



Department  
for Transport

## Travel time measures for local 'A' roads, England: July 2015 to June 2016

### Average delay on local 'A' roads in England up 3.8% on the previous year.

The average delay on local 'A' roads in England is estimated to be 45.2 seconds per vehicle per mile in the year ending June 2016 when compared to free flow. In the same period, the average speed on local 'A' roads was 25.4 mph, down 1.7% on the previous year.



#### About this release



This statistical release presents information about travel times on local highway authority managed 'A' roads in England.

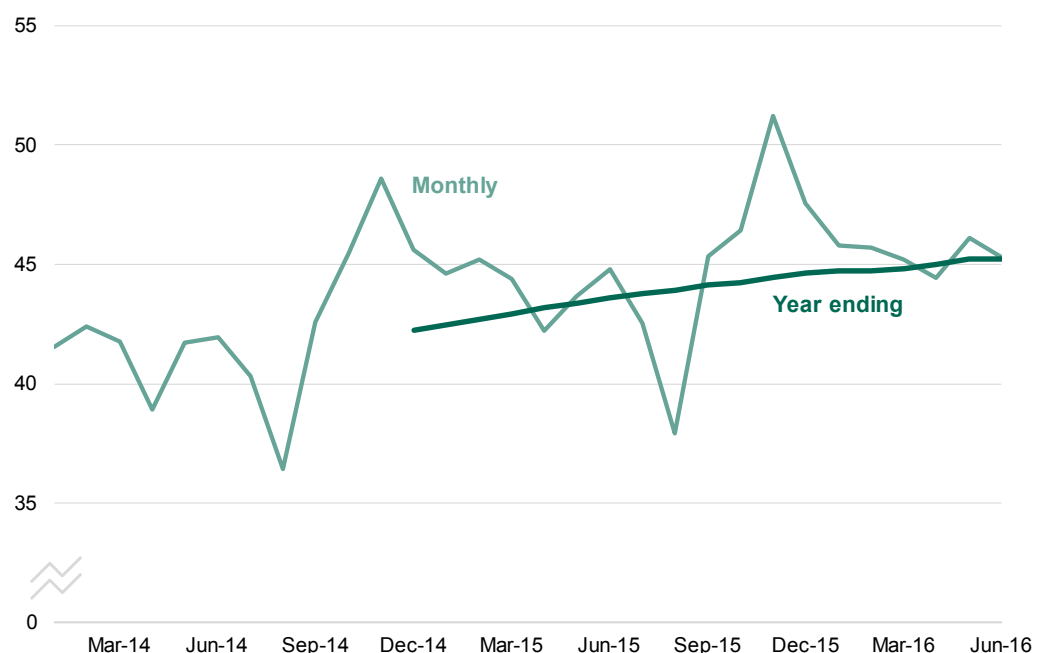
The travel times used to calculate the measures in this release are estimated using in-vehicle Global Positioning Systems (GPS) observations from a sample of fleet cars and light vans.

#### In this publication



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**Figure 1: Average delay on local 'A' roads in England compared to free flow**  
(Table [CGN0502](#))



### Key statistics

- The **average delay on local 'A' roads in England** is estimated to be **45.2 seconds per vehicle per mile** when compared to free flow, for the **year ending June 2016**. This represents an **increase of 3.8%** compared to the previous year (year ending June 2015).
- The **average speed on local 'A' roads in England** across all time periods in the **year ending June 2016** was **25.4 mph**. This is a **1.7% decrease** on the previous year.
- Average speeds have decreased steadily since the start of this series in 2014. These decreases have been greater on urban classified roads than on rural roads. Combining these statistics with similar statistics previously published suggests average weekday morning peak speeds have been falling steadily for the past 4 years.

**Feedback:** Please contact us using the details below.

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## Summary figures of average delay and speed on local 'A' roads

### DfT's road congestion statistics



For further information, a concise [introduction to the Department's road congestion and travel time statistics](#) is available.

The summary table below presents average delay and speed on local 'A' roads in England for specified time periods and by road type classification in the year ending June 2016. It also shows changes in those average delays and speeds compared to the previous quarter (year ending March 2016) and last year (year ending June 2015).

