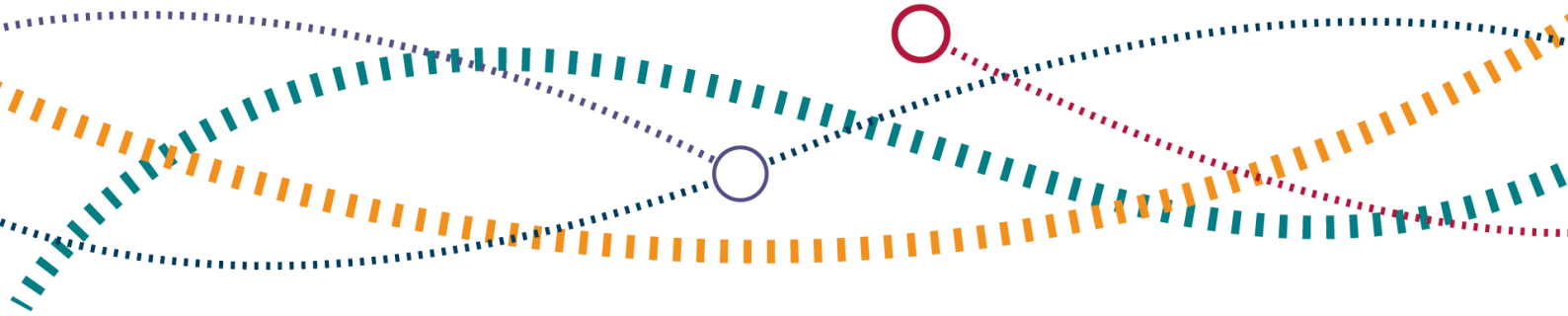
OFFICE OF RAIL AND ROAD

# Benchmarking National Highways – Regional Performance 2021-22

## 19 January 2023



# Contents

# Highlights

1. The strategic road network (SRN) plays a critical role in sustaining the economy and connecting communities. National Highways is tasked with operating, maintaining and improving the SRN. The Office of Rail and Road (ORR) holds the company to account for its performance. Benchmarking the performance of National Highways is an important means of improving its delivery and efficiency.

2. We have maintained a regional benchmarking series since 2016. In this update we report on the performance of National Highways' regions in the second year of road period 2 (RP2) which covers the financial years 2020-21 to 2024-25.

3. This report includes data relating to five of the outcome areas identified in the government's second road investment strategy (RIS2). Some of the highlights of the regional data, relating to each of the outcomes includes:

    - **Improving safety for all** – Lower levels of traffic contributed to a 34% reduction in people killed and seriously injured (KSIs) on the SRN in 2020 compared to 2019 (calendar years). Regionally, the reduction in KSIs ranged from 24% in the South East and 61% in Yorkshire and the North East.

    - **Providing fast and reliable journeys** – All regions experienced an increase in average delay as traffic levels recovered following the COVID-19 pandemic. However, in general, delays remain lower than pre-pandemic levels. The North West suffered the largest increases in both average delay and delays due to roadworks.

    - **A well maintained and resilient network** – Most of National Highways' regions are performing at or above the national-level target for pavement (road surface) condition. The exceptions to this are the Midlands and East regions. Their stock of ageing concrete roads is likely to be a contributory factor.

    - **Meeting the needs of all road users** – Regional variation in the provision of roadworks information reduced during 2021-22 as the previous lowest ranked regions significantly improved their performance.

    - **Delivering better environmental outcomes** – At the current rate of delivery National Highways is on track to meet its road period 2 (RP2) target of 7,500 households, in noise important areas, benefiting from mitigation measures. The South East accounted for 71% of noise mitigation delivered in 2021-22.

# 1. Regional Benchmarking

## Introduction

1.1 The Office of Rail and Road (ORR) is responsible for holding National Highways to account for its performance and efficiency, in delivering the requirements set out in RIS2, and its broader licence commitments. We report on this in our Annual Assessment of National Highways.

1.2 One of the ways we encourage National Highways to improve its performance is by benchmarking the company's regions against each other. This provides additional insights and contributes to a richer and more insightful view of the National Highways' performance.

1.3 We have published an annual update of our regional benchmarking series since 2016. In this update we provide an overview of regional performance during 2021-22 (road safety data is presented for 2020), highlighting key trends and new insights. This is the second year of road period 2 (RP2) which covers 2020-21 to 2024-25.

## The role of regional benchmarking

1.4 National Highways' operations are organised and delivered through six regions, shown in figure 1.1 – Yorkshire and North East, North West, Midlands, East, South East and South West. We hold the company to account for the achievement of performance targets at a national level. However, regional benchmarking provides insights into its performance that are not always evident nationally. Moreover, it increases transparency around its performance and provides an additional incentive for regions to improve performance.

1.5 We acknowledge that some degree of regional variation will occur. We do not expect all the regions to achieve the national-level targets across all the key performance indicators (KPIs). However, we do expect National Highways to explore and understand regional variations in performance and, where practicable, to act on lessons learned to improve performance across the SRN. This will, ultimately, lead to better outcomes for users of the SRN, the communities it serves, as well as for the environment and the taxpayer.

1.6 For 2021-22, the report includes data on 25 of the 33 indicators we use to monitor National Highways' performance at a national level.

**Figure 1.1 National Highways' regions**

# Overview

1.7 At a national level, National Highways' performance in delivering RIS2 is monitored against a performance specification. This specification is divided into six 'outcomes', which reflect the government's priorities. This report includes data for five of the six outcome areas:

- Outcome 1: Improving safety for all;
- Outcome 2: Providing fast and reliable journeys;
- Outcome 3: A well maintained and resilient network;
- Outcome 4: Delivering better environmental outcomes; and.
- Outcome 5: Meeting the needs of all road users.

(Note that outcome 6 - Achieving efficient delivery - is not reported at a regional level).

1.8 For each outcome there are two categories of indicator used to monitor National Highways' performance – Key Performance Indicators (KPIs) and Performance Indicators (PIs). Almost all the KPIs are associated with a national-level target. Figure 1.2 provides a high-level overview of the KPIs and PIs reported at a regional level. During the remainder of RP2 we will continue to track the progress of each of the company's regions in delivering better outcomes for users, the environment, and the taxpayer.

1.9 With the exception of road user satisfaction, regional KPI and PI data is provided by National Highways: Highways England Regional Performance Disaggregation year end 2021 to 2022. Road user satisfaction data is provided by Transport Focus.

1.10 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) them over a 30-year period. With some stated exceptions, performance data relates to the parts of the network managed directly by National Highways.

1.11 Most indicators set out in this report use data for the 2021-22 financial year. In the earlier part of the year journey patterns and purposes of travel were impacted by the different phases of lockdown and restrictions imposed during the COVID-19 pandemic. The regional road safety data is for 2020, and all of this period

experienced lower levels and atypical patterns of traffic. Consequently, indicators that are influenced by the level of traffic on the network have been affected. We have highlighted where we consider this to be the case.

1.12 Traffic data for the SRN is available for calendar years. Compared to 2020, traffic on the SRN in 2021 increased by 15% to reach 83.2 billion vehicle miles. However, traffic levels remained below pre-pandemic levels. Traffic in 2021 was 14% lower than in 2019. Changes in traffic levels have been broadly similar across the regions. Changes in traffic levels are shown in Figure 1.2.

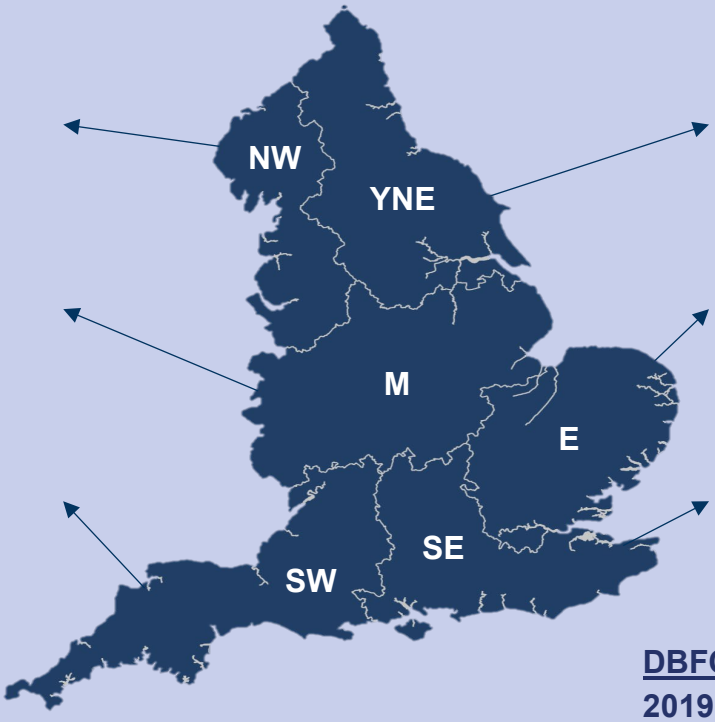
1.13 Table 1.1 shows an overview of the regional performance data for each of the five outcomes. The following chapters describe in more detail regional performance for each KPI and PI.

**Figure 1.2 Traffic Level Analysis (billion vehicle miles)**

| Vehicle Type | 2021 | Change on 2020 | Change on 2019 |
|---|---|---|---|
| All vehicles | 83.2 | ↑ 15% | ↓ 14% |
| Cars and taxis | 56.1 67.4% | ↑ 15% | ↓ 21% |
| Freight | 26.7 32.1% | ↑ 13% | ↑ 6% |
| Other vehicles | 0.4 0.5% | ↑ 12% | ↓ 41% |

## Regional traffic breakdown

Traffic figures are in billion vehicle miles.




| NW 2019 | NW 2020 | NW 2021 | YNE 2019 | YNE 2020 | YNE 2021 |
|---|---|---|---|---|---|
| 13.5 | 10.2 | 11.8 | 9.8 | 7.5 | 8.6 |

