

Appendix 5. Summary of Connecting the Country and Route Strategy Overview Report

Connecting the Country

The full report can be found here:

<https://nationalhighways.co.uk/futureroads>

The overarching summary from the website states:

Our 2050 vision is that the Strategic Road Network (SRN) is part of a seamlessly-integrated transport system. This will meet our customers' needs by connecting the country safely and reliably, delivering economic prosperity, social value and a thriving environment.

Connecting the country will inform our investment planning for each future Road Period toward 2050.

This long-term strategy is based on an analysis of available evidence to understand both historic and future trends. We've grouped this into 9 focus areas under 3 core themes:

- how much our customers will travel
- how our customers will experience travel
- how we will manage our network

Connecting the country introduces our future approach to the SRN. This involves defining routes by customer needs. We'll develop these categories in future, based on your feedback.

The proposed categories are currently:

- national corridors
- inter-regional routes
- regional connections

Connecting the country brings together our existing strategies, including:

- [Route strategies](#)
- [Net zero highways](#)
- [Digital roads](#)
- [Customer service](#)

Crucially, it also aligns our business and investment planning processes with wider government aspirations.

Executive Summary

The three core themes mentioned above each have three focus areas as follows:

- How much our Customers will travel:
 - Growth and Levelling up
 - Car Travel
 - Freight and Logistics
- How our customers will experience travel
 - Safety
 - Digital
 - Decarbonisation
- How we will manage our network
 - Customer Experience
 - Sustainable Network Development
 - Asset Reliance

The main points from the plan are covered effectively in the Executive Summary (pages 5-10 in the report) which is pasted below for ease; for the full report go to:

[cre22_0150-masterplan-national-highways-ris3_final-1.pdf \(nationalhighways.co.uk\)](#)

The report is relatively easy to read and well laid out, the chapters include:

Our strategic planning approach (page 12):

- Creating our long-term plan (page 13)
- How our plan integrates with the regulatory cycle (page 14)

Trends shaping the future (page 15):

- How much our customers will travel (page 16)
- How our customers will experience travel (page 28)
- How we will manage our network (page 39)

Our vision (page 51):

- How much our customers will travel (page 52)
- How our customers will experience travel (page 53)
- How we will manage our network (page 54)

How we will deliver (page 55):

- How much our customers will travel (page 56)
- How our customers will experience travel (page 59)
- How we will manage our network (page 62)

Next steps (page 65):

- Informing third road period planning (page 66)
- Continuing to evolve our analysis (page 66)

Executive summary

How much our customers will travel

Our network will play a critical role in supporting growth as part of an integrated transport system.

Focus area	What is changing?	Our ambition	Our delivery
 <p>Growth and levelling up</p>	<p>Government's priority is on growth and levelling up following the Covid-19 pandemic, placing infrastructure as a pillar of recovery. The <i>Levelling up the United Kingdom</i> White Paper has also set out how government intends to spread opportunity more equally across the UK.</p>	<p>Regardless of which region our customers are travelling through, they will receive the same high level of service and connectivity. We will have defined service levels across our roads and will work with stakeholders to remove regional disparities in performance and connectivity, affording equal opportunity to all.</p>	<ul style="list-style-type: none"> Increasing productivity and competitiveness through delivery of nationally-significant infrastructure Improving performance monitoring, visibility and targeted enhancements Enabling businesses to grow through close collaboration with SRN-reliant sectors Unlocking sustainable growth and productivity by working in partnership with other network operators and the private sector
 <p>Car travel</p>	<p>Demand for our network is growing and, while there are uncertainties, we expect this to continue to 2050. Commercial and housing growth on urban fringes are likely to increase network pressures around major towns and cities.</p>	<p>Network optimisation and modal integration will enable fast and reliable journeys. We will optimise the SRN and create a fully-integrated national transport network, working with partners to deliver seamless multi-modal travel. We will help customers choose the right mode for their journeys and support viable alternatives to short hop journeys on our network.</p>	<ul style="list-style-type: none"> Effective network optimisation improvements to bring tangible local benefits, such as reduced incidents and congestion Seamless network integration with other roads, modes and hubs Supporting modal shift by making it easy for customers to choose the right mode(s) for their journeys, including active travel Increased visibility and management of live network performance
 <p>Freight and logistics</p>	<p>Growth in e-commerce has been identified as a key factor impacting the freight system over the long-term. Reflecting the accessibility and flexibility it provides, it is assumed that the majority of future freight will rely on road transport'.</p>	<p>Our network will provide unimpeded access to domestic and world markets, driving national competitiveness. Freight will move freely across the SRN, enabled by network improvements on key freight corridors, around international gateways and at major consolidation centres. High-quality corridors will serve autonomous freight movements and we will work with partners to create a national multi-modal freight network that maximises the efficiency of movements.</p>	<ul style="list-style-type: none"> High-quality freight corridors to all major ports of entry and hubs Targeted modal shift of freight to short-sea shipping and rail Consolidation of freight, particularly where the SRN meets urban areas Accelerated delivery of infrastructure to facilitate autonomous freight Improved freight facilities

Executive summary

How our customers will experience travel

Travel on our network will be safe, sustainable and increasingly connected.

