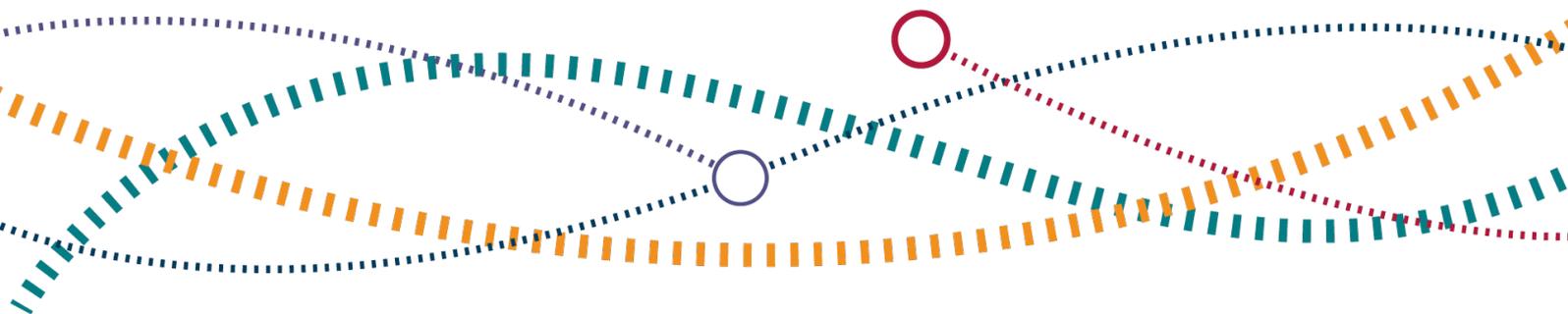




# Benchmarking National Highways

## 2021 Progress update

08 February 2022



# Contents

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<b>Executive summary</b>	<b>3</b>
Regional benchmarking highlights	4
<b>1. Benchmarking National Highways</b>	<b>5</b>
<b>2. Benchmarking National Highways' regions</b>	<b>6</b>
Monitoring performance	6
Expanded suite of indicators for road period 2	6
Impacts of the pandemic	7
Performance overview	9
Improving Safety for All	12
Fast and Reliable Journeys	21
A Well Maintained and Resilient Network	28
Meeting the needs of all road users	36
<b>3. Ongoing activities</b>	<b>44</b>
Area-level cost and efficiency benchmarking	44
Comparing road condition	46
Enhancement costs	46

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# Executive summary

Benchmarking the performance and efficiency of National Highways helps inform our work as the Highways Monitor and informs the advice we provide to government.

We have maintained a regional benchmarking series since 2016. The second road investment strategy set out an aim for more disaggregated performance reporting, including at a regional level. National Highways acted on this by publishing an expanded set of regional performance data in July 2021.

This expanded set of indicators provides us with a more rounded understanding of regional performance. The regional indicators span five themes – safety for all; fast and reliable; well maintained and resilient; meeting the needs of road users; and delivering better environmental outcomes. This allows us to explore the linkages between different aspects of performance.

Most of the data included in this year's report is for the first year of the second five-year road period (2020-21). Whilst providing a snapshot of performance, it also sets a baseline to gauge the progress of the regions over the next four years. Many indicators in this year's report have been affected by the impacts of the pandemic on travel behaviours and traffic levels. As travel demand recovers, it will provide new insights into the relationship between traffic levels and aspects of performance such as safety.

We hope that greater regional performance transparency will incentivise National Highways regions to improve performance, ultimately leading to better outcomes for users of the strategic road network (SRN) as well as for the environment and the taxpayer.

We also provide an update on a range of other activities relating to benchmarking. We summarise the findings of a review of National Highways' area-level maintenance cost data. This work identifies opportunities to use area-level data to measure the progress National Highways has made in delivering more efficiently. We will continue to work with National Highways to implement these approaches during road period 2.

## Regional benchmarking highlights

*(2020-21 unless stated)*

### Safety for all

In 2020, the number of people killed or seriously injured (KSIs) on the SRN fell dramatically and National Highways met its target to reduce KSIs to 40% against a 2005-2009 baseline. The reduction in KSIs in 2020 was primarily due to lower traffic levels although KSIs fell faster than traffic.

Data for National Highways' regions is available for 2019. Each of the regions experienced similar long-term reductions in casualties (of all severities). Our analysis shows that the **Midlands** has seen the largest reduction (56% in 2019 against 2005-09 levels) whilst the **South East** (including the M25) has seen the smallest reduction (35% in 2019).

### Providing fast and reliable journeys

As the most heavily trafficked region, the **South East** stands out as having the highest levels of delay, the least reliable journeys, and the most delays due to roadworks. The **South West** was the best performer in ensuring the network remains open and available for traffic, closely followed by **Yorkshire and the North East**. The **South West** also dealt with motorway incidents more quickly than any other region.

### A well maintained and resilient network

Most regions are performing at or beyond the national level target for pavement condition – ensuring that 95% of road surfaces do not require further investigation for maintenance. The **East** is an exception to this at 92% – 2 percentage points lower than in 2019-20 and 3 percentage points below the national average. The **North West** was the best performer at 97%.

### Meeting the needs of all road users

National Highways will need to make substantial progress during road period 2 to meet its national level target for timeliness and accuracy of roadworks information. The **South East** – the region with the most delays due to roadworks – was the lowest ranked region for this measure.

### Delivering better environmental outcomes

Regional level data is included for environmental performance indicators related to air quality, noise and water quality. Progress against these indicators tends to be driven by localised actions to deliver environmental mitigation. We would expect each of the regions to make progress in mitigating the impact of the SRN on the environment and we will continue to track progress against these indicators during the remainder of road period 2.

# 1. Benchmarking National Highways

- 1.1 National Highways maintains, renews, operates and aims to improve the SRN – the motorways and main 'A' roads in England. As the 'Highways Monitor', the ORR is responsible for monitoring and enforcing the performance and efficiency of National Highways.
- 1.2 One of the key activities we undertake is to benchmark the performance and efficiency of National Highways. We do this in two ways: comparing National Highways and the SRN against organisations and highway networks elsewhere in the UK and internationally; and benchmarking the performance of National Highways' regions against each other. Both forms of benchmarking provide us with additional insights and contribute to a more rounded view of the company's performance.
- 1.3 We have published an annual progress update on our benchmarking activities since 2016. In this update we report on activities undertaken during 2020-21 – the first year of the second road period (2020-21 to 2024-25). The remainder of this report comprises two main sections:
  - In **section 2** we provide an update of the **regional benchmarking** series. The data in this section provides an overview of regional performance during 2020-21, highlighting key trends and new insights.
  - In **section 3** we provide an update on some of our **ongoing activities**. There are three areas: the cost and efficiency of National Highways' regions and operating areas with respect to maintenance and renewals; comparing road surface condition between different networks in the UK and Europe; and benchmarking the cost of enhancement projects delivered by National Highways.

## 2. Benchmarking National Highways' regions

### Monitoring performance

- 2.1 We hold National Highways to account for its achievement of targets set at a national level and report on this in our [Annual Assessment of National Highways](#). We accept that some degree of regional variation will occur, and we don't expect all the regions to achieve the national targets across all the KPIs. Nevertheless, we expect National Highways to explore and understand regional variations in performance and, where possible, to ensure lessons are learned to improve performance across the network.
- 2.2 Regional benchmarking has several benefits. It provides insights into National Highways' performance that are not always visible at a national level. It also helps inform our advice to government on the setting of future performance targets. Moreover, it increases transparency around the company's performance and provides extra incentives for regions to improve performance.
- 2.3 This section compares the performance of National Highways' regions during 2020-21. The Key Performance Indicators (KPIs) and Performance Indicators (PIs) used here are a sub-set of the indicators we use to monitor National Highways' national-level performance. 'KPIs' are the headline performance measures which, in most cases, are associated with national-level performance targets. Below these sit a range of 'PIs' for which targets are not set but which provide a more rounded view of performance.

### Expanded suite of indicators for road period 2

- 2.4 We established a regional benchmarking series during the first road period (2015-2020). In our [2020 Progress Report](#) we summarised the performance of National Highways' regions across the entirety of the first road period. This report presents data for the first year of the second road period (2020-2025). As well as providing a snapshot of performance in 2020-21, it sets the baseline against which we will track performance throughout the remainder of the road period.
- 2.5 To date, regional benchmarking has been undertaken using a selection of five KPIs. In last year's report we set out our desire to broaden the range of indicators that are available at a regional level. National Highways has made significant

progress in this regard. In 2021 it published data for 22 out of a total of 37 national level indicators (excluding those related to efficiency) across five themes. This provides a much richer picture of performance. We expect further indicators to be added next year although we also recognise that not all indicators lend themselves to regional disaggregation.

2.6 The indicators included in this report are set out in Table 2.1.

## Impacts of the pandemic

2.7 Most indicators set out in this report use data for the 2020-21 financial year. Indicators that are influenced by the level of traffic on the network have been significantly affected by the impact of the pandemic on travel demand. We have highlighted where we consider this to be the case.

2.8 The pandemic has also meant that indicators of user satisfaction, generated by Transport Focus, are again missing from this year's analysis. The Strategic Roads User Satisfaction survey (SRUS) has moved to on-line data collection, rather than face-to-face interview. In addition, journey patterns and purposes of travel were impacted by different phases of lockdown and restrictions. Consequently, the SRUS target was suspended for 20-21 and 21-22, whilst the new methodology and travel patterns settle.

**Table 2.1 Regional performance indicators included in this report for 2020-21**

	<b>Safety for all</b>	<b>Providing fast and reliable journeys</b>	<b>A well maintained and resilient network</b>	<b>Meeting the needs of all road users</b>	<b>Delivering better environmental outcomes</b>
<b>Key Performance Indicators (KPIs)</b>	<ul style="list-style-type: none"> <li>• The number of people killed or seriously injured on the SRN</li> </ul>	<ul style="list-style-type: none"> <li>• Average delay</li> <li>• Network availability</li> <li>• Incident clearance</li> </ul>	<ul style="list-style-type: none"> <li>• Pavement condition</li> </ul>	<ul style="list-style-type: none"> <li>• Roadworks information timeliness and accuracy</li> </ul>	<ul style="list-style-type: none"> <li>• Noise</li> <li>• Air quality</li> </ul>
<b>Performance Indicators (PIs)</b>	<ul style="list-style-type: none"> <li>• The number of people killed or injured on the SRN</li> <li>• The number of non-motorised and motorcyclist users killed or injured on the SRN</li> <li>• Number of injury collisions on the SRN</li> <li>• The accident frequency rate for National Highways' staff</li> <li>• The accident frequency rate for National Highways' supply chain staff</li> </ul>	<ul style="list-style-type: none"> <li>• Delay from roadworks</li> <li>• Journey time reliability</li> <li>• Average speed</li> </ul>	<ul style="list-style-type: none"> <li>• Structures condition</li> <li>• Drainage resilience</li> <li>• Geotechnical condition</li> </ul>	<ul style="list-style-type: none"> <li>• Timeliness of information provided to road users through electronic signage</li> <li>• Ride quality</li> </ul>	<ul style="list-style-type: none"> <li>• Water quality</li> </ul>

## Performance overview

- 2.9 There are two types of indicators used to monitor performance – KPIs and PIs. Table 2.1 provides a high-level overview of regional performance in 2020-21 based on a selection of headline measures (primarily KPIs). During the remainder of road period 2 we will continue to track each regions' progress in delivering better outcomes for users, the environment, and the taxpayer.
- 2.10 Key highlights for each of the five themes in 2020-21 are as follows:

### Safety for all

- 2.11 In 2020, the number of people killed or seriously injured (KSIs) on the SRN fell dramatically and National Highways met its target to reduce KSIs to 40% of a 2005-2009 baseline. The reduction in KSIs in 2020 was primarily due to lower traffic levels resulting from the pandemic although KSIs fell faster than traffic levels.
- 2.12 There are technical reasons – explained in section 2.21 of this report – why it is difficult to directly compare regions based on the number of KSIs (the safety KPI). Therefore, for the purposes of regional comparison, we focus on 'all severity' casualties (a PI). Each of the regions experienced similar long-term reductions in casualties (of all severities). Our analysis shows that the **Midlands** has seen the largest reduction (56% in 2019 against 2005-09 levels) whilst the **South East** (including the M25 which is operated via a Design Build Finance Operate – DBFO - contract) has seen the smallest reduction (35% in 2019).
- 2.13 The types of roads that make up a region's network have an important influence on casualty rates and the speed with which numbers of casualties have reduced. In this year's report we also include analysis of regional casualties and fatalities adjusting for differences in casualty rates observed for motorways and A-roads. In 2019, **Yorkshire and the North East** was the region that had the most to do to reduce KSIs to a target level set by National Highways, although our analysis suggests that fatalities and all-severity casualties are at the level that would be expected given the mix of motorways and A-roads in this region.

### Providing fast and reliable journeys

- 2.14 As the most heavily trafficked region, the **South East** continues to stand out as suffering the highest levels of delays. Moreover, users in the South East also experience the least reliable journeys and spend more time in delays due to roadworks. This highlights that each of these measures is strongly influenced by

the level of traffic on the network. Overall, delays reduced and reliability improved as a result of the fall in traffic on the SRN.

- 2.15 In 2020-21, all the regions outperformed the national targets with respect to network availability (keeping the network open and available for traffic) and incident clearance. The **South West** was the best performer in respect of network availability, closely followed by **Yorkshire and the North East**. The **South West** also dealt with traffic incidents more quickly than any other region.

### A well maintained and resilient network

- 2.16 The KPI under this theme relates to the condition of the road surface ('pavement condition') although further asset condition measures have now been added to the suite of regional indicators. Four out of the six regions are performing close to or beyond the national level target of ensuring that 95% of the network does not require further investigation for maintenance. An exception to this is the **East** which sits at 92% - 2 percentage points lower than was the case in 2019-20 and 3 percentage points below the national average. The **North West** has the highest pavement condition score at 97%.

### Meeting the needs of all road users

- 2.17 National Highways will need to make substantial progress during road period 2 to meet its target relating to the timeliness and accuracy with which it provides roadworks information. Notably, the **South East** – the region in which users experience the greatest delays due to roadworks – was the lowest ranked region for this measure.

### Delivering better environmental outcomes

- 2.18 We also hold National Highways to account for its performance against a range of environmentally focussed indicators and those relating to noise, air quality and water quality, are now available at a regional level. Progress against these indicators tends to be driven by localised actions to deliver environmental mitigation. In any given year, we would not expect these actions to be spread evenly across the regions. Nevertheless, we would expect each of the regions to make progress in mitigating the impact of the SRN on the environment and we will continue to track progress against these indicators during the remainder of road period 2.
- 2.19 The remainder of this section of the report describes performance within each of the themes in more detail.

Table 2.2 Regional performance overview

Region	Safety for all		Providing fast and reliable journeys						Well maintained and resilient		Meeting the needs of all road users	
	Number of people killed or injured (PI)		Average delay (KPI)		Network availability (KPI)		Incident clearance (KPI)		Pavement condition (KPI)		Roadworks information timeliness and accuracy (KPI)	
	% reduction on 2005-09		seconds per vehicle per mile		% of network open to traffic		% of incidents cleared within 1 hour		% of network		% accuracy	
	2019	Rank	20-21	Rank	20-21	Rank	20-21	Rank	20-21	Rank	20-21	Rank
Yorkshire and North East	-45%	3	6.2	3	98.3%	2	88.8%	4	95.6%	4	58.4%	3
North West	-47%	2	6.0	1	97.8%	5	88.1%	5	97.2%	1	58.3%	4
Midlands	-56%	1	6.9	5	98.2%	3	88.6%	3	94.4%	5	66.3%	1
East	-38%	5	6.0	1	98.0%	4	87.9%	6	92.1%	6	58.0%	5
South East	-35%	6	7.9	6	97.7%	6	88.8%	2	96.6%	2	42.4%	6
South West	-40%	4	6.2	3	98.5%	1	89.7%	1	96.0%	3	63.5%	2
National Highways	-43%	-	6.7	-	98.0%	-	88.6%	-	95.2%	-	54.5%	-
<i>National Target (*by end of road period 2)</i>	NA		9.5*	-	97.5%	-	86.0%	-	95.0%	-	90.0%*	-

# Improving Safety for All



**Key Performance Indicator:** Killed or seriously injured (KSI)

**Measure:** Number of KSI casualties

**Target:** 40% reduction by 2020 (2005-09 baseline)

## Performance Indicators

Total number of people killed or injured on the SRN



Number of injury collisions on the SRN



The accident frequency rate for National Highways' staff



The accident frequency rate for National Highways' supply chain staff



The number of non-motorised and motorcyclist users killed or injured on the SRN



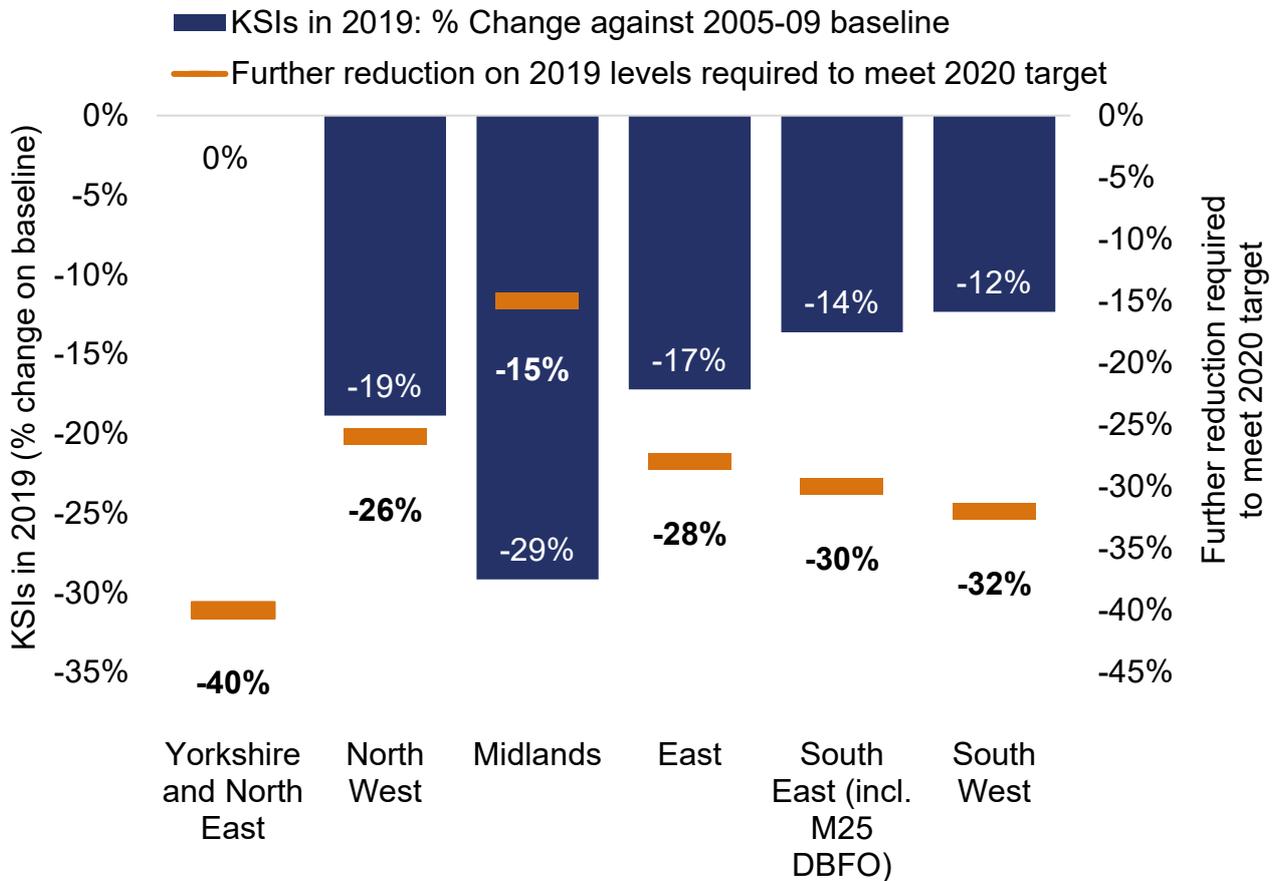
## Key Performance Indicators

2.20 There is a single KPI under the 'Improving safety for all theme': It measures the number of people **killed or seriously injured (KSI)** on the SRN. National Highways is set a target for the number of KSIs on its network as compared to a 2005-2009 average baseline. For 2020 its target was to achieve a 40% reduction in KSIs compared with the baseline. By 2025, National Highways must achieve a 50% reduction in KSIs compared with the same baseline.