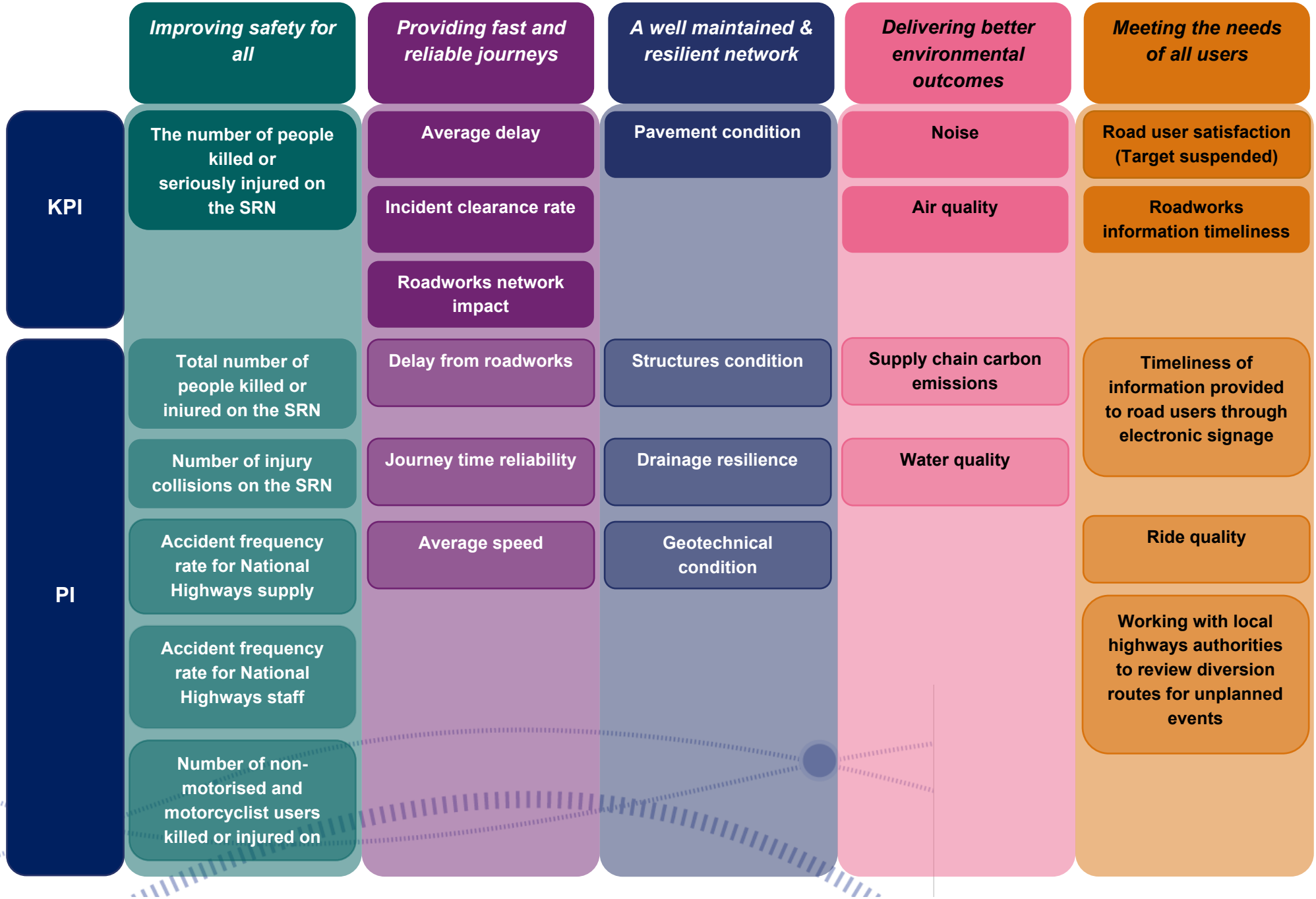
| M 2019 | M 2020 | M 2021 | E 2019 | E 2020 | E 2021 |
|---|---|---|---|---|---|
| 20.0 | 14.9 | 17.4 | 10.3 | 8.1 | 8.9 |

| SW 2019 | SW 2020 | SW 2021 | SE 2019 | SE 2020 | SE 2021 |
|---|---|---|---|---|---|
| 9.8 | 7.2 | 8.5 | 14.8 | 10.6 | 12.2 |

### DBFO sections

| 2019 | 2020 | 2021 |
|---|---|---|
| 18.6 | 14.1 | 15.8 |

**Figure 1.3 Regional performance indicators included in this report for 2021-22**



## Table 1.1 Regional performance overview 2021-22

| Region | *Improving safety for all* | | *Providing fast and reliable journeys* | | | | | | *A well maintained & resilient network* | | *Delivering better environmental outcomes* | | | | *Meeting the needs of all road users* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of people killed or injured (PI) | | Average delay (KPI) | | Incident clearance rate (KPI) | | Roadworks Network Impact (KPI) | | Pavement condition (KPI) | | Noise (KPI) | | Air quality (KPI) | | Roadworks information (KPI) | |
| | % reduction on 2005-09 baseline | | seconds per vehicle per mile | | % of incidents cleared within 1 hour | | lane-metres-days impacted by roadworks (mil.) | | % of network | | number of mitigation | | number of exceeding links | | % accuracy | |
| | 2020 | Rank | 21-22 | Rank | 21-22 | Rank | 21-22 | Rank | 21-22 | Rank | 21-22 | Rank | 21-22 | Rank | 21-22 | Rank |
| **Yorkshire and North East** | 61% | 1 | 8.3 | 3 | 86.4% | 5 | 5.8 | 2 | 96.0% | 4 | 311 | 2 | 7 | 3 | 62.1% | 6 |
| **North West** | 40% | 4 | 8.8 | 4 | 86.3% | 6 | 6.9 | 3 | 96.4% | 2 | 1 | 3 | 2 | 5 | 66.7% | 4 |
| **Midlands** | 56% | 2 | 9.2 | 5 | 87.7% | 1 | 9.5 | 4 | 94.3% | 5 | 0 | 4 | 11 | 1 | 73.8% | 1 |
| **East** | 39% | 5 | 8.1 | 2 | 86.9% | 4 | 6.9 | 3 | 93.2% | 6 | 0 | 4 | 0 | 6 | 72.1% | 3 |
| **South East** | 34% | 6 | 9.8 | 6 | 87.4% | 2 | 10.3 | 5 | 96.4% | 2 | 755 | 1 | 8 | 2 | 63.4% | 5 |
| **South West** | 41% | 3 | 7.2 | 1 | 87.7% | 1 | 3.3 | 1 | 97.3% | 1 | 0 | 4 | 3 | 4 | 73.7% | 2 |
| **National Highways** | 45% | | **8.8** | | **87.1%** | | **42.7** | | **95.5%** | | **1067** | | **31** | | **68.1%** | |

# 2. Improving safety for all

## Key findings

- For the SRN as a whole, the number of people killed or seriously injured (KSIs) fell by 34% between 2019 and 2020. Regionally, the reduction in KSIs ranged from 24% in the South East and 61% in Yorkshire and the North East.
- The North West region had the highest accident frequency rates for National Highways staff and for supply chain staff.
- The South East region had the highest number of non-motorised and motorcyclist users killed or injured on the SRN in 2020.

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

**Measure: Number of KSI casualties** **Target:** 50% reduction by 2025 (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

2.1 The **number of people killed or seriously injured** (KSI) is the single KPI under the 'Improving safety for all' outcome.

2.2 By the end of 2025, National Highways must achieve a 50% reduction in KSIs compared with a baseline of the annual average from 2005 to 2009. For our latest national-level road safety analysis refer to our annual assessment of safety performance on the strategic road network.

2.3 For the SRN as a whole, trends in KSIs are 'adjusted' by the Department for Transport to take account of differences in the way police forces across the country record serious injuries (See Guide to severity adjustments for reported road casualties Great Britain). This adjustment has not been performed at a regional level. 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. For the SRN as a whole, 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').

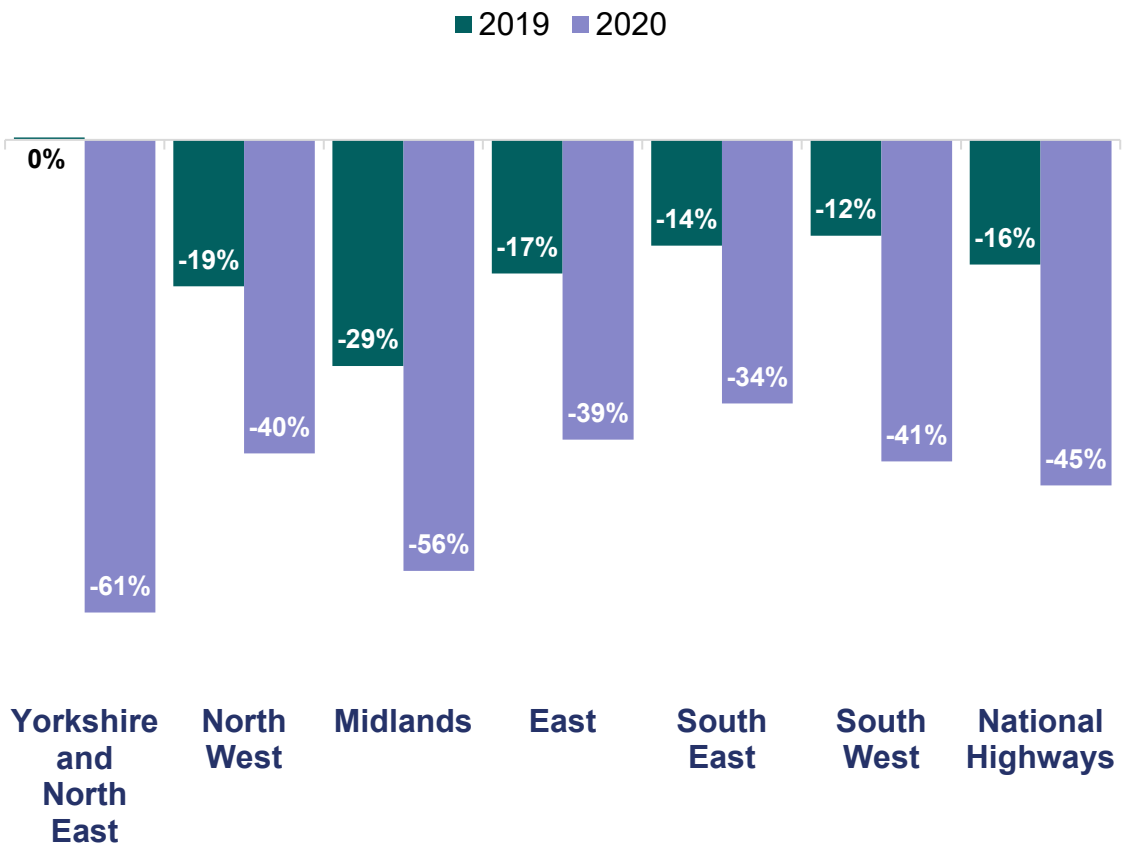
2.4 National Highways' regions each face different challenges when trying to reduce casualties. Each region has a different mix of road types, traffic patterns, geography, weather conditions and demography. Some factors that influence casualty rates – such as vehicle technology and driver behaviour – are less within the company's direct control.

2.5 In contrast to the indicators given elsewhere in this report, the data includes injury collisions and casualties that occurred on roads operated under DBFO arrangements and therefore not operated directly by National Highways.

2.6 Regional data is available for 2020. The 2020 KSI values are considerably lower than those for 2019. This reflects reduced exposure to risk arising from significantly reduced traffic flow during the pandemic.

2.7 Figure 2.1 shows the reduction in KSIs (unadjusted) achieved by National Highways' regions in 2019 and 2020 against the 2005-09 baseline. A wide variation is observed across the regions. For example, in the Yorkshire and North East region, KSIs were 61% lower than the baseline, but in the South East the reduction was 34%.

**Figure 2.1 Number of KSIs in 2019 and 2020 (unadjusted for differences in recording practices): % reduction on 2005-09 baseline**




2.8 Table 2.1 isolates the percentage change in KSIs that occurred between 2019 and 2020. For the SRN as a whole, KSIs (unadjusted) fell by 34%. Regionally, the reduction in KSIs ranged from 24% in the South East and 61% in Yorkshire and the North East.

**Table 2.1 Number of KSIs in 2019 and 2020 (unadjusted for differences in police recording practices)**

| | Yorkshire and North East | North West | Midlands | East | South East | South West | National Highways |
|---|---|---|---|---|---|---|---|
| **2019** | 323 | 215 | 349 | 325 | 540 | 196 | 1,948 |
| **2020** | 126 | 158 | 219 | 241 | 413 | 131 | 1,288 |
| **% Change** | -61% | -27% | -37% | -26% | -24% | -33% | -34% |

## Performance Indicators

2.9 Regional data is available for the following five PIs for this outcome:

- total number of people killed or injured on the SRN;
- number of injury collisions;
- the number of non-motorised and motorcyclist users killed or seriously injured;
- accident frequency rate for National Highways' staff; and
- accident frequency rate for National Highways' supply chain staff.

