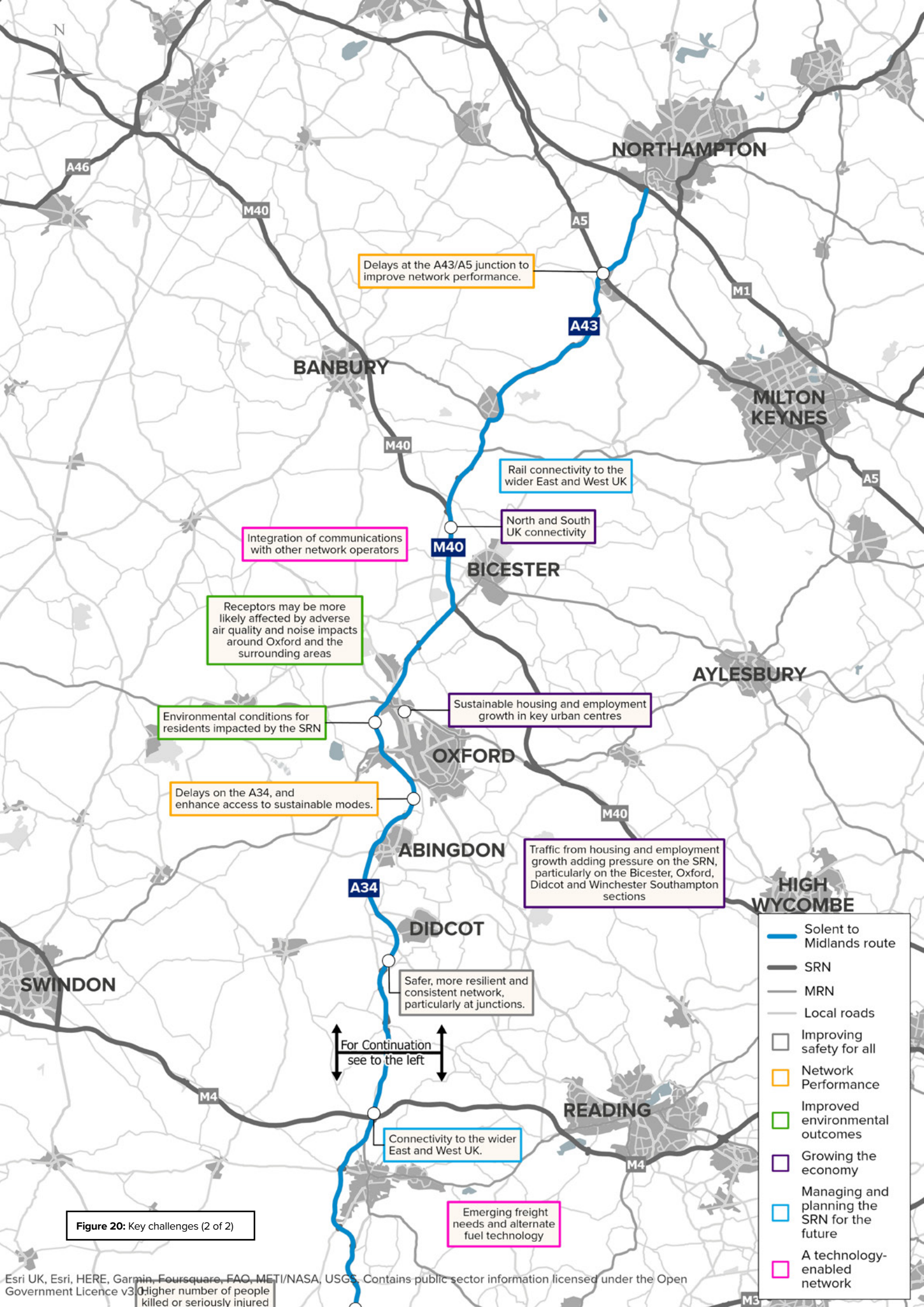


Figure 20: Key challenges (2 of 2)

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 Midlands and Solent to Midlands 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. 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 road period.

Route objectives and DfT's strategic objectives

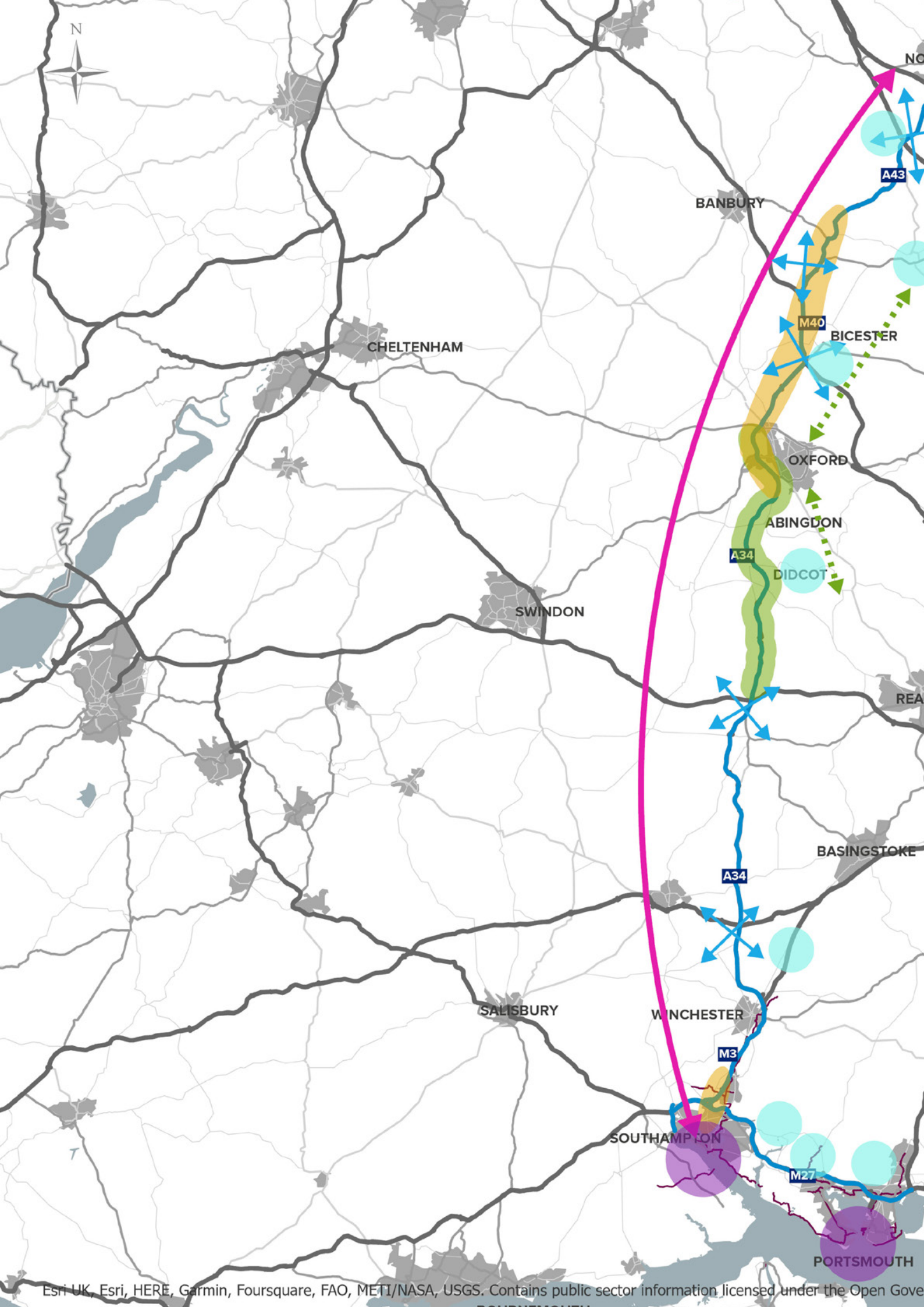
In Figure 21 we illustrate the seven route objectives on our route map and, in Table 1, we show how they contribute to the Government's strategic objectives for our network as a whole.