Focus area	What is changing?	Our ambition	Our delivery
 <p>Safety</p>	<p>Total road fatalities have fallen over time, but incremental rises are now becoming increasingly challenging. Technological advances to vehicles, adaptation of our physical infrastructure and the way we manage our network will bring radical change and opportunity.</p>	<p>Our roads will be the safest in the world. No one will be harmed when using or working on the SRN. Our focus on safety will avoid physical, mental and emotional harm to individuals. A safer network will also improve journey time reliability, providing economic benefits.</p>	<ul style="list-style-type: none"> ▪ Safer roads, targeting every part of our network to be rated iRAP three-star or above, where possible ▪ Safer people and vehicles through driver education and campaigns, minimum standards of vehicle connectivity and dynamic network management ▪ Safer speeds, improved post-collision response and road safety management ▪ Digital design and construction to reduce risk associated with road works and maintenance activities
 <p>Digital</p>	<p>Digital services will bring opportunities to transform how we manage our network. This will range from digital design, intelligent asset management, connected and autonomous plant (CAP) and vehicles (CAV) through to how we generate and use our data.</p>	<p>National corridors will be CAV-enabled, providing congestion and safety benefits. Freight automation will be established on routes to major international gateways. Our customers will travel on digitally-enabled roads, making their journeys safer, more efficient and environmentally sustainable. Our design, construction and operational activities will be fully digitised and automated.</p>	<ul style="list-style-type: none"> ▪ Digital design and construction by default, with greater automation as well as modular and off-site construction to drive productivity gains ▪ Increasingly digital operations by leveraging data to support increasingly pre-emptive interventions ▪ Delivering digital for customers through increased visibility and management of the live network to keep customers better informed and in control
 <p>Decarbonisation</p>	<p>Transport must decarbonise. In 2019, government amended the Climate Change Act to introduce a legally-binding commitment to reducing all greenhouse gas emissions to net zero by 2050.</p>	<p>The SRN will be decarbonised, placing roads at the heart of the UK's net zero future. We will remove carbon from our operations (by 2030), our construction activity (by 2040) and support the transition to carbon-free travel on our network (by 2050).</p>	<ul style="list-style-type: none"> ▪ Achieving net zero operations by decarbonising our fleet, estate and operational activities ▪ Achieving net zero maintenance and construction through zero-carbon materials and construction innovation ▪ Achieving net zero travel through electrification of our network and supporting the provision of low carbon fuel options for HGVs

Executive summary

How we will manage our network

We will deliver stress-free customer journeys while also acting 'beyond roads' to improve the quality of life in local communities.

Focus area	What is changing?	Our ambition	Our delivery
 <p>Customer experience</p>	<p>While journey time reliability continues to be a key determinant of journey satisfaction, new technologies, such as electrification of the network and our transition to Digital Roads, present exciting opportunities to enhance customer experience.</p>	<p>We will provide a trusted and stress-free end-to-end experience for our customers, with accurate and personalised journey information and attractive rest areas that offer rapid and reliable low-carbon fuelling. Safe and reliable journeys will be the foundation for our 'whole journey' approach, which will make using the SRN, adjoining roads, modes and hubs more enjoyable.</p>	<ul style="list-style-type: none"> Delivering reliable journey times through consistent route and service standards tied to our future network plans, including rapid incident response and optimised roadworks Collaboration with private sector to transform roadside facilities, providing ample reliable and rapid charging provision for electric vehicles Connecting customers through personalised, multi-modal journey information transmitted to vehicles through a choice of digital platforms
 <p>Sustainable network development</p>	<p>The protection and enhancement of our shared natural environment is recognised as a key responsibility of infrastructure owners and operators. Wide-ranging interventions will be needed to halt and reverse the loss of biodiversity and to use the SRN and our estate to promote wider environmental and social value.</p>	<p>Our network and wider estate will support a thriving environment, enabling healthier and safer communities and a richer, more biodiverse natural environment. Our physical network will be largely complete and our enhancements focused on localised optimisation schemes. We will be an established force for good in communities, balancing network improvements with wider impacts and creating value beyond our roads.</p>	<ul style="list-style-type: none"> Applying PAS 2080 and increasing environmental standards for our enhancement and construction works Using our network and wider estate to support nature and deliver biodiversity net gain Significant investment in the protection and promotion of health and wellbeing in communities Ensuring interventions support active travel
 <p>Asset resilience</p>	<p>We are responsible for a growing, ageing and increasingly complex asset base. Increased frequency and severity of climate-related weather events also pose a risk to the condition and performance of our assets.</p>	<p>Asset and operational resilience will be maximised through an intelligent, data-led approach. Assets will be digital by default, providing real-time updates of condition and performance to support predictive, data-led decisions that keep our network open, safe and serviceable. Where roadworks are needed, customers will know well in advance of their journeys, allowing them to compare alternative routes, modes and departure times.</p>	<ul style="list-style-type: none"> Connected assets by default to allow for vehicle-to-infrastructure communication Using data to maximise whole-life asset value and plan our asset renewals Making our network resilient to the impacts of climate change, for example to extreme heat or flood events Modernising operational technology, control centres and cyber security to ensure digital resilience

