

Route Strategy Initial Overview Report

London Orbital and M23

May 2023





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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 West (South)
- East of England
- Felixstowe to Midlands
- Kent to Corridors to M25
- Solent to Midlands
- London to 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.

PENZANCE

PLYMOUTH



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 London Orbital and M23 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 RIS3 (2025-2030). 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 route comprises approximately 218 miles of SRN, of which, 117 miles is the M25 Motorway. The route is made up of the London Orbital (M25 and A282 Dartford Crossing), the M23 from the M25 to Junction 11 and Airport Way, and all motorways and the SRN spurs within the M25, most notably the M1, M3, M4, M11 and M40. The London Orbital is a strategically significant road encircling almost all of Greater London.

It is one of the most important, and busiest, roads in England and passes through Essex, Kent, Surrey, Buckinghamshire, Hertfordshire, the unitary boroughs of Thurrock, Slough and the Royal Borough of Windsor and Maidenhead, and along the boundaries of the London Boroughs of Hillingdon, Enfield and Havering.

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

- London to Scotland West (South)
- London to Scotland East (South)
- London to Leeds
- East of England
- Kent Corridors to M25
- South Coast Central
- SW Peninsula
- London to Wales

Challenges and issues

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

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

Improving safety for all

Other than at the M25 Junction 8, the lowest International Road Assessment Programme (iRAP) star ratings of 1 or 2 are predominantly where the SRN interacts with the LRN, such as the M25 Junctions 14, 19 and 25, and M3 Junction 1

- Places with most collisions where people have been killed or seriously injured are found where route sections are most heavily populated by airport traffic on the M23 and within the M25 South West Quadrant, as well as at Dartford. The highest rate of collisions for motorcyclists is also found at Dartford and on the sections of the route extending into London, where rates are also highest for walkers, cyclists and horse riders interacting with strategic traffic
- Gaps in the provision of rest facilities for drivers between Junctions 12 and 21 and Junctions 25 and 28 of the M25, given the lack of motorway services along these stretches

Network performance

- Congestion is experienced by most motorway junctions in this part of the SRN. The M25 between Junctions 10 and 16 experiences some of the highest volumes of traffic on the SRN. Peak hour delays are most notable in this South West Quadrant, including sections of the route connecting to the M25, the A23 northbound at Hooley, and sections of the M4 and M11
- Delays are experienced in and around the Dartford Crossing and the North East Quadrant side of the M25. The strip between Junctions 25 and 20 in particular has a high proportion of freight traffic with vehicle routing decisions impacting journey time reliability on this section of the network

- Seasonal delay is widely experienced, on the approaches to London Heathrow Airport, around the Dartford and Thurrock vicinity and also on the northern section of the M25
- Levels of delay are forecast to be higher across the already congested route by 2031, considering the projected growth in traffic in future years

Improved environmental outcomes

- Impacts of traffic on the Metropolitan Green Belt, Areas of Outstanding Natural Beauty (AONBs) and designated cultural heritage, water, environment, and habitat sites
- Impacts of traffic-related severance, noise, and air quality upon local communities with existing AQMAs and NIAs in place
- There are a number of receptors along sections of the route which may be more sensitive to existing air quality and noise issues, including around the A282 at Dartford, locations in close proximity to the international airports on the M25 and M23, and on several of the SRN stubs into London
- Exposure of certain parts of the route to inclement weather. The M25 between Junctions 7 and 8 is vulnerable to snow fall and ice formation while QEII bridge closures on the A282 at Dartford can be caused by high winds and some links (for example the M1 Junctions 4-5 and in the South West Quadrant) may be at risk of flooding during intense rainfall events

Growing the economy

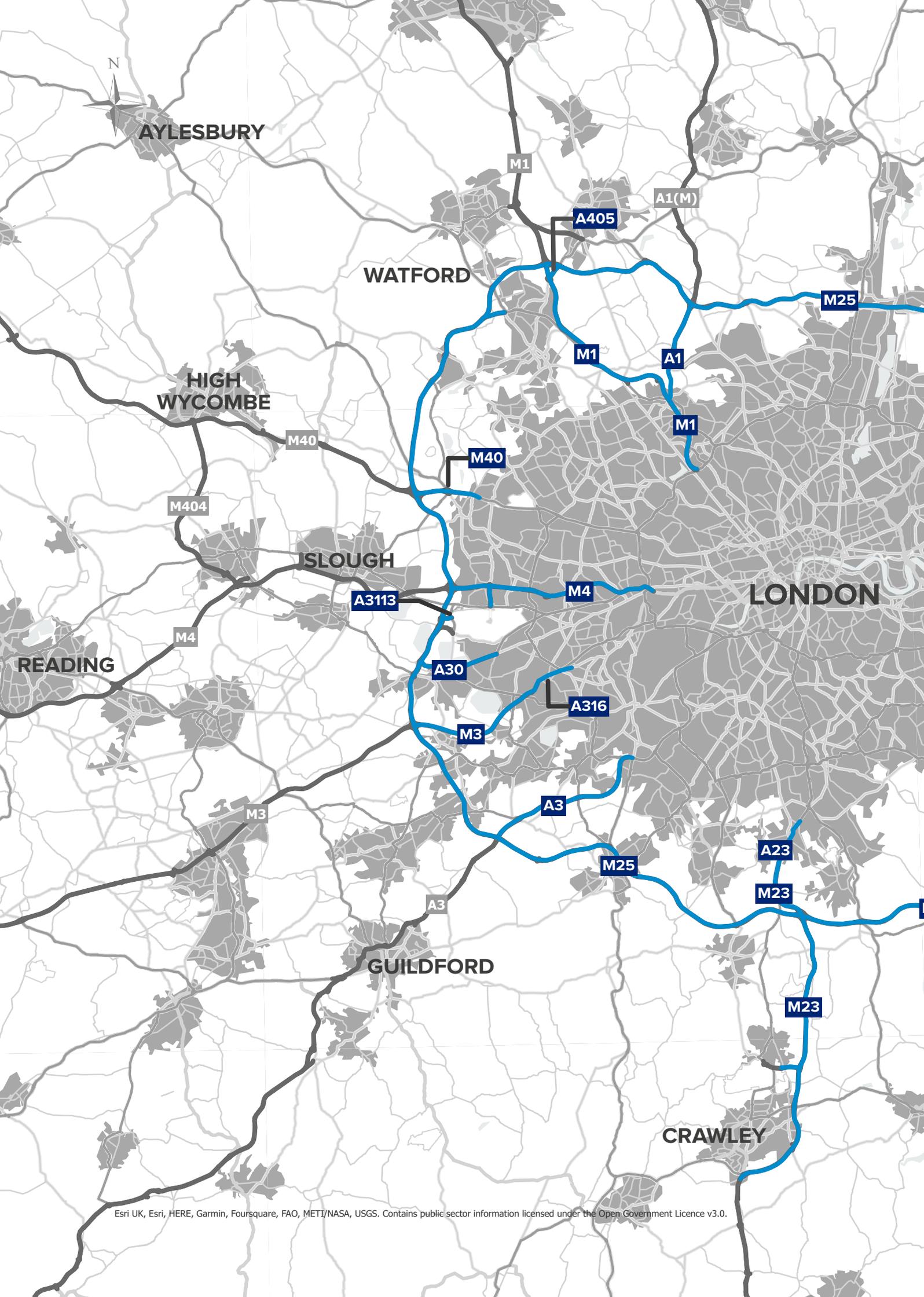
- Key role played by the London Orbital and M23 in connecting the UK's two largest economies in London and the South East, as well as a strategic role for UK-wide economic development connecting international gateways in the region with the rest of the UK
- Locations of deprivation close to the London Orbital and M23 with Gravesend and East London identified as priorities for the Levelling Up Fund, even though London and South East are the UK's two largest economies
- Significant and important developments on the route, notably in the Thames Estuary and at major international gateways that will increase pressure to the east of the route. The Lower Thames Crossing will look to address these pressures

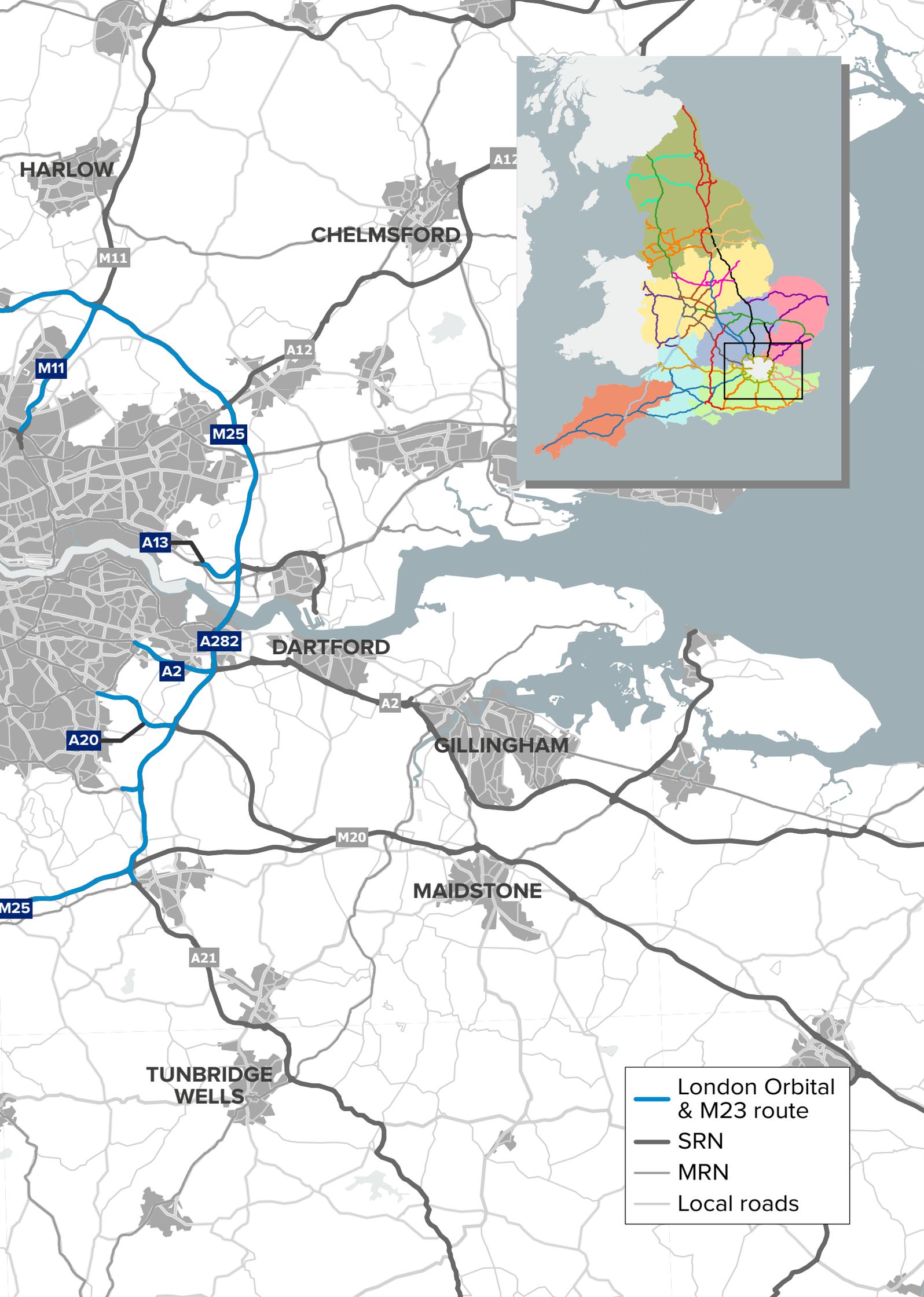
Managing and planning the SRN for the future

- 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

- Limited systems for communicating with road users and technology interface with the systems used in adjacent areas, for example the Kent Corridors
- Limited technology on routes into and out of London, even though the London Orbital is mostly controlled motorway and there are sections of all lane running smart motorway.
- This includes the interface of the technology systems used on the London Orbital and M23 with those technology systems utilised on both the Kent Corridors route and the Local Road Network, notably where it extends into London
- Lack of coordination with some traffic signals adjacent to local authority controlled areas
- Unsuitable diversion routes, for example to the west of the Dartford Crossing, can cause large diversions into London via major and local road networks





HARLOW

CHELMSFORD

DARTFORD

GILLINGHAM

MAIDSTONE

TUNBRIDGE
WELLS

- London Orbital & M23 route
- SRN
- MRN
- Local roads

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.

Ref.	Route objective	DfT's strategic objectives for our network					
		Improve safety for all	Network performance	Improved environmental outcomes	Growing the economy	Managing and planning the SRN for the future	A technology-enabled network
A	Promote the safe and reliable strategic function of the London Orbital. Improve efficiency of the road network for strategic journeys using the a M25, and support improved choices for local journeys on the SRN within the region, in particular the South West Quadrant and at Dartford	✓	✓			✓	
B	Support sustainable development in London and the wider South East region. Improve regional connectivity, including through effective integration with sustainable transport modes to minimise the impact of short-distance journeys from key growth areas and strategic development sites, notably in the Thames Gateway and Essex, to benefit the economy		✓		✓		
C	Encourage sustainable access to London's International Airports. Support mode choice solutions for access to the key international airports in and around London, notably at Heathrow and Gatwick, broadening route choice and improving experience for road users travelling to the airports and sharing road space on the M25 South West Quadrant and M23 in particular		✓		✓		
D	Address severance issues between the SRN and urban environments within and around London. Be a better neighbour, in particular in and around the M1, M11, M3 and M4 corridors to reduce severance by complementing the quality of life, and interaction with local communities at its point of integration with the urban environment	✓		✓			
E	Improve transport connections into the Capital. Improve transport connectivity on arterial routes between the Capital and the surrounding regions, providing consistent and connected journeys to improve end-to-end experiences for all users of the route and wider transport network		✓	✓	✓	✓	✓
F	Support UK economic growth with safe and efficient freight connections to international gateways. Improve network resilience and reduce delay for freight, notably in the east and north of the London Orbital, with improved cross-river connectivity for all road users connecting to international gateways, particularly on the south coast and the Thames Estuary		✓		✓	✓	
G	Support the London Orbital being a better neighbour. Ensure the environmental impacts of the London Orbital are minimised by enabling sustainable infrastructure for all road users, reduce the impact of travel on neighbours, and protect areas with environmental designations around the route notably adjacent Site of Special Scientific Interest, Kent Downs and Surrey Hills Area of Outstanding Natural Beauty			✓		✓	✓

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*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

⁵ National Highways, 2023, *Connecting the country: Our long-term strategic plan*. <https://nationalhighways.co.uk/futureroads>
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

- identify the locations for further consideration to inform our investment programmes and guide our vision
- 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 RIS3 (2025-2030). 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 London Orbital and M23. 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.

⁷ National Highways, 2023, Strategic Road Network Initial Report, <https://nationalhighways.co.uk/futureroads>

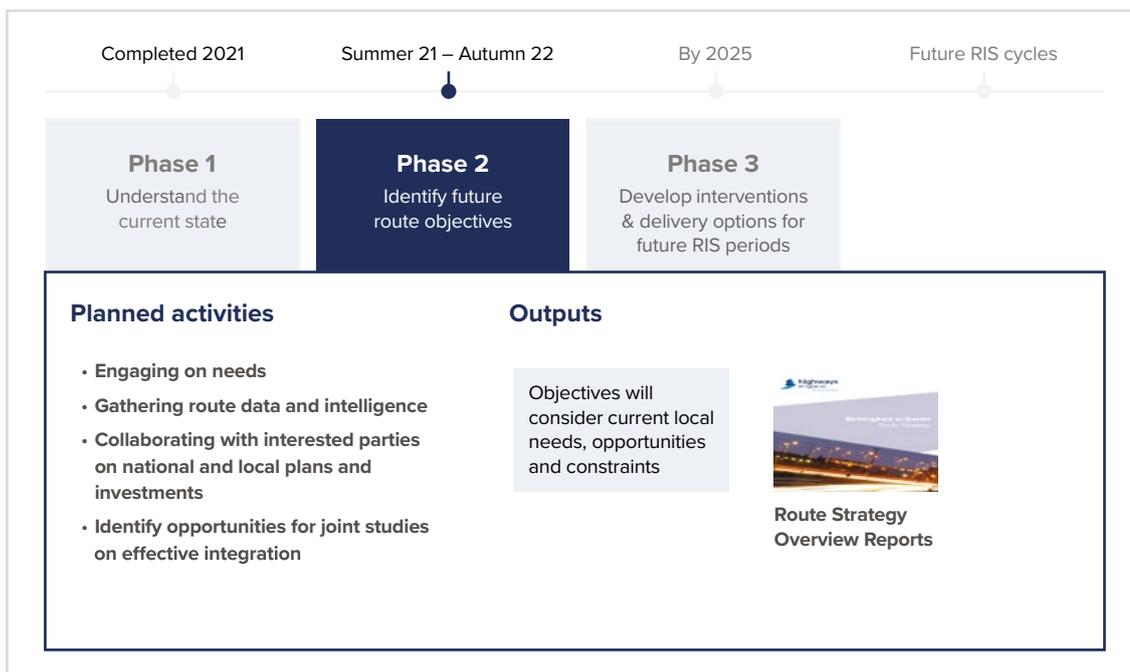


Figure 1: The route strategies delivery phases

The route objectives and locations for further consideration will be presented to the 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 the 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).

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 the 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 the Government's ambitions and be dynamic to respond to the changing needs of our customers and neighbours in how they use and interact with our network. Such needs may evolve as a result of how people use our network due to COVID-19, environment considerations, or the need to support strategic connections and integrated solutions that connect locations, all of which will have an influence on the scale and type of future investments. We will work with interested parties to ensure that the route strategies are widely supported and integrated into regional and local strategies.

Engagement with customers and neighbours

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

Building on engagement to date, we have worked with Sub-national Transport Bodies, Office of Rail and Road, 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/>

EASY TO MAINTAIN

Minimal resource, cost and time to update, becoming an 'on the shelf' approach to strategic RIS planning.

DYNAMIC

Flexible and responsive to significant external influences, such as carbon reduction and the environment, between RIS settlements.

WIDELY SUPPORTED

Recognised externally, as the principal network planning tool for the strategic road network.

BROAD

Identify a full range of options and opportunities in each RIS cycle informing operational and investment priorities.

FORWARD THINKING

Priorities for all parts of the strategic road network to inform multiple RIS cycles.

INTEGRATED AND COLLABORATIVE

Recognise needs of customers and neighbours, approach to be widely accessible and integrated with the rest of the transport system where it benefits the strategic road network.

PLANNING THE FUTURE OF OUR ROADS

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.

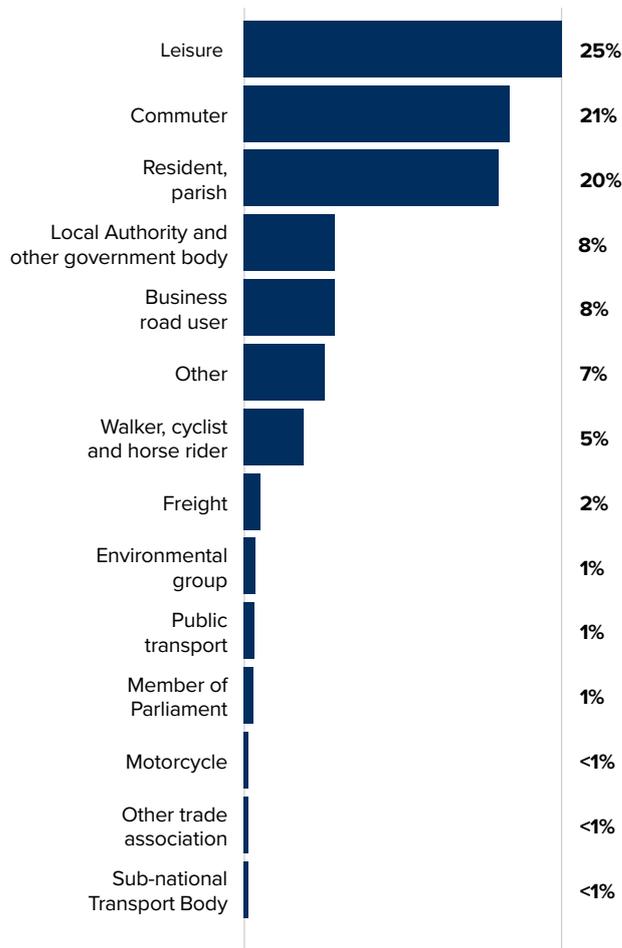


Figure 4: All responses to online tool by participant type

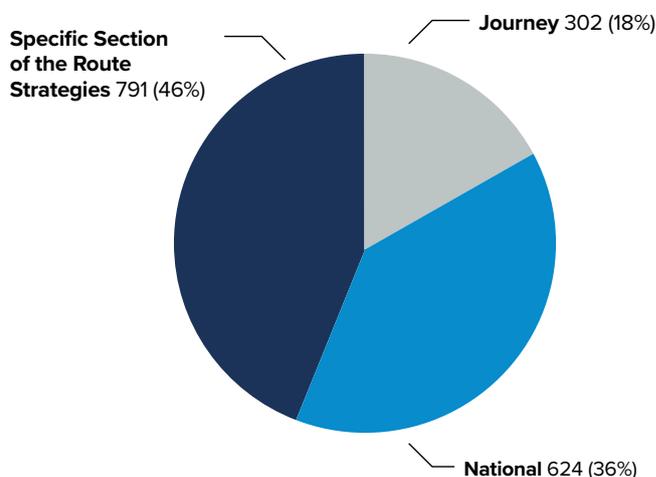


Figure 5: All response to online tool by type

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

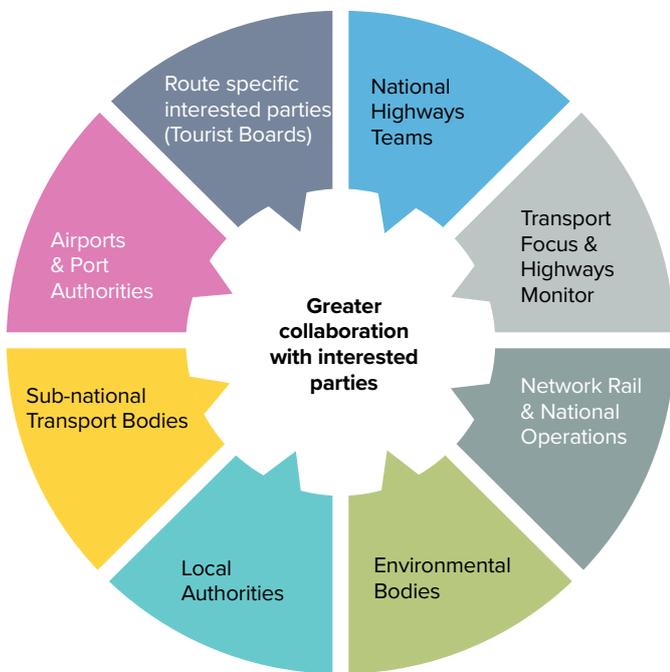


Figure 6: Interested parties involved in the route strategy engagement



Figure 7: Timeline of engagement with interested parties

DfT’s strategic objectives for the strategic road network

The 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 the 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.

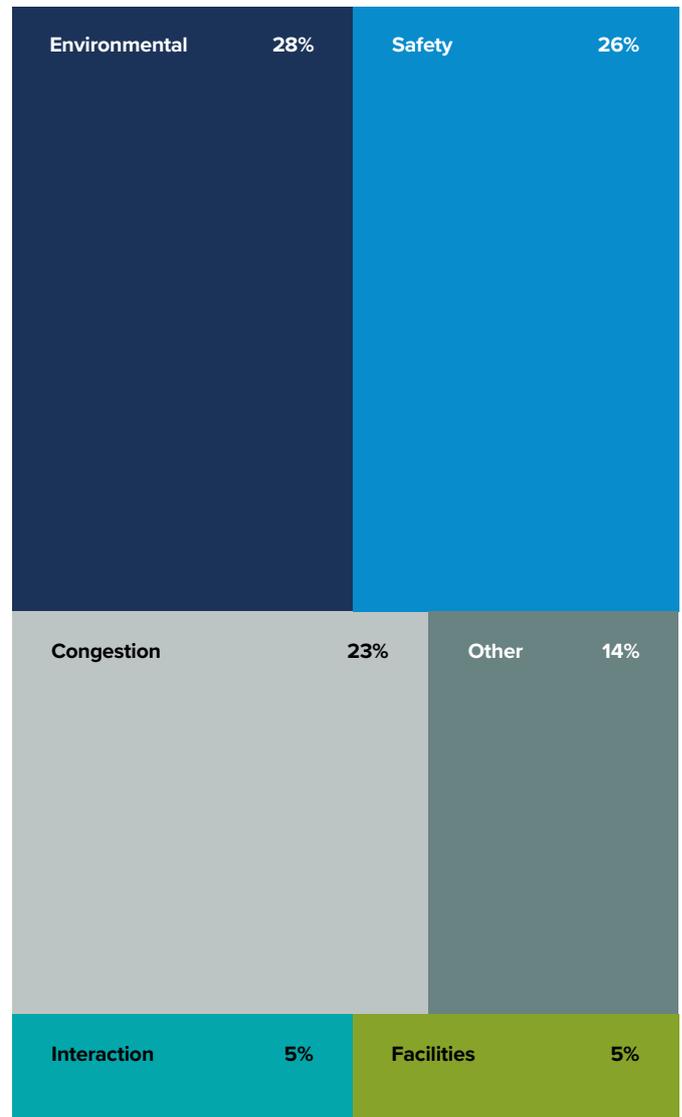


Figure 8: National themes from feedback through the online tool

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's six 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*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, 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). The DfT have produced a shortlist of 18 trunking and two de-trunking candidates, identified following the draft RIS2 public consultation in 2018, for us to assess desirability and viability of asset transfer. De-trunking is the process of returning a National Highways road to the local highway authority control and vice versa for trunking.

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

IMPROVED ENVIRONMENTAL OUTCOMES



NET ZERO HIGHWAYS: NATIONAL HIGHWAYS' 2030/2040/2050 PLAN¹³.

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 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 review¹⁴ 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 Sir Peter Hendy CBE, 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 appropriately 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 over 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.

