Department for Transport

Road Conditions in England, Years Ending March 2020 and March 2021

In 2020/21, Local Authorities reported that the proportion of 'A' roads that should have been considered for maintenance had remained stable, following a slight increase in 2019/20.

About this release

This annual release presents information on the condition of roads in England, as well as other aspects of highways maintenance.

Figures for road condition are available back to the financial year 2007/08. To reduce the burden on Local Authorities (LAs), data collection was postponed for 2019/20. This publication will cover both 2019/20 and 2020/21.

Automated survey machines and visual surveys are used by LAs and National Highways (NH) to determine the percentage of the network that are categorised as *'red', 'amber' or 'green'*.

Regional and national figures include all LAs with data that passed validation checks. Data for a small number of London LAs are included in this release, due to changes in the way London surveys are carried out.

In this publication

The proportion of 'A' roads categorised as red (roads that should be considered for maintenance) in 2020/21 remained below levels seen in 2012/13. Following the peak in 2012/13, there was a period of improvement until 2015/16, followed by a period of stability. In 2020/21, the proportion of 'B' and 'C' roads combined categorised as red was stable, in line with trends seen in the previous 5 years. Unclassified roads have seen greater year on year fluctuation than other road categories and the percentage of Unclassified roads categorised as red increased in 2020/21.
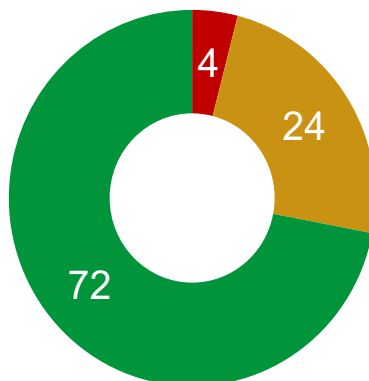
Trend in the proportion of LA managed roads categorised as red, in England, by road type, 2007/08 to 2020/21 [RDC0120]
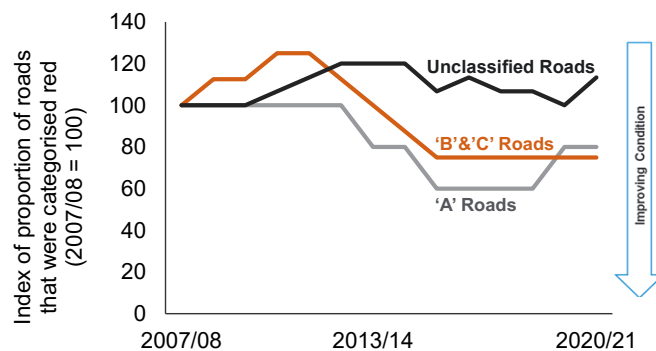
In 2020/21, the proportion of LA managed roads that were categorised as red was:

► 4% of 'A' roads;

► 6% of 'B' and 'C' roads;

► 17% of unclassified roads

Percentage of LA managed 'A' roads that are categorised as red, amber or green in 2020/21 [RDC0122 RDC0123]


In 2020/21 the proportion of roads categorised as amber (work may be needed soon) and green (good condition) was also collected.

The majority of local authority managed 'A' roads were categorised as green at 72%, followed by amber at 24%. These were similar to the levels in 2019/20.

Introduction

► **Automated survey machines and visual surveys are used by Local Authorities** (LAs) and National Highways (NH) to collect data on the condition of the roads in England.

► **Coronavirus (COVID-19) has had a wide impact since March 2020,** and figures should be considered within this context. During 2020/21, COVID-19 affected the availability of specialists to arrange and conduct road maintenance. There was also reduced road traffic during this period, as shown in road traffic estimates.

► **For this publication, we collected two years worth of data.** The data collection process was postponed for LAs last year due to the challenges they faced during the coronavirus outbreak.

► **The main measure of condition shown in this report is the Road Condition Indicator (RCI)**. This is made up of several parameters, such as cracking and rutting (see Technical Note), which combine to give an overall measure of the state of the road.