Executive summary

Introducing our future network

In support of our vision, we will investigate the benefits of categorising our network and defining the associated levels of services our customers can expect from them. The following categories and levels of service are conceptual only and require further development:

National corridors

National corridors will continue to be the vital spine of our network, supporting the highest levels of demand. These routes will be the key long-distance corridors, connecting major urban economies, acting as major freight routes and linking international gateways.

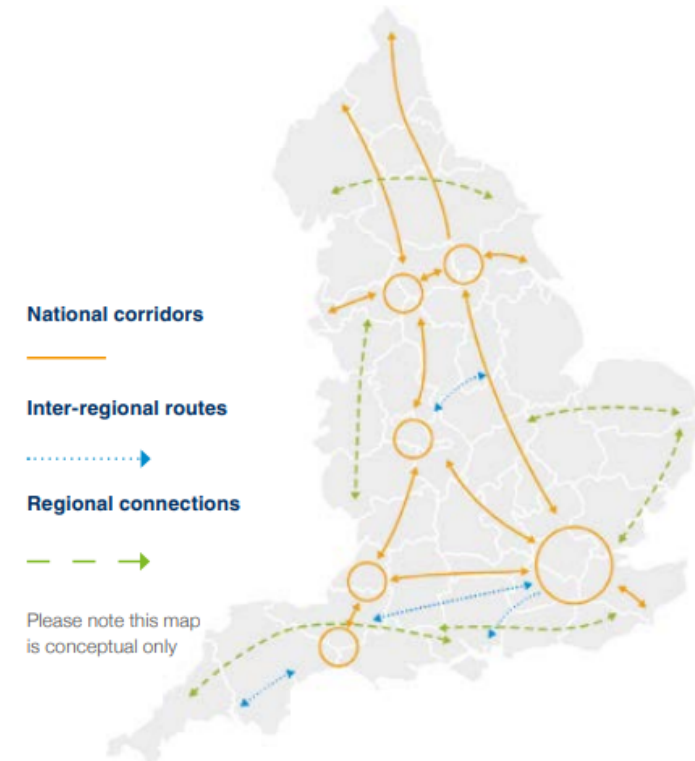
Inter-regional routes

Inter-regional routes will be high-demand, multiple-lane roads. These routes will connect regional economies and carry significant levels of freight and goods.

Regional connections

Regional connections will link local economic centres, both to each other and the national network.

On the following pages, we provide an overview of our vision for consistent levels of service that customers could expect for each category.



We know that our customers value reliable journeys on roads that provide a consistent level of service. We want them to experience exceptional service regardless of which part of our network they are on. To help guide the long-term development of our network, we have established aspirational levels of service across the SRN.

Executive summary

How customers will experience our future network

High standards for safety, environmental performance and operational management will continue to exist across the entirety of the SRN. In forthcoming road periods, we will take a customer-centric view to define the service levels customers can expect on different parts of our network.



Focus area	National corridors	Inter-regional routes	Regional connections
Safety	← Safe roads as standard (targeting minimum iRAP three-star) with consistent geometric standards. →		
Digital	← In-vehicle management: supporting data sharing between vehicles, infrastructure and our control centres to enable high levels of compliance and journey reliability.	→	In-vehicle communication: including information and advice on traffic, incidents, roadworks and weather, as well as status updates from multi-modal hubs and interchanges.
Decarbonisation	← Electric and alternative fuel provision for all private and light vehicles plus heavy freight vehicles.	→	Convenient and high-quality electric charging provision for all private and light vehicles.