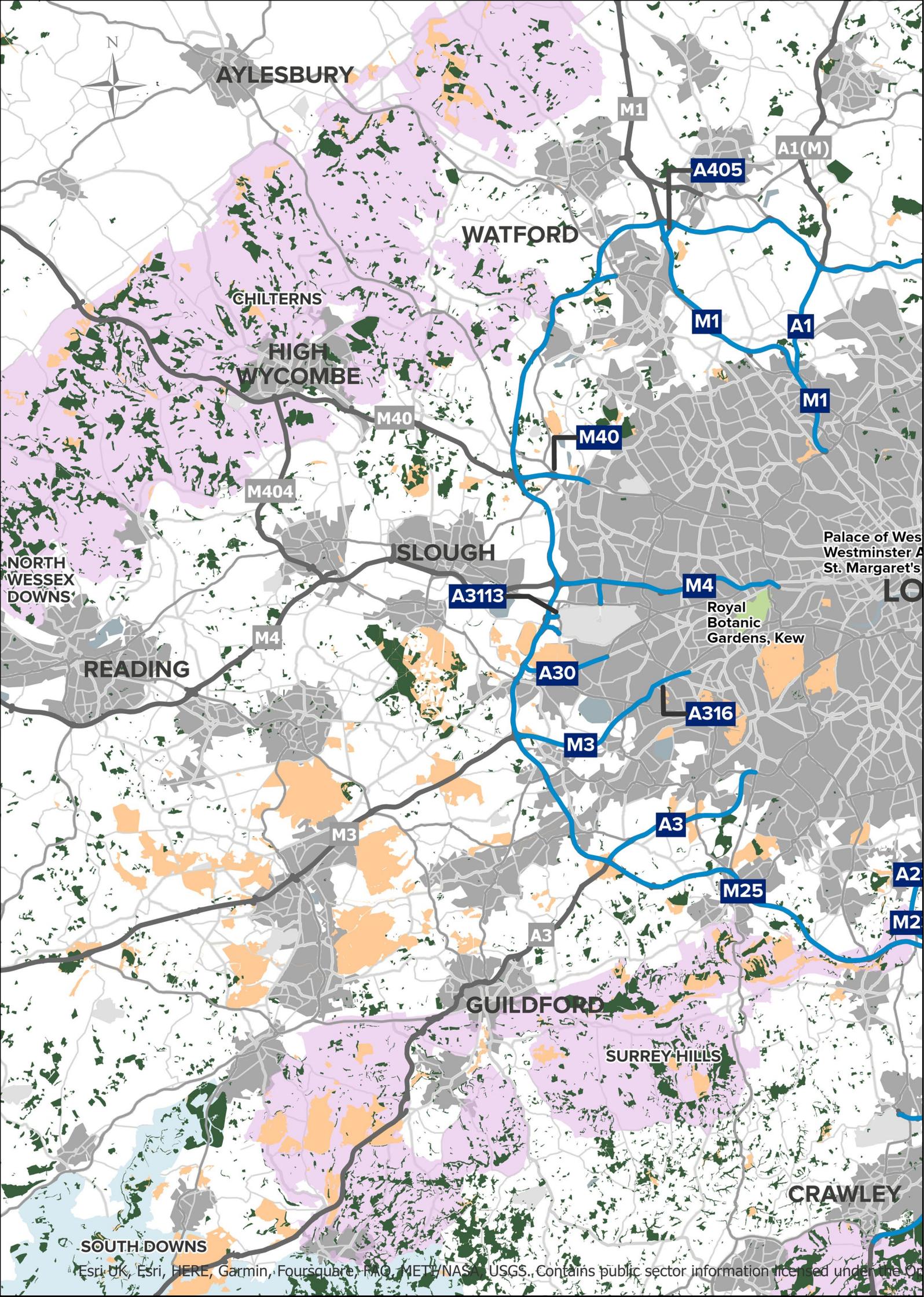
A TECHNOLOGY-ENABLED NETWORK

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, September 2021, Digital Roads, <https://nationalhighways.co.uk/our-work/digital-data-and-technology/digital-roads/>



AYLESBURY

WATFORD

CHILTERNS

HIGH WYCOMBE

ISLOUGH

READING

GUILDFORD

SURREY HILLS

CRAWLEY

SOUTH DOWNS

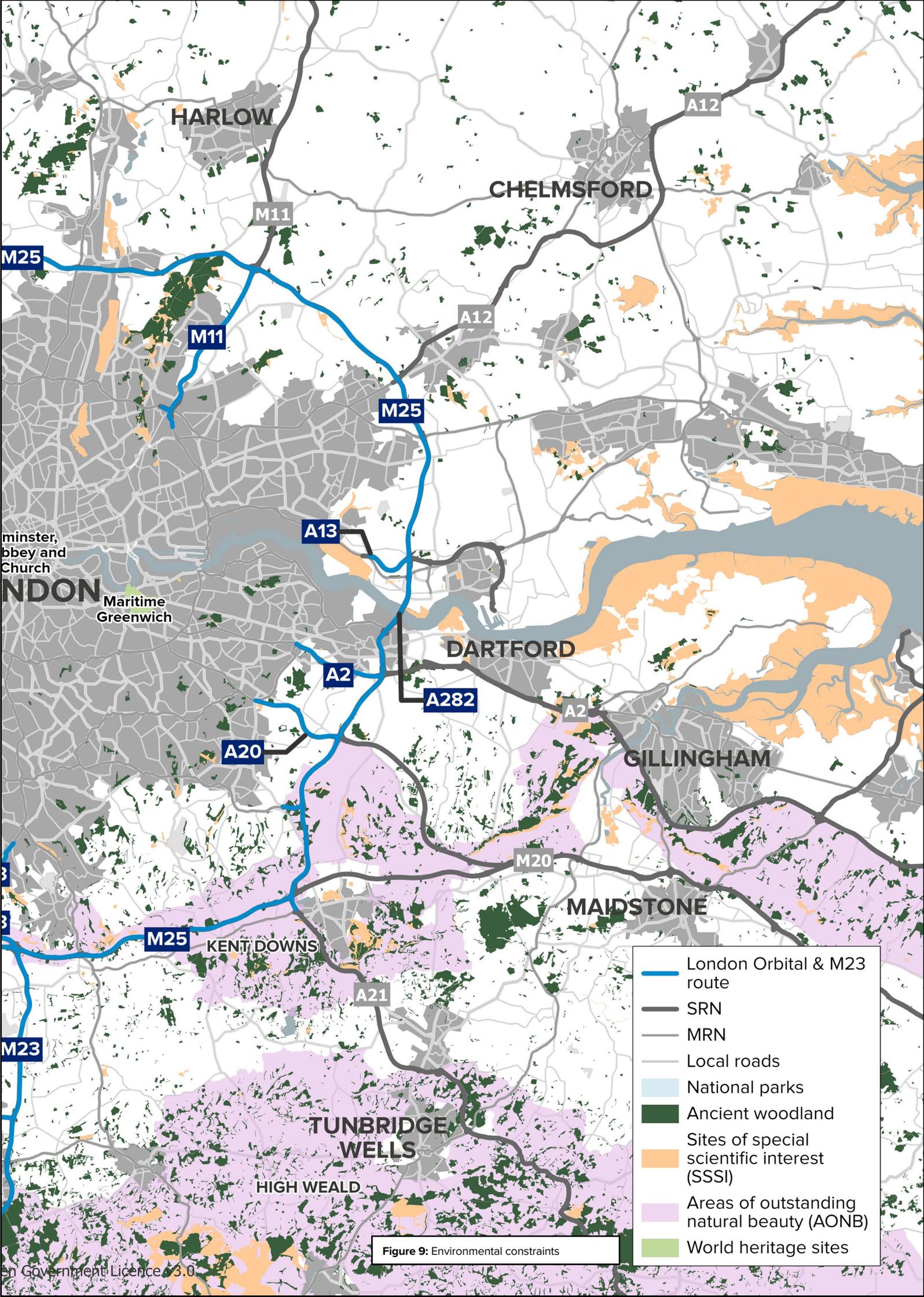


Figure 9: Environmental constraints

- London Orbital & M23 route
- SRN
- MRN
- Local roads
- National parks
- Ancient woodland
- Sites of special scientific interest (SSSI)
- Areas of outstanding natural beauty (AONB)
- World heritage sites



**Our
network
connects
the country**

02 The route

The London Orbital is a strategically significant road encircling almost all of Greater London. It is one of the most important, and busiest, roads in England. The route passes through Essex, Kent, Surrey, Buckinghamshire, Hertfordshire, the unitary boroughs of Thurrock, Slough, and the Royal Borough of Windsor and Maidenhead, along the boundaries of the London boroughs of Hillingdon, Enfield, and Havering. The route also includes the M23 and SRN spurs into London.

The route comprises approximately 218 miles of strategic road network (SRN), of which, 117 miles is the M25 Motorway. The route is made up of the London Orbital (M25 and A282 Dartford Crossing), the M23 from the M25 to Junction 11 and Airport Way spur, and all motorways and SRN spurs within the M25, most notably the M1, M3, M4, M11 and M40. The London Orbital provides transport network integration between the UK's largest economies in London and the South East. There are numerous interfaces with:

- other route strategies including London to Scotland East, London to Leeds (East), East of England, Kent Corridor to M25, South Coast Central, South West Peninsula, and London to Wales
- the Major Road Network (MRN) at many points around the route, notably with the Transport for London Road Network on radial routes into the capital

The London Orbital runs through, or is adjacent to, the Chiltern Hills Area of Outstanding Natural Beauty (AONB) in the northwest, Surrey Hills AONB in the south, and Kent Downs AONB in the South East.

Most of the route is motorway, with the M25 section mainly four lanes in each direction but varying between six lanes (Junctions 14 to 15) and a two-lane link road (at Junction 5). The strategic roads vary from a single lane on the A23, to three lanes in most other cases.

The London Orbital is mostly made up of controlled motorway (other than Junction 3 to 5 and the A282 Dartford Crossing) and has variable message signs and Motorway Incident Detection and Signalling throughout. There are sections of 'all lane running' smart motorway from Junctions 5 to 6 and Junctions 23 to 27. Technology and information systems on the radial motorways is less extensive, and is largely absent on the SRN.

Most of the route is managed, maintained, and operated as part of a privately financed design, build, finance, and operate contract, which runs for 30 years (until 2039). This includes all spurs and the M23 from within the M25 to the A25 Bletchingley Road overbridge, south of M23 Junction 8.

The London Orbital is used by cars and heavy goods vehicles (HGVs) making longer journeys, vehicles accessing the major international airports at Heathrow and Gatwick, and local journeys including short distance commuting within the region. It provides connectivity to numerous international gateways, as well as connecting people to places of employment and regional shopping centres, thereby playing a pivotal role in both the regional and national economy.

The London Orbital also acts as a main interchange between strategic radial routes into and out of London and as a bypass of the capital. It has a strong relationship with major growth corridors and economic opportunity areas in and around London.

The large number of economic growth areas identified in the region, most notably the Thames Estuary, combined with traffic from international gateways including to and from Freeports, means that increased demand in itself could act as a constraint on delivering future growth.

This route strategy is based on the road network as of the start of the second road period (2020 - 2025). Upgrades completed during RIS1 and RIS2 were:

- M4 Heathrow slip road
- M23 Junction 8 to 10
- M2 Junction 2 to 4A
- M25 Junction 30

The M4 Junction 3 to 12 will provide an additional lane for traffic to increase capacity and reduce congestion, as well as introducing more technology on the road to smooth traffic flows and manage incidents and more reliable journey times. The following additional schemes are committed for the second road period:

- M25 Junction 10
- M25 Junction 25
- M25 Junction 28
- Lower Thames Crossing

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



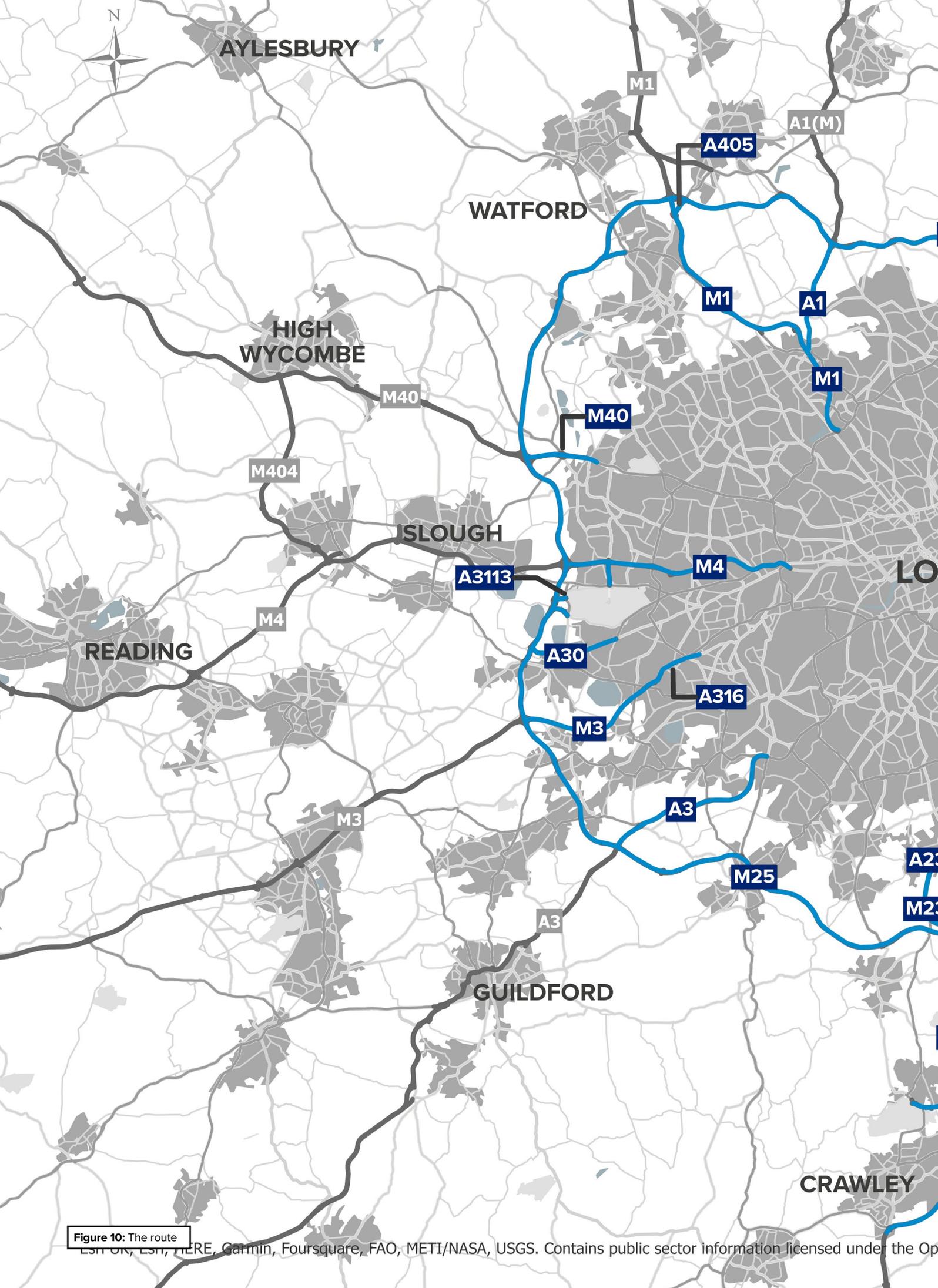
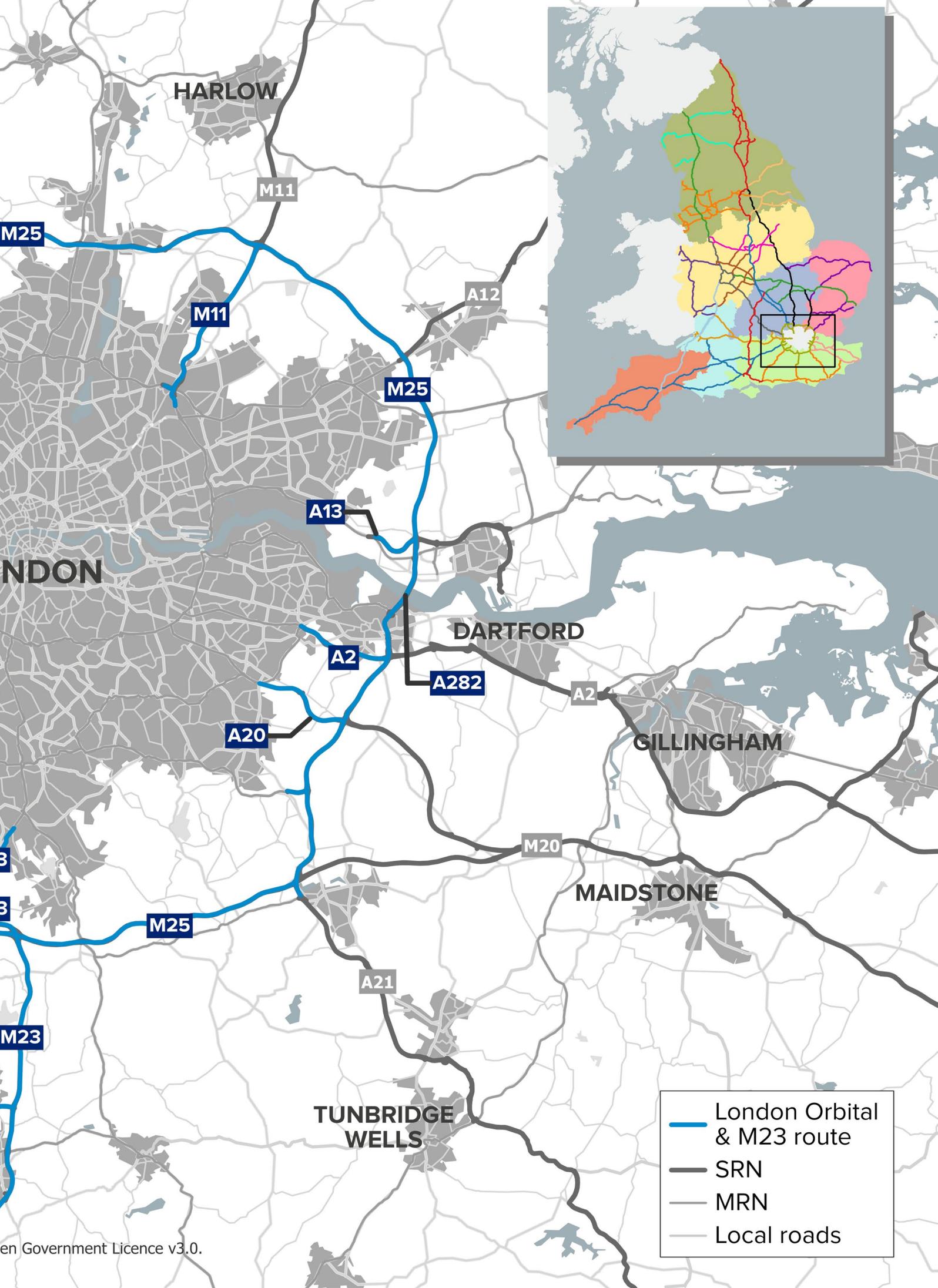


Figure 10: The route

ESRI, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS. Contains public sector information licensed under the Op





**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 London Orbital and M23 area

Early engagement with the Transport for the South East, England's Economic Heartland and Transport East (Sub-national Transport Bodies) and Network Rail shaped our engagement with customers and neighbours in the London Orbital and M23 area. We gathered evidence from a cross-section of Members of Parliament (MPs), interested parties, road users and communities at a route level to understand their needs for the future. This built on engagement that had taken place with national interested parties, such as environmental groups, organisations representing road users, business organisations and transport campaigning groups. This engagement has informed the development of the route objectives.

Engagement took place through:

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

Regional workshops: As part of a programme of workshops with interested parties at a national and regional level, we invited interested parties to workshops on route strategies for the London Orbital and M23 route in late 2021. Attendees included local authorities, airports and port authorities, transport operators, and other key route-based interested parties, such as major businesses.

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

Route strategies online feedback form: Local interested parties, road users and communities were invited to give their feedback on specific locations on motorways and A-roads and routes, and general comments on the road network, through the route strategies online feedback form. For the London Orbital and M23 route, regional interested parties were invited to workshops or to use the online form to share their views and feedback.

The information gathered was a mix of evidence, studies and personal experience. All the evidence gathered through these engagement methods was considered alongside route analysis and data to inform the development of the route objectives. The evidence was supplemented by route-based information from Transport Focus' Strategic Road User Survey¹⁶ to gain an understanding of the breadth of feedback.

Key themes from engagement

We have drawn out the common themes that emerged from our engagement with our customers and neighbours on the London Orbital and M23 route to inform our route objectives. The themes have been aligned with the DfT's six strategic objectives:

i) Views on: Improving safety for all

- Improve resilience and address congestion and safety issues on the M25 Junctions 24 to 26 corridor
- Safeguard land for heavy goods vehicles (HGVs) stops and providing good facilities
- A lack of M25 motorway services from Junctions 12 to 21, and Junctions 25 to 28

ii) Views on: Network performance

- More than 50% of traffic around London Heathrow is thought to be business and leisure, contributing to congestion and consequently unreliable journey times in the South West Quadrant
- Measures to manage demand in the South West Quadrant should be explored, and consider opportunities to accommodate public and active travel infrastructure
- Separate our local traffic from long distance strategic traffic

- Promote measures that reduce impact of SRN on the Local Road Network (LRN)
- Provide joined up and multi-modal approach to planning and better collaboration and partnership with local transport authorities
- Partnership working with local authorities to ensure the network is fit for purpose
- Better coordinated schemes on the SRN and LRN
- Work closer with local authorities and Sub-regional Transport Bodies on better bus and coach travel
- Promote greater use of the River Thames for freight
- Consider alternative models for freight interchanges, smaller sites and consolidation
- Tackle relative lack of rail-connected terminals for containerised freight, especially domestic movements
- Plan for holistic journeys across all modes
- Promote reallocation of road space to public transport and active travel modes, which is impeded by levels of traffic coming into the region
- Achieve pan-agency collaboration and align SRN planning with sub-regional transport body strategies
- Engage with the coach industry on discussions on the role of the SRN for all users
- Note link between West Anglia Main Line rail investment and future SRN Road Investment Strategy funding
- Some SRN junctions experience queues at pinch points on the adjacent local network

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

iii) **Views on: Improved environmental outcomes**

- Enable decarbonisation of highway movements
- Clarify role of SRN in decarbonised world
- Support mode shift to reduce demand on SRN and support decarbonisation of the network
- Explore options for decarbonisation of highway journeys through facilitation of alternative fuel use
- Reduce severance and improve the quality of place
- Address HGV parking on local roads if HGV parking areas are full, with enforcement of unsafe, illegal, or inappropriate HGV parking

iv) **Views on: Growing the economy**

- Plan for growth in a way that works locally and does not induce traffic
- Support connectivity to visitor economy locations
- Demonstrate interventions that provide direct economic benefit, including net gain in employment and GVA uplift
- Ensure suitable connectivity to the network from local development plans, such as Wisley to the A3 and M25
- Consider extension of SRN into South Essex to the Southend City boundary

- Prioritise access to key international ports and gateways
- Connect growing towns and cities
- Ensure access to the coast and regenerate the coastal economy
- Provide greater engagement with Local Enterprise Partnerships, businesses and parties interested in supporting economic development
- Ensure areas of deprivation in South East are not forgotten in the levelling up agenda
- Take a strategic approach to the provision and funding of HGV parking and facilities, and consider a potential truck stop on M26 to relieve pressure elsewhere and especially within Kent

- Provide recognition that the High Speed 2 rail line has the potential to transform north–south connectivity for passengers and freight, plus local connectivity with released West Anglia Main Line capacity

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

- Recognise different challenges, solutions and investment priorities for rural and urban areas

vi) **Views on: Technology-enabled network**

- Integrate new technology to provide real time information for HGVs
- Capitalise on technology to enable more efficient journeys on the South East Quadrant

Engagement quotes from customers and neighbours



Figure 11: Quotes from customers and neighbours

Route satisfaction

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

Additional comments and data from the Transport Focus survey of drivers on the SRN can be found on the Transport Focus website data hub¹⁷.

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

Strategic roads user survey satisfaction scores

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



National Highways Region: M25, South East
National Highways Area: 4 and M25
Individual roads: M23, M25, A30, A282
Last 12 months^{***} May 2022 (last 12 months)

* caution - based on 75-99 responses
 ** results hidden as less than 75 responses
 *** Before March 2019 and from April 2021 to February 2022 this is year-to-date, not past 12 months

Figure 12: Satisfaction scores from headline results

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



**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:

- Transport for the South East
- Transport East
- England's Economic Heartland

Whilst Transport for London (TfL) is not an STB, they have been included as the transport planning authority for London.

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 the *DfT's Road investment strategy 2¹⁸*, and within our *Strategic business plan¹⁹* and *Delivery plan²⁰*. 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 strategies²¹*, 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.

Transport for the South East

Transport for the South East (TfSE) published its *Transport strategy for the South East in 2020*²². 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, such as Network Rail.

The strategy sets out the TfSE's 30-year vision for the region, with their strategic goals and priorities. Their 15 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), and **environmental** (to protect and enhance the South East's environment).

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 more 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 (TfSE) partners across the South East 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

²² Transport for the South East, June 2021, *Transport Strategy for the South East*, <https://transportforthesoutheast.org.uk/app/uploads/2020/09/TfSE-transport-strategy.pdf>

- 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 Transport strategy provide a clear framework to inform future decision-making. It will help to create a “more productive, healthier, happier and more sustainable South East.”

England’s Economic Heartland

England’s Economic Heartland (EEH) published its *Regional Transport Strategy*²³ in 2021. 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.

England’s Economic Heartland priorities 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 EEH 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 by creating better connectivity within communities. It also details how EEH will work to harness leading expertise in clean, green, and smart technologies, enabling the region to have a competitive edge in global markets.

While 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 benefitting the national and international economy.

Transport East

Transport East published its *Draft transport strategy in November 2021*²⁴. It aims to overcome some of the transport challenges of delivering a fit for purpose, high quality inclusive and sustainable transport network that will be able to accommodate future growth in the area. Transport East’s vision is “A thriving economy for the East, with fast, safe, reliable and resilient transport infrastructure driving forward a future of inclusive and sustainable growth for decades to come.”

There are four strategic priorities to deliver this vision:

- decarbonisation to net zero
- connecting growing towns and cities
- energising coastal and rural communities
- unlocking international gateways

Six core corridors have been identified, which are the road and rail links between the region and the rest of the UK.