2.21 At a national level, trends in KSIs are 'adjusted' to take account of differences in the way police forces across the country record serious injuries. It is not possible to perform this adjustment at a regional level and therefore the data presented in this report is 'unadjusted'. This means that injuries that would be classified as 'serious' in one region may be classified as 'slight' in another region. This needs to be borne in mind when making direct comparisons between the regions in respect of KSIs. At a national level, the 'unadjusted' measure of KSIs understates the reductions that have been achieved (because, under the new police recording system, more injuries tend to be classified as 'serious').

- 2.22 In 2020, the adjusted measure of KSIs on the SRN was 54% lower than the 2005-09 baseline, meaning that the 2025 target was met well ahead of the schedule expected when the target was set. However, this figure was strongly influenced by the reduction in traffic levels during the pandemic and we expect KSIs to increase again as traffic levels rise.
- 2.23 Data for National Highways' regions is available for 2019 and is not affected by the pandemic. In contrast to the indicators given elsewhere in this report, data includes collisions that have occurred on roads operated under DBFO arrangements.
- 2.24 Figure 2.1 shows the reduction in KSIs (unadjusted for differences in police recording) achieved by National Highways' regions against the 2005-09 baseline. Large differences can be observed across the regions. For example, in the Midlands KSIs were 29% lower, but in Yorkshire and the North East no such reduction was apparent. Given the influence of changes in police recording practices it is unwise to draw any firm conclusions from this.
- 2.25 Figure 2.1 shows the further reduction in KSIs, against 2019 levels, that National Highways considered would be required to meet the 40% reduction target. These regional 'targets' – taken from National Highways' [2019 Safety Performance Report](#) – are provided only to illustrate the differing levels of progress required across the regions as the 2020 target was achieved.

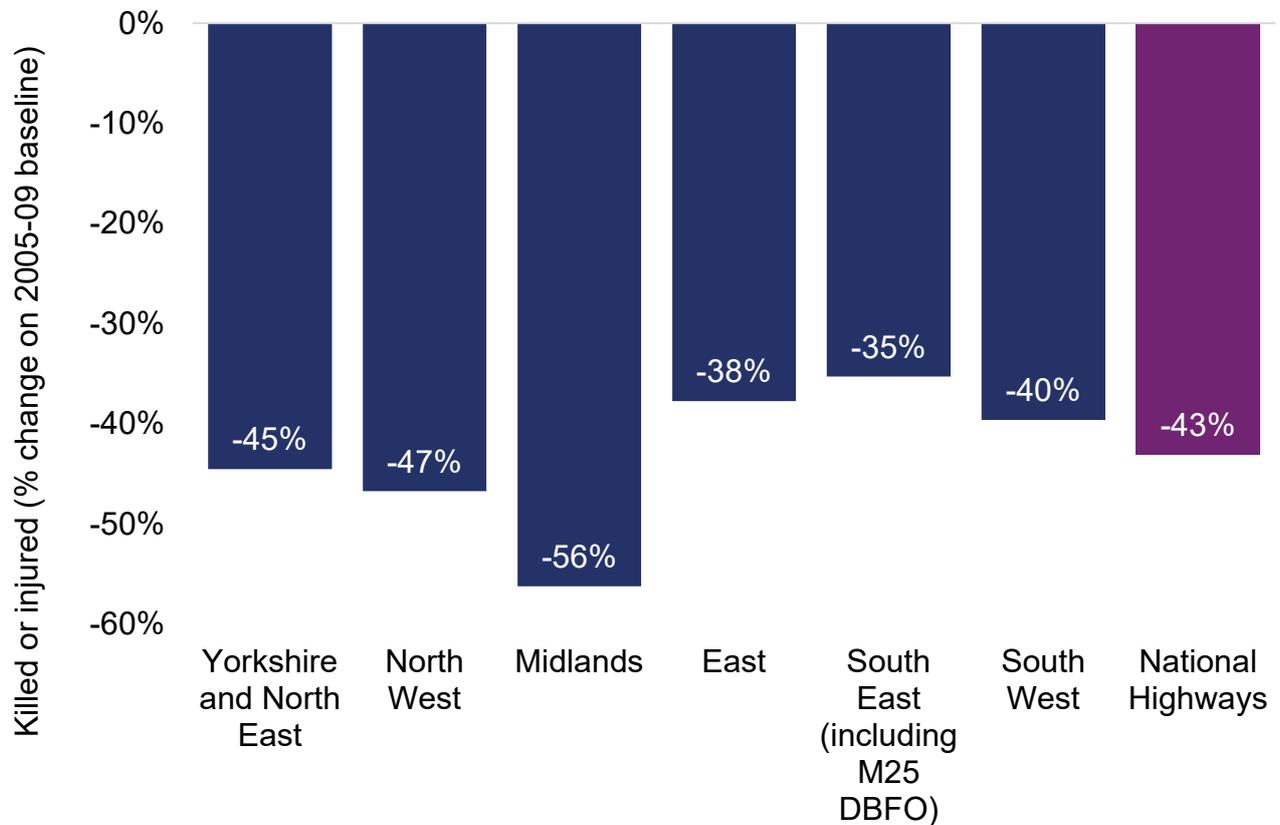
**Figure 2.1 Number of KSIs in 2019 (unadjusted for differences in recording practices): % reduction on 2005-09 baseline**



### Performance Indicators

- 2.26 Data for the **total number of people killed or injured on the SRN** is not affected by differences in police recording practices.
- 2.27 On this measure, as shown in Figure 2.2, the reductions in casualties since 2005-09 are more consistent across the regions, although substantial differences remain. In the Midlands, a 56% reduction in casualties occurred, whilst in the South East the reduction was only 35%.
- 2.28 It is incumbent on National Highways to reduce the number of casualties on its network. However, many factors that influence casualty rates – such as vehicle technology and driver behaviour – are largely outside of the company’s control. Regional differences such as the mix of road types, levels of traffic and weather conditions mean that National Highways’ regions each face different challenges when trying to achieve reductions in casualties.

**Figure 2.2 Number of people killed or injured in 2019: % reduction on 2005-09 baseline (PI)**

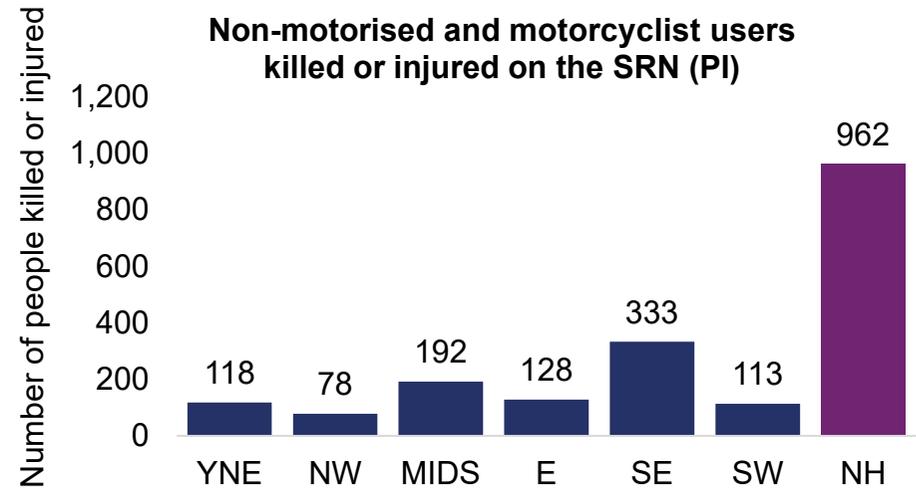
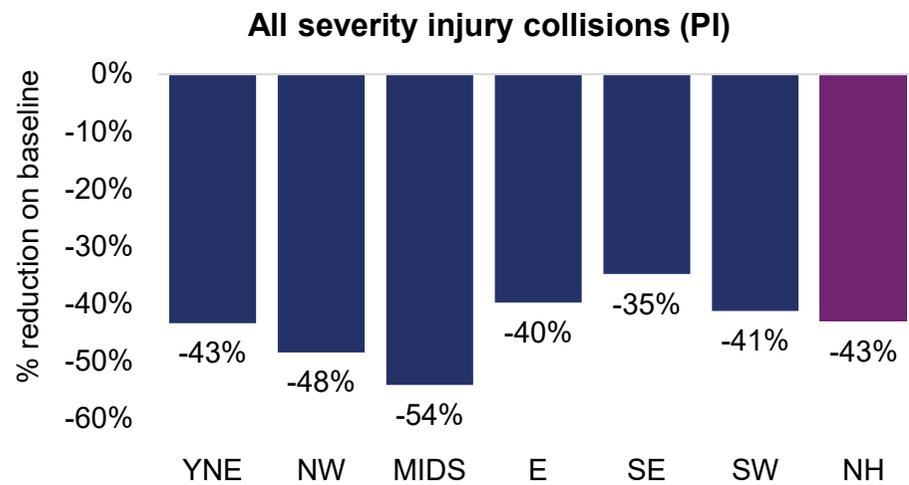
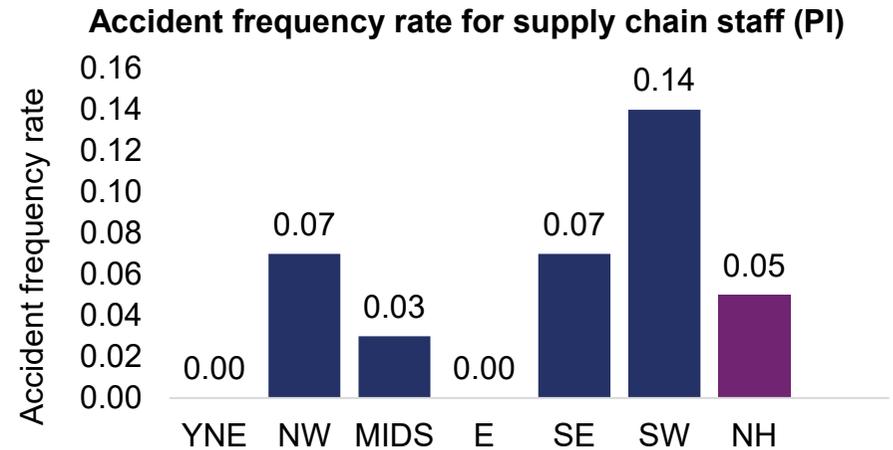
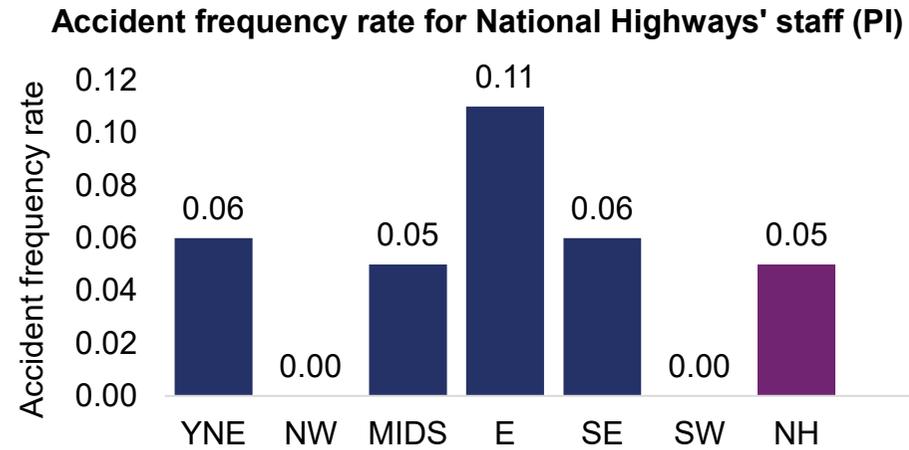


2.29 The remaining performance indicators under this theme are shown in Figure 2.3.

2.30 **Accident frequency rates** are used to monitor performance in respect of the safety of National Highways' staff or staff employed in the supply chain. The accident frequency rates are based on Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) incidents and are expressed as a function of hours worked.

2.31 For both National Highways' operational staff, and those employed by its supply chain in road maintenance and construction, the accident frequency rate stands at 0.05 incidents per 100,000 hours worked. At a regional level, the data for 2020-21 provides only a snapshot. In any given year, a relatively small number of incidents can show up as large differences in the accident frequency rate. If tracked over a longer period, patterns may emerge that provide insights into safety performance at a regional level.

**Figure 2.3 Performance indicators – Improving safety for all**

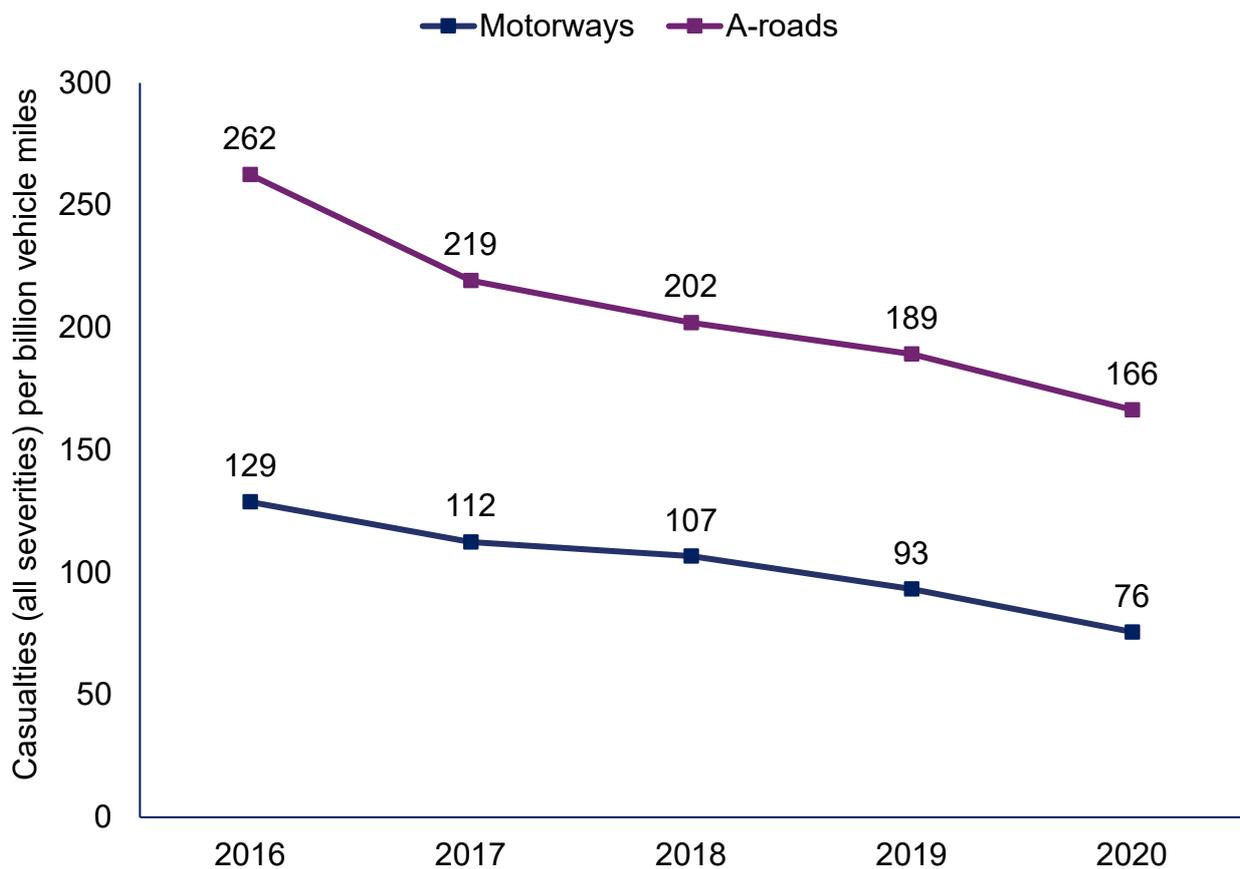


### Key trends – casualty rates

2.32 In 2020, the number of casualties (of all severities) on the SRN fell by 36%, the number of KSIs (adjusted) fell by 32%, and the number of fatalities fell by 34% compared with the previous year. Overall traffic levels on the SRN fell by 25%. Therefore, not only was there a reduction in the number of casualties but also a reduction in the rate of casualties per mile travelled.

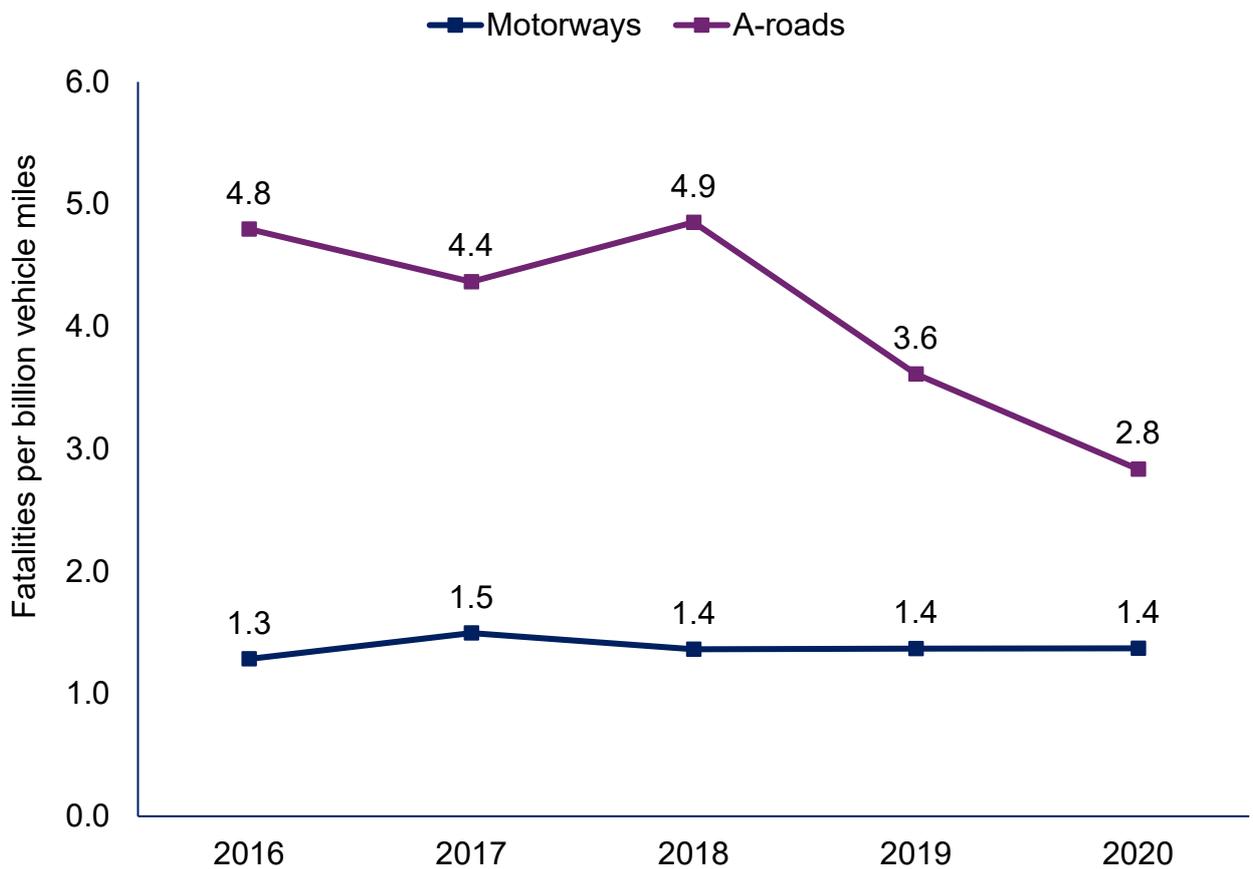
2.33 Falling casualty rates in 2020 appears to be a continuation (or possibly an acceleration) of a longer-term trend. Figure 2.4 shows casualty rates (casualties of all severities per billion vehicle miles) on the SRN since 2016. Casualty rates fell in each of these years. There is a large difference between casualty rates on motorways and A-roads with the latter exhibiting much higher rates of casualties. Nevertheless, progress is being made in reducing casualty rates on both road types.