Executive summary

How customers will experience our future network



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Focus area	National corridors	Inter-regional routes	Regional connections
Customer experience	Highest pre-defined levels of on-road resource and monitoring enable rapid incident response.	Monitoring of routes, with automated incident detection and response to pre-defined service levels.	Monitoring of key junctions, local network interfaces and mobility hubs, with pre-defined levels of service.
	← High-quality and consistent service provision at motorway and all purpose trunk road service areas for private use and light vehicles, as well as at freight service and rest areas. →		
Sustainable network development	← Use of nature-based solutions, particularly in Areas of Outstanding Natural Beauty. Targeted mitigation of air quality, noise and plastics through real time and increased monitoring and response. An efficient and optimised physical network, integrating with local roads, the major road network, rail, light rail, ports and airports. →		
Asset resilience	Majority of assets are digitally connected, providing real-time condition data and insight to minimise disruption to customers.	← Our key assets are digitally connected, providing real-time condition insight and minimising disruption to customers. →	

Route Strategy Initial Overview Reports

<https://nationalhighways.co.uk/futureroads>

Of the twenty Route Strategies, the London to South Wales route is of most interest to Wokingham Borough Council as this includes the M4. The other Route Strategies which pass close to Wokingham Borough are as follows:-

- *South West Peninsula – M3*
- *Solent to Midlands – A34*
- *London to Scotland West (south) – M40*
- *London Orbital and M23 – M25*

[London to Wales Route \(nationalhighways.co.uk\)](https://nationalhighways.co.uk)

Chapter 1 – Introduction

This report is the initial overview report for the London to Wales 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.

For clarity, this document does not:

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

Chapter 2 - The Route.

The London to Wales route is a key east-west link on the SRN in the south of England, extending for approximately 170 miles. It runs from the M25, passing through several counties, from Greater London in the east through to the west of England and the River Severn crossings at the border with Wales.

The M4 is important for growth, supporting communities and various strong economic sectors along the route, including the creative sector, high-tech, cyber security, information and communication, life sciences, advanced manufacturing, land-based services, and distribution and manufacturing. Key employers in the area include Verizon, Amazon, Microsoft, Cisco and Huawei. Further economic development is planned at key urban settlements of Bristol, Swindon and Reading which will place further demand on the route.

Chapter 3 – Engagement with 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.

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.

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.

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. 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 2021/228 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.

Engagement during workshops with interested parties 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

We have drawn out the common themes that emerged from our engagement with our customers and neighbours on the London to Wales route to inform our route objectives. These included:

Improving safety for all

The M4 in Berkshire authorities is used for short journeys because of severance. There is also a history of collisions and other incidents on the local road network to Reading, which raise safety concerns.

The Calcot to Theale footbridge across the M4 is insufficient for shared use between walkers and cyclists.

Network Performance

The M4 between Junctions 4B and Junction 13 (A34) is subject to much congestion (especially at peak times) where the motorway serves several built-up areas.

Potential M4 bridge between Junctions 10 and 11 west of Reading to relieve pressure

M4 congestion is generally at peak times (especially in the morning) at Junctions 11 and 12

Junction hopping has been identified as an issue around Reading and Wokingham

The need for better M4 and M3 connectivity via the MRN to relieve pressure on the M25 South West quadrant

Closures of the M4 and their impacts on adjoining routes

Improved environmental outcomes

Reading has promoted greater facilities for electric vehicle charging and shift in modes of transport to enable air quality and healthy travel benefits. Further promotion is needed for active travel and public transport promotion, including directional signage to park and ride sites.

“Opportunity to decrease speed to 50 mph to reduce noise and pollution for the surrounding area” (in reference to the A329(M)).

Growing the economy

Wokingham development and associated journeys on the M4, or crossing the M4 to Reading

Managing and planning the SRN for the future

Rail proposals along the route such as the new Green Park Station in the south of Reading and the potential Heathrow Western Rail Link from the Great Western Main Line.

Potential Western Rail Link to Heathrow to relieve pressure from the M4 and increase public transport connectivity to the airport.

Technology-enabled network

Consideration for connected and autonomous vehicles and connected in terms of capacity and risks.

Opportunities for electric vehicle charging.

Chapter 4 – 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.

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.

At a more local level we also work with local authorities, who are the highway authorities for local roads, including those on the MRN. The local authority planning teams work closely with our spatial planning teams. In enabling new employment spaces and homes to be developed, we engage fully as a statutory consultee in the planning system and the evidence collected through the route strategies will support this decision making.

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 (RIS) is ensuring the impacts of any interventions are fully considered across all networks as well as at their junctions.

Within the vicinity of the London to Wales route, the MRN comprises the A4 for east-west connectivity between Slough, Reading and Newbury, and the A329(M) for access to Reading and onward connectivity to Surrey. Further to the west the A33 at Junction 11 connects the M4 to Reading and south to the A339.

Freight

The National Survey of Lorry Parking undertaken by DfT in 2017.

This identified that the following M4 lorry parks were identified to have critical levels of utilisation in 2017: Moto Reading Westbound (120%), Moto Chieveley (102%), Moto Reading Eastbound (94%) and Moto Leigh Delamere Westbound (85%).