²³ England’s Economic Heartland (EEH), February 2021, *Connecting People, Transforming Journeys*, <https://www.Englandseconomicheartland.com/our-work/our-strategy/>

²⁴ Transport East, November 2021, *Draft Transport Strategy* <https://www.transporeast.org.uk/wp-content/uploads/TransportEastStrategyv6.pdf>

Transport for London

The role of Transport for London (TfL) is to implement the *Mayor's Transport Strategy*²⁵ and manage those services across the capital for which the Mayor is responsible. The Strategy notes that transport has the potential to shape London, from the streets Londoners live, work, and spend time on, to the Tube, rail, and bus services they use every day.

By using the Healthy Streets Approach to prioritise human health and experience in planning the city, the Mayor wants to change London's transport mix so the city works better for everyone. Three key themes are at the heart of the Strategy:

1. Healthy Streets and healthy people: creating streets and street networks that encourage walking, cycling and public transport use will reduce car dependency and the health problems it creates
2. A good public transport experience: Public transport is the most efficient way for people to travel over distances that are too long to walk or cycle, and a shift from private car to public transport could dramatically reduce the number of vehicles on London's streets
3. New homes and jobs: More people than ever want to live and work in London. Planning the city around walking, cycling and public transport use will unlock growth in new areas and ensure that London grows in a way that benefits everyone

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.

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

The route interfaces with the MRN at many points around the route, notably:

- on radial routes into London, where the SRN connects into the TfL Road Network ('Red Routes' – London's busiest roads, most are managed directly by TfL rather than local authorities), notably with the M1, M4 and M11 extending to the Inner Ring Road. As such, responsibility for managing London's road network is shared between TfL, the 32 London boroughs and National Highways

²⁵ Transport for London, 2018, *Mayor's Transport Strategy* <https://www.london.gov.uk/sites/default/files/mayors-transport-strategy-2018.pdf>

- stubs (short projecting sections designated as M25 but not part of the core radial route) on approaches to the M25, notably in Surrey and Kent (for example the M25 / A21 interchange). There are also 14 junctions around the M25 that only serve local roads, enabling the London Orbital to be used for local journeys
- As part of the Lower Thames Crossing project, National Highways is proposing a Wider Network Impacts Management and Monitoring Plan which would provide data to local highway authorities. That data will enable further collaboration, and allow local highway authorities to prepare applications to fund improvements from existing central government streams.

The *National survey of lorry parking*²⁷ undertaken by the Department of Transport showed that while London (not including the M25) appears to have sufficient lorry parking capacity, stakeholders suggested that additional parking capacity is required in the Sevenoaks (M25/M26) area and the M25 periphery (particularly Cobham).

The study identified that London (not including the M25) does not have an issue with excessive overnight off-site lorry parking. However, in terms of driver facilities, any of the extant secure lorry parks in the vicinity of the M25 are amongst the highest priced lorry parks nationally due to the high land cost.

Freight and logistics

The Future of Freight: a long-term plan (DfT June 2022)²⁶ sets out priorities for the UK's freight industry. It recognises that in 2019 the sector contributed 10% of the UK non-financial business economy and £127 billion gross value added (GVA) through more than 200,000 enterprises, noting that, with imports and exports comprising 63% of gross domestic product (GDP) in 2019, we are reliant on the freight and logistics sector for our economic wellbeing.

There is generally a good level of lorry parking provision on the London Orbital and M23 route. For goods being transported to and from Gatwick airport, it is important that there is sufficient lorry parking provision to enable vehicles to park nearby in case of aircraft delays, and then access the airport when goods are ready to be loaded or unloaded. Those present can become completely full at peak times and additionally, as the M25 is particularly susceptible to delays, especially around Dartford and Thurrock, sufficient parking provision is important in case drivers are delayed and need to take their legal breaks at locations they had not planned. Interested parties also raised that there is a lack of M25 motorway services between Junctions 12 and 21, and Junctions 25 and 28.

Diversions 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.

Local roads can be impacted as a result of incidents on the London Orbital. Specific locations include the Dartford Crossing near Dartford and Thurrock, diversions onto the A25, and local road impacts through villages

²⁶ Department for Transport, 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

²⁷ Department of Transport, 2018, *National survey of lorry parking*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/723349/national-survey-of-lorry-parking-report.pdf

near Heathrow Airport affected by HGV traffic, including Iver. Concerns were raised by interested parties about the impact in terms of congestion on these routes where strategic traffic is mixing with local traffic. Environmental concerns were also raised around air quality and the impact of noise pollution, particularly in relation to diversion routes.

The provision of diversion routes is dependent on the nature of the incident and the suitability and availability of the surrounding network. In some instances, the diversion route may be less suitable for HGVs. We are currently reviewing the quality and coverage of these routes. We work closely with local authorities and TfL to ensure diversion routes are available.

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.

*Network Rail's, Our delivery plan 2018*²⁸ presents a vision of 'putting passengers and freight users first', recognising that Network Rail can improve the daily lives of people across the country by striving to constantly improve the quality of service across the whole railway system. Network Rail seeks to deliver its vision through a regional structure committed to responding to the needs of local customers and stakeholders, more quickly than if such decisions were made at a national level.

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.

Relevant strategies include the London rail freight strategy, which is about increasing capacity across London, the DfT's Heathrow Southern Link scheme and Network Rail's Western Rail Access to Heathrow scheme²⁹. Old Oak Common is also relevant in relation to access and integration with High Speed 2 rail network (HS2). The rail network is key for providing parallel capacity to the SRN and MRN for the transfer of passengers and goods. A joined-up approach between the road and rail networks would assist to successfully plan for the future transport in the region in a holistic manner.

Some parts of our network are operated on our behalf by a third party under design-build-finance-operate arrangements. We work closely with these operators to deliver a seamless experience for our road users. On the London Orbital and M23 route this includes the M25 (including associated link roads, Dartford Crossing, and stubs and spurs from M25 to the Greater London Authority boundary), Berkshire, Buckinghamshire, Hertfordshire, Essex, Kent and Surrey, operated by Connect Plus M25 Ltd until 2039.

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.

²⁸ Network Rail, February 2018, *Our delivery plan for 2019 – 2024*, <https://www.networkrail.co.uk/who-we-are/publications-and-resources/our-delivery-plan-for-2019-2024/pdf>

²⁹ <https://consultations.networkrail.co.uk/communications/improving-rail-links-to-heathrow/>

Strategic connectivity

The SRN plays a key social and economic role in connecting England with the devolved authorities of the UK, particularly Wales and Scotland, but also, via ports, Northern Ireland. We work closely with Transport for Wales and Transport Scotland to ensure our key cross-border routes are joined up effectively with those in Wales and Scotland to ensure easy journeys for our customers.

This strategic connectivity is reflected in the Government's commitment to strengthening transport connections across the UK, guided by *Sir Peter Hendy's Union connectivity review* published in late 2021³⁰. The report recommends the creation of UKNET, a strategic transport network spanning the entire United Kingdom.

UKNET would be based on a series of principal transport corridors between key urban and economic centres, including international gateways. The findings of this report have been considered in our route strategies, particularly for our cross-border routes and roads connecting to important ports.

The overall route provides onwards connectivity between the North and South of England, along with east–west connectivity, in particular providing connectivity with London.

The London Orbital (including the M25 and A282 Dartford Crossing) operates as a central hub for the SRN and so plays a crucial role in connecting routes.

There are numerous warehouse and distribution centres around the route, and its role in providing for strategic movement circumnavigating London enables onwards journeys between the international gateways of the South East region and the M1 and M11 to the north of England, and onwards to Scotland, and the M4 for Wales. 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.

A key aspect of route strategies is ensuring that future investment continues to support these essential movements.

This means that the London Orbital and M23 route needs to be considered in the context of the connectivity it provides to international gateways. This includes not only the M23 to Gatwick Airport and M4 to Heathrow Airport, which provide direct access to the route, but also to the Medway Ports and Port of Tilbury just outside the M25, Freeports located east of London, and ports on adjacent routes, notably along the coast of the South East of England including the Kent Corridors route for the Port of Dover, the South Coast Central route for Portsmouth Port, and the South West Peninsula route for the Port of Southampton.

³⁰ Sir Peter Hendy CBE, 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

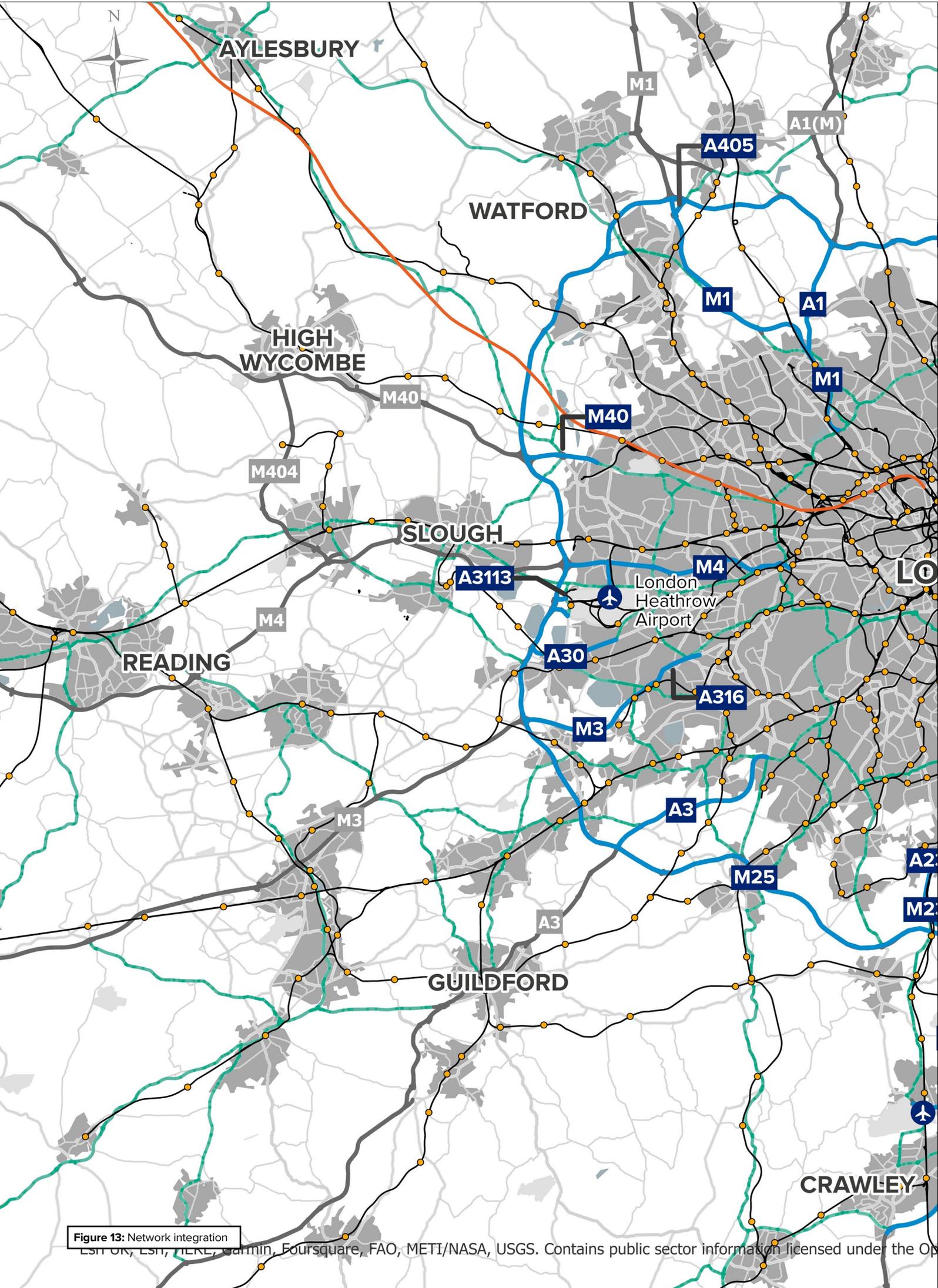
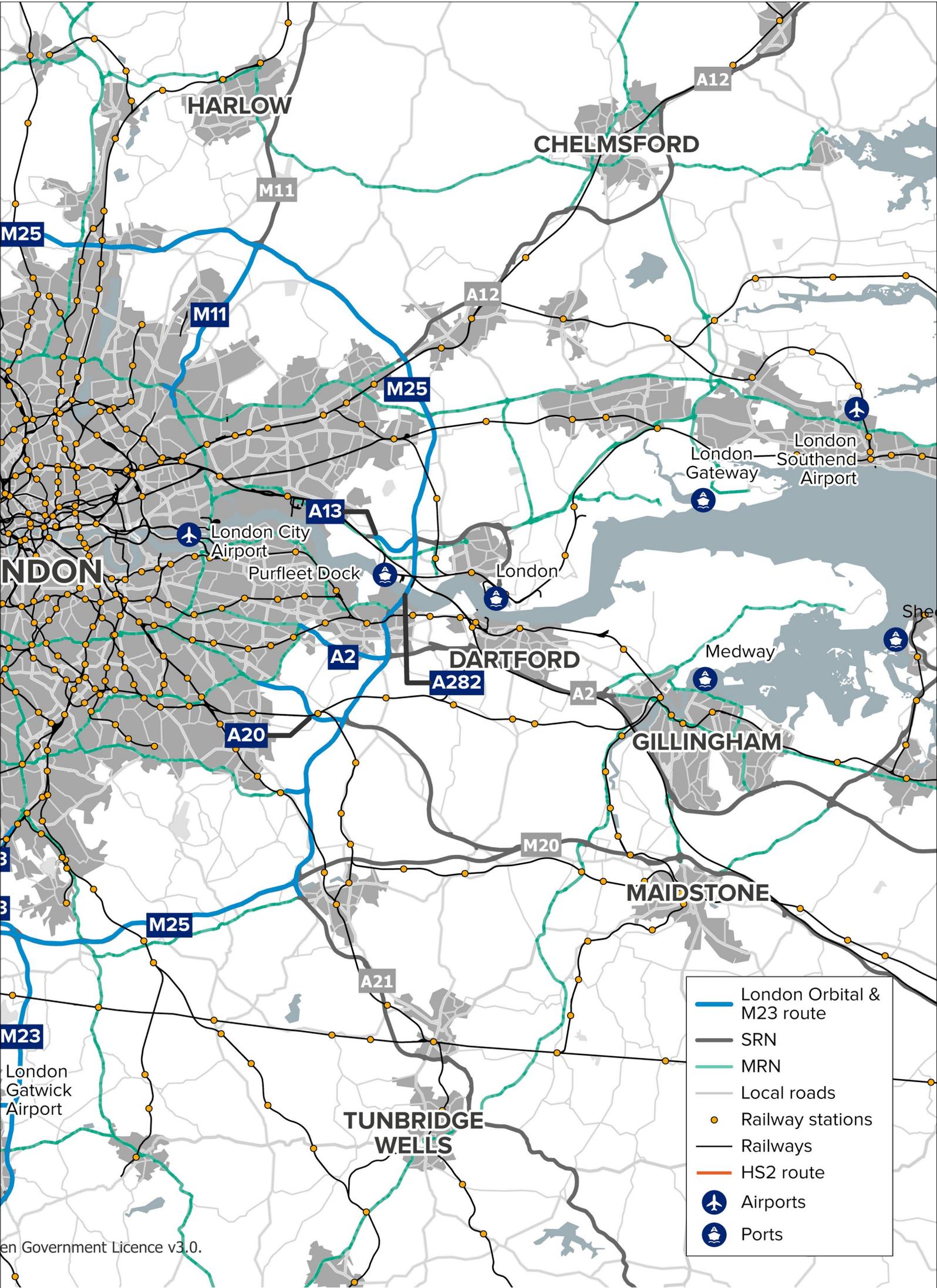


Figure 13: Network integration

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HARLOW

CHELMSFORD

LONDON

DARTFORD

GILLINGHAM

MAIDSTONE

TUNBRIDGE WELLS

- London Orbital & M23 route
- SRN
- MRN
- Local roads
- Railway stations
- Railways
- HS2 route
- Airports
- Ports



**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 prioritise route treatment. 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 the iRAP star ratings of 1 or 2, which are largely aligned to stubs of the SRN interacting with the LRN:

- M25 Junctions 8 for M23
- M25 Junction 14 for A3113 at Heathrow
- M25 Junction 19 for the A41 at Watford
- M25 Junction 25 for the A10
- M3 Junction 1 with the A308 at Sunbury

STATS19 data shows that there are concentrations of collisions on sections of the route where people were killed or seriously injured – including:

- along the M23 from Gatwick to the M25
- on the South West Quadrant of the M25 between Junction 12 for the M3 and Junction 13 for the A30 for Staines
- on sections of the network in proximity to Dartford

Using the latest available crash density data, the following parts of the route are classified as medium-high risk roads by the Road Safety Foundation Crash Risk Mapping:

- A282 Dartford Crossing
- A2
- A40 at Uxbridge where the M40 joins the A40 into London.

A higher number of incidents involving walkers, cyclists and horse riders are otherwise generally seen on the western side of the Orbital, and on sections of the route extending into London. The A40 at Uxbridge also has the highest level of collisions where someone has been killed or seriously injured involving walkers, cyclists and horse riders. High rates are also seen on the A30 east of the M25 Junction 13.

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

Overall, the M23, M25 between Junctions 12 and 13, and the northern section of the M25 between Junctions 25 and 28 contains sections with identified safety issues, including radial routes into London. However, collision locations on the route at congested SRN locations generally result in lower severity injuries.

Interested parties raised that a lack of M25 motorway services between Junction 12 and 21 and Junction 25 and 28 also represent gaps in the provision of rest facilities for drivers.

Key challenges

- Other than at the M25 Junction 8, the lowest iRAP star ratings of 1 or 2 are predominantly where the SRN interacts with the LRN, such as the M25 Junctions 14, 19 and 25, and M3 Junction 1
- Places with most collisions where people have been killed or seriously injured are found where route sections are most heavily populated by airport traffic on the M23 and within the M25 South West Quadrant, as well as at Dartford. The highest rate of collisions for motorcyclists is also found at Dartford and on the sections of the route extending into London, where rates are also highest for walkers, cyclists and horse riders interacting with strategic traffic
- Gaps in the provision of rest facilities for drivers between Junctions 12 and 21 and Junctions 25 and 28 of the M25, given the lack of motorway services along these stretches



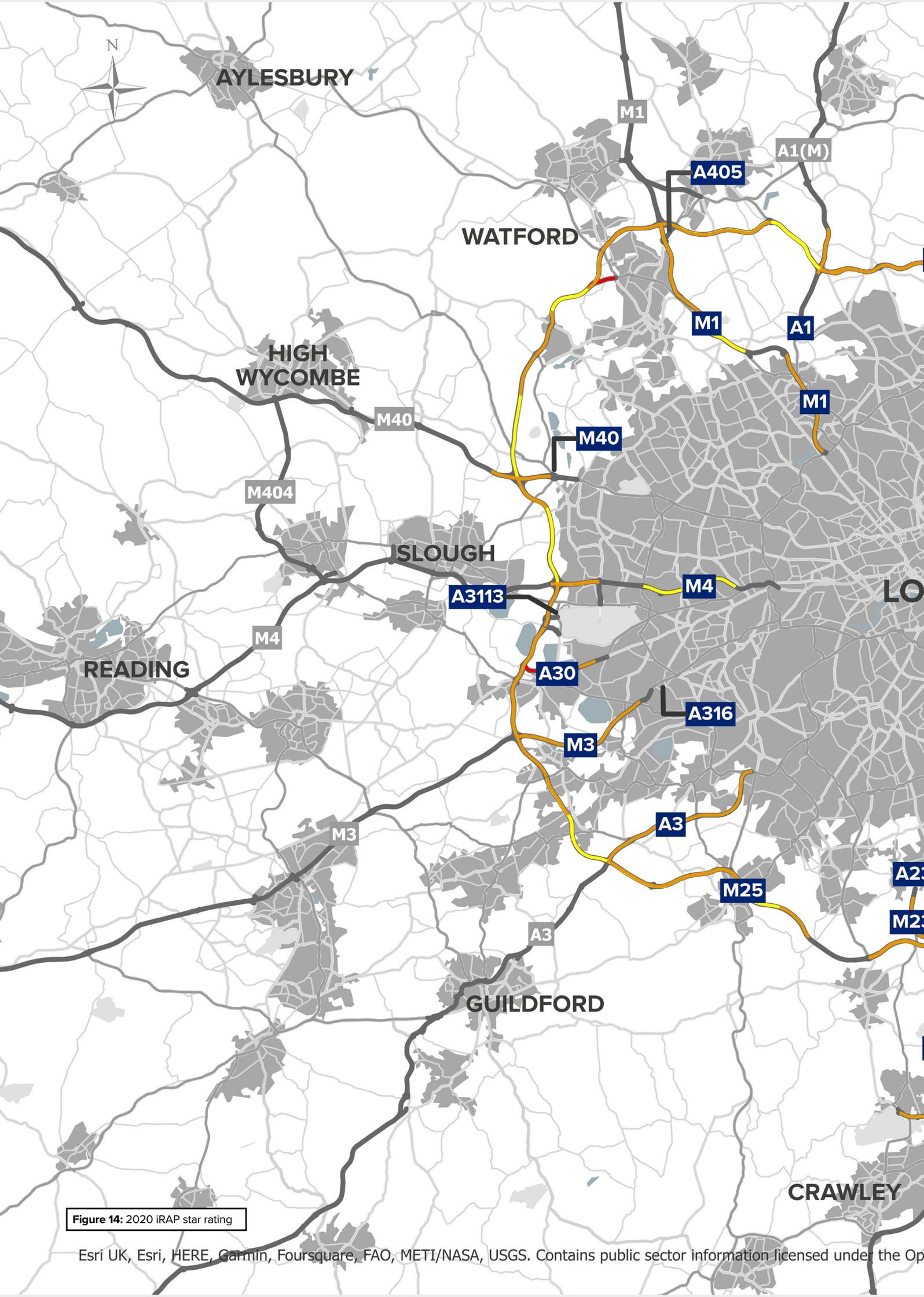
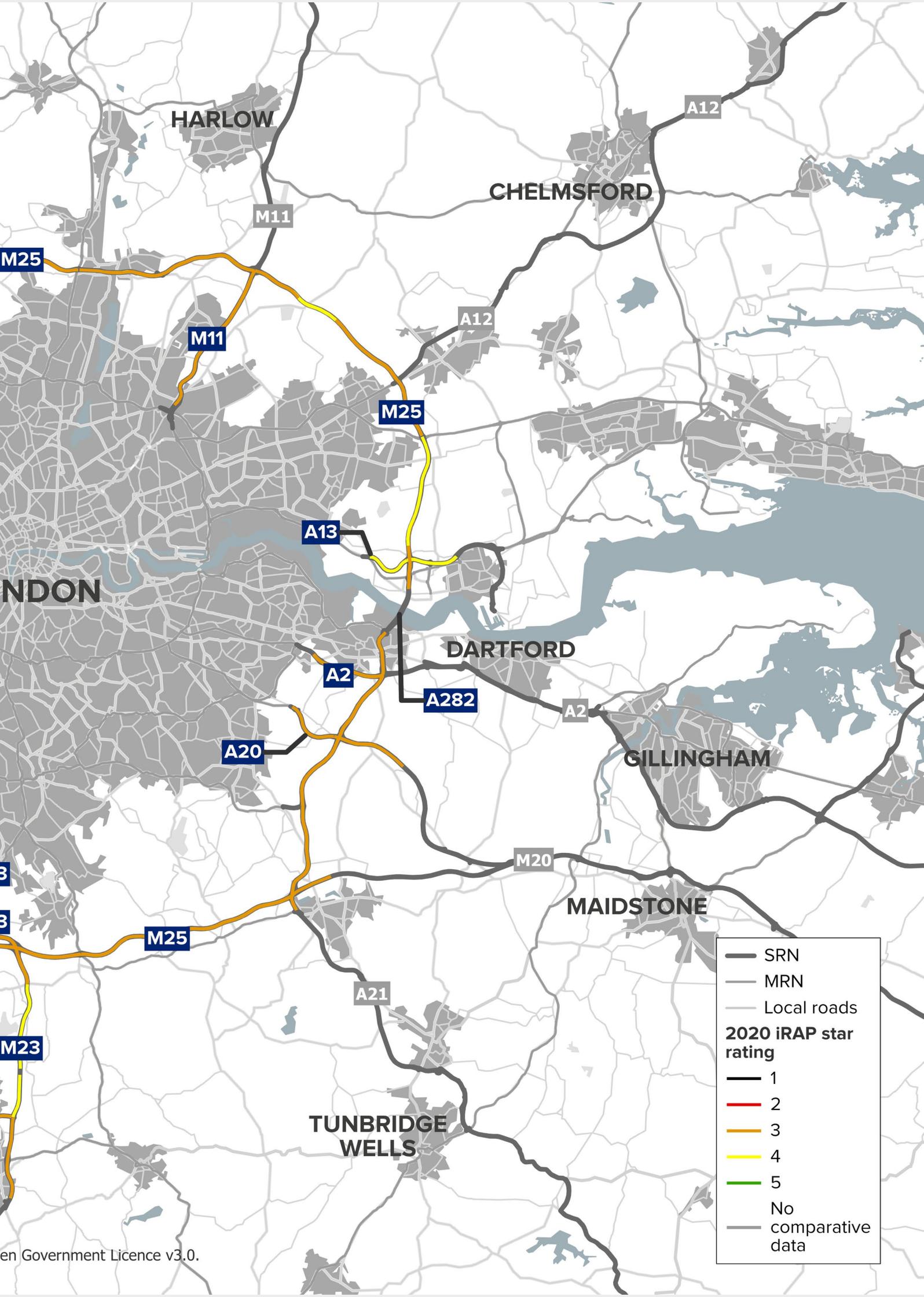


Figure 14: 2020 iRAP star rating



HARLOW

CHELMSFORD

NDON

DARTFORD

GILLINGHAM

MAIDSTONE

TUNBRIDGE
WELLS

— SRN
 — MRN
 — Local roads
2020 iRAP star rating
 — 1
 — 2
 — 3
 — 4
 — 5
 — No comparative data