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

	Ref.	Route objective
	**A**	**Facilitate improved strategic access to the corridor from the wider road network by managing issues related to safety and congestion.** With a focus on supporting links with local and strategic centres via key SRN and MRN junctions including the A34/A303, the A43/M40 and junctions between the M4 and M40
	**B**	**Support local access and active travel modes where infrastructure integrates with or impacts the strategic road network.** Promotion of non- motorised transport usage by improved access and safety on cycle routes along the A34 corridor in Oxfordshire and the M3/M27/ M271 in Hampshire
	**C**	**Maintain the strategic function of the corridor and manage the integration of local traffic needs to improve customer service.** We aim to support the strategic function of the A34, M3 and M27 where they provide a mixed strategic and local function near the urban areas of Oxford, Winchester and Southampton
	**D**	**Enable more efficient freight movements along the corridor, M3 and A27 to and from key gateways.** With a focus on Southampton, Portsmouth, and the wider Freeport. Encourage access to freight based multimodal interchanges in addition to recognising the importance of lorry parking facilities in strategically important locations for freight and logistics
	**E**	**Support regionally significant planned developments.** We aim to support sustainable future economic growth stemming from large housing and employment developments on the A43, the A34 between Bicester to Didcot and the M3/M27 between Winchester to Portsmouth
	**F**	**Be a better neighbour and protect residents and assets from adverse environmental impacts of the strategic road network.** Where the A34 passes in close proximity to homes, schools and other local facilities we aim to be a better neighbour by minimising adverse impacts and improve wellbeing for local communities and protected areas between the M4 and M40 junctions
	**G**	**To support sustainable transport options in the North of the Route.** We aim to encourage connectivity to and from Oxford and surrounding towns including Didcot and Bicester, through improved integration with sustainable traffic modes to benefit local residents
	**H**	**To support sustainable transport options for the South of the Route.** We aim to encourage connectivity to and from Southampton and surrounding cities and towns including Portsmouth and Winchester, through improved integration with sustainable traffic modes to benefit local residents

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
✓	✓		✓		
✓	✓				
	✓		✓		
	✓		✓	✓	
			✓	✓	
		✓		✓	
	✓		✓		
	✓		✓		


N
A43
BANBURY
M40
BICESTER
CHELTENHAM
OXFORD
ABINGDON
A34
DIDCOT
SWINDON
BASINGSTOKE
A34
SALISBURY
WINCHESTER
M3
SOUTHAMPTON
M27
PORTSMOUTH
Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS. Contains public sector information licensed under the Open Gove

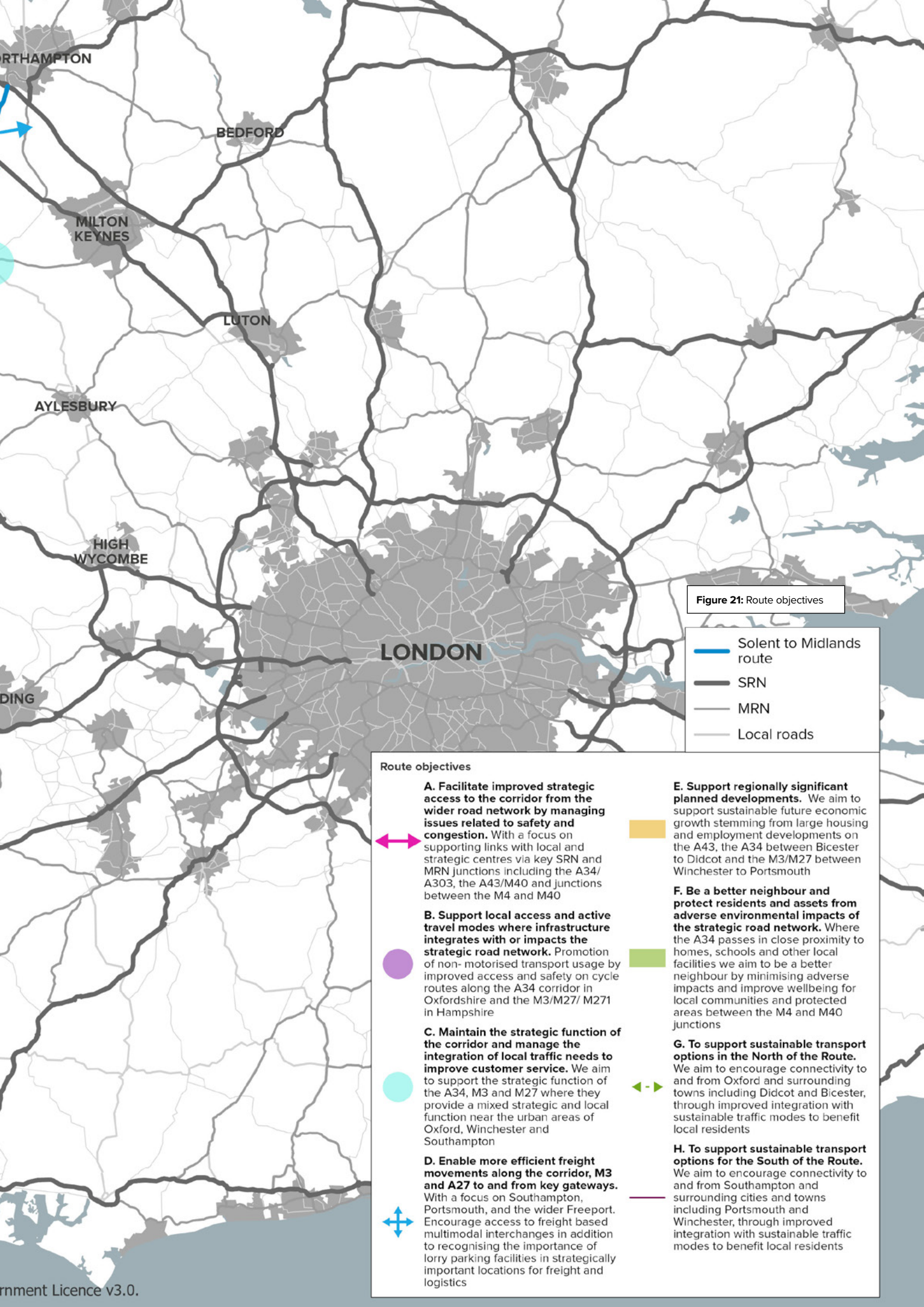


Figure 21: Route objectives

A. Improve strategic access to the corridor from the wider road network by managing issues related to safety and congestion

Objective

With a focus on supporting links with local and strategic centres via key SRN and MRN junctions, including the A34/A303, the A43/M40 and junctions between the M4 and M40

Context

The Solent to Midlands corridor contains a number of key junctions that enable wider east–west connectivity via the M3, M4 and M40, as well as other junctions facilitating local connectivity. These junctions enable access to major UK towns and cities, such as London, Reading, Swindon and Basingstoke, and key centres along the Solent to Midlands route, such as Oxford, Didcot and Abingdon.

A key concern raised by interested parties is safety and congestion at these junctions, limiting access to wider east-west connectivity. These concerns are reflected in the STATS19 collision and International Road Assessment Programme (iRAP) data. The following areas near junctions have a proportion of collisions where someone is killed or seriously injured:

- North and South of the A43/A5 Junction
- The A43 and M40 either side of the A34/M40 and A43/M40 Junctions
- North and South of the A34/A303 Junction
- Junction 8 and 9 on the M27

iRAP data also highlights a 2-star rating on the A34 parallel to Newbury. A 2-star rating is also given to the northern section of the M271. This is the same along the A43 at the A43/A5 Junction at Towcester, along with the approach to the M1 Junction.

Incident and traffic delay evidence shows delay at key junctions along the A34, along with stretches where high numbers of people are killed or seriously injured. Incident frequencies have also been highlighted in the England's Economic Heartland (EEH) Connectivity study, which suggests that fatal collisions are a key issue at junctions along the route. Thy say that heavy goods vehicle (HGV) flows between the A34 and M40 are a contributing factor. The 2031 maps show that delay along the A34 (parallel to Oxford) is expected to increase in certain sections.

Our network considerations

The A34/A303 Junction is a key location that enables access to the M3 and London from the south of the corridor. Feedback from interested parties alongside the evidence base highlights the congestion experienced at this junction, limiting wider connectivity. There are also safety issues, with concentration of collisions at this junction.