The report concluded that there was a practical need for a 37% increase in lorry parking spaces in the South East region.

As part of continued government action to boost driver welfare and tackle the effect of a current driver shortage impacting the UK, National Highways is investing in improved roadside facilities.

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.

Chapter 5 – Challenges & Issues

There are existing challenges and issues on the network, and these are outlined against the DfT's six strategic objectives as part of the route strategy evidence base.

The six strategic objectives are:-

- 1) Growing the economy
- 2) Improving safety for all
- 3) Network performance to meet customer needs
- 4) A technology-enabled network
- 5) Managing and planning the SRN for the future
- 6) Improved environmental outcomes

Growing the economy

The importance of the route is outlined in a number of Strategic Economic Plans for Buckinghamshire, Thames Valley Berkshire, Swindon and Wiltshire, GFirst and West of England Local Economic Partnerships (LEPs). These priorities are highlighted in the strategies of the Sub-national Transport Bodies of the Western Gateway, England's Economic Heartland and Transport for the South East.

Key economic centres and sectors that are supported by the route within Berkshire include: sectors such as communications and information technologies, distribution and logistics; life sciences, healthcare and their associated corporate national/ international offices, are dominant, and in addition support thriving small and medium enterprises. Significant housing growth is planned, including locations at Reading, and as noted in the Wokingham Local Plan Update, Arborfield Garrison, Hall Farm and Loddon Valley east of Shinfield, and land adjacent to the M4 Junction 11.

From the engagement with interested parties, for this area, there were several developments mentioned, namely Reading Green Park, which is due to open in 2022 and an upgrade to park and ride status for Theale station at Junction 12, the expansion of Thames Valley Science Park, and developments in Wokingham. Further to this is the potential Heathrow Western Rail Link from the Great Western Main Line.

Key Challenges identified:-

- Managing and responding to the impacts of sustainable development where growth is anticipated; Reading, Maidenhead, Swindon, the Greater Bristol area, Cheltenham and Gloucester, and Wokingham.
- Importance of the route in underpinning thriving local and sub-national economies and sectors
- The need for good and improved connectivity not only for the movement of goods but also people, particularly for the grouping and future growth of key sectors.

Improving Safety for all

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.

The latest available iRAP Star Ratings show that the majority of the route has a 3-star rating. This indicates that most of the route is relatively safe and limits future risk of injuries.

Despite the 3-star designation of most of the route, there remain sections of the route where people have been killed or seriously injured. The sections of the route where collisions have resulted in a higher number of people being killed or seriously injured relative to the route include the following:

- M4 mainline between:
 - Junction 12 and Bradfield westbound
 - Junctions 11 and 10 eastbound
 - Junction 10 to the Holyport Interchange (Junction 8/9) eastbound and westbound.

Key challenges include:-

- The relatively higher number of collisions where people are killed and seriously injured on the A417 approaches to Air Balloon Roundabout, the A419 and the M4 mainline on stretches along the route
- the number of collisions involving walkers, cyclists and horse riders on the M32, the A404, the A417, the M4 between Swindon and Reading and from Junctions 10 to 4B on the mainline.

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

Car traffic on the SRN is now back to approximately 95% of pre-pandemic levels.

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

We continue to collaborate with our freight and logistics customers to better understand how the SRN can support their operations, and work with wider Government in the delivery of their Future of freight plan. 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.

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

Key challenges include:-

- Localised delays across the route, addressing congestion on the M4, A404 and A404(M), A308 (M), A417, A419 and M32
- Seasonal delay on the M4, A417, A419, A308(M), A404 and A404(M)
- The reliability of the M32, M4, A308(M) and A417

A technology-enabled network

On the route, electric vehicle charging infrastructure is present on the M4 at Moto Reading, Chieveley services, Membury services and Leigh Delamere services.

The Government's March 2022 UK electric vehicle infrastructure strategy 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 Fund.

The M4 is dynamic hard shoulder smart motorway between Junctions 19 to 20 north of Bristol and all lane running smart motorway from Junctions 8/9 to 12 within the Berkshire authorities. Works at Junctions 3 to 8/9 have been completed in 2022.

Key challenges:-

- Communication with customers provides a key role in managing incidents and events, with potential opportunities to integrate new technologies
- Demand for increased quantity, capacity and speed of existing electric vehicle charging facilities
- Planning for increased use of new technology, including connected and autonomous vehicles and hydrogen fuelled vehicles.

Managing and planning the SRN for the future

We recognise that asset management is our core business.

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

Improved Environmental Outcomes

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

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.

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.

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.