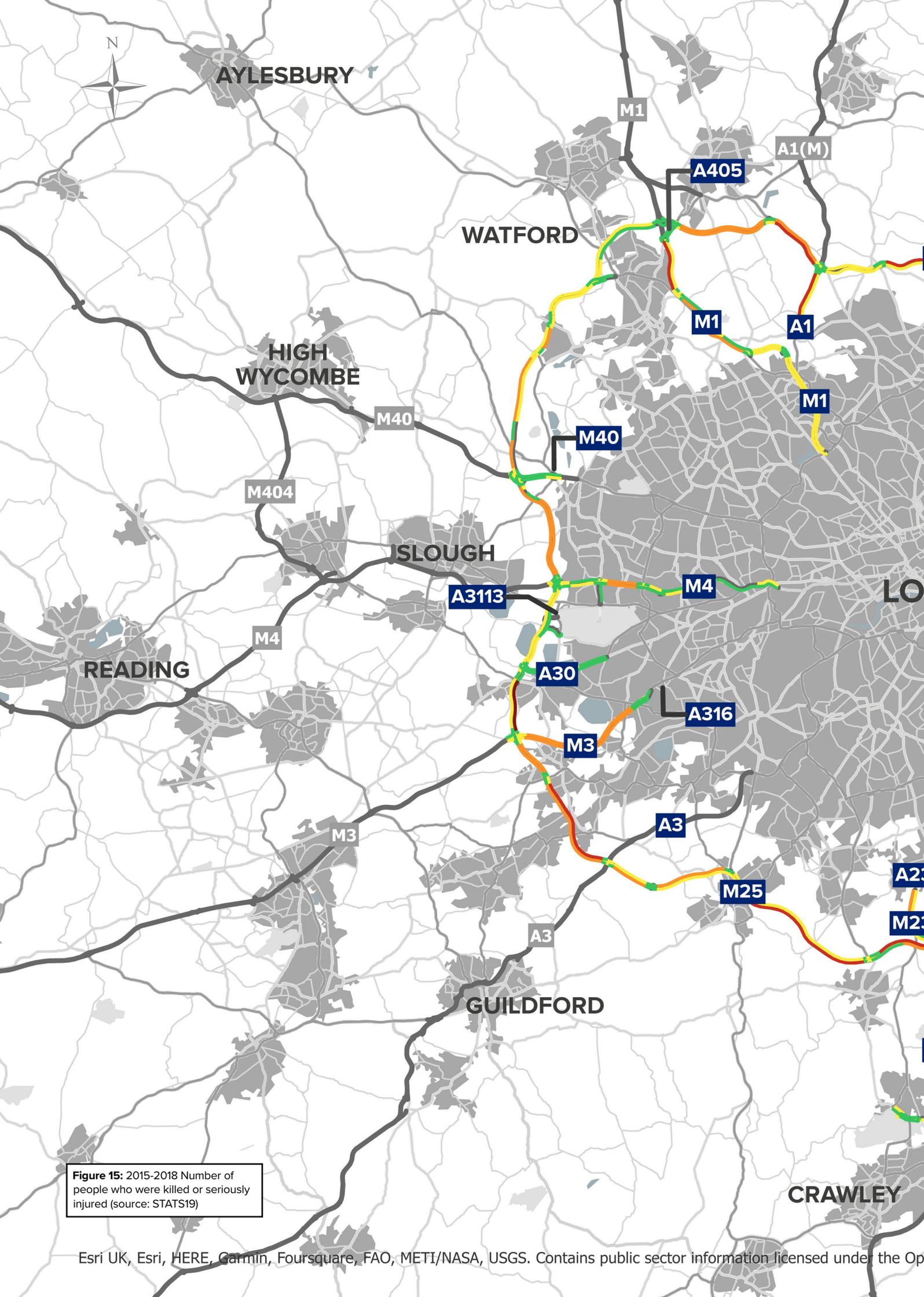
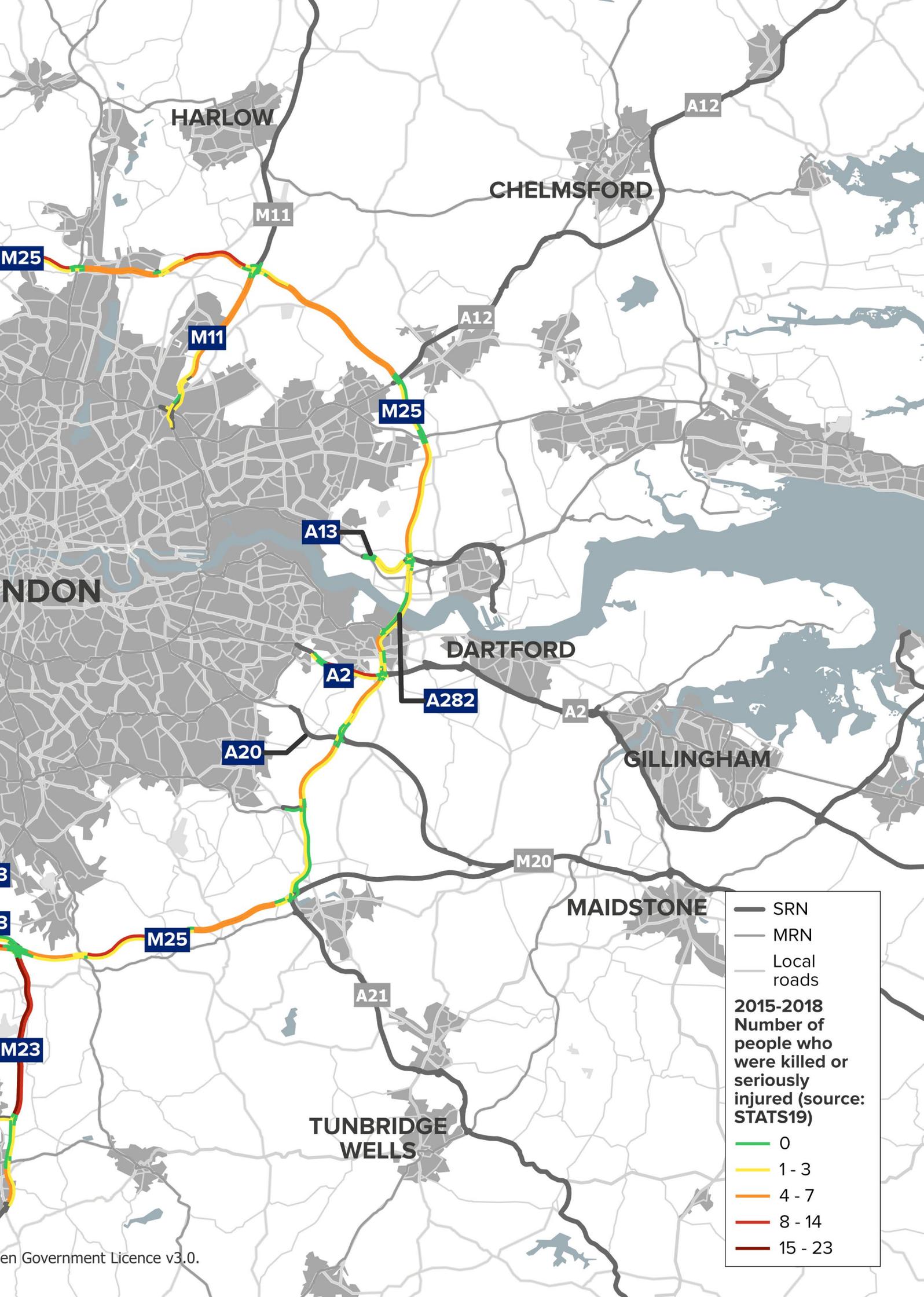


Figure 15: 2015-2018 Number of people who were killed or seriously injured (source: STATS19)





2. Network performance

Network performance is measured by average delay, seasonal delay and journey time reliability. Many sections of the London Orbital and M23 route experience one or more of these types of delay.

Figure 16 shows the delay caused by congestion during the morning peak in 2019. The lengthiest delays on the London Orbital and M23 route include:

- A23 northbound at Hooley (up to 106 seconds pvpm)
- M11 southbound at Chigwell (up to 79 seconds pvpm)
- M4 eastbound towards Brentford (up to 71 seconds pvpm)
- M25 southbound at Junction 16 (up to 53 seconds pvpm)

The London Orbital forms an SRN hub around London, connecting the country via routes that lead outwards from the centre of the capital. It remains one of the most congested routes on the SRN.

The route provides direct access to the major international airports London Heathrow and London Gatwick. Combined, these airports carry almost half of all UK air passengers.

Average peak period delay is measured in seconds per vehicle mile and is the difference between 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.

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

There are limited public transport alternatives to the M25 to circumvent London, with the majority of rail routes leading directly outwards to the rest of the UK, rather than going round the capital.

There are also 14 junctions around the M25 that only serve local roads, leading to the London Orbital being used for short distances for local journeys. This results in 'junction hopping', exacerbating congestion near the Dartford Crossing northern section of the London Orbital, and most notably the M25 South West Quadrant.

Peak hour delays are most notably M25 Junction 10 in Surrey to Junction 16 in Buckinghamshire, the northern section of the M25, and Junctions 22 to 25 through Hertfordshire, and A282 at Dartford. Delay is also seen on sections of the route connecting to the M25, including the M4 past Heathrow, the A30, the M23 and A23, and the A2 near Dartford.

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.

The M25 between Junctions 10 and 16 experience some of the highest volumes of traffic on the SRN. It has the nation's busiest international airport at Heathrow, strategic movement to and from coastal ports, coach travel and commuter traffic travelling between only one or two junctions.

As a result, most motorway junctions in this part of the SRN experience congestion. The Dartford Crossing and sections of the route in proximity to the region's major international airports at Gatwick and Heathrow in particular have some of the network's most congested links.

The route is also subject to seasonal delay, with an additional 25+ seconds per vehicle per mile route-wide, increasing to 50+ seconds on approaches to London Heathrow Airport, around the Dartford and Thurrock vicinity and also on the northern section of the M25. Issues can be particularly difficult during times of increased tourism, such as on bank holidays and during school holidays, both with visitors to the region and road users accessing the international gateways around London and the south coast.

HGVs make up to 20% of traffic all around the M25. The North East Quadrant of the M25, between Junctions 25 and 20 in particular, has a high proportion of freight traffic, with HGVs making up around 30% of all traffic, with freight routing between Midlands and North of England, and the access points to the continent at Thames Gateway and the Kent Coast. Other routes to the south and west remain significant, with drivers avoiding the Dartford Crossing. These routing decisions impact journey time reliability on this section of the network.

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. Increased levels of delay are expected all around the already congested route in 2031. This is due to the projected growth in traffic in future years, resulting from economic growth adding a significant number of new journeys onto the network. Figure 17 shows the forecast morning peak delays for 2031. The data shows that delays are expected to worsen by 2031 at several locations, including the:

- north east corner of the M25 at Junctions 27 and 28
- M1 southbound between Junction 4 and 5
- A30 Staines
- A23 Hooley

The Dartford Crossing's unique position as the only road crossing of the Thames east of London makes it one of the UK's most vital roads, but due to the huge demand it is also the most congested and least reliable. Problems at the Dartford Crossing frequently result in significant issues to traffic flow, not just at the crossing itself, but along the M25 and rippling out along other parts of the strategic and local road networks. As demand on the network grows, these effects will become more acute.

On its day of opening the Lower Thames Crossing will take around 22% of traffic off the Dartford Crossing, improving its reliability by easing congestion and reducing the likelihood of incidents at Dartford (including weather resilience), while also providing a free flowing alternative to the existing crossing. This will change traffic flows across the region, which will provide positive traffic impacts that significantly outweigh negative traffic impacts.

The Lower Thames Crossing will provide relief to the eastern section, as well as increasing the resilience of the network in this location. By increasing the capacity across the River Thames east of London by more than 80%, it will improve journey times across the Dartford Crossing and provide relief for strategic freight movement from the coastal ports in Kent and the Thames Gateway.

Key challenges

- Congestion is experienced by most motorway junctions in this part of the SRN. The M25 between Junctions 10 and 16 experiences some of the highest volumes of traffic on the SRN. Peak hour delays are most notable in this South West Quadrant, including sections of the route connecting to the M25, the A23 northbound at Hooley, and sections of the M4 and M11
- Delays are experienced in and around the Dartford Crossing and the North East
- Quadrant side of the M25. The strip between Junctions 25 and 20 in particular has a high proportion of freight traffic with vehicle routing decisions impacting journey time reliability on this section of the network
- Seasonal delay is widely experienced, on the approaches to London Heathrow Airport, around the Dartford and Thurrock vicinity and also on the northern section of the M25
- Levels of delay are forecast to be higher across the already congested route by 2031, considering the projected growth in traffic in future years



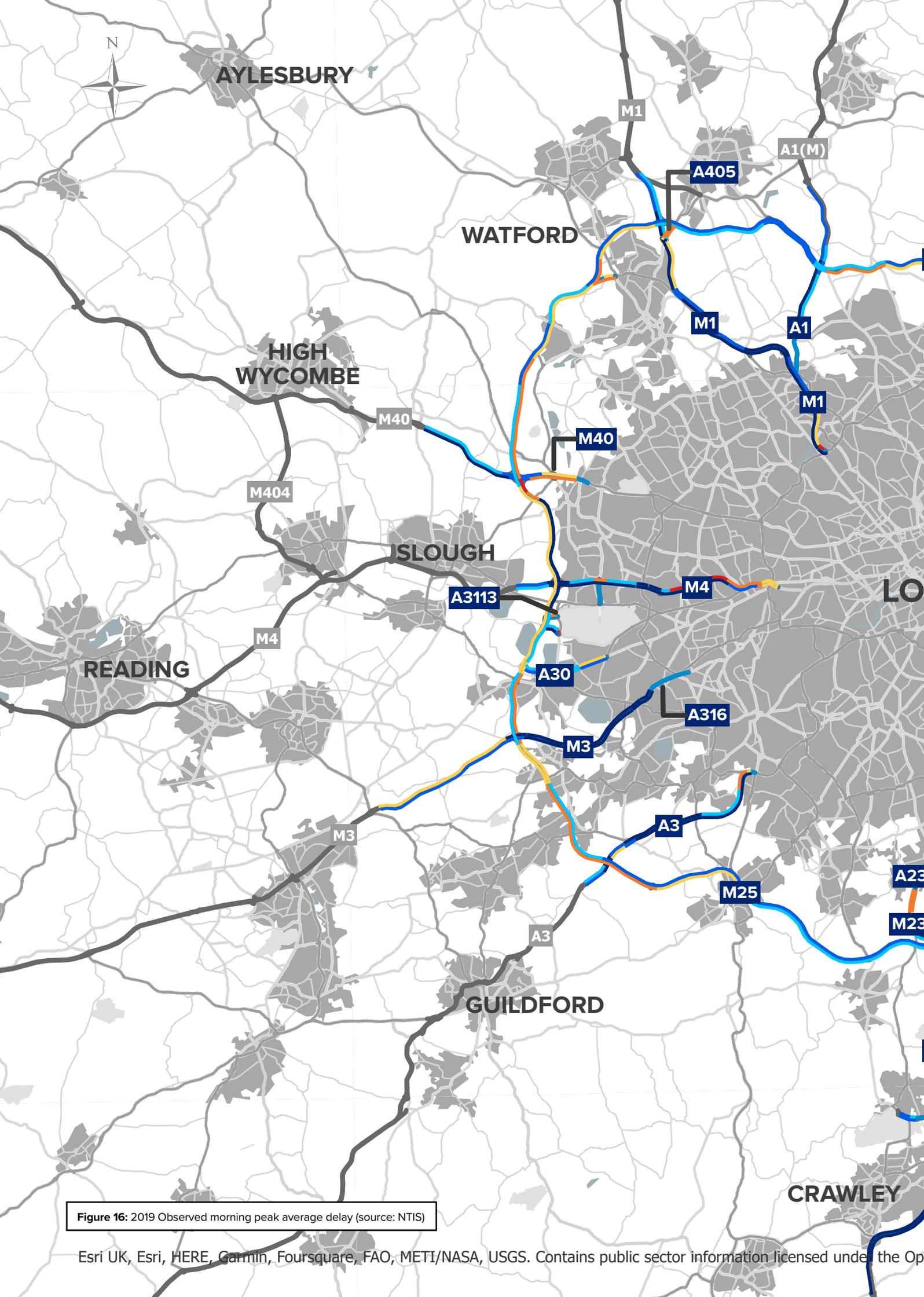
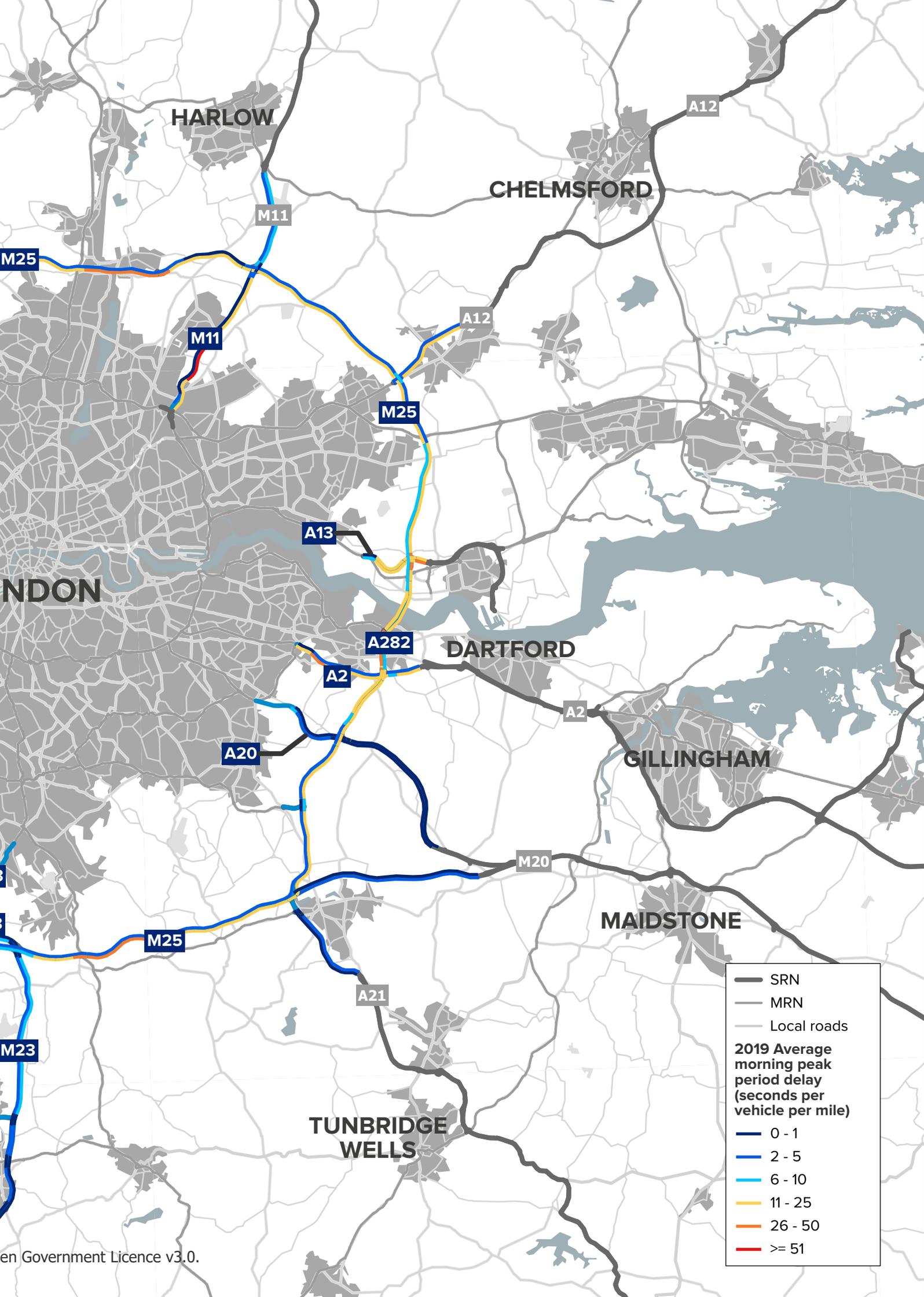


Figure 16: 2019 Observed morning peak average delay (source: NTIS)



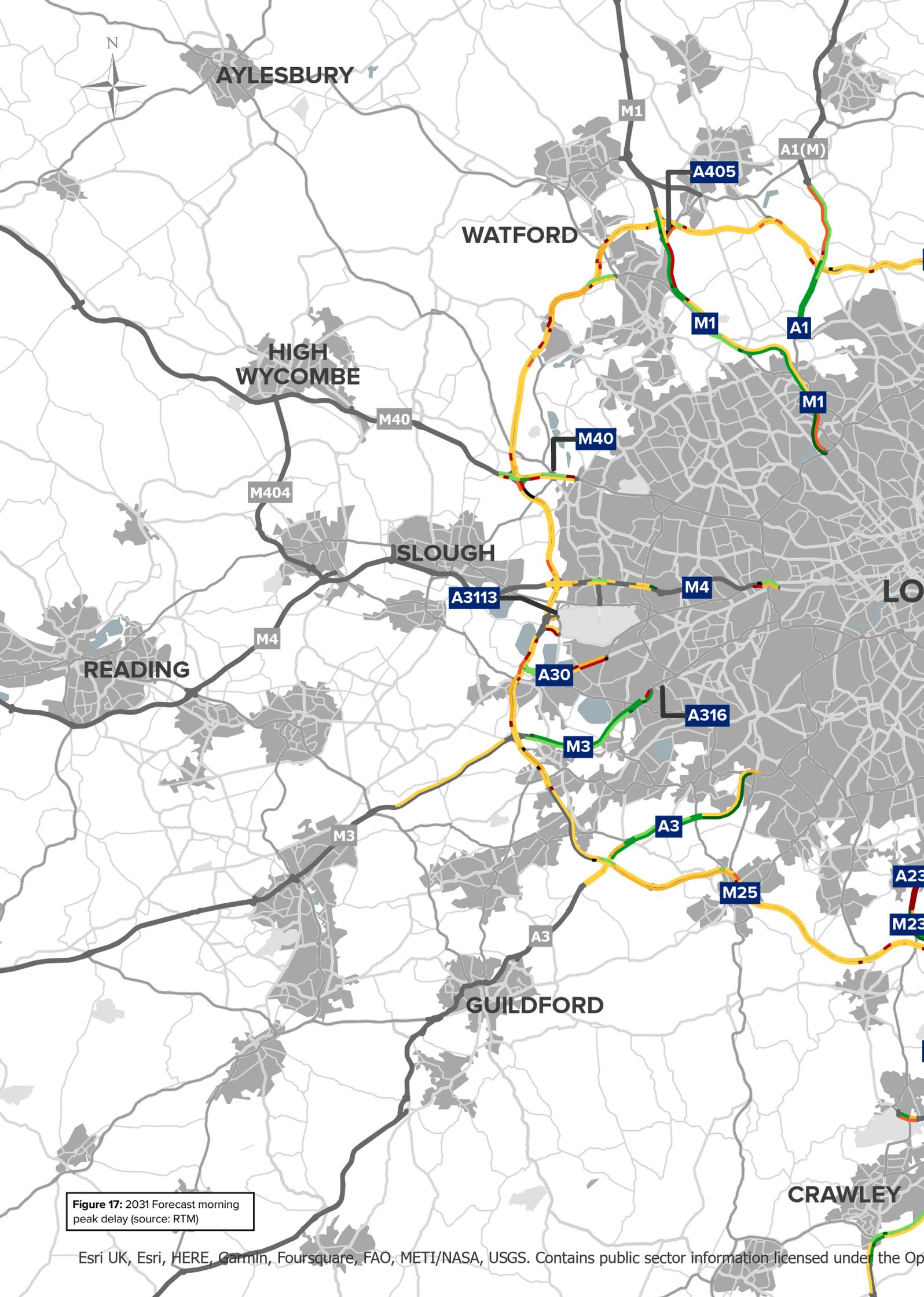
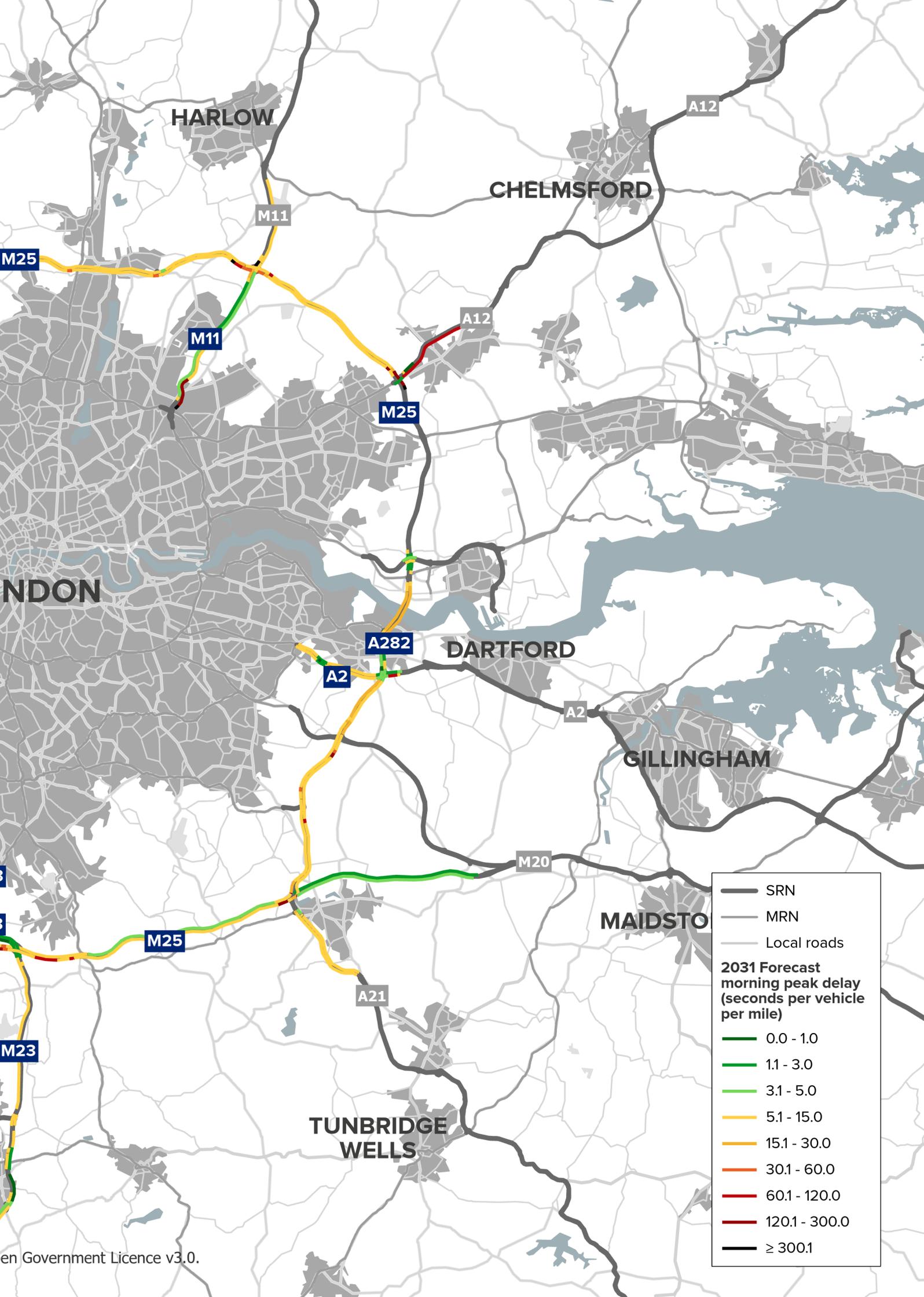


Figure 17: 2031 Forecast morning peak delay (source: RTM)



HARLOW

CHELMSFORD

NDON

DARTFORD

GILLINGHAM

MAIDSTO

TUNBRIDGE
WELLS



3. Improved environmental outcomes

Climate change is affecting society as a whole, and the transport sector is no exception. As a 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 plan³¹ to show how we will meet the target of net zero greenhouse gas emissions.

