



Department
for Transport

Major Road Network Performance Review (2019-2023)

Summary Report



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Understanding the MRN

Introducing the Major Road Network

The Major Road Network (MRN) forms a middle tier of the country's busiest and most economically important local authority 'A' roads, sitting between the national Strategic Road Network (SRN) and the rest of the local road network. National Highways are responsible for managing the SRN, whereas local authorities are responsible for their sections of the MRN and other local roads.

The MRN was created in 2018 (following the proposal from the Rees Jeffreys Road Fund) to enhance the country's road infrastructure by giving these routes a status that reflects that they are crucial for economic growth and connectivity. The following factors were considered when defining the MRN:

- **Strategic Importance:** roads that are essential for connecting major economic centres, ports, airports, and other significant transport hubs. These roads support the movement of goods and people across the country.
- **Traffic Volume:** roads with high traffic volumes, or high levels of freight movement were considered for inclusion in the MRN.
- **Economic Impact:** roads were selected based on their potential to support economic development. This included routes that facilitate access to key business areas and industrial zones.
- **Connectivity:** the roads are chosen as key to connectivity between different regions, ensuring that all parts of the country are well-linked. This included enhancing connections between urban and rural areas.
- **Existing Infrastructure:** the roads are chosen to work with existing infrastructure, integrating with the Strategic Road Network (SRN) to create a cohesive and comprehensive road network.

A map showing the MRN and SRN in relation to one another is provided in Figure 1. This map demonstrates how the combination of SRN and MRN provide full length and breadth access to the country. This illustrates the economic and strategic importance of these roads for the transport of people and goods.

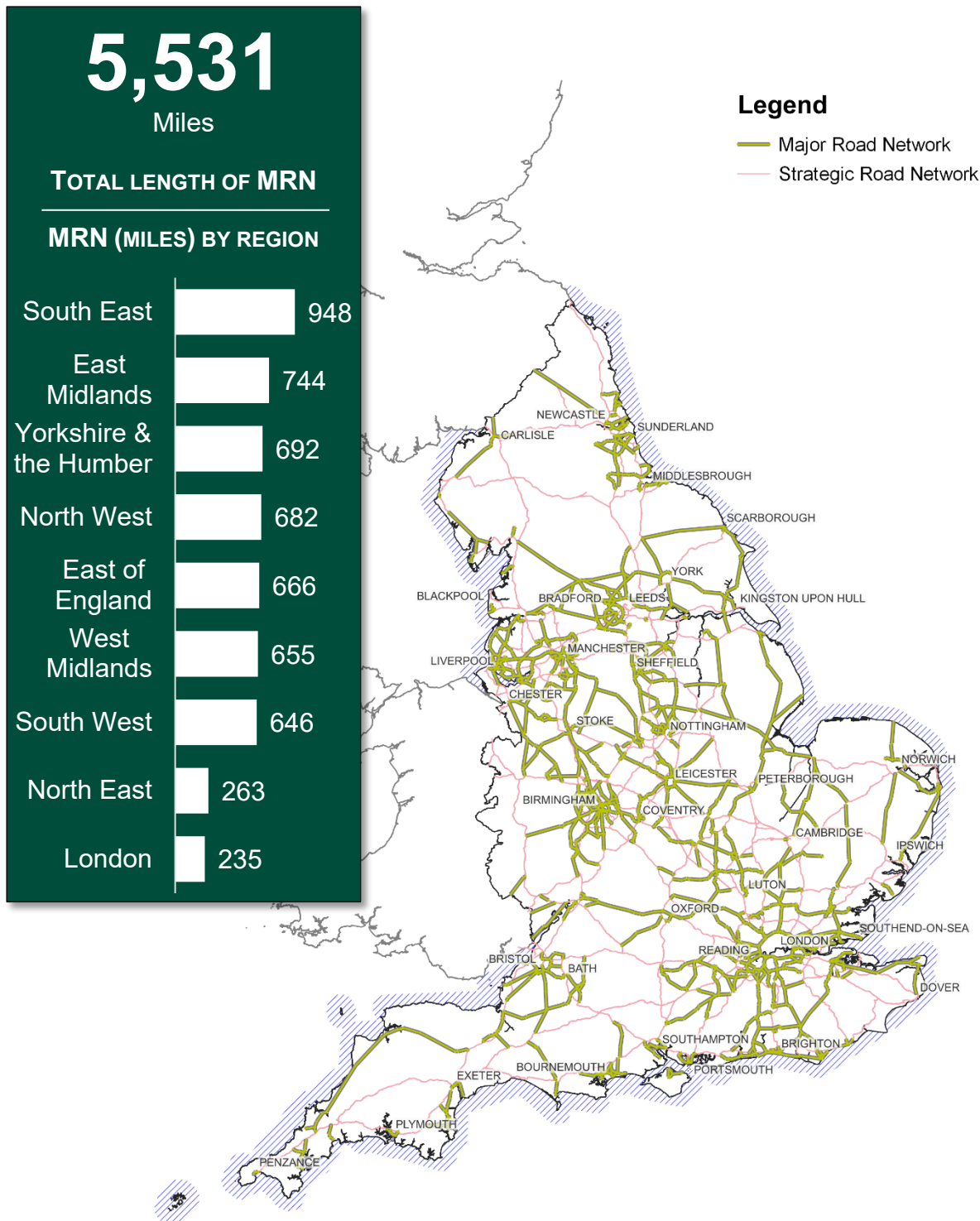


Figure 1 - Map of the MRN in the context of the SRN

The objectives of the Major Road Network

The creation of a Major Road Network was aimed to improve infrastructure planning (coordination of how roads work together) and prioritise funding and investment towards the most important and impactful roads.

In line with this, an investment planning process was developed with clearly defined five-year planning cycles, a focus on developing regional evidence bases and a clear process for developing business cases for investment and improved scheme delivery.

An investment fund called the *Major Road Network and Large Local Majors Programme*¹ was set up to facilitate investment and seek to improve the MRN. The Department for Transport (the Department) outlined a series of objectives for the network. These are:

- **Reduce congestion:** alleviating local and regional congestion, reducing traffic jams and bottlenecks
- **Supporting economic growth and rebalancing:** contributing to economic development and ensuring that the benefits are felt across different regions
- **Supporting housing delivery:** facilitating the delivery of new housing developments by improving access and connectivity
- **Supporting all road users:** ensuring the network meets the needs of all users, including pedestrians, cyclists and public transport
- **Supporting the Strategic Road Network (SRN):** enhancing the integration and efficiency of the overall road network by complementing the SRN

The purpose of this report

This report provides information on the performance of the Major Road Network based on the Department's existing data sources with a focus on speeds, delay and safety. It explains the national, locational and temporal performance of the MRN so that the reader can understand how the network is functioning. The report also sheds light on the challenges that temporal and seasonal demand places on the MRN and the impact in terms of planning for and managing the network.

The report is centred around congestion data (speed and delay) and safety data analysis which have been undertaken over the extent of the MRN.

- The **congestion data** set is based on two snapshots in time from 2019 and from 2023. These have been chosen to avoid the period most affected by the COVID-19 pandemic, allowing an understanding of congestion changes over the recent past.
- The **safety data** set is based on data recorded between 2019 and 2022. These have been chosen as they are the latest available.

There is an accompanying dataset containing the congestion and safety data used for further exploration, and a technical note which outlines the methodology and design choices made in developing the data.

¹ See <https://www.gov.uk/government/publications/major-road-network-and-large-local-majors-programmes-investment-planning/major-road-network-and-large-local-majors-programmes-investment-planning-guidance>

Understanding the measures used in this report

Within this report a series of measures will be discussed to explain the performance of the MRN.

- **Speed:** average and free flow speeds will be presented in miles per hour (mph). Free flow speed is the speed that can be achieved in periods of low traffic, capped at speed limits, when only the nature of the road itself (e.g. curvature of road) should affect the speed that is driven.
- **Delay:** delay will be articulated in seconds per vehicle per mile (spvpm). This is the Department's preferred measure of delay. It captures the difference between the actual speed driven and the free flow speed, with this difference considered to be the delay. An explainer on how to interpret this measure is provided in Figure 2.
- **Number of collisions:** the number of road collisions on the MRN reported by the police to the Department for Transport using the STATS19 reporting system.
- **Collision rates:** the number of collisions relative to the total number of vehicles using the road (calculated as collisions per billion vehicle-kilometre).

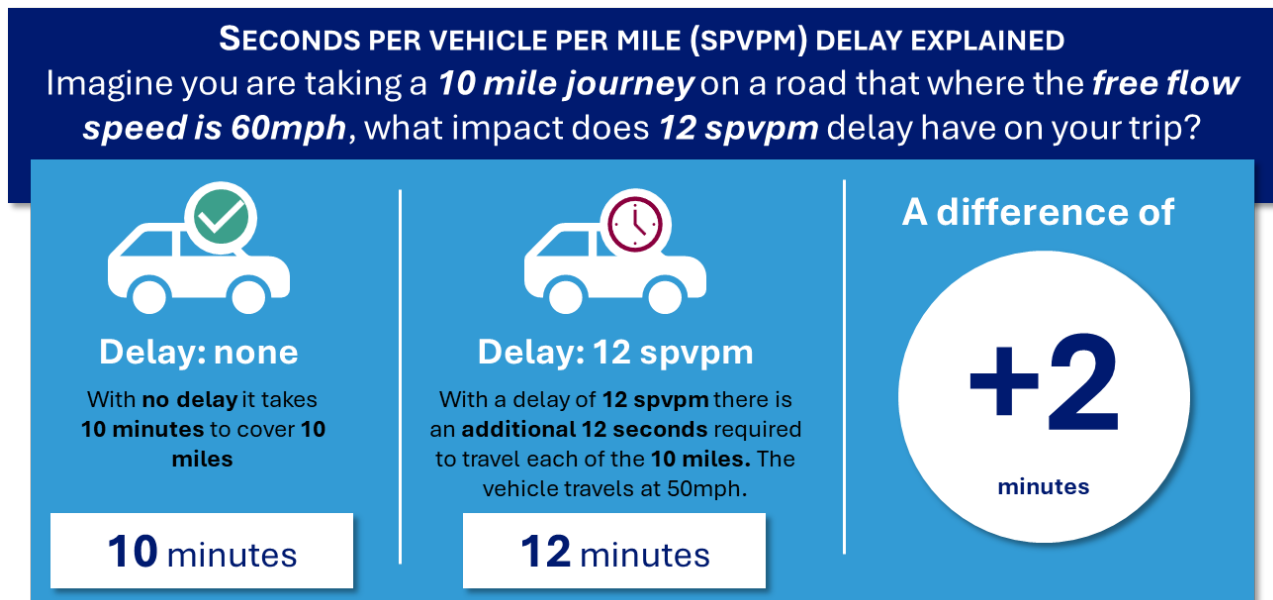


Figure 2 - Seconds per vehicle per mile (spvpm) delay explained

Analysis of Major Road Network performance at national level

MRN length and traffic

The Major Road Network is predominantly made up of A roads, combined with a few short sections of local authority motorways. For the purposes of the statistics presented to the right, the MRN is contextualised in relation to all A roads in England².

The country has 20,503 miles of A roads, with 27% of these (by length) making up the MRN. While the department does not have statistics on the level of traffic demand on the MRN, we can infer some general trends from wider A road network trends.

On the whole A road network, an estimated 122.1 billion vehicle miles were driven in 2023³, down 2.9% from 2019. This is in line with other national statistics which show reductions over the same periods. For comparison, an estimated 95.8 billion vehicle miles were driven on the SRN in 2023⁴.

While typically the country has become used to traffic growth from year to year, traffic across all roads saw a substantive reduction in traffic in 2020 due to the COVID-19 pandemic in which travel restrictions to contain the virus reduced traffic volumes and are considered to have impacted travel patterns. The final travel restrictions as a result of the pandemic were lifted in March 2022.

There are

5,531 miles

of roads designated as the Major Road Network.

It constitutes 27% of the

20,503 miles

of A roads in England

On which

122.1 bvm*

were driven in 2023

The Strategic Road Network is

4,600 miles

for comparison

*bvm = billion vehicle miles

² Data on the length of local authority motorways is not held by the Department. It is considered the comparison to all A roads is the most relevant comparison to make.

³ TRA0103

⁴ TRA4102

In the years since 2020, traffic volumes have been increasing year on year. The statistics for the A road network (and so it can be assumed apply to the MRN also) demonstrate that 2023 traffic levels still remain lower than 2019 levels, despite the increases since 2020.