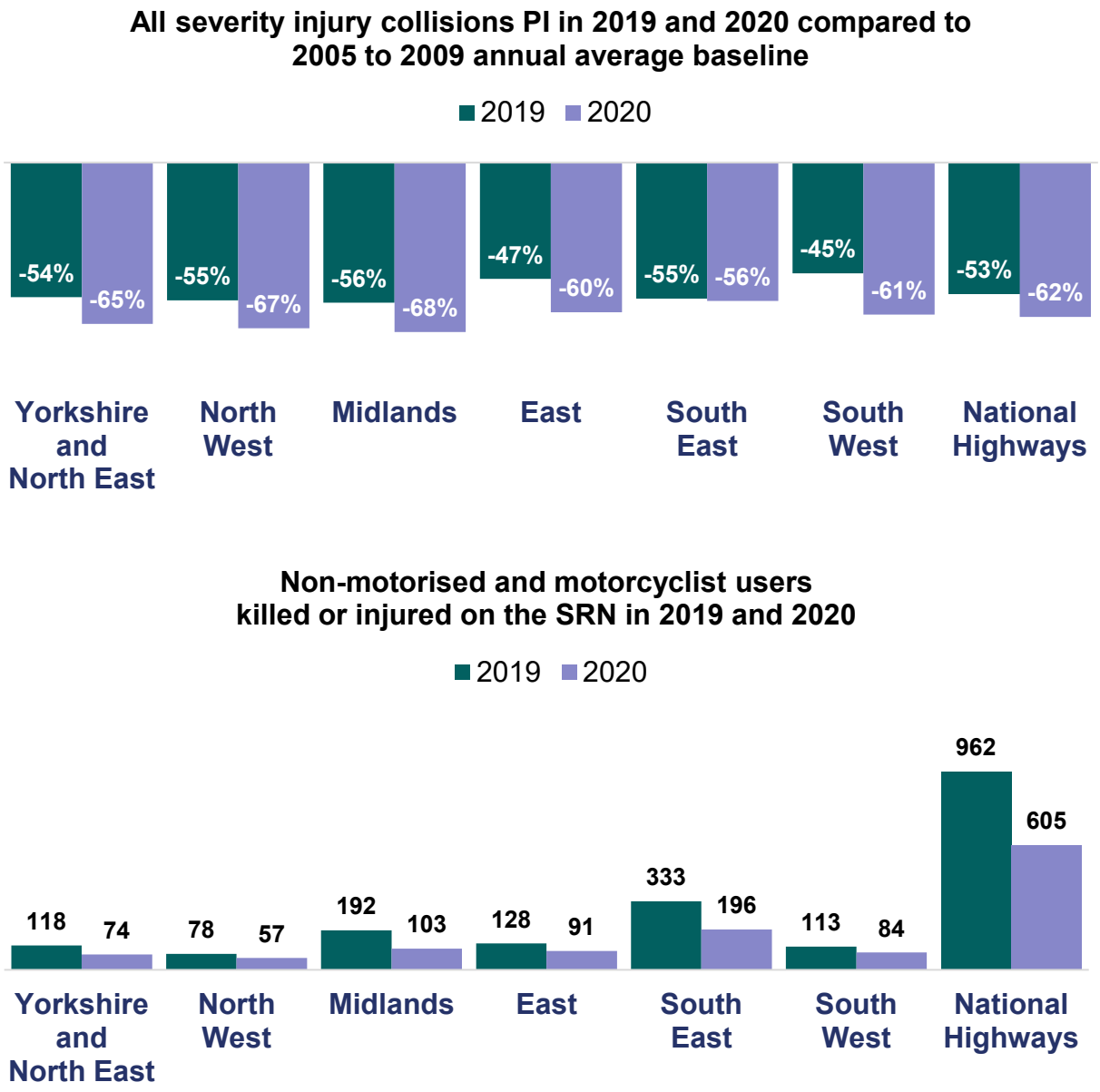
2.10 Data for the **total number of people killed or injured on the SRN**, shown in Figure 2.2, is not affected by differences in police recording practices. The reductions in casualties in 2020, compared to the 2005-09 annual average baseline, are generally more consistent across the regions, although substantial differences remain. They range from between a reduction of 57% in the South East to 70% in the Midlands.

**Figure 2.2 Number of people killed or injured in 2019 and 2020: % reduction on the 2005 to 2009 baseline (PI)**

2.11 **Injury collisions** in 2020, shown in figure 2.3, fell the most in the Midlands, North West, and Yorkshire and North East regions compared to the 2005-09 annual average baseline. The smallest reduction, of 55%, was in the East region.

2.12 The South East region had the highest number of **non-motorised and motorcyclist users killed or injured** on the SRN in 2020, but it also had the largest absolute reduction compared to 2019.

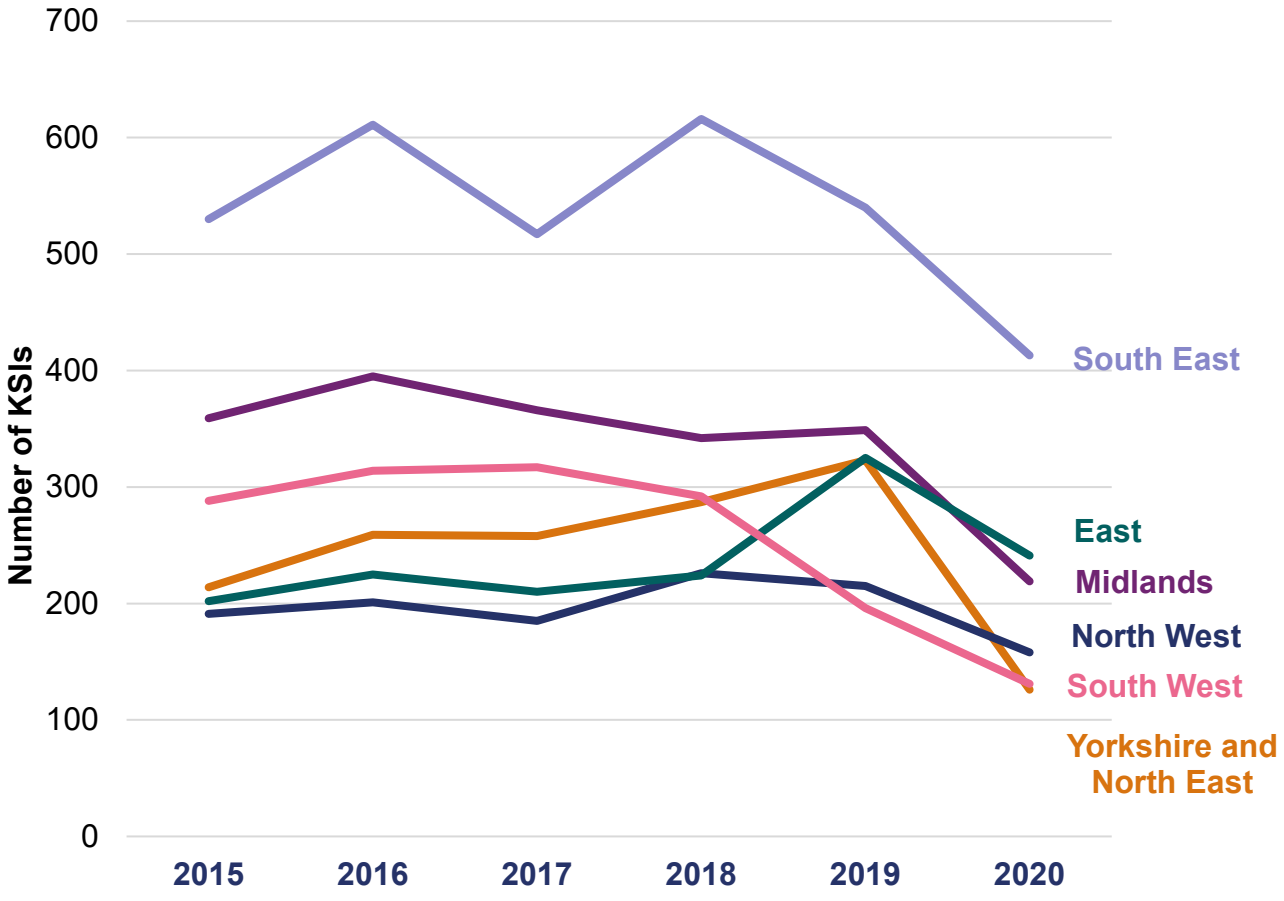
**Figure 2.3 Performance indicators - road user safety**



## Comparing the number of KSIs and KSI rates by region

The significant reduction in traffic on the SRN in 2020 led to a substantial fall in the number of KSIs compared to 2019. Up to 2019, shown in the graph below, the South West had experienced a downward trend in the number of KSIs. In the South East, North West and Midlands the number of KSIs had been relatively stable. Conversely, in the East, and Yorkshire and North East regions the trend in KSI numbers had been an upwards one.

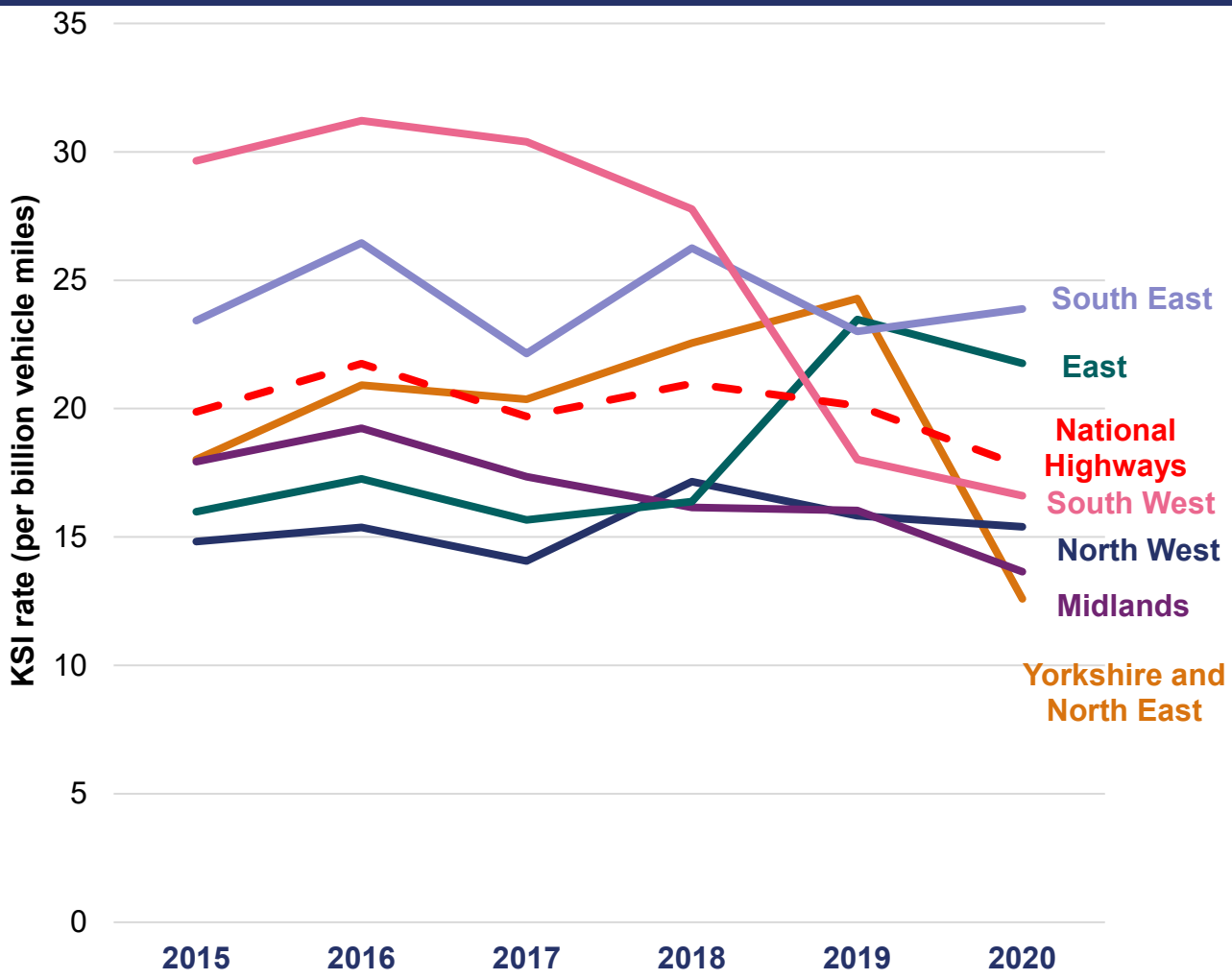
Number of KSIs, by region, between 2015 and 2020 (unadjusted for differences in recording practices)




Comparing KSI rates, adjusting for different levels of traffic, can give a clearer view of underlying trends in safety. In 2020, Yorkshire and North East had the lowest KSI rate and the South East had the highest KSI rate. Yorkshire and North East had the largest fall in KSI rates in 2020 compared to 2019, but prior to this had an upward trajectory. The East

had experienced an increase in KSI rates in 2019 and 2020 compared to previous years. The South West had shown the most consistent fall in KSI rates.