Figure 2.4 Casualty rates on the SRN since 2016



2.34 Figure 2.5 shows fatality rates over the same period. The picture is less clear cut for fatalities. It appears that there has been a downward trend in fatalities on A-roads. However, fatality rates on motorways have seen little change since 2016. As for all casualties, the rates remain substantially higher for A-roads than for motorways.

**Figure 2.5 Fatality rates on the SRN since 2016.**



## Casualty rates and regional variation (*administrative regional boundaries*)

Given the difference in casualty rates, the proportion of motorways and A-roads in a region will have an important bearing on safety outcomes. All things being equal, a region with a higher proportion of A-roads would be expected to exhibit a higher level of casualties.

We have compared the number of casualties in each region to the level that would be 'expected' based on the casualty rates observed at a national level. The 'expected' level of casualties is calculated by applying the national level casualty rates for motorways and A-roads to the vehicle miles travelled on each type of road within the region in question.

Where actual casualties exceed 'expected' casualties, this means that casualties are higher than might be expected given the amount of traffic using motorways and A-roads. Conversely, where actual casualties are less than 'expected' casualties, this means that casualties are lower than might be expected given the amount of traffic using each road type.

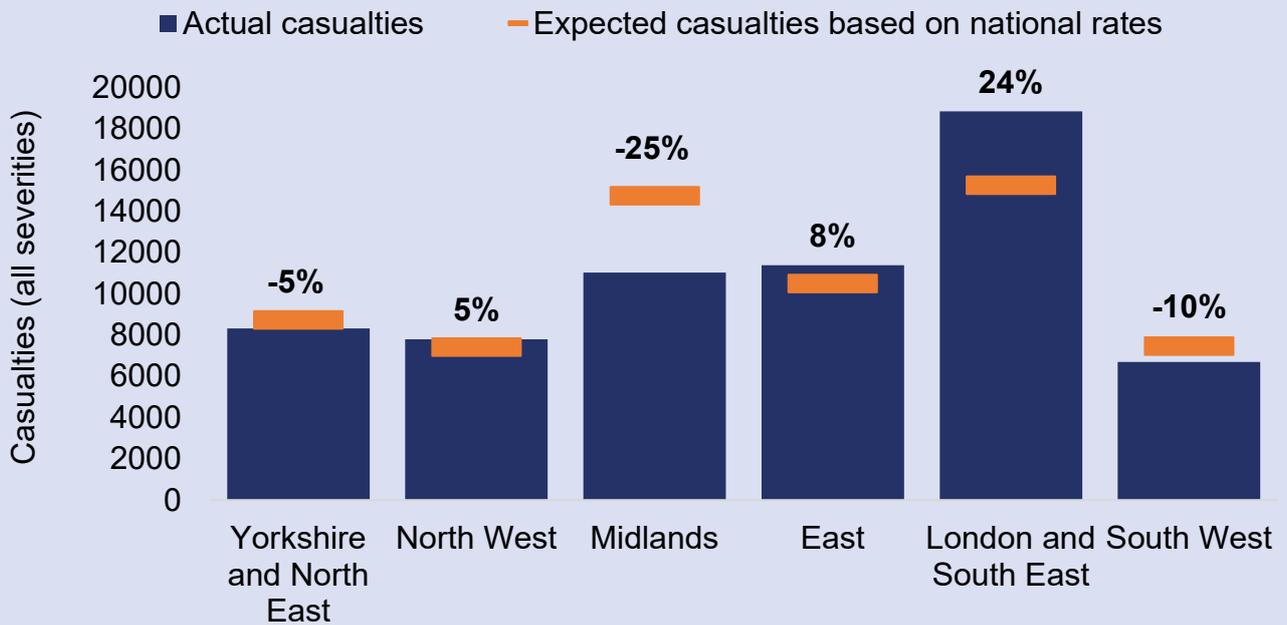
There are many complex factors that explain casualty rates beyond road types and therefore a degree of variation is to be expected, with some regions showing casualty rates above the average, and some below.

The data in this section is based on administrative regional boundaries, rather than National Highways regions. The boundaries of National Highways regions and administrative regions do not always align. Using administrative boundaries enables us to apply data on traffic flows and casualties broken down by road type. The analysis has been undertaken for a 5-year period (2016-2020) which reduces the influence of year-to-year fluctuations.

For casualties of all severities, for four of the six regions, the difference between actual and 'expected' casualties is 10% or less. In the Midlands, actual casualties have been around 25% lower than might be expected given traffic levels on motorways and A-roads. In London and the South East, casualty rates have been 24% higher than expected.

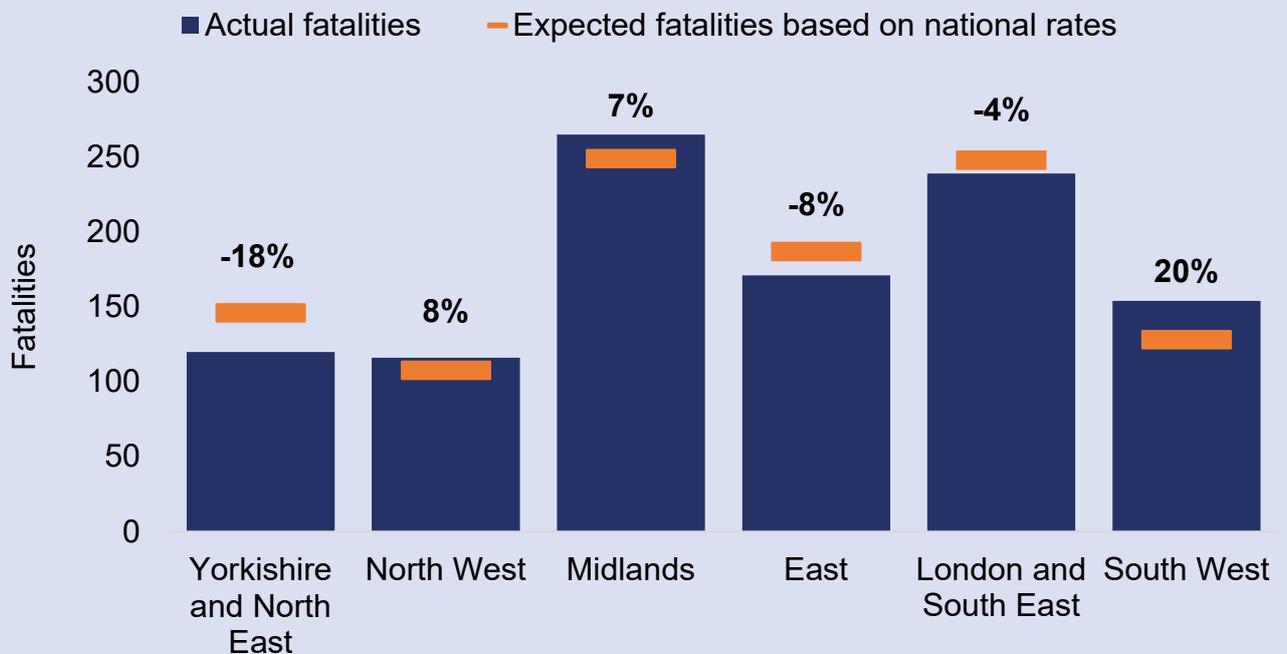
Further exploration of local conditions would be required to establish why this is the case, although it may be that traffic levels play a part. In London and the South East, heavily trafficked roads are congested for more of the time such that collisions between vehicles are more likely.

### Actual vs 'Expected' casualties: 2016 to 2020 (% difference)

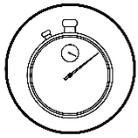


For fatalities, the differences between actual and expected casualties are smaller. It is notable that the South East shows lower than expected fatalities, but higher than expected casualties of all severities. The opposite is the case for the Midlands and the South West.

### Actual vs 'Expected' fatalities: 2016 to 2020 (% difference)



# Fast and Reliable Journeys



**Key Performance Indicator:** Average delay

**Measure:** Seconds per vehicle mile

**Ambition:** No worse than February 2020 (9.5 seconds)



**Key Performance Indicator:** Network availability

**Measure:** % of SRN free from lane closure due to roadworks

**Target:** 97.5% lane availability



**Key Performance Indicator:** Incident clearance

**Measure:** % cleared in less than 1 hour

**Target:** 86% of motorway incidents cleared within

## Performance Indicators



Journey time



Delay from roadworks



Average

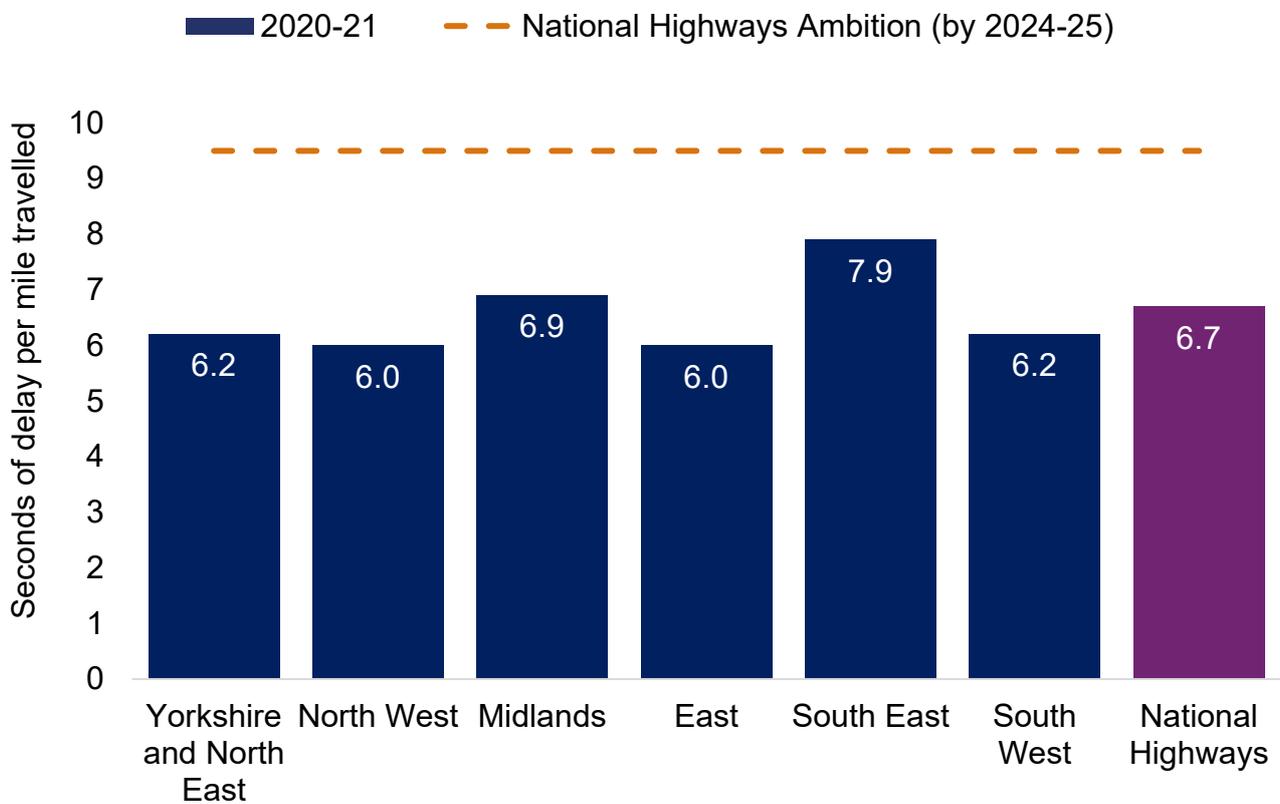
## Key Performance Indicators

2.35 There are three KPIs under the theme of ‘fast and reliable journeys’. They relate to the delays that users experience on the network (average delay), the speed with which National Highways deals with traffic incidents (incident clearance) and the availability of the network for traffic (network availability).

2.36 **Average delay** is the difference between observed travel time and the speed limit travel time. In last year’s report we showed how differences in average delay are strongly influenced by the amount of traffic on the network. As might be expected, the effect of the pandemic on travel behaviours and traffic levels had an impact on the level of congestion and delay. All of National Highways’ regions experienced a reduction in delays in 2020-21.

2.37 The South East is the most heavily trafficked region of the network and, in 2020-21, users continued to experience higher levels of delay than any other region.

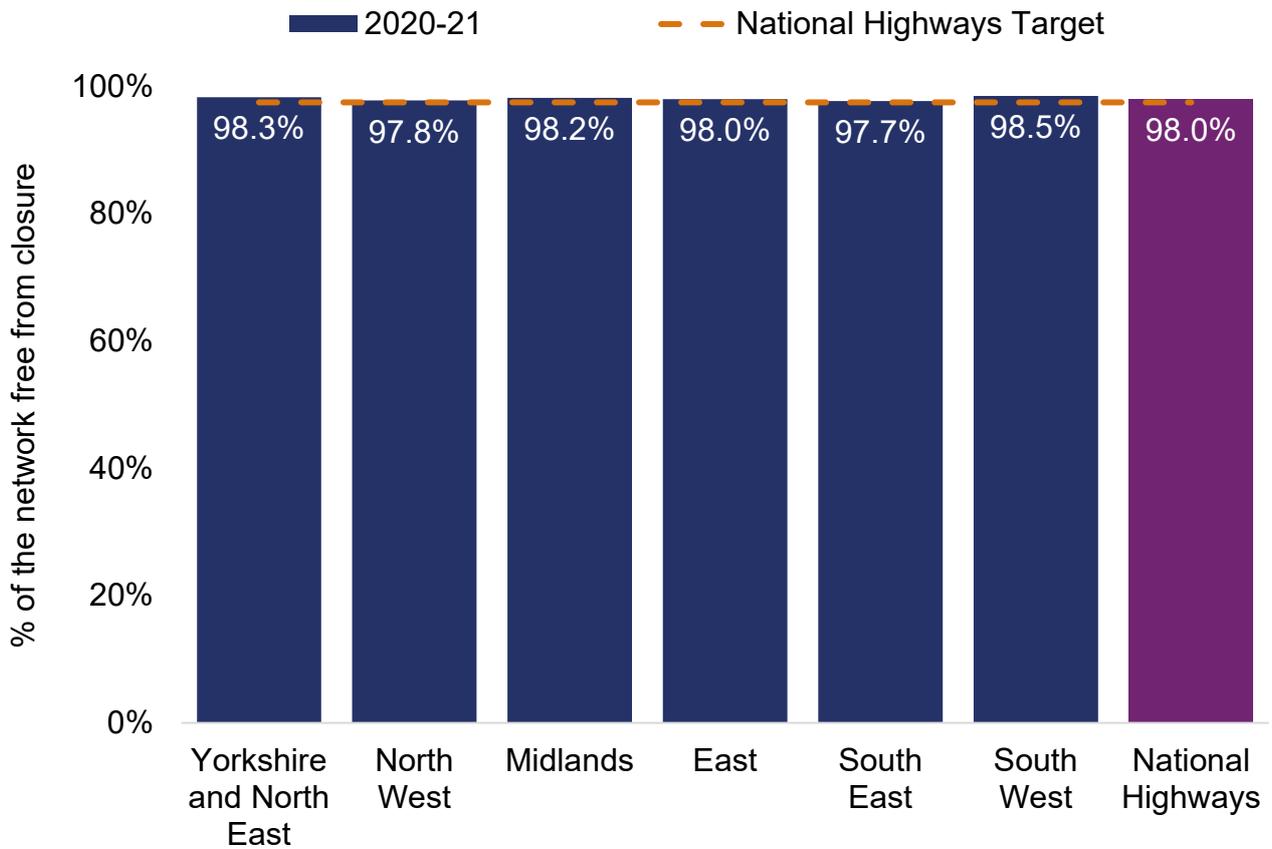
**Figure 2.6 Average delay (KPI)**



2.38 [Transport Focus' strategic roads user satisfaction surveys](#) demonstrate that users' perception of the SRN is strongly influenced by the delays they experience during their journey, including roadwork management. National Highways must carefully balance the requirement to maintain and improve the network with the need to minimise disruption to travel.

2.39 In 2020-21 National Highways was tasked with ensuring that 97.5% of its network (lane kilometres) is open and available for traffic and free from closure due to roadworks. Each of National Highways' regions achieved the **network availability** national target. There was little variation in performance across the regions with availability ranging from 97.7% (South East) to 98.5% (South West).