Interested parties noted the different types of slip roads at junctions along the A34 north of the M4. Shorter slip roads with sharp turns will not meet standards requirements for the expected volume of traffic on the route in the near future. Congestion is also visible around the M4 and M40 Junctions within the traffic delay evidence. This is a key concern of Oxfordshire County Council, as detailed in their transport plan Connecting Oxford.

East-west connectivity is key for enabling efficient transfer of people and freight to and from the corridor to other key regions of the UK, notably London, Reading, Swindon and Basingstoke.

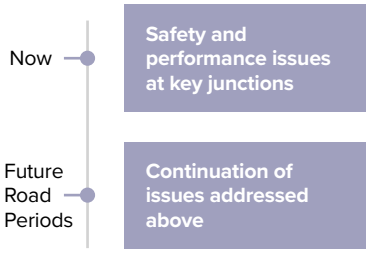
Outcomes

- Improved safety and reduced delays on key junctions on the SRN
- Improved access to the wider SRN, notably the M3, M4 and M40

DfT's Strategic objectives

- Improving safety for all
- Network performance
- Growing the economy

Timeframe based on the issues and constraints identified



B. Support local access and active travel modes where infrastructure integrates with or impacts the strategic road network

Objective

Promotion of non-motorised transport usage through improved access to and safety of active travel routes along the A34 collision in Oxfordshire and the M3, M27 and M271 in Hampshire

Context

Transport systems and the wider built environment can play a key role in promoting cycling and other active modes. According to the Department for Transport report titled Walking and cycling statistics, England: 2019, Oxford has the second highest rates of cycling, with 40% of the population cycling at least once a week. Similarly, in a study conducted by Bike Life (2019), it was found that 19% of Southampton residents cycle at least once a week, with 27% stating that they don't but would like to. This document was published by Southampton City Council, Hampshire County Council, and Sustrans.

The Sustrans National Cycle Network interacts with the A34, M3, M27 and M271. A key concern from interested parties is the provision and safety of walkers, cyclists and horse riders travelling both parallel to and crossing the SRN. There are a number of informal crossing points currently being used to travel across the A34 and M27, which pose a safety hazard for walkers, cyclists and horse riders within these areas, as mentioned by interested parties.

Our network considerations

Collision data highlights that on the A34 between the M40 and M4, walking, cycling and horse riding collisions represent a relatively high proportion of all total fatal and serious collisions (14-25%) when compared to the rest of the UK.

Interested parties have highlighted a number of specific concerns around active mode infrastructure on the Solent to Midlands corridor, which have been highlighted below:

- Footways adjacent to the A34 in Botley have no protection for road users
- The cycle route which runs adjacent to A34 on the stretch between Hinksey Hill and Botley needs improvements to safety and environment
- Several informal pedestrian crossings near Whitchurch
- Cycle routes near Winchester on the M3 need improvements (NCN23)
- More connectivity for walkers, cyclists and horse riders across M27, as it divides urbanised areas and has few crossing points
- Improved infrastructure for walkers and cyclists which could generate mode shift benefiting the SRN in urban areas in Solent

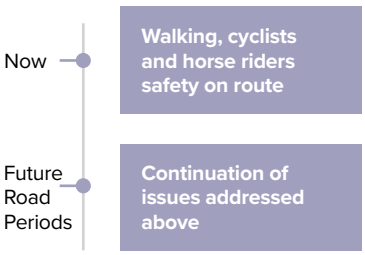
Outcomes

- Safer walker and cyclist interaction at crossing points with the SRN
- Reduced collisions involving walkers, cyclists and horse riders at crossing points with the SRN on the route, the A34 corridor in Oxfordshire and the M3, M27 and M271 in Hampshire

DfT's Strategic objectives

- Improving safety for all
- Network performance

Timeframe based on the issues and constraints identified



C. Maintain the strategic function of the corridor and manage the integration of local traffic needs to improve customer services

Objective

We aim to support the strategic function of the A34, M3 and M27 where they provide a mixed strategic and local function near the urban areas of Oxford, Winchester and Southampton

Context

The A34 plays a critical role in the north–south movement of traffic through Hampshire and Oxfordshire. It is the main north–south route for the movement of freight from the south coast to the Midlands and North of England. The road also provides connections to other major routes, such as the M3, M4, A303 and M40 and key employment areas in the region.

Levels of traffic on the A34 are comparable to levels seen on motorways. This level of traffic leads to a significant amount of delay on the current network, where local journeys are estimated to be one-third of the total.

Interested parties have expressed their concern that short commuting trips will fill the capacity of the SRN, and therefore further worsen the congestion issues which can already been seen on the A34.

Our network considerations

The largest levels of delay are predominantly located when the A34 passes by or through the urban areas of Oxford, Didcot and Abingdon in the north, and Winchester in the south.

There are also significant delays where the M27 passes closely by Southampton and Portsmouth to the south of the route. It should be noted that sections of the network typically contain a mix of strategic, freight and local traffic, given their dual purpose as a strategic route and key link for local traffic.

Evidence shows that on the A34 parallel to Oxford and Abingdon there is delay of up to 25 seconds per vehicle per mile. The M27 between Portsmouth and Southampton also shows a delay of between 11 and up to 50 seconds per vehicle per mile.

Further congestion is caused due to slower moving heavy goods vehicles (HGVs) on sections of the A34 at Gore Hill, which has a higher gradient than standard for this class of road. Interested parties highlighted the growing logistic hubs in Andover and Basingstoke, which will increase the number of HGVs travelling on the route.

Similarly, there are considerable levels of delay along the M27 as it passes through Southampton. This is due to having both local and strategic traffic along the network and a high proportion of HGVs (up to 20%), with interested parties suggesting there are capacity constraints at Junction 5. Interested parties' feedback also suggests there are delays along the M271, where local trips are estimated to be one-third of all trips. Diversion routes for the A34 and the M27 often pass through these urban areas. This can lead to congestion on the local network when there are incidents along the SRN.

Outcomes

Manage the interplay of local and strategic traffic, and contribute to improving the network performance, notably in the below areas:

- The A34 between the Hinksey Hill and Peartree Junctions
- The A34 at Winchester
- The M27 between Junctions 4 and 5

DfT's Strategic objectives

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

Timeframe based on the issues and constraints identified

Now	Congestion on parts of the route
Future Road Periods	Increase congestions on parts of the route

D. Enable more efficient freight movements along the corridor, M3 and A27 to and from key gateways

Objective

Encourage access to freight-based multimodal interchanges in addition to recognising the importance of lorry parking facilities in strategically important locations for freight and logistics, particularly Southampton, Portsmouth and the wider Solent Freeport

Context

The Port of Southampton is a key international port, which handles around 14 million tonnes of cargo each year. It is the UK's second largest container terminal, handling more than 1.5 million containers each year. The port contributes around £1 billion to the UK economy. The Union connectivity review identifies both Southampton and Portsmouth as strategic seaports.

Collaboration between National Highways and Network Rail identified the expected growth of Southampton and the wider Solent Freeport, showing the importance of considering a shift from road to rail freight for future freight movements. Interested parties also highlighted the impacts of congestion on freight traffic at Southampton and Portsmouth Ports, while other parties raised that moving freight away from HGVs is a way to reduce congestion.

Our network considerations

The major ports of Southampton and Portsmouth rely on the A34 as the key route for the transfer of freight goods north to the Midlands and along the M3, M4 and M40 and linking with the rest of the UK SRN.

Interested parties said that steep hills along the route can cause congestion. Similarly, interested parties mentioned that there are limited HGV parking and rest facilities along the route, notably between the M4 and M40 Junctions.

The M27 and M271 near the ports show significant HGV use, with interested party comments focusing on capacity constraints at the M27/ M3 Junction and freight journey time reliability. Traffic flows suggest there are delays along the M27, along with safety issues for motorcyclists.

The future growth and expansion of the Port of Southampton is outlined in the Port of Southampton master plan and multiple warehousing and freight developments have been planned along the M27. The Solent Freeport will also support future growth in the region by creating tax advantages that allow businesses to pay little or no tax on imported and exported goods. This region is a major economic driver, therefore the M27 and M271 are key links for enabling growth. The SRN will be a key element in supporting sustainable growth.

This is reflected in the National Highways regional traffic model forecasts, which show a relatively large proportion of freight traffic compared to other A-roads. This large proportion is present for the full length of the Solent to Midlands route.

