



Passenger rail performance

Quality and methodology report

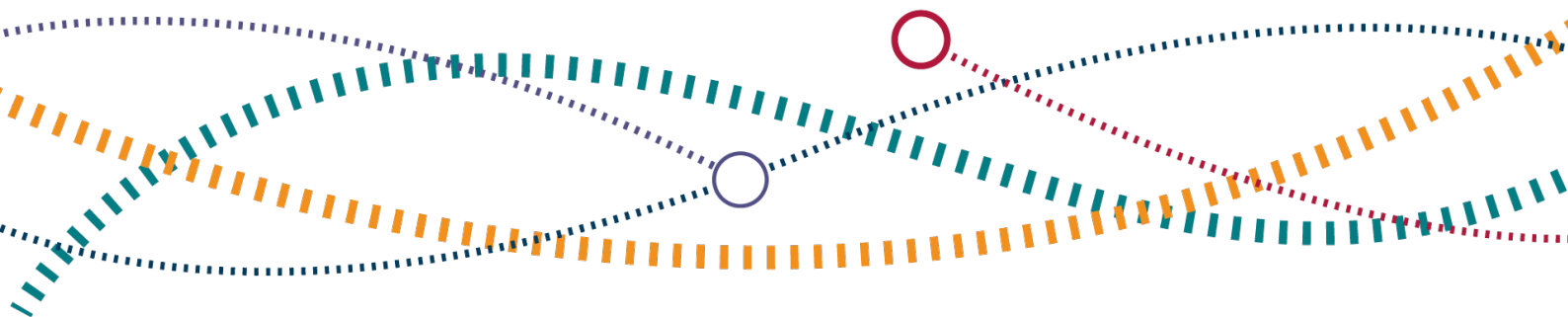
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Introduction

This is a report on the quality and methodology of the quarterly passenger rail performance statistical release and associated data tables. It helps users to understand the quality of our statistics, and also ensures ORR is compliant with the three quality principles in [the Code of Practice for Official Statistics](#) - Q1: Suitable data sources, Q2: Sound methods, and Q3: Assured quality. This report also provides information on the methodology and data sources used to produce the statistics.

This report covers the following areas:

- Data sources, methodology and definitions – detail on the various data sources, methodology used to compile the statistics, and key definitions;
- Historic background – a background to passenger rail performance statistics and details of any changes throughout the time series;
- Relevance to users – the users of the statistics, and our engagement;
- Accuracy and reliability – the accuracy, data coverage and quality assurance of the statistics;
- Timeliness and punctuality – our timescales for the production and publication of the statistics;
- Accessibility and clarity – the format of our statistics and where they can be found;
- Coherence and comparability – similar statistics published elsewhere and the degree in which the statistics can be compared over time.

Data sources, methodology and definitions

Data source

The data contained within the release and the data tables are sourced from Network Rail. Data are provided 13 times a year (each railway period) and the only estimates made for this output are those produced by converting periodic data into quarterly data (further explanation is provided below). No imputed or manually edited data are required in the production of these statistics.

Methodology

The rail industry reports on a periodic basis rather than a more recognised reporting cycle such as monthly or quarterly. A railway period is normally a 28-day, or four weekly, period for business reporting purposes (Sunday to Saturday). There are 13 periods in a financial year. The length of a period may differ at the end of the financial year, 31 March, and the beginning of the financial year, 1 April, to ensure a break is made at 31 March.

Some quarterly datasets, such as train punctuality, and the Cancellations measure, require apportionment of these data.

The standard method for apportionment is based on the number of days within the period that fall into the relevant quarter. For example, the dates in period 4 cover both the first quarter (April to June) and the second quarter (July to September). When the quarterly data are calculated for the year April 2023 to March 2024, 6/28 of the data from period 4 (covering 25 June to 30 June) are assigned to the first quarter and 22/28 of the data (covering 1 July to 22 July) are assigned to the second quarter.