The latest climate projections from the Met Office have helped us to understand how the climate is changing, including that summers will on average be hotter and drier, while winters will be milder and wetter and critically, that extreme weather will become more common. We have also seen, from reports such as the Climate Change Committee's third³² 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.

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

While noise is often an inevitable consequence of societal activities, it can have serious implications for human health, quality

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

We are committed to net zero carbon construction by 2040 and net zero carbon travel by 2050. This will involve significant changes to the way we build and manage our network, including in the London Orbital and M23 area. We will need to consider better integration with other transport modes and how to support the transition to electric cars and zero carbon heavy goods vehicles (HGVs).

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.

³¹ 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>

³² Climate Change Committee, 2021, *Independent Assessment of Climate Risk*, <https://www.theccc.org.uk/publication/independent-assessment-of-uk-climate-risk/>

Interested parties would also like to see reduced greenhouse gas emissions by providing alternative modes of travel to encourage a lower share of journeys to be made by car, and better managing the SRN to reduce congestion and delay and the resultant high level of emissions.

The route is encircled by the Metropolitan Green Belt and has significant ecological, cultural, and environmental sensitivities. Some of the route passes through Areas of National Beauty (AONBs). These AONBs are the Kent Downs, the Surrey Hills, and the Chilterns.

Notably, there is a large concentration of environmentally designated sites in the South West Quadrant between the M4 and A3. There are also multiple listed or designated cultural heritage, water, environment, and habitat sites.

In terms of air quality, there are receptors within 100 metres of the SRN which may be more likely to experience adverse air quality impacts, and therefore most likely affected by air quality issues, are:

- at the A282 at Dartford
- close to the international airports, notably on the M25 South West Quadrant at Staines, between Addlestone and Byfleet and Waltham Cross, and the M23 at Crawley
- on SRN stubs into London. These are the M4 and A30 north and south of Heathrow, M3 at Shepperton, M1 at Garston and Edware, M11 Woodford Green, A23 Hooley, A20 Swanley, and A12 Brentwood)

A number of locations, including much of Greater London, are within or close to existing Air Quality Management Areas (AQMAs). Emissions are frequently above statutory limits in these locations.

There are receptors within 300 metres of the SRN which may be more sensitive to high noise levels. These receptors largely correlate with air quality receptors, with high concentrations of receptors on the South West Quadrant of the M25, around Gatwick and Heathrow, as well as Dartford and Waltham Cross.

Noise Important Areas (NIAs) have been identified at almost 200 locations along the route, for example at Ashtead, Leatherhead, and Merstham.

The M25 passes in close proximity to urban areas such as Enfield in the north, Dartford and Thurrock in the east, Staines in the west, and on routes into London. It can cause severance, and impacts negatively on air quality, safety, and quality of life for local communities, it presents a barrier for walkers, cyclists, and horse riders interacting in and around the network and impacts road users, including goods vehicle drivers who stop on the network.

Inclement weather can cause issues at some locations on the route. For example, the M25 between Junctions 7 and 8 is vulnerable to snowfall and ice formation, while Queen Elizabeth II bridge closures on the A282 at Dartford can be caused by high winds, resulting in delays. Some links (for example the M1 between Junctions 4 and 5) may be at risk of flooding during intense rainfall.

Key challenges

- Impacts of traffic on the Metropolitan Green Belt, AONBs and designated cultural heritage, water, environment, and habitat sites
- Impacts of traffic-related severance, noise, and air quality upon local communities with existing AQMAs and NIAs in place
- There are a number of receptors along sections of the route which may be more sensitive to existing air quality and noise issues, including around the A282 at Dartford, locations in close proximity to the international airports on the M25 and M23, and on several of the SRN stubs into London
- Exposure of certain parts of the route to inclement weather. The M25 between Junctions 7 and 8 is vulnerable to snow fall and ice formation while QEII bridge closures on the A282 at Dartford can be caused by high winds and some links (for example the M1 Junctions 4-5 and in the South West Quadrant) may be at risk of flooding during intense rainfall events



4. Growing the economy

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

Along with the service sector, information and communication, and financial and insurance activities are the predominant economies in the region. These are of particular relevance to the London Orbital and M23 route, which provides transport network integration between the economies of London and the South East region.

The route services traffic to and from three London airports, regional shopping centres, and major warehousing and distribution centres around the route. There are also relatively short local commuter movements to and from outer London along it.

As part of the strategic transport network spanning the entire United Kingdom, the route facilitates movement between eight adjacent routes, including freight movements to and from the south coast, Kent, and Thames Gateway coastal ports.

The route also acts as a main interchange between strategic routes into and out of London, and as a bypass of the capital. Rail is fundamental in supporting the regional economy and retains a strong relationship with major growth corridors and economic opportunity areas in London and supports several local enterprise partnership areas.

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

The Government's levelling up agenda is contributing to significant development across the region, which will exacerbate pressure on the London Orbital. Notably, the Dartford Crossing provides the only river crossing on the SRN east of London, so already experiences considerable congestion.

The index of priority places for the Government's 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.

The London Orbital serves the national economic growth agenda via safe and reliable connectivity to SRN routes to the wider UK. But there are locations with deprivation close to the M25, including:

- Gravesend
- East London

Economic development continues around the route. Many local plans and Local Enterprise Partnerships indicate substantial growth in future years, which will be exacerbated by recent announcements set to increase housing delivery. This includes pressure from growth associated with five key growth corridors outlined in a The London Plan 2021³³.

- The Wandle Valley
- Croydon
- Old Oak
- Park Royal
- Bexley Riverside

The London Plan sets out economic opportunity areas in London, and Local Plans for local planning authorities also set out growth aspirations.

To the east, issues of congestion are already experienced at the Dartford Crossing. This crossing and its approaches will become more in demand with growth pressures in East London and Thurrock. Additional demand pressures include those associated with the East Surrey M25 Strategic Corridor and significant growth in the Thames Estuary, including the Thames Gateway corridor, one of the biggest growth areas in Europe, Ebbsfleet Garden City and London Resort, and at international gateways.

Key challenges

- Key role played by the London Orbital and M23 in connecting the UK's two largest economies in London and the South East, as well as a strategic role for UK-wide economic development connecting international gateways in the region with the rest of the UK
- Locations of deprivation close to the London Orbital and M23 with Gravesend and East London identified as priorities for the Levelling Up Fund, even though London and South East are the UK's two largest economies
- Significant and important developments on the route, notably in the Thames Estuary and at major international gateways that will increase pressure to the east of the route. The Lower Thames Crossing will look to address these pressures

³³ Mayor of London, 2021, *The London Plan 2021* <https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/london-plan-2021>



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 3 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 2,250 lane-kilometers of road surfacing.

The surface condition across the route is considered to be sound, with 99% of pavement asset not requiring investigation for possible maintenance.

Bridges and structures

There are 2,256 structures across the route, including bridges and large culverts. According to an analysis of current data, 94% 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 5 structures in this route.

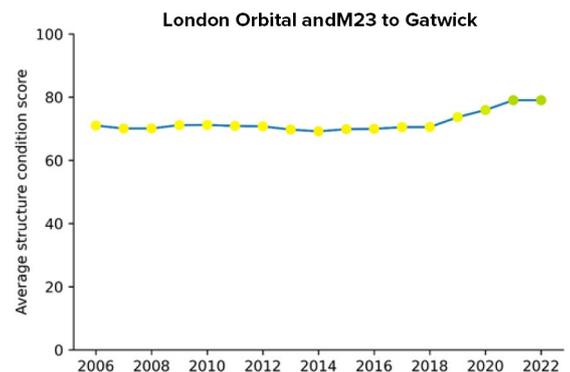


Figure 18: Average condition scores of structures, since 2006

This route has four tunnels, the Holmesdale tunnel, which opened to traffic in 1984, Bell Common tunnel (1985) and the Dartford tunnels (1963 and 1980). The management of tunnel assets vary from the management of other structures in two ways. Firstly, the assets within a tunnel have a wide variety of design lives, from 120 years for the tunnel structure, to far less for the technology systems for operations and fire life safety. Secondly, tunnel systems require 24/7 control by our operations centres, to maintain safe operation.

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



The average condition of the structures on each of National Highways' Routes is either 'Good' or 'Very Good'

70

The average condition score is the aggregated result of structural components, into a single metric, accounting for the relative importance and size of each component. A score of 100 indicates perfect (as new) condition.

There are no Routes with an average condition score below 70.

100

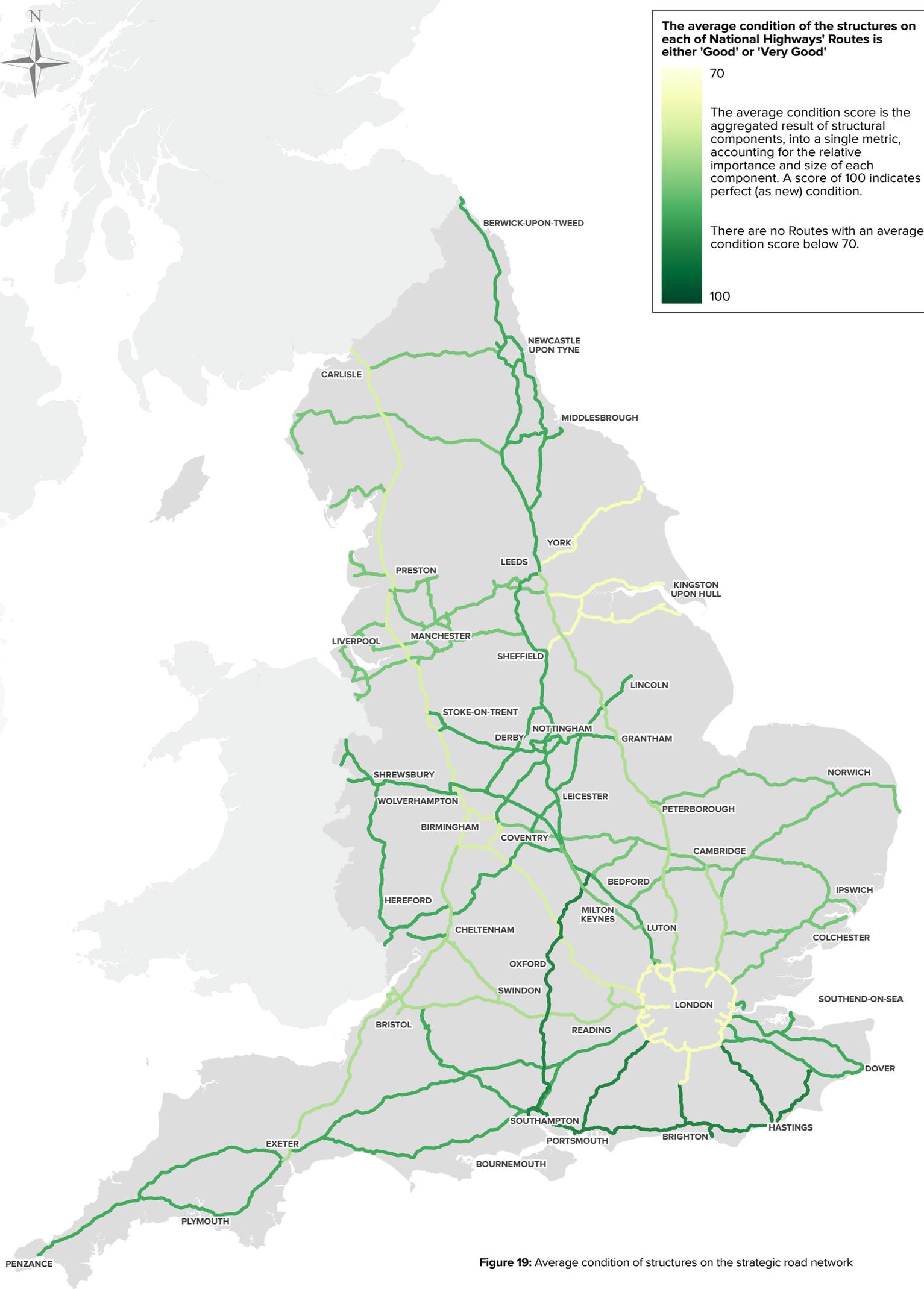


Figure 19: Average condition of structures on the strategic road network



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 quality of journey experience
- allow people to make more informed travel choices including about when and how to travel

Technology provision varies across the route. The London Orbital is mostly controlled motorway, and there are sections of all lane running smart motorway from Junctions 5 to 6 and 23 to 27.

We will support improved communications and facilities for all

Technology and information systems on the motorways leading in to and out of London is less extensive, and is largely absent on the rest of the SRN. Within London, responsibility for managing London's road network is shared between Transport for London, the 32 London local authority districts, and National Highways. The responsibility for improving technology is largely shared among these bodies.

This situation is exacerbated by the fact that many traffic signals are adjacent to local authority controlled areas, but are sometimes running with different technology and optimisation leading to a lack of coordination. Improved integration between our route and the local highway and major road networks improving the reliability and efficiency of the route both in and outside the capital.

An essential facet of a resilient road network is the ability to effectively divert traffic. In some cases, diversionary routes are less suitable for HGVs. Information provision can influence route choice, with satellite navigation systems and mobile phone apps directing traffic onto local roads. This can result in secondary impacts in the form of increased congestion and associated environmental impacts. Diversion routes to the west of the Dartford Crossing can cause large diversions into London via major and local road networks.

The Government's March 2022 *Taking charge: the electric vehicle infrastructure strategy*³⁴ sets out a vision for 2030 where charging infrastructure will be removed as both a perceived and real barrier to the adoption of electric vehicles. The Strategy outlines the intention to accelerate the rollout of high-powered chargers on the SRN through the £950m Rapid Charging Fund³⁵.

Key challenges

- Limited systems for communicating with road users and technology interface with the systems used in adjacent areas, for example the Kent Corridors
- Limited technology on routes into and out of London, even though the London Orbital is mostly controlled motorway and there are sections of all lane running smart motorway.
- This includes the interface of the technology systems used on the London Orbital and M23 with those technology systems utilised on both the Kent Corridors route and the Local Road Network, notably where it extends into London
- Lack of coordination with some traffic signals adjacent to local authority controlled areas
- Unsuitable diversion routes, for example to the west of the Dartford Crossing, can cause large diversions into London via major and local road networks

³⁴ HM Government, March 2022, *Taking charge: the electric vehicle infrastructure strategy* <https://www.gov.uk/government/publications/uk-electric-vehicle-infrastructure-strategy>

³⁵ <https://www.gov.uk/guidance/rapid-charging-fund>



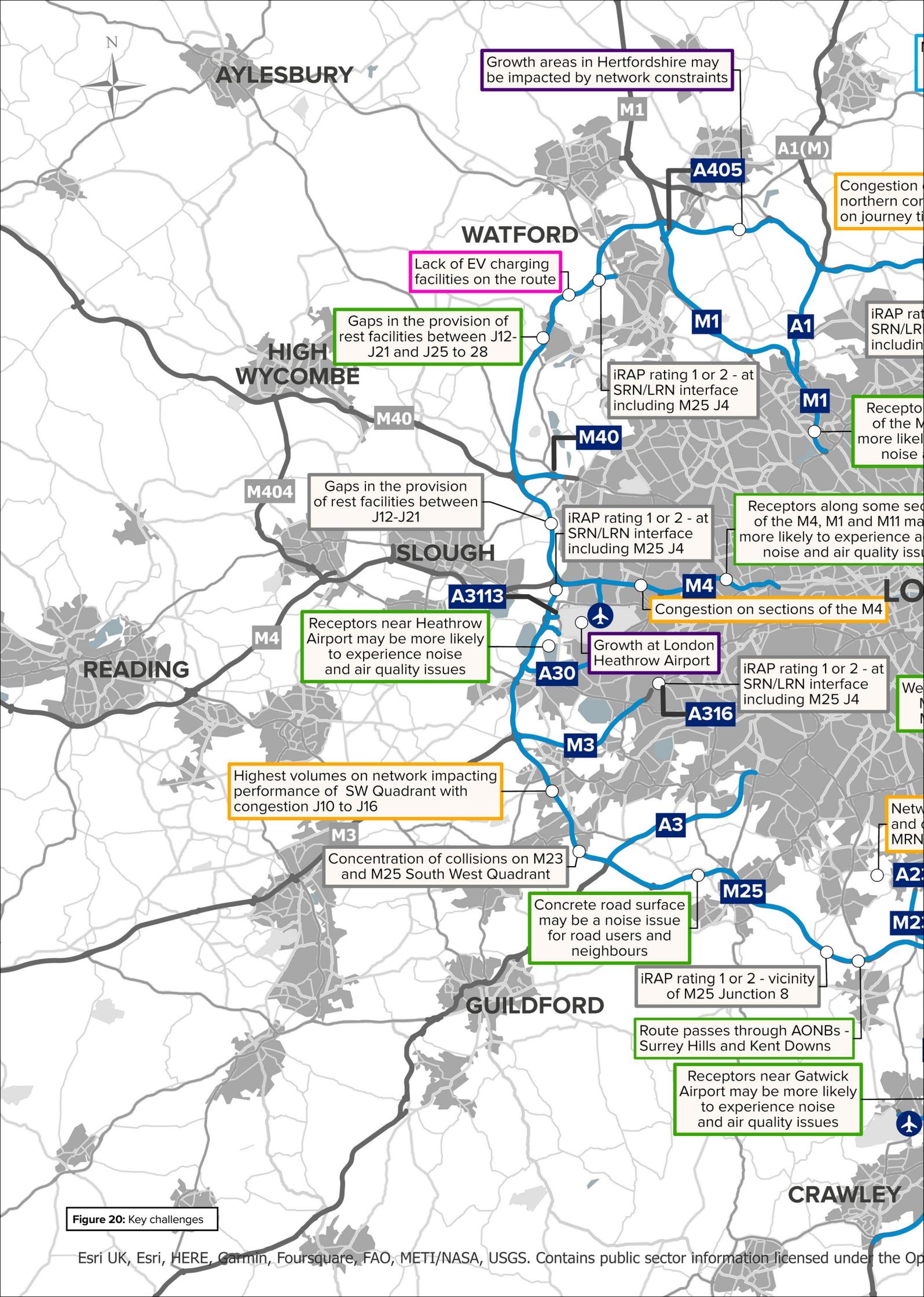
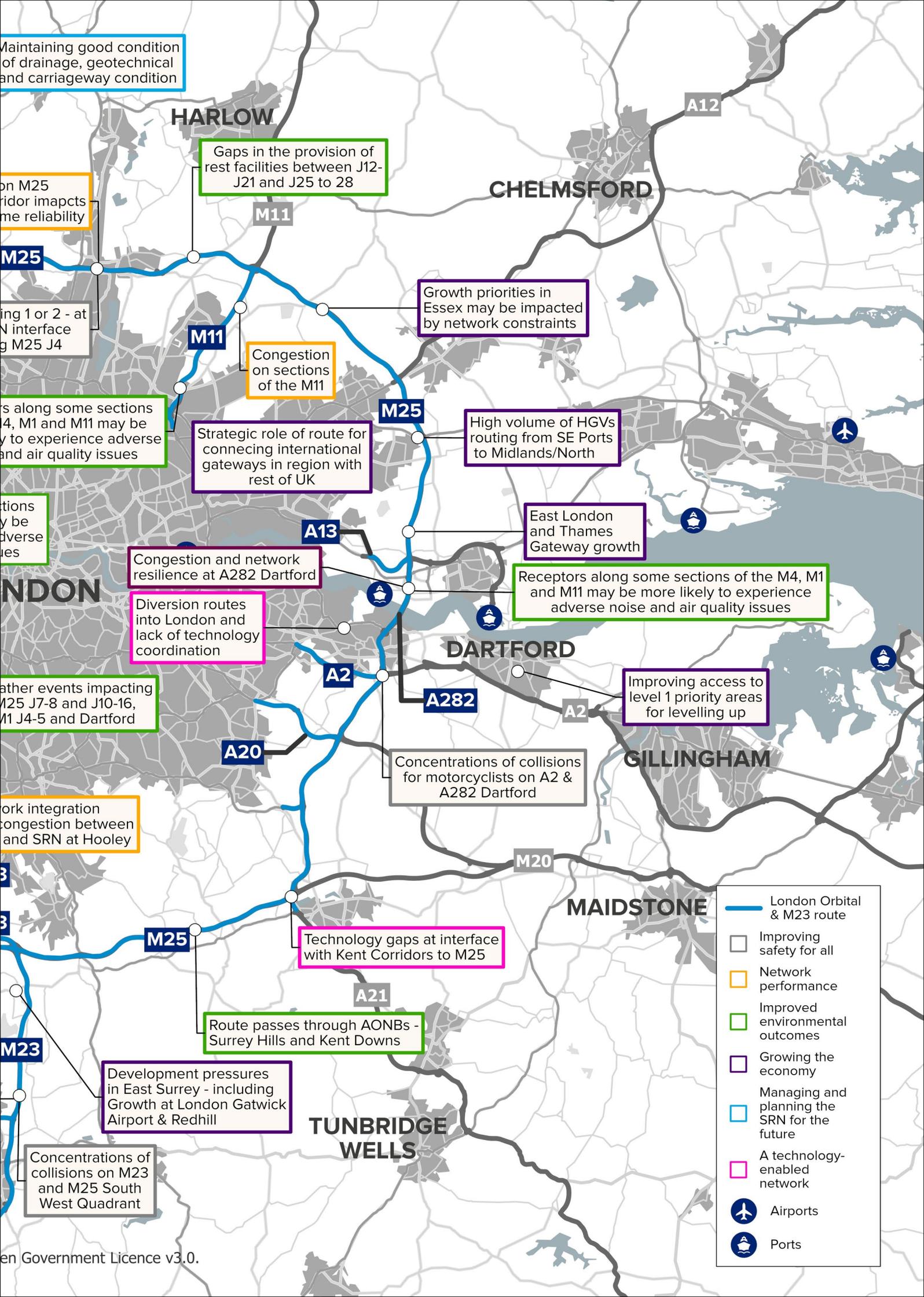


Figure 20: Key challenges



Maintaining good condition of drainage, geotechnical and carriageway condition

on M25 corridor impacts time reliability

ing 1 or 2 - at N interface g M25 J4

s along some sections M4, M1 and M11 may be y to experience adverse and air quality issues

tions y be dverse es

ather events impacting M25 J7-8 and J10-16, M1 J4-5 and Dartford

ork integration ongestion between and SRN at Hooley

Concentrations of collisions on M23 and M25 South West Quadrant

en Government Licence v3.0.

Gaps in the provision of rest facilities between J12-J21 and J25 to 28

Congestion on sections of the M11

Strategic role of route for connecting international gateways in region with rest of UK

Congestion and network resilience at A282 Dartford

Diversion routes into London and lack of technology coordination

Growth priorities in Essex may be impacted by network constraints

High volume of HGVs routing from SE Ports to Midlands/North

East London and Thames Gateway growth

Receptors along some sections of the M4, M1 and M11 may be more likely to experience adverse noise and air quality issues

Improving access to level 1 priority areas for levelling up

Concentrations of collisions for motorcyclists on A2 & A282 Dartford

Technology gaps at interface with Kent Corridors to M25

Route passes through AONBs - Surrey Hills and Kent Downs

Development pressures in East Surrey - including Growth at London Gatwick Airport & Redhill

- London Orbital & M23 route
- Improving safety for all
- Network performance
- Improved environmental outcomes
- Growing the economy
- Managing and planning the SRN for the future
- A technology-enabled network
- Airports
- Ports



**Our
ambition for
the route**

06 Initial route objectives

We want to provide safer and more reliable journeys for all those who use or live alongside our network on the London Orbital and M23 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 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 (SRN).