Outcomes

- Regional and national economy supported through enabling safe and efficient access to the key ports of Southampton and Portsmouth
- Improved access to holistic rail freight options at the ports with more freight moved by rail than on the roads

DfT's Strategic objectives

- Network performance
- Growing the economy
- Managing and planning the SRN for the future

Timeframe based on the issues and constraints identified

E. Support regionally significant planned developments

Objective

We aim to support sustainable future economic growth stemming from large housing and employment developments on the A43, the A34 between Bicester to Didcot, and the M3 and M27 between Winchester to Portsmouth

Context

There are a number of large developments planned along the Solent to Midlands corridor and many of these are located directly alongside the A34 and M27. Interested parties raised their concern of the impact on the SRN from increased journeys from new developments.

These developments include housing, employment, and sites with a mixture of both. In terms of locations, Bicester is due to have the largest housing development with 10,600 houses, Didcot will have a further 5,700, Southampton 4,900, and Portsmouth 2,300. Interested party feedback from Oxfordshire County Council suggested that the proximity of these developments to the A34 mean that they will likely increase the traffic on these already busy parts of the network. Similarly, this was also raised for the M27. There are also significant developments planned at Silverstone on the A43, and Science Vale at Didcot, which are also in close proximity to the SRN.

Our network considerations

The main sections of the network that will be affected by future development are the sections of the route between the M4 Junction to the M40, and the Winchester A34/M3 Junction to the M27 at Portsmouth and the A43. Delays along the A34 beside Winchester are projected to increase by 60-120 seconds per vehicle per mile by 2031.

With plans for significant developments along the A34 route, the performance of the road network is crucial in meeting development aspirations for future growth. There is significant housing planned in Bicester, which will impact the A34/M40 Junction 9 where the traffic from the development will join the junction from the A41. The South Oxfordshire local plan predicts that development in Abingdon and Didcot will likely impact the A34 between the Chilton Interchange Junction and the North Abingdon Junction (A34/A4183).

Traffic would also access the A34 via the A4130 in Didcot. Mixed developments across the Solent area, as outlined in the Southampton adopted core strategy, will impact the M27 between Southampton and Portsmouth, along with the wider network towards the A34. The large developments at Silverstone will have an impact on the Junctions where the A43 connects with the A413, especially in the future where delay is expected to increase to 60-120 seconds per vehicle per mile.

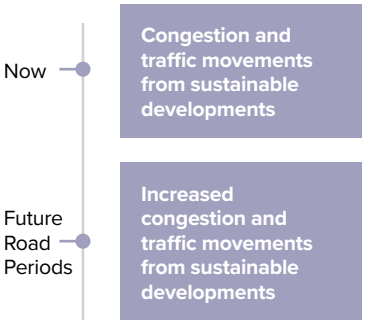
Outcomes

- A Sustainable economic growth supported

DfT's Strategic objectives

- Growing the economy
- Managing and planning the SRN for the future

Timeframe based on the issues and constraints identified



F. Be a better neighbour and protect residents and assets from adverse environmental impacts of the strategic road network

Objective

Where the A34 passes in close proximity to homes, schools and other local facilities, we aim to be a better neighbour by minimising adverse impacts and improve wellbeing for local communities and protected areas between the M4 and M40 Junctions

Context

The A34 passes within close proximity of a number of urban areas between the M4 and M40 Junctions. TheA34 has traffic levels comparable to a motorway, therefore limiting the local environmental impact is an important issue.

Environmental concerns were also raised by interested parties, including air quality in the proximity of schools and local communities, and the impact of noise pollution on residents, particularly in relation to diversion routes. There are a number of environmental restrictions on key parts of the route, including Air Quality Management Areas (AQMAs) in Oxford, Winchester and Southampton. There are also protected sites across the route, and Noise Important Areas (NIAs) surrounding Oxford city centre, and along the M27 between Southampton and Portsmouth. These environmental concerns are echoed by interested parties, along with the analysis of impacted receptors along the route, which show that the A34 South of Botley Junction may be more sensitive to air quality issues, and the M3 between Winchester and Eastleigh may be more sensitive to noise and air quality issues.

Similarly, there are multiple places along the M27 between Southampton and Portsmouth that are also sensitive to noise and air quality issues.

A further challenge is the expected growth on the network from passenger and freight traffic through development and increased port freight traffic. Other restrictions have been highlighted both within the evidence base and by interested parties with regards to Areas of Outstanding Natural Beauty (AONBs) and NIAs.

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

Our network considerations

A particular area of environmental impact is close to Oxford on the A34 and the surrounding road network on the A34 between Hinksey Hill and Peartree Junctions, as there is an AQMA and a Special Area of Conservation, while experiencing significant noise pollution. The same issues are present between Winchester and Southampton Port. The stretch of network between the M4 Junction and the M3 Junction is within an AONB.

The limited availability of sustainable charging and refuelling sites along the may inhibit the shift to net zero carbon transport on the network.

There is some severance of communities in places such as the A34 in the Oxford and Botley area and the M27 in the Porchester area, with a limited number of grade separated crossing points available. Interested parties have commented on the severance caused by the A34, along with how the M27 divides the urban area.

Outcomes

- Reduced negative impacts on air quality and noise from the SRN.
- Increased provision of alternate fuel facilities along the SRN

DfT's Strategic objectives

Improved environmental outcomes

Managing and planning the SRN for the future

Timeframe based on the issues and constraints identified

G. To support sustainable transport options in the north of the route

Objective

We aim to encourage connectivity to and from Oxford and surrounding towns including Didcot and Bicester, through improved integration with sustainable traffic modes to benefit local residents

Context

The A34 is currently a main route for commuters travelling to key employment towns, such as Oxford, Abingdon and Didcot, from surrounding villages and market towns. Bus connectivity, and in some cases rail connectivity, is available. However, the slow journey times and lack of direct connectivity means that car is the dominant mode of travel.

Interested parties frequently commented on the need for a shift to sustainable transport modes in these areas to help alleviate traffic issues and reduce the level of local movements using the SRN. There are a number of congested areas along the corridor, which are typically located where the A34 SRN passes through an urban area.

There are a number of park and ride sites currently located in and around Oxford, with proposals for increased park and ride capacity. However, at present, car is still seen as the preferred mode of transport, as noted by interested parties.

There are plans for a higher frequency train service through Oxford Parkway and with East West Rail services, as outlined in the Oxfordshire rail corridor study. The study sets out plans for improvements to passenger rail services, with the possibility of the Cowley Branch line reopening. This aims to support the high level of economic growth, which is planned in Oxfordshire, by replacing short SRN journeys with rail, particularly between Didcot and Bicester. There is a substantial amount of housing planned in Bicester and Didcot, as well large employment sites planned at Silverstone on the A43, and at Science Vale in Didcot.

Our network considerations

There are a number of junctions on the A34 providing access to major public transport hubs. For instance, Oxford is served by five park and ride stations. Key junctions providing access to these hubs include Peartree Roundabout and Botley Roundabout, which the evidence base suggests are heavily congested. Botley Junction also provides connectivity to Oxford's key transport hubs, including Oxford bus and rail stations.

The ability to travel to and from the major urban centres and housing settlements located along the Solent to Midlands route is a key factor in ensuring economic growth within the region. Improving access to non-car transport modes can play a key role in supporting economic growth, especially by reducing local trips on the SRN.

Outcomes

- Improved integration and connectivity between the SRN and sustainable options
- Reduced local traffic on the SRN

DfT's Strategic objectives

- Network performance
- Growing the economy

Timeframe based on the issues and constraints identified

Now	**Slow journey times and lack of direct connectivity for sustainable transport**
Future Road Periods	**Continuation of issues addressed above**

H. To support sustainable transport options for the south of the route

Objective

We aim to encourage connectivity to and from Southampton and surrounding cities and towns, including Portsmouth and Winchester, through improved integration with sustainable traffic modes to benefit local residents

Context

The M3, M27 and M271 are the main roads commuters use to travel to key employment centres, such as Southampton, Portsmouth and Winchester. Some bus connectivity and rail connectivity is available, but slow journey times and lack of direct connectivity means that the car is the primary mode of travel. During engagement, interested parties described the lack of bus connectivity on the M271.