KSI rates, by region, between 2015 and 2020 (unadjusted for differences in recording practices)

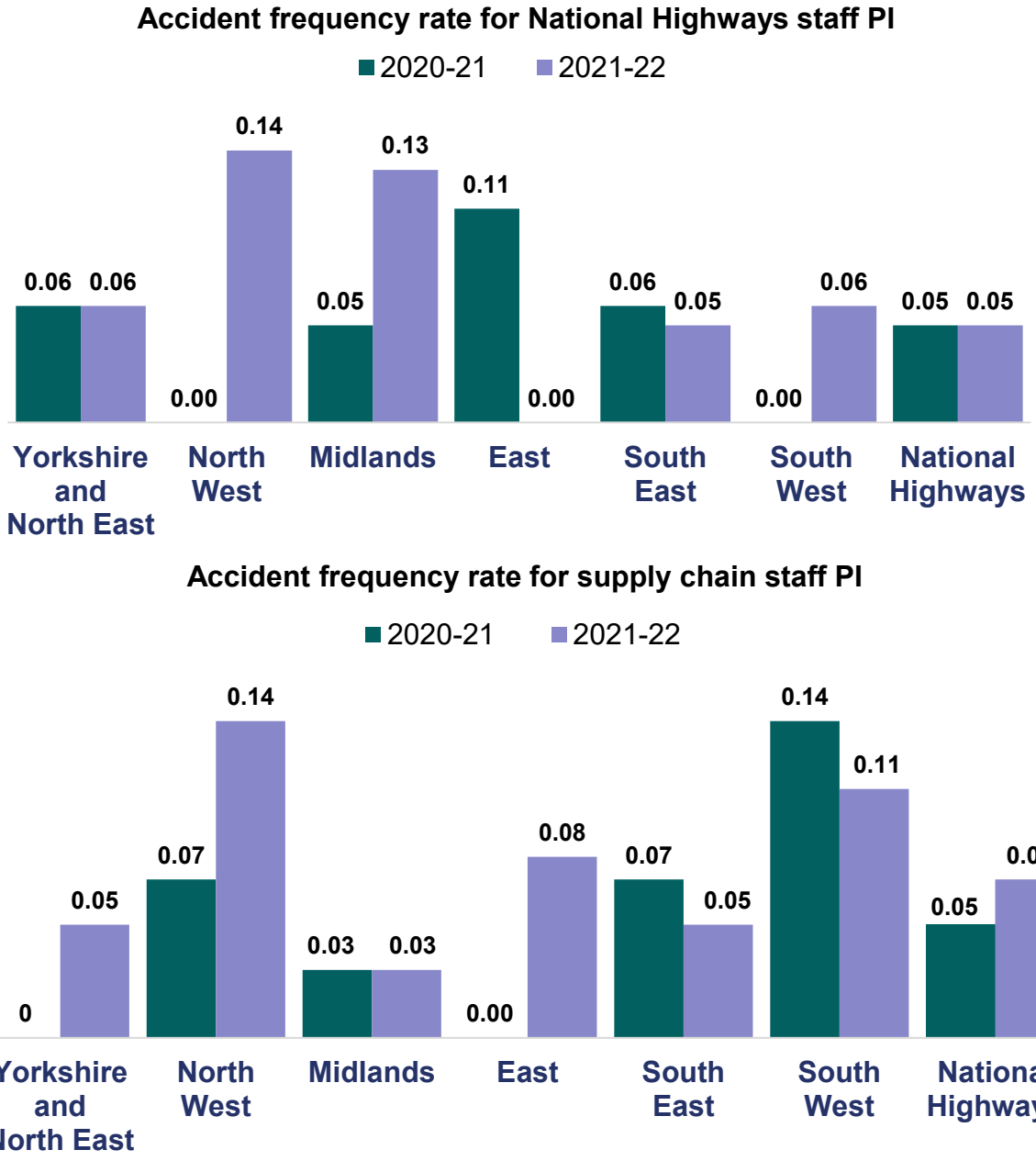



2.13 Accident frequency rates, shown in figure 2.4, are used to monitor performance in relation to the safety of National Highways' workforce. The accident frequency rates are based on Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) incidents and are expressed as a function of hours worked.

2.14 In 2021-22, the **accident frequency rate for National Highways' operational staff** was 0.05 incidents per 100,000 hours worked. The **accident frequency rate for National Highways' supply chain staff** was 0.07 incidents per 100,000 hours worked. At a regional level, in any given year, a relatively small number of

incidents can show up as large differences in the accident frequency rate. However, if tracked over a longer period, patterns may emerge that provide insights into safety performance at a regional level. Figure 2.3 shows that the North West and Midlands regions had the highest accident frequency rate for National Highways staff, double the rate of the other regions. The regional accident frequency rate for supply chain staff is more varied. The North West had the highest accident frequency rate for supply chain staff, followed by the South West. The Midlands had the lowest.

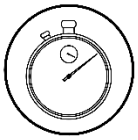
**Figure 2.4 Performance indicators – improving safety for those working on the SRN**



# 3. Providing fast and reliable journeys

## Key findings

- All regions experienced an increase in average delay as traffic levels recovered. However, in general, delays remain lower than pre-pandemic levels. The North West suffered the largest increases in both average delay and delays due to roadworks.
- All regions exceeded the national-level target for incident clearance. However, performance against this measure fell slightly in all regions between 2020-21 and 2021-22.
- As the most heavily trafficked region, the South East continues to stand out as experiencing the highest levels of delays and the least reliable journey times.



| **Key Performance Indicator**: Average delay | |
|---|---|
| **Measure**: Seconds per vehicle mile | **Ambition**: No worse than February 2020 (9.5 seconds) |

| **Key Performance Indicator**: Incident clearance | |
|---|---|
| **Measure**: % cleared in less than 1 hour | **Target:** 86% of motorway incidents cleared within 1 hour |

| **Key Performance Indicator**: Roadworks Network Impact | |
|---|---|
| **Measure**: lane-metre-days impacted by roadworks per month | **Target**: Not exceed a monthly average of 43 million weighted lane-metre days in 2021-22 |

**Performance Indicators**

Journey time reliability


Delay from roadworks

Average speed

## Key Performance Indicators

3.1 Three KPIs are reported at a regional level under outcome 2: providing fast and reliable journeys:

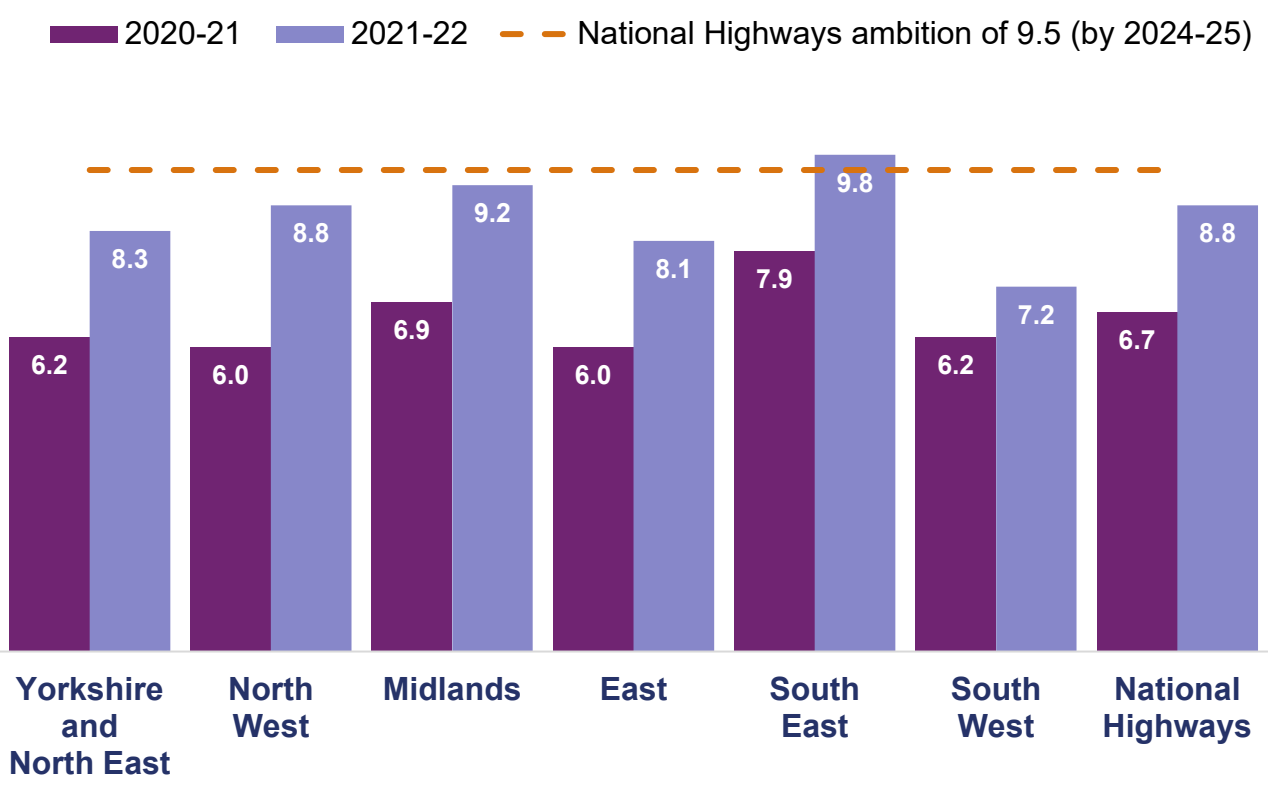
- average delay – the difference between the travel time whilst moving at the speed limit and the actual travel time;
- incident clearance – the percentage of incidents on the motorway that are cleared in less than one hour; and
- roadworks network impact – the level of roadwork activity that impacts traffic flow on the network in weighted lane-metre days.

3.2 In previous reports, we showed how differences in **average delay** are strongly influenced by the amount of traffic on the network. During the pandemic, lower traffic levels meant lower average delay across all of National Highways' regions. As traffic levels have started to recover, delays have increased. In 2021-22, average delay was higher than in 2020-21 but remain lower than pre-pandemic levels.

3.3 At a national level, average delay increased from 6.7 seconds per vehicle mile to 8.8 seconds per vehicle mile. If traffic levels continue to rise during 2022-23 a further increase in average delay is likely.

3.4 The North West experienced the largest increase in average delay, rising from 6.0 seconds to 8.8 seconds per vehicle mile. The South East continues to experience the highest level of traffic density (vehicle miles per lane mile) compared to other regions. Consequently, in 2021-22, users in the South East experienced an average delay of 9.8 seconds per vehicle mile, around a second higher than the national average.