Speed and delay on the MRN

To understand national congestion on the MRN, all day 2023 speed and delay figures are provided (right). Further, three maps are provided to show locational speed and delay data with colour coding to aid interpretation. These are:

- Figure 4 showing the delay occurring on each section of the MRN
- Figure 5 showing the average speed of each section of the MRN
- Figure 6 showing the ratio between average speed and free flow speed for each section of the MRN

Across the MRN, the average speed is observed to be 26.4mph in 2023, this is 10.9mph below the free flow speed, indicating that traffic conditions are causing delay which prevents road users from travelling at higher speeds. The free flow speed is crucial context to understanding the average speed, as the MRN is made up of a range of roads with speed limits ranging from 30mph to 70mph. A more detailed consideration of MRN speeds on different carriageway types and in different locations is provided later in this report to illustrate how speeds vary on the broad range of roads that are included in the MRN.

The 2023 average speed of 26.4mph represents a 0.3% reduction in speeds on the network since 2019. As stated, national traffic trends suggest that overall traffic volumes are still marginally lower in 2023 relative to 2019. As such, further analysis into why speeds have reduced when traffic volumes are likely to be lower has been conducted.

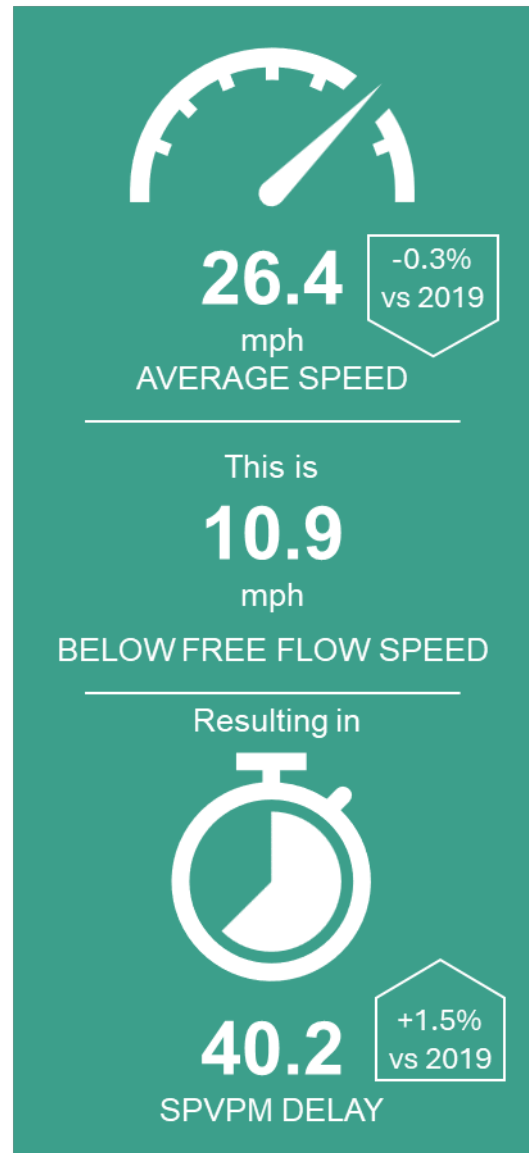


Figure 3 shows how average speed has changed in different time periods. This shows a mixed pattern with the commuter peak periods (AM and PM peaks) showing an improvement in average speed since 2019 while all the non-commuter periods show a decrease in speeds relative to 2019.

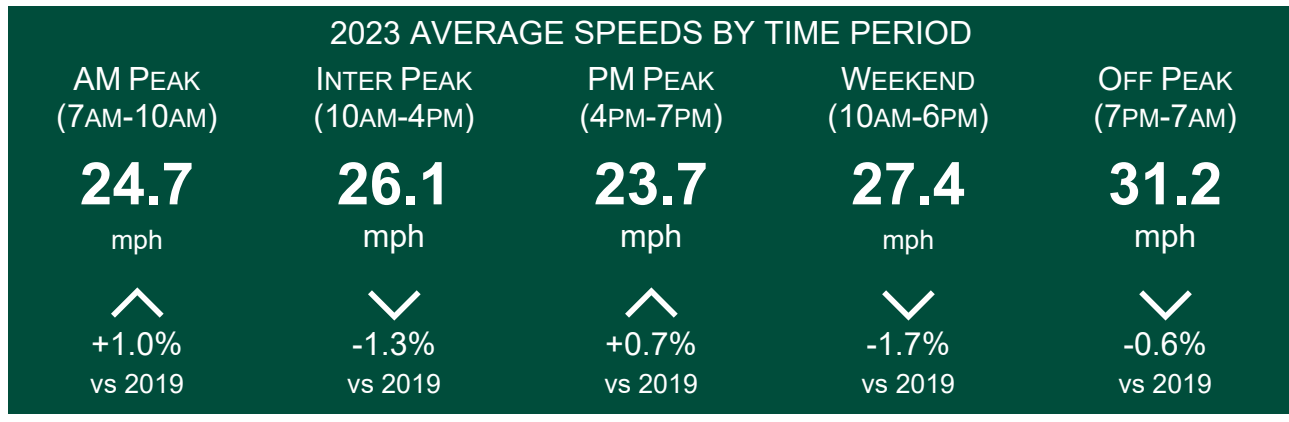


Figure 3 - 2023 average speeds by time period

The changes observed may reflect changes in travel patterns since the COVID-19 pandemic. The pandemic resulted in an increase in homeworking, a reduction in commuting and with that, a change in travel in the traditionally non-commuter hours. It appears that there may still be a continuation of such changes in the 2023 MRN data. The increased speeds in the commuter peaks (AM and PM) may be due to reduced commuting resulting from increased homeworking. Similarly the decrease in speeds in other time periods may be due to new trips that are caused by changing behaviours caused by people spending more time near their homes since the pandemic.

MRN national average delay is 40.2 seconds of delay per vehicle per mile travelled. This means that for any mile driven on the MRN, a road user needs to allow an additional 40.2 seconds to drive that mile than would be necessary under free flow conditions. For comparison, the Department's official statistics outline that Local A Road delay is 47.9 seconds of delay per vehicle per mile travelled, demonstrating that the MRN performs slightly better than other A roads.

Figure 4 demonstrates that there is substantial variation in delay on each section of the MRN, and so the average figure is only useful for tracking trends in performance over time. When viewed on a map it appears that large sections of the MRN fall in the under 30 seconds delay category. The map shows that it is primarily in and around the major cities and towns that delay is worse, likely due to the high volumes of traffic typical in major conurbations. In these areas the density of MRN roads and the volume of traffic tend to be higher and such areas have a large impact on the national average delay figure.

The urban areas are also where lower speeds are observed (see Figure 5). Later in this section an analysis of urban and rural areas is undertaken to draw further conclusions about the impact that location has on speeds and delay. The map of speeds indicates that very little of the MRN runs at an average speed above 40mph.

To provide further context on the speed data, Figure 6 has been provided to show the relationship between average speed and free flow speed. This shows that nationally, the MRN is running at 71% of free flow speed across the day.

Table 1 provides a comparison of the MRN and SRN speed and delay changes since 2019. Key findings are that:

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- Both networks have trended in the same direction, with speeds decreasing and delay increasing in the period 2019 to 2023. This trend is stronger for the SRN.
- The table demonstrates how different the networks are in performance terms. Delay is almost four times higher on the MRN than the SRN.

Table 1 - Comparison of MRN and SRN from 2019 to 2023

Network	Speeds (mph)			Delay (spvpm)		
	2019	2023	Change	2019	2023	Change
MRN	26.5	26.4	-0.3%	39.6	40.2	+1.5%
SRN	58.0	57.0	-1.7%	9.5	10.5	+10.5%