► **Sections of road can be split into three categories (red, amber and green)** based on the RCI. The roads categorised as 'red' are those that *should have been considered for maintenance* (i.e. further investigation is required). These roads will not necessarily require immediate treatment, but they should be inspected to determine whether maintenance is required. Roads categorised as 'amber' are *where work may be needed sometime soon*, while those categorised as 'green' are where *no further investigation or work is needed to bring it up to standard*.

► **LAs are required to report the proportion of roads categorised as red** under the Single Data List. This year, Local Authorities were also asked to provide data on a voluntary basis for both the green and amber road condition categories for LA managed 'B' and 'C' roads alongside the figures for LA managed 'A' Roads. We have presented experimental statistics for LA managed 'B and 'C' roads (Page 6) and welcome any feedback to roadmaintenancestats@dft.gov.uk.

► **Due to changes to the way that surveys are carried out in London, there are fewer London LAs included for 19/20 and 20/21 than in previous years.**

Chart 1: Flow Diagram of Management Responsibility for roads in England
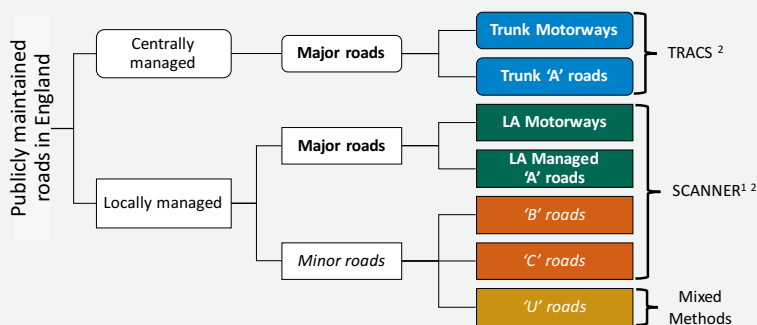
1. Alternative technologies to SCANNER surveys were used to collect data for some local authorities for LA managed 'A', 'B' and 'C' roads.
2. SCANNER = Surface Condition Assessment for the National Network of Roads. TRACS = TRAffic-speed Condition Surveys.

► **Most roads in England are managed locally.** LAs are currently required to undertake SCANNER surveys to measure condition for all of their classified roads (i.e. LA managed motorways, 'A', 'B' and 'C' roads), while for unclassified roads a mixture of different methods can be used. The condition of centrally (NH) managed roads are measured using TRACS surveys.

► **Comparisons of road condition across different road types should be made with caution** due to the differing methods used.

► In addition to the RCI, **this release also covers other aspects of highways maintenance** including skidding resistance and maintenance treatment of LA managed roads.