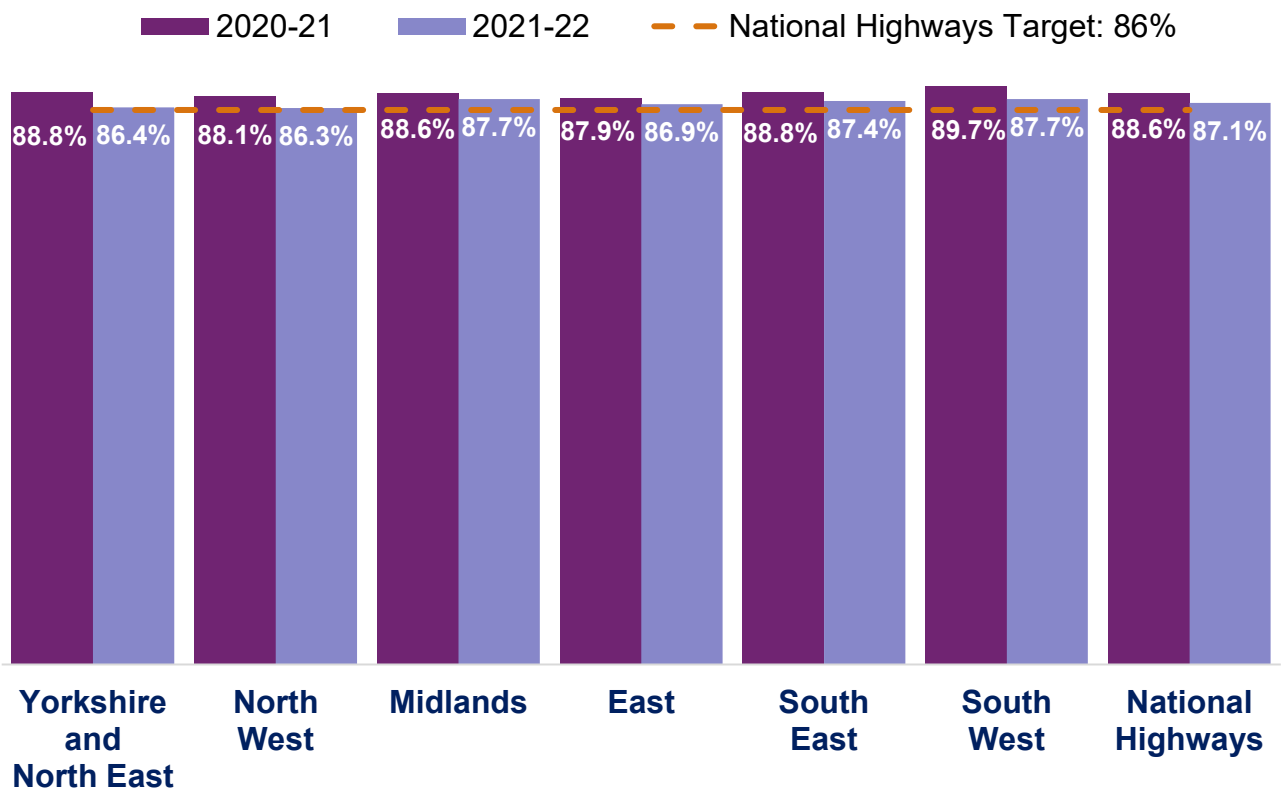
**Figure 3.1 Average delay KPI: Seconds of delay per mile travelled**




3.5 In all regions, the proportion of **incidents cleared within one hour** fell between 2020-21 and 2021-22. As we reported in our Annual Assessment, the increase in traffic following the easing of COVID-19 restrictions resulted in a higher volume of incidents, with a knock-on effect on clearance speeds.

3.6 Notwithstanding the fall in performance, all regions achieved incident clearance rates above the national-level target of 86%. The regions will need to carefully monitor their performance during 2022-23 to ensure that the national-level target continues to be met as traffic levels increase further.

**Figure 3.2 Incident clearance KPI: % of incidents cleared within 1 hour**




3.7 **Roadworks network impact** is a new metric for RP2 that came into effect from April 2021, replacing the network availability KPI. Roadworks network impact indicates the level of roadwork activity on the network. The updated KPI combines the length of roadworks, the amount of time they are in place on the network, the number of lanes affected and the type of traffic management in use to monitor the level of roadwork activity on the SRN that impacts traffic flow.

3.8 The national-level target for the KPI is 43 million weighted lane-metre days in 2021-22. National Highways was successful in limiting weighted lane-metre days to 42.7 million in 2021-22.

3.9 At a national level there was a slight increase in the roadworks impact measures between 2020-21 and 2021-22. This increase can be attributed to there being more enhancement schemes in construction during 2021-22.

3.10 The South East spent the most on capital expenditure. This activity might explain why roadworks network impact was higher in the region. Similarly, capital expenditure in the South West was lower than other regions and it experienced the lowest level of roadworks network impact.

**Figure 3.3 Roadworks network impact KPI: weighted lane-metre days (millions)**


## Performance Indicators

3.11 The company provides regional data for the following three PIs for this outcome:

- journey time reliability – measured as the average difference between observed travel times and typical travel times;
- average speed – measures the average speed of vehicles travelling on the SRN; and
- delays from roadworks – measures the additional journey time during roadworks.

3.12 Journey time reliability compares the observed travel time with the typical travel time. It measures the amount of non-recurrent, or unexpected, delay on a link. At a national level, as traffic levels recovered following the pandemic, **journey time reliability** worsened from 1.9 seconds of unexpected delay per mile travelled in 2020-21 to 2.8 seconds per mile travelled in 2021-22.

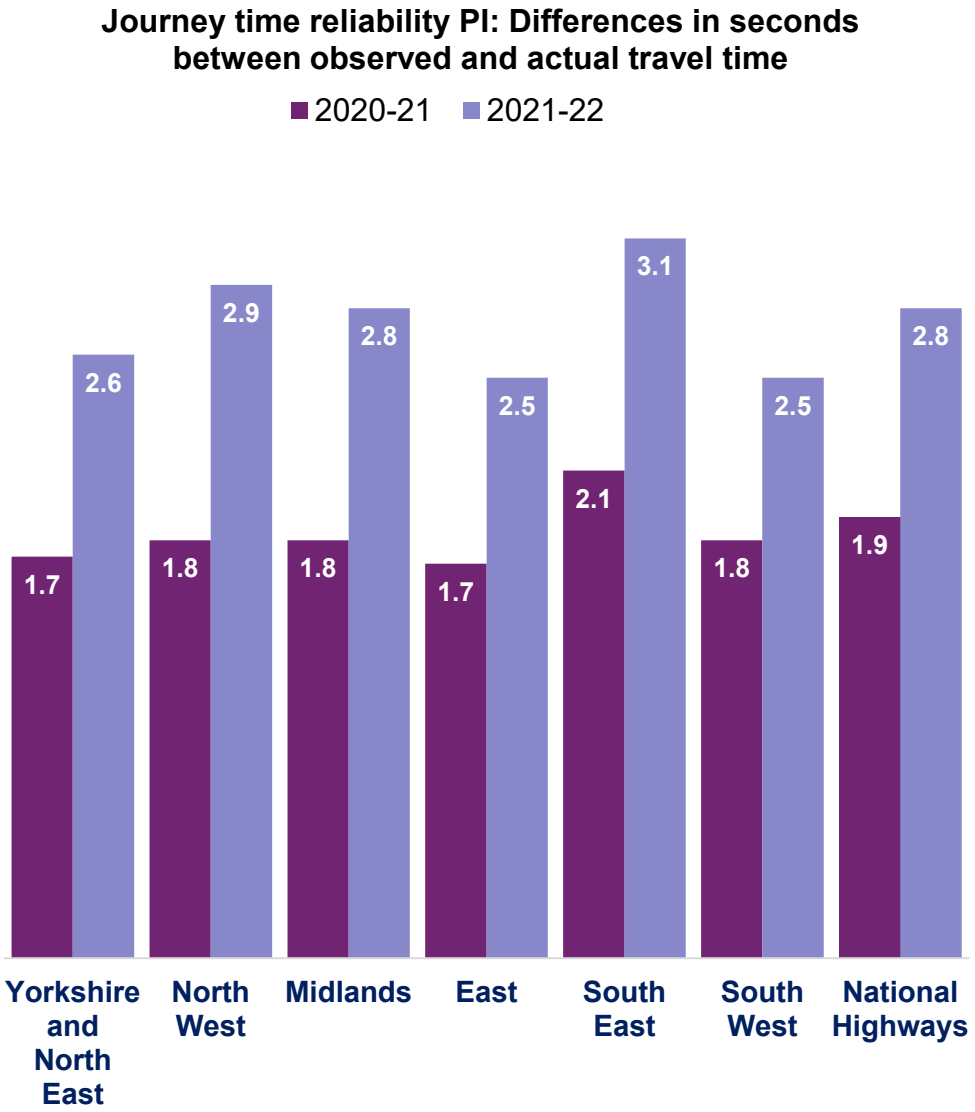
3.13 The South East experienced both the highest levels of average delay and the poorest journey time reliability. This is linked to the density of traffic on the network in this region – more congested roads leads to both higher average delays and less predictable journey times.

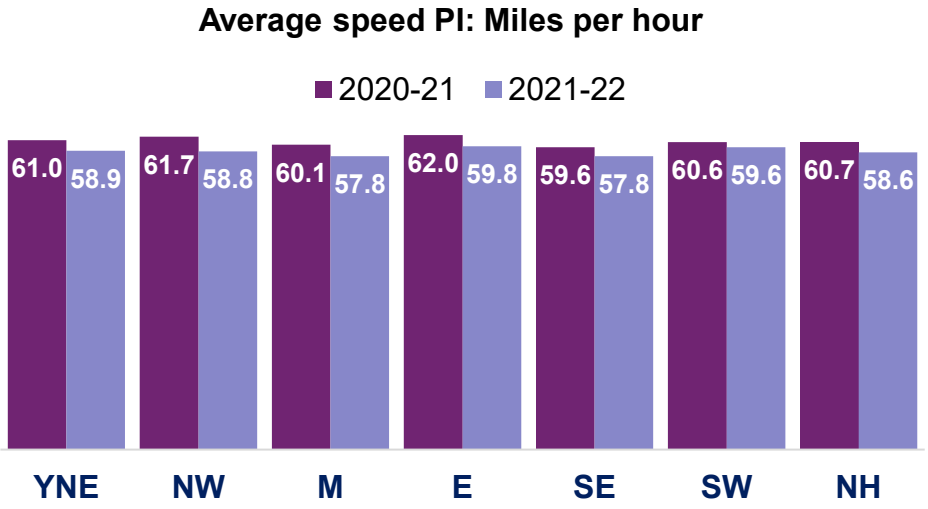
3.14 Nationally, **average speed** on the SRN slowed by 2.1 miles per hour, falling from 60.7 miles per hour in 2020-21 to 58.6 miles per hour in 2021-22. Average speeds fell slightly below pre-pandemic levels. Unchanged from 2020--21, the East had the highest average speeds whilst the South East had the lowest average speeds.

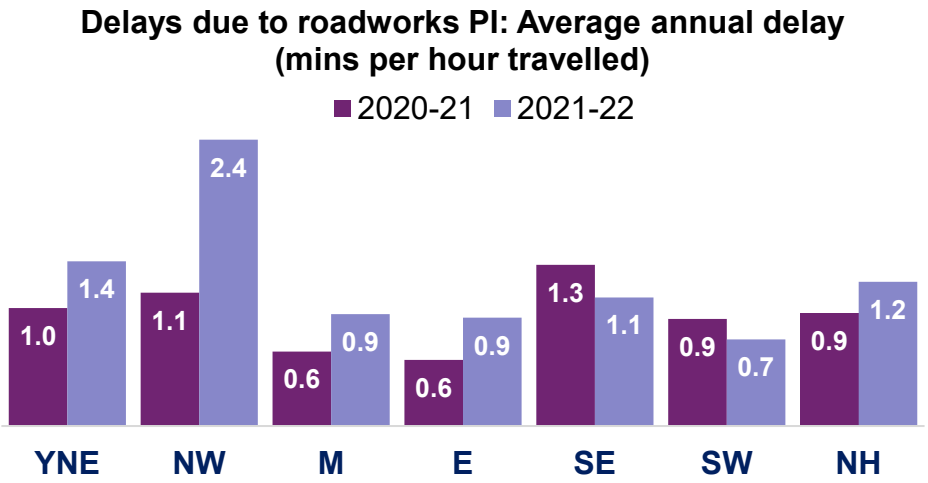
3.15 Across the network as a whole, delays due to road works increased by 0.3 minutes per hour travelled. An increase in delays is likely to be due to a combination of factors including the level of traffic on the network and the level of traffic restrictions due to roadworks. As noted, the roadworks network impact measure also increased between 2020-21 and 2021-22.