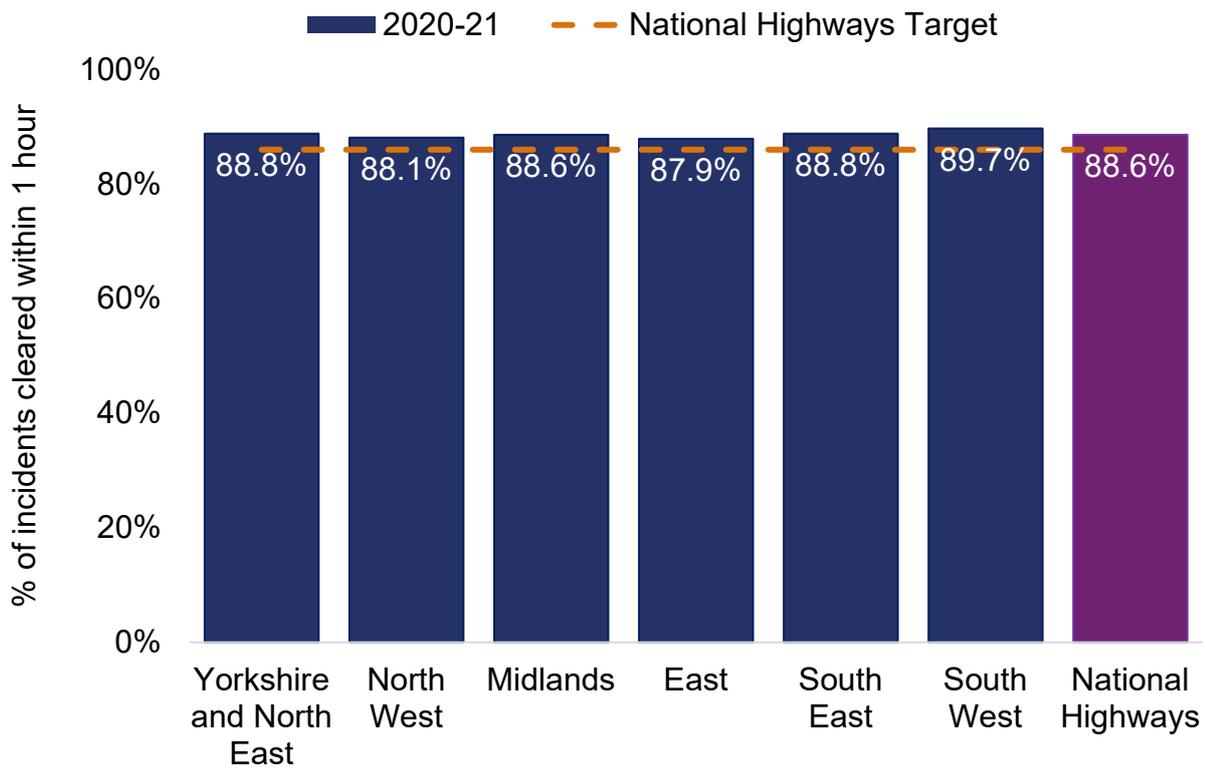
**Figure 2.7 Network availability (KPI)**



2.40 The impact of traffic incidents is a further dimension of traffic disruption and delay. The **incident clearance** KPI measures the percentage of incidents on the motorway that impact traffic flow but are cleared in less than one hour. Achieving the 86% target was less challenging during 2020-21 because the level of traffic and the number of collisions on the network were substantially reduced. Nevertheless, as we set out in our [Annual Assessment 2020-21](#), National Highways deserves credit for the way in which it maintained operations during the pandemic.

2.41 All of the regions exceeded the national target for incident clearance. The differences between the best and worst performing regions were slight with the South West performing at 89.7% but no region falling below 86%.

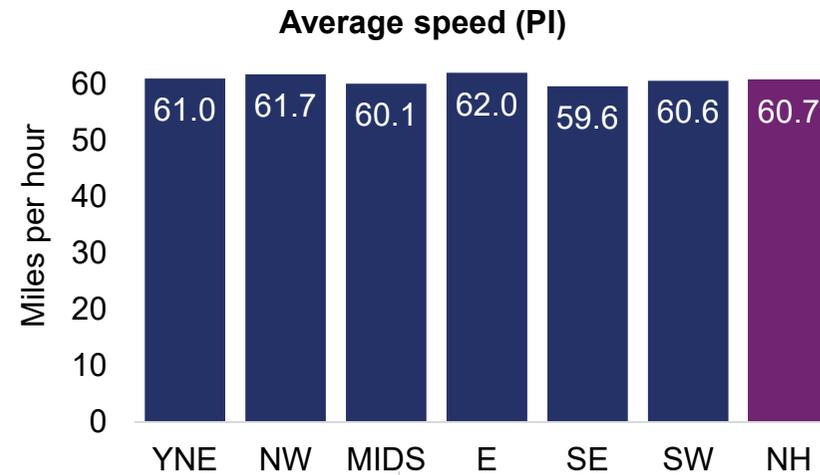
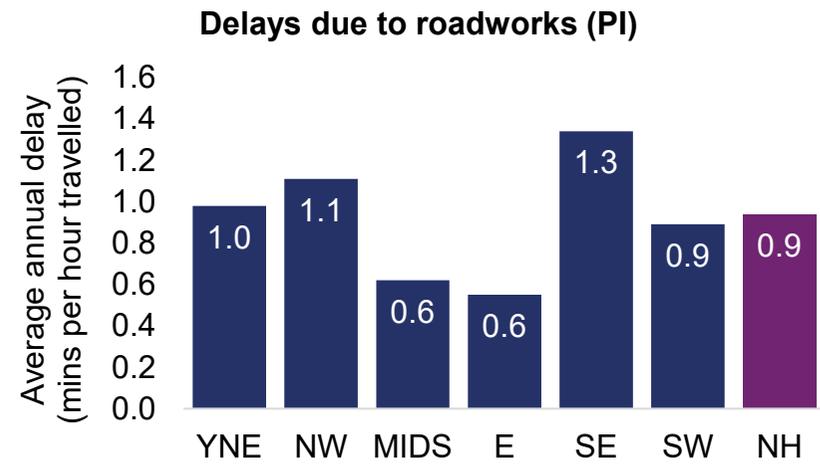
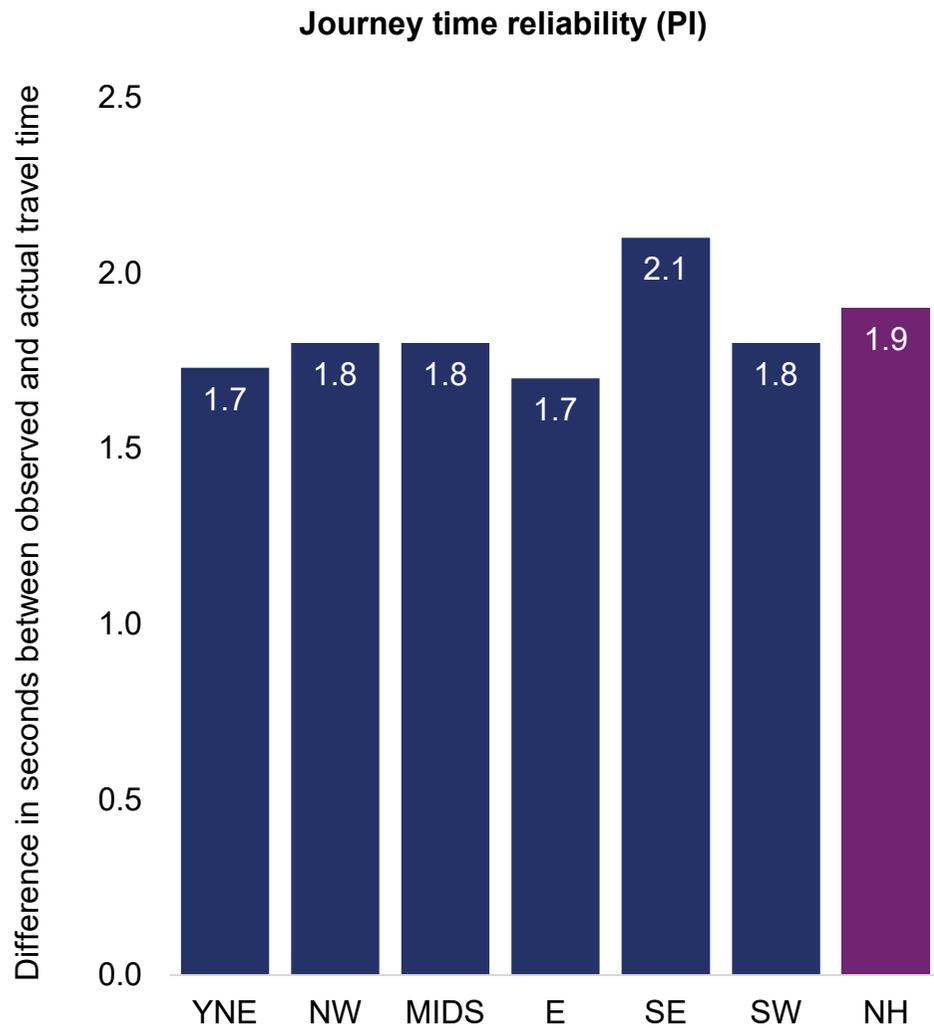
**Figure 2.8 Incident clearance (KPI)**



### Performance Indicators

- 2.42 National Highways has provided regional results for three of the PIs under this theme. This provides us with a richer picture of the conditions faced by users.
- 2.43 In many ways, unreliable journeys and unexpected delays are more important to users than the delays they experience on an ‘average journey’ with normal levels of congestion. At a national level, **journey time reliability** – the average difference between observed travel times and ‘normal’ travel times – fell from 2.9 seconds per mile travelled in 2019-20 to 1.9 seconds in 2020-21.
- 2.44 The South East exhibits both the highest level of delays as well as the worst journey time reliability. This illustrates how closely both measures are related to the level of traffic on a network – more traffic congestion leads to both higher delays and less predictable journey times (see delays and reliability section).
- 2.45 Users in the South East also experience the greatest **delays due to roadworks**. This is despite the fact that network availability in the South East is similar to the national average. This suggests that roadworks have a substantially greater impact on travel times on congested parts of the network. At a national level, delays from roadworks also fell markedly during 2020-21.

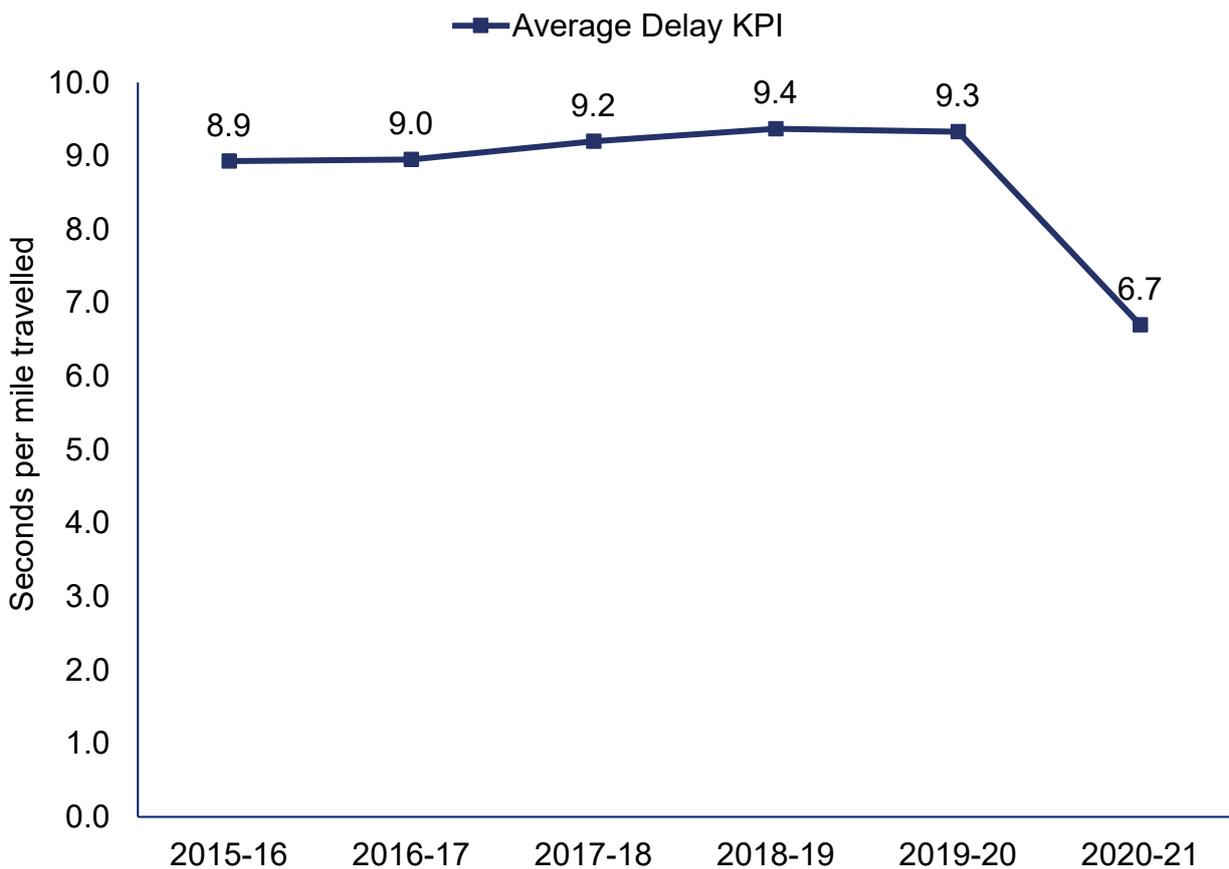
Figure 2.9 Performance indicators – Fast and reliable journeys



### Key trends – Average delay

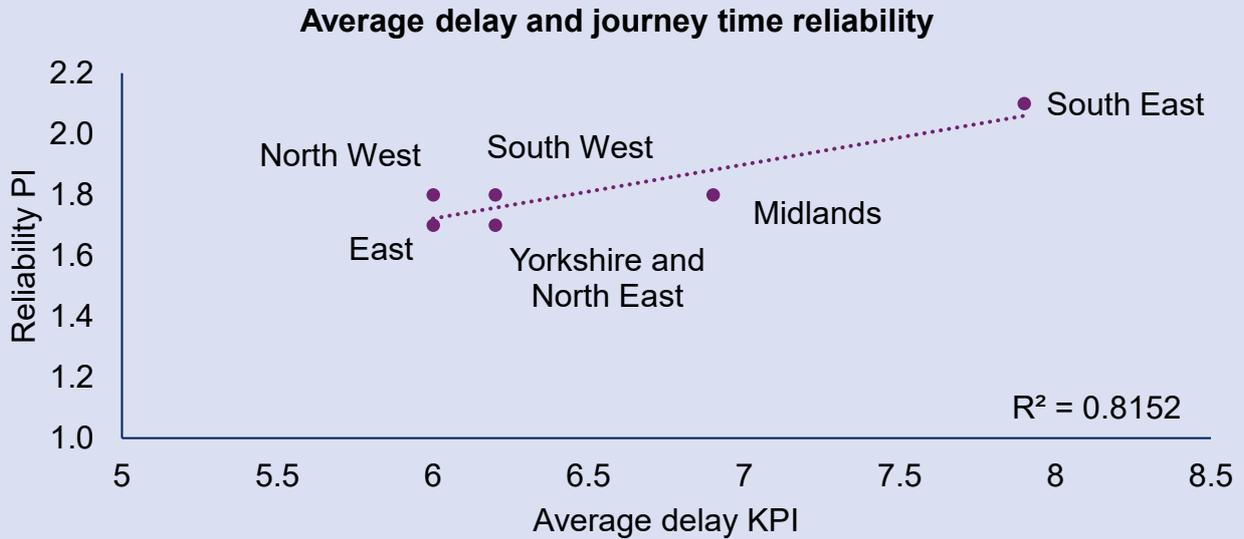
- 2.46 Data for 2020-21 shows that levels of traffic on the network are the dominant factor in determining the levels of delays experienced by users. During the first road period (2015-2020) there was a general trend of increasing average delay on the SRN. 2020-21 was the first year in which average delay on the SRN substantially reduced.
- 2.47 During 2020-21, traffic levels (annual average daily traffic flows) were at 67% of pre-pandemic levels. Average delay for the SRN fell by 28% from 9.3 seconds per mile in 2019-20 to 6.7 seconds in 2020-21. The data does not suggest that the speed with which National Highways dealt with traffic incidents, or the availability of the network due to roadworks, had any significant bearing on the reduction in average delay.

Figure 2.10 Key trends: Average delay (KPI)

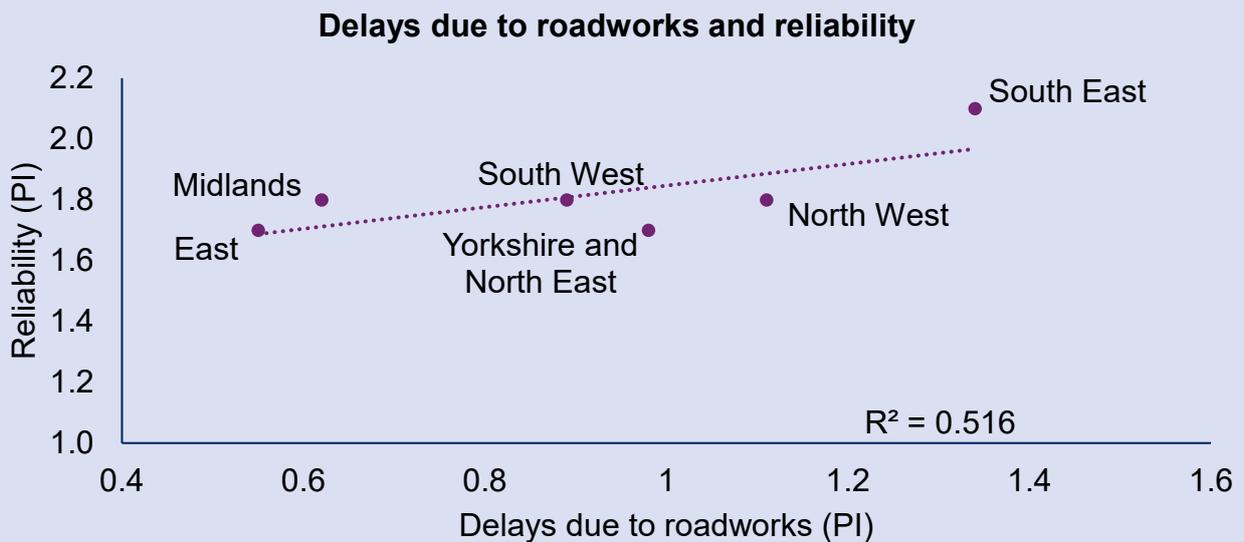


## Delays and reliability

Measures of average delay, reliability and delays during roadworks are highly correlated because each is heavily influenced by the density of traffic on the network. More heavily trafficked regions suffer more delays and also less reliable journeys.



Regions with poor reliability tend to be those with higher delays due to roadworks. Whilst roadworks seem to make journeys less reliable, the correlation between these indicators may be because both are influenced by traffic levels.