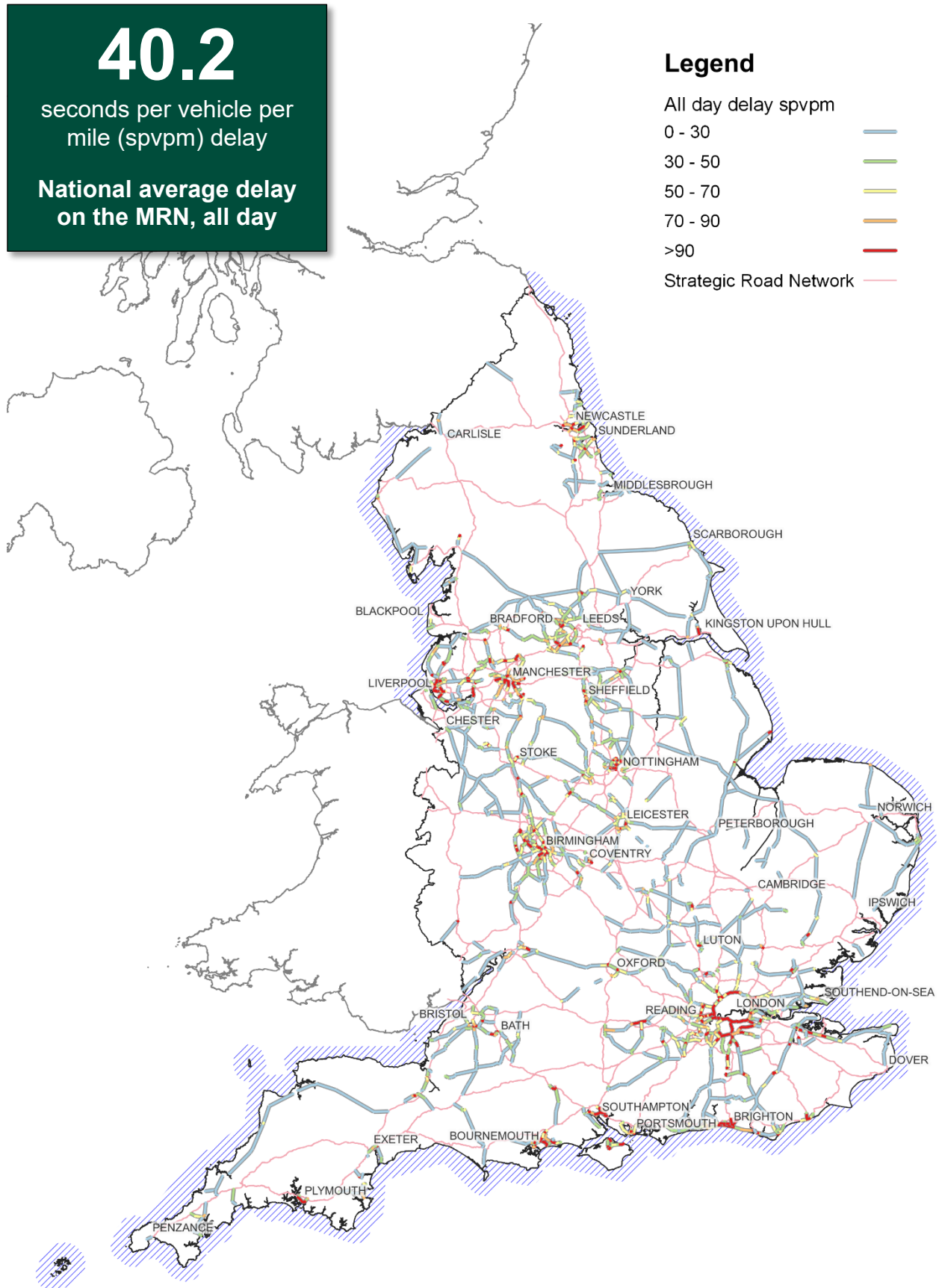


Figure 4 – All day delay (spvpm) on the MRN

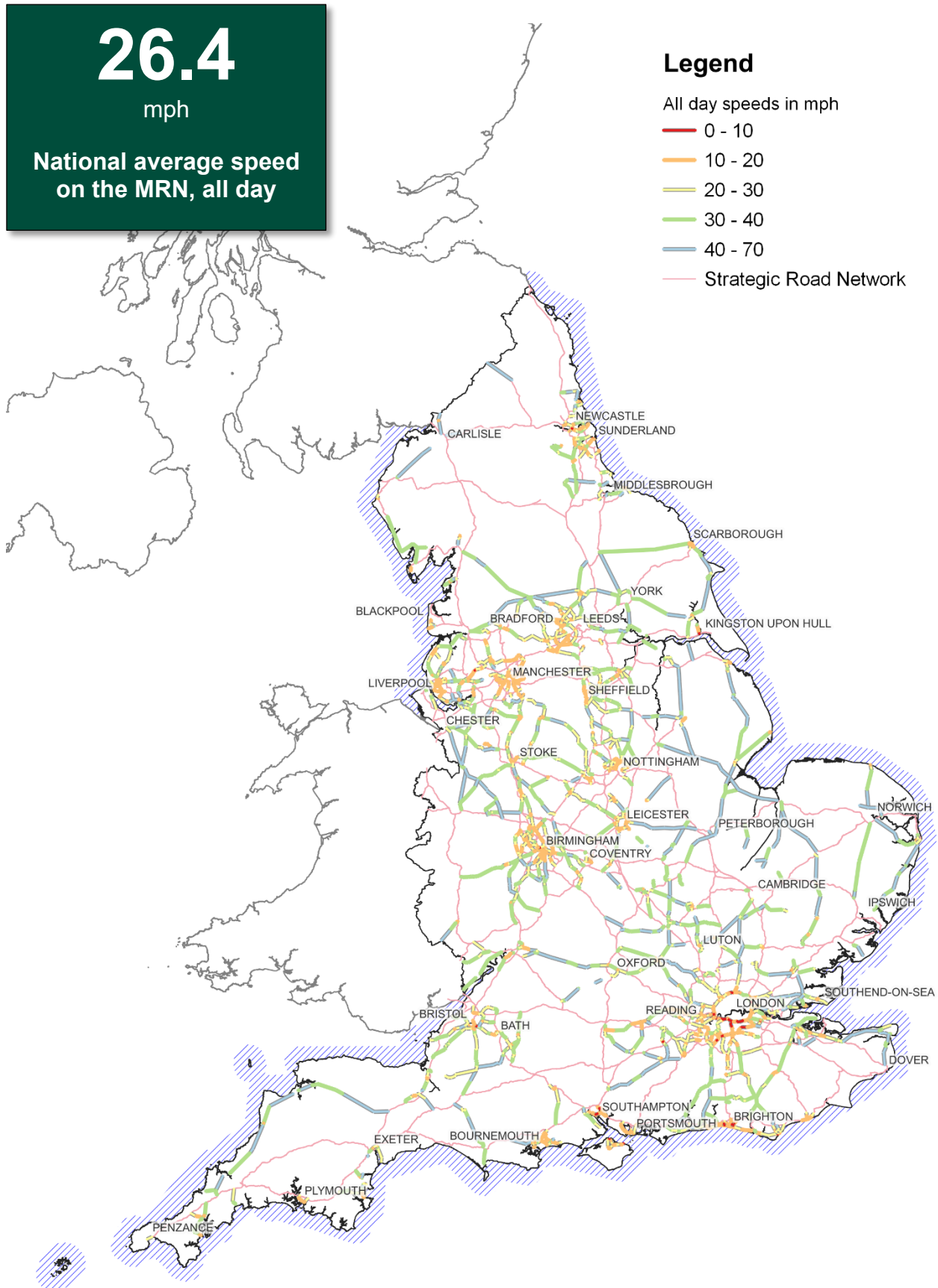


Figure 5 - All day average speeds (mph) on the MRN

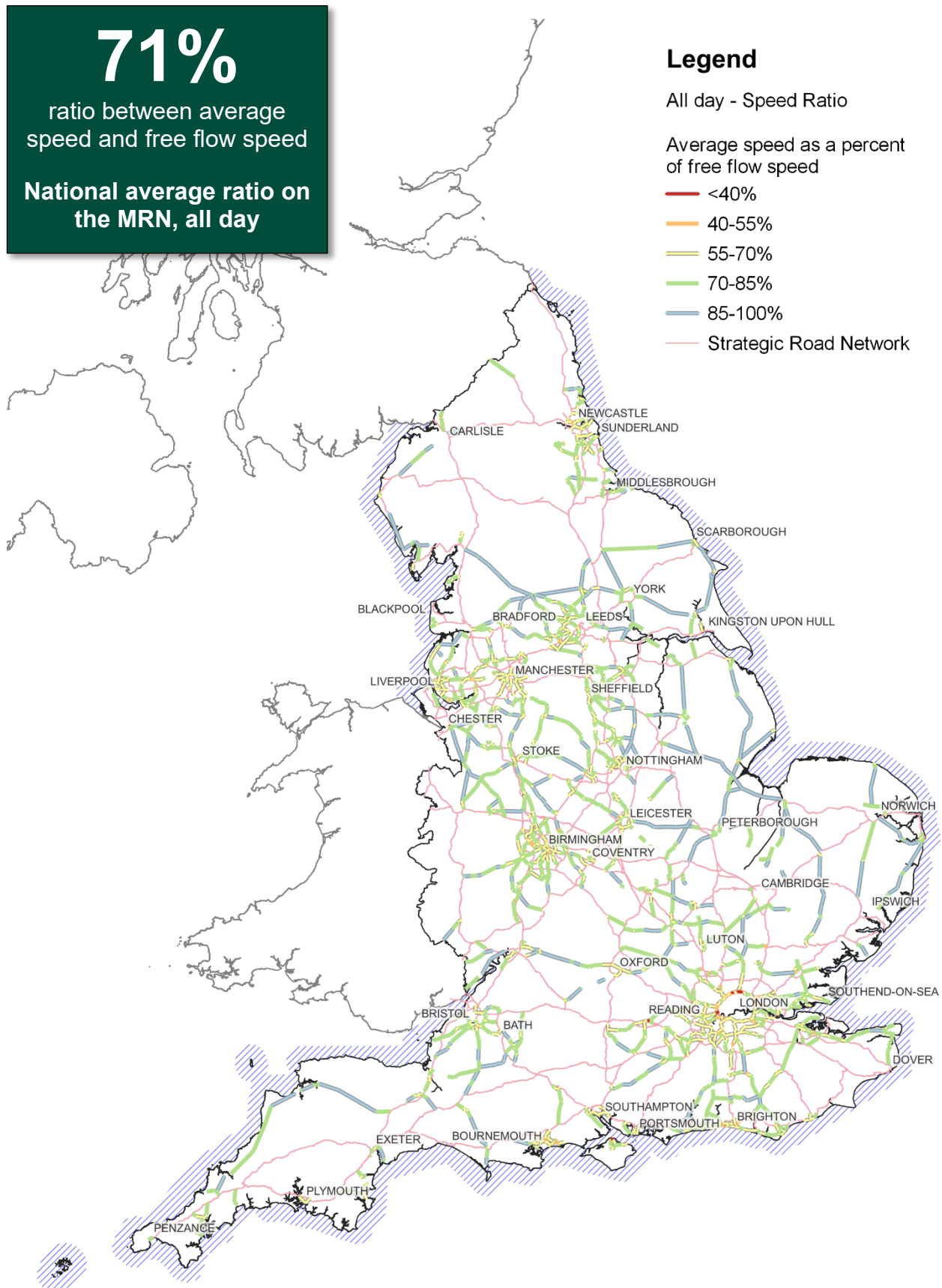


Figure 6 - Ratio between average and free flow speed on the MRN

MRN performance on different road types

The MRN is made up of both single and dual carriageway roads, in both urban and rural locations. The roads operate under a range of speed limits from 30mph through to the national speed limit. Note that the national speed limit for single carriageway roads is 60mph and for dual carriageway roads is 70mph.

To provide some context, Figure 7 shows average speeds for urban and rural, single and dual sections of the MRN in a range of time periods. These are compared to the free flow speed shown in the background grey bars. The difference between the free flow and average speeds is the delay experienced on these roads.

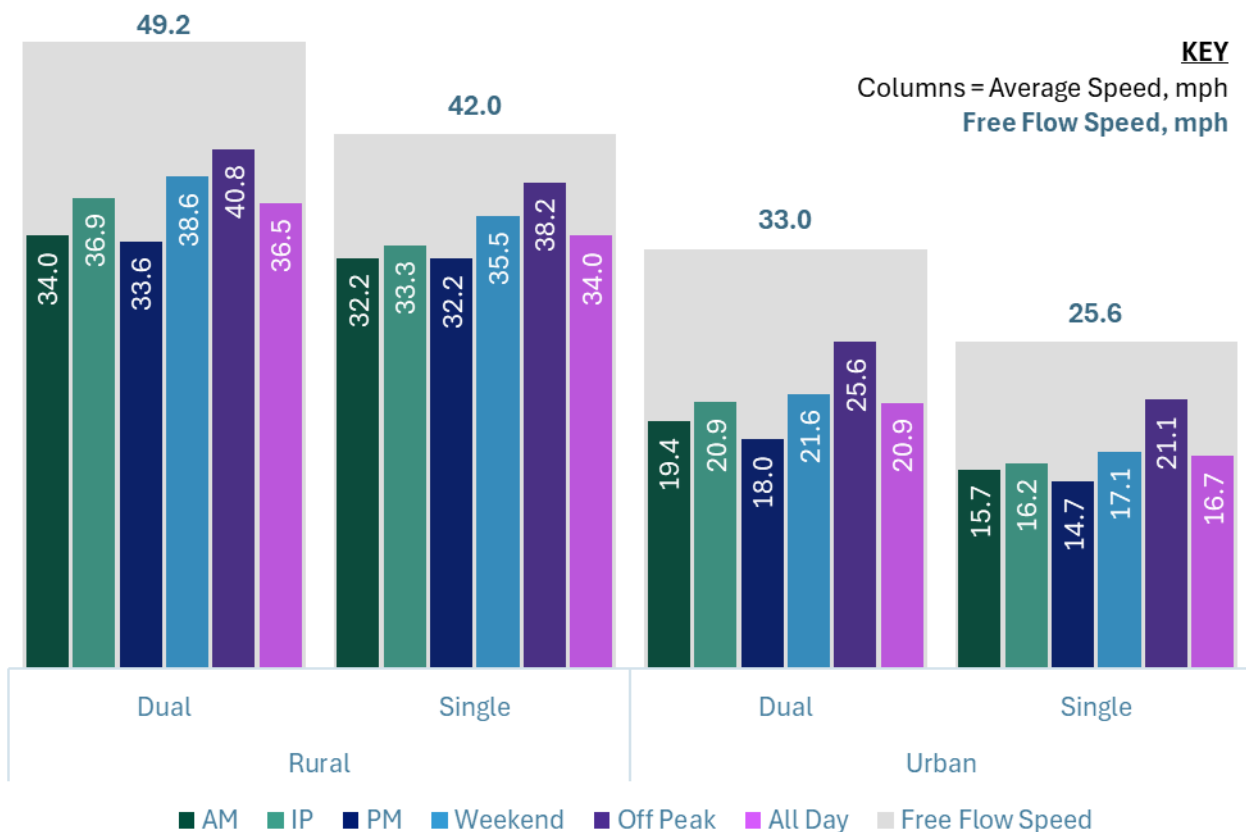


Figure 7 - MRN speeds on different road classifications

Figure 7 informs the following about the MRN's performance:

- Dual carriageways have higher average speeds than single carriageways, and have higher free flow speeds.
- Rural sections of the MRN have higher average speeds than urban sections, and have higher free flow speeds too.
- It is typical for rural speed limits to be higher than urban, and for dual carriageways to have higher speed limits than single carriageways due to safety design standards, density of population and what is safe in a built-up environment. As such, the observed free flow speeds outlined in the first two observations align with expectations.

- In terms of time periods, the findings are relatively consistent across the carriageway and location types. All demonstrate that off peak speeds are highest, as would be expected due to low demand. AM and PM peak speeds are, as expected, the slowest as commuter demand is placed on the network leading to the highest traffic volumes in the day. Inter peak and weekends fall somewhere between these extremes.

Table 2 adds further detail to this analysis by considering how delay changes between area classification and carriageway type combinations. The table makes clear that urban delay is much higher than rural delay (on average between 2-4 times higher), and this affect is stronger on single carriageways than dual carriageways. Delay can also be inferred from Figure 7 by considering the difference between free flow and average speed.

Table 2 – Area classification and carriageway type delay figures (all day)

All day delay (spvpm)		Carriageway Type	
		Single	Dual
Area Classification	Rural	20.4	25.4
	Urban	75.7	63.3

From this data it is found that dual carriageways have higher delays than single carriageways in rural areas, but lower delays in urban areas. Delay is a complex interplay between demand, capacity, geometry, junctions, carriageway standards and speed limits and as such there is insufficient national data to speculate on the cause and effect in this report. We do not have data to explain or hypothesise why the findings are as stated in Table 2, but recommend that local authorities consider such factors when managing their sections of the MRN.

The speed and delay performance between regions can be to some extent explained by regional variations in the carriageway type and location type proportions. For example, the London region will be heavily urban, and as such it can be expected to have much slower speeds, with an expectation that speeds will fall below 20mph in many time periods.

The impact of seasonal demand on the MRN

Discussions with local authorities and sub-national transport bodies around the country in the undertaking of this research identified that each region is unique in their concerns about the pressures placed upon their road networks. One of the most common issues raised in these discussions was that of seasonality, and specifically an increase in demand on certain roads in the summer (July and August) when travel patterns change due to the holiday season.

To explore the impacts of changes in transport demand in the summer, analysis has been conducted at the national and regional levels. Nationally, delay on the MRN is overall lower in the summer relative to the whole year (37.9 spvpm in the summer compared to 41.0 spvpm in the whole year). This also holds true in the majority of the regions, as shown in Figure 8. Only in the North East is MRN delay higher in the summer relative to the whole year.

