# Reliability Statistics

*Statistical Release*

11 April 2013




**FURTHER INFORMATION**

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Department for Transport

# Reliability of journeys on Highways Agency's motorway and 'A' road network, England: February 2013

This statistical release presents provisional aggregate level information about the reliability of journeys on motorways and 'A' roads managed by the Highways Agency, known as the strategic road network, in the year ending February 2013.

These strategically important roads account for around two per cent of all roads in England, but carry around a third of all traffic.

The reliability of journeys on the Highways Agency's roads is measured by the percentage of 'journeys' that are 'on time', where:

- A 'journey' represents travel between adjacent junctions on the network.
- An 'on time journey' is defined as one which is completed within a set reference time, based on historic data on that particular section of road.

The data are based on journey times estimated using in-vehicle Global Positioning Systems (GPS) and flows estimated using automatic traffic counters.

This reliability measure is one of a number of indicators in the Department's 2012-2015 Business Plan.

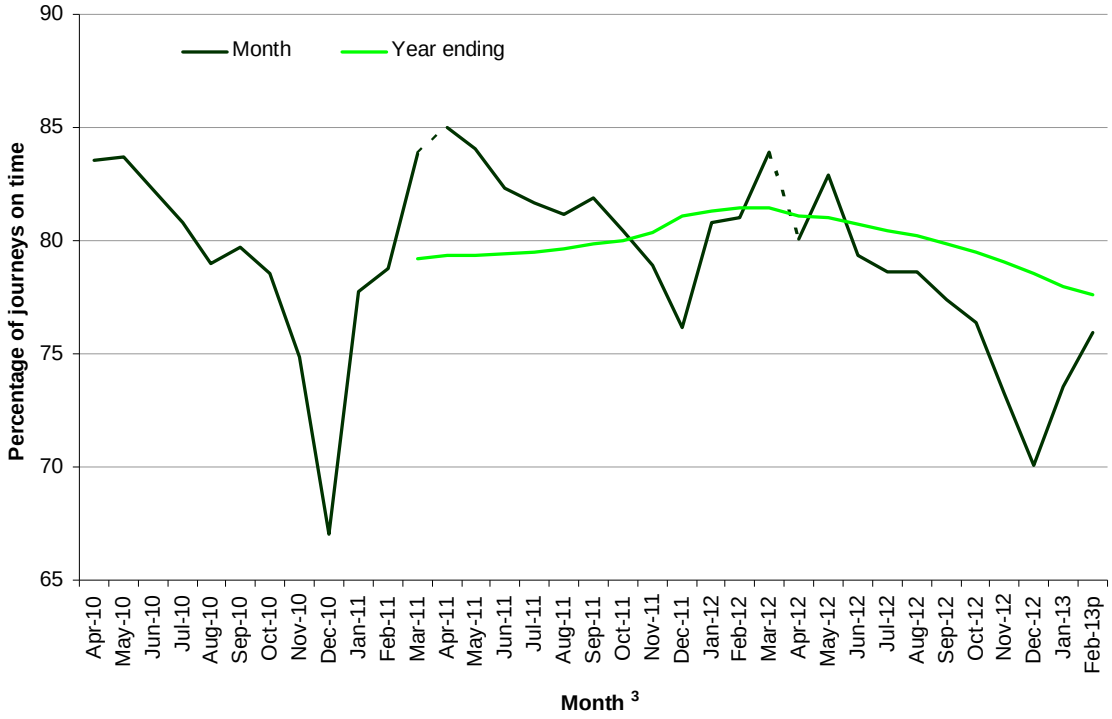
**The key findings from this statistical release include:**

- In the year ending February 2013, provisional data show that 77.6 per cent of journeys on the Highways Agency managed network were 'on time'. This is 0.4 percentage points lower than the previous year, ending January 2013.
- The annual reliability measure consistently increased up to March 2012, but has fallen in the last eleven months.
- Provisional data show that 76.0 per cent of journeys on the Highways Agency network during February 2013 were 'on time', down 5.0 percentage points from February 2012.

# 1. National overview of reliability

- Provisional data show that 77.6 per cent of journeys made on Highways Agency managed roads between March 2012 and February 2013 were 'on time'. This is 0.4 percentage points lower than the previous rolling year, ending in January 2013.
- During February 2013, provisional data show that 76.0 per cent of journeys on Highways Agency's motorway and 'A' road network were 'on time'. This is 5.0 percentage points lower than the equivalent figure for February 2012.
- The annual reliability measure consistently increased up to March 2012, but has fallen in the last eleven months, and is at its lowest point since the measure was introduced in 2010/11. 2012 was the second wettest year since records began with substantial rainfall during the final three quarters of the year. Significant amounts of rainfall compared to 2011 will have led to slower speeds on the network, slower journeys and thus a fall in reliability. The falls in reliability in recent months have been particularly pronounced. These falls were again predominantly due to heavy rainfall and a period of significant snowfall across much of the country in January, which caused considerable disruption on the roads.