The breakdown of the calculations used for 1 April 2023 to 31 March 2024 are as follows:

Quarter number	Quarter	Calculation
1	1 Apr to 30 Jun 2023	Period 1 + Period 2 + Period 3 + 6/28 of Period 4
2	1 Jul to 30 Sep 2023	22/28 of Period 4 + Period 5 + Period 6 + 14/28 of Period 7
3	1 Oct to 31 Dec 2023	14/28 of Period 7 + Period 8 + Period 9 + 22/28 of Period 10
4	1 Jan to 31 Mar 2024	6/28 of Period 10 + Period 11 + Period 12 + Period 13

Definitions

Moving Annual Average

The moving annual average (MAA) reflects the proportion of station stops on time/trains cancelled in the last 4 quarters or 13 periods. MAAs are used to account for seasonality of data and highlight longer term trends.

Train punctuality

Punctuality at each recorded station stop

The punctuality of trains is measured at departure from the origin, arrival at the final destination and arrival at each intermediate station stop where recorded. Train punctuality is currently recorded at around 90% of all station stops. This is expected to increase over time.

- **On Time** measures the percentage of recorded station stops arrived at early or less than one minute after the scheduled time (as per timetable). Early trains are classified as 'on time'. A higher On Time score indicates better punctuality.
- **Time to 3 and Time to 15** measure the percentage of recorded station stops arrived at early or less than three and 15 minutes respectively after the scheduled time respectively. The percentages are cumulative, so for example, the Time to 15 measure will include all the punctual (train) recorded station stops included in the Time to 3 measure (+ arrival of all recorded station stops between 3 minutes and 14 minutes 59 seconds).

A recorded station stop is defined as a location with both a planned Great Britain timetable date/ time and an actual recorded date/ time (according to Network Rail's TRUST system). Planned stops where the train fails to stop at the location i.e. because the train has been cancelled in part or in full are excluded from these measures. Any train that fails to complete its full journey as scheduled is separately classified as either a part or full cancellation depending on the proportion of the journey completed.

Recorded station stops which are pick-up only or drop-down only are included within the measure because there are planned and actual date times within the TRUST system for them. However, request stops are only included when they are activated and an actual arrival time is recorded.

There was a large increase in the number of recorded station stops during the year April 2018 to March 2019. This is the result of more trains on the network and an increase in recording at station stops. We have undertaken some initial analysis to understand the effect of the increase in recorded station stops on these punctuality measures. This

analysis suggests that the increase in recording at station stops partly explains the increase in the measures presented above; therefore, the improvements in punctuality are not fully due to improved train performance. ScotRail figures are particularly affected by these changes and should be treated with caution.

We publish quarterly and periodic punctuality data at operator level.

Public Performance Measure (PPM)

The lead measure of punctuality up to the end of Control Period 5 (April 2014 – March 2019) was the Public Performance Measure.

- **Public performance measure (PPM)** is the proportion of trains arriving at their final destination early or less than five minutes after the scheduled time for London and South East, Regional and Scotland operators, or less than ten minutes for Long Distance operators. For open access operators (Hull Trains, Grand Central and Lumo), it's less than ten minutes, except for Heathrow Express services which is less than five minutes. Where a train fails to stop at one or more booked calling points on the journey, the train is considered to have failed PPM. A higher score indicates better punctuality.

The new On Time measure calculates the proportion of recorded station stops arrived at early or less than one minute after the scheduled time. It will, therefore, almost always be a lower percentage than PPM.

We publish PPM data quarterly at sector and operator level. We also publish disaggregated PPM data by operator and sub-operator for each period. Sub operator PPM provides a breakdown of each operator's performance. For example, PPM data for London North Eastern Railway is available for Anglo-Scottish services and London-Leeds and North East (including Lincoln) services.

Train reliability

Cancellations

Cancellations score is a new measure of reliability for Control Period 6 (CP6). It only includes trains that have been cancelled and is completely separate from the punctuality measures at recorded station stops.