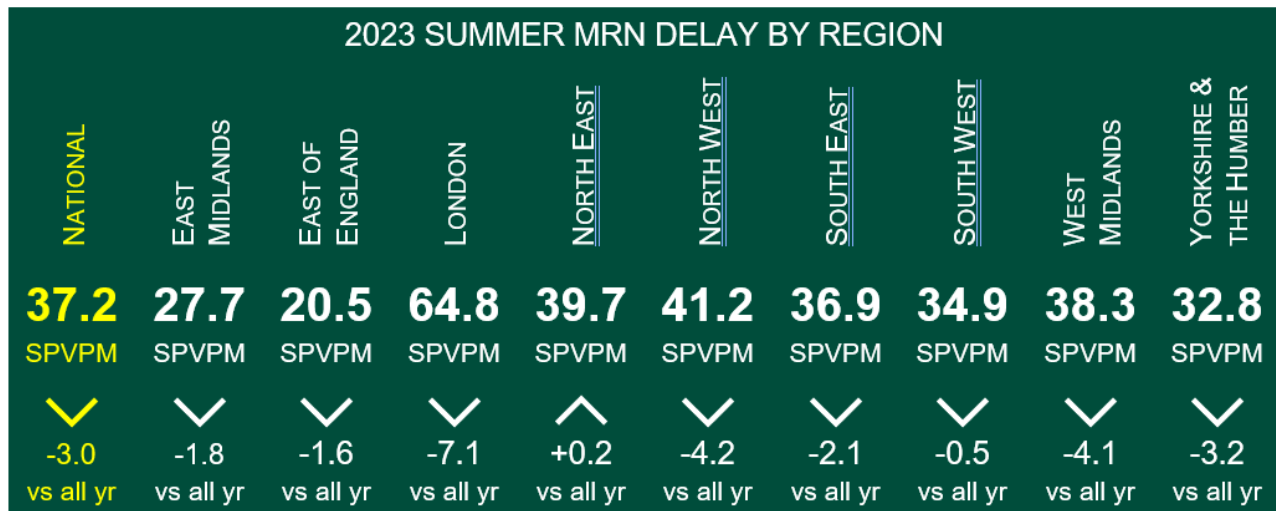


Figure 8 - Summer (July/August) period regional delay compared to all year delay

The regional summer delay findings generally pointing to the summer seeing an improvement in delay suggest the adverse impacts expressed by local authorities and sub-national transport bodies must be more localised than demonstrable at a regional level. To understand the impact at a road segment level, Figure 9 shows the relationship between summer and all year delay on a road-by-road level. The figure has been colour-coded to indicate which roads perform better in the summer, and which are more congested in the summer. Where they are more congested in the summer, the figure indicates how much delay has increased.

The general pattern observed in Figure 9 is that the roads in and around major cities and towns show as blue, indicating that delay is overall better in the summer than the average for the year. In contrast, the areas in which delay increases in the summer are typically in rural areas. Broadly these findings are consistent with the increase in the visitor economy in the summer months. In these times less people are likely to be commuting, and so major conurbation delay decreases with lower demand. However, more people are travelling to and from holiday locations, tourist hotspots and as such are taking broader movements around the country, hence the increased demand and delay on connecting roads.

The map also shows that a high number of the increasing delay roads are out towards the edges of the countries, on route to and around the coastal regions. Figure 9 specifically shows change in delay at a daily delay level. While not shown in this report, significantly more roads and higher levels of delay are demonstrated when a similar analysis is conducted on time periods such as the inter peak, PM peak and weekend. All of these findings correlate well with what we would expect with visitor economy behaviour, and indicate that local authorities and sub-national transport bodies would be advised to consider seasonal demand profiles when planning for the effective management of the MRN in their areas.

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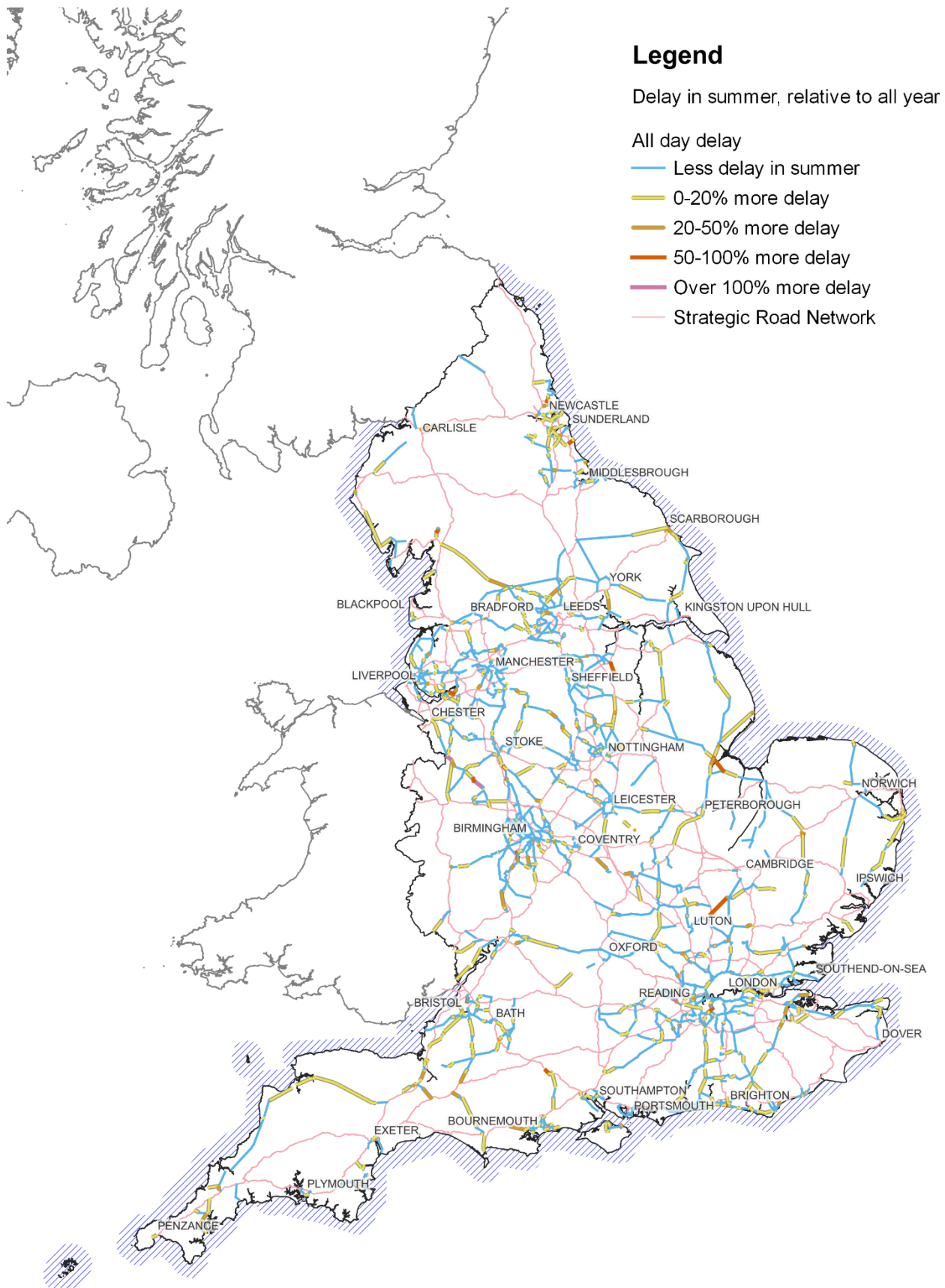


Figure 9 - All day delay summer vs year average ratio

Safety on the MRN

Road collisions data

Road collisions in Great Britain are reported by the police to the Department for Transport using the STATS19 reporting system. For purposes of this report, we considered the collisions that occurred on a public highway involving at least one motor vehicle, horse rider or pedal cyclist, and where at least one person was injured, are included in accredited official statistics published by the Department.

Casualties are broken down into fatalities (people killed in road collisions), and those injured (further split into seriously and slightly injured based on type of injury sustained). Killed and seriously injured casualties are commonly grouped together as 'KSI' collisions.

Matching Road Collisions to Road Networks

The reported collisions contain location information and details which can be utilised to match them to road networks. National Highways undertake annual work to identify collisions that have occurred on the SRN with Department Road Collision statistics being updated to include this information. A similar process has now been undertaken to identify collisions considered to have occurred on the MRN.

The MRN approach compares the reported collisions information with road link details from Ordnance Survey's Highways network. The methodology has been validated against the National Highways SRN results and has undergone quality assurance to ensure accuracy and confidence in the identification of MRN collisions.

MRN Collisions: National & Regional Breakdown

Table 3 shows the results of the MRN matching process for all MRN collisions and those collisions that have their accident severity recorded as KSI⁵. These figures show a reduction in all collisions on the MRN in 2022 (from 2019) but display an increase in those that are KSI collisions.

Table 3 – Changes in MRN collisions (All & KSI) between 2019 and 2022

Network	All Collisions			KSI Collisions		
	2019	2022 ¹	Change	2019	2022 ¹	Change
MRN	13,197	12,028	-8.9%	2,649	2,759	+4.2%

¹ traffic flow AADF statistics affected by Covid-19 pandemic

The data for the regional breakdown of MRN collisions shows an overall decrease in all collisions from 2019. The KSI data for the MRN shows differently. The number of MRN KSI collisions has increased from 2019 in seven of the nine regions – the North East and Yorkshire & the Humber are the only regions showing a decrease in KSI collisions.

⁵ [Guide to injury-based reporting and severity adjustments for road casualty statistics](#)

2022 ¹ MRN COLLISIONS BY REGION									
NATIONAL	EAST MIDLANDS	EAST OF ENGLAND	LONDON	NORTH EAST	NORTH WEST	SOUTH EAST	SOUTH WEST	WEST MIDLANDS	YORKSHIRE & THE HUMBER
12,028	1,099	1,030	2,100	352	1,179	2,603	981	1,410	1,274
All	All	All	All	All	All	All	All	All	All
▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
-8.9%	-4.2%	-7.5%	-10.6%	-22.8%	-13.7%	-2.9%	-12.3%	-12.9%	-5.6%
vs 2019	vs 2019	vs 2019	vs 2019	vs 2019	vs 2019	vs 2019	vs 2019	vs 2019	vs 2019
2,759	287	266	328	84	293	639	227	296	339
KSI	KSI	KSI	KSI	KSI	KSI	KSI	KSI	KSI	KSI
▲	▲	▲	▲	▼	▲	▲	▲	▲	▼
+4.2%	+5.9%	+14.2%	+4.5%	-17.6%	+1.4%	+5.1%	+13.5%	+1.7%	-0.6%
vs 2019	vs 2019	vs 2019	vs 2019	vs 2019	vs 2019	vs 2019	vs 2019	vs 2019	vs 2019

¹ traffic flow AADF statistics affected by Covid-19 pandemic

Figure 10 – MRN 2022 collisions by region

The MRN all collisions data reflects a continuation of a long-term historic trend of an overall reduction in collisions across Great Britain. The MRN KSI collisions data differs to this, though it's noted that fatality figures are relatively small and can fluctuate from year to year and they can be also affected by the Covid-19 pandemic.

Collision Rates

To analyse collision data in more detail it is common to calculate collision rates. Collision rates are the number of collisions relative to the total number of vehicles using the road (calculated as collisions per billion vehicle-kilometre). They provide a measure of individual risk that can be useful for understanding the performance of a road network.

MRN Collision Rates: National & Regional Breakdown

The Road Safety Foundation (RSF) publish data for collision rates for all major roads in Great Britain. They are released in 3-year time periods the latest of which is 2019-2021. RSF use collision rate bands to show the severity of risk on roads using KSI collision rate calculations and following international protocols. These bands are coloured to support visualisation of individual risk⁶. The colours of the bands go from black (high risk roads), through red (medium-high risk), orange (medium risk), yellow (low-medium risk) and green (low risk roads).

RSF create a specific route network that segments major roads in a way that is meaningful to road users and has statistically robust results. In many cases RSF routes contain both

⁶ RSF collision rate band colours are shown in Figure 13.

MRN and non-MRN road sections. The data and mapping results shown in Figure 11 to Figure 13 have been clipped to extract MRN road sections only.

The RSF data, summarised in Figure 11, shows the most common collision rate band for the MRN is low-medium risk (yellow). 93% of the MRN is classed as medium risk collision rate roads or lower (orange, yellow or green).