**Figure 2: Summary of recent changes in average delay and average speed compared to free flow on local 'A' roads in England**

		Latest Year ending June 2016	Last Quarter percentage change from Year ending March 2016	Last Year percentage change from Year ending June 2015
<b>All day (24 hour period)</b>	<b>Average delay</b> (seconds per vehicle per mile)	<b>45.2</b>	↑ 1.0%	↑ 3.8%
	<b>Average speed</b> (miles per hour)	<b>25.4</b>	↓ 0.4%	↓ 1.7%
<b>Weekday morning peak (7am-10am)</b>	<b>Average delay</b> (seconds per vehicle per mile)	<b>53.8</b>	↑ 1.3%	↑ 2.6%
	<b>Average speed</b> (miles per hour)	<b>23.9</b>	↓ 0.5%	↓ 1.4%
<b>Weekday evening peak (4pm-7pm)</b>	<b>Average delay</b> (seconds per vehicle per mile)	<b>64.0</b>	↑ 1.0%	↑ 4.3%
	<b>Average speed</b> (miles per hour)	<b>22.4</b>	↓ 0.5%	↓ 2.1%
<b>Urban<sup>1</sup> classified roads</b>	<b>Average delay</b> (seconds per vehicle per mile)	<b>75.0</b>	↑ 0.9%	↑ 4.2%
	<b>Average speed</b> (miles per hour)	<b>18.6</b>	↓ 0.5%	↓ 2.1%
<b>Rural<sup>1</sup> classified roads</b>	<b>Average delay</b> (seconds per vehicle per mile)	<b>20.0</b>	↑ 1.2%	↑ 1.8%
	<b>Average speed</b> (miles per hour)	<b>36.8</b>	↓ 0.3%	↓ 0.7%

### Footnotes

1. DfT defines 'urban' roads to be those within a settlement of 10,000 people or more. This is consistent with the [Rural and Urban Area Classification 2004](#). All other roads are defined as 'rural'.

## Average delay on local 'A' roads

### Introduction to average delay



Delay (or 'time lost') is calculated by subtracting derived 'free flow' travel times from observed travel times for individual road sections.

Average delay is calculated by aggregating delay estimates from individual road sections and weighting observations by associated traffic flows so that it is representative of traffic volumes on the roads.

Average delay is presented across all 24 hours of the day and on a per vehicle per mile basis. Average delay is commonly used as a measure of relative congestion as it takes account of different free flow speeds (often associated with different speed limits), allowing road sections to be compared more easily.

It is important to note that road users often do not expect to encounter free flow conditions (particularly during peak times) and consciously build in additional time for their journey based on their own experience. As a result, drivers may perceive delay relative to their expected (or average) journey time rather than free flow conditions.

### National overview of average delay

The **average delay on local 'A' roads in England** across all time periods in the **year ending June 2016** is estimated to be **45.2 seconds per vehicle per mile (spvpm)** compared to free flow. This is a **3.8% increase** on the year ending June 2015.

Between 2014 and the year ending June 2016, average delay compared to free flow has increased by 7.1%. Over the same period, traffic on the 'A' road network has increased steadily.

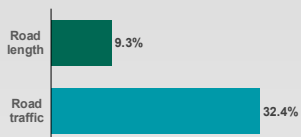
### Average delay by time of day and in urban and rural areas

Average delay on local 'A' roads during the weekday morning peak (7am-10am) and the weekday evening peak (4pm-7pm) was 53.8 spvpm and 64.0 spvpm respectively compared to free flow in the year ending June 2016.

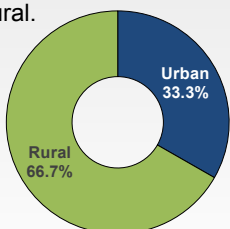
### Local 'A' road facts



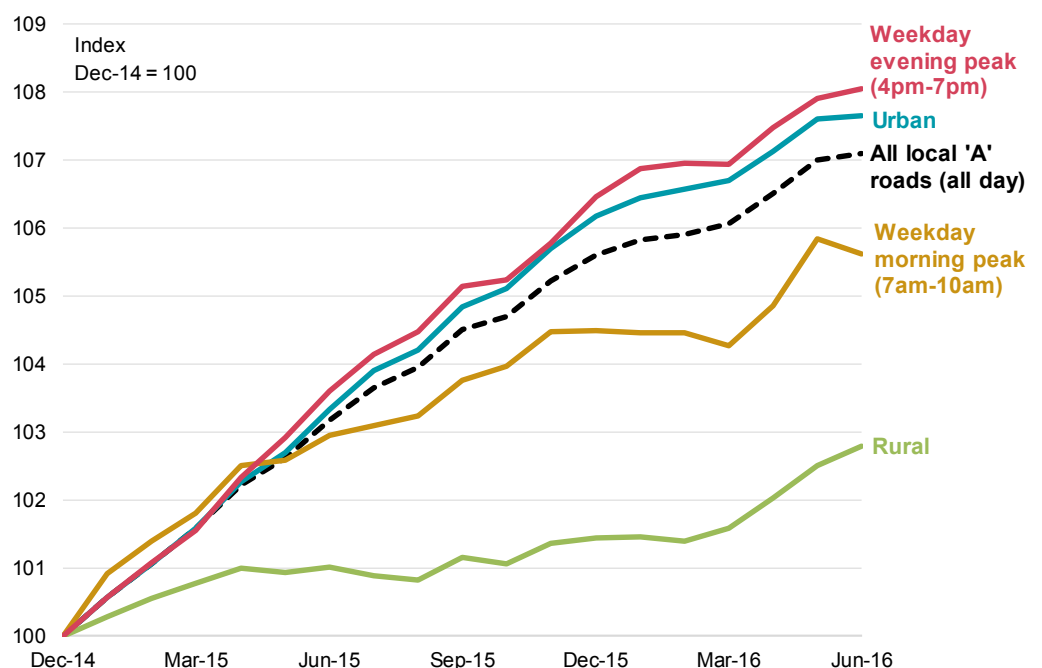
The local 'A' road network accounts for around 9% of all English roads by length, but carries around a third of all traffic.