3.16 The North West had by far the highest levels of **delays due to roadworks** in 2021-22. Road users in this region experienced a sharp increase in delays, with the figure more than doubling from 1.1 minutes per hour travelled to 2.4 minutes per hour travelled. This level of increase suggest that higher traffic levels only partially explain the increase in delays in the North West.

**Figure 3.4 Figure Performance indicators – fast and reliable journeys**



# 4. A well maintained and resilient network

## Key findings

- Pavement condition remained stable between 2020-21 and 2021-22.
- The East has consistently performed below the national-level target for pavement condition but showed an improvement in 2021-22.
- Across National Highways' regions, the percentage of the network that does not have an observed susceptibility to flooding in 2021-22 was lower than in 2020-21.

**Key Performance Indicator**: Pavement condition

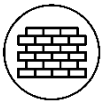
**Measure**: % of pavement asset that does not require further investigation for possible maintenance

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

**Performance Indicators**

Structures condition

Drainage resilience



Geotechnical condition

## Key Performance Indicators

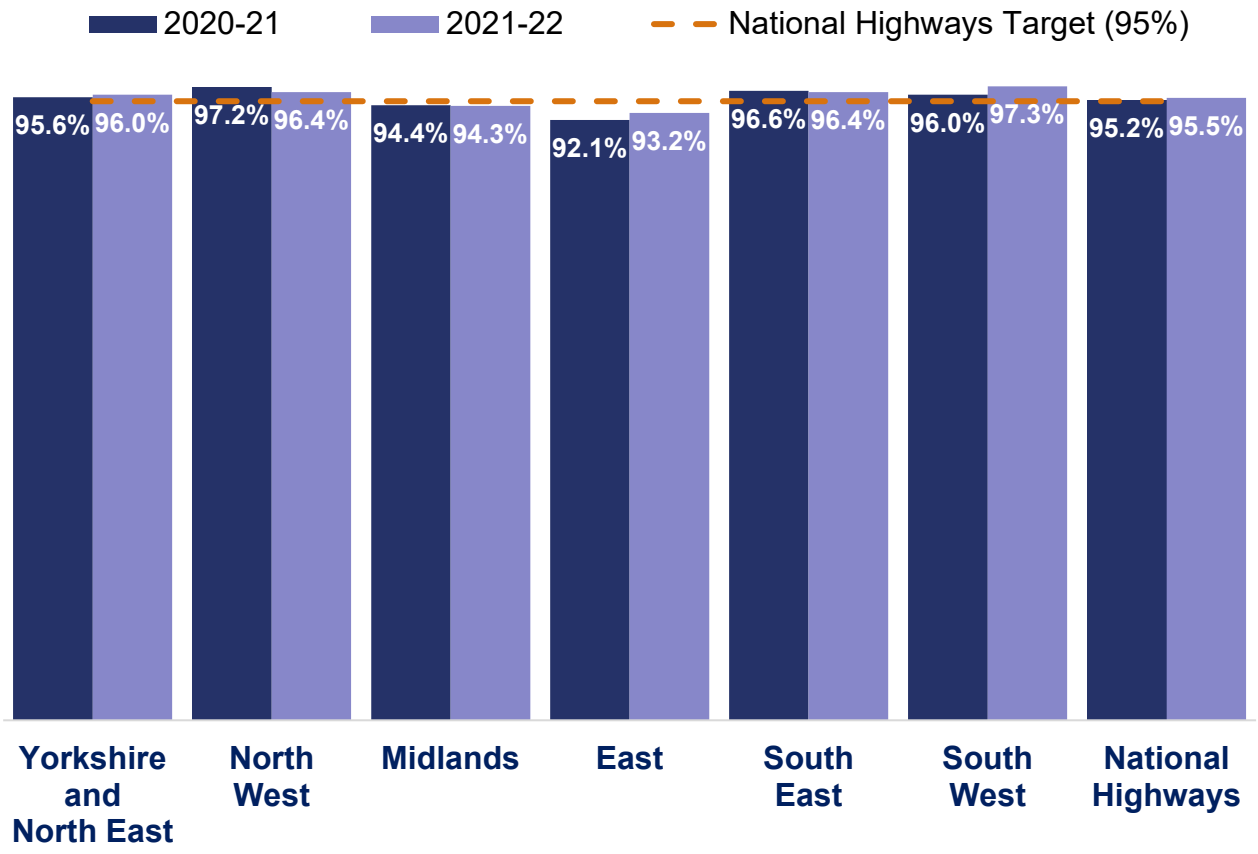
4.1 The outcome area 'a well maintained and resilient network' is measured by a single KPI: **pavement condition**. Transport Focus' research undertaken in 2021, reports that SRN users identified the quality of road surfaces as the highest priority area for improvement.

4.2 National Highways continued to meet its target of ensuring that 95% of the network does not require further investigation for maintenance. National performance increased from 95.2% in 2020-21 to 95.5% in 2021-22.

4.3 Most of National Highways' regions are performing at or above the national-level target. The exceptions are the Midlands and the East which are 0.7% and 1.8% below the national-level target, respectively. As we highlighted in last year's report, the stock of ageing concrete roads in these regions is likely to be a contributory factor, as is the relatively high proportion of A-roads (which tend to exhibit lower pavement condition scores than motorways).

4.4 In the first two years of RP2, the KPI only monitored the nearside (left-hand) lane. In April 2022, National Highways updated the pavement condition KPI. Under the updated metric, all lanes with traffic are considered as opposed to just the single nearside lane.

**Figure 4.1 Pavement condition KPI: % of the SRN not requiring further investigation for maintenance**




## Performance Indicators

4.5 The regional indicators, shown in figure 4.2, for this outcome in 2021-22 are:

- structures condition – measured as an average condition score and a critical condition score;
- drainage resilience – measures the percentage length of carriageway that does not have an observed significant susceptibility to flooding; and
- geotechnical asset condition – percentage length of the geotechnical asset that is in good condition.

4.6 For **structures condition**, scores are based on the proportion of structures that are rated as 'good' in the opinion of an inspector. For the **average structures condition** measure, performance is relatively stable over time. The **critical condition** measure is based on the condition of the asset's most critical

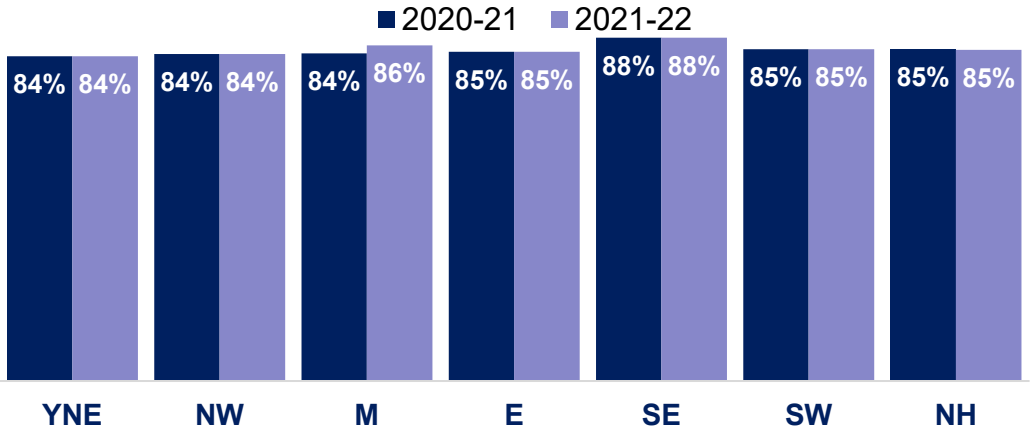
elements. On this measure, performance varies across the regions. For a second consecutive year the South East has the lowest critical condition score.

4.7 Similarly, **geotechnical condition** shows relative stability between the first two years of RP2, both regionally and nationally.

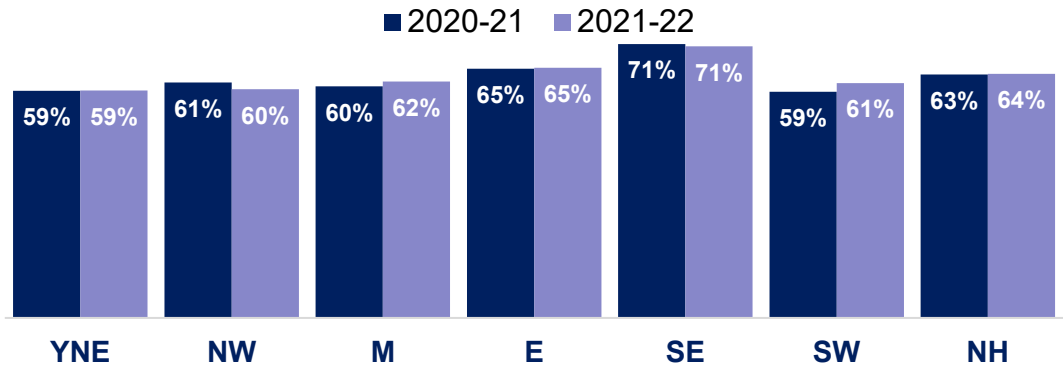
4.8 The East continues to outperform other regions in relation to the **drainage resilience** metric, with a score of 82%. The network in the Midlands shows the worst capability to move or store surface water run-off, with a score of 67%. Differences in scores are likely to be due to a combination of topographic and climatic factors, and are not necessarily a reflection of the quality of maintenance. For example, the East's drier climate may be an explanatory factor for its higher performance.