Figure 11 – MRN Collision Rate bands 2019-2021 % breakdown. Credit: Road Safety Foundation

The RSF data for the regional breakdown of MRN collision rates (Figure 12) shows the variation across the country. The North East and East of England regions have the highest percentage of MRN roads classed as medium risk or lower (orange, yellow or green). East Midlands has the highest proportion of medium-high risk collision rates (red) with London containing the highest proportion of medium-high risk collision rates (red) with London containing the highest proportion of high risk collision rate MRN roads (black) and low risk roads (green).

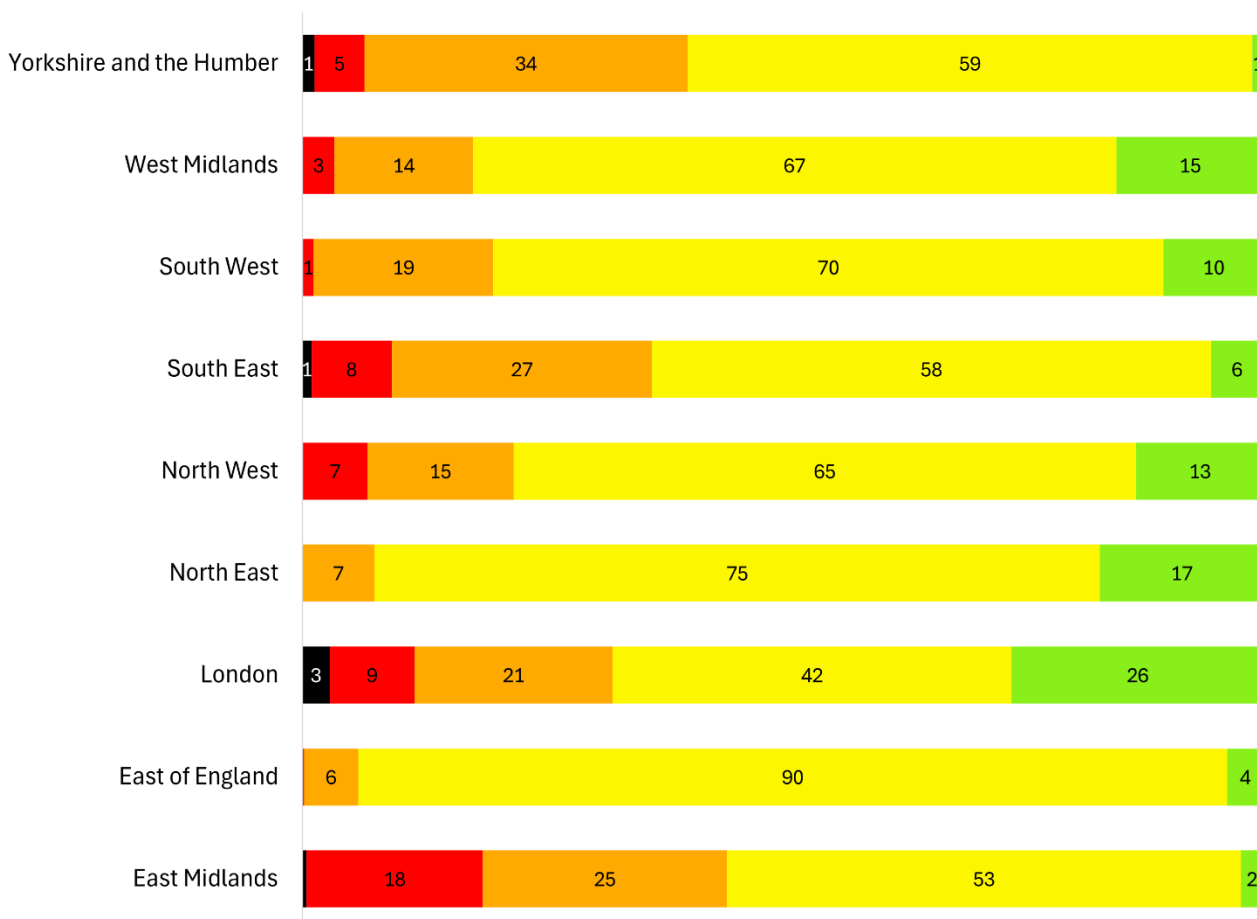


Figure 12 – MRN Collision Rate bands 2019-2021 % breakdown by region. Credit: Road Safety Foundation

The national picture of MRN collision rates is shown in Figure 13. The map shows the spread of the RSF collision rate bands across the country. The lower risk regions of the East of England, North East and South West can be seen, as well as higher risk areas covering South London (with an arc towards Brighton) and from Lincolnshire westwards towards Lancashire (passing Stoke-on-Trent, Sheffield and Manchester).

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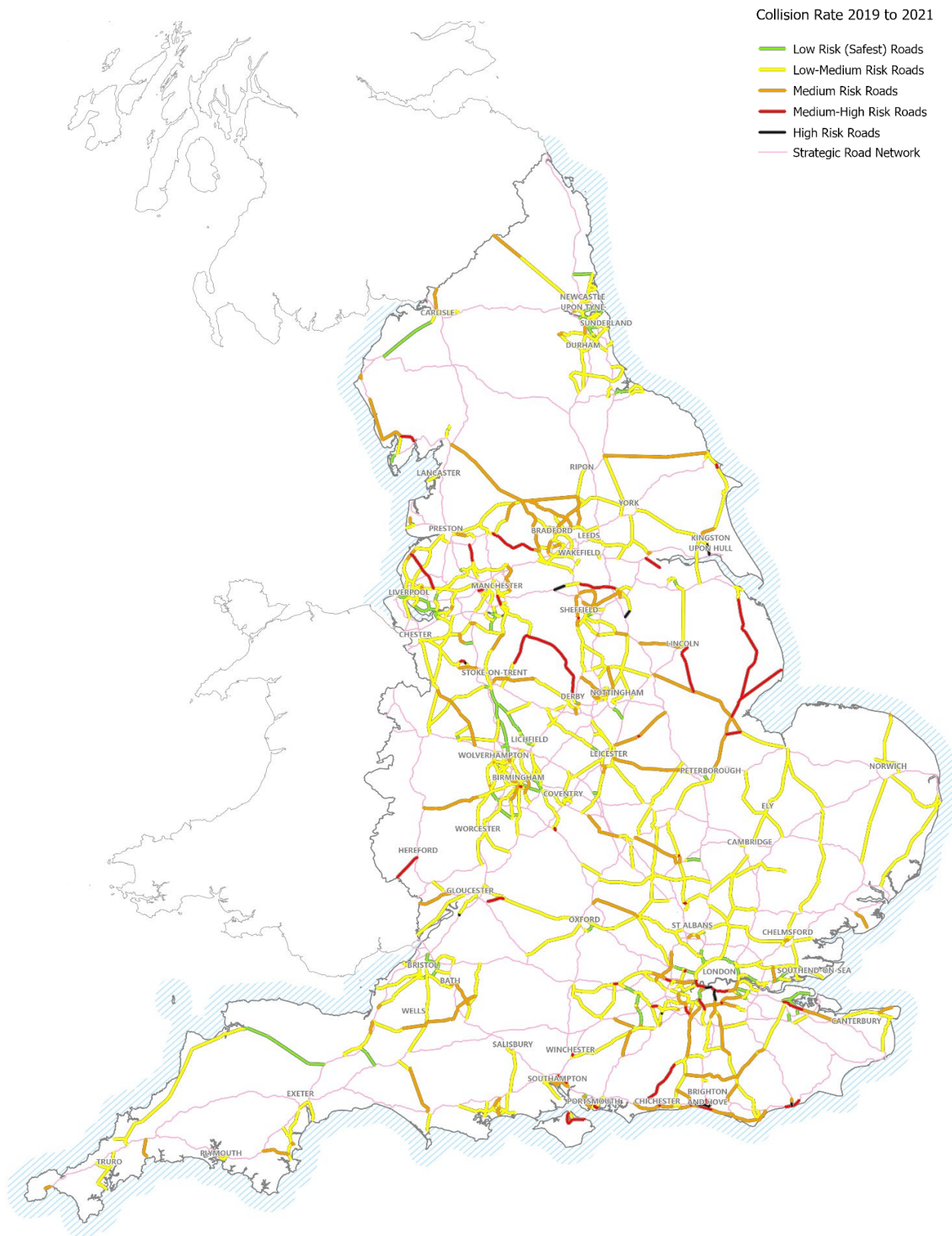


Figure 13 - Map of Collision Rates 2019-2021. Credit: Road Safety Foundation

The MRN across the regions

Defining the regions

The Department groups the road network in line with the Government Office Regions (GORs) which are the highest tier of sub-national division in England. The nine regions in England are shown in Figure 14, superimposed with the major and strategic road networks for context.

Region by region MRN performance analysis is provided in Annex A.



Figure 14 - Map of England's Regions

Regional A road traffic has fallen

Figure 15 shows the total vehicle miles driven in each region for each of 2019 and 2023. These are based on all A roads rather than the MRN, but it is likely to be indicative of traffic patterns on the MRN also. It demonstrates that in all regions except for the North East there was a reduction in vehicle miles driven in 2023 relative to 2019. As discussed in the national analysis earlier in this report, this is in line with general traffic trends following the COVID-19 pandemic in which traffic has grown back towards pre-pandemic levels in the years since 2020.



Figure 15 - Billion vehicle miles on all A roads by region in year

Placing the regions in context

Each of the regions have different characteristics and as such differing demands put on their transport infrastructure. While a detailed account of each of the regions follows, a set of summary statistics to help understand each region is provided in Figure 16.

The data provided needs to be taken together to understand the nature of the demand placed on the transport network in each location. Using the region's population and area statistics it is possible to frame the regions in terms of density of people or density of road network. As a unique example, London is by far the smallest area, with the smallest proportion of the MRN. The demand and strain on the transport infrastructure will therefore be very high given the high population. These statistics provide context to the MRN speed and congestion data discussed in Annex A.

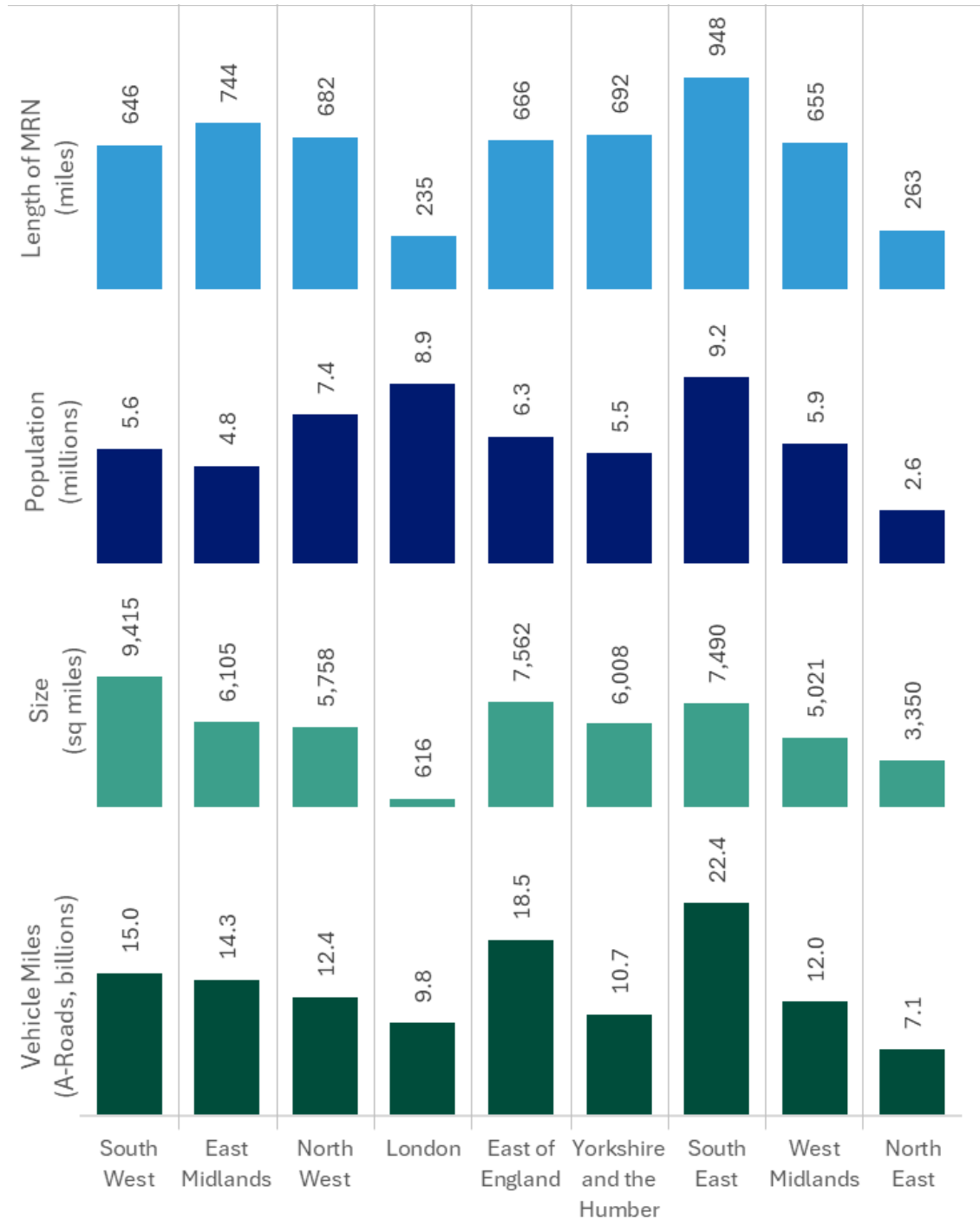


Figure 16 - Regional statistics

Notes on the source and quality of regional data:

The traffic volume data provided for each region relates to traffic volume on all A roads in each region, rather than being tailored to the Major Roads Network. The data is taken from the Department's official road traffic statistics publication.