# A Well Maintained and Resilient Network



**Key Performance Indicator:** Pavement condition

**Measure:** % of pavement asset that does not require further investigation for possible maintenance

**Target:** 95% of road surface that does not require further investigation

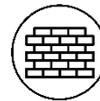
## Performance Indicators



Structures condition



Drainage resilience



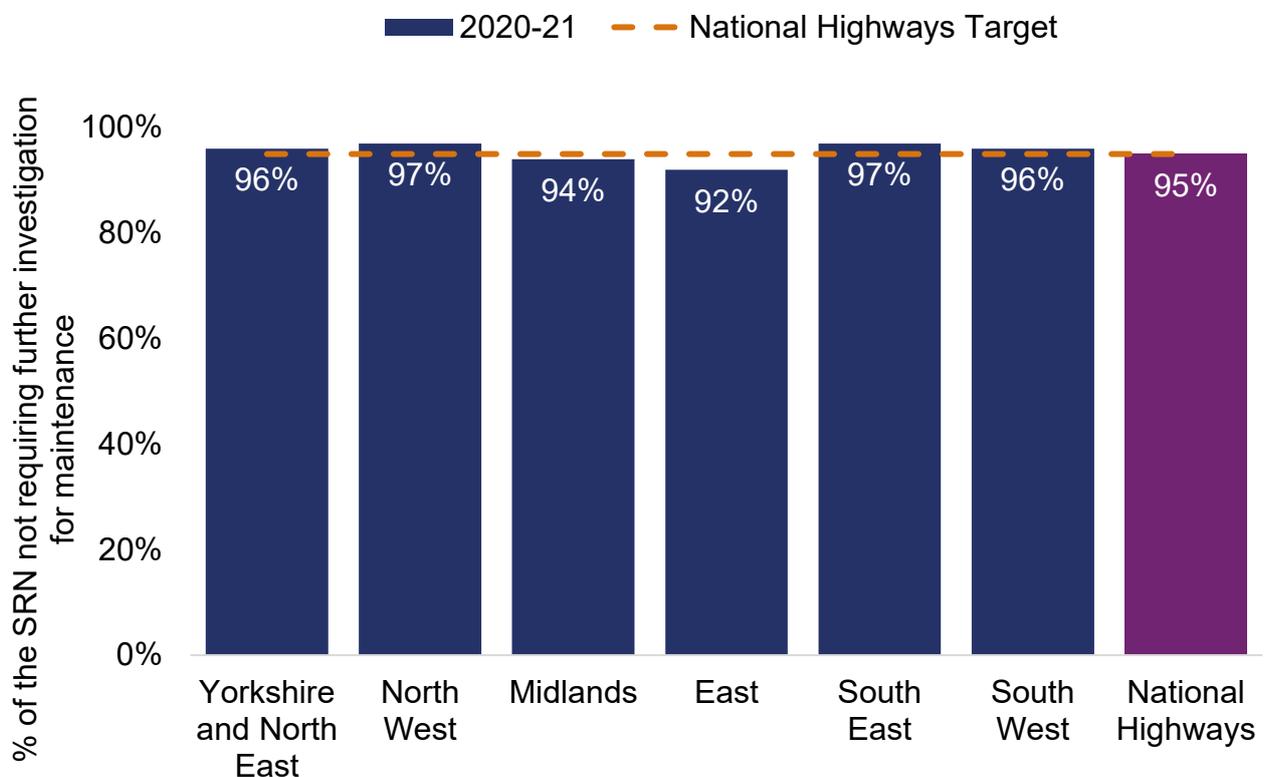
Geotechnical condition

## Key Performance Indicators

- 2.48 There is a single KPI under the theme of a well maintained and resilient network which relates to **the condition of the road surface or pavement**. [Research undertaken by Transport Focus](#) found ‘improved quality of road surfaces’ to be the number one priority for road users for improvements to the SRN. For the SRN, National Highways is meeting its target to ensure that 95% of the network does not require further investigation.
- 2.49 Most of National Highways’ regions are performing at or above the national level target. An exception is the East region which is 3 percentage points below the national target. There are several possible explanations for this lower level of condition in the East. One contributing factor is that the East region has a high proportion of the SRN’s concrete roads. However, this only partly accounts for the gap in performance as 5% of roads in the East are concrete, compared with 2% for the SRN as a whole.

- 2.50 A large proportion of SRN roads in the East are A-roads (83% by route length as compared with 57% for the SRN as a whole). We have seen evidence that, on average, pavement condition tends to be maintained at a higher standard on motorways than A-roads which might be expected given higher volumes of traffic on motorways. Furthermore, because the road network in the East is more spread out than in other parts of England, there are fewer parallel routes to accommodate traffic during periods of maintenance. This will make it more difficult for National Highways to deliver pavement renewals.
- 2.51 The gap in performance between the East and the rest of the network was higher in 2020-21 than has been the case since 2015.

**Figure 2.11 Pavement condition (KPI)**

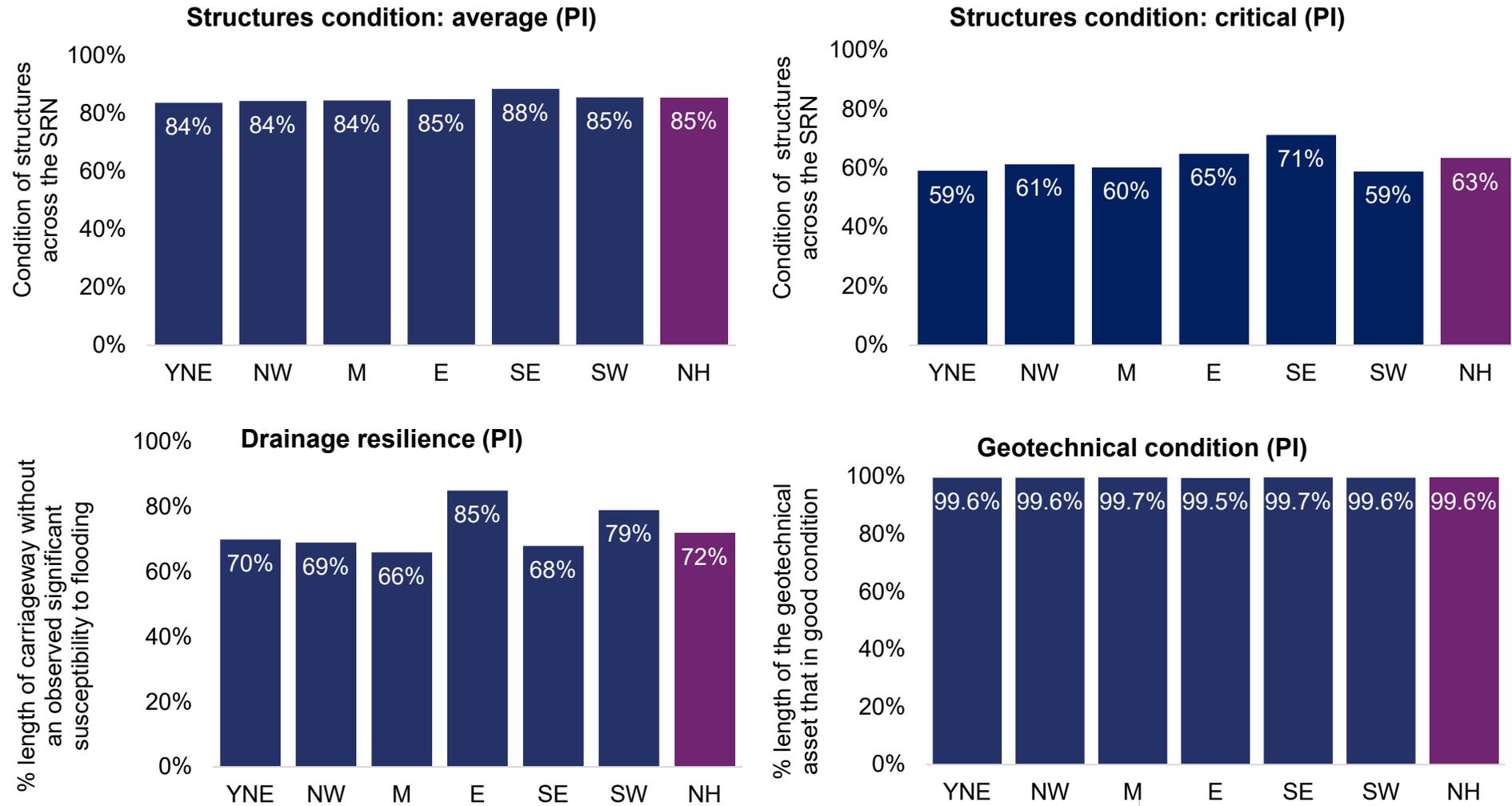


- 2.52 From April 2022, National Highways is due to update the pavement condition KPI. Under the updated metric, condition will be measured on all lanes with traffic not just lane one (the inside lane). This should provide a better linkage between investment in pavement renewal and pavement condition performance.
- 2.53 Section 3 of this report describes a proposed exercise to compare the condition of the SRN with a variety of comparator road networks in the UK and elsewhere.

## Performance Indicators

- 2.54 In 2020-21, for the first time, the suite of regional performance indicators has been expanded to include those related to the condition of other assets, namely **structures condition**, **drainage asset condition** and **geotechnical asset condition**.
- 2.55 The condition of geotechnical assets is relatively uniform across National Highways' regions. In contrast, there is a much higher degree of variation in respect of structures and drainage assets.
- 2.56 For structures, the condition scores are based on the proportion of structures that are rated as 'good' in the opinion of an inspector. The 'critical' PI is based on the condition of the asset's most critical elements. Both structures condition scores are highest in the South East.
- 2.57 Drainage assets are those that collect, move or store surface water run-off. The proportion of the network that does not have an observed susceptibility to flooding, through national flood mapping or reported flood events, ranges from 66% in the Midlands to 85% in the East. In part this may be related to the drier climate in the East of England although, aside from the East, it does not appear that regions with higher levels of rainfall have poorer drainage resilience.

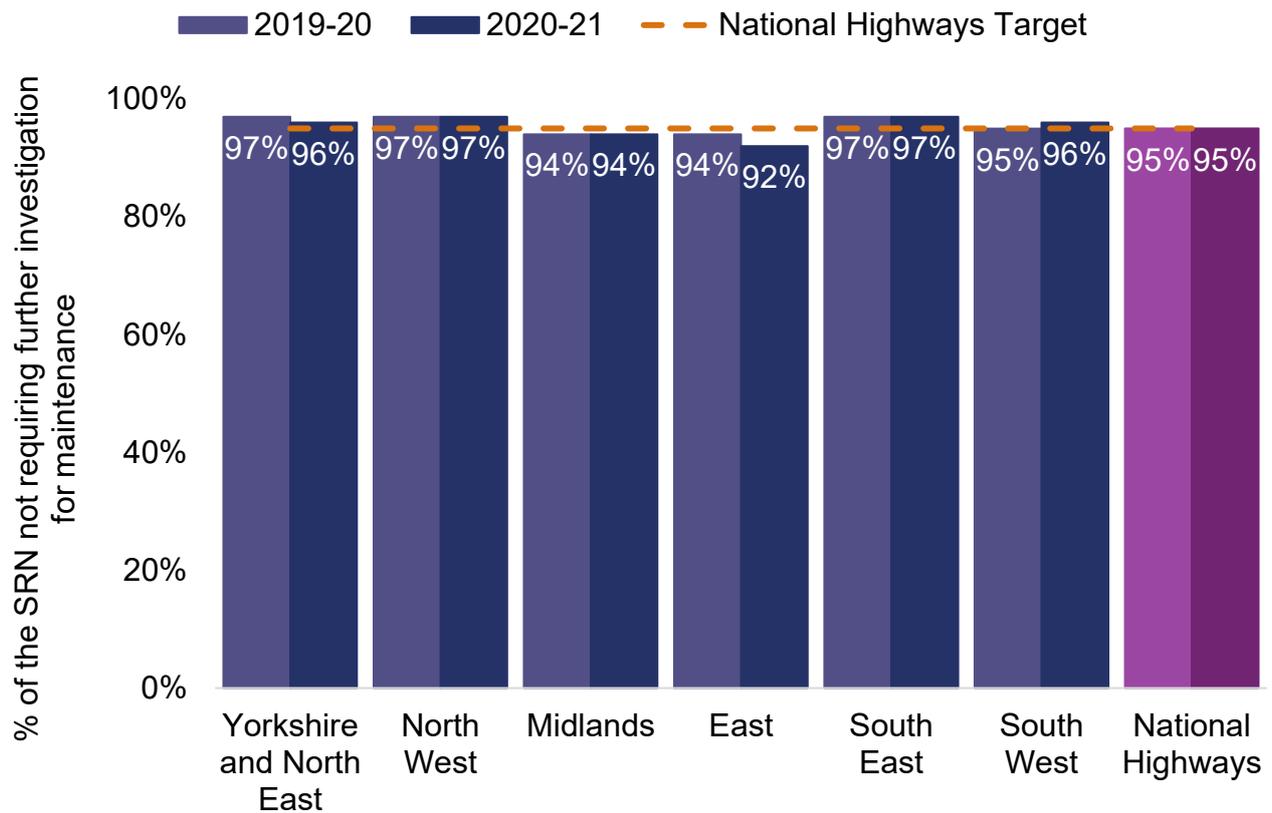
**Figure 2.12 Performance indicators – A well maintained and resilient network**



## Key trends – Pavement condition

2.58 At a national level, National Highways has maintained the pavement condition KPI at or slightly above the 95% target for four years running. Performance fell very slightly in 2020-21 from 95.4% to 95.2%. Across most of the regions, very little change in the KPI was observed between 2019-20 and 2020-21. Only the East experienced a notable decline in pavement condition with the KPI falling from 94.3% to 92.1%.

Figure 2.13 Key trends: Pavement condition (KPI)



## Investing to maintain the SRN

We monitor the investments that National Highways delivers to maintain and renew the SRN. A higher level of funding has been allocated to maintenance and renewals in road period 2 as compared with road period 1.

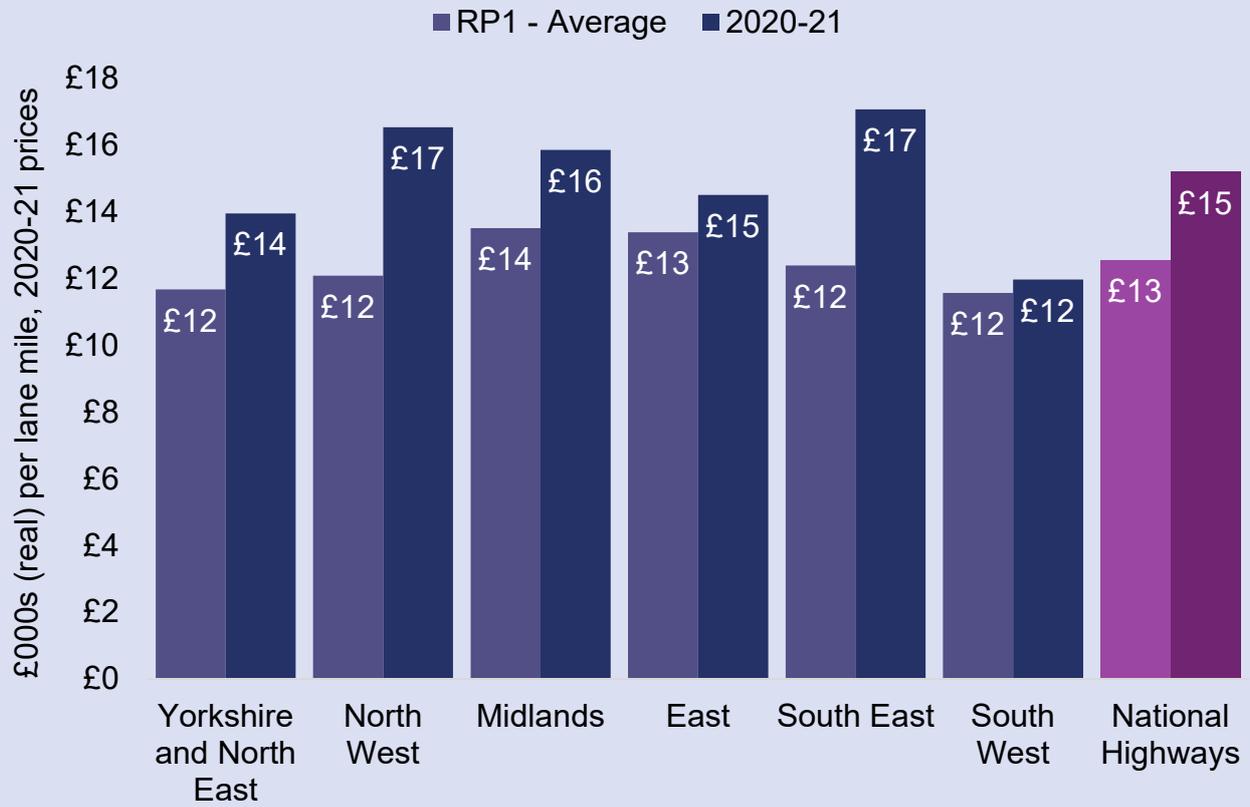
In the first year of road period 2, National Highways spent more, per lane mile, on renewing the network than it did, on average, during road period 1. This increase was not replicated across all regions, although the nature of renewals activity is such that year-to-year fluctuations should be expected.

Spending on renewals in road period 1 and 2020-21



Spending on maintenance activities tends to be more stable from year-to-year. Each of the regions spent more on maintenance in 2020-21 than in an average year during RP1

### Spending on maintenance in road period 1 and 2020-21



The amount spent on maintenance and renewals can vary significantly between the regions, even when viewed per lane mile. During road period 2 we will be undertaking work to understand these differences in more detail and the drivers of differences in cost. One such driver is the level of traffic on each network. This is further described in Section 3. We would expect National Highways to spend more where traffic levels are higher and there is evidence to suggest this is the case.

**Spending on maintenance and renewals in road period 1 and traffic density**



# Meeting the needs of all road users



**Key Performance Indicator:** Roadworks information timeliness and accuracy

**Measure:** % of overnight road closures that are accurately notified by National Highways seven days in advance of works

**Target:** Achieve 90% accuracy seven days in advance by 2024-25

## Performance Indicators



Ride quality

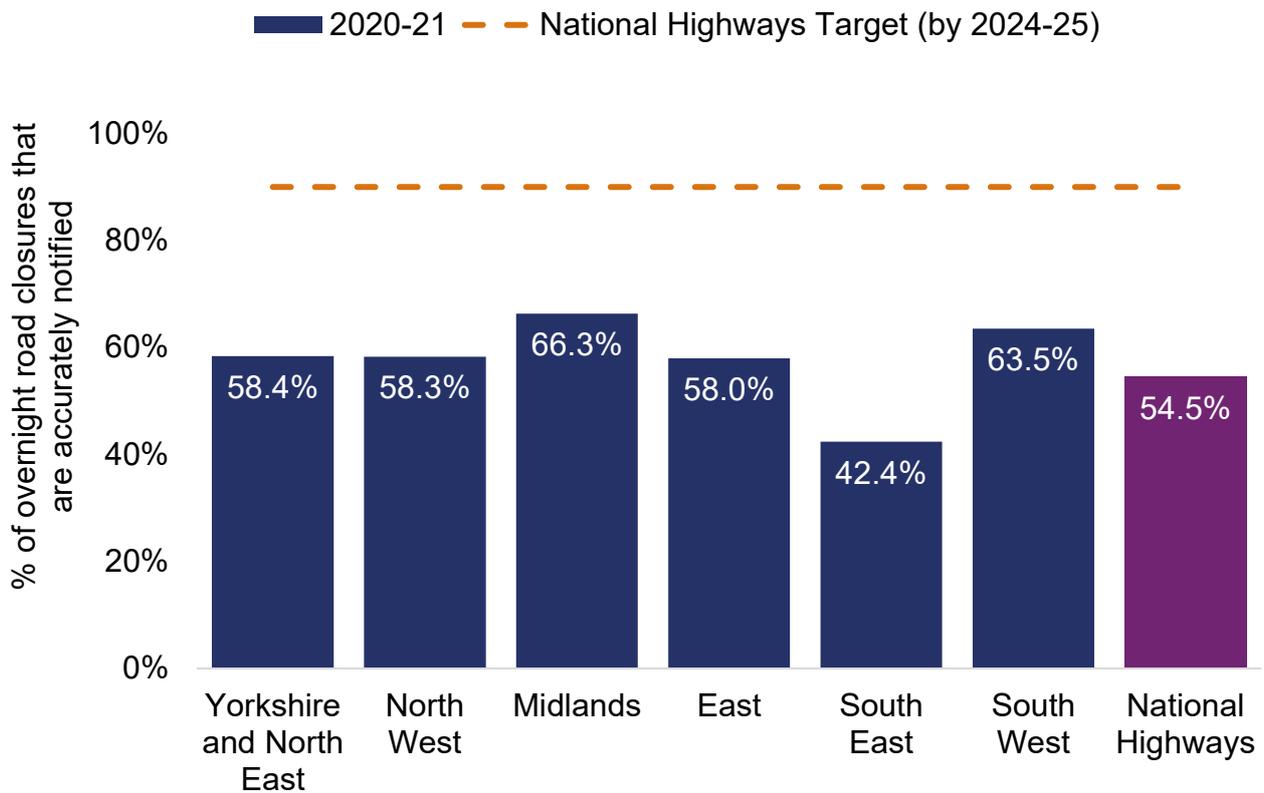


Timeliness of information provided to road users through electronic signage

## Key Performance Indicators

- 2.59 The **accuracy and timeliness with which National Highways provides roadworks information** is a new KPI for road period 2. It measures the percentage of overnight road closures that are accurately notified by National Highways, seven days in advance, on the company's Network Occupancy Management System (NOMS).
- 2.60 At a national level, the company is working towards a target of achieving 90% accuracy by 2024-25. National Highways made substantial improvements in this area during 2020-21. The KPI stood at 54.5% for the year so there is some way to go.
- 2.61 Regional variation in performance will need to be addressed if National Highways is to achieve its target. The best performing regions were the Midlands and South West at 66.3% and 63.5% respectively. In contrast, the South East showed the lowest performance against this measure at 42.4%.
- 2.62 It is notable that the South East experiences the highest delays from roadworks. Whilst a lack of accurate or timely roadworks data might result in more delay, it is more likely that higher levels of roadworks delay in the South East are a product of higher traffic levels and, to a lesser extent, the frequency of roadworks.