Surface Condition - Local Authority Managed 'A' Roads

LA managed 'A' roads and motorways account for around 9% of the road network in England and carry approximately one-third of all traffic. LAs are expected to collect SCANNER data and survey 90% of their 'A' road network and motorways in both directions over a 2 year period. The 2020/21 data was collected between April 2019 and March 2021.
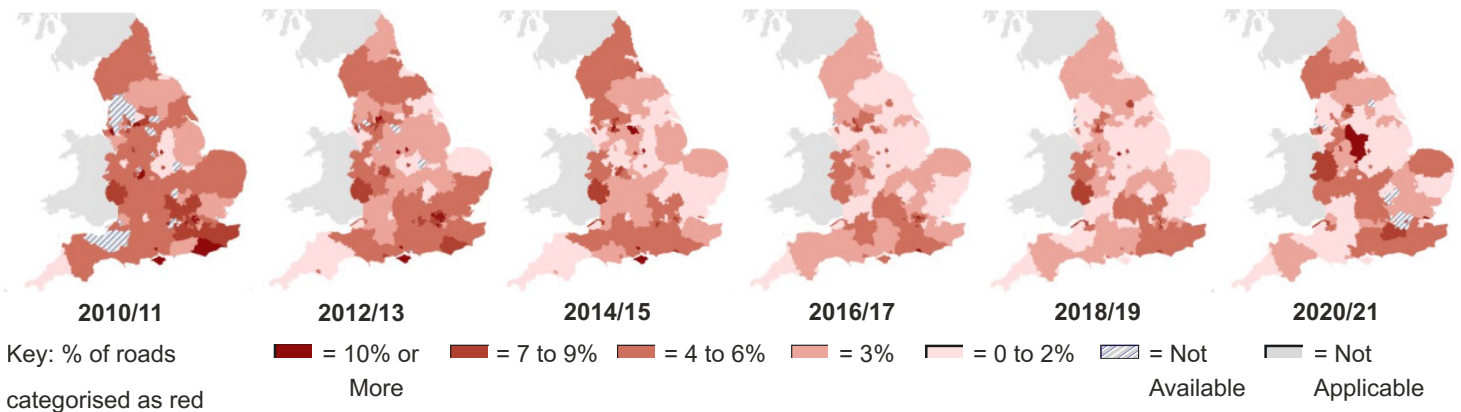
Chart 1: Proportion of LA managed 'A' roads categorised as red, 2007/08 to 2020/21 [RDC0120 RDC0121]
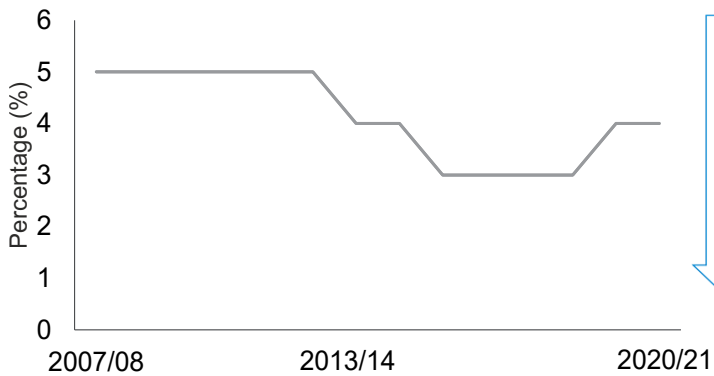
In 2020/21, 4% of local authority 'A' roads (including LA motorways) were categorised as red. This was the same as in 2019/20, which was a slight increase on the previous 3 years. There was a gradual decline in the proportion of LA managed 'A' roads categorised as red, from 5% in 2012/13 to 3% in 2015/16. 2019/20 is the first year where an increase was recorded. Excluding London in 2020/21 data likely has little effect. In each year before 19/20, excluding London affects this measure by 1 percentage point or less.

Chart 2: Proportion of LA managed 'A' roads that were categorised as red, by LA, 2010/11 to 2020/21 [RDC0120 RDC0121 Interactive Map]

Key: % of roads categorised as red

■ = 10% or More ■ = 7 to 9% ■ = 4 to 6% ■ = 3% □ = 0 to 2% ▨ = Not Available ▨ = Not Applicable

While nationally, 4% of local authority 'A' roads in England were categorised as red in 2020/21, the 2020/21 map in Chart 2 shows that there is some geographical variation. For example, a small number of LAs reported that 1% or less of their 'A' roads were categorised as red, with others reporting 8% or higher. An interactive map has been published alongside this statistical release presenting condition data for England by LA and road type, which explores this variation further.

Looking at the time-series set out on Chart 2 as a whole, you can see the gradual improvement at a network level from the peak in 2010/11. Among LAs where data was available for both 2010/11 and 2020/21, more than 70% reported that the proportion of roads categorised as red had decreased in 2020/21 compared to ten years earlier.

Looking at the last two maps shows that although the national average for 2020/21 of 4% is slightly above that of 2018/19, there is some variation between LAs. Around a quarter of LAs providing data for these years reported an increase or decrease of greater than one percentage point.

Surface Condition - 'A' Roads

LAs were asked to provide data on a voluntary basis for their amber and green roads for 2019/20 and 2020/21. For those LAs that provided data, the results have been aggregated and presented in this release at a national level. Accompanying tables have also been published which provide breakdowns at a regional and LA level. This data is only available for 108 out of 155 LAs, so these figures are not directly comparable to the headline figures on the percentage of roads categorised as red.