The MRN distance statistics (miles of MRN) are based on Department's calculation.

Population data has been gathered for 2023 from the [Office of National Statistics](#).

Region sizes are based on a geospatial analysis of the regional boundary files.

Learning more about the MRN

This report has provided an overview of the Major Road Network based on new speed, delay and collision data that has been generated to understand its performance over the periods 2019 to 2023.

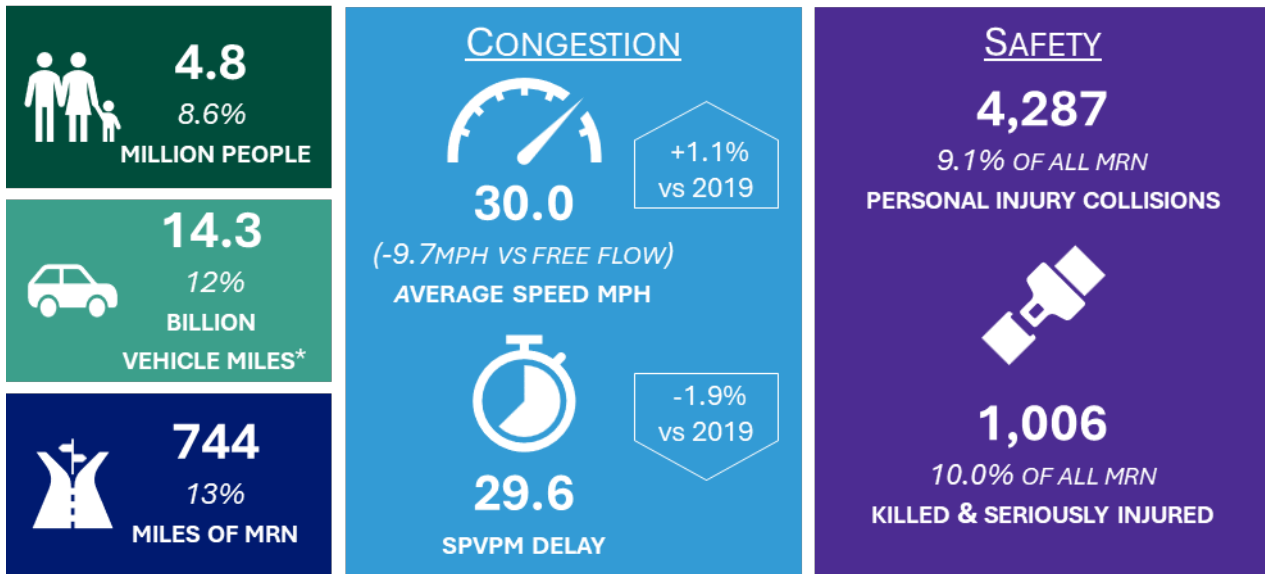
The Department are currently undertaking a review of the MRN in which it is possible that some of the roads currently designated with MRN status change. Nonetheless, this report is accurate as per the definition of the MRN at the time of publishing this report.

A version of the data used to create this report is available from the Department, along with a technical report outlining how the data has been processed, what is its source, data limitations and guidance to help with usage. The data, as a series of geospatial shapefiles, allow individual MRN segments to be analysed further.

Any schemes aimed at improving the MRN are required to monitor and evaluate their scheme's progress against a set of standardised measures and produce evaluation reports. The Department publishes regular meta-evaluations of local authority major schemes (including MRN), to understand the outcomes of schemes across the programme. The most recent meta-evaluation is available here: [Local major schemes: meta evaluation 2011 to 2016 - GOV.UK](#)

Annex A: Regional MRN Analyses

East Midlands



*Regional Vehicle Miles on all A-roads, not MRN specific

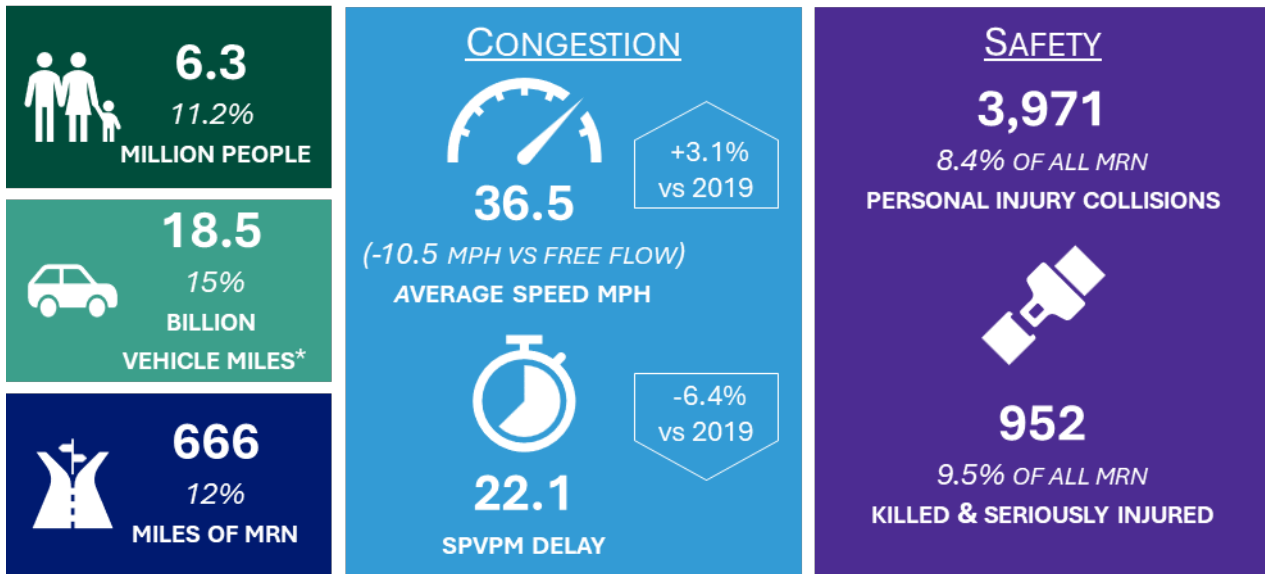
The East Midlands is home to 8.6% of the population and includes the major cities of Nottingham, Leicester, Derby and Lincoln. It is also home to East Midlands Airport, a significant passenger and freight port, and the East Midlands Freeport, the UK's only inland freeport. Its road network serves a higher proportion of A road traffic and has a higher percentage of the MRN than might be expected given its population. In fact, the East Midlands is the region with the second highest amount of the MRN in the country, despite being the region with the second lowest population. This may be due to its location in the centre of the country, facilitating connectivity to and from regions around the rest of the country.

Speed and Delay: Congestion has reduced since 2019 with vehicles now travelling faster. The average MRN speed of 30.0mph is the second highest of all the regions in the country. Speeds are 9.7mph lower than free flow speeds on average; one of the smaller absolute differences between free flow and average speed.

The region's free flow speed is higher than the national average (39.7mph vs 37.3mph) suggesting that the area has higher speed limit MRN roads than average. **The MRN delay of 29.6 spvpm is substantially below the national average of 40.2.** Nonetheless, critical movement of goods and services both to and from the East Midlands, but also between regions to all sides, are being delayed on the East Midlands' MRN network.

Safety: While the East Midlands has 13% of the MRN, the region has 9.1% of the MRN's personal injury collisions and 10% of the KSIs.

East of England



*Regional Vehicle Miles on all A-roads, not MRN specific

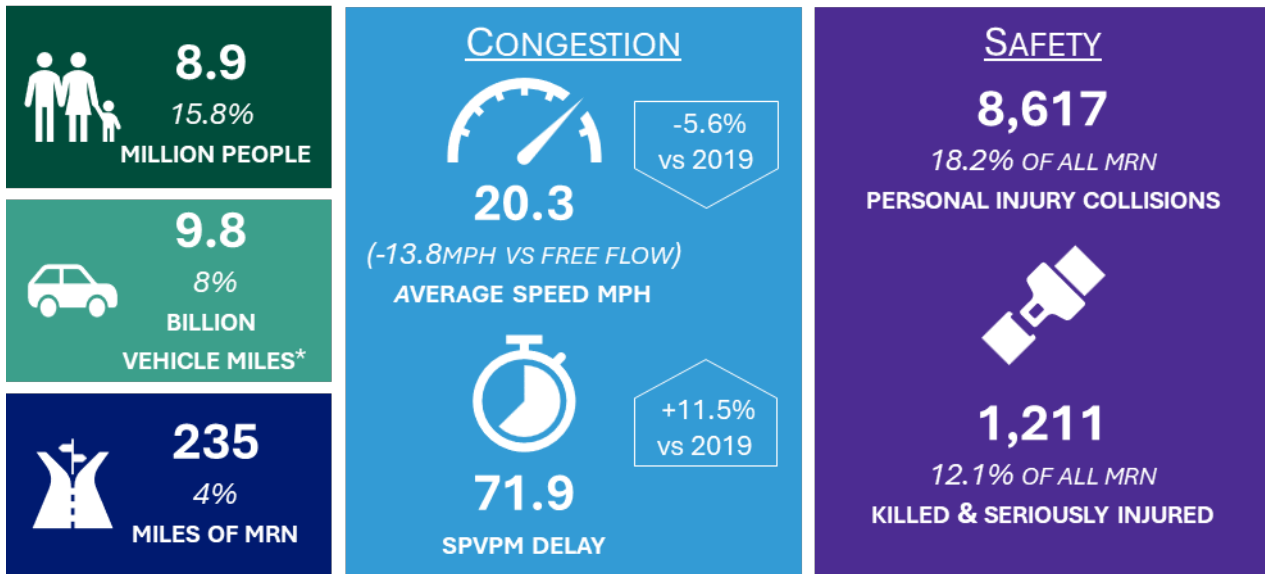
The East of England is home to 11.2% of the population and is home to the major cities of Cambridge, Norwich, Peterborough, Chelmsford and Ipswich. The region also provides important connectivity to the airports of London Stansted, London Southend and Norwich International. It is also the home of important freight and passenger ports of Felixstowe and Harwich. It is the second largest of the regions by area, which, combined with the high number of gateways in the region may explain why the A road traffic is the second highest of all the regions.

Speed and Delay: *East of England MRN average speed is the highest of all regions* at 36.5mph up 3.1% (the greatest percentage increase of all regions) since 2019. It also has the highest free flow speed of all the regions at 47.1mph. While the region has the highest average speed it is still one of the largest differences between average and free flow speed of 10.5mph, indicating speeds suffer in the busier periods of the day.

The region's delay of 22.1 spvpm is the lowest of all the regions and substantially below the national average (40.2 spvpm). This may be due to the types of roads that are classified as MRN in the East of England and/or be attributed to the region's extensive rural road network and lower urban density than some other regions.

Safety Analysis: In terms of safety, the East of England has recorded 3,971 collisions and 952 KSIs. This represents 8.4% of the total collisions and 9.5% of the total KSIs in the dataset. When compared to its population size (11.2% of national) or its quantity of MRN (12% of national), the East of England has a lower proportion of collisions and KSIs. This suggests that the regions MRN network has a relatively good safety record relative to its scale and likely demand.