In terms of air quality, there are receptors within 100 metres of the strategic road network which may be more likely to experience adverse air quality impacts at locations including:

- M4 (Junctions 11 to 10 eastbound)

Sections of the M4 subject to an AQMA include between Junctions 9 to 12 south of Reading,

There are receptors within 300 metres of the SRN which may be more sensitive to high noise levels at the following locations:

- M4 (Junctions 11 to 10)

More intense and longer periods of rainfall will increase the risk of surface water flooding and could overwhelm existing drainage systems leading to localised flooding. Sections of the route currently considered to be at risk of flooding from surface water include:

- M4 South of Reading

Interested parties raised the impacts of vehicles using the SRN upon local communities and highlighted the M4 in the Berkshire authorities as locations of severance

Noise Important Areas (NIAs) for roads are based upon the Department for Environment, Food and Rural Affairs (DEFRA) strategic noise maps results and have been produced in line with the requirements set out in the noise action plans. NIAs within the route include:

- M4 south of Reading

Key challenges include:-

- Potential adverse air quality impacts at locations where there are receptors within 100 metres of the SRN which may be more likely to experience adverse impacts, flagged on the M32, M4, A419 and A404 (M)
- Receptors within 300 metres of the SRN which may be more sensitive to high noise levels, flagged on the M32, M4 and the A419.
- Resilience on the SRN in response to future climate change

Chapter 6 - Initial Route Objectives

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.

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. These are detailed further below and comprise:

- A. Safe and reliable journeys
- B. Strategic connectivity and access to key gateways
- C. Support regionally significant and sustainable economic development in the Berkshire authorities, Swindon and Bristol
- D. Support local connections and integration
- E. Support the needs of the freight sector
- F. Reduce adverse impacts on communities

A. Safe and reliable journeys - Provide safe and reliable journeys through provision of a resilient and consistent route particularly on the M4, in the Berkshire authorities, Bristol, and the A417.

The eastern end of the M4 exhibits relatively higher numbers of people either killed or seriously injured between Junctions 8/9 and 11 (Maidenhead to Reading) (*data taken from prior to the completion of the Smart Motorway scheme*)

Our network considerations include - safety on the M4, in particular Junctions 10 to 11 and west of 12 around Reading and between Reading and Junction 4B with the M25.

Outcomes - improved safety and reduced congestion along the M4 corridor between Reading and London and on the M32 in Bristol.

B. Strategic connectivity and access to key gateways - Promote strategic connectivity between England (M49, M4, M48, M5 and M32) and South Wales as well as facilitating efficient access to key gateways at Heathrow Airport, Port of Bristol and Bristol Airport.

Interested parties highlighted the M4 from the M25 Junction 4B to Junction 13 being subject to congestion especially in peak periods. According to interested parties, the current highway standards and the reduced capacity of the motorway connections between the M4 and M3 result in compromised resilience of the MRN in relation the M25 South West quadrant (near to Heathrow Airport); there are aspirations to improve this part of the SRN. This impacts on the local road network and the already significantly congested M25 South West quadrant, particularly when there are incidents or motorway closures.

There are access strategies in place to increase the uptake of public transport to the airport and to reduce the level of car trips. It is noted the Western Rail Link proposals to connect Heathrow to the Great Western Mainline would improve rail connectivity to the west and provide additional public transport capacity.

Our network considerations include - performance of the eastern section of the M4 between Reading and the M25 for onward access to Heathrow Airport.

Outcomes - Supporting national and regional economies in England and Wales through reliable and efficient access to international gateways.

C. Support regionally significant and sustainable economic development in the Berkshire authorities, Swindon and Bristol. Support the delivery of regionally significant and sustainable economic development in the Berkshire authorities, Swindon and Bristol whilst maintaining the safe and effective operation of the network.

The route links key economic centres of Bristol, Swindon and Reading with London and also provides strategic connectivity to local economies

Interested parties mentioned the expansion of the Thames Valley Science Park in Reading along with developments in Wokingham. Of note within the Wokingham Local Plan Update are aspirations for residential sites south of the M4 Junction 11 and at Hall Farm and Loddon Valley garden village east of Shinfield adjacent to the SRN.

The Green Park development site adjacent to the M4 Junction 11 in Reading is identified as a core employment area in the Reading Borough Local Plan and comprises business park uses and up to 700 houses. This will be accompanied by the Green Park Station and Interchange on the Reading and Basingstoke line which is set to open later in 2022.