Chart 3: Percentage of LA managed 'A' roads that are categorised as red, amber or green in 2019/20 and 2020/21 [RDC0122 RDC0123]
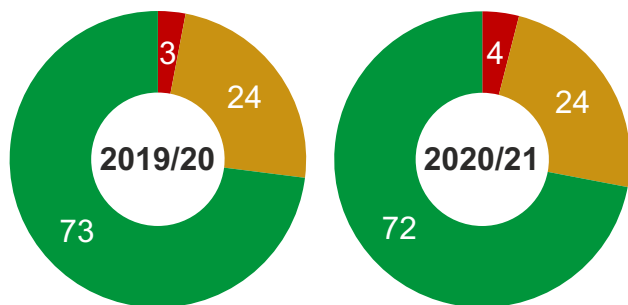
In 2020/21, nearly three-quarters (72%) of the network was categorised as green, a slight decrease on the 2019/20 figures. 24% of the 'A' roads were categorised as amber, unchanged from the 2019/20 figure.

RCI Figures

The RCI scores are made up of four weighted parameters (Cracking, Rutting, Longitudinal profile variance and Texture) which combine to give an overall measure of the state of the road and an indication of surface condition. Each 10 metre section of road is assigned a score between 0-315, with:

• 0-40 = Green, indicating that the road is in good condition

• 40-100 = Amber, indicating that work may be needed soon

• 100+ = Red, indicating that the road should be considered for maintenance

From these categories the proportion of the network which is red, amber or green is calculated.

Factors affecting the RCI

There are many possible factors that can contribute to the changes in trends over time for the RCI. For example, the weather, road maintenance strategies, funding, levels of road traffic and congestion can all affect the condition of the network. Data for 2020/21 covers the twelve months from April 2020 to March 2021, which was affected by the COVID-19 pandemic.

Surface Condition - Local Authority Managed 'B' and 'C' Roads

LA managed 'B' and 'C' roads account for around 28% of all roads in England. LAs are expected to collect SCANNER data for 85% of their 'B' road network in both directions and 80% of their 'C' road network in a single direction over a 2 year period. The 2020/21 data was collected between April 2019 and March 2021.

Chart 4: Proportion of LA managed 'B' and 'C' roads combined that were categorised as red, 2007/08 to 2020/21 [RDC0120 RDC0121]
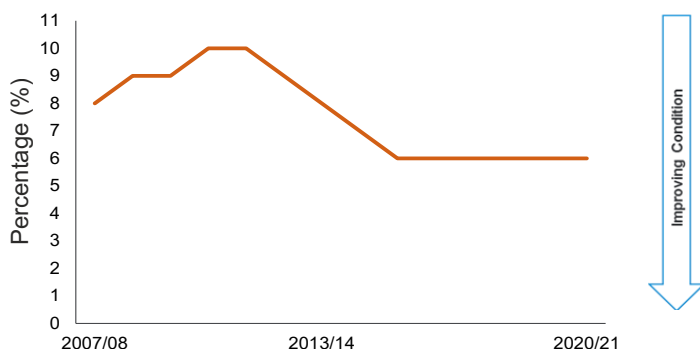
In 2020/21, 6% of LA managed 'B' & 'C' roads combined were categorised as red, in line with the previous 5 years. Prior to this there had been a gradual improvement from a 2 year peak of 10% in 2010/11 and 2011/12. In each year since the start of the series, a higher proportion of LA managed 'B' and 'C' roads have been categorised as red than LA managed 'A' roads. Excluding London in 2020/21 has likely had little effect based on data from previous years.