London



*Regional Vehicle Miles on all A-roads, not MRN specific

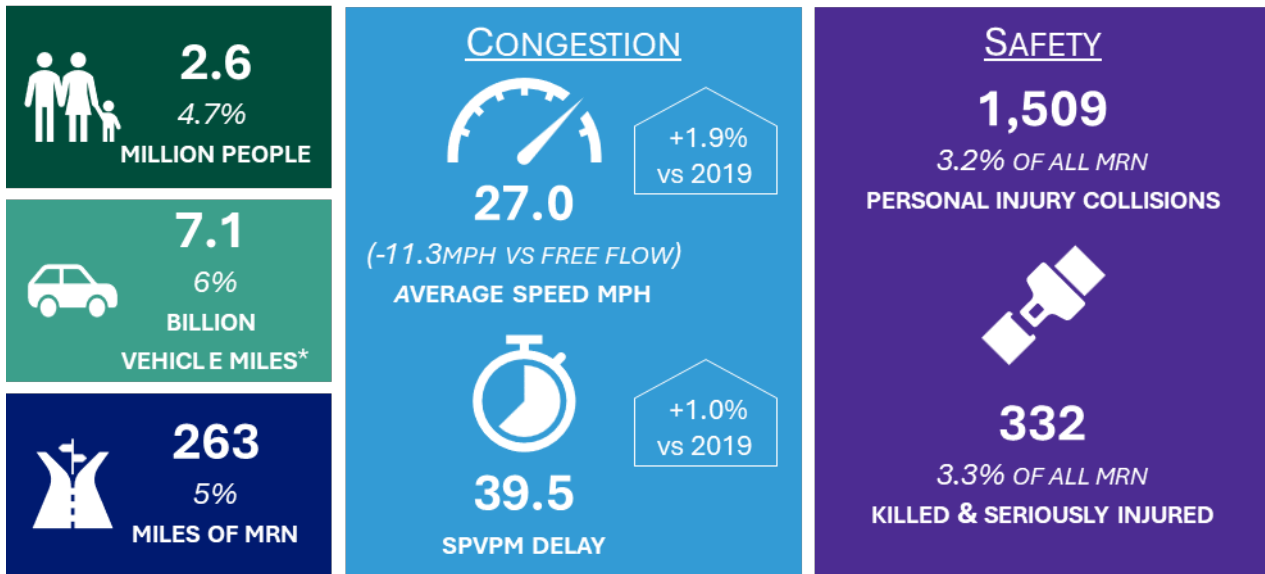
London is the capital city of the United Kingdom and one of the most significant global cities. It is home to approximately 15.8% of the UK's population and is a major hub for finance, culture, and transportation. The city's road network is crucial for both local and international connectivity. London's major areas include the historic City of London, Westminster, Camden, Kensington and Chelsea. The city is served by six international airports: Heathrow, Gatwick, Stansted, Luton, London City, and Southend. Additionally, London hosts significant freight depots like the Port of London, supporting efficient distribution and supply chain management.

Speed and Delay Analysis: Average speed has worsened since 2019, with vehicles now traveling at 20.3mph in 2023 compared to 21.5mph in 2019 (the greatest percentage decrease across all regions at 5.6%). ***The average MRN speed of 20.3mph is one of the lowest among all the regions and the difference between free flow speed and average speed is 13.8mph (highest among all regions), reflecting the high levels of congestion typical of a major urban centre.***

The MRN delay of 71.9 spvpm is the highest of all regions and well above the national average (40.2), suggesting that London's MRN experiences higher congestion compared to other regions. London also saw the highest increase in delay (11.5%) as compared to 2019. This can be attributed to the dense urban environment generating a high volume of traffic.

Safety Analysis: In terms of safety, London has recorded 8,617 collisions and 1,211 KSIs. This represents 18.2% of the total collisions and 12.1% of the total KSIs in the dataset. When compared to its population size, which is 15.8% of the total population, London has a relatively higher proportion of collisions but a lower proportion of KSIs. However, when comparing to proportion of MRN which is 4%, London has the lowest quantity of MRN and yet the second highest number of collisions. London has the highest proportion of high-risk collision rate roads.

North East



*Regional Vehicle Miles on all A-roads, not MRN specific

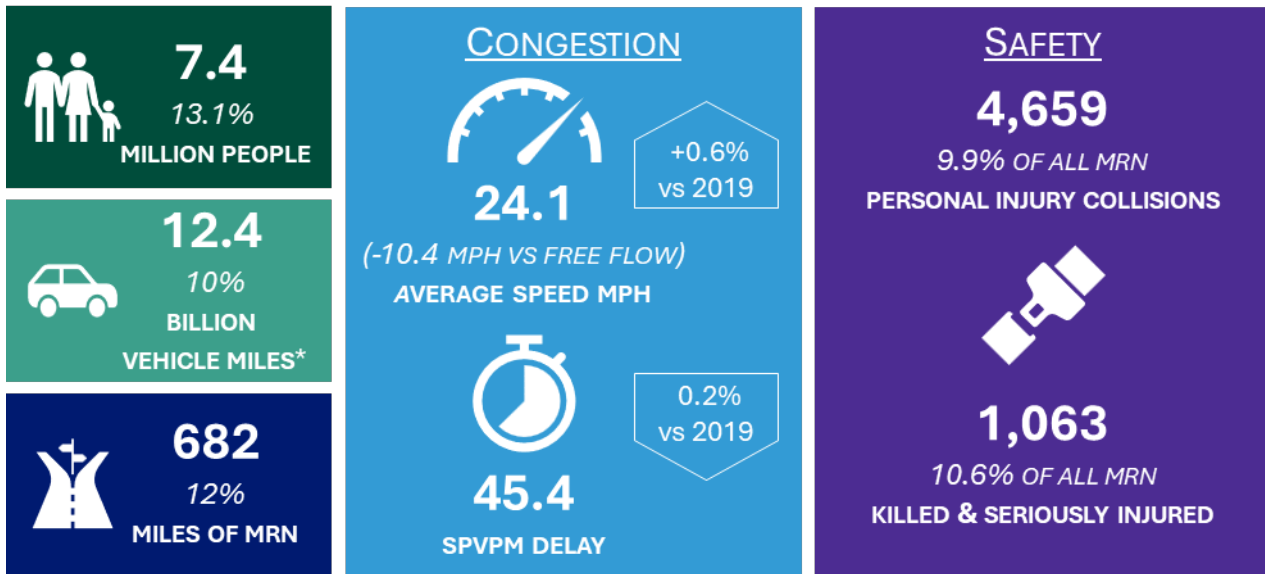
The North East is home to 4.7% of the population and includes the counties of Northumberland, Tyne and Wear, and County Durham. This region is known for its industrial heritage and beautiful landscapes, including parts of the North Pennines and the Northumberland National Park. The major cities in the North East include Newcastle upon Tyne, Sunderland, and Durham. The region is served by Newcastle International Airport, offering domestic and international flights, and Durham Tees Valley Airport, providing regional connections. The North East also hosts significant freight depots like the Port of Tyne and various strategic warehousing and logistics centres. These facilities play a crucial role in the movement of goods across the region and beyond.

Speed and Delay Analysis: MRN average speed has improved since 2019, with vehicles now traveling at an average speed of 27.0mph in 2023 compared to 26.5mph in 2019. The average MRN speed lies somewhere in the middle when compared to all other regions. The difference between free flow speed and average speed is 11.3mph, indicating moderate congestion levels.

The region's free flow speed is 38.4mph, which is slightly above the national average. ***The MRN delay of 39.5 spvpm is close to the national average, suggesting that while there are delays, they are not significantly higher than in other regions.*** However, delay has increased by 1.0% which is the second largest increase in delay after London.

Safety Analysis: In terms of safety, the North East has recorded 1,509 collisions and 332 KSIs. This represents 3.2% of the total collisions and 3.3% of the total KSIs in the dataset. When compared to its population size, which is 2.6% of the total population, the North East has a relatively higher proportion of collisions and KSIs. The proportion of MRN in North East is 5%, comparing to this we can see that the collisions and KSIs are lower on average. With the lowest population, it does have the least number of collisions across all regions.

North West



*Regional Vehicle Miles on all A-roads, not MRN specific

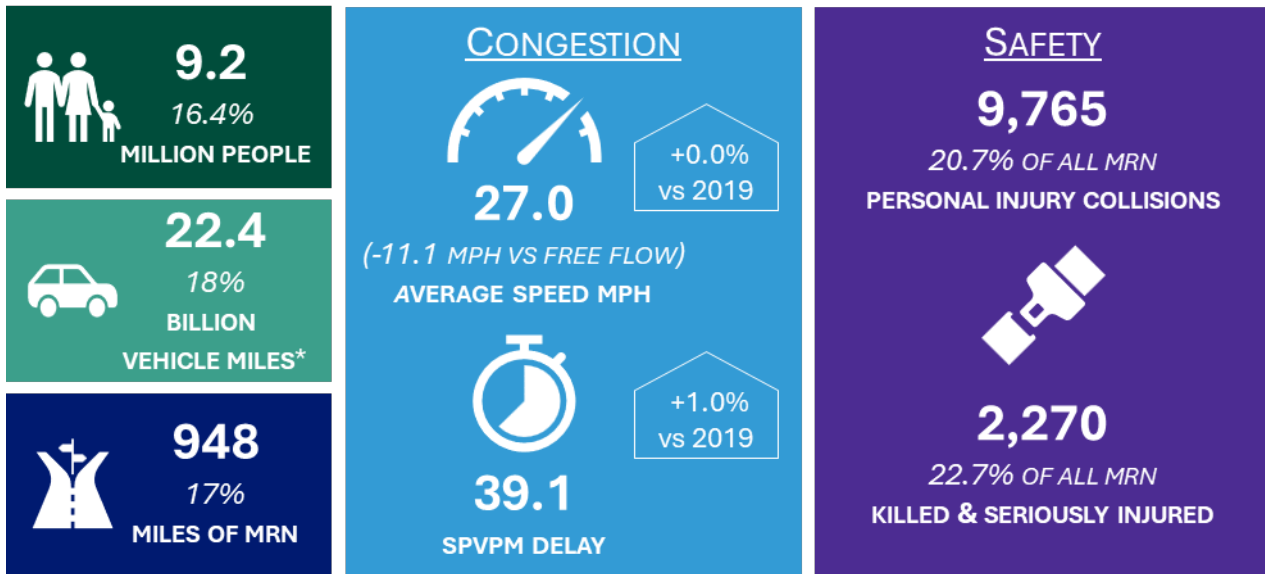
The North West is home to 13.1% of the population and includes the counties of Cheshire, Cumbria, Greater Manchester, Lancashire, and Merseyside. This region is known for its diverse landscape, including the Lake District and major urban centres. The major cities in the North West include Manchester, a cultural and economic hub; Liverpool; and Preston. The region is served by Manchester Airport, offering extensive international and domestic connections, and Liverpool John Lennon Airport, providing both passenger and freight services. The North West also hosts significant freight depots like the Port of Liverpool, which supports both passenger and freight services.

Speed and Delay Analysis: MRN average speed has not seen great changes since 2019, with vehicles now traveling at an average speed of 24.1mph in 2023 compared to 23.9mph in 2019 (increase of 0.6%). This is much better than the national average which has seen a decrease of 0.3%. The difference between free flow speed and average speed is 10.4mph, indicating moderate congestion levels.

The region's free flow speed is 34.5mph, which is slightly below the national average. ***The MRN delay of 45.4 spvpm is 13% above the national average, suggesting that the North West experiences higher congestion compared to other regions.*** Delay has remained very close to that recorded in 2019.

Safety Analysis: In terms of safety, the North West has recorded 4,659 collisions and 1,063 KSIs. This represents 9.8% of the total collisions and 10.6% of the total KSIs in the dataset. When compared to its population size, which is 13.1% of the total population, the North West has a relatively lower proportion of collisions and KSIs. Comparing to the proportion of MRN that is in the North West (12%) it further backs that there are a lower proportion of collisions and KSIs on average. This suggests that the regions MRN network has a relatively good safety record relative to its scale and the population it serves.