**Figure 4.2 Performance indicators – a well maintained and resilient network**

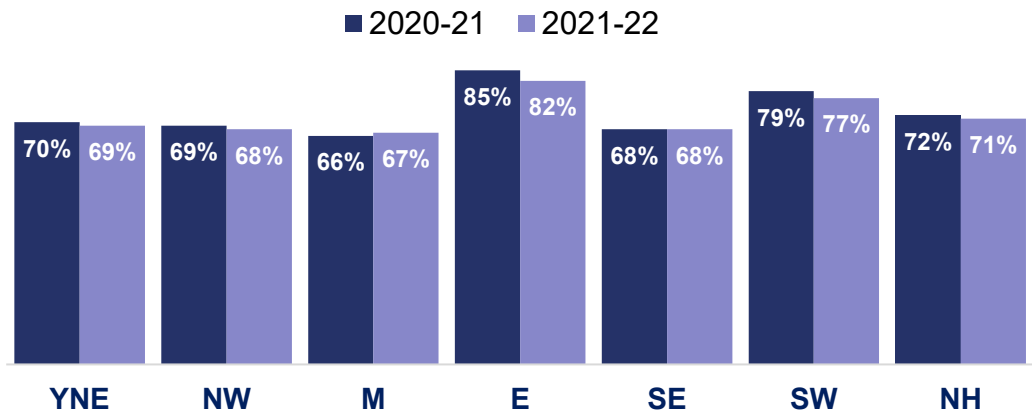
**Average structures condition PI: Condition of structures across the SRN**



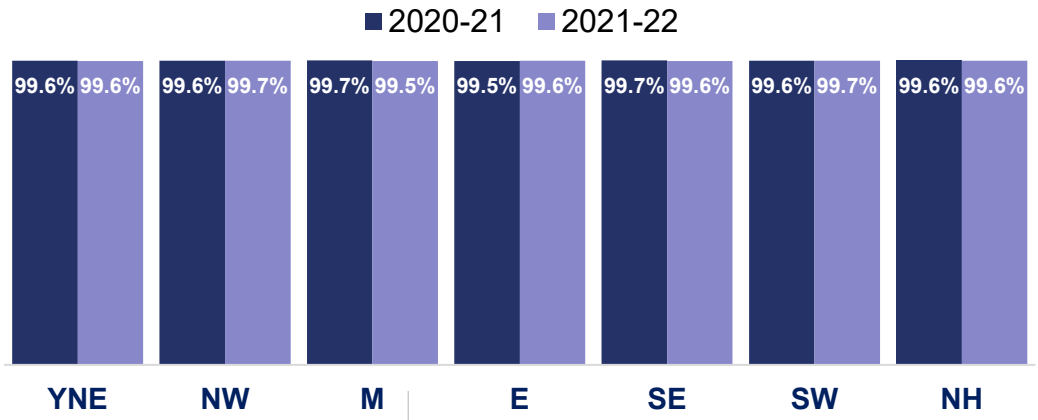

**Critical structures condition PI: condition based on the lowest condition score of structural elements deemed as critical**




**Drainage resilience PI: % length of carriageway without an observed significant susceptibility to flooding**



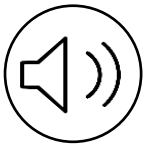

**Geotechnical condition PI: % length of the geotechnical asset that is in good condition**



# 5. Delivering better environmental outcomes

## Key findings

- At the current rate of delivery National Highways is on track to meet its RP2 target of 7,500 households, in noise important areas, benefiting from mitigation measures.
- Over 750 households in noise important areas benefited from mitigation in the South East alone for 2021-22. This accounts for 71% of all noise mitigation undertaken in 2021-22.
- National Highways reduced its supply chain carbon emissions by 79,115 tonnes of CO2 equivalent in 2021-22. For the first time National Highways has provided a regional break down of supply chain carbon emissions. We will continue to monitor this throughout the road period.



**Key Performance Indicator**: Noise

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

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

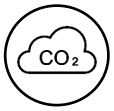
**Key Performance Indicator**: Air quality

**Measure**: Number of SRN links above the legal nitrogen dioxide (NO2) limits

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

**Performance Indicators**

Water quality




Supply chain carbon emissions

## Key Performance Indicators

5.1 Two KPIs are reported at a regional level for 'Delivering better environmental outcomes':

- noise – this KPI monitors the number of households within Noise Important Areas (NIAs) where noise pollution has been reduced through National Highways' designated fund projects during RP2; and
- air quality – this KPI requires National Highways to deliver air quality mitigation on links identified by the government.

5.2 It should be noted that performance against these KPIs in any given year will provide only a snapshot that will be influenced by the timing of initiatives. It will be more instructive to review progress made by each region over RP2 as a whole.

5.3 In 2021-22, National Highways mitigated noise pollution for 1,067 households in NIAs. Over the first two years of road period 2 it has delivered mitigation for 3,178 households. National Highways must mitigate noise pollution for a total of 7,500 households, within NIAs, by the end of RP2. So far, the company has delivered 42% of its target in two years. At the current rate, National Highways is on track to meet its RP2 target.

5.4 In 2021-22 the South East provided the greatest amount of mitigation, more than tripling the 2020-21 levels of noise mitigation. The East, for both years of RP2, generated the least mitigation, with only two households mitigated in 2020-21 and 0 in 2021-22. It should be noted that planned mitigations are not spread evenly across the regions. Neither would we expect all regions to deliver mitigating actions in any given year of the road period.

**Figure 5.1 Noise KPI: Number of mitigated households in NIAs**

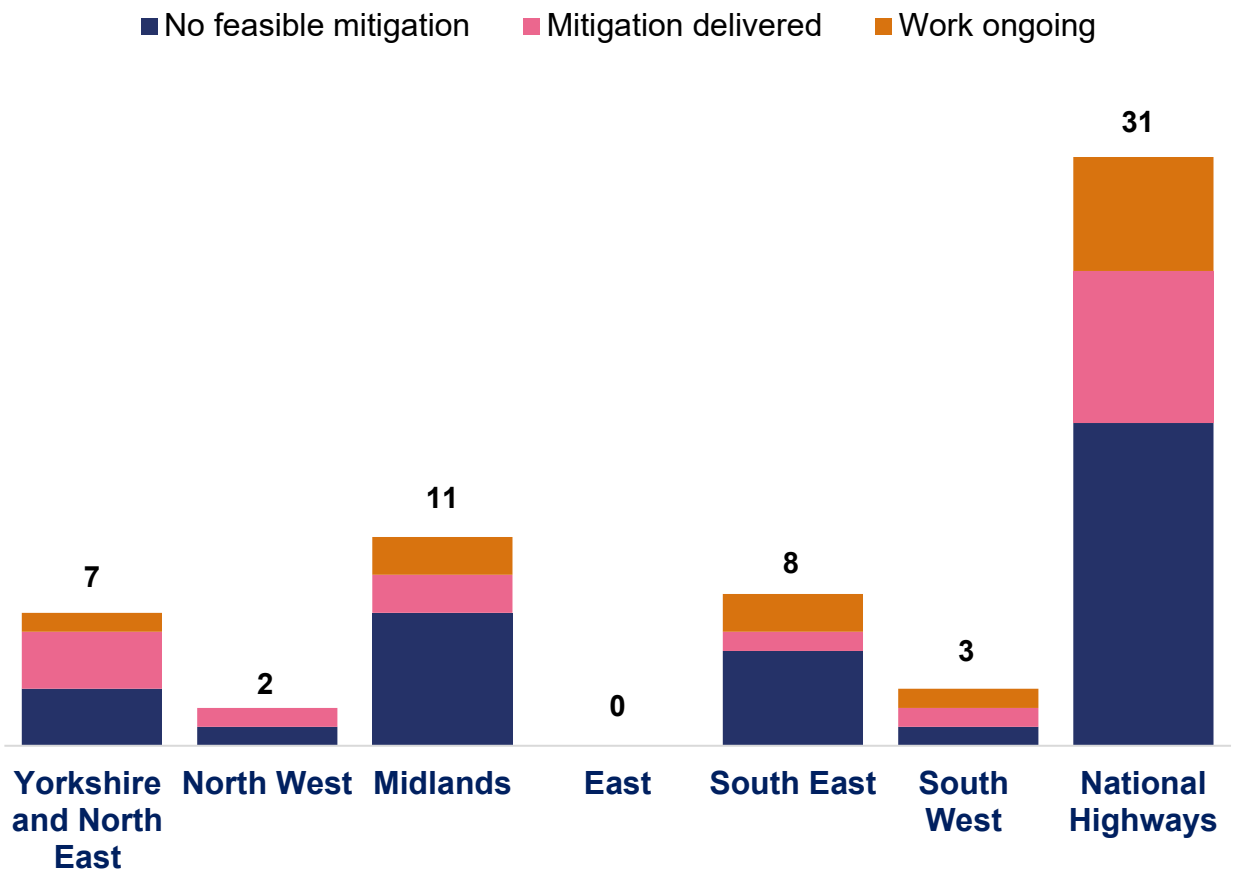

5.5 In respect of **air quality**, National Highways is tasked with bringing into compliance links that are above the legal concentration level for nitrogen dioxide. 'Links' refer to stretches of road between junctions. The company has identified 31 links that are not in compliance and require intervention. These are not spread evenly across the country. There are 11 in the Midlands but none in the East.

5.6 Of the 31 links exceeding the legal nitrogen dioxide (NO2) limits, 17 are considered to have no viable measure (NVM). These are links that cannot be brought into compliance by National Highways exercising the powers it has. Of those 17 links, the Midlands exhibits the largest number of links with no feasible mitigation. However, the North West and the South East exhibit the largest percentage of NVM's with 50% of non-compliant links.

5.7 Of the remaining 14 links that have mitigation plans in process, eight have speed limits implemented, five are undergoing feasibility work, and public access measures are being considered for a further link.

5.8 There was no change in the number of non-compliant links in 2021-22 compared to 2020-21. We will monitor progress in addressing these non--compliant links across National Highways' regions throughout the remainder of RP2.

**Figure 5.2 Air quality KPI: Number of SRN links above the legal nitrogen dioxide ($NO_2$) limits**




## Performance Indicators

5.9 Two PIs report data at a regional level:

- water quality – measures the length of watercourses enhanced through the mitigation of medium, high and very high-risk outflows as well as through other enhancements, for instance river retraining or rewilding; and
- supply chain carbon emissions – measures the carbon footprint associated with National Highways' supply chain.

5.10 In relation to the **water quality** PI, enhancements of watercourses were heavily concentrated in the South West, which accounted for 73% of the total 15km of watercourse enhancement in 2021-22.

**Figure 5.3 Water quality PI: length of watercourse enhanced (PI): Length of watercourses enhanced (km)**


5.11 At a national level, the company reduced its **supply chain carbon emissions** by 79,115 tonnes of $CO_2$ equivalent from 365,353 tonnes to 286,238 tonnes between 2020-21 and 2021-22.

5.12 Regional figures are only available for 2021-22. Operations and projects in the South East generated the largest carbon footprint in 2021-22, with a figure of 99,538 tonnes of $CO_2$ equivalent. The South West produced the lowest level of carbon emissions, producing a total of 16,000 tonnes of $CO_2$ equivalent.

5.13 Regional capital expenditure might reflect general activity levels. Therefore, larger capital expenditure might explain patterns in supply chain carbon emissions. The South East was the region with the highest emissions and the largest capital expenditure in 2021-22. Similarly, the South West had the lowest emissions and also the lowest expenditure.

5.14 We will monitor the speed with which the regions are able to reduce their emissions as the road period progresses.

**Figure 5.4 Supply chain carbon emissions PI: tonnes of $CO_2$ emitted**

# 6. Meeting the needs of all road users

## Key findings

- During 2021-22, there was less regional variation in the timeliness and accuracy with which National Highways provides roadworks information. This was the result of improved performance by the previously lowest ranked regions.
- Levels of road user satisfaction varied from 67% in the Midlands to 72% in the South East.
- The timeliness of information provided to road users through electronic signage shows more variation between the regions in 2021-22 compared to 2020-21.

**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 |
|---|---|

**Key Performance Indicator**: Road user satisfaction

| **Measure**: % of drivers who are satisfied with their journey on the strategic road network | **Target**: Target suspended for 2021-22 |
|---|---|

**Performance Indicators**

Ride quality


Timeliness of information provided to road users through electronic signage

Working with local highways authorities to review diversion routes for unplanned events

## Key Performance Indicators

6.1 Two KPIs are reported at a regional level for 'Meeting the needs of all road users':

- road user satisfaction – user satisfaction with the SRN is measured through surveys undertaken by Transport Focus; and
- the accuracy and timeliness with which National Highways provides roadworks information.

6.2 From April 2020, Transport Focus' Strategic Road User Survey (SRUS) moved to an online data collection from a face-to-face interview. Due to this change in methodology, and the fluctuating pattern and type of traffic during and after the pandemic, the data for 2021-22 is not directly comparable with data from earlier years. As a result, the national-level target for this KPI has been temporarily suspended.

6.3 Levels of **road user satisfaction** were relatively consistent across the regions for 2021-22. They range from 67% of surveyed users in the Midlands, being either very satisfied or fairly satisfied with their journey on the SRN, to 72% in the South West. There appears to be a degree of correlation between levels of user satisfaction and the level of average delay on the regional networks.