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	Promote the safe and reliable strategic function of the London Orbital. Improve efficiency of the road network for strategic journeys using the M25, and support improved choices for local journeys on the SRN within the region, in particular the South West Quadrant and at Dartford
	B	Support sustainable development in London and the wider South East region. Improve regional connectivity including through effective integration with sustainable transport modes to minimise the impact of short-distance journeys from key growth areas and strategic development sites, notably in the Thames Gateway and Essex, to benefit the economy
	C	Encourage sustainable access to London's International Airports. Support mode choice solutions for access to the key international airports in and around London, notably at Heathrow and Gatwick, broadening route choice and improving experience for road users travelling to the airports and sharing road space on the M25 South West Quadrant and the M23 in particular
	D	Address severance issues between the SRN and urban environments within and around London. Be a better neighbour in particular in and around the M1, M11, M3 and M4 corridors to reduce severance by complementing the quality of life, and interaction with local communities at its point of integration with the urban environment
	E	Improve transport connections into the Capital. Improve transport connectivity on arterial routes between the Capital and the surrounding regions, providing consistent and connected journeys to improve end-to-end experiences for all users of the route and wider transport network
	F	Support UK economic growth with safe and efficient freight connections to international gateways. Improve network resilience and reduce delay for freight, notably in the east and north of the London Orbital, with improved cross-river connectivity for all road users connecting to international gateways, particularly on the south coast and the Thames Estuary
	G	Support the London Orbital being a better neighbour. Ensure the environmental impacts of the London Orbital are minimised by enabling sustainable infrastructure for all road users, reduce the impact of travel on neighbours, and protect areas with environmental designations around the route notably adjacent Site of Special Scientific Interest, Kent Downs and Surrey Hills Area of Outstanding Natural Beauty

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 technology-enabled network
✓	✓			✓	
	✓		✓		
	✓		✓		
✓		✓			
	✓		✓	✓	✓
	✓		✓	✓	
		✓		✓	✓

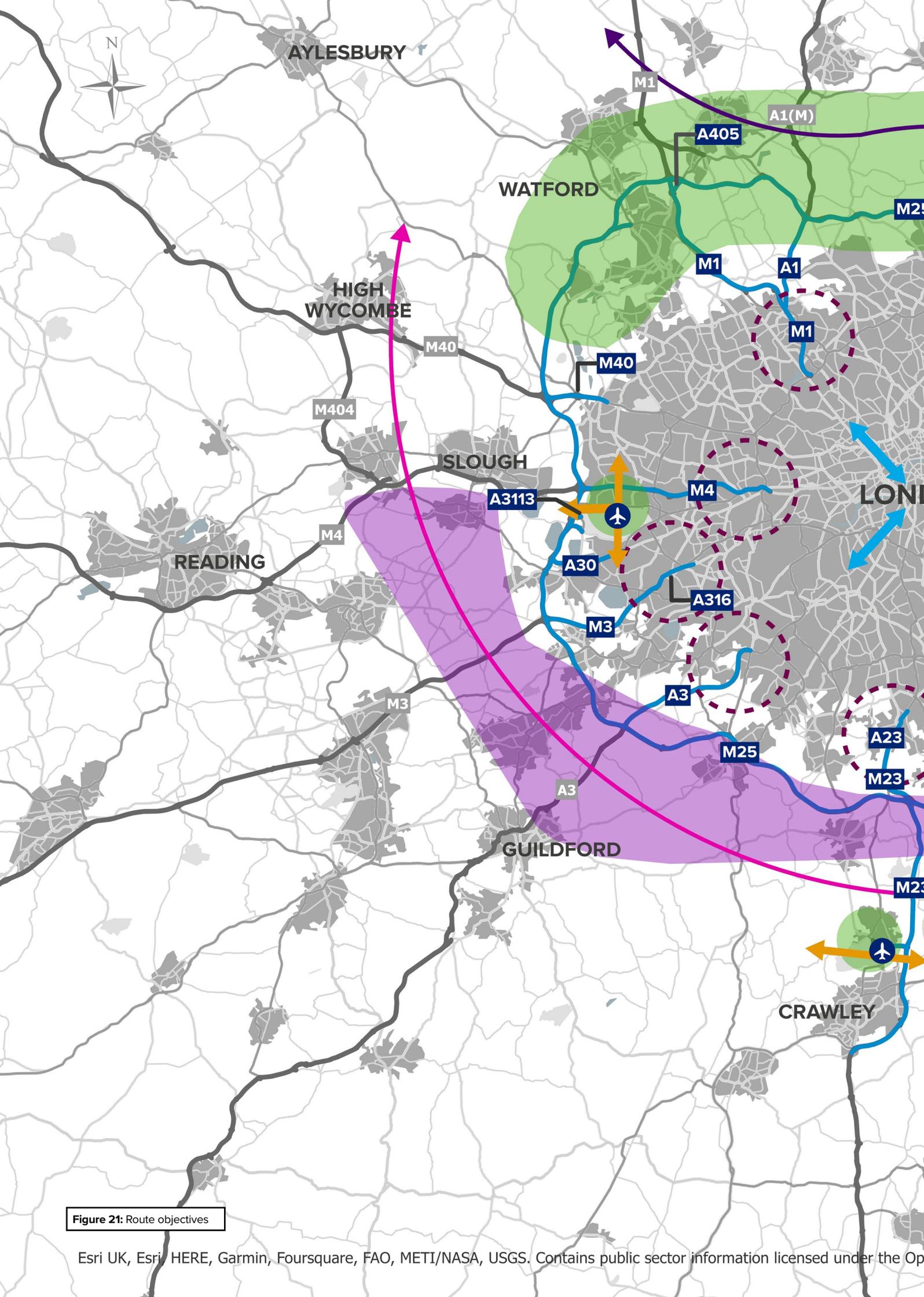
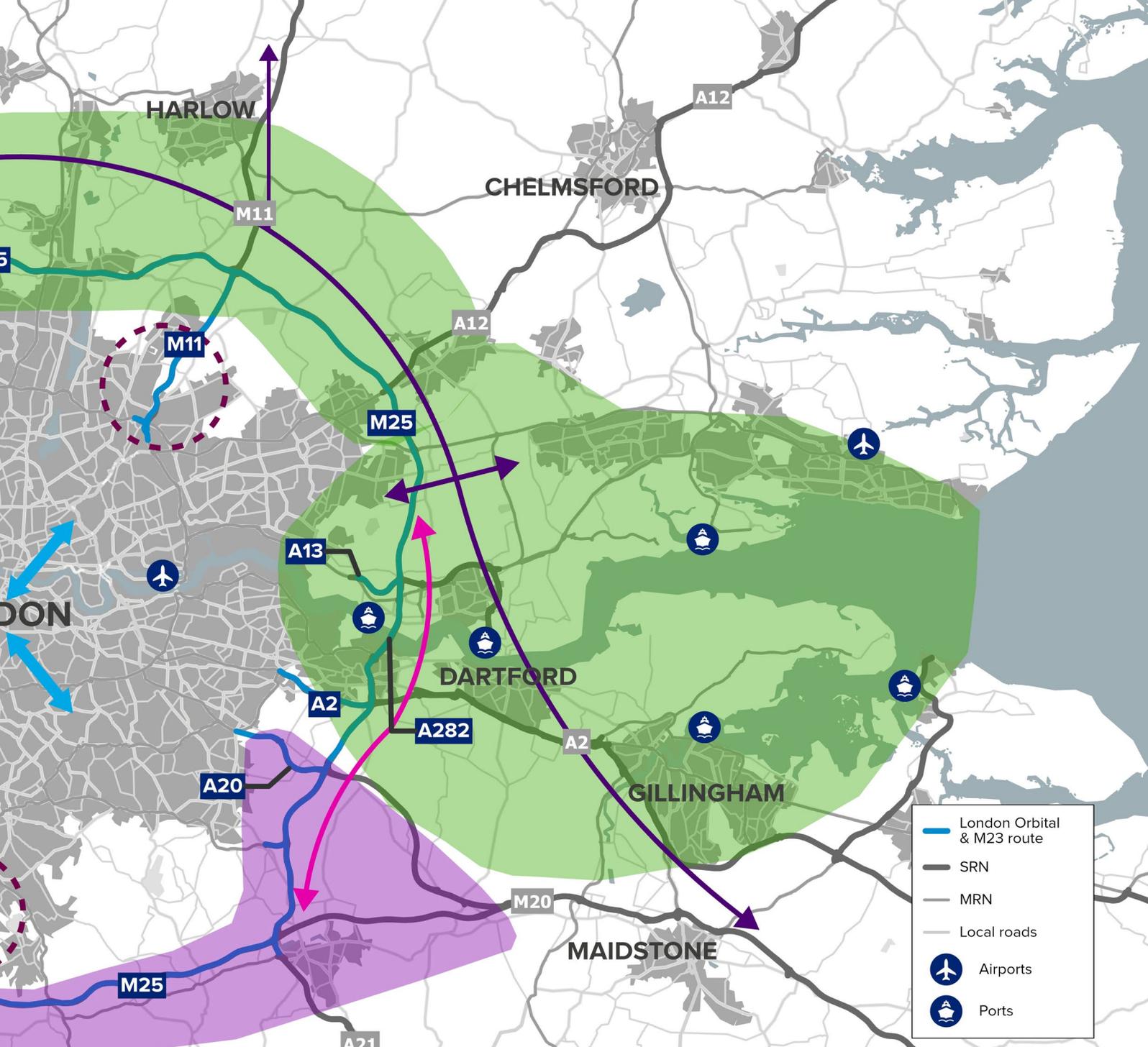


Figure 21: Route objectives



-  London Orbital & M23 route
-  SRN
-  MRN
-  Local roads
-  Airports
-  Ports

Route objectives

-  **A. Promote the safe and reliable strategic function of the London Orbital.** Improve efficiency of the road network for strategic journeys using the M25, and support improved choices for local journeys on the SRN within the region, in particular the South West Quadrant and at Dartford
-  **B. Support sustainable development in London and the wider South East region.** Improve regional connectivity, including through effective integration with sustainable transport modes to minimise the impact of short-distance journeys from key growth areas and strategic development sites, notably in the Thames Gateway and Essex, to benefit the economy
-  **C. Encourage sustainable access to London's International Airports.** Support mode choice solutions for access to the key international airports in and around London, notably at Heathrow and Gatwick, broadening route choice and improving experience for road users travelling to the airports and sharing road space on the M25 South West Quadrant and M23 in particular
-  **D. Address severance issues between the SRN and urban environments within and around London.** Be a better neighbour, in particular in and around the M1, M11, M3 and M4 corridors, to reduce severance by complementing the quality of life, and interaction with local communities at its point of integration with the urban environment

-  **E. Improve transport connections into the Capital.** Improve transport connectivity on arterial routes between the capital and the surrounding regions, providing consistent and connected journeys to improve end-to-end experiences for all users of the route and wider transport network
-  **F. Support UK economic growth with safe and efficient freight connections to international gateways.** Improve network resilience and reduce delay for freight, notably in the east and north of the London Orbital, with improved cross-river connectivity for all road users connecting to international gateways, particularly on the south coast and the Thames Estuary
-  **G. Support the London Orbital being a better neighbour.** Ensure the environmental impacts of the London Orbital are minimised by enabling sustainable infrastructure for all road users, reduce the impact of travel on neighbours, and protect areas with environmental designations around the route notably adjacent Site of Special Scientific Interest, and Kent Downs and Surrey Hills Areas of Outstanding Natural Beauty



A. Promote the safe and reliable strategic function of the London Orbital

Objective

Improve efficiency of the road network for strategic journeys using the M25, and support improved choices for local journeys on the SRN within the region, in particular the South West Quadrant and at Dartford

Context

The London Orbital was originally built as a ring road around London. It was constructed mostly as a dual three-lane motorway and much of this has since been widened. The London Orbital now experiences more traffic than it was designed for and, at some times, more traffic than the current design with additional lanes was designed for. This is due to both an increase in strategic journeys and the fact that several junctions solely serve local, rather than strategic, roads – this results in junction hopping on the London Orbital, where local journeys use the M25 for short-distance trips. This is exacerbated by limited, and low-capacity orbital rail alternatives that increase journeys made by road.

The London Orbital now forms a central hub for the strategic road network (SRN) around London, connecting the country via radial routes emanating from the capital. It remains one of the most congested routes on the SRN, particularly around Heathrow Airport and the Dartford Crossing, which have some of the network's most congested links.

Our network considerations

Numerous routes interact with the M25, with major interchanges experiencing congestion, including Junction 10 with the A3 for the south coast, Junction 15 with the M4 for Wales, Junctions 21 with the M1 for the North and Junctions 30 with the A13 for Thames Freeports and Southend-on-Sea.

Peak hour delays are most notable at the Dartford Crossing and the South West Quadrant, with the M25 between Junctions 10 to 16 experiencing some of the highest traffic volumes on the SRN. Compared to other parts of the SRN, the section has a relatively high proportion of 'junction hopping' commuter traffic, whereby people travel only one or two junctions between, for example, Surrey and West London. Considering the projected growth in traffic in future years, increased levels of delay are expected all around the already congested route in 2031.

The Dartford Crossing is the only river crossing on the SRN east of London and is also one of the more congested SRN sections.

The Lower Thames Crossing would increase capacity for a significant number of forecast new journeys on the network.

The highest numbers of collisions where someone is killed or seriously injured are found on sections of the route that are most heavily populated by airport traffic, both passenger and freight. Interested parties commented that with incidents occurring on the

most heavily trafficked sections of the network, consequential delays can be significant. Interested parties also identified the M25 between Junctions 24 to 26 as having congestion and safety issues. The lowest iRAP star ratings of 1-star or 2-star are predominantly located where the SRN intersects with the local road network, such as the M25 Junctions 14, 19 and 25, and M3 Junction 1.

A lack of capacity on, or indeed provision of, alternative orbital transport options, and this lack of outer-orbital capacity (beyond the M25) results in traffic routing via the London Orbital to interchange between other sections of the SRN. This impacts on journey time reliability, impacting leisure, commuting and business journeys, as well as economic impacts on freight movement across the nation, particularly during incidents.

Interested parties raised that local roads are impacted by cut-through and diverted journeys. Examples of this include Dartford in the east, Leatherhead to the south, and Iver to the west of the London Orbital. This can be worsened by satellite navigation mobile phone applications routing strategic traffic onto local roads.

Interested parties also raised that a lack of M25 motorway services between Junctions 12 and 21 and Junctions 25 and 28 also represent gaps in the provision of rest facilities for drivers. This affects safety and, potentially, road user satisfaction.

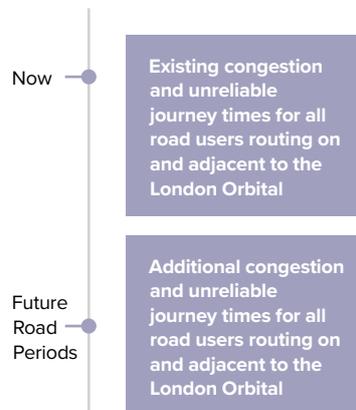
Outcomes

- Improved network conditions, notably congestion, safety and efficiency on key route sections and major interchanges of the London Orbital and the adjacent local road network
- Improved network resilience, with issues of diversions and cut through traffic on local road network by strategic traffic reduced
- Improving connectivity via the increased use of outer orbital roads and modal shift to public transport for non-strategic journeys

DfT's Strategic objectives

-  Improving safety for all
-  Network performance
-  Managing and planning the SRN for the future

Timeframe based on the issues and constraints identified





B. Support sustainable development in London and the wider South East region

Objective

Improve regional connectivity, including through effective integration with sustainable transport modes to minimise the impact of short-distance journeys from key growth areas and strategic development sites, notably in the Thames Gateway and Essex, to benefit the economy

Context

The route encircles almost all of Greater London. With the London Orbital at the centre of the motorway network, the surrounding South East region has become a key economic hub and the largest economy of any region in the UK after London, in large part due to its rail connectivity. However, there are also locations close to the route at Gravesend and in East London identified as government priorities for levelling up.

The route plays a key role in connecting people and jobs at a regional level, and companies to their customers. But the large number of economic opportunity areas identified in the area, combined with the traffic from the international gateways connected to the M25, mean any impacts on the resilience and accessibility of the network from higher demand could act as a constraint on delivering future growth, with interested parties citing Essex and Hertfordshire as examples.

A safe and efficient London Orbital will contribute to growing the economy and encourage job creation at economic growth hubs. Effective spatial planning should prioritise sustainability in modal choice and encourage a multi-modal perspective in travel behaviour.

Our network considerations

We plan for growth in a way that works locally, recognising that improved transport network connectivity is at the heart of unlocking the region's potential. However, the route remains one of the most congested. This reduces network capacity, causing reliability issues on local roads, and constraining local growth opportunities in these areas.

There is significant need for new housing in the South East, and notable development areas are present in and around London. These include:

- International hubs at Heathrow and Gatwick, with growth around Crawley to the south
- The Thames Gateway corridor
- Barking Riverside
- Thamesmead
- Local Plan growth across the London Boroughs, and surrounding County and Unitary Authorities

In addition, there is growth in the wider region on corridors out of London, including the London-Luton-Bedford Corridor (relevant to outer northwest London boroughs) that links industries around Watford near M25 Junction 20, and the London-Stansted-Cambridge-Peterborough Corridor (connecting North East London), which includes the Upper Lee Valley Opportunity Area, and Broxbourne near M25 Junction 25.

Capacity issues have been identified by data and interested party feedback. Existing capacity at the Dartford Crossing and its approaches will become more significant due to the need to accommodate growth in East London, Thurrock, and that associated with the Thames Gateway, which is one of the biggest growth areas in Europe. Considering the projected growth in traffic in future years, with economic growth activity adding a significant number of new journeys on to the network, 2031 forecasts predict increased levels of delay all around the already congested route.

The Lower Thames Crossing would provide relief for this traffic, supporting projected economic growth by increasing capacity for a significant number of forecast new journeys on the network.

Support for sustainable residential and commercial development should be balanced with investment in the wider transport network by providing multi-modal solutions in collaboration with partners. Interested parties raised that there are rail assets, for example the North Downs Line (Reading to Gatwick), which could be improved to deliver additional, faster trains and improve the attractiveness of rail. This would support economic growth without additional pressure on the SRN.

Outcomes

- Increase in sustainable travel to reduce congestion and improve journey reliability on the SRN, and at interfaces of the SRN and MRN to benefit the regional economy
- Infrastructure and development that encourages sustainable travel to unlock suppressed demand around the Thames Gateway, and the Gatwick and Heathrow growth areas, bringing benefits to local and regional economies through job creation, growth, and investment
- Protection of environmental assets and better integrated transport network, through strategic joined up thinking and economic strategies across the regions

DfT's Strategic objectives

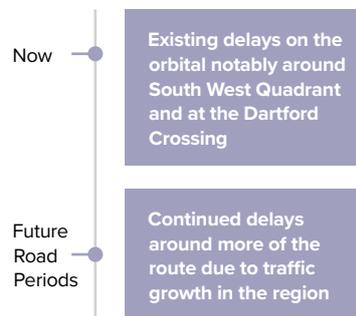


Network performance



Growing the economy

Timeframe based on the issues and constraints identified





C. Encourage sustainable access to London's International Airports

Objective

Support mode choice solutions for access to the key international airports in and around London, notably at Heathrow and Gatwick, broadening route choice and improving experience for road users travelling to the airports and sharing road space on the M25 South West Quadrant and M23 in particular

Context

There are a number of international airports within our route:

- London Heathrow Airport handles 75-80 million passengers and 1.5 million cubic tonnes of freight per year
- London Gatwick Airport handles 40-45 million passengers and 100,000-110,000 cubic tonnes of freight per year
- London City, London Stansted, London Southend, and London Luton are all close to the route and together handle 50-53 million passengers and 250,000–260,000 cubic tonnes of freight per year

Combined, London airports facilitate 60% of total UK passenger air travel (50% from Heathrow and Gatwick alone), and 77% of total UK air freight. Continued growth is expected as Heathrow Airport remains the Government's current preferred location for airport capacity increases.

Gatwick Airport plans to use its existing second runway more frequently, and as such both are strategic hubs for economic growth. London Stansted Airport and London Luton Airport both have plans for expansion, and the Union Connectivity Review by Sir Peter Hendy CBE also recommends better supporting domestic routes from London Airports where journeys are too long to be reasonably undertaken by road or rail.

The international gateways rely on the London Orbital and M23 alongside existing passenger rail facilities for staff and passenger access. However, there is limited capacity to enter or leave the M25 around Heathrow and M23 at Gatwick.

Our network considerations

The London Orbital provides direct access to Heathrow and Gatwick. All other London airports are accessible from the SRN within a 20 mile radius, so rely on the M25, alongside existing rail facilities, for staff, passenger, and commercial freight access to the airports. However, there is an existing lack of capacity to enter and leave the M25, notably around Heathrow and the M23 at Gatwick. Data indicates that the approaches to London Heathrow Airport, around the Dartford and Thurrock vicinity and also on the northern section of the M25 can also be subject to seasonal delay. Interested parties cited congestion on the network when joining to and from the M1 onto the M25 can also affect travel times to London Luton Airport.

Interested parties raised that future demand may create pressures on the route, with significant economic growth centred around the international gateways and Heathrow and Gatwick. The SRN is currently essential to access these major international gateways due to inadequate alternative provision to accommodate demand. Although there are strong radial rail links from the Airports into London, access by public transport is limited from elsewhere. This is most notable into Heathrow from the west, and low-capacity transport network alternatives east-west in the region, including through the South West Quadrant.

Generally, high passenger rail demand also limits capacity to move freight by rail in and out of region. Opportunities exist for increased rail mode share, for example through Western Rail Access to Heathrow, Heathrow Southern Link, and connectivity improvements to Gatwick from the east and west with improvements to the North Downs line, and with improvements at Croydon for connectivity to London.

Sustainable mode and route choice will benefit the current and future airport demands for access to airports and improve road user experience on the SRN.

Outcomes

- Economy supported through improved access to the international gateways
- Improved congestion, reliability and road safety conditions on the M25 South West Quadrant and M23, making best use of existing network capacity around the international airports
- Increased public transport usage for airport access, bringing environmental benefits

DfT's Strategic objectives

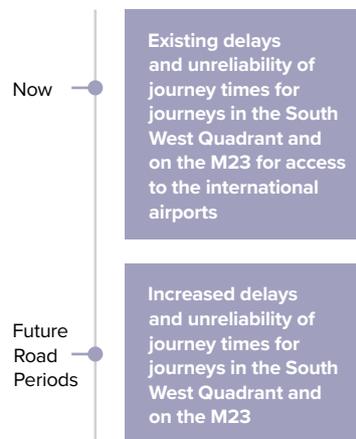


Network performance



Growing the economy

Timeframe based on the issues and constraints identified





D. Address severance issues between the SRN and urban environments within and around London

Objective

Be a better neighbour, in particular in and around the M1, M11, M3 and M4 corridors, to reduce severance by complementing the quality of life, and interaction with local communities at its point of integration with the urban environment

Context

The people who live and work in communities and places alongside the SRN can be affected by network changes as much as the people using the network.

The London Orbital circumnavigates Greater London, but the route also includes the M23 and numerous spurs extending to the North and South Circular Roads around Central London. Responsibility for managing the road network in the vicinity of the route is shared between TfL, County Councils, 32 London local authority districts, and National Highways.

The route passes through numerous urban areas contributing towards severance, and negative air quality and noise impacts at many locations. Interested parties also raised opportunities to promote active travel, and address the negative impacts of road-based travel for route corridor neighbours in London and surrounding authorities.

The M1 and M11 extend into London to the North Circular and the M3 and M4 to the South Circular Road. This requires integration with local planning and transport operations, such as the M3 at Sunbury Common, while protecting the national strategic role of the SRN.

Our network considerations

The sections of route exhibiting lower safety ratings are predominantly where the SRN interacts with the local road network around Heathrow, Watford, and Sunbury to the west of the route, as well as Dartford. The highest density of collisions where someone is killed or seriously injured that involve motorcyclists, walkers, cyclists or horse-riders, are found on the sections of the route extending into London, where local journeys by active modes interface with strategic traffic.

The M25 passes through urban areas such as Enfield in the north, Dartford and Thurrock in the east, Staines in the west, and the route passes through London Suburbs connecting into the capital's road network, including motorway spurs, as well as A-roads with direct frontage access, including the A2, A13 and A20 in the east, A23 and A3 to the south, A30 and A3113 to the west, and A1 to the north.

Noise Improvement Areas (NIAs) have been identified within and around the route, and a number of locations are within or close to Air Quality Management Areas (AQMAs). Receptor locations that may be more

likely affected by air quality and higher noise levels include Dartford, locations in close proximity to the international airports on the M25 and M23, and on several of the SRN stubs, including M4 and A30 north and south of Heathrow, M3 at Shepperton, M1 at Garston and Edgware, M11 Woodford Green, A23 Hooley, A20 Swanley and A12 Brentwood.

At these locations, traffic may impact negatively on air quality, safety, and quality of life for local communities. It can also cause severance, presenting a barrier for walkers, cyclists and horse riders interacting in and around the network and impacts road users, including goods vehicle drivers who stop on the network.

Interested parties raised that network integration issues also persist on the SRN. For instance, congestion and interchange issues occur where the A3 meets the A244 and the A309, and at the A1023 Brook Street in Brentwood, while integration and environmental issues exist at the A23 at Hooley.

We aim to reduce congestion and emissions, encourage active travel, improve safety, and maximise wider transport and environmental benefits.

Outcomes

- Improved quality of life and wellbeing of urban communities in and around the SRN
- Improved network integration and more active travel on and around the network
- Improved road safety on arterial roads

DfT's Strategic objectives

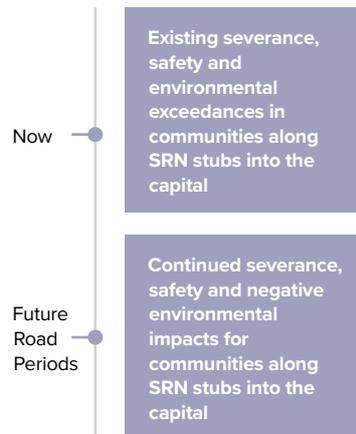


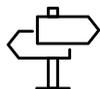
Improving safety for all



Improved environmental outcomes

Timeframe based on the issues and constraints identified





E. Improve transport connections into the Capital

Objective

Improve transport connectivity on arterial routes between the Capital and the surrounding regions, providing consistent and connected journeys to improve end-to-end experiences for all users of the route and wider transport network

Context

The UK transport network radiates out of London as the capital city with strategic rail and highway routes focused on connectivity into London. Beyond the M25, there are few low-capacity alternatives to connect outlying and economically dependent settlements that have developed on these arterial routes into the capital.

The route includes a number of spurs connecting the capital to the wider SRN. It extends to the London Inner Ring Road, the boundary of the congestion charge zone, and more recently the Ultra-Low Emission Zone (ULEZ), which covers much of the Inner London area.

Our network considerations

SRN stubs into London, notably the A20, A23, A3, M1, M4, M11 and M3 experience peak hour delays, which are also seen on sections of the route connecting to the M25, including the M4 past Heathrow, the A30, the M23 and A23, and the A2 near Dartford.

Better planning and network integration, through collaboration with TfL and Highway Authorities, are a high priority for National Highways and interested parties, as interaction between the SRN and MRN is critical for managing road traffic moving in to and out of London. An example is where the route meets the TfL road network at the A40/M40 interchange in the northwest of the route. To the south of the route, the section of the M23 and A23 Junction 7 at Hooley, Surrey, experiences congestion and management issues arising from poorly connected road networks impacting all users.

There are a number of high frequency rail lines on routes into and within London. However, technology integration and network capacity upgrades have not kept pace with substantial growth. There is also a lack of convenient interchanges with orbital rail services that are generally running low frequency and low capacity services.