South East



*Regional Vehicle Miles on all A-roads, not MRN specific

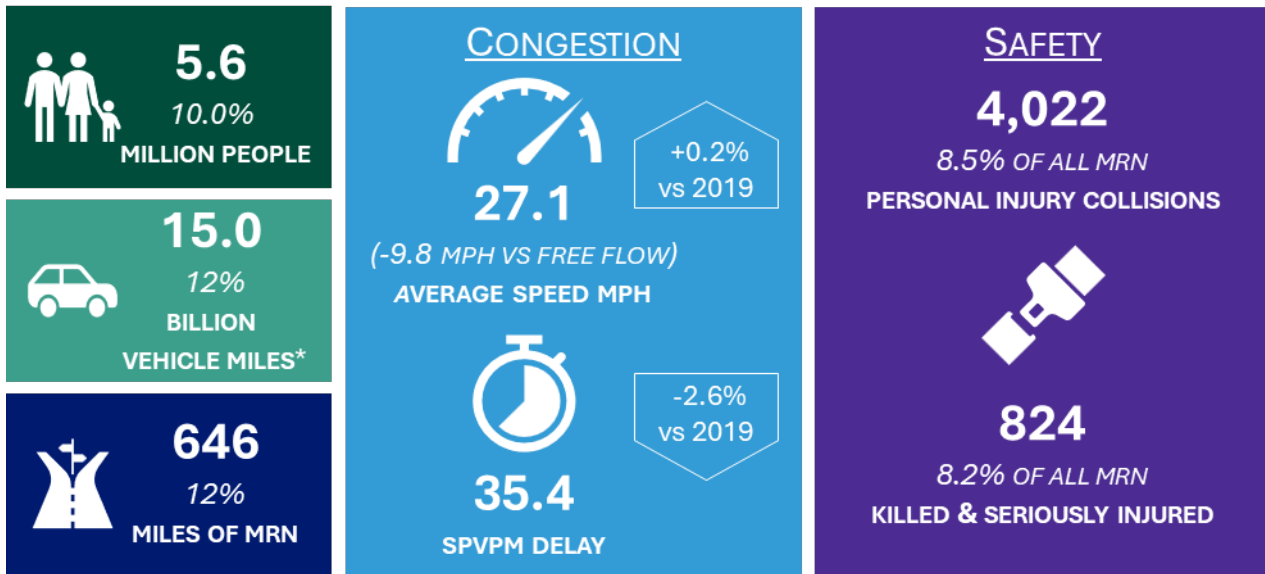
The South East is home to 16.4% of the population, and its road network serves a significant proportion of A road traffic and the MRN. The region has a substantial amount of the MRN, reflecting its importance in connecting various parts of the country. The South East is also home to major ports such as Dover and Southampton, which are critical for international trade and contribute to the high traffic volumes on the region's roads. The South East includes major cities such as Brighton and Hove, Canterbury, Chichester, Milton Keynes, Oxford, Portsmouth, Southampton, and Winchester, which are key economic and cultural hubs. The region is well-served by several major airports, including Gatwick, Southampton, Bournemouth, and the nearby Heathrow (technically located just outside South East), providing extensive international and domestic connections. These elements collectively contribute to the region's high traffic volumes and economic vitality.

Speed and Delay Analysis: MRN average speed has seen almost no change (only at the second decimal place) since 2019. The average MRN speed of 27.0mph lies in the middle of all regions. The region's free flow speed is 38.2mph, which is slightly above the national average. The difference between free flow speed and average speed is 11.1mph, which is among the highest.

The MRN delay of 39.1 spvpm is close to the national average, suggesting that while there are delays, they are not significantly higher than in other regions. This delay will be influenced by the high volume of traffic, including freight vehicles traveling to and from the ports.

Safety Analysis: In terms of safety, the South East has recorded 9,765 collisions and 2,270 KSIs. This represents 20.7% of the total collisions and 22.6% of the total KSIs in the dataset. When compared to its population size, which is 16.4% of the total population and the proportion of MRN which is 17%, **the South East has a relatively higher proportion of collisions and KSIs.**

South West



*Regional Vehicle Miles on all A-roads, not MRN specific

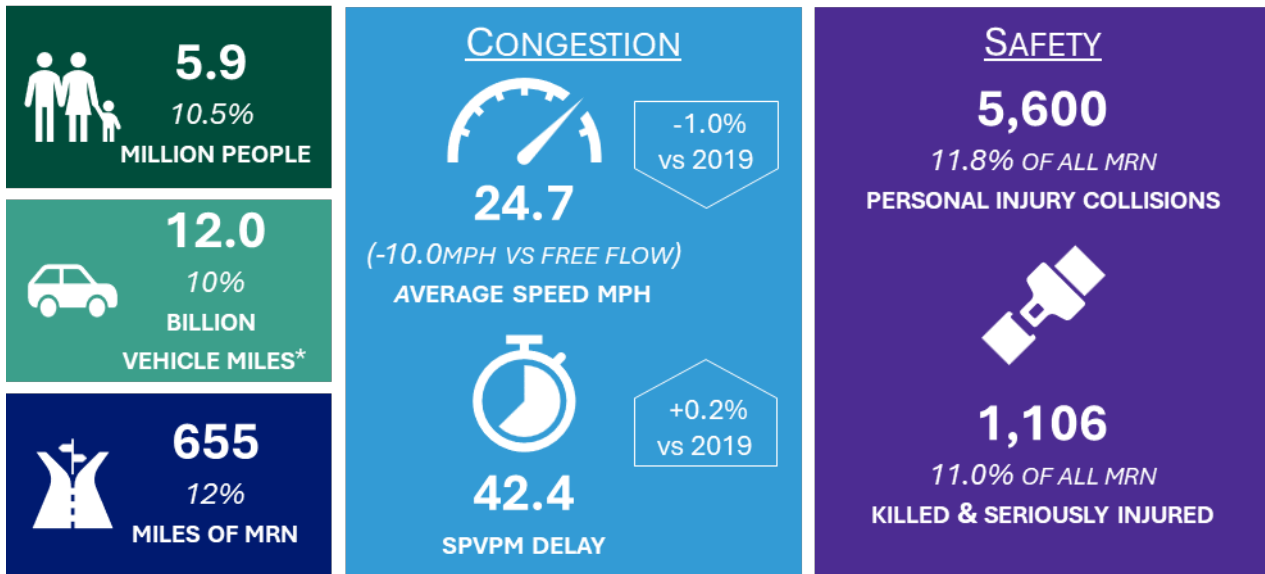
The South West is home to 10% of the population and includes the counties of Cornwall, Devon, Dorset, Gloucestershire, Somerset, and Wiltshire, as well as the unitary authorities of Bristol, Bath and North East Somerset, North Somerset, and South Gloucestershire. This region is known for its picturesque landscapes, including coastal areas and rural countryside. The major cities in the South West include Bristol, a cultural and economic hub; Plymouth and Exeter. The region is served by Bristol Airport, the largest in the area, offering both domestic and international flights, and Exeter Airport, providing connections across the UK and Europe. The South West also hosts Bristol Port, which handles a substantial volume of freight traffic. These elements collectively support the movement of goods and contribute to the region's economic vitality.

Speed and Delay Analysis: MRN average speed has not seen much change since 2019 (only observable at the second decimal place, with vehicles traveling at an average speed of 27.1mph. The average MRN speed of 27.1mph is the third highest across all regions. The difference between free flow speed and average speed is 9.8mph, indicating moderate congestion levels. The region's free flow speed is 36.9mph, which is slightly below the national average.

The MRN delay of 35.4 spvpm is 12% below the national average and has decreased by 2.6% since 2019, which suggests major improvements in delay and that the South West has had the second largest decrease in congestion since 2019.

Safety Analysis: In terms of safety, the South West has recorded 4,022 collisions and 824 KSIs. This represents 8.5% of the total collisions and 8.2% of the total KSIs in the dataset. When compared to its population size, which is 10% of the total population and the proportion of MRN, which is 12%, the South West has a relatively lower proportion of collisions and KSIs. With 1 major port and 2 big airports, it indicates that the network is relatively safer on average compared to other regions.

West Midlands



*Regional Vehicle Miles on all A-roads, not MRN specific

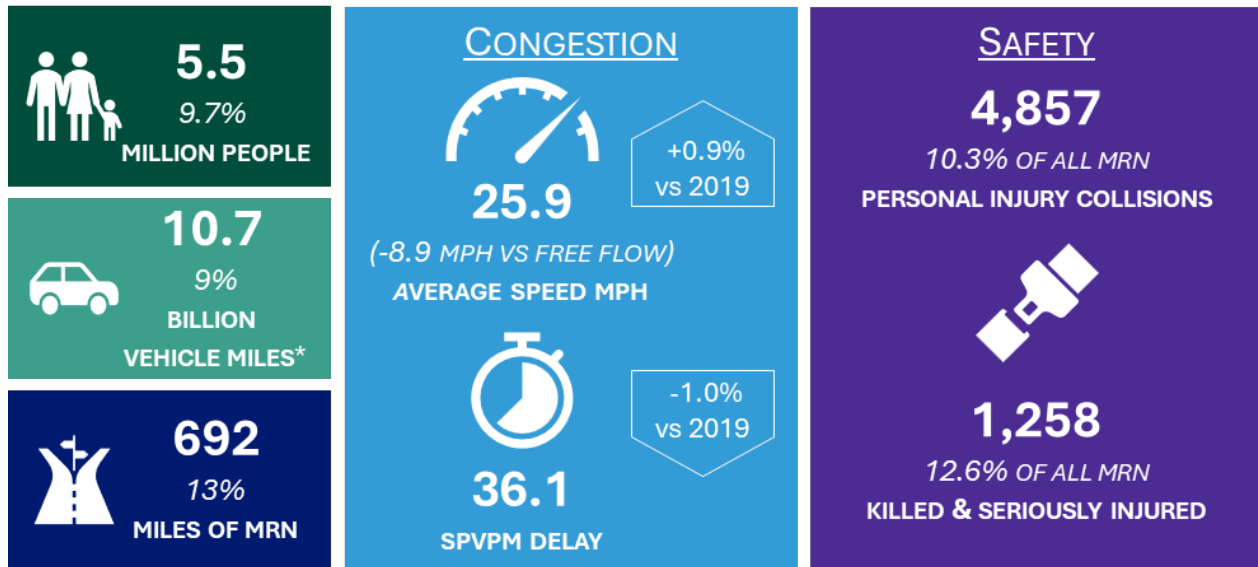
The West Midlands is home to 10.5% of the population and includes the counties of Herefordshire, Shropshire, Staffordshire, Warwickshire, West Midlands, and Worcestershire. This region is known for its diverse landscape, including urban centres and rural areas. The major cities in the West Midlands include Birmingham, a major economic and cultural hub; Coventry; and Wolverhampton. The region is served by Birmingham Airport, offering extensive international and domestic connections, and Coventry Airport, providing regional connections. The West Midlands also hosts significant freight depots and logistics hubs, such as Bescot Yard in Walsall, handling a substantial volume of rail freight, and the forthcoming West Midlands Interchange near Wolverhampton. These elements collectively support the movement of goods and contribute to the region's economic vitality.

Speed and Delay Analysis: MRN average speed has reduced since 2019, with vehicles now traveling at an average speed of 24.7mph in 2023. This is the second highest reduction in speed of all regions at 1.0%. ***The average MRN speed of 24.7mph is moderately lower compared to other regions.***

The MRN delay of 42.4 spvpm, which is the 3rd highest across all regions and is well above the national average, suggesting that the West Midlands experiences relatively high congestion compared to other regions. West Midlands has seen an increase of 0.2% in delay which puts it just below national average of change in delay.

Safety Analysis: In terms of safety, the West Midlands has recorded 5,600 collisions and 1,106 KSIs. This represents 11.8% of the total collisions and 11.0% of the total KSIs in the MRN network. When compared to its population size, which is 10.5% of the total population, the West Midlands has a moderately higher proportion of collisions and KSIs. When comparing to the proportion of MRN network, which is 12%, it suggests that there are slightly fewer proportion of collisions and KSIs in West Midlands.

Yorkshire and the Humber



*Regional Vehicle Miles on all A-roads, not MRN specific

The Yorkshire and the Humber region is home to 9.7% of the population and includes the counties of South Yorkshire, West Yorkshire, East Riding of Yorkshire, and parts of North Yorkshire and Lincolnshire. This region is known for its historic cities and beautiful landscapes, including the Yorkshire Dales and the North York Moors. The major cities in Yorkshire and the Humber include Leeds, a financial and cultural centre; Sheffield; Bradford; and Hull. The region is served by Leeds Bradford Airport, Doncaster Sheffield Airport, and Humberside Airport. Yorkshire and the Humber also hosts significant freight depots and logistics hubs, including the Port of Hull, which supports both passenger and freight services. These elements collectively facilitate the movement of goods and contribute to the region's economic vitality.

Speed and Delay Analysis: MRN average speed has seen some slight changes since 2019, with vehicles now traveling at an average speed of 25.9mph in 2023 compared to 25.7mph in 2019. **The average MRN speed of 25.9mph is close to the average of all regions (26.4mph).** The region's free flow speed is 34.8mph, which is below the national average free flow speed of 37.3mph. The difference between free flow speed and average speed is 8.9mph, which is the lowest difference across all regions.

The MRN delay of 36.1 spvpm is 10% below the national average and has decreased by 1.0% since 2019, suggesting that while there is congestion, delays are lower than in other regions, and have improved since 2019.

Safety Analysis: In terms of safety, Yorkshire and the Humber has recorded 4,857 collisions and 1,258 KSIs. This represents 10.3% of the total collisions and 12.5% of the total KSIs in the dataset. When compared to its population size, which is 9.7% of the total population, Yorkshire and the Humber has a relatively higher proportion of collisions and KSIs.