Chart 5: Proportion of LA managed 'B' and 'C' roads that were categorised as red, by LA, 2010/11 to 2020/21 [RDC0120 RDC0121 Interactive Map]

Key: % of roads categorised as red

= 10% or More = 7 to 9% = 4 to 6% = 3% = 0 to 2% = Not Available = Not Applicable
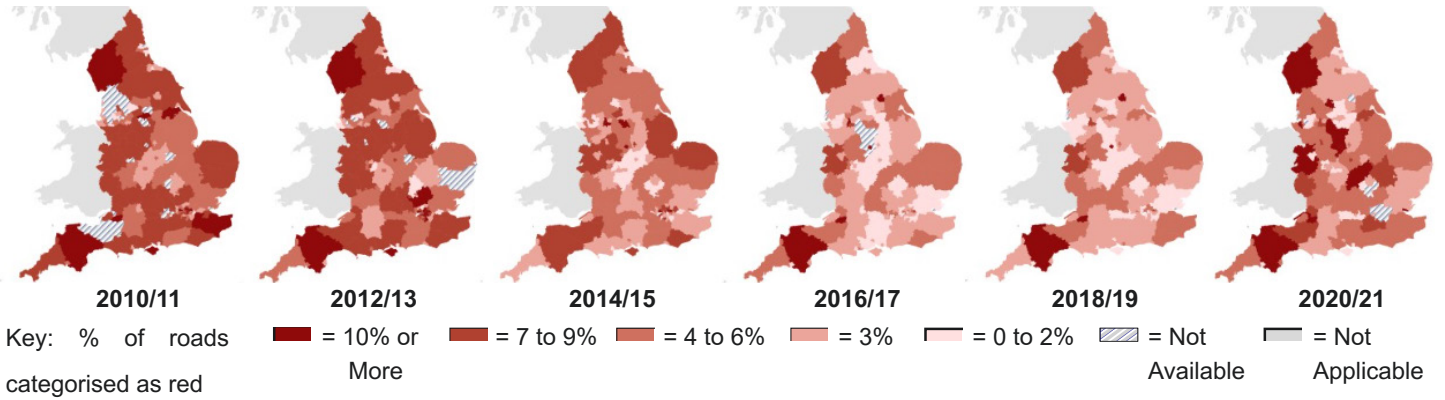
While nationally, 6% of Local Authority 'B' & 'C' roads in England were categorised as red in 2020/21, the 2020/21 map in Chart 5 above shows that there is some geographical variation. For example, just over a quarter of LAs reported that 2% or less of their 'B' & 'C' roads were categorised as red, while a small number of LAs reported a figure of 10% and above. An interactive map has been published alongside this statistical release presenting condition data for England by LA and road type, which can be used to further explore the variation.

Looking at the time-series set out on Chart 5 as a whole, you can see the gradual improvement at a network level from the peak in 2010/11. Among LAs where data was available for both 2010/11 and 2020/21, more than 80% reported that the proportion of roads categorised as red had decreased in 2020/21 compared to ten years earlier.

Looking at the last two maps in Chart 5, this shows that although the national average for 2020/21 of 6% is in line with the national average for 2018/19, there is some variation between LAs. Around a quarter of LAs providing data in both years reported an increase or decrease of greater than one percentage point.

Experimental Statistics: Surface Condition - 'B' and 'C' Roads

For this publication, LAs were asked to provide amber and green data for their 'B' and 'C' classified roads, in addition to data for the red category. Accompanying tables have also been published which provide breakdowns for regions and LAs. The results have been presented as experimental statistics. This data is only available for 106 out of 155 LAs, so these figures are not directly comparable to the headline figures on the percentage of roads categorised as red.

Chart 6: Percentage of LA managed 'B' and 'C' roads that are categorised as red, amber or green in 2019/20 and 2020/21 [RDC0122 RDC0123]
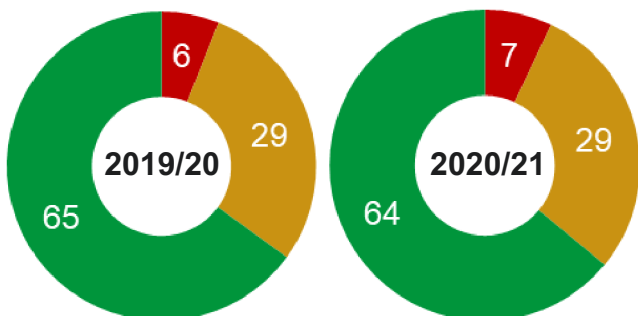

In 2020/21, 64% of the 'B' and 'C' road network was categorised as green, a slight decrease of 1% on the 2019/20 figure, whilst 29% of 'B' and 'C' roads were categorised as amber, unchanged from 2019/20.