- **Cancellations score** measures the number of trains that are cancelled as a percentage of trains planned. This would include trains missing stations and/or not reaching their destination. The cancellations measure is a score which weights full cancellations as one and part cancellations as half. This industry measure is an indicator of disruption against the timetable operating on the day. The timetable is

finalised at 22:00 the previous evening, and trains removed from the timetable before then will not be included. A lower Cancellations score indicates better reliability.

A train is classed as a **full cancellation** if it ran less than half of its planned journey length (including trains that did not run at all).

A train is classed as a **part cancellation** if:

- It ran at least half but not all of its planned journey length, or
- It completed its whole journey length but failed to stop at one or more of its planned stations.

The Cancellations score % is calculated by dividing the Cancellations score (number) by the number of trains planned.

We publish quarterly and periodic cancellations data at operator level and by responsibility category.

Examples of responsibility categories are 'NR responsible – Infrastructure and network management' - track or signalling; 'NR responsible - External event' - weather or vandalism; Operator responsible - Train fault' - broken down train, crew shortage; 'Operator responsible - External' - passenger taken ill on train.

Resource availability shortage “P*-coded” pre-cancellations

Resource availability shortage “P*-coded” pre-cancellations is the practice by some operators of removing planned services from the timetable before it is finalised at 22:00 the previous evening due resource availability. As these services are removed from the final timetable, they are not included in the Cancellations score measure. On 19 January 2023, [ORR wrote to all train operators](#) to seek their confirmation that they will support and participate in action by the industry to stop the use of resource availability shortage “P*-coded” pre-cancellations.

Severe disruption

Severe disruption is another train reliability measure.

- **Severe disruptions** counts the number of days on which a substantial number of services were cancelled. It is measured differently at the National and sub-operator levels: A day counts as severely disrupted at the National (GB) level when the Cancellations score is 5% or more. At the sub-operator level, a day counts as severely disrupted when the Cancellations score is 20% or more.

We publish periodic data on severe disruption at National and sub-operator level.

Cancellations and significant lateness (CaSL)

The previous measure of reliability, used in CP5, was the Cancellations and Significant Lateness (CaSL) measure.

- **Cancellations and Significant Lateness (CaSL)** – the percentage of passenger trains cancelled or arriving at their final destination more than 30 minutes later than planned.

CaSL was developed as a supplementary measure to PPM and delay minutes to ensure trains were not ‘written off’ by controllers or signallers once they exceeded their PPM threshold. This measure helps performance recovery by not terminating a train short of its final destination and incentivising controllers or signallers to ensure the train arrives less than 30 minutes late.

A cancellation is defined as the termination of a train prior to reaching its destination or the failure of a train to depart from its point of departure; for which it was scheduled to run in the applicable timetable. There are two types of cancellations:

- **Part** – A train is considered to be a part cancellation if it covers more than half the scheduled mileage and either failed to run the whole journey or failed to stop at any station on the way. Trains completing their scheduled journey but arriving at their final destination late by 120 minutes or more also count as part cancellations;
- **Full** – A train is considered to be a full cancellation if it covers less than half the scheduled mileage, or does not run at all.

CaSL data are calculated by taking the total number of passenger trains cancelled (part or full) and significantly late (between 30 and 119 minutes) and dividing by the number of trains planned. This figure is expressed as a percentage and a lower figure indicates fewer cancellations and significant lateness. Periodic CaSL and CaSL MAA data are available by operator and sector.

Delay minutes

Delay minutes are a useful diagnostic measure underpinning the punctuality of passenger and freight train services.

- **Delay minutes** – delays to train journeys experienced by passenger and freight companies due to disruption.

Delay minutes data are captured on Network Rail's TRUST system (a nested acronym standing for Train Running System on TOPS (Total Operation Processing System)).

Network Rail attributed delays and freight delays data are also available in the [Annual Return](#), an historical record of Network Rail stewardship.