Almost one third of the English local 'A' road network is classified as urban with the remaining two-thirds classified as rural.



**Figure 3: Average delay (indexed) on local 'A' roads in England: Rolling 12-month average from year ending December 2014**



## Free flow



Free flow travel times (used to calculate the average delay measure) are currently calculated using the 85th percentile speed observation, for each individual road section. These are 'capped' at national speed limits.

## Geographical network



These travel time measures are based on data matched to the Ordnance Survey ITN mastermap representation of the local 'A' road network in England.

## Introduction to average speed



This measure reflects the average speed of vehicles on local 'A' roads across the entire day (24 hour period).

The measure weights speed observations from a sample of vehicles by associated traffic flows so that it is representative of traffic volumes on the roads in different locations and at different times of day (as for average delay).

On urban classified local 'A' roads, average delay was 75.0 spvpm in the year to June 2016, compared to 20.0 spvpm on rural classified local 'A' roads. Compared to 2014, this represents a rise in average delay of 7.6% on urban local 'A' roads and 2.8% on rural local 'A' roads.

It is important to note that urban roads generally have lower free flow speeds than rural roads. As a result, a fixed absolute decrease in observed speeds will generally translate into a higher level of delay on urban roads (relative to rural roads). This is illustrated below.

**Figure 4: Example of average delay on urban and rural local 'A' roads**



### Urban local 'A' road

Free flow speed: 30 mph or 2 minutes per mile

Average speed: 20 mph or 3 minutes per mile



#### Vehicle delay

= 3 - 2 minutes per mile

= **60** seconds per vehicle per mile



### Rural local 'A' road

Free flow speed: 60 mph or 1.0 minutes per mile

Average speed: 50 mph or 1.2 minutes per mile



#### Vehicle delay

= 1.2 - 1.0 minutes per mile

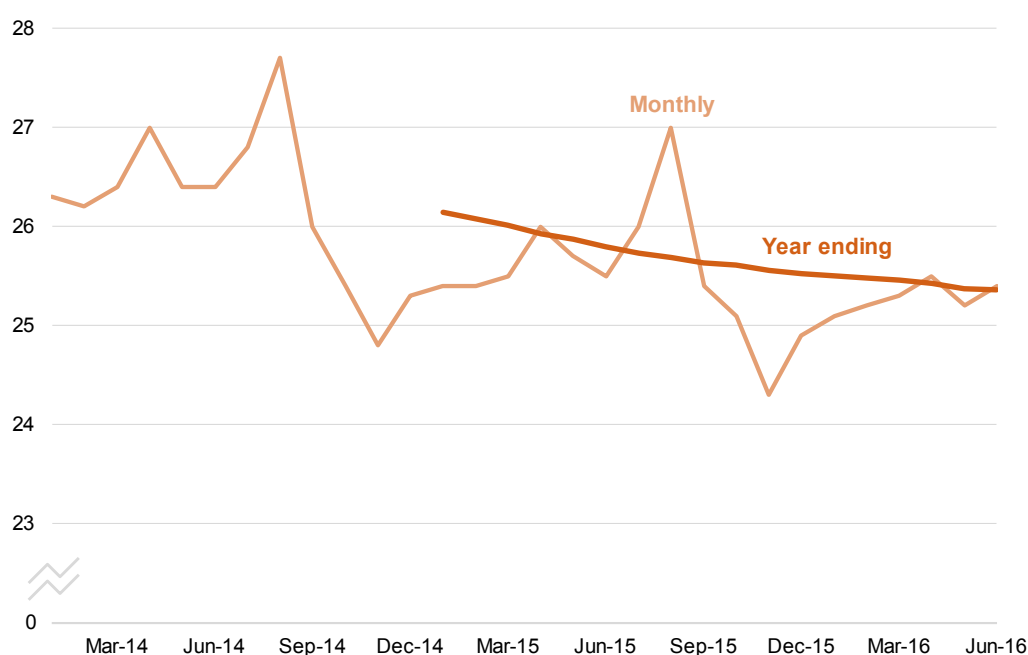
= **12** seconds per vehicle per mile

## Average speed on local 'A' roads

### National overview of average speed

The **average speed on local 'A' roads in England** across all time periods in the **year ending June 2016** is estimated to be **25.4 mph**. This is a **1.7% decrease** on the year ending June 2015.