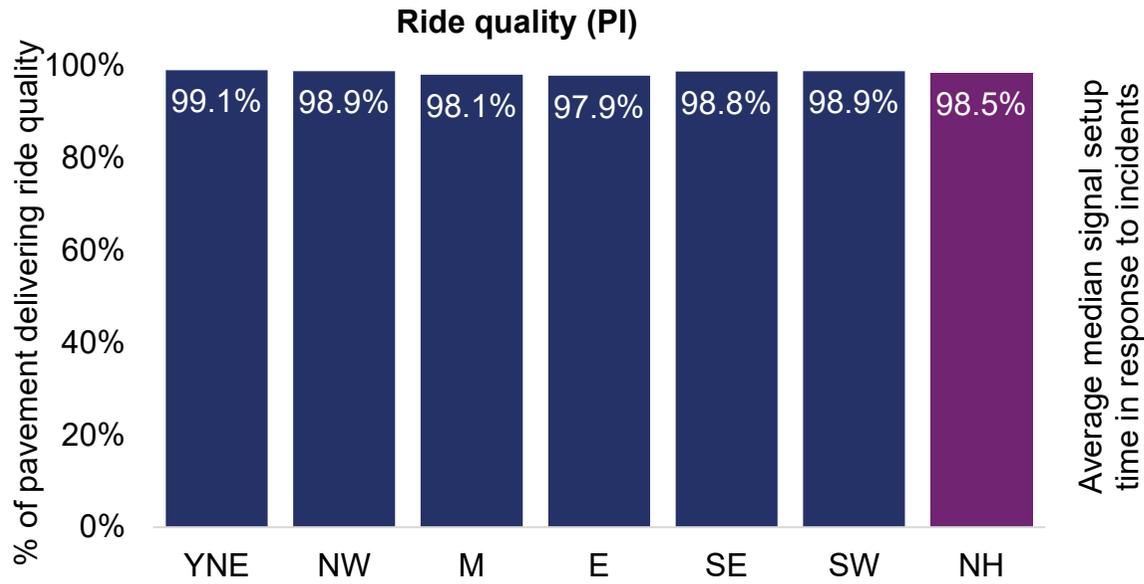
**Figure 2.14 Roadworks information timeliness and accuracy (KPI)**



### Performance Indicators

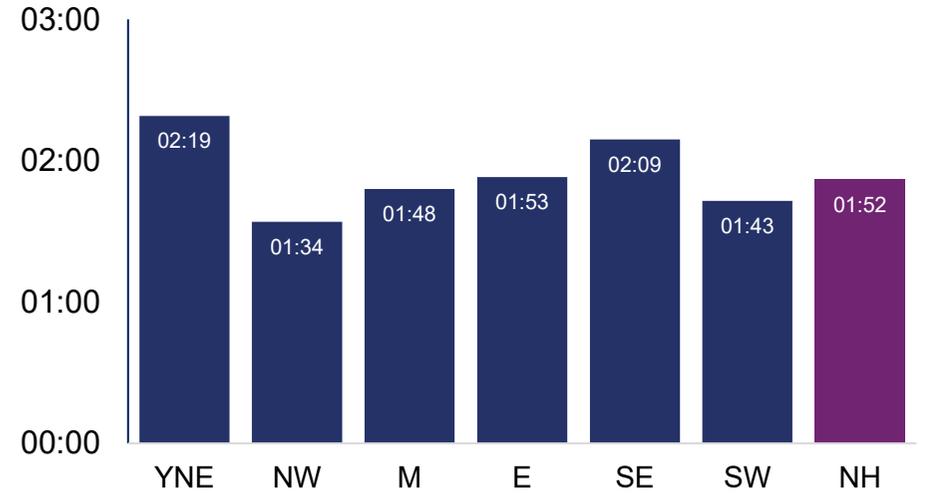
- 2.63 There are two performance indicators under this theme for which regional data is available. Both indicators have been newly introduced for road period 2.
- 2.64 During road period 2 we will also monitor the speed with which National Highways uses **electronic signage** to alert users of an incident on a motorway. There is a degree of regional variation in this measure. The North West was the best performing region in 2020-21, taking a median time of one and a half minutes to set motorway signs and signals after receiving notification of an incident. In contrast, Yorkshire and the North East and the South East both averaged over two minutes.
- 2.65 The **ride quality** performance indicator is a sub-set of the pavement condition metric discussed under the ‘well maintained and resilient’ theme. It focuses specifically on those aspects of pavement condition that most affect the ride quality that users experience. As for the overall pavement condition measure, performance is relatively consistent across the regions, ranging from 97.9% in the East to 99.1% in Yorkshire and the North East.

Figure 2.15 Performance indicators – meeting the needs of all road users



### Timeliness of information provided to road users through electronic signage (PI)

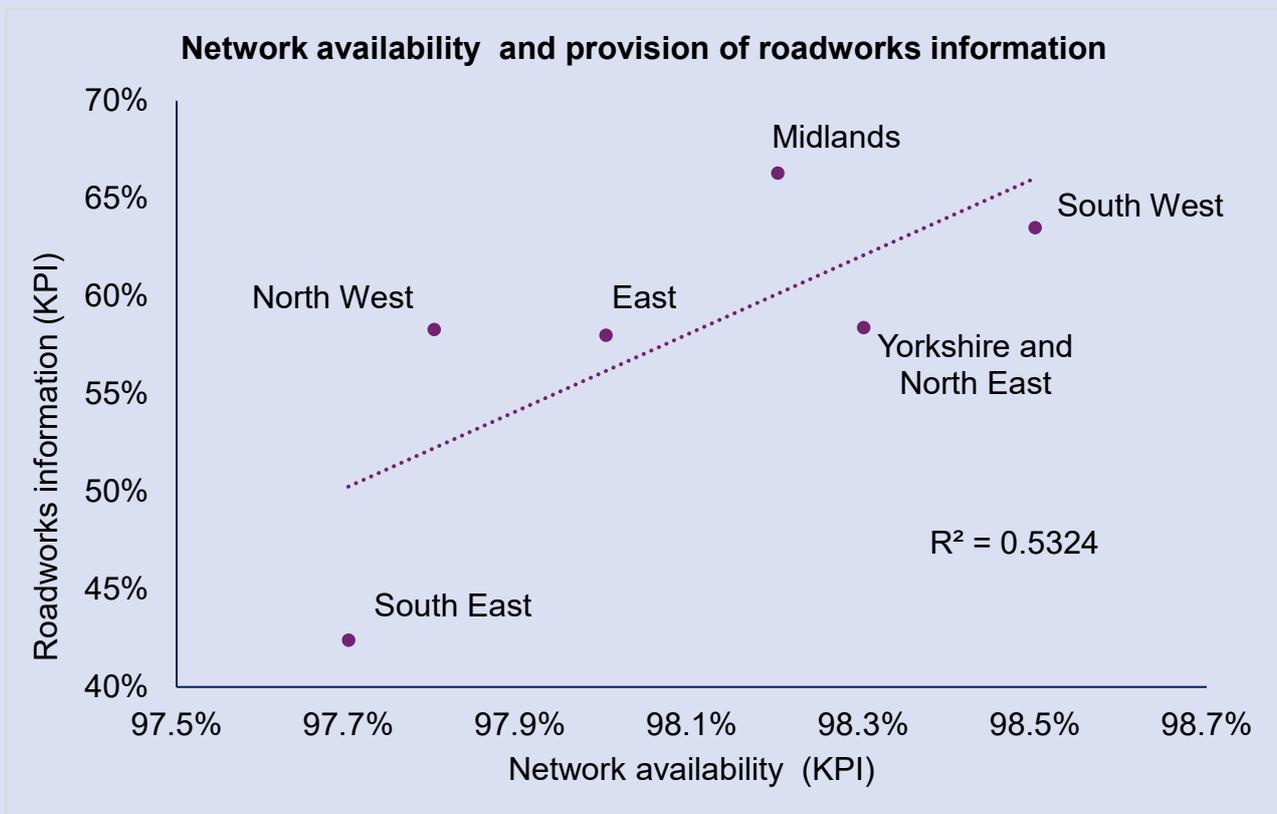
Average median signal setup time in response to incidents



## Roadworks information and delays

As we reported in our Annual Assessment National Highways is taking steps to improve performance in this area. Examples of actions to improve performance include a better focus on planning of works and developing and improving its ability to analyse the reasons for why some roadworks did not start on time. It has also undertaken to share examples of good practice across the regions.

It might be expected that regions carrying out a higher volume of roadworks would be more practiced and therefore more effective in the way they provide roadworks information. However, our analysis suggests that the reverse might be the case – regions that carry out more roadworks (as indicated by the network availability KPI) show worse performance against the roadworks information KPI. One possible explanation could be that resources required for effective roadworks information become more stretched when the frequency with which roadworks are undertaken increase. It should be noted, however, that the correlation between these two KPIs is relatively weak and may be skewed by the influence of the South East which appears to be something of an outlier in respect of its performance against both KPIs. We will continue to monitor this during the remainder of road period 2 to see if this relationship continues to hold.



## Delivering better environmental outcomes



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### Key Performance Indicator: Noise

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**Measure:** Number of households within mitigated noise important areas

**Target:** 7,500 households in noise important areas mitigated



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### Key Performance Indicator: Air quality

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**Measure:** Number of SRN links above the legal nitrogen dioxide (NO<sub>2</sub>) limits

**Target:** Bring links into compliance in the shortest possible time

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### Performance Indicators

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Water Quality

### Key Performance Indicators

- 2.66 Each of the indicators under this theme relate to actions taken to mitigate the environmental impact of the SRN. They comprise noise, air quality and water quality. Environmental indicators related to carbon, biodiversity, cultural heritage and litter are tracked at a national level and are not yet available at regional level.
- 2.67 The environmental impact of the SRN and the opportunities to mitigate its impact will depend on the region's geography and planned schemes. We would expect a high degree of regional variation against these measures. Nevertheless, we would expect each of the regions to make progress in mitigating the impact of the SRN on the environment.
- 2.68 It should also be noted that performance against these KPIs in any given year will provide only a snapshot that will be influenced by the timing of specific projects or initiatives. It will be more instructive to review the progress made by each of the regions over road period 2 as a whole.
- 2.69 The **noise** KPI is based on the number of households within Noise Important Areas (NIAs) where action by National Highways has resulted in a reduction in noise pollution. Opportunities to deliver such mitigations will depend on the extent to which the SRN in a particular region passes through built-up areas. In 2020-21,

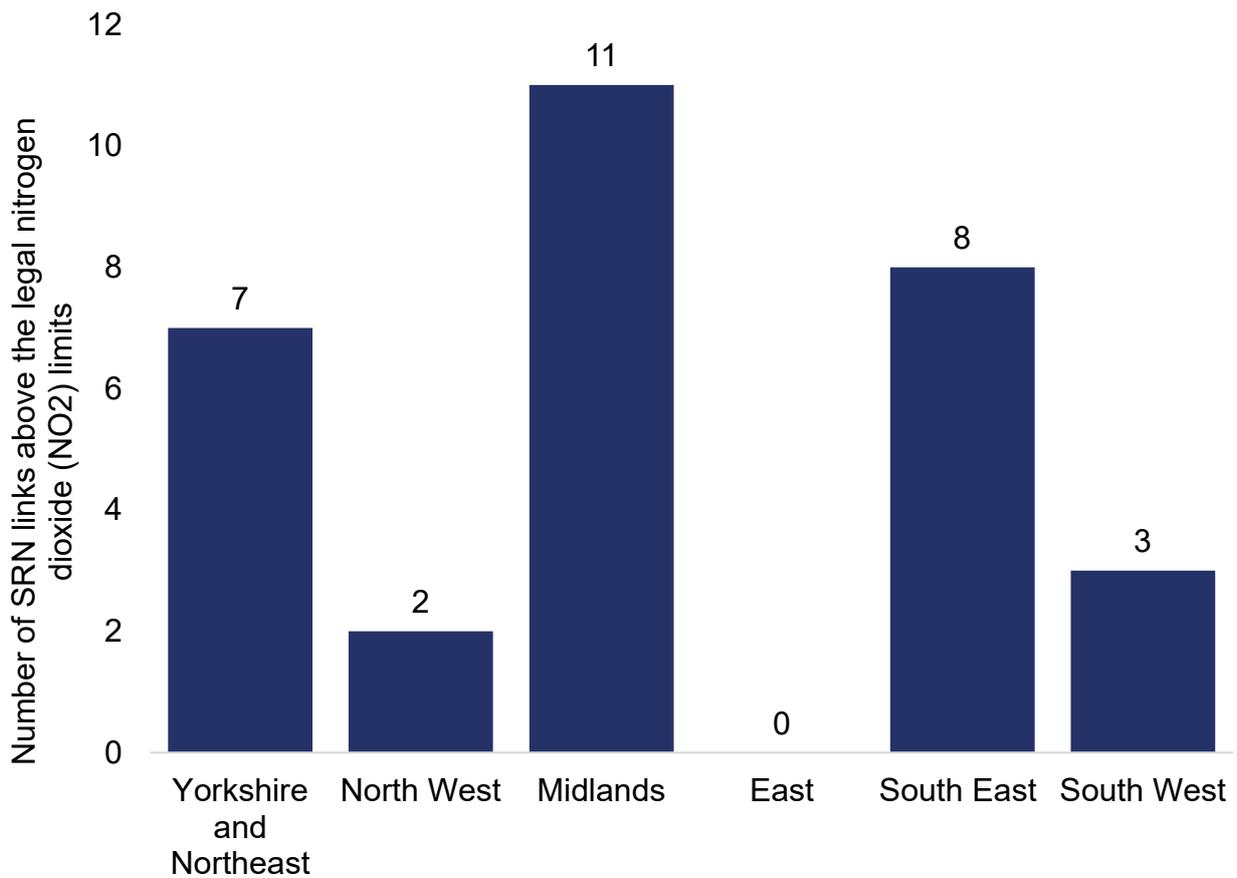
National Highways delivered mitigation to 2,111 households. A resurfacing scheme on the M602 in the North West delivered mitigation for 1,528 households.

**Figure 2.16 Noise: households receiving mitigation (KPI)**



2.70 In respect of **air quality**, National Highways is tasked with bringing into compliance links that are above legal levels for nitrogen dioxide. The company has identified 31 links that are not in compliance and require intervention. These are not spread evenly across the country. There are 11 in the Midlands but none in the East. We will monitor progress in addressing these non-compliant links across National Highways' regions throughout the remainder of road period 2.

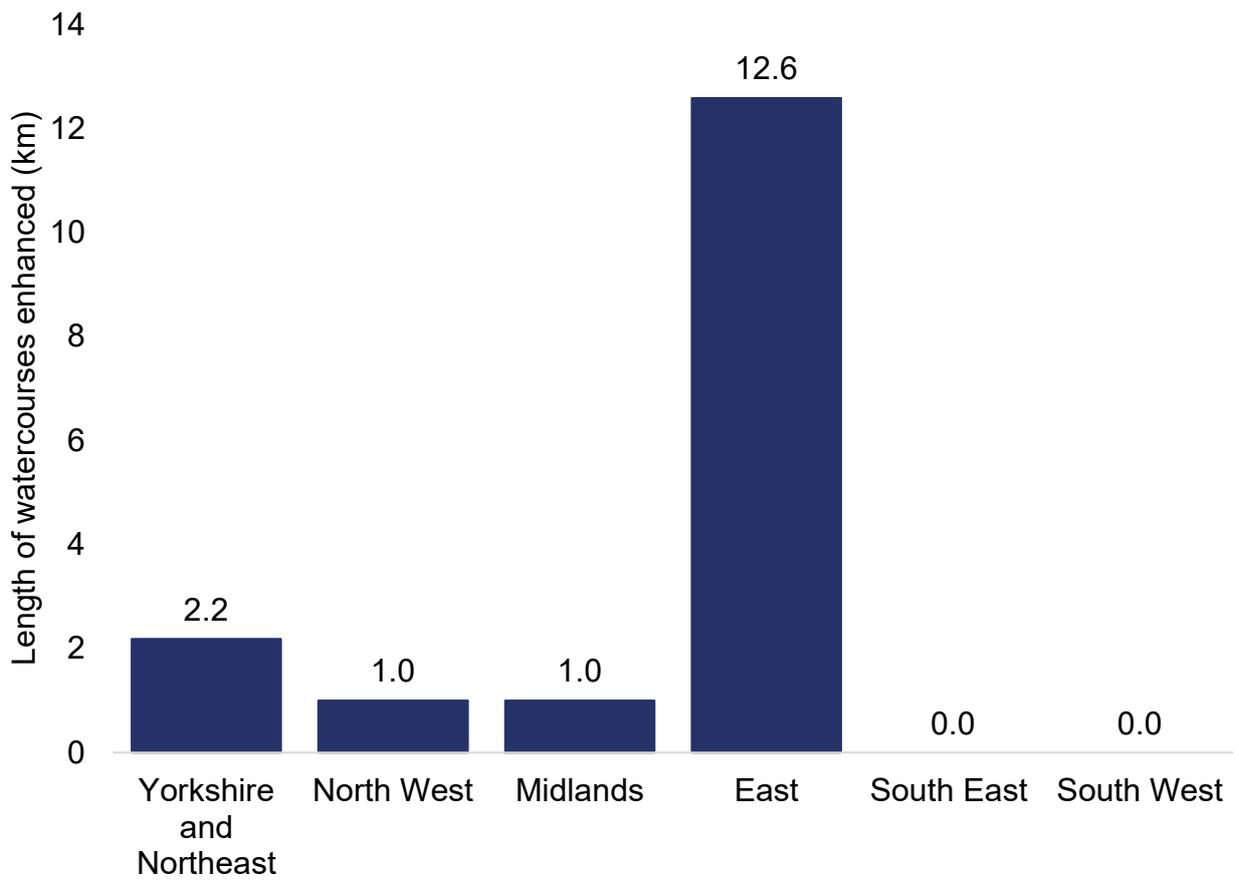
**Figure 2.17 Air quality: links above legal limits (KPI)**



### Performance Indicators

- 2.71 The **water quality** PI is a new metric for road period 2. It measures the length of watercourses enhanced through the mitigation of medium, high and very high-risk outflows as well as through other enhancements, for example river retraining or rewilding.
- 2.72 In 2020-21, the mitigation delivered by National Highways was highly concentrated in the East which accounted for 12.6km of the 16.8km of watercourses enhanced. We would expect a more balanced distribution of mitigation schemes to emerge as the road period progresses.