One of the most frequent comments from interested parties is the need for private car users to switch to sustainable transport modes in these areas to help alleviate traffic issues and reduce the level of local movements using the SRN. There are a number of congested areas along the corridor, which are typically located where the M27 and M271 SRN passes through the urban areas of Southampton.

Evidence has also highlighted significant housing developments along the route are planned in Southampton and Portsmouth, as well as plans for a new town near Winchester named Micheldever.

These developments have potential to add more local journeys to the route.

A number of park and ride sites are currently located north of Southampton, with proposals for increased park and ride capacity. However, at present, car is still seen as the preferred mode of transport, as noted by interested parties who suggest there are few suitable alternative public transport modes to car travel along the M27 and M271.

Our network considerations

There are several junctions in this section of the route that provide access to major public transport hubs. For instance, Junction 11 on the M3 near Winchester provides access to four park and ride hubs, and Junction 5 on the M27 provides access to the Southampton Airport Parkway. These junctions suffer from capacity constraints and therefore congestion issues. Interested parties also raised concerns relating to bus delays on the A27 and M27 at Junctions 5 and 7.

The ability to travel to and from the major urban centres and housing settlements located within the Solent to Midlands corridor is a key factor in driving economic growth in the region.

This is particularly important as Southampton and Portsmouth are considered to be level 2 priority in the levelling up agenda, and Gosport has a level 1 priority. The limited integration of non-car transport modes with the SRN that exists currently may hinder future economic growth.

Outcomes

- Improved integration and connectivity between the SRN and sustainable options
- Reduced traffic on the SRN

DfT's Strategic objectives

- Network performance
- Growing the economy

Timeframe based on the issues and constraints identified

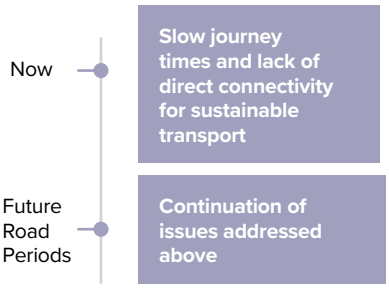


Table 2: Evidence used to inform objectives

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	**Facilitate improved strategic access to the corridor from the wider road network by managing issues related to safety and congestion.** With a focus on supporting links with local and strategic centres via key SRN and MRN junctions including the A34/ A303, the A43/ M40 and junctions between the M4 and M40.	The following sections of the route: • A43 M40 J10- M1 J5 • A34 • M3/A34 junction • M27 junction 4	Concerns of interested parties related to road safety and access: • "A43 M40 J10 – M1 J15. There are a number of priority junctions, which are not compliant with Design Manual for Roads and Bridges (DMRB) standards for lack of suitable deceleration and merge lanes." • "Various slip roads along the A34 (in Hampshire) sub- standard with short slips." • "Safety issues at junction with M3." • "Safety at key junctions, particularly when merging (e.g. M27 jct4) and congestion at these junctions."	England's Economic Heartland priorities identify the need for a safe and inclusive transport system. Transport for the South East aim to deliver a safely planned, and operated transport network with no fatalities or serious injuries among transport users, workforce or the wider public.	Safety and collision issues on • North and South of the A43/A5 junction • The A43 and M40 either side of the A34/M40 and A43/M40 junctions • North and South of the A34/A303 junction • Junction 8 and 9 on the M27
B	**Support local access and active travel modes where infrastructure integrates with or impacts the strategic road network.** Promotion of non- motorised transport usage by improved access and safety on cycle routes along the A34 corridor in Oxfordshire and the M3/M27/ M271 in Hampshire.	The following sections of the route: • Informal crossing points along the A34 • Limited cycle routes along A43	Concerns of interested parties related to road safety and access: • "There are several informal pedestrian crossing points on the A34." • " Two subways in the Botley area - lighting often an issue here especially on the approach to these (not necessarily within them), not an attractive environment." • "There are several informal pedestrian crossing points on the A34 in the vicinity of Whitchurch." • " Improve cycle and pedestrian facilities [between J7 and J8] to make it safer for all road users." • "No direct safe cycle route from Silverstone to Brackley. There is no bus service either so we are 100% reliant on cars."	England's Economic Heartland priorities identify the need for improving quality of life and wellbeing through a safe and inclusive transport system accessible to all which emphasises sustainable and active travel. Transport for the South East aim to provide a network that promotes active travel and active lifestyles to improve our health and wellbeing. They also aim to have an affordable, accessible transport network for all that promotes social inclusion and reduces barriers.	• Severance of local communities by the strategic road network and informal crossing points • High proportion of fatal and serious collisions for Walkers, cyclists and horse riders along the A34 • Informal crossing points along the A34 • Severance caused by the M27

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	**Maintain the strategic function of the corridor and manage the integration of local traffic needs to improve customer service.** We aim to support the strategic function of the A34, M3 and M27 where they provide a mixed strategic and local function near the urban areas of Oxford, Winchester and Southampton.	Applies to multiple locations along the route, namely: • A43/A5 junction • A303/A34 junction • M3 junction 9	Concerns of interested parties related to strategic function and local road integration: • "A43/A5 Tove roundabout is congested particularly when there is a problem on M1 and traffic diverts through Towcester." • "A303/A34 Bullington Cross Junction. - reduce congestion levels and incident numbers. and improve flow through the junction." • "Strategic traffic passing through central Winchester during periods of congestion on the A34 (especially related to M3 J9)." • "M3 J9 delays/ impact particularly on freight to/from Port of Southampton." • "Capacity constraints at M271 (Nursling) northbound especially in PM peak." • "Very limited resilience if there is an incident on the A34." • "Traffic diverting via South Downs area to avoid M3 junctions south of Winchester." • Local rural roads take the brunt when closures are in place (no suitable diversion)."	England's Economic Heartland priorities identify the need for supporting the regional economy by connecting people and businesses to markets and opportunities. Transport for the South East aim to provide better connectivity between our major economic hubs, international gateways (ports, airports and rail terminals) and their markets. They also aim to create a network that accommodates more reliable journeys for people and goods travelling between the South East's major economic hubs and to and from international gateways.	Particular congestion and delay issues at the following locations: • The A34 between the Hinksey Hill and Peartree junctions • The A34 at Winchester • The M27 between junctions 4 and 5 • The A43 at the A5 junction Variability of journey times and lack of network resilience in certain congested areas of the route could impact growth in regional economies and international freight bound for the ports.

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
D	**Enable more efficient freight movements along the corridor, M3 and A27 to and from key gateways.** With a focus on Southampton, Portsmouth, and the wider Freeport. Encourage access to freight based multimodal interchanges in addition to recognising the importance of lorry parking facilities in strategically important locations for freight and logistics.	Along the whole Solent to Midlands route, with particular focus along the A34 at Gore Hill.	Concerns of interested parties related to strategic function and local road integration: "High volumes of freight, need for a corridor-wide approach to providing appropriate facilities for lorry parking to enable drivers to take their mandatory breaks." "There is insufficient facilities to accommodate HGV drivers lay overs." "There is no on line freight facilities for HGV rests - they currently use laybys that are consider unsafe - they have no facilities." "Lack of lorry parking and welfare facilities for HGV drivers." "HGV parking capacity." "More HGV parking space required." "A higher than usual mix of HGV traffic in association with the substandard infrastructure which includes the slips and gradients." "High volumes of freight, need for a corridor-wide approach to providing appropriate facilities for lorry parking to enable drivers to take their mandatory breaks. There is not much currently north of Chieveley. Overnight lorry parking in lay-bys, both on A34 and nearby local roads (and what that brings in terms of crime, litter & public health)." "High HGV volumes and slow uphill vehicles will need to be identified causing delays e.g. Gore Hill." "HGV's struggle to climb Gore hill."	England's Economic Heartland priorities identify the need for ensuring the Heartland works for the UK by enabling the efficient movement of people and goods through the region and to/from international gateways, in a way which lessens its environmental impact. Transport for the South East aim to provide better connectivity between our major economic hubs, international gateways (ports, airports and rail terminals) and their markets. Network Rail and train operators aim to find opportunities to better integrate the road and rail network; both in terms of freight – by improving the strategic road networks capacity for new rail freight terminals and by planning freight corridors together, and for passengers– by seeking opportunities to place parkway stations in strategically important locations with easy access to the strategic road network.	High volumes of freight traffic along the whole route, as the route provides for both Southampton and Portsmouth Port. This contributes to increased noise and air pollution along the route. Congestion along the route due to strategic and local traffic mix. Insufficient rest and service parking areas for HGVs throughout the route, leading to a reduction in recruitment which affects the national economy. Insufficient spare capacity on rail network.