Delay incidents are incidents that cause delay to passenger and freight trains. Delay incidents cause delay minutes. Delay incidents producing three or more delay minutes are attributed by Network Rail.

Historical delay minutes may be refreshed due to a dispute resolution process. We publish periodic delay minutes by operator and by responsibility category.

Other rail passenger performance measures

Consistent Region Measure – (Passenger) Performance

The Consistent Region Measure - (Passenger) Performance (CRM-P) is one of the key measures used by ORR for the routine monitoring and assessment of Network Rail's passenger rail performance. ORR monitors delivery against annual CRM-P targets and regulatory floors set for each of the five Network Rail Regions.

- CRM-P is defined as the delay attributed to Network Rail from incidents occurring in each Network Rail Region, per 100 train kilometres. A lower score reflects better performance. The moving annual average (MAA) reflects the average delay attributed to Network Rail per 100 train kilometres in the past 12 months.

We publish periodic data on CRM-P by Region. As CRM-P is calculated using delay minutes, historical CRM-P data may be refreshed when updated information is published.

Average passenger lateness

Average passenger lateness (APL) is an estimate of how late every passenger reaches their destination station.

- APL measures the average lateness of a passenger as they alight from their train. It is calculated for each train by multiplying the number of passengers expected to alight at main stations by the punctuality to the nearest minute at those stops. The measure also takes into account passenger lateness resulting from cancelled trains.

The national APL score is calculated by the following process:

- Operators are split into service groups. For each service group the APL is calculated by direction of travel, by time of day (peak and off-peak) and by day of the week.

Each service group/direction of travel has been assigned monitoring points at which trains are measured against the public timetable.

- Analysis of ticket sale data and revenue modelling is used to estimate the number of people alighting trains at each station by direction of travel, time of day and service code. Each monitoring point is weighted by the proportion of passengers that alight at this station or that have alighted since the last monitoring point.
- Trains that arrive early are assumed to have arrived on time as research has shown that passengers do not value earliness over right time. Where a train fails to call at a monitoring point, APL is assumed to be 1.5 times the service frequency. So if a service group has a half hourly frequency then the passengers expected to have alighted the train are assumed to be 45 minutes late.
- To calculate the national score, the APLs for all monitoring points are aggregated and weighted by passenger numbers. The APL is calculated for trains advertised as scheduled at 22:00 the day before.

One **limitation** of APL is that it is the average lateness of a train at key locations weighted by the number of passengers alighting from those trains. Whilst each leg of a journey involving connections is measured, the overall success of a journey is not. That is, the delay incurred by missing a connecting service is not accounted for by the APL.

We publish periodic data on APL by operator and sector.

Sector definitions

The rail network is subdivided into three sectors: Long Distance, London and South East and Regional. At the time of privatisation these three sectors were based on the business units of British Rail.

- **London and South East sector** – based on the British Rail Network SouthEast services which operated commuter trains in the London area and the inter-urban services in South East England, although the network reached as far west as Exeter and as far north as Worcester, Northampton and King’s Lynn;
- **Long Distance sector** – based on the British Rail InterCity services which were long-distance express services. Caledonian Sleeper services are not included in the Long Distance sector. They do, however, have a 10 minute threshold for PPM purposes;
- **Regional and Scotland sector** – based on the British Rail Regional Railways services which were all other services not included in the other two sectors. For the

statistics published in our themed statistical releases services in Scotland and Wales are defined as regional services.

Following the refranchising of some services in 2006 and 2007 a number of operators run services in more than one of the sectors. The current mapping of services to within each sector is listed below.