We aim to support opportunities to better co-ordinate SRN and local road systems across all modes. Better integration and prioritising support to public transport services will help keep people and goods moving smoothly in and out of the capital by all modes without inducing journeys by private vehicles. Interested parties raised that opportunities exist for increased rail mode share, for example resolving the Croydon Bottleneck that would improve southern connections into London and enable additional services to operate to Gatwick Airport.

Interested parties also raised that some SRN junctions also experience queues building up at pinch points on the adjacent local network, such as signal crossings near Junction 8 of the M25 at Reigate and Junction 9 at Leatherhead. This is compounded by a lack of coordination between sets of adjacent traffic signals at some locations.

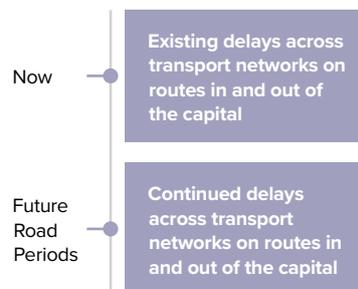
Outcomes

- Improved collaboration on network planning and data sharing to facilitate planned growth in areas and provide for all journey purposes
- Enhanced mode choices that address connectivity on corridors into the capital and across the South East region, notably to industrial and commercial centres
- Improved journey experience of all users travelling on the regions' transport networks, and alternative mode choices encouraged in place of private vehicles for those moving into and out of London

DfT's Strategic objectives

-  Network performance
-  Growing the economy
-  Managing and planning the SRN for the future
-  Creating a technology enabled network

Timeframe based on the issues and constraints identified





F. Support UK economic growth with safe and efficient freight connections to international gateways

Objective

Improve network resilience and reduce delay for freight, notably in the east and north of the London Orbital, with improved cross-river connectivity for all road users connecting to international gateways, particularly on the south coast and the Thames Estuary

- London Airports collectively handle 1.85 million cubic tonnes of freight per year, with 80% from Heathrow alone
- Medway and Sheerness Ports
- Barking International Rail Terminal
- Channel Tunnel portal at Folkestone, Kent as a preferred route for high value or quick to market road based freight

The report 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, and noting that, with imports and exports comprising 62.9% of gross domestic product (GDP) in 2019, we are reliant on the freight and logistics sector for our economic wellbeing.

The international gateways rely on the M25 to access the wider SRN. This route provides connections to major warehousing, logistics centres and end consumers. However, most of the route experiences traffic delay across the day, impacting journey time reliability. This is a critical factor in the freight and logistics industry.

HGVs make up to 20% of traffic all around the M25. The North East Quadrant of the M25 between Junctions 25 and 20 in particular has a high proportion of freight traffic, with HGVs making up to 30% of all traffic with freight routing between the Midlands and North of England, and the access points to the continent at Thames Gateway and the Kent Coast.

Lorry parking and facilities are key to enabling freight and logistics businesses to operate safely and efficiently. Interested parties also raised that a lack of parking, rest stops and good quality facilities for lorries and coaches on route would relieve pressure elsewhere on adjacent routes, including within Kent.

Interested parties raised that the London Thamesport could supplement the existing terminals at Thames Gateway and Tilbury for short sea traffic by rail, having previously been used for intermodal traffic.

Interested parties also raised there are numerous logistics and warehouse distribution centres in and around the M25. High productivity centres have focused around Heathrow, and the A12 and A13 and the eastern section of the London Orbital has also become important for the industrial and logistics sector serving London and beyond. Access to these routes and the A1 is vital for freight.

Our network considerations

The future of freight: A long-term plan published by the Department for Transport³⁶ in June 2022 sets out priorities for the UK's freight industry.

Context

The Union Connectivity Report by Sir Peter Hendy CBE identifies the need to secure better connectivity for freight across the UK with ports and Freeports, with the London Orbital playing a key role in connecting major international gateways to the South East and rest of the UK.

There are several international gateways facing traffic directly onto, or route via, the London Orbital:

- Port of Tilbury is the closest port to London, handling 16 million tonnes of freight annually with on-site railheads, and onwards barging facilities into London)
- London Gateway is a key part of the Thames Freeport, reliant on the A13 and M25)
- South East Coastal ports at Felixstowe, Dover, Portsmouth, and Southampton all connect to the M25 for onward journeys to the wider UK

³⁶ Department for Transport, 2022, *The 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

The Thames is a barrier to connectivity on the route, with limited road and rail route options to the east outside of the capital. This increases reliance on the A282 Dartford Crossing, leading to limited network resilience for freight transitioning to the M1 for the North and M40 for the Midlands. The Lower Thames Crossing would provide relief for this traffic.

The West London Line is the most easterly rail connection from north to south of the river within London, and the London Rail Freight Strategy³⁷ identified interventions on the West London Line to increase capacity for rail freight.

Outcomes

- Improved connectivity to international gateways by addressing congestion and journey time reliability issues to support freight operations
- Regional and national economies supported through improved infrastructure, enabling safe and efficient access to ports and freight centres
- A more sustainable network for growing freight rail, water and other mode choice solutions, in proximity to the Orbital route

DfT's Strategic objectives



Network performance

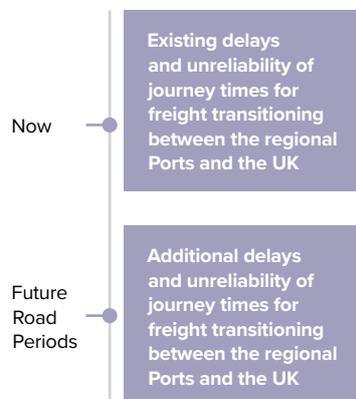


Growing the economy



Managing and planning the SRN for the future

Timeframe based on the issues and constraints identified



³⁷ Network Rail, 2021, *The London Rail Freight Strategy Options for the Future Summary Report*, <https://www.networkrail.co.uk/wp-content/uploads/2021/05/London-Rail-Freight-Strategy-Summary-Report.pdf>

G. Support the London Orbital being a better neighbour



Objective

Ensure the environmental impacts of the London Orbital are minimised by enabling sustainable infrastructure for all road users, reduce the impact of travel on neighbours, and protect areas with environmental designations around the route notably adjacent Site of Special Scientific Interest, and Kent Downs and Surrey Hills Areas of Outstanding Natural Beauty

Context

The London Orbital has a strategic economic role in the movement of goods nationally, as well as for people's journeys to places of work, leisure, and for the international gateways. The route has transformed over time, with road widening and integration of technology to manage traffic flow on the busiest sections as traffic volumes have continued to increase. However, it remains one of the busiest and most congested routes, impacting sensitive environments, urban areas, and people.

It is encircled by the Metropolitan Green Belt, and passes through three AONBs - the Chilterns, the Kent Downs, and the Surrey Hills, as well as the Colne Valley Regional Park and Epping Forest, and close to multiple listed or designated cultural heritage, water, environment, and habitat sites.

Notably, there is a large concentration of environmentally designated sites in the South West Quadrant between the M4 and A3. Planning for the future increasingly requires planning for uncertainty, driven by the pandemic, Brexit, climate change, and technological disruption. The context in which the SRN operates will continue to evolve, and it will have an important role to play in decarbonisation.

Our network considerations

The Kent Downs and Surrey Hills AONBs are vulnerable to visual impacts from the SRN and many other landscapes described as having high value are found in the immediate vicinity of the route. Interested parties noted that concrete road surfacing increased noise disturbance on the M25 from Junctions 8 to 11 on its route through the Surrey Hills and its neighbouring communities. Interested parties also noted the lack of noise barriers or quieter low noise material at some suburban locations leading from the orbital into London, for example M1 Junctions 2 to 4.

Environmental impacts associated with the SRN, notably air quality issues and noise pollution, can be experienced on arterial routes through urban areas. Local roads can also be impacted due to incidents on the SRN causing diversions.

Receptor locations that may be more likely affected by air quality issues and higher noise levels include those on several of the SRN stubs into London, as well as at Dartford and close to the international airports.

Interested parties also raised issues of noise to the south on the route from M25 Junctions 8 to 11. There are also high emissions on western sections of the M25 between Junctions 14 and 16, and near the Chilterns AONB.

There are water quality issues at outfalls along the SRN, and there may be a risk of flooding during intense rainfall events, for example along the M1 between Junctions 4 and 5, the South West Quadrant of the M25 and the Thames in East London.

Inclement weather can cause issues at some locations on the route. For example, the M25 between Junctions 7 and 8 is vulnerable to snowfall and ice formation, while Queen Elizabeth II bridge closures on the A282 at Dartford can be caused by high winds, resulting in delays on the network.

In addition to pollution and water issues, climate change impacts have the potential to create major safety risks. For example heat stress or low soil moisture can cause traffic delays, closures, safety incidents and structural failures.

We aim to address these issues through supporting the latest technology, electric charging infrastructure provision and coach and freight facilities and enabling the travelling public and operators to interact with the SRN more sustainably across all modes of transport. Crucially we want to harmonise regional strategy and approaches with the other routes facing into the London Orbital.

Outcomes

- Areas of environmental designation are more protected so far as is reasonably practical, natural capital is maximised, and biodiversity net gain is achieved in the route
- Improved user experience for those travelling on the SRN by more sustainable vehicle choices
- A coherent network across London Orbital to M23 and adjacent routes is provided, by closing technology gaps, with enhanced provision for freight interchange and consolidation around the M25
- Improved resilience of the network, including response to, and planning for, new environmental conditions

DfT’s Strategic objectives

-  Improved environmental outcomes
-  Managing and planning the SRN for the future
-  Creating a technology enabled network

Timeframe based on the issues and constraints identified

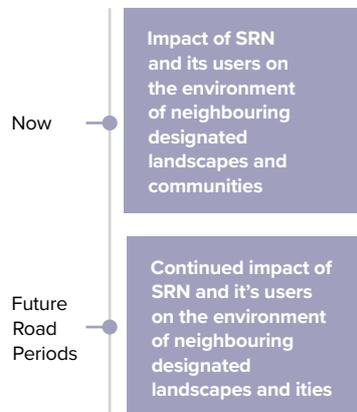


Table 2: Evidence used to inform objectives

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
<p>A A Promote the safe and reliable strategic function of the London Orbital. Improve efficiency of the road network for strategic journeys using the M25, and support improved choices for local journeys on the SRN within the region, in particular the South West Quadrant and at Dartford.</p>	<p>Route wide (particularly South West Quadrant and the Dartford Crossing) and supporting wider SRN and adjacent routes.</p>	<p>Concerns of interested parties related to road safety reliability on:</p> <ul style="list-style-type: none"> • improve resilience and address congestion and safety issues on the M25 Junctions 24-26 corridor • safety incidents early in the morning cause a disproportionate amount of disruption, i.e. longer road closures caused by an accident at a time when fewest cars are on the road • a lack of M25 motorway services between Junction 12-21 and Junction 25-28 • separate our local traffic from long distance strategic traffic • alternatives to the M25 are circuitous, slow and have unreliable journey times • there are few strategic alternatives to alleviate congestion • very severe congestion during peaks and significant congestion throughout the day 	<p>Transport for the South East's (TfSE) economic and social priorities include a transport network that is more resilient to incidents and that promotes active travel and active lifestyles to improve health and wellbeing. TfSE promotes an integrated transport network and a safely planned network with no fatalities or serious injuries among transport users.</p> <p>Transport East's vision is "A thriving economy for the East, with fast, safe, reliable and resilient transport infrastructure driving forward a future of inclusive and sustainable growth for decades to come". Strategic priorities include connecting growing towns and cities.</p> <p>The England's Economic Heartland priorities include improving quality of life and wellbeing through a safe and inclusive transport system accessible to all which emphasises sustainable and active travel. Its strategic priorities set out how the region can reduce reliance on private car usage by creating better connectivity within communities.</p> <p>Transport for London's (TfL) key themes include Healthy Streets and healthy people and a good public transport experience.</p>	<p>Other than at the M25 Junction 8, the lowest iRAP star ratings of 1 or 2 are predominantly where the strategic road network interacts with the local road network, such as the M25 junctions 14, 19 and 25 and M3 Junction 1.</p> <p>Numbers of killed or seriously injured collisions are found where route sections are most heavily populated by airport traffic on the M23 and a within the M25 South West Quadrant, as well as the Dartford Crossing.</p> <p>A lack of M25 motorway services between Junction 12-21 and Junction 25-28 represent gaps in the provision of rest facilities for drivers.</p> <p>Most motorway junctions experience congestion. The M25 between Junctions 10-16 experiences some of the highest volumes of traffic on the strategic road network (SRN). Peak hour delays are most notable in the South West Quadrant including sections of the route connecting to the M25, the A23 northbound at Hooley and sections of the M4 and M11.</p> <p>The route is subject to seasonal delay, particularly on the approaches to London Heathrow Airport, around the Dartford and Thurrock vicinity and also on the northern section of the M25.</p> <p>Delay is experienced in and around the Dartford Crossing and the North East Quadrant side of the M25 between Junctions 25-20 in particular. Increased levels of delay are expected all around the already congested route in 2031.</p> <p>Maintaining the good condition of the strategic road networks condition, geotechnical and drainage assets.</p> <p>The Lower Thames Crossing would look to address traffic pressures on the east of the route.</p>

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
<p>B Support sustainable development in London and the wider South East region.</p> <p>Improve regional connectivity, including through effective integration with sustainable transport modes to minimise the impact of short-distance journeys from key growth areas and strategic development sites, notably in the Thames Gateway and Essex, to benefit the economy.</p>	<p>Route wide and supporting interconnecting South East routes; East of England, Kent Corridors to M25, South Coast Central, South West Peninsular, London to Wales, London to Scotland (West), London to Leeds (East).</p>	<p>Concerns of interested parties related to sustainable development:</p> <ul style="list-style-type: none"> • very severe congestion during peaks and significant congestion throughout the day • explore measures to manage demand on South West Quadrant paired with opportunities to accommodate public and active travel infrastructure • engage with the coach industry on discussions on the role of the SRN for all users • promote greater use of the River Thames for freight • promote reallocation of road space to public transport and Active Travel modes which is impeded by levels of traffic coming into the region • work closer with local authorities and Sub-national Transport Bodies on better bus and coach travel • journey time reliability and resilience • ensure suitable connectivity to the network from local development plans e.g. Wisely to A3/M25 • ensure areas of deprivation in the South East are not forgotten in the levelling up agenda • ensure access to the coast and regenerate the coastal economy 	<p>Transport for the South East's (TfSE) economic priorities include an approach to land use and transport planning that helps meet future housing, employment and regeneration needs sustainably. Priorities also include better connectivity and more reliable journeys for people and goods travelling between the South East's major economic hubs.</p> <p>England's Economic Heartland (EEH) priorities include supporting the regional economy by connecting people and businesses to markets and opportunities and enabling the efficient movement of people and goods through the region.</p> <p>Transport East's four strategic priorities includes Energising coastal and rural communities and connecting growing towns and cities.</p> <p>Transport for London's (TfL) Mayor's Transport Strategy notes that transport has the potential to shape London, from the streets Londoners live, work, and spend time on, to the Tube, rail, and bus services they use every day. The three key themes are at the heart of the strategy includes new homes and jobs- more people than ever want to live and work in London. Planning the city around walking, cycling and public transport use will unlock growth in new areas and ensure that London grows in a way that benefits everyone.</p>	<p>Most motorway junctions in this part of the SRN experience congestion. The M25 between Junctions 10-16 experiences some of the highest volumes of traffic on the strategic road network (SRN). Delay is experienced in and around the Dartford Crossing and the North East Quadrant side of the M25 between Junctions 25-20.</p> <p>Increased levels of delay are expected all around the already congested route in 2031.</p> <p>Whilst the London Orbital serves the national economic growth agenda via safe and reliable connectivity to SRN routes to the wider UK, there are locations of deprivation in areas around Gatwick and Heathrow Airport. Areas in East London and on the Thames Estuary close to the M25 (Gravesend) are identified as Category one for levelling up.</p> <p>Economic development continues around the route. Many local plans and Local Enterprise Partnerships indicate substantial growth in future years, which will be exacerbated by recent announcements to increase housing delivery. This includes pressure from growth associated with five key growth corridors outlined in the London Plan.</p> <p>The Lower Thames Crossing would look to address traffic pressures on the east of the route.</p>

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
<p>C Encourage sustainable access to London's International Airports. Support mode choice solutions for access to the key international airports in and around London, notably at Heathrow and Gatwick, broadening route choice and improving experience for road users travelling to the airports and sharing road space on the M25 South West Quadrant and the M23 in particular.</p>	<p>The route supporting London's airports, particularly Heathrow and Gatwick.</p>	<p>Concerns of interested parties related to sustainable airport access:</p> <ul style="list-style-type: none"> • promote reallocation of road space to public transport and Active Travel modes which is impeded by levels of traffic coming into the region • more than 50% of traffic around London Heathrow is thought to be business and leisure leading to congestion and consequently unreliable journey times in South West Quadrant • explore measures to manage demand on South West Quadrant • safety incidents early in the morning on SRN around Heathrow Airport causing disproportionate amount of disruption, i.e. longer road closures caused by an accident at a time when fewest cars are on the road • work closer with local authorities and Sub-regional Transport Bodies on better bus and coach travel • prioritise access to key international ports and gateways 	<p>Transport for the South East's (TfSE) economic priorities include better connectivity between major economic hubs, international gateways (ports, airports and rail terminals) and their markets. EEH's priorities include enabling the efficient movement of people and goods through the region and to/from international gateways. Transport East's strategic priorities include unlocking international gateways.</p>	<p>The route is subject to seasonal delay, with additional 25+ seconds per vehicle per mile route-wide increasing to 50+ seconds on approaches to London Heathrow Airport, around the Dartford and Thurrock vicinity and also on the northern section of the M25. Delay is also seen on sections of the route connecting to the M25 including the M4 past Heathrow, the A30, the M23/A23 and the A2 near Dartford. Economic development continues and there are significant and important development on the route, notably in the Thames Estuary and at major international gateways that will increase pressure in the east of the route.</p>

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
<p>D Address severance issues between the SRN and urban environments within and around London. Be a better neighbour, in particular in and around the M1, M11, M3 and M4 corridors, to reduce severance by complementing the quality of life, and interaction with local communities at its point of integration with the urban environment.</p>	<p>Route wide, particularly the spurs inside the M25.</p>	<p>Concerns of interested parties related to severance:</p> <ul style="list-style-type: none"> • reduce severance and improve the quality of place • need greater consideration for sustainable / active modes • better coordinated schemes on the strategic road network and local road network • promote measures that reduce impact of the strategic road network on the local road network • address HGV parking on local roads if HGV parking areas are full, with enforcement of unsafe, illegal, or inappropriate HGV parking • ensure areas of deprivation in South East are not forgotten in the levelling up agenda 	<p>Transport for the South East's (TfSE) social priorities include a network that promotes active travel and active lifestyles, 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.</p> <p>England's Economic Heartland (EEH) vision refers to driving forward a future of inclusive and sustainable growth and priorities include improving quality of life and wellbeing through a safe and inclusive transport system accessible to all which emphasises sustainable and active travel.</p> <p>The key themes of the Transport for London's (TfL) Mayor's Transport Strategy includes Healthy streets and healthy people-creating streets and street networks that encourage walking, cycling and public transport use will reduce car dependency and the health problems it creates.</p>	<p>Higher levels of incidents involving walkers, cyclists and horse riders on the western side of the Orbital, and on sections of the route extending into London. The A40 at Uxbridge also has the highest level of fatal or serious collisions involving walkers, cyclists or horse riders, with high rates also seen on the A30 west of the M25 junction 13.</p> <p>Traffic related severance, noise and air quality can impact on receptors, with existing Air Quality Management Area (AQMA) and Noise Important Areas (NIAs) in place.</p> <p>Unsuitable diversion routes, for example to the west of the Dartford Crossing, cause large diversions into London via major and local road networks.</p> <p>Lack of coordination with some traffic signals adjacent to local authority controlled areas.</p> <p>Receptor locations may be more likely affected by air quality issues and higher noise levels and include Dartford and Thurrock, locations in close proximity to the international airports on the M25 and M23 and on several of the SRN spurs into London.</p> <p>Maintain the good condition of the strategic road networks condition, geotechnical and drainage assets.</p>

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
<p>E Improve transport connections into the Capital. Improve transport connectivity on arterial routes between the Capital and the surrounding regions, providing consistent and connected journeys to improve end-to-end experiences for all users of the route and wider transport network.</p>	Route wide.	<p>Concerns of interested parties related to transport connections:</p> <ul style="list-style-type: none"> • plan for holistic journeys across all modes • provide joined up and multi-modal approach to planning and better collaboration/partnership working with local transport authorities • need to consider impact of SRN on the whole of London - at present impacts significantly impede our ability to plan transformational schemes • support connectivity to visitor economy locations 	<p>Transport for the South East's (TfSE) economic and social priorities include 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.</p> <p>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.</p> <p>A safely planned, delivered and operated transport network with no fatalities or serious injuries among transport users, workforce or the wider public.</p> <p>One of the four Transport East strategic priorities includes connecting growing towns and cities.</p> <p>The key themes of the TfL Mayor's Transport Strategy includes a good public transport experience- public transport is the most efficient way for people to travel over distances that are too long to walk or cycle, and a shift from private car to public transport could dramatically reduce the number of vehicles on London's streets.</p>	<p>Most motorway junctions in this part of the strategic road network experience congestion.</p> <p>Peak hour delays are most notable in the South West Quadrant including sections of the route connecting to the M25, the A23 northbound at Hooley and sections of the M4 and M11.</p> <p>Increased levels of delay are expected all around the already congested route in 2031.</p> <p>Within London, responsibility for managing London's road network is shared between Transport for London, the 33 London local authority districts, and National Highways increasing need for technology solutions.</p> <p>Limited systems for communicating with road users and technology interface with the systems used in adjacent areas, for example the Kent Corridors.</p> <p>Whilst the London Orbital is mostly controlled motorway and there are sections of all lane running smart motorway, technology and information systems on radial routes in less extensive. This includes systems interface with both the Kent Corridors route and the Local Road Network, notably where it extends into London.</p>

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
<p>F Support UK economic growth with safe and efficient freight connections to international gateways.</p> <p>Improve network resilience and reduce delay for freight, notably in the east and north of the London Orbital, with improved cross-river connectivity for all road users connecting to international gateways, particularly on the south coast and the Thames Estuary.</p>	<p>Route-wide however focused on east/ north of the London Orbital, and cross river connectivity. Also connections to Kent Corridors to M25 and South Coast Central routes</p>	<p>Concerns of interested parties related to economic growth and freight:</p> <ul style="list-style-type: none"> • tackle relative lack of rail-connected terminals for containerised freight, especially domestic movements • promote greater use of the River Thames for freight • prioritise access to key international ports and gateways • take a strategic approach to the provision and funding of HGV parking and facilities and consider potential truck stop on M26 to relieve pressure elsewhere and especially within Kent • the M25 plays a key role in supporting journey to work and business to business travel so journey time reliability can have material impacts on productivity • technology to tie in more to issues for delays at the Short Straights portals, • link to divert HGVs to suitable rest locations if problems at Port of Dover and Eurotunnel 	<p>Transport for the South East's (TfSE) economic priorities include better connectivity between our major economic hubs, international gateways (ports, airports and rail terminals) and their markets and more reliable journeys for people and goods travelling between the South East's major economic hubs and to/from international gateways.</p> <p>England's Economic Heartland (EEH)'s strategy outlines the framework for enabling green economic growth, in a way which also creates a net-zero transport network. Priorities include 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.</p> <p>The Transport East Draft Transport Strategy vision is of "A thriving economy for the East, with fast, safe, reliable and resilient transport infrastructure driving forward a future of inclusive and sustainable growth for decades to come". The four strategic priorities to deliver this vision includes unlocking international gateways.</p>	<p>Heavy Goods Vehicle (HGVs) make up to 20% of traffic all around the M25. The North East Quadrant side of the M25 between Junctions 25-20 in particular, has a high proportion of freight traffic, with HGVs making up to 30% of all traffic with freight routing between Midlands and North of England, and the access points to the continent at Thames Gateway and the Kent Coast.</p> <p>The London Orbital and M23 has a key role in connecting the UK's two largest economies in London and the South East, as well as a strategically role for UK-wide economic development connecting international gateways in the region with the rest of the UK.</p> <p>There are significant and important development on the route, notably in the Thames Estuary and at major international gateways that will increase pressure in the east of the route.</p>

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
<p>G Support the London Orbital being a better neighbour. Ensure the environmental impacts of the London Orbital are minimised by enabling sustainable infrastructure for all road users, reduce the impact of travel on neighbours, and protect areas with environmental designations around the route notably adjacent Site of Special Scientific Interest, Kent Downs and Surrey Hills Area of Outstanding Natural Beauty.</p>	<p>Route-wide.</p>	<p>Concerns of interested parties related to the London Orbital being a better neighbour:</p> <ul style="list-style-type: none"> enable decarbonisation of highway movements clarify role of Strategic Road Network (SRN) in decarbonised world support mode shift to reduce demand on SRN and support decarbonisation of the network explore options for decarbonisation of highway journeys through facilitation of alternative fuel use reduce severance and improve the quality of place address Heavy Goods Vehicle (HGVs) parking on local roads if HGV parking areas are full, with enforcement of unsafe, illegal, or inappropriate HGV parking decarbonisation needs to be reviewed to support changes to including individuals (Electric Vehicles (EVs), etc) and expansions 	<p>Transport for the South East's (TfSE) environmental priorities include 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 and use of the principle of 'biodiversity net gain'.</p> <p>England's Economic Heartland (EEH), Transport for the South East's (TfSE) and Transport East outline the priority to achieve net-zero carbon emissions from transport.</p>	<p>Impacts of traffic on the Metropolitan Green Belt, AONBs and designated cultural heritage, water, environment, and habitat sites.</p> <p>Impacts of traffic-related severance, noise, and air quality upon local communities with existing Air Quality Management Area (AQMAs) and Noise Important Areas (NIAs) in place air quality issues and higher noise levels at receptor locations may be more likely, including around Dartford and Thurrock, locations in close proximity to the international airports on the M25 and M23, and on several of the Strategic Road Network (SRN) stubs into London.</p> <p>Maintaining the good condition of the strategic road networks condition, geotechnical and drainage assets.</p>



M25

Watford

6

Luton



19

Stansted



45



**Unlocking
regional
potential**

Lift →

Platforms 20 to 24
Unmanned check-in
Security & X-ray
All companies in the
terminal are
open 24 hours

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 this chapter, we outline our proposed locational areas for further consideration, which will be explored in future road periods to achieve the London Orbital and M23 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 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 providing 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 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). 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.