**Figure 2.18 Water quality: length of watercourse enhanced (PI)**



## 3. Ongoing activities

- 3.1 Alongside our regional performance benchmarking series, we continue to pursue benchmarking opportunities in other areas of National Highways' performance and efficiency, in line with the plans we set out for road period 2.
- 3.2 External benchmarking – comparing the SRN and National Highways against road networks and authorities elsewhere – is challenging. There are few organisations like National Highways, either in respect of its status as an arms-length government-owned company, or in respect of the characteristics of the highway network which it maintains and operates.
- 3.3 There are several targeted areas where we are continuing to pursue opportunities for benchmarking, each one can provide valuable insights into National Highways' performance and efficiency. In this report we highlight three areas we have progressed during 2021. These are:
- (a) benchmarking the cost and efficiency of National Highways' regions and operating areas in respect of maintenance and renewals activities;
  - (b) comparing road surface condition between different networks in the UK and Europe; and,
  - (c) benchmarking the cost of enhancement projects delivered by National Highways.

### Area-level cost and efficiency benchmarking

- 3.4 As we set out in last year's report, we see an important role for regional or area level cost benchmarking in informing our understanding of the company's efficiency, particularly in maintenance and renewals.
- 3.5 Regulators often employ modelled approaches to compare the costs faced by different companies or regional delivery units. By controlling for the factors that are known to affect costs (cost drivers), such models can give insight to the relative efficiency of the companies or delivery units in question. This can inform regulators' views on the scope for future efficiency gains as it may be possible for less efficient companies/units to move towards the efficiency levels of the more efficient companies or delivery units.

- 3.6 In recent years we have produced an annual report setting out the findings of our cost benchmarking of Network Rail’s maintenance and renewals expenditure. This will be used to inform our assessment of the company’s plans during the 2023 periodic review (PR23). For National Highways it has proved challenging to develop robust datasets. This is partly due to the way data has been recorded and how funding has been allocated to National Highways’ operating areas in the past. This has made it difficult to explain differences in spending based on cost drivers.
- 3.7 In 2021, we asked Dr. Phill Wheat – an associate professor at the Institute for Transport Studies at the University of Leeds and a member of our [Road Expert Panel](#) – to review an area-level dataset compiled by National Highways and to advise us on the opportunities and barriers to the development of econometric cost models.
- 3.8 Dr Wheat concluded that, subject to several important technical challenges being overcome, there is potential to use an updated version of the dataset to better understand regional differences in the performance of National Highways. In particular, the review highlighted the potential to use this analysis to evidence National Highways’ efficiency improvements over time. It may also be possible to assess the impact of the adoption of new delivery models, most notably the ‘Asset Delivery’ approach to maintenance and renewals that is being rolled out across National Highways over several years. Based on Dr Wheat’s findings, we will be working with National Highways to further develop the data and this form of analysis.
- 3.9 We also asked Dr Wheat to comment on the feasibility of benchmarking National Highways’ operating areas against Local Highway Authorities (LHAs) in England using data held by the [CQC Efficiency Network](#) (part of the National Highways and Transport Network – NHT Network) for the purposes of efficiency benchmarking.
- 3.10 Through this work we have established that the maintenance cost and network condition data held by National Highways and the CQC Efficiency Network are broadly compatible. However, it would be necessary to secure datasets for local authority operated A-roads in isolation from other road types. This would be theoretically possible but time consuming. Moreover, the differences in service standards to which National Highways and LHAs are held would complicate any analysis. Given the complexities involved and the costs of data collection we have decided not to pursue benchmarking against LHAs at this stage and will focus our efforts on internal benchmarking.

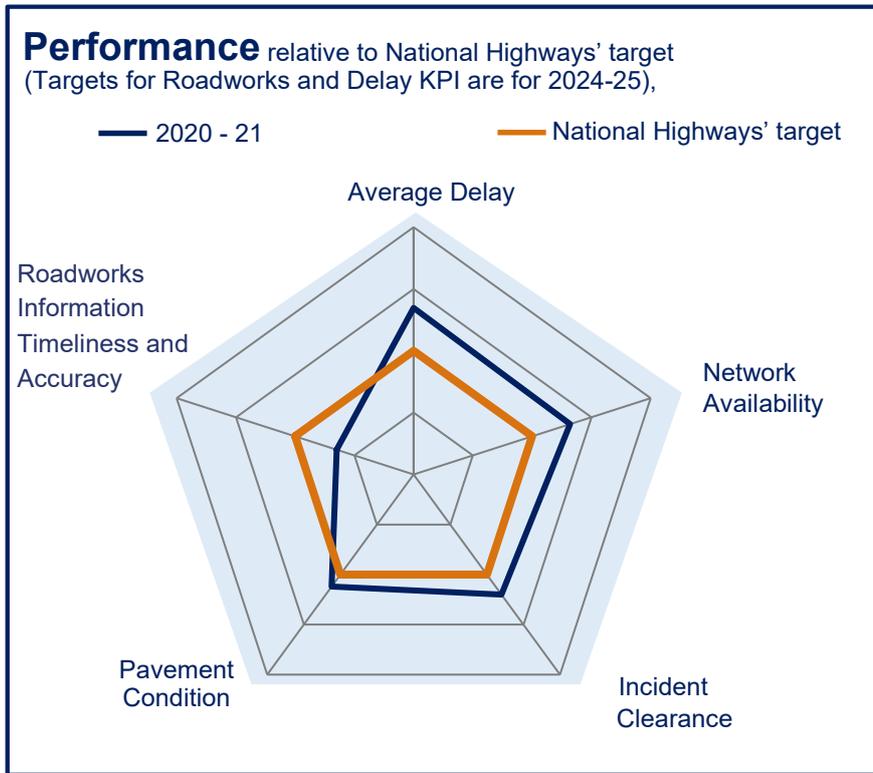
## Comparing road condition

- 3.11 The condition of the road surface (or 'pavement') is a key area of performance and lends itself to comparison with other highway networks. In 2019 we commissioned a feasibility study which surveyed the measures and methods employed to assess pavement condition in the UK and a selection of European countries. The work concluded that, whilst there are differences in the metrics that different highway authorities use to monitor pavement condition, there are consistencies that allow comparisons to be made.
- 3.12 We are now collating and analysing pavement condition data from a selection of road networks. The purpose is not to conclude that any network is 'better' or 'worse' than another. Rather, the study will look at the relative condition of the networks across a range of aspects of pavement condition. It is hoped that the study will allow further understanding of the differences in pavement condition. We expect the initial exercise of data collection and comparison to be completed by summer 2022.

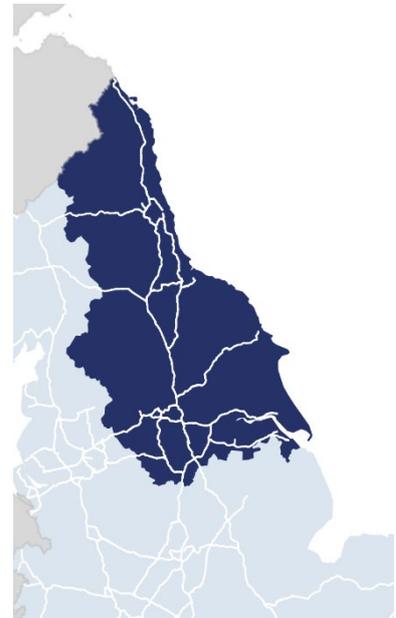
## Enhancement costs

- 3.13 Establishing whether enhancement projects are being delivered efficiently is a challenging area for regulators. This is because no two projects are the same, making it more difficult to benchmark the costs of enhancement projects over time or between delivery bodies.
- 3.14 Nevertheless, it is important that we can see evidence that National Highways is becoming more efficient in the way that it delivers road improvement projects. As part of our preparations for the Road Investment Strategy 3 (RIS3) development process, we have commissioned consultants to examine the way in which National Highways develops cost estimates for its projects. As part of this work the consultants will provide us with recommendations on how the unit rates and assumptions that underlie project cost estimates can be benchmarked against other highway authorities or infrastructure managers.
- 3.15 We will report on the findings of this research in spring 2022.

# Annex A – Regional dashboards

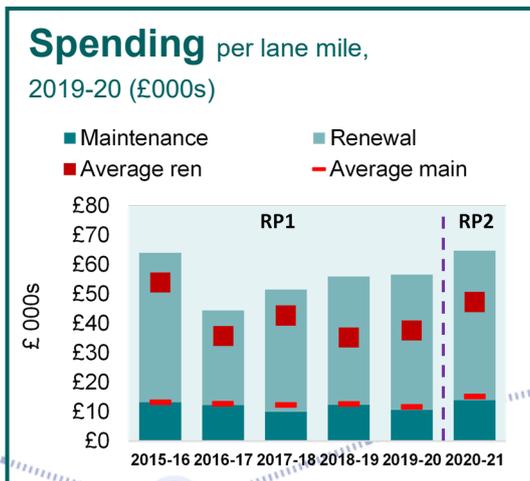
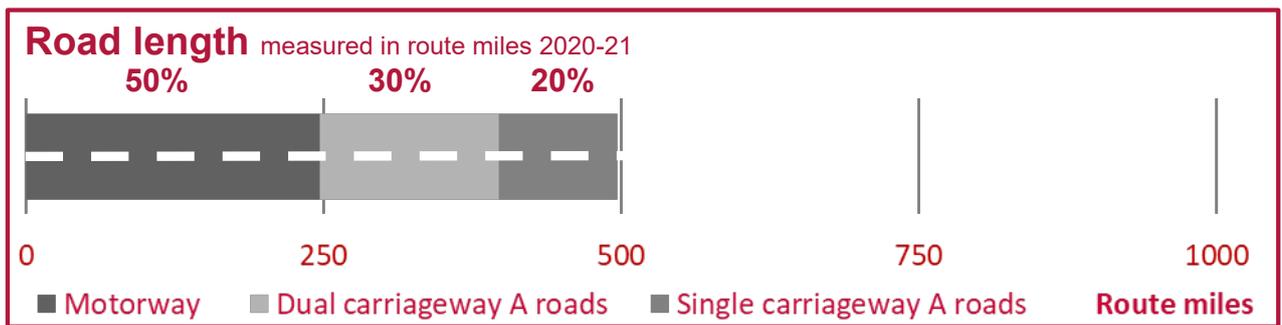


## Yorkshire & North East



### Regional stats

- 8.2m** population
- £22,500** GVA per head
- 2,518** structures
- 2,147** lane miles



### Traffic density

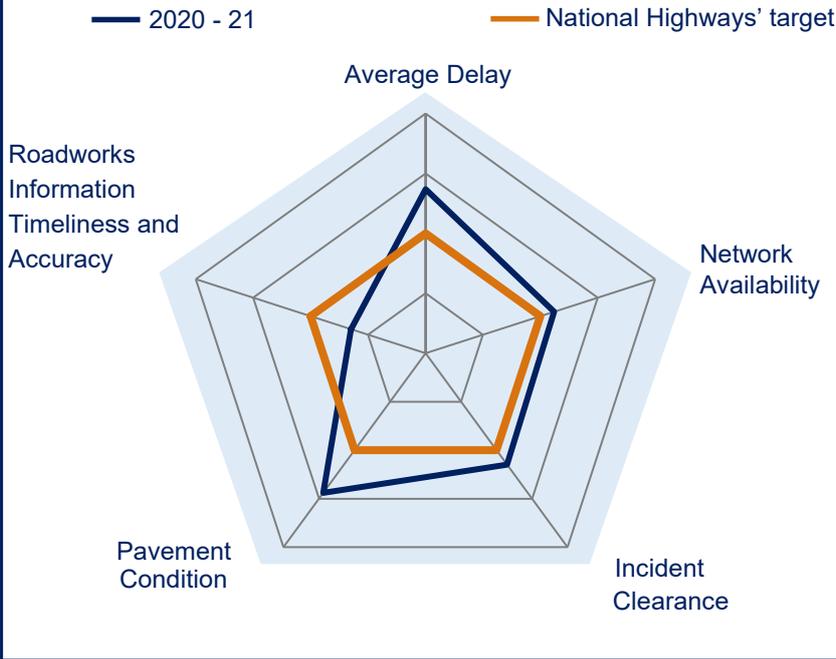
Annual average daily traffic flow (vkm), 2020 (vehicles passing a point on a road, in both directions, during an average 24 hour period)

- Motorways:** 57,000
- Dual carriageway A roads:** 32,000
- Single carriageway:** 14,000

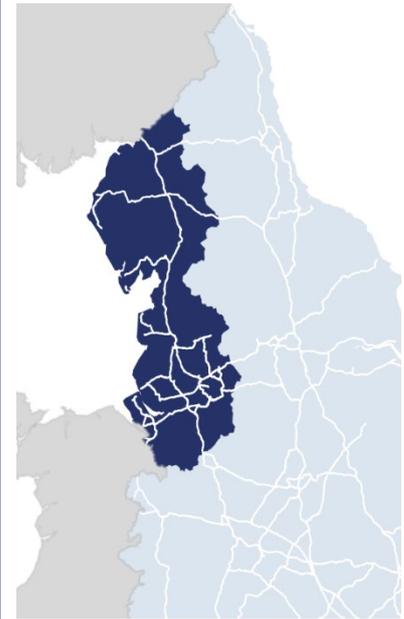
### Percentage of HGV traffic

**16%**

**Performance** relative to National Highways' target  
(Targets for Roadworks and Delay KPI are for 2024-25),



# North West



## Regional stats



**7.4m**  
population



**£25,750**  
GVA per head



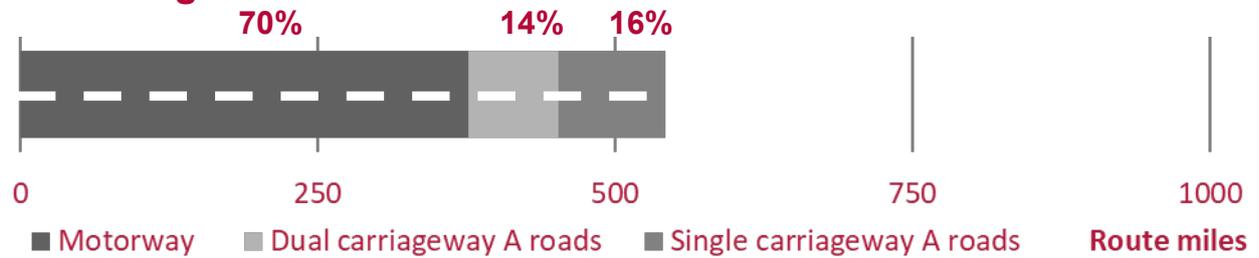
**3,052**  
structures



**2,703**  
lane miles

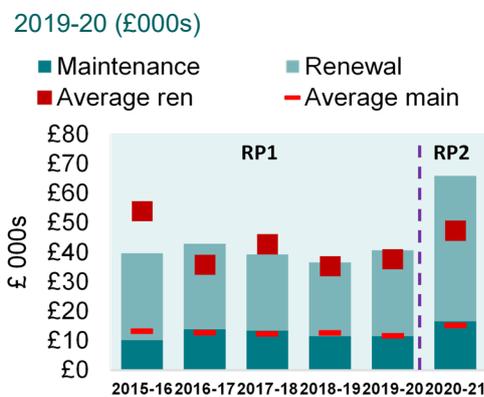
## Road length

measured in route miles 2020-21



## Spending

per lane mile, 2019-20 (£000s)



## Motorways



## Traffic density

Annual average daily traffic flow (vkm), 2020 (vehicles passing a point on a road, in both directions, during an average 24 hour period)

## Dual carriageway A roads

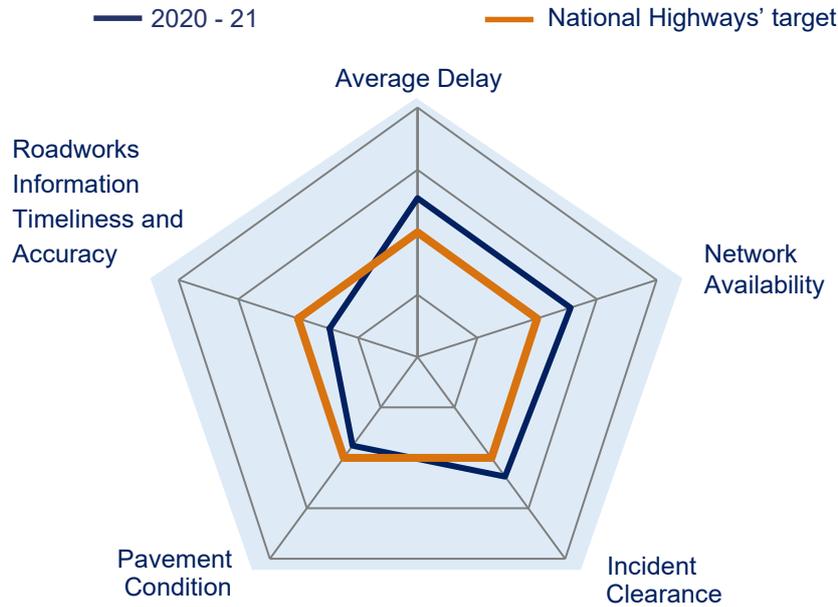


## Percentage of HGV traffic

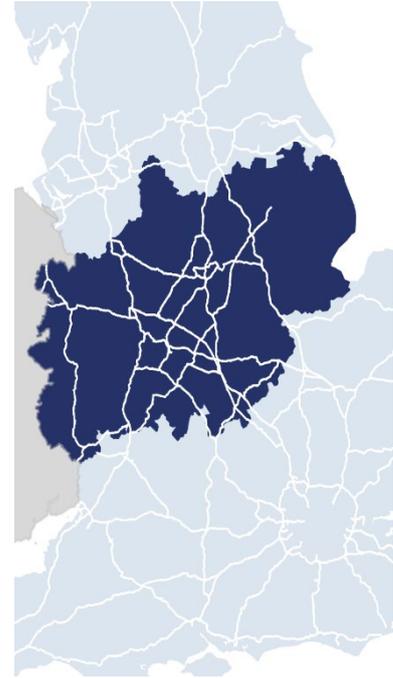
## Single carriageway



**Performance** relative to National Highways' target  
(Targets for Roadworks and Delay KPI are for 2024-25),



# Midlands



## Regional stats



**10.8m**  
population



**£24,000**  
GVA per head

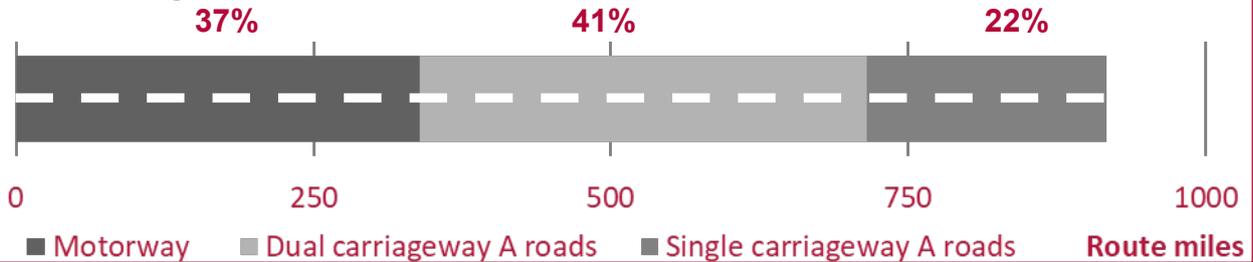


**5,559**  
structures



**3,946**  
lane miles

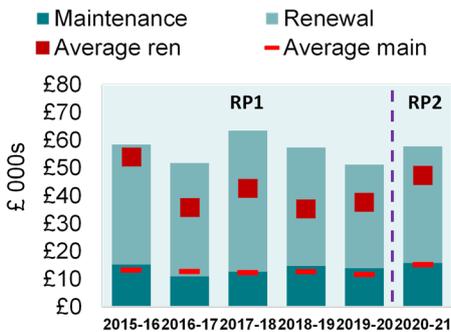
## Road length

 measured in route miles 2020-21


## Spending

 per lane mile,

2019-20 (£000s)