**Figure 5: Average speed on local 'A' roads in England** (Table [CGN0501](#))



## Technical Note



The average delay and average speed figures presented in this release are calculated using travel time data from cars and light vans and across the entire local 'A' road network.

As such, it would not be appropriate to use these averages to represent 'typical' delays or speeds for any individual road section, time of day or vehicle class.

Since the start of this series in 2014 (year ending December 2014) and up to the year ending June 2016, average speeds (across the entire 24 hour period) have decreased by 3.3%. Over the same period, traffic on the local 'A' road network has increased steadily.

### Average speed by time of day and in urban and rural areas

Average speeds on local 'A' roads during the weekday morning peak (7am-10am) and the weekday evening peak (4pm-7pm) were 23.9 mph and 22.4 mph respectively in the year to June 2016.

Since 2014, decreases in average speed have been observed during both the weekday morning peak (7am-10am) and the weekday evening peak (4pm-7pm). Combining these statistics with similar statistics previously published suggests that average weekday morning peak speeds have been falling steadily for the past 4 years.

On urban classified local 'A' roads, average speeds were 18.6 mph in the year to June 2016, compared to 36.8 mph on rural local 'A' roads. Comparing these figures to 2014, the decrease in average speeds has been greater on urban roads (down 4.0%) than rural roads (down 1.2%).

## Background information

### Context and user feedback

The new measures presented in this statistical release were developed to provide a more complete picture of travel times on local 'A' roads and also to align with measures recently introduced for the [Strategic Road Network](#) (motorways and 'A' roads managed by Highways England). This allows us to compare travel times on local and strategic roads more easily.

Feedback on the new travel time measures, first presented in the [Analysis of travel times on local 'A' roads, England: 2014](#) published in March 2016, were set out in the last statistical release in this series. Statistics in this release are directly comparable with those published in the analysis paper.

As a result of the feedback provided, we decided not to publish statistics on the reliability of travel times. We will continue to develop our understanding of travel time reliability and the strengths and limitations of related measures and will revisit the inclusion of reliability statistics in this release later this year.

We recognise the value and interest in sub national statistics (e.g. region, by local highway authority, by road) and intend to publish more statistics at this level in a more detailed annual release next year. We will continue to review the content and presentation of these statistics, which we expect to develop further over time.

Please contact us using the details at the bottom of the front page with any feedback you have, or if you would like further information.

## Related information



Information on traffic volume and flow used in weighting average speeds is available at: [Road traffic statistics](#)

Attitudes on road congestion can be found in the British Social Attitudes Survey, which is available at: [British Social Attitudes Survey: 2014](#).



## Methodology and technical detail

1. Users should exercise some caution when interpreting the statistics in this paper, particularly when looking over short periods of time. Average delay and average speeds are likely to be affected by a range of factors such as traffic levels, weather, roadworks, or changes to speed limits.
2. The underlying datasets used to produce the statistics in this release are similar to those used for the previous [average speeds on local A roads during the weekday morning peak statistics](#). The data are based on travel times estimated using Global Positioning Systems (GPS) and traffic flows estimated using Department for Transport's traffic count information.
3. The statistics in this release use travel time information from car and light commercial vehicles (LCV) only. We have not included HGV travel time information due to low sample sizes. Over 100,000 cars and LCVs each month were used to calculate the measures. Measures are weighted by associated expected traffic flows to ensure that they represent traffic volumes on the roads in different locations and at different times of day.
4. All measures use real, observed travel time data with a good temporal match where available. Where there is insufficient data for individual road sections for a particular time period, travel times are imputed using corresponding monthly and hourly averages from individual road sections with similar road characteristics.
5. For the average delay measure, free flow travel times are derived by taking the 85th percentile speed across all car and LCV observations over a year, 'capped' to current national car speed limits (i.e. 60 mph for single carriageway and 70 mph for dual carriageway). As such, there may be cases where derived free flow speeds are greater than the legal speed limit on some road sections.
6. The Department for Transport publishes a separate statistics series on [free flow vehicle speeds](#) on roads in Great Britain. That series focusses more on the speeds at which drivers choose to travel and their compliance with speed limits. Free flow speeds presented in that release are calculated in a different way and using a different data source to the free flow speeds used in this release.

## Next update

The next release in this series is expected to be published in November 2016. This will contain monthly figures and twelve month rolling average figures for the years ending July to September 2016.

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