Surface Condition - Local Authority Managed Unclassified Roads

LA managed unclassified roads form the majority (60%) of the road network in England. Road surface condition data collection is not a mandatory requirement and LAs are permitted to use the method they consider most appropriate to monitor their network. The 2020/21 data was collected between April 2017 and March 2021.

Chart 7: Proportion of unclassified roads categorised as red, 2007/08 to 2020/21 [RDC0130 RDC0131]
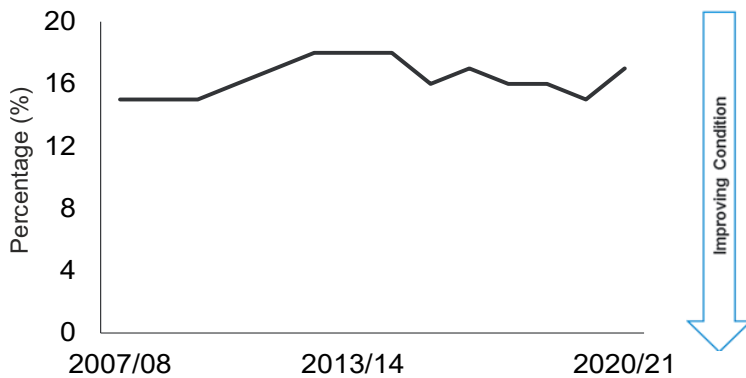

In 2020/21, the proportion of LA managed unclassified roads categorised as red was 17%. This was an increase on the levels seen in recent years, but was still within the expected range for unclassified roads. The proportion of unclassified roads categorised as red have been more likely to fluctuate year on year than other road categories.

It is noticeable that the type of survey method used appears to affect the results, with different techniques giving different outcomes. The most common method in 2020/21 was visual surveys, with around 60% of LAs (who returned valid data) solely using this type, falling from 75% in 2016/17.

Surface Condition - National Highways Managed Roads

National Highways (NH) (formerly Highways England) managed roads account for around 2% of the road network in England and carry approximately one-third of all traffic (see section 5 in the Technical Note for further detail). TRACS surveys are carried out on the full NH network each year. The 2020/21 data was collected between April 2017 and March 2021 with most of the data from the last 2 years.

Chart 8: Percentage of NH managed roads that should have been considered for maintenance, by road type, 2007/08 to 2020/21 [RDC0201]
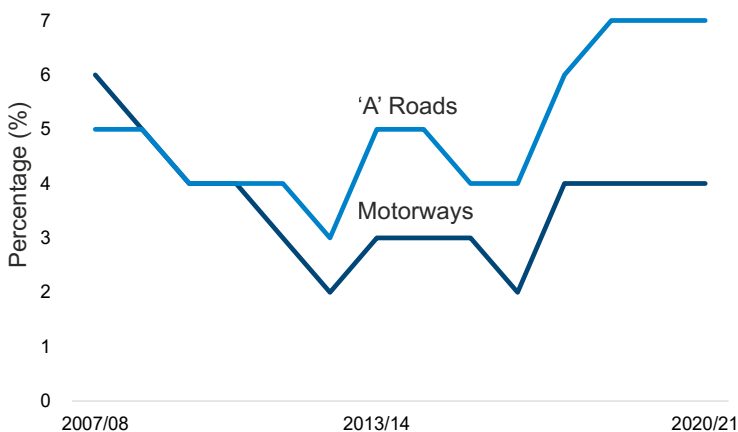
For NH managed motorways and 'A' roads, 4% and 7% respectively should have been considered for maintenance in 2020/21, both of which have remained at a similar level since 2018/19. Overall, the proportion fell between 2007/08 and 2012/13, but has fluctuated thereafter with a sustained peak since 2018/19 for 'A' Roads.

The relatively small size of the NH network could mean these figures are subject to fluctuation, as a change in this measure denotes a relatively small change in the amount of road.