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 regionally significant planned developments.** We aim to support sustainable future economic growth stemming from large housing and employment developments on the A43, the A34 between Bicester to Didcot and the M3/M27 between Winchester to Portsmouth	Route wide	Concerns of interested parties related to road safety on: • "Large developments are planned along the A43 Corridor." • "Growing logistics hubs in Andover and Basingstoke will put further pressure on A34 (especially junction with A303)." • "Growing importance and scale of logistics hubs around Andover and Basingstoke (pressure on A303/ A34 junction)." • "Development in Oxfordshire putting additional strain on A34." • "Short commuting trips from development filling SRN capacity and degrading performance for strategic movements."	England's Economic Heartland priorities identify the need for supporting the regional economy by connecting people and businesses to markets and opportunities. England's Economic Heartland also has a framework for enabling green economic growth by supporting sustainable growth. Transport for the South East aim to provide a more integrated approach to land use and transport planning that helps our partners across the South East of England meet future housing, employment and regeneration needs sustainably.	Significant housing and employment is forecast to be completed by 2031 and where this will occur in areas of the network already close to capacity then the ability to effectively deliver such growth is compromised. Particular areas of developments include: • Multiple locations along the A43, including Bicester • Logistics hubs at Andover and Basingstoke • Didcot and Oxford • Port expansion at Southampton and Portsmouth
F	**Be a better neighbour and protect residents and assets from adverse environmental impacts of the strategic road network.** Where the A34 passes in close proximity to homes, schools and other local facilities we aim to be a better neighbour by minimising adverse impacts and improve wellbeing for local communities and protected areas between the M4 and M40 junctions.	The following sections of the route: • A34 near Oxford • M3 near Winchester • M27 near Southampton	Concerns of interested parties related to road safety on: • "Air quality is poor, two local primary schools adjacent to the A34 as it passes through the Botley area." • "Invest in green solutions that reduce emissions and remove the need for the Botley Air Quality Management Areas (Oxford) and address the climate emergency." • "Residents have complained about impact (in terms of noise and disturbance) from the current diversion routes used during day and night time closures."	England's Economic Heartland has a priority to achieve net-zero carbon emissions from transport no later than 2050 and a vision of supporting sustainable growth and improving the quality of life through a decarbonised transport network. Transport for the South East aim to a reduction in carbon emissions to net zero by 2050 at the latest, to minimise the contribution of transport and travel to climate change. They also aim to create a transport network that protects and enhances our natural, built and historic environments. Network Rail strategy includes helping to transfer more journeys onto rail which can help relieve congestion on the strategic road network and improve the environment by increasing the use of more sustainable modes.	Air Quality Management Areas zones are present at Oxford, Winchester and Southampton Special Area of Conservation exists near Oxford, with two Area of Outstanding Natural Beauty in the southern section of the route in South Downs near the M3 Noise pollution is experienced along the route for dwellings, typically located in built up areas. These include locations near Winchester, Eastleigh, Southampton and Oxford.

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
G	**To support sustainable transport options in the North of the Route.** We aim to encourage connectivity to and from Oxford and surrounding towns including Didcot and Bicester, through improved integration with sustainable traffic modes to benefit local residents.	A34	Concerns of interested parties related to road safety on: • "Intermodal interchange opportunities through the development of mobility hubs." • "Multi Modal Rapid Transit along the A34 Corridor is poor at current - congestion causes delays in bus services." • "Intermodal interchange opportunities along the A34." • "To shift people out of their cars investment in rail infrastructure is needed. A car is often the easiest, quickest and cheapest form of transport. Until that changes there will continue to be use of key routes like the A34." • "Alternatives, particularly but not only rail, are not an attractive alternative for most road journeys which use or interact with the SRN at present (but for many flows, could be developed to be a much more attractive alternative)." • "Delivery of a new bus lane on the Hinksey Hill off-slip which alongside additional bus priority on the Oxford by-pass would significantly improve bus journey times and encourage bus use away from car on the A34." • "Road and rail/ freight interchange opportunities along the corridor."	England's Economic Heartland priorities identify the need for improving quality of life and wellbeing through a safe and inclusive transport system accessible to all which emphasises sustainable and active travel. They also identify the need for Achieving net-zero carbon emissions from transport no later than 2050, with an ambition to reach this by 2040. Network Rail strategy includes helping to transfer more journeys onto rail which can help relieve congestion on the strategic road network and improve the environment by increasing the use of more sustainable modes. Network Rail and train operators aim to find opportunities to better integrate the road and rail network; both in terms of freight – by improving the strategic road networks capacity for new rail freight terminals and by planning freight corridors together, and for passengers– by seeking opportunities to place parkway stations in strategically important locations with easy access to the strategic road network.	Car travel is the dominant mode along the A43 and A34. The m strategic road network provides commuter routes to key employment towns such as Oxford, Abingdon and Didcot from surrounding villages and market towns. Bus connectivity, and in some cases rail connectivity, is available however the slow journey times and lack of direct connectivity. There are a number of congested areas along the corridor which are typically located where the A34 strategic road network passes through an urban area. Planned developments will further add to delay along the existing network, making the need for modal shift greater.

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
H	**To support sustainable transport options for the South of the Route.** We aim to encourage connectivity to and from Southampton and surrounding cities and towns including Portsmouth and Winchester, through improved integration with sustainable traffic modes to benefit local residents.	The following sections of the route: • M3 • M27 • M271	Concerns of interested parties related to road safety on: • "Modal shift opportunities between Winchester and Solent." • "Lots of short hop-on, hop-off journeys on M27." • "Deliver step-change in local rail frequency/ connectivity in Solent to help provide usable alternative to M27." • "Improved local rail frequency/ connectivity in Solent to help provide usable alternative to M27." • "Are there opportunities to move local private car journeys on to rail? For instance, the Solent Connectivity CMSP produced by Network Rail looked at local journeys that could relieve the M27."	Transport for the South East aim to provide An affordable, accessible transport network for all that promotes social inclusion and reduces barriers. They also aim to create a seamless, integrated transport network with passengers at its heart, making it simpler and easier to plan and pay for journeys and to use and interchange between different forms of transport. Network Rail strategy includes helping to transfer more journeys onto rail which can help relieve congestion on the SRN and improve the environment by increasing the use of more sustainable modes. Network Rail and train operators aim to find opportunities to better integrate the road and rail network; both in terms of freight – by improving the strategic road networks capacity for new rail freight terminals and by planning freight corridors together, and for passengers– by seeking opportunities to place parkway stations in strategically important locations with easy access to the strategic road network.	Car travel remains the primary mode. The M3/M27/M271 are the main roads commuters use to travel to key employment centres such as Southampton and Portsmouth and Winchester. Bus connectivity, and in some cases rail connectivity, is available however the slow journey times and lack of direct connectivity. Planned developments will further add to delay along the existing network, making the need for modal shift greater.

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 Solent to Midlands route objectives 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, enable us to deliver more within our funding. We also expect this approach to help us support government's long-term aims for the nation, such as contributing to net zero carbon, and social values

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 22 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.