Our Network Considerations include:

- Based on interested parties' feedback, 'junction hopping' occurs at a number of locations along the route, including around Reading and Wokingham as well as Gloucester. This puts additional pressure on the SRN and impacts strategic freight journeys.
- Interested parties also mentioned that the stretch of the M4 between Junction 4B with the M25 and Junction 13, including around Reading, is subject to congestion particularly at peak times

Outcomes

- Growth supported to unlock opportunities for local housing and employment development
- Coordination with local authorities to enable safe and efficient access to strategic sites by all modes of transport

D - Support local connections and integration. Support effective local connections and integration with other transport modes to reduce short distance travel demands on the SRN and promote the transfer to alternative modes of transport and reduce carbon particularly in the Berkshire authorities, Bristol and Swindon.

The M4 serves as the principal route through the Reading and Thames Valley area and is served by numerous junctions. Where the M4 passes by urban areas, many junctions suffer from poor journey time reliability, in particular from Junction 12 at Theale to the M25. The M4 serves a dual use at Reading; both for local traffic wanting to access local employment sites and strategic traffic. The alignment of the M4 and the location of employment on the edge of the town encourages junction hopping. To the south of Reading, Junction 11 of the M4 provides access to residential areas and employment sites such as Reading International Business Park, Green Park, Thames Valley Science Park and business parks along the A33.

Interested parties identified a need for improved public transport and active travel connectivity to Reading, as well as wayfinding for its park and ride facilities.

They noted a desire for better electric vehicle charging facilities and shift in modes of transport to improve air quality and prompt active travel. They also mentioned the interaction of motor vehicles and other modes between Reading and the M4 such as Junction 12, which suffers from limited connectivity across the SRN for active travel users. It was also identified that Reading Green Park rail station is due to open in 2022. This will help serve existing and future land uses for Green Park which is designated as a core employment area in the Reading Borough Local Plan

Our network considerations:

- Opportunities exist to improve local connections for users to make the transition to active travel from private vehicles, sustainable travel and Rapid Transit options in Reading and Bristol alongside a desire for greater public electric vehicle charging facilities
- Interested parties highlighted that the stretch of the M4 between Junction 4B with the M25 and Junction 13, including around Reading, is subject to congestion particularly at peak times.
- Opportunity to improve air quality and noise levels with public transport and active travel interventions where receptors may be more likely to experience potential adverse air quality and noise impacts, including south of Reading (M4 Junctions 11 to 10 eastbound).

Outcomes

- Improved local connectivity and greater travel choice for users across a range of modes for shorter trips which are competitive against the private car to remove shorter distance journeys from the SRN
- Improved network resilience especially in urban areas which suffer from knock-on impacts during periods of disruption
- Greater use of public transport and reduced demand on the SRN to facilitate more sustainable journeys, particularly between the West of England and South Wales

E - Support the needs of the freight sector. Support regional and national economies through the efficient movement of freight on the M4 and A417/A419, by enhancing lorry parking and driver facilities along with the transfer of freight to alternative modes, where appropriate.

HGV flow percentage data shows that the majority of the route has an HGV proportion of between 11% to 15% of daily traffic levels.

The M4 is a strategic corridor connecting multiple economic centres, but also has connections with other freight corridors including the M5, M25, A34 and A417 which places additional freight demands on the route.

The following M4 lorry parks were identified to have critical levels of utilisation in 2017: Reading Westbound (120%), Chieveley (102%), Reading Eastbound (94%) and Leigh Delamere Westbound (85%).

The Great Western Main Line (GWML) broadly follows the alignment of the M4 and is heavily used by passengers for access between the West and London

Recent investments in the line have increased both the capacity and capability on the network with more passenger services. The transfer of freight from road to rail along the GWML remains a strong aspiration for Network Rail.

Our Network Considerations:

The route is important for HGV access to Heathrow Airport, the Port of Bristol and for onward connectivity to Wales. There are high utilisation levels of lorry parking at motorway services on the M4 along with off-site HGV parking concerns noted in the South East and on the approach to the Port of Bristol.

The M4 corridor is served by existing motorway service areas with electric vehicle charging, but there is further potential to meet the future needs of alternative fuel vehicles and autonomous vehicles.

Outcomes

- Increased quantity and improved quality of HGV driver facilities, in particular on the A417 and A419
- Transfer of freight volumes by rail for longer distance trips and improved facilities for road-rail freight interchange
- Increased availability and uptake of alternative fuel sources around international gateways for freight vehicles

F - Reduce adverse impacts on communities. To be a better neighbour by safeguarding the environment and reducing the impacts of severance, adverse air quality and noise on local communities along the M4 in Reading, the M4 and M32 in Bristol and the A417/A419 in Swindon

The route passes through, or close to, a number of urban areas. Within these communities, the operation of the route has the potential to have adverse impacts in terms of air quality, noise and severance where roads create physical barriers preventing people accessing goods and services. These include Slough, Maidenhead and Reading in the Berkshire authorities. Interested parties raised the impacts of vehicles using the SRN upon local communities and highlighted the M32 and the M4 in the Berkshire authorities.