Skidding Resistance

Skidding resistance surveys are undertaken by local authorities and NH. They provide a measure of the road surface contribution to the frictional forces developed between a vehicle's tyres and the road when accelerating, braking or cornering.

For NH, the skidding resistance data is collected for roads in sections (with each section 10 to 100 metres long), according to the methodology prescribed in [Design Standard for Roads and Bridges]. The results presented for 2020/21 are based on surveys carried out in the summer of 2020 (i.e. the latest available for March 2021). Skidding resistance figures do not necessarily reflect safety levels on the network but rather sites where further investigation is required.

Data for LAs are typically averaged over 3 years to reduce the inherent variability in the data returns from LAs. Also other methodological factors, such as seasonal correction factors and site category reviews undertaken on the network, can contribute to the changes in the results shown.

Chart 9: Proportion of NH managed roads requiring further investigation for skidding resistance, by road type, 2007/08 to 2020/21 [RDC0210]
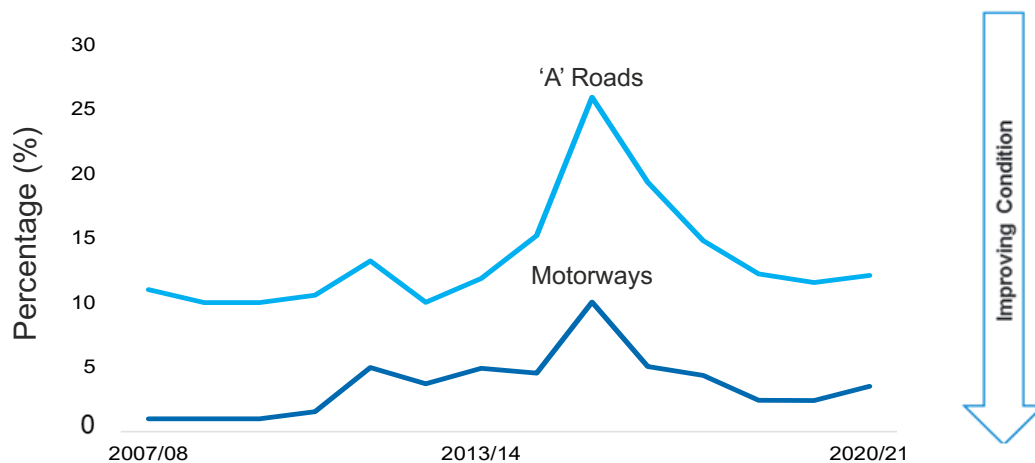
In 2020/21, **4% of the NH managed motorway required further investigation**, a slight increase on the previous year's figures, while for **NH managed 'A' roads this is unchanged at 12%**. For both motorways and 'A' roads, figures are much lower than the peak in 2015/16.

For LA managed roads, 28% of motorway and 'A' road network in England required further investigation in the three-year period from 2018/19 to 2020/21, this was the same as the three-year period from 2015/16 to 2017/18.

Highways Monitor - ORR

The Office of Rail and Road (ORR), as part of their function as Highways Monitor, do an annual assessment of NH's performance. This includes information on road condition and NH's expected targets. Their April 2020 - March 2021 report can be found [here].

NH provided an overall network condition figure of 95.2% for 2020/21, a slight decrease from the previous year, but higher than the target of at least 95% which has now been met for the last four years. NH reported that the figures were within the normal range of variation and not an indication of a downwards trend.

The statistics presented in this release for NH surface condition and skidding resistance uses underlying data which is different to that used for the NH KPI and therefore not comparable. See the [Technical Note] for further information on these differences.

Maintenance Treatments on Local Authority Managed Roads

Different types of treatment are applied to sections of road to preserve, repair or improve the condition of the road. These are influenced by factors such as weather, funding and nature of the defect requiring treatment. The type of road selected for treatment by an LA is likely to include a broader group of roads than just those categorised as red (see page 2).