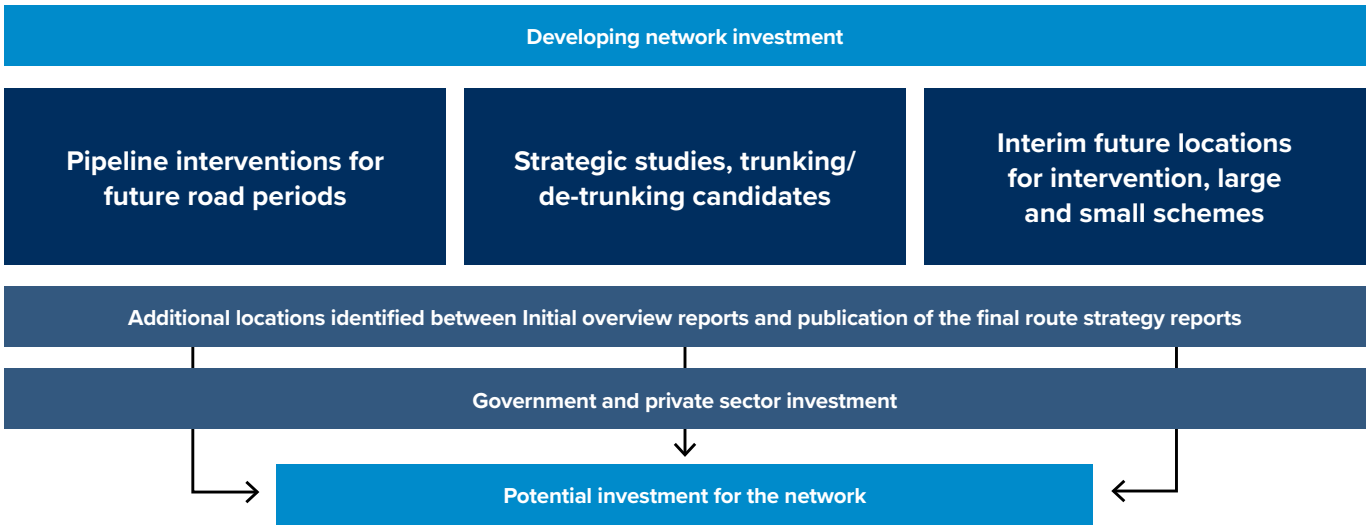


Figure 22: Process to identify potential investment on the network

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 Solent to Midlands route. Key funding sources 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
  - 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 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 Solent to Midlands route:

Scheme number	Scheme	Description	Start of works	Open for traffic
Committed for the second road period (2020-2025)				
1	M27 Junction 8	Improvements to the M27 junction 8 and Windhover roundabout	2023-24 Q3[30]	Road Period 3
2	M3 Junction 9	Proposal to change junction 9, so it has free-flowing links between the M3 and the A34 both northbound and southbound	2023-24 Q4	Road Period 3
3	M3 junctions 9 to 14[31]	Upgrades to the M3 between junction 9 (Winchester/A34 interchange) and junction 14 (M27 Southampton interchange) to an all-lane running smart motorway. The scheme will link to the smart motorway on the M27.	Cancelled	Cancelled

RIS4 pipeline

The following uncommitted schemes are in the pipeline for consideration for inclusion in the fourth road period (2030-2035) on the Solent to Midlands route:

Scheme number	Scheme	Description
1	M27 Southampton Access	In development

Other notable schemes

On the Solent to Midlands Route, in addition to the committed schemes listed above, there are other notable schemes as follows:

Improvements to Junction 10 of the M40

Proposed new rail stations at Guildford West and Guildford East as well as the development south of Crawley where there is both employment and housing allocation within the latest Local Plan (Crawley 2030, adopted December 2015).

Work has been undertaken on the A34, which explored opportunities to reduce congestion and improve safety on the A34 between the M4 and M40.

We are also supporting local partners to provide a new single-carriageway road between the A5 and A43 to the south of Bedford. The developer-led scheme will ease congestion and improve air quality in Towcester town centre and unlock land for new housing.

30 Scheme start of work revised and is subject to outcome of public inquiry
31 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 Sub-national Transport Bodies and DfT, and can be used to help to decide on whether to fund any proposed improvements in the future.

There are no Strategic Studies currently for the Solent to Midlands route.

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*[32]. 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. 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 RIS 3 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 Solent to Midlands 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 help 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 helped identify 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 overview 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.

Further development of any proposed intervention at each location will follow National Highways' internal processes. In order to fund any proposed improvements, National Highways will draw on the funding streams as previously identified.

32 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 willbe central to all our thinking on which interventionsare 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, the carbon and environment agenda.

We have a wide range of potential intervention types within our toolkit, such as both non-roads 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 EV 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.
- Encouraging modal integration and influence demand for vehicles, particularly at interfaces with urban centres

Potential roads interventions:

- at a strategic level in addition to Lower Thames Crossing, we will continue to progress those remaining schemes in RIS1 and RIS2[33] that will not be in construction at the end of RP2, as well as the RIS4 pipeline
- 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 with other Government strategy (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.

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

Table 3 and Figure 23 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
		A27 and M27		
A27 and M27 between A3(M) and Fareham	**A**	There are **safety concerns** throughout much of this section of the A27 and M27, with higher than average collision rates near Hilsea and Paulsgrove and involving a higher proportion of motorcyclists. There are also **peak hour, average, non-recurrent, seasonal and total delay issues** on this section of the route. Receptors along the corridor may experience adverse impacts on **noise and air quality**, notably at locations in Hilsea and Paulsgrove. There is also an **elevated incidence of flooding** in the vicinity of Havant, Drayton, Paulsgrove and Wallington. Issues are compounded by **local growth aspirations** in the vicinity of the A27 Corridor. The **proportion of HGV traffic** on the road is high. There is **limited electric vehicle charging infrastructure** on the A27 with investment largely limited to significant urban centres, such as Portsmouth.	✓	✓
M27 between Junction 8 and Junction 10	**B**	There are a mix of **collision and safety** issues as well as **peak hour, average, non-recurrent, seasonal and total delay** concerns on this stretch of the M27 particularly near Lowford. This impacts on **local communities** and exacerbates **noise and air quality issues**, particularly where there are a higher number of **local communities** in close proximity to the M27 in north west Fareham. The **proportion of HGV traffic** on the road is high.	✓	✓
M27 Junction 5 at Southampton Airport to M27 Junction 3 at Nursling	**C**	There are **safety concerns** throughout much of this section of the M27. There are also **peak hour, average, non-recurrent, seasonal and total delay** issues on this section, particularly near to the airport. Receptors along the corridor may experience adverse impact on **noise and air quality**, notably at locations in Nursling and Glen Eyre. There is also an **elevated incidence of flooding** in the vicinity of Nursling and Glen Eyre. Issues are compounded by **local growth aspirations** in the vicinity of the corridor. There is **limited electric vehicle charging infrastructure** on the M27 with investment largely limited to significant urban centres, such as Portsmouth. The **proportion of HGV traffic** on the road is high.	✓	✓

Area location	Area of interest	Area issues	Now	Future road periods
		M3		
M3 between Eastleigh and Winchester	**D**	There are **safety concerns** throughout much of this section of the M3. There are also **peak hour, average, non-recurrent, seasonal and total delay** issues on this section, particularly near Compton. Receptors along the corridor may experience adverse impacts on **noise and air quality**, notably at locations in Chandlers Ford, Shawford and Winchester. There is also an **elevated incidence of flooding** in the vicinity of Chandlers Ford. Issues are compounded by **local growth aspirations** in the vicinity of the corridor. The **proportion of HGV traffic** on the road is high. There is **limited electric vehicle charging infrastructure** on the M3 with investment largely limited to significant urban centres, such as Portsmouth.	✓	✓
		A34		
Oxford, Bicester and M4	**E**	There are **safety concerns** throughout much of this section of the A34, with higher **collision rates** near Islip. There are also **peak hour, average, non-recurrent, seasonal and total delay** issues on this section, particularly near Merton and south of Oxford. Receptors along the corridor may experience adverse impacts on **noise and air quality**, notably at locations in Abington and Oxford. Oxford and many of the surrounding areas are of great **environmental** value. Issues are compounded by **local growth aspirations** in the vicinity of the A34 Corridor at Oxford. The **proportion of HGV traffic** on the road is high.	✓	✓
A34 between Newbury and M4	**F**	There are **safety concerns** throughout much of this section of the A34. There are also **peak hour, average, non-recurrent, seasonal and total delay** issues on this section. Receptors along the corridor may experience adverse impacts on **noise and air quality**, notably at Newbury. Issues are compounded by **local growth aspirations** in the vicinity of the A34 Corridor. The **proportion of HGV traffic** on the road is high.	✓	✓