In the instance of the Berkshire authorities, it was raised by interested parties that the M4 is often used for short journeys as a result of severance.

The south of Reading in particular features a number of residential areas in proximity to the SRN at Junctions 10, 11 and 12 with potential residential development in the Wokingham Local Plan Update around the SRN south of the M4 Junction 11 and at the Hall Farm and Loddon Valley garden village east of Shinfield.

We recognise that vehicle emissions and noise from vehicles on our roads has the potential to adversely impact and can affect both the wellbeing and health of people living nearby. Whilst the transition to new and alternative fuel vehicles is expected to contribute to improved air quality in the longer term, National Highways has an important responsibility to respect the wellbeing of everyone who lives or works near the route. Air Quality Management Areas (AQMA) feature on the M4 between Junctions 5 to 7 at Slough, between Junctions 8/9 to 12 at Reading and at the Air Balloon Roundabout on the A417.

A number of urban areas near the route are subject to AQMAs such as Bristol, Bath, Reading and Maidenhead.

Supporting data indicates receptors at the following locations on the route may be more sensitive to high noise levels as these receptors are within 300 metres of the SRN and includes M4 (Junctions 11 to 10)

Noise Important Areas (NIAs) for roads are based upon the Department for Environment, Food and Rural Affairs (DEFRA) strategic noise maps results and have been produced in line with the requirements set out in the noise action plans. NIAs within the route include M4 south of Reading.

Supporting data indicates that receptors at the following locations on the route fall within 100 metres of the SRN and may be more likely to experience adverse air quality impacts include M4 (Junctions 11 to 10 eastbound).

Our network considerations:

- Several sections of the route have nearby receptors which may be more likely to experience adverse air quality and noise impacts, particularly Noise Important Areas (NIA) which include south of Slough, Holyport and Maidenhead, between Reading and Wokingham and South Reading. AQMAs include: M4 between Junctions 5 to 7 at Slough, between M4 Junctions 8/9 to 12 at Reading, the Air Balloon Roundabout on the A417 and the M32 in Bristol south of Junction 1
- Severance created by the M4 and limited crossings of the road for vulnerable road users to the south of Reading where a number of residential areas are located adjacent to the M4. Demand for safe and suitable crossings will increase with future residential development either side of the M4 around Reading.

Outcomes

- Improvement in the quality of life for communities located along the SRN
- Improvements in air quality and reduce adverse noise impacts
- Reducing SRN related severance of local communities to enable improved access to goods and services

Chapter 7 – 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.

Areas of Interest for further investigation include:-

From M4 junction 8/9 to junction 10

- high levels of people killed or seriously injured, higher percentage of fatal or serious collisions involving walkers, cyclists and horse riders.
- Seasonal delay is noted between junction 4B and 12 of the M4.
- There is an AQMA on the M4 between junctions 8/9 to 12.

From M4 junction 10 to junction 13

- Relatively higher numbers of people killed or seriously injured on the mainline between Junctions 11 and 10 eastbound.

- Supporting RSF data also indicates that on the route there is a relatively higher percentage of fatal or serious collisions involving walkers, cyclists and horse riders on part of this section.
- Seasonal delay is also noted between Junctions 4B and 12 of the M4.
- Congestion was highlighted as a problem by interested parties, particularly at peak times. There are aspirations for residential and employment development sites near to Junction 11 and south of Reading.
- Pockets of south Reading are in the top 5% for deprivation nationally.
- Receptors may be sensitive to noise and air quality issues on the M4 at Junctions 11 to 10. This section of route is also home to an NIA and an AQMA (M4 Junctions 8/9 to 12). Furthermore, this section of the route is considered to be at risk of surface water flooding.

Chapter 8 – Next Steps

The route strategy Initial overview reports will combine with other related evidence to inform the broader SRN initial report as part of the RIS process for the third road period. 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. DfT will consult on this SRN initial report, which will serve to inform the RIS and Strategic business plan. We will finalise the Route strategy 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 Road investment strategy and Strategic business plan.

Environmental Sustainability Strategy

As background when considering the other three documents, it should be noted that:-

In developing this strategy, National Highways “*have listened to a broad range of government departments, public bodies and non-governmental organisations – working in the areas of both transport and the environment. We’ve developed this strategy to align with the goals of these organisations.*”

National Highways have identified the following nine priority areas:-



- National Highways will update this strategy once during every road investment period.
- National Highways will have a robust implementation plan, including assigned ownership and a set of actions with associated deadlines and metrics to monitor progress.
- They will publish an annual progress report on the implementation of the Environmental Sustainability Strategy.
- They will commit to an annual stakeholder conference with supply chain partners, other infrastructure operators, environmental stakeholders, landowners and civil society organisations to promote best practice and strengthen relationships.

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