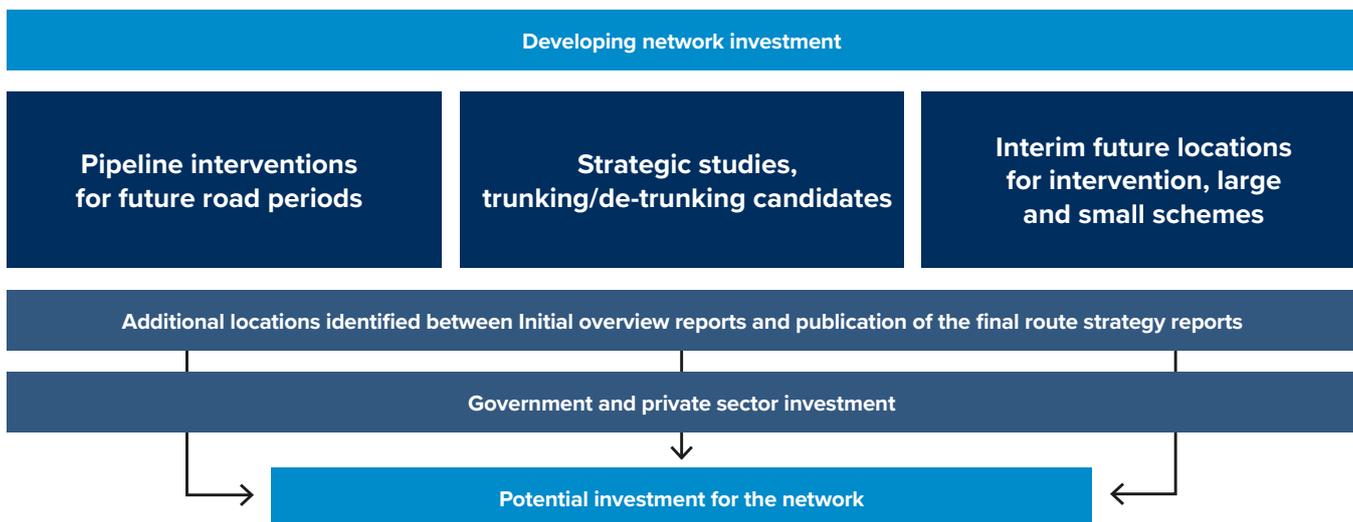


Figure 25: Process to identify potential investment on the network

Types of investment and funding sources

There are a variety of funding streams which enable us to invest in our network and which form part of our investment planning. These are summarised in the following section, along with the current committed schemes associated with each funding source for the London Orbital and M23 route. Key funding sources could include:

- RIS Funding – a funding stream administered by National Highways, set by the Government’s publication of the RIS::
 - RIS2 schemes are committed by the 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
 - RIS3 Pipeline Schemes are schemes identified by National Highways and set as part of RIS2 by the DfT to be developed as part of a pipeline of potential schemes for the third Road Investment Strategy (RIS3) which will run from 2025-2030. 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 London Orbital and M23 route:

Scheme number	Scheme	Description	Start of works	Open for traffic
Committed for the second road period (2020-2025)				
1	M25 Junction 10	Upgrading this stretch of road will provide vital improvements to its safety and reliability. At the same time, this scheme will involve some of the most extensive environmental mitigation ever carried out by National Highways, with more than 16 hectares of land being used to replace the common land and public open space that is needed to improve the junction.	2022-23 Q3	Road Period 3
2	M25 Junction 25	Upgrade of junction 25 on the M25 to provide greater capacity. Through this scheme we aim to reduce congestion and delays, increase capacity by widening - both the roundabout and the A10 southbound approach – and improve safety and traffic flow whilst supporting future traffic demands. This scheme also aims to enable development and economic growth, maintain access for walkers and cyclists and improve conditions where possible, whilst minimising the environmental effects of this scheme on local air quality and noise.	Started	2022-23 Q3
3	M25 Junction 28	Upgrading junction 28 of the M25 between the M25 and the A12 in Essex. Through this scheme we aim to increase capacity and reduce congestion whilst improving safety and traffic flow. This scheme also aims to improve reliability and minimise the impact of air and noise pollution, whilst supporting development and economic growth.	2023-24 Q1	Road Period 3
4	M25 J10 to 16 ³⁸	Design for upgrading the M25 between junctions 10 and 16 are not finalised.	Cancelled	Cancelled
5	M4 Junction 3 to 12	Upgrade to smart motorway on the M4 between junction 3 at Hayes and junction 12 at Theale. This means there will be an additional lane for traffic which will increase capacity and reduce congestion. Greater use of technology on the road will help to smooth traffic flows and manage incidents, leading to more reliable journey times.	Started	Open for traffic
6	Lower Thames Crossing	The Lower Thames Crossing is part of the biggest investment in the country's road network for a generation and an essential component in the UK's future transport infrastructure. On the south side of the River Thames, the new road would link to the A2 and M2 in Kent. On the north side, it would link to the A13 in Thurrock and the M25 in Havering.	2024-25 Q4 ³⁹	Road Period 3

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

39 Date revised due to planning constraints and stakeholder input

RIS3 pipeline

There are no pipeline schemes for the third road period identified for the London Orbital to M23 route. The Kent Corridors to M25 route strategy report identified the Tilbury Link Road as an uncommitted scheme in the pipeline for consideration.

Other Notable Schemes

There are no other notable schemes on the London Orbital and M23 Route in addition to the committed schemes listed above.

Strategic studies, trunking and de-trunking

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

There are no ongoing Strategic Studies currently identified within the extents of the London Orbital to M23 route. National Highways were asked to explore changes to the SRN to ensure the network aligns with RIS2 strategic priorities reflected in the *Strategic business plan*⁴⁰. 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 Highway's 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.

⁴⁰ <https://nationalhighways.co.uk/strategic-business-plan/>

Locations identified through route strategies for future investigation

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

To supplement this, as part of the route strategies process outlined in this document, National Highways has used cluster analysis to identify further locations for future investigation and undertaken an exercise to align these locations to the route objectives for the London Orbital and M23 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 enabled the identification of locations for further investigation based on the forecast network operation in the future, to plan the future of the network beyond the current RIS3 cycle. Typically, this has resulted in the extension of some areas of interest, as shown in the table of locations overleaf. In the final publication version of the route strategy reports, additional data from the regional traffic models will also be considered, to enable the identification of locations for further investigation in future roads periods.

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

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.

As we carry out this exercise and as new national traffic growth forecasts are expected to be released by the Department for Transport soon, we will consider, once available, how any updated growth forecasts will impact on the identified areas for further investigation.

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

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

Identified locations for future investigation and collaboration

Our analysis has set out the potential constraints and opportunities across the network and, in parallel, we are developing a RIS3 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:

- at a strategic level, we work closely with Network Rail and train operators in planning the SRN to find opportunities to better integrate the two networks. A joined-up approach between the road and rail networks would assist to successfully plan for the future transport in the region in a holistic manner
- relevant strategies include the London rail freight strategy, which is about increasing capacity across London, the DfT's Heathrow Southern Link scheme and Network Rail's Western Rail Access to Heathrow scheme. Old Oak Common is also relevant in relation to access and integration with the High Speed 2 rail network (HS2)
- the London rail freight strategy identified interventions on the West London Line to increase capacity for rail freight
- from discussion with interested parties opportunities exist for increased rail mode share, for example through Western Rail Access to Heathrow, Heathrow Southern Link, and connectivity improvements to Gatwick from the east and west with improvements to the North Downs line, and with improvements at Croydon for connectivity to London
- 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
- encourage modal integration and influencing 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 RIS2⁴¹ that will not be in construction at the end of RP2, as well as the RIS3 pipeline, in line with Government aspirations
- the RIS3 pipeline announced in RIS2 is the most developed portfolio of potential interventions and we propose a renewed focus to ensure schemes: are resilient with an acceptable Value for Money; consider the Carbon Management in Infrastructure standard; are affordable, with lower cost options being developed; are environmentally responsible; are deliverable; and, have strong stakeholder support and / or are a good strategic fit (e.g., ports, levelling up)
- the RIS3 pipeline will be supported by a set of regional schemes which can be quickly progressed from multiple sources (including route strategy outcomes; outputs from strategic studies; and 3rd party proposals, including those supporting wider economic and housing growth such as sustainable local plan infrastructure requirements) to supplement the portfolio as more viable alternatives when needed, and also to inform future RIS periods beyond RIS3

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

⁴¹ 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 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

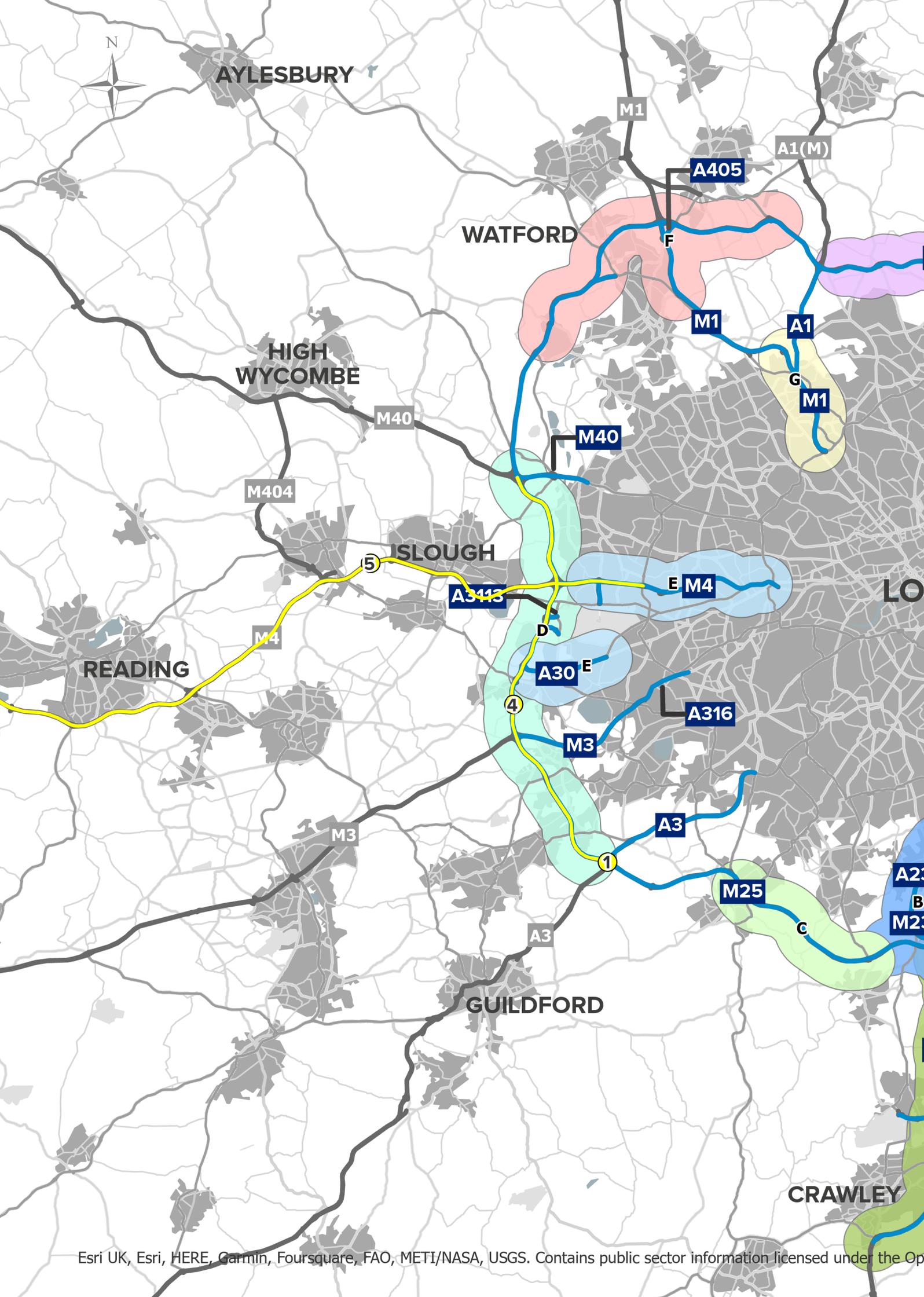
As part of the ongoing evolution of the route strategies toward final publication we will further strengthen its role in being a strategic planning tool for interested parties who have a stake in the SRN and its future.

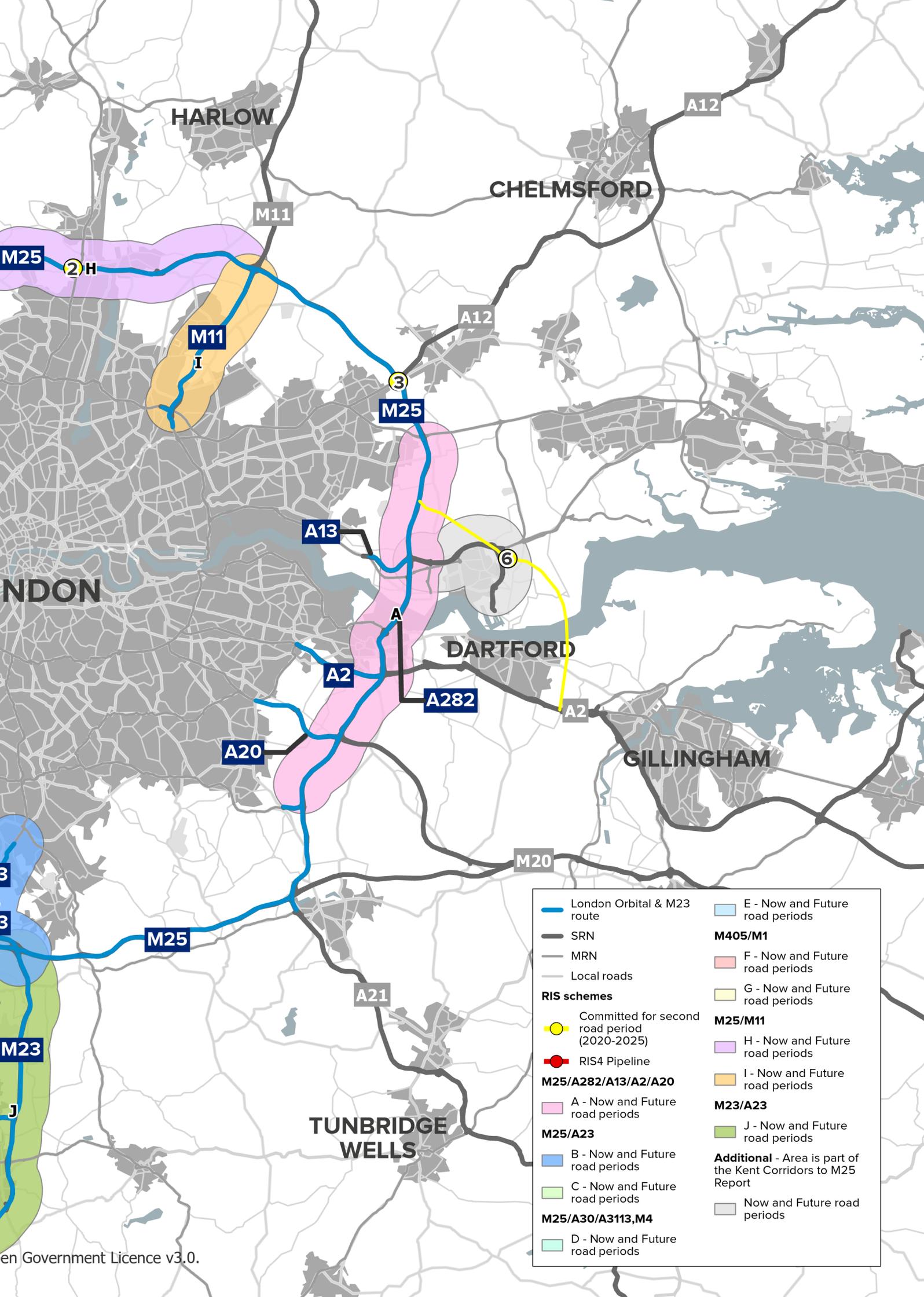
Table 3: Areas of interest for further investigation

Area location	Area of interest	Area issues	Now	Future road periods
M25/A282/A13/A2/A20				
M25 / A282 Dartford (Badgers Mount to Upminster) A2 (Bexley), A20 (Swanley) and A13 (Aveley)	A	The high proportion of HGV traffic reflects this area's role in linking local and national freight traffic with international gateways. As the only SRN river crossing east of London, traffic or weather-related incidents and diversions may also have a substantial impact on surrounding communities. Total delay is noted throughout the area. The lack of technology interfaces in managing traffic within Kent Corridors is evident. Seasonal delay extends along the A282, whilst peak hour, average, and non-recurrent delay is higher around the Dartford Crossing. There are higher than average collision rates around Well Hill area, and higher than average collision rates involving motorcycles on the A282 near Dartford and the A2. Communities (many of which are also within a levelling up priority area) may also be more likely affected by noise and air quality issues including around Dartford and the A20 Swanley. This area also passes near the Kent Downs AONB . In combination with the issues noted, general growth pressures from East London, Thurrock, and the Thames Gateway corridor, could exacerbate conditions. Note that the M25 Kent Corridor area covering the A13 and A1089 should be considered as a part of the route.	✓	✓
A23 (Hooley) and M25 (Lower Kingswood to Merstham)	B	SRN related traffic can impact on the A23 in the vicinity of Hooley, potentially impacting on local communities . These impacts include a higher rate of collisions involving walkers, cyclists and horse riders and the area may also be more likely affected by noise and air quality issues. Noise Important Areas have been identified at Merstham. Delays , particularly northbound at Hooley, are expected to worsen by 2031. Impacts include access issues around Lower Kingswood and Merstham. This area also passes near the Surrey Hills AONB . These issues are potentially compounded by local growth pressures associated with London Opportunity Areas such as Croydon to the north and the Gatwick Diamond to the south.	✓	✓
M25 (Leatherhead to Lower Kingswood)	C	This section of the Orbital, along with a number of adjacent SRN and MRN connections experiences various issues. Interested parties noted that concrete road surfacing may increase noise disturbance on the M25 through the Surrey Hills and its neighbouring communities. Noise Important Areas have been identified at Ashted, Leatherhead and Merstham. There is high total delay throughout which is forecast to persist by 2031. This area also passes near the Surrey Hills AONB . These issues are potentially compounded by growth pressure associated with various opportunity areas and international gateways.		
M25/A30/A3113/M4				
M25 South-West quadrant (between J10 to 16)	D	This section of the route in the vicinity of Heathrow Airport, along with a number of adjacent SRN and MRN connections, experiences some of the highest traffic flows on the SRN network. There are significant levels of total delay, peak hour, and seasonal delay throughout the area. Total delays are expected to continue to be substantial by 2031, with peak hour delays particularly around Uxbridge. Communities near West Byfleet, Chertsey, and Egham may be more likely affected by noise and air quality issues. These issues are potentially compounded by growth pressures associated with various opportunity areas and international gateways.	✓	✓
M4 (Gunnorsbury to Hayes) and A30 (to Bedfont)⁴²	E	These sections of the route provide connectivity to the M25 and access to London Heathrow. On the M4 there are peak hour delays around Brentford. The M4 near Hayes has safety concerns and there are higher collision rates , including motorcycles near Chiswick. The A30 has a higher rate of collisions with walkers, cyclists and horse riders east of Staines. Some locations have higher peak hour, non-recurrent, seasonal, average, and total delay ; particularly on the M4 between Brentford and Heston, and the A30 around Staines. Communities along much of the M4 within this location and east of Staines may be more likely affected by noise and air quality issues . Access to rail links with Heathrow is a wider consideration. These issues are potentially compounded by growth pressure associated with various opportunity areas and international gateways.	✓	✓

⁴² The performance of this section of the M4 Junction 3 to 12 as described in the table and elsewhere in this report is based on network data from 2019 and 2020 other than the 2031 RTM delay forecasts). Work on the J3 to 12 smart motorway scheme has recently been completed and will therefore not be reflected by the performance data collected for this section of the M4. Further, completion of the J3-12 scheme is expected to address many of the performance issues between these junctions. Further investigation of this section will therefore be based on performance data collected once the scheme is complete.

Area location	Area of interest	Area issues	Now	Future road periods
M405/M1				
M25 (Rickmansworth to London Colney) and M1 Watford	F	This section of the Orbital provides national connections to international gateways . The section of the route between London Colney and the M1 has some of the highest proportions of HGVs . There are safety concerns on the M25 junction 19 for the A41 at Watford. Throughout this section of the route there are locations with higher than average total delay , with issues between Rickmansworth and the M25 Junction 21 persisting in 2031. Seasonal delay occurs at Junction 21 of the M25, and peak hour delay at the junction with the M1 and A405 at Waterdale and at Bricket Wood. At Garston, communities may also be more likely affected by noise and air quality issues. This area also passes near the Chiltern Hills AONB . These issues are potentially compounded by growth pressures ; from the London-Luton-Bedford Corridor and industries around Watford near M25 Junction 20, as well as wider opportunity areas and international gateways.	✓	✓
M1 (Edgware)	G	The M1 facilitates an interchange between strategic routes into and out of London and wider national SRN connections (including London Luton Airport). There are delays throughout this area with the M1 southbound between Junction 5 and 6 identified as a location where delay is expected to worsen by 2031. Communities around Edgware and Hendon may be more likely affected by noise and air quality issues . There may be a risk of flooding on the M1 Junctions 4 to 5 during intense rainfall events. These issues are potentially compounded by pressure associated with growth in North London including in and around Old Oak Common.	✓	✓
M25/M11				
M25 (Potters Bar to South Mimms)	H	This section of the Orbital provides national connections to international gateways and supports some of the highest proportions of HGV traffic. Throughout this section there are locations with higher peak, non-recurrent, and seasonal delay . Total delay is forecast to remain at similar levels by 2031 around Potters Bar and Epping. At Waltham Cross, communities may be more likely affected by noise and air quality issues . These issues are potentially compounded by growth pressure associated with local plan growth and Opportunity Areas, including the Upper Lee Valley Opportunity Area, and Broxbourne near M25 Junction 25 as well as wider opportunity areas and international gateways.	✓	✓
M11 (Woodford to M25 J27)	I	The M11 supports connections to Stansted and Cambridge beyond, as well as growth in North London. There is high total delay throughout this section. Higher morning peak and non-recurrent delay exists around Chigwell and higher evening peak and seasonal delay around Junction 27 of the M25. By 2031 issues with delay are forecast to persist south of Chigwell at Woodford and at the M27 Junction 27. At these locations and particularly Woodford, may be more likely affected by noise and air quality issues . These issues are potentially compounded by growth pressure associated with various opportunity areas and international gateways.	✓	✓
M23/A23				
M23 (M25 J7 to Pease Pottage)	J	This section of the Orbital provides national connections to Gatwick Airport and the south coast. There may be a risk of flooding on the on the M23 between Crawley and Gatwick, including the Gatwick Spur. Most of these issues are forecast to persist through to 2031. Around Crawley and to Shipley Bridge there are sections of the community that may be more likely affected by noise and air quality issues , although many of these issues are forecast to be improved by 2031 partly in response to recent Smart Motorway investment in this corridor. At its southern end the M23 passes through the High Weald AONB . These issues are potentially compounded by growth pressure associated with Gatwick Airport and notable development areas in and around Crawley, Croydon to the north and Horsham and the 'Gatwick Diamond' and Sussex coastal communities to the south.	✓	✓





	London Orbital & M23 route		E - Now and Future road periods
	SRN		F - Now and Future road periods
	MRN		G - Now and Future road periods
	Local roads		H - Now and Future road periods
RIS schemes			I - Now and Future road periods
	Committed for second road period (2020-2025)		J - Now and Future road periods
	RIS4 Pipeline	Additional - Area is part of the Kent Corridors to M25 Report	
	M25/A282/A13/A2/A20 A - Now and Future road periods		Now and Future road periods
	M25/A23 B - Now and Future road periods		
	C - Now and Future road periods		
	M25/A30/A3113,M4 D - Now and Future road periods		
	M405/M1 E - Now and Future road periods		
	F - Now and Future road periods		
	G - Now and Future road periods		
	M25/M11 H - Now and Future road periods		
	I - Now and Future road periods		
	M23/A23 J - Now and Future road periods		



**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 National Highways' Connecting the country: *Our long-term strategic plan*⁴³ 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 plan* 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 plan*, there will be an opportunity for stakeholders, road users and communities to provide their feedback. This will be alongside the 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* 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/

⁴³ National Highways (2022) *Connecting the country: Our long-term strategic plan*. <https://nationalhighways.co.uk/delivery-plan/>

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 Highway's 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.
Average Delay		Average delay is measured in seconds per vehicle mile, and is the difference between observed journey time and the journey time at speed limit. This is measured over the whole day (24hrs).
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
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.

Term	Acronym	Description
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.
Diversionsary 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 45km 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.
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.

Glossary of terms

Term	Acronym	Description
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.
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.

Term	Acronym	Description
Safe System approach		<p>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.</p> <p>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.</p>
Seasonal delay		<p>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.</p>
Severance		<p>The separation of people from facilities and services they use within their community.</p>
Sites of Special Scientific Interest	SSSIs	<p>A Site of Special Scientific Interest (SSSI) is the land notified as an SSSI under the Wildlife and Countryside Act (1981).</p> <p>A Site of Special Scientific Interest (SSSI) is the land notified as an SSSI under the Wildlife and Countryside Act (1981), as amended.</p> <p>SSSI are the finest sites for wildlife and natural features in England, supporting many characteristic, rare and endangered species, habitats and natural features.</p>
Smart motorway		<p>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:</p> <p>Controlled Motorway: variable speed limits with the hard shoulder operating as it would on a conventional motorway.</p> <p>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.</p> <p>All Lane Running (ALR): variable speed limits with the hard shoulder removed and converted to a permanent running lane.</p> <p>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:</p> <p>Variable speed limits to help keep traffic moving, reducing frustrating stop-start traffic and making journeys quicker</p> <p>Clearly signed and orange-coloured emergency areas set back from the road and with telephones linking directly to our control rooms</p> <p>Detection systems to monitor traffic for changes in flows</p> <p>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</p> <p>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</p> <p>Enforcement cameras to deter the minority who break speed limits and ignore Red X signs</p> <p>Radar stopped vehicle detection</p>

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.
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.
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 over 4,500 miles of motorways and major A-roads.
Strategic Traffic / Strategic journeys		Long distance traffic / journeys.
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.
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 7 STBs in England, who 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.

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

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

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