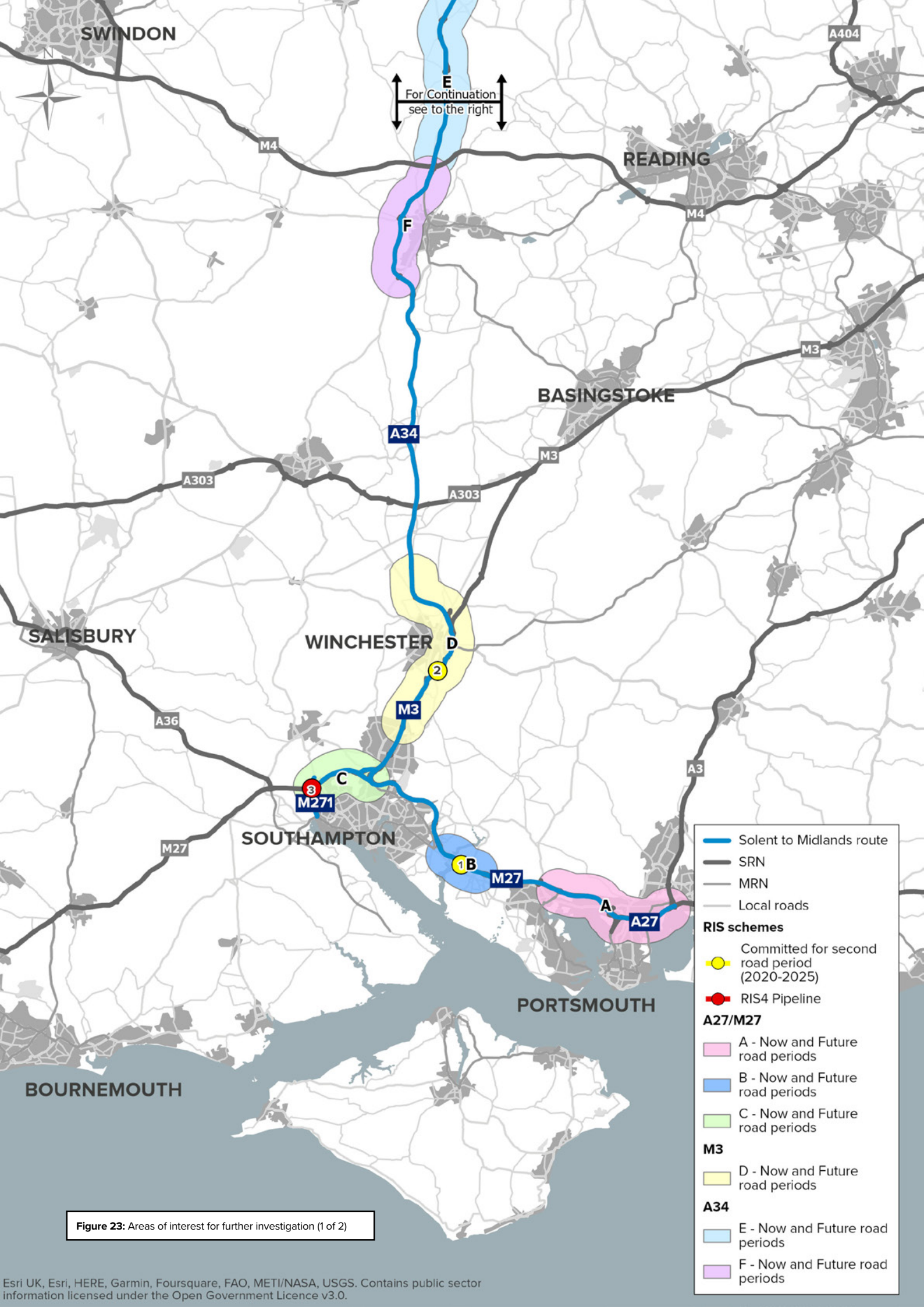


Figure 23: Areas of interest for further investigation (1 of 2)

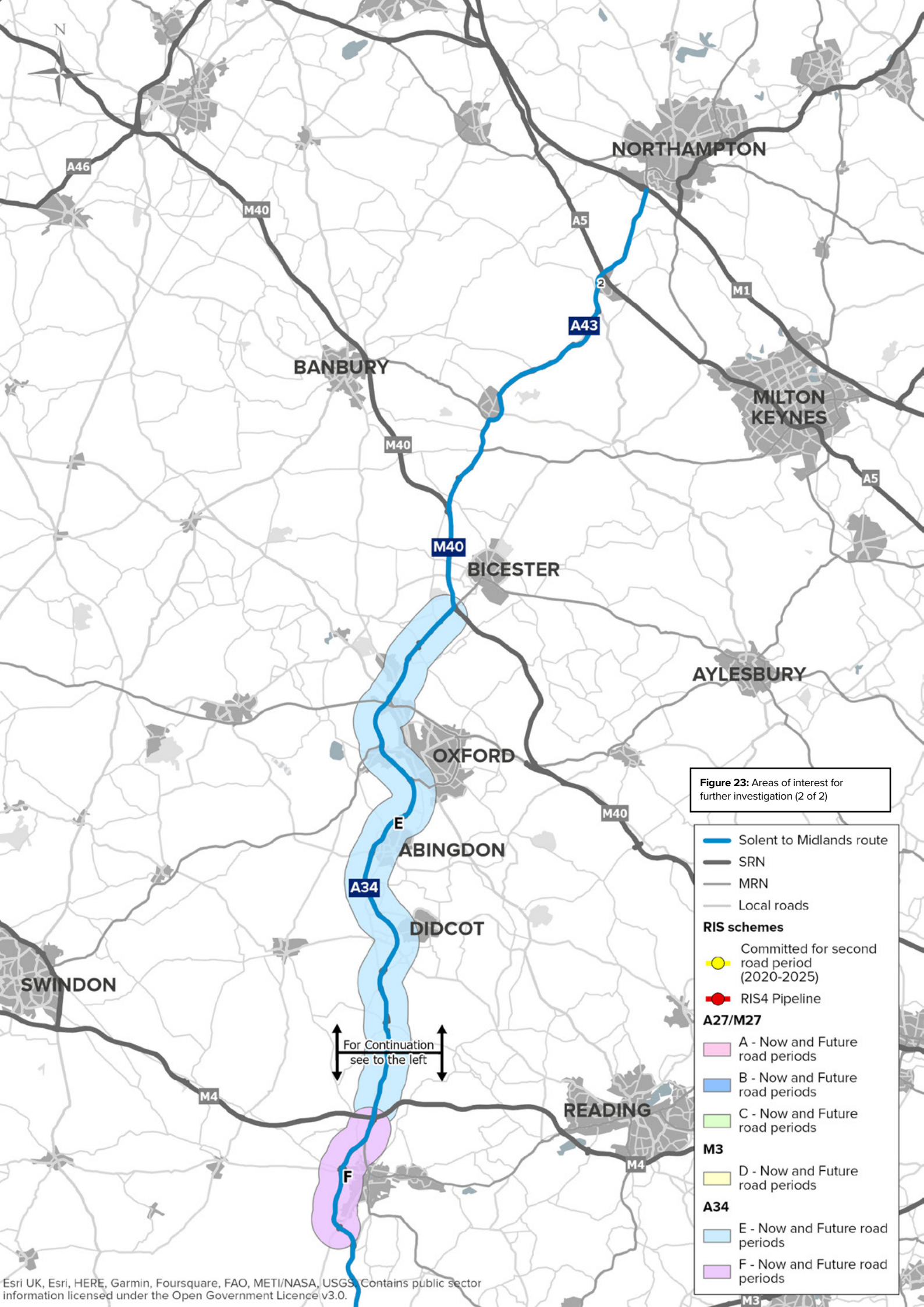


Figure 23: Areas of interest for further investigation (2 of 2)

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*[34] 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

34 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

national highways

If you need help accessing this or any other National Highways information, please call **0300 123 5000** and we will help you.

This document is also available on our website at **www.nationalhighways.co.uk**

For an accessible version of this publication please call **0300 123 5000** and we will help you.

If you have any enquiries about this publication email **info@nationalhighways.co.uk** or call **0300 123 5000*.** Please quote the National Highways publications code PR189/22

*Calls to 03 numbers cost no more than a national rate call to an 01 or 02 number and must count towards any inclusive minutes in the same way as 01 and 02 calls. These rules apply to calls from any type of line including mobile, BT, other fixed line or payphone. Calls may be recorded or monitored.

Registered office Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ

National Highways Company Limited registered in England and Wales number 09346363