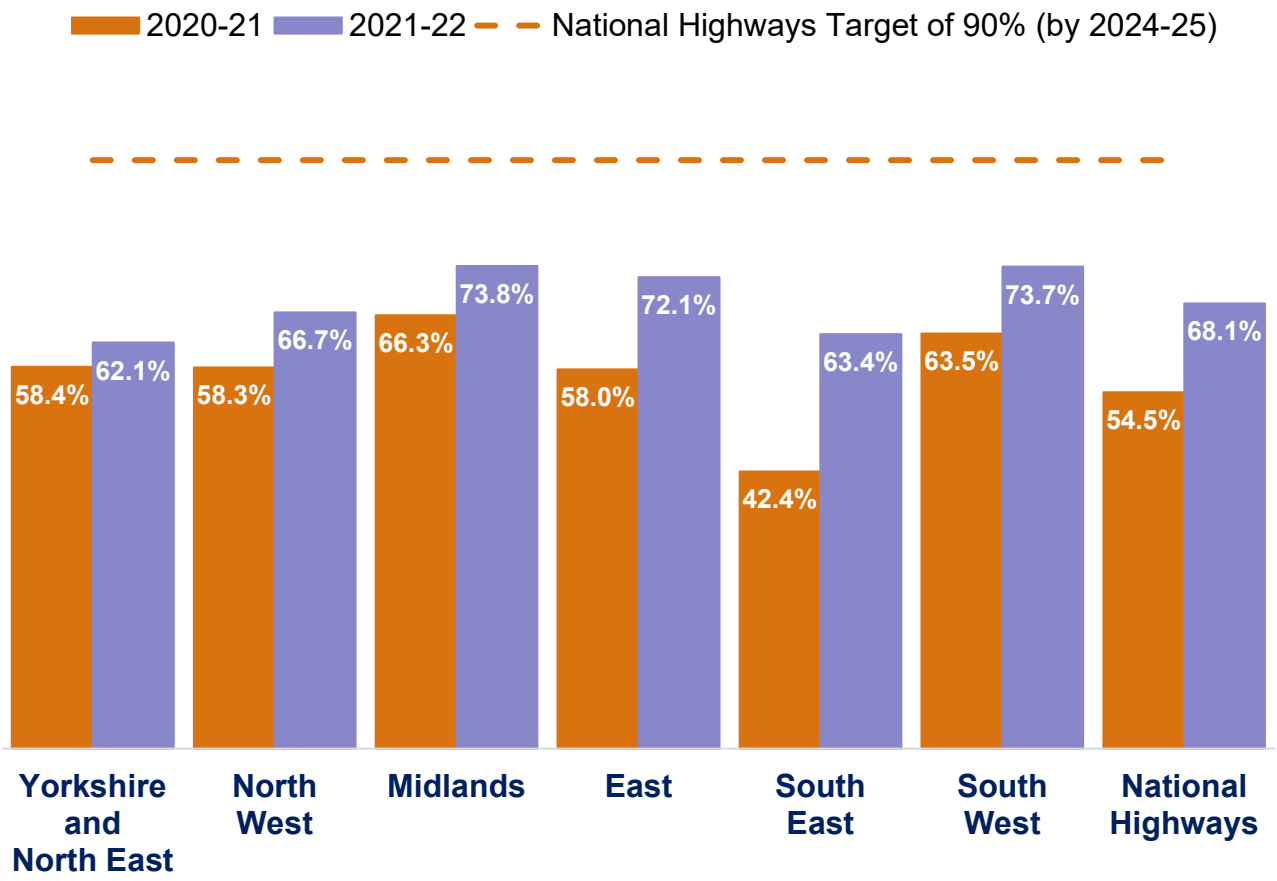
**Figure 6.1 Road user satisfaction KPI: % of road users very satisfied or fairly satisfied with their journey**


6.4 The **accuracy and timeliness with which National Highways provides roadworks information** is measured by the percentage of overnight road closures that are accurately notified by the company, seven days in advance, on its Network Occupancy Management System (NOMS).

6.5 At a national level, National Highways is working towards a target of achieving 90% accuracy by 2024-25. The company has shown steady improvement and the KPI increased from 54.5% in 2020-21 to 68.1% for 2021-22.

6.6 As performance has improved, regional variation has reduced. The previous lowest ranked regions – the South East and East – have significantly improved their performance against this KPI. In absolute terms, the best performing regions continue to be the Midlands and South West at 73.8% and 73.7%, respectively. The South East has shown the largest improvement compared to the previous year. Yorkshire and North East had the lowest performance against this measure in 2021-22 at 62.1%. In order to reach the national-level target by the end of RP2, National Highways will need to continue this pace of improvement.

**Figure 6.2 Roadworks information timeliness and accuracy KPI: % of overnight road closures that are accurately notified**




## Performance Indicators

6.7 The company provides regional data for the following three PIs for this outcome:

- timeliness of information provided to road users through electronic signage – monitors the speed with which National Highways uses electronic signage to alert users of an incident on a motorway; and
- ride quality performance – this indicator is a sub-set of the pavement condition metric discussed under the 'well maintained and resilient' outcome.
- working with local highways authorities to review diversion routes for unplanned events – the percentage of local highways authorities which National Highways engaged with, to review diversion routes for unplanned events.

6.8 The **timeliness of information** provided to road users through electronic signage shows more variation between the regions in 2021-22 compared to

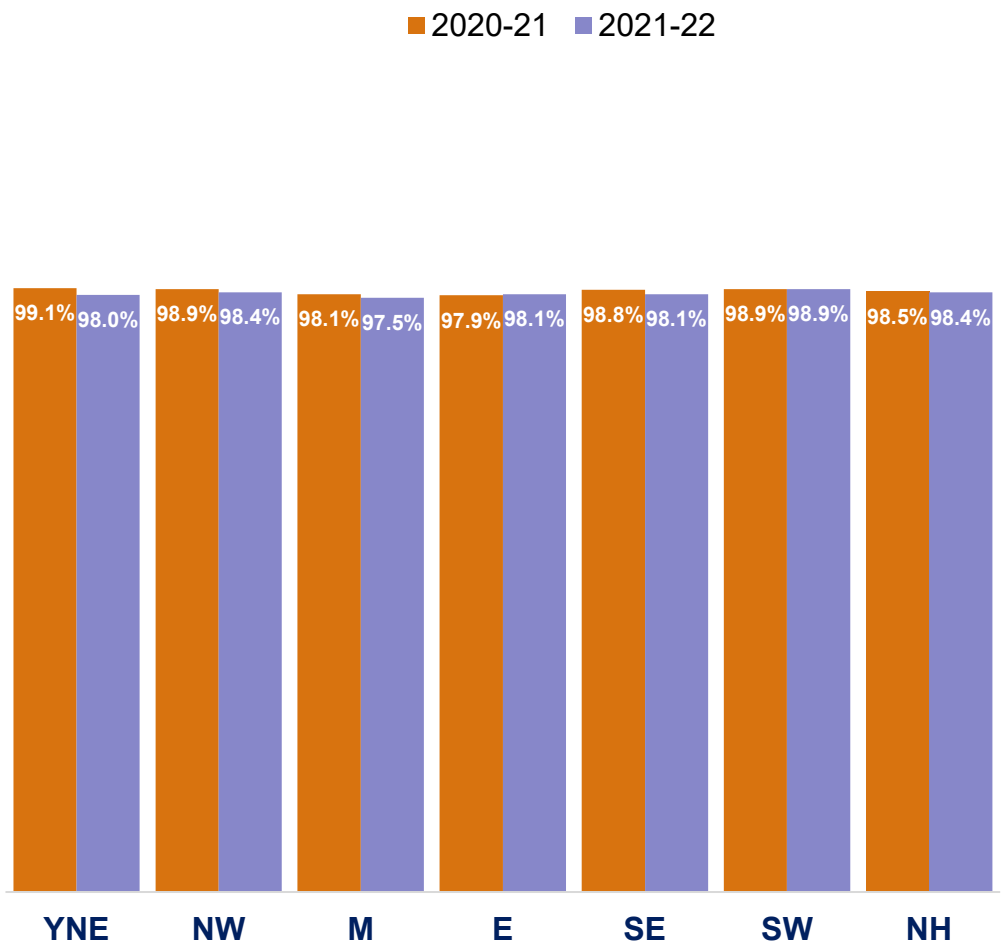
2020-21. The Midlands was the best performing region in 2021-22, taking a median time of one minute and 26 seconds to set motorway signs and signals after receiving notification of an incident. In contrast, Yorkshire and the North East averaged over three minutes. The South West had the largest increase in time, increasing by one minute to two minutes and 43 seconds.

6.9 The **ride quality** performance indicator focuses specifically on those aspects of pavement condition that most affect the ride quality that users experience. The measure fell marginally in five regions and increased slightly in one. Performance is relatively consistent across the regions, ranging from 97.5% in the Midlands to 98.9% in the South West.

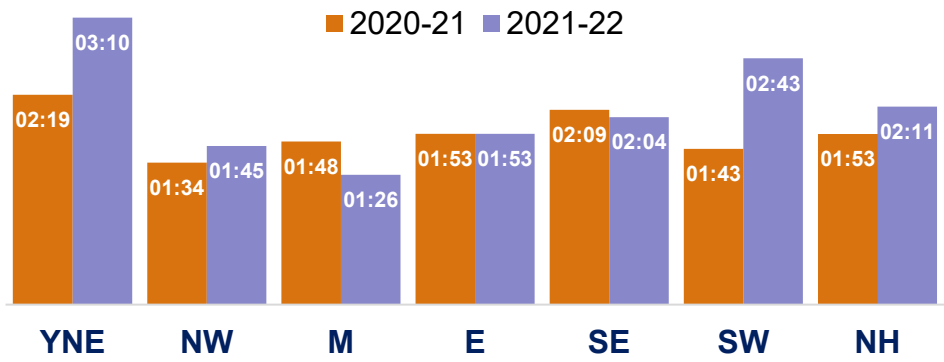
6.10 The **percentage of local highways authorities which National Highways engaged with to review diversion routes** is a new metric for RP2. The reported performance for 2021-22 is 97.2 percent, 44.2 percentage points higher than the previous financial year. National Highways must ensure that there is consistently good engagement with local highways authorities on diversionary routes to ensure smoother travel for road users.

**Figure 6.3 Performance indicators – meeting the needs of all road users**

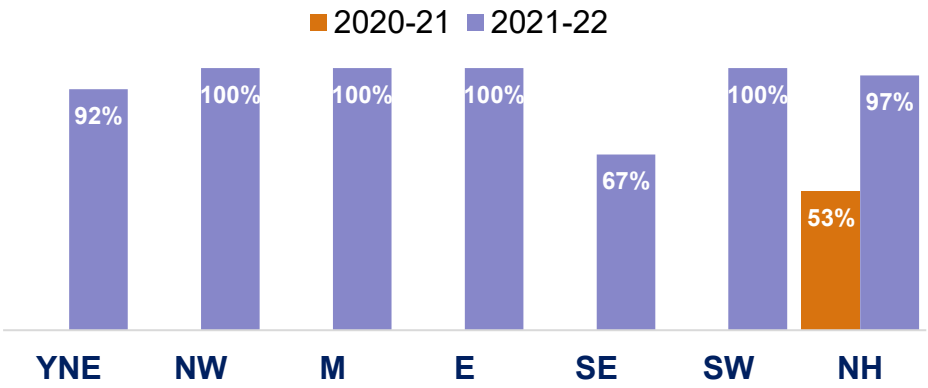
**Ride quality PI (% of pavement delivering ride quality)**




**Timeliness of information provided to road users through electronic signage PI - Average median signal setup time (in minutes) in response to incidents.**




**Working with local highways authorities to review diversion routes for unplanned events PI**





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