Chart 10: Percentage of local authority managed roads receiving maintenance treatments in 2020/21 [RDC0320]
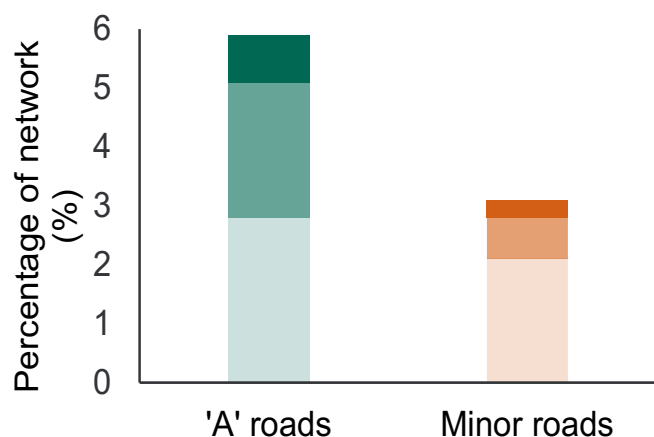
In 2020/21, 5.7% of LA managed 'A' roads (excluding motorway) and 3.0% of minor roads ('B', 'C' and 'U' roads) received maintenance treatment, both slightly lower than the previous year. Surface dressing accounted for nearly half of all treatments on LA managed 'A' roads and the majority of all LA managed minor roads (49% and 70% respectively) in 2020/21. Further information on each treatment type can be found here.

Maintenance Expenditure on Roads in England

This release does not present maintenance expenditure statistics in 2020/21. This information was not available prior to the release of this publication. An update of maintenance expenditure information for 2020/21 will be published in December as part of the Transport Statistics Great Britain Publication, which can be found here.

Background Notes

Further information about road condition data and surveys can be found in the guide, notes and definitions and technical note, which can all be found on the Road Condition Statistics webpage:
https://www.gov.uk/government/collections/road-network-size-and-condition

Further data on road expenditure and on road construction can be found in the Transport Stats for Great Britain Publication, in tables TSGB0717 to TSGB0720:
https://www.gov.uk/government/statistical-data-sets/tsgb07

Further information on the Single Data List can be found here:
https://www.gov.uk/government/publications/single-data-list

Official Statistics

Official Statistics are produced to high professional standards as per the Code of Practice for Official Statistics. They undergo regular quality assurance reviews to ensure they meet customer needs.

Details of ministers and officials who received pre-release access to these statistics up to 24 hours before release can be found in the pre-release access list: https://www.gov.uk/government/publications/roadnetwork-size-and-condition-statistics-pre-release-access-list.

Strengths and Weaknesses

Figures in this publication come from a wide range of sources. Consequently, the accuracy of figures will vary between tables. Users are recommended to refer to separately published guidance for more detail on how information for each table was collected: https://www.gov.uk/government/publications/road-network-size-and-condition-statistics-guidance

SCANNER (Surface Condition Assessment for the National Network of Roads) data are collected using automated road condition survey machines. Although each machine is accredited for accuracy and readings fall within the accepted boundaries of the SCANNER specification for road condition, there is still variability between the results that each machine delivers. It can lead to small changes in the figures over time that are for reasons beyond the condition of the road, and above the expected range of variability that already exists within the data. Caution should therefore be taken when comparing the figures over time, particularly for the LAs and regions flagged in the publication tables.

SCANNER has been the recommended survey method for 'A', 'B' & 'C' roads. In recent years, the proportion of LAs using SCANNER on 'A', 'B' & 'C' roads has fallen from 97% in 2016/17 to 82% in 2020/21. This is important to note as the type of survey carried out can affect the percentage of roads categorised as red. To ensure comparability of road condition information, DfT is looking to implement a data standard for local road condition monitoring. More information on this can be found here.

Other measures of condition also exist. The Asphalt Industry Alliance carry out the Alarm Survey and report on a measure of structural condition alongside other measures (see here). The RAC also produce a pothole index using their members' breakdown data (see here).

The next update, Road Conditions in England: Year Ending March 2022, and accompanying tables are due to be published in 2022. In the meantime, continued engagement with stakeholders will be undertaken to improve the usability and relevance of the statistics (roadmaintenancestats@dft.gov.uk).

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