**Percentage of journeys [1] on Highways Agency motorways and 'A' roads that are 'on time' [2]: April 2010 to February 2013 [p]** (Reliability web table CGN0104)




1. 'Journeys' are defined as travel between adjacent junctions on the network.
2. An 'on time journey' is defined as one completed within a set reference time, drawn from historic data on that section of road.
3. Reference times are updated for the April data each year. Further information on the impact of updating reference times can be found in section 3 of this release.
4. Data to December 2012 were revised in March 2013 as a result of the implementation of planned methodology changes

p = provisional

## 2. Improvements to the reliability statistics

As set out in last month's release, the historic reliability data series to December 2012, as shown in the chart presented above, was revised last month as a result of planned methodology changes. These changes were made to address issues of comparability of reliability estimates using different data sources. As a result of the methodology changes, journey times are now estimated using in-vehicle GPS data only. Further information on the methodology changes made, including a chart comparing the revised national monthly series with the previous series can be found in the *Reliability methodology changes Q&A* document at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/140067/methodology-changes-qa-march-2013.pdf

We continue to be confident that the statistics in this release are robust and provide a true reflection of how journey reliability has changed at a national level.

It is anticipated that the recent methodology changes will enable robust comparisons of the performance on different sections of network and on individual road sections over time. Further quality assurance work will be undertaken over the coming months to assess the suitability of the sub-national data as official statistics. Journey time reliability data for individual road sections are currently published by the Highways Agency through the data.gov.uk webpage.

## 3. Strengths and weaknesses of the data

As a measure that is based on comparing current journey times on the network to road users' previous experiences on similar types and times of day, these statistics are very useful in monitoring how predictable journey times on the network are. However, they do not directly measure whether congestion, in a physical sense, has improved or deteriorated over time.

For example, journeys on a particular stretch of road could be very slow moving at certain times of the day with lots of congestion evident. However, if the effects of this congestion were fairly predictable and journey times were always of, or around, a similar value, these journeys would be considered reliable. Similarly, journeys on another stretch of road could be fairly fast moving on average but equally would be considered unreliable if conditions varied wildly from day to day, with some journeys experiencing very little congestion while others were affected severely.

The statistics used to monitor journey time reliability on Highways Agency's motorway and 'A' road network are compiled from data from in-vehicle GPS and flows estimated using automatic traffic counters.

Real, observed, journey time data with a good temporal match are used to estimate reliability for each section of road. Where no data of this quality are available for a particular section of road or time period, reliability levels are imputed. Imputation is based on corresponding day-time and

night-time averages for individual sections of road in each month where there are sufficient data. Where there are insufficient data for individual road sections, national day-time and night-time averages for that month are used to impute reliability levels.

14.1 per cent of the data used to estimate journey time reliability in February 2013 required imputation using either national or individual road section averages. This compares to 16.3 per cent of data requiring imputation in February 2012. A monthly breakdown of the amount of data requiring imputation is available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/51128/ha-data-quality.xls

Imputation levels are now higher following the implementation of the new methodology last month. This is because we are now only using the GPS source to estimate journey times and we no longer use journey time estimates based on a single vehicle observation. However, imputed estimates will now be of a higher quality, because of changes to imputation methods. Imputed estimates will now generally be predominantly based on performance at a link level for individual months. National level estimates will continue to be used to impute for missing values on road sections with very little observed data.

Reference journey times are updated on an annual basis, at the start of each financial year, in order to reflect the latest conditions experienced on each part of the network. Differences observed when comparing months in different financial years will partly reflect a change (up to around +/- 1 percentage point for comparisons between individual months in consecutive financial years) relating to the updated references used.

The final figure for reliability on the Highways Agency managed network during the year ending January 2013 was 78.0 per cent, unchanged from the provisional estimate published last month. The reliability statistics for February 2013 are currently provisional while final checks on the raw data sources underpinning the statistics are carried out. The statistics will be finalised in May 2013, but are unlikely to change from the provisional estimates.

# 4. Background notes

1. The web tables give further detail of the key results presented in this statistical release and statistics on other related topics. They are available here: https://www.gov.uk/government/organisations/department-for-transport/series/road-congestion-and-reliability-statistics#statistical-data-sets

2. Full guidance on the methods used to compile the reliability statistics presented in this release can be found here: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/51127/Methodology_for_calculation_of_reliability_on_Highways_Agency_s_motorway_and__A__road_network.pdf

3. A useful introduction into the Department's congestion and reliability statistics, providing more detail as to what the different statistics measure, how they are published and the ways in which they are used is available here: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/51125/An_introduction_into_the_Department_for_Transport_s_congestion_statistics.pdf

4. National Statistics are produced to high professional standards set out in the Code of Practice. They undergo regular quality assurance reviews to ensure they meet customer needs: http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html

5. In July 2012, the United Kingdom Statistics Authority confirmed the designation of these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods, and
- are managed impartially and objectively in the public interest.

The assessment of compliance with the Code of Practice for Official Statistics and subsequent letter confirming the designation of these statistics as National Statistics can be found here: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/51139/Assessment_of_compliance_with_the_Code_of_Practice_for_Official_Statistics_-_Statistics_on_Road_Reliability_and_Congestion.pdf

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/51140/Letter_of_confirmation_as_National_Statistics.pdf

6. Details of ministers and officials who receive pre-release access to these statistics up to 24 hours before release can be found here: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/51141/Pre-release_access_list_-_Reliability_of_journeys_on_Highways_Agency_s_motorway_and_A_road_network.pdf

7. The next release of these statistics will be published on 9 May 2013. It will contain provisional information about the reliability of journeys on the Highways Agency's motorway and 'A' road network in the year ending March 2013 and the final figures for February 2013.

8. As outlined in previous months, we will be changing the frequency of this statistical release from monthly to quarterly after the publication of the April 2013 statistics (in June). We will continue to publish all of the reliability statistics in this release on a monthly basis in table CGN0104.

## 5. Request for feedback

We are always keen to receive feedback from users of transport statistics. If you have any comments about how the statistics in this release are presented or analysed, please contact us using the details listed on the first page of this release.