## Motorways



## Traffic density

Annual average daily traffic flow (vkm), 2020  
(vehicles passing a point on a road, in both directions, during an average 24 hour period)

## Dual carriageway A roads

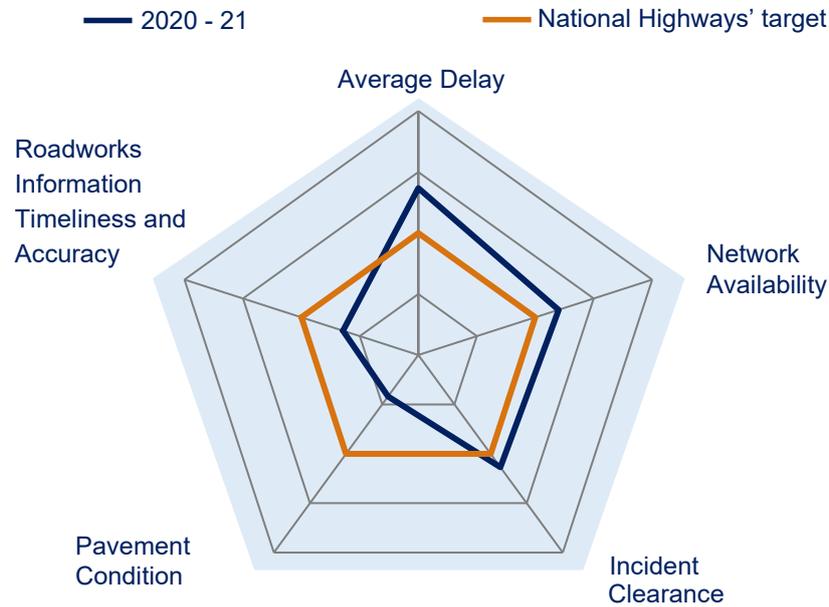


## Percentage of HGV traffic

## Single carriageway



**Performance** relative to National Highways' target  
(Targets for Roadworks and Delay KPI are for 2024-25),



**East**



**Regional stats**



**6.3m**  
population



**£27,000**  
GVA per head

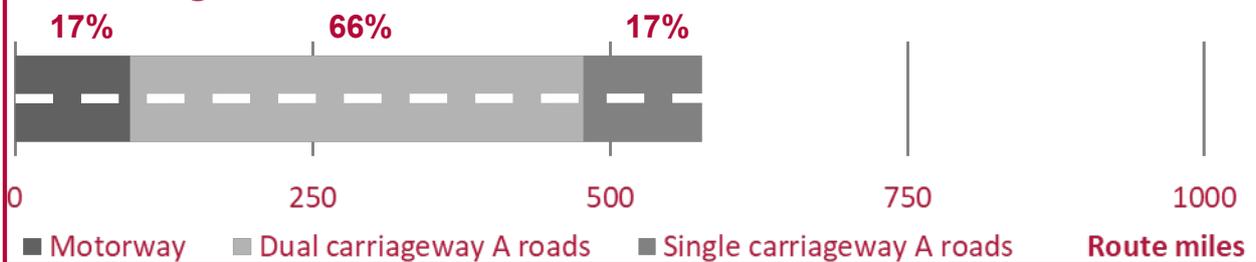


**2,140**  
structures



**2,302**  
lane miles

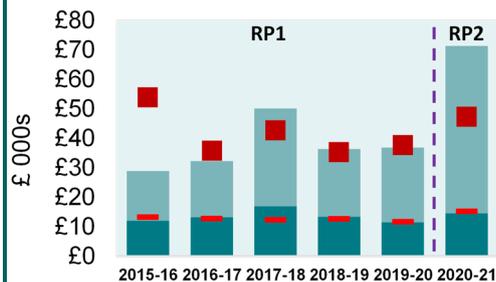
**Road length** measured in route miles 2020-21



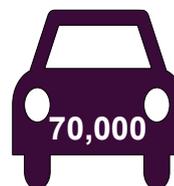
**Spending** per lane mile,

2019-20 (£000s)

■ Maintenance ■ Renewal  
■ Average ren - Average main



**Motorways**



**Traffic density**

Annual average daily traffic flow (vkm), 2020 (vehicles passing a point on a road, in both directions, during an average 24 hour period)

**Dual carriageway A roads**



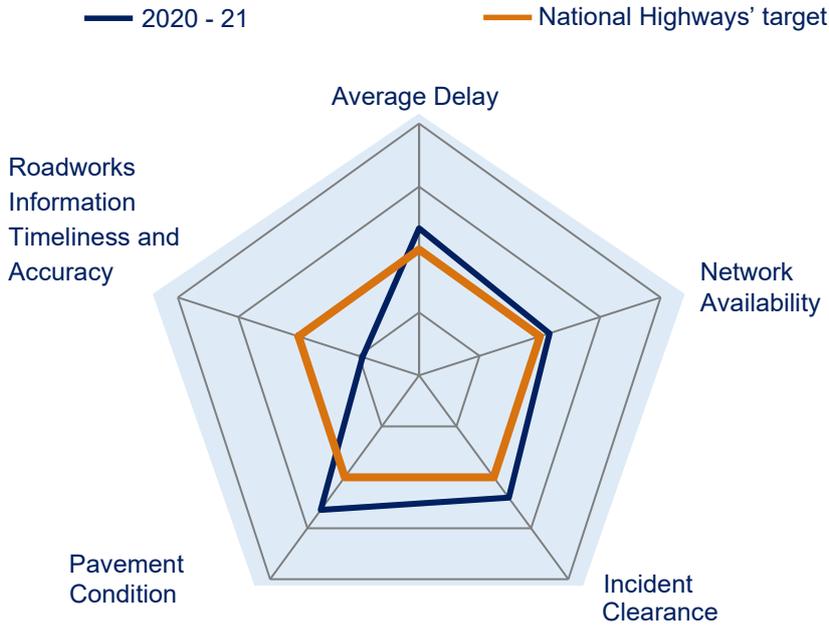
**Percentage of HGV traffic**

**Single carriageway**



## Performance relative to National Highways' target

(Targets for Roadworks and Delay KPI are for 2024-25),



## South East



## Regional stats



**9.2m**  
population



**£31,750**  
GVA per head

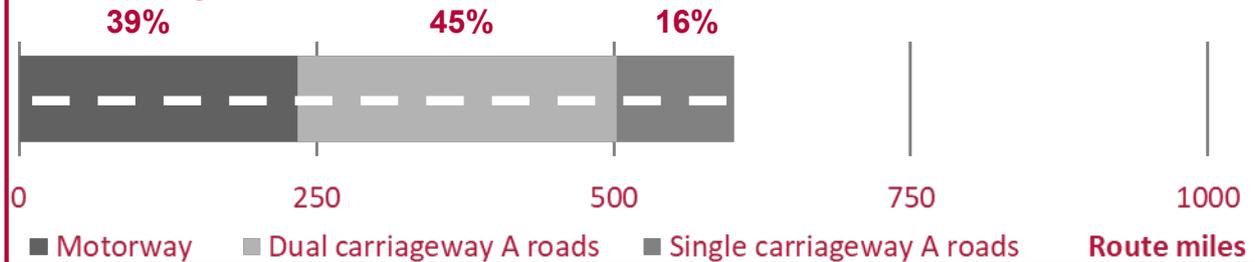


**2,721**  
structures



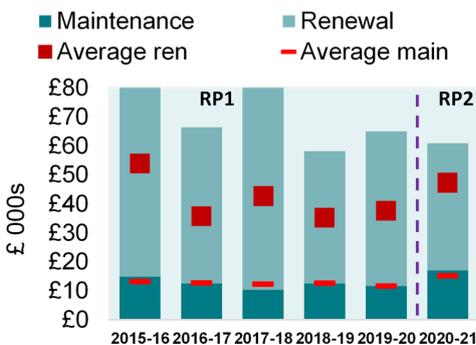
**2,657**  
lane miles

## Road length measured in route miles 2020-21



## Spending per lane mile,

2019-20 (£000s)



## Motorways



## Traffic density

Annual average daily traffic flow (vkm), 2020 (vehicles passing a point on a road, in both directions, during an average 24 hour period)

## Dual carriageway A roads



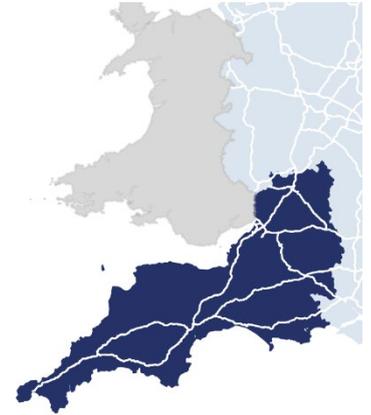
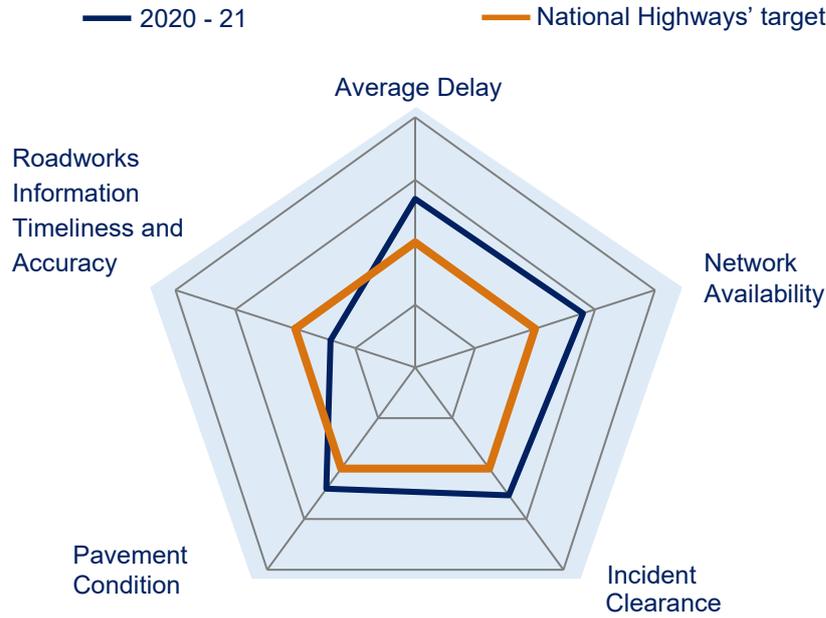
Percentage of HGV traffic

## Single carriageway



# South West

**Performance** relative to National Highways' target  
(Targets for Roadworks and Delay KPI are for 2024-25),



## Regional stats

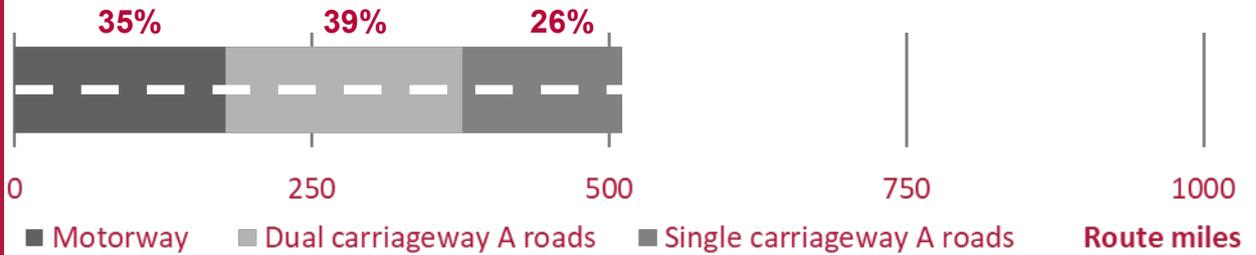
**5.7m**  
population

**£25,750**  
GVA per head

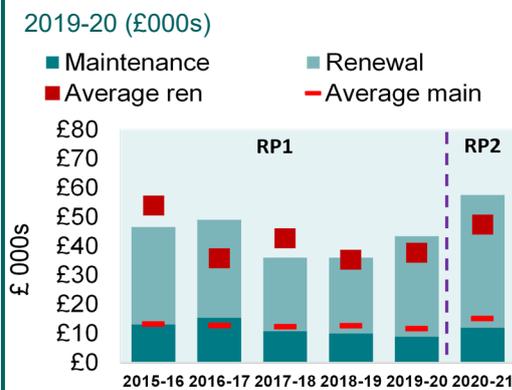
**1,997**  
structures

**2,133**  
lane miles

## Road length measured in route miles 2020-21



## Spending per lane mile, 2019-20 (£000s)



## Traffic density

### Motorways



Annual average daily traffic flow (vkm), 2020 (vehicles passing a point on a road, in both directions, during an average 24 hour period)

### Dual carriageway A roads



Percentage of HGV traffic

### Single carriageway



# Annex B – Methods and data sources

## Regional performance data

All regional KPI and PI data is provided by National Highways: [Highways England Regional Performance Disaggregation year end 2020 to 2021](#).

## Safety performance data

As for all the other KPIs and PIs, regional performance indicators under the 'safety for all' theme are provided by National Highways.

The safety analysis on pages 19 and 20 uses data for administrative regional boundaries which approximate to, but are not contiguous to, National Highways' regional boundaries. This data is taken directly from the Department for Transport's [Road Safety Data](#). Traffic data – used to calculate SRN-wide casualty rates and 'expected' levels of casualties – is taken from the Department for Transport's [Road Traffic Statistics](#) (table TRA4106).

## Regional dashboards (Annex A)

### Regional stats, road length, spending and traffic

#### Population

Regional population estimates for mid-2020 were sourced from the [ONS](#) and are rounded to nearest 100,000 in the dashboards:

#### GVA per head

Gross value added (GVA) data for 2019 were sourced from [ONS](#); divided by regional population to give GVA per head; and are rounded to the nearest £250 in the dashboards. In this report, GVA (I) which we used in our previous report has now been superseded by GVA (B). The new measure, GVA (B) is a balanced measure of estimates from gross value added income (GVA (I)) and gross value added production (GVA (P)).

From January 2021, to distinguish the UK classification from its EU predecessor, the UK-managed classification will be referred to as UK International Territorial Levels (ITLs). More information can be found [here](#).

## Structures

The number of structures on each region of the SRN is sourced from National Highways' Structures Management Information System (SMIS). The main categories of structures included are:

- bridges and large culverts;
- masts;
- retaining walls;
- road tunnels; and
- signs and / or signal gantries.

## Road length

Two measures of the length of the SRN are presented in the dashboards:

- route length, split by road type – the sum of the main carriageway lengths only (e.g. excluding slip roads) with a factor of 0.5 applied to dual carriageways; and
- lane length – the sum of the carriageway sections multiplied by the number of permanent running lanes (i.e. hard shoulders are excluded).

Data were sourced from National Highways' pavement management information system (HAPMS) and represent a snapshot for 31 March 2021.

## Spending

Maintenance and renewal spending data were sourced from National Highways

## Traffic

Traffic data are for 2020 and were sourced from the Department for Transport's Road Traffic Statistics. Traffic on DBFO-managed roads was separately identified but the regional boundaries do not exactly match the boundaries of National Highways' regions. The source data gives vehicle kilometres in 2020 by road and vehicle type. We have converted this to annual average daily traffic flow by dividing annual vehicle miles (for all vehicle types) by route length (as defined above) and then by 365 days to give the daily average.

Flow refers to the number of vehicles passing a point on a road over a given period of the time. The annual average daily traffic flow represents the number of vehicles (travelling in both directions) that would pass a point on the network during an average 24-hour period.

The percentage of HGV traffic is the proportion of HGV miles in total vehicle miles.

## Calculating the performance radar charts

The 'radar charts' on each dashboard show regional performance relative to National Highways' overall target. Performance has been normalised to the target level and is shown with the red line. If the purple line is outside the orange target, then performance exceeded the target for that KPI in that region in that year.

### Average delay

For the average delay KPI, lower delay represents better performance. National Highways has an 'ambition' to ensure that delays are no worse than the level in February 2020 (9.5 seconds per vehicle mile). The orange line for this measure is set at that level.

### Network availability, incident clearance, pavement condition and roadworks information timeliness and accuracy

These four KPIs are all measured in percentage terms, with a higher number representing better performance. However, the targets for three of the KPIs (excluding roadworks information timeliness and accuracy) are relatively close to 100, making it difficult to demonstrate variation between the regions. Therefore, each metric, and its respective target was transformed as shown in the table below:

Measure	KPI	Target	Transformed KPI	Transformed target
Network availability	% lane availability	>97.5%	% lane <b>un</b> availability	<2.5%
Incident clearance	% incidents cleared within 1 hour	>86%	% incidents <b>not</b> cleared within 1 hour	<14%
Pavement condition	% of pavement not requiring further investigation	>95%	% of pavement <b>not</b> requiring further investigation	<5%
Roadworks information timeliness and accuracy	% of accurate roadworks information seven days (rolling) in advance of works by 2024-25	>90%	% of inaccurate information	Not transformed

These transformations produce metrics where a lower score is better. The transformation used for average delay is then applied for presentation in the radar charts. If performance were more than double the target level (for example, if >6% of the network were unavailable), this would give a score of 0. Any such scores are adjusted to 0.05, so as not to appear as 'zero performance' in the radar charts. The 2015-16 regional pavement condition data is based on a pro-rata adjustment to the performance reported that year, to reflect the revised figure for the network as a whole in that year.

## **Treatment of DBFO-managed sections of the network**

Management of the SRN is split into a series of areas and regions. There are thirteen areas, one of which (the M25) is managed by a private contractor under a Design, Build, Finance, Operate (DBFO) contract. The other twelve areas are combined together into six regions, with two areas in each region.

Including the M25, there are eleven sections of the network managed under DBFO contracts. Private operators are appointed to design, build and finance major improvements to the network, and to operate (maintain and renew) it over a 30-year period.

The regional dashboards, including the network and traffic data, relate only to those parts of the network managed by National Highways' regions – DBFO-managed roads are excluded.

The maps on the dashboards show the SRN but do not differentiate between sections that are directly managed by National Highways' regions.<sup>1</sup> More detail on which parts of the network fall into each region, and which are managed by DBFO operators, can be found here: <https://highwaysengland.co.uk/about-us/our-roads/>.

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<sup>1</sup> Use of the data included in the maps is subject to terms and conditions. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which Office of Rail and Road makes it available; You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form; and Third party rights to enforce the terms of this licence shall be reserved to Ordnance Survey.



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