Long Distance:

- Greater Anglia (inter city services)
- CrossCountry
- East Midlands Railway (services to and from London St Pancras)
- TransPennine Express (performance statistics only)
- Grand Central (Open Access Operator)
- Great Western Railway (High speed services)
- Hull Trains (Open Access Operator)
- London North Eastern Railway (formerly Virgin Trains East Coast)
- Avanti West Coast (formerly Virgin Trains West Coast)
- Lumo (Open Access Operator)

London and South East:

- Greater Anglia (all non inter city services)
- c2c
- Chiltern Railways
- Govia Thameslink Railway
- Great Western Railway (London and Thames Valley commuter services)
- Heathrow Express (Open Access Operator)
- West Midlands Trains (Euston, St Albans, and Bletchley services)
- London Overground
- South Western Railway
- Southeastern
- Elizabeth line

Regional:

- Transport for Wales (TfW) Rail
- East Midlands Railway (services in the East Midlands and in Central and Northern England)
- Great Western Railway (services in the west of England)
- West Midlands Trains (other services)
- Merseyrail
- Northern

Scotland:

- Caledonian Sleeper (10 minute threshold for PPM)
- ScotRail

Transfer of services from Long Distance to Regional

The new Northern and TransPennine Express (TPE) franchises commenced operation on the 1 April 2016. Services between Manchester Airport and Blackpool North/Barrow-in-Furness and between Oxenholme and Windermere were transferred from TPE to Northern. Having previously had ten minutes to meet the Long Distance threshold for PPM, these services now have a five minute threshold in the Regional sector.

The historic data for TPE and Northern have been remapped to allow like for like comparisons to be made for these operators. At the national and sector level, however, the historic data have not been remapped. Using disaggregated data it is possible to assess what the effect of these changes would have been on PPM and PPM MAA between 2010-11 and 2015-16:

- **National:** Quarterly PPM adjustments of between -0.1 pp and 0.1 pp leading to reductions of between 0.01 pp and 0.02 pp for the PPM MAA;
- **Long Distance:** Reductions of between 0.2 pp and 0.6 pp to quarterly PPM values resulting in a fall in the PPM MAA of between 0.3 pp and 0.5 pp;

- **Regional and Scotland:** Quarterly PPM adjustments of between -0.2 pp and 0.2 pp leading to changes to the PPM MAA ranging from -0.05 pp to 0.03 pp.

Rail usage data sectors

Data within the LENNON (Latest Earnings Networked Nationally Over Night) ticketing and revenue database was changed following refranchising in 2006 and 2007 as the Rail Delivery Group (RDG) wished to keep a consistent time series. However, because ORR is able to extract data at a route level the data for multi-sector operators can be assigned to the relevant sectors. There is a difference between the rail usage and performance data as TransPennine Express services are classed as Regional services within [rail usage data](#) as opposed to Long Distance in performance data.

Historical background

Resource availability shortage “P*-coded” pre-cancellations

From rail period 11 2022-23 (8 January to 4 February 2023), ORR collected and published the number of trains that each operator removed from the timetable due to resource availability shortages. The official Cancellations score data are sourced from Network Rail’s TRUST system. The additional data on the number of resource availability shortage “P*-coded” pre-cancellations have been supplied to ORR by each individual train operator. These data have been combined to calculate an ‘adjusted Cancellations score’, i.e. the number of full pre-cancelled trains have been added to the number of ‘on the day’ timetabled trains planned, and the full and part pre-cancellations have been added to the ‘on the day’ cancellations using the existing methodology which counts full cancellations as one and part cancellations as half.

There are some **limitations** that users should be aware of:

- This data only covers pre-cancellation due to availability of train operator staff or rolling stock, or Network Rail staff. Other types of pre-cancellation (for example due to severe weather or major ongoing infrastructure unavailability) are not included within this data.
- There is no automatic recording of resource availability shortage pre-cancellations at present. Therefore, data is manually recorded by train operators, without verified methodology.
- There is no historic data available on resource availability shortage pre-cancellations. Data collection by ORR began in period 11 2022-23 (8 January to 4 February 2023).
- For the adjusted Cancellations score calculation only full pre-cancelled trains have been added to the number of ‘on the day’ timetabled trains planned as the part pre-cancelled trains are included in the timetable however it does mean that if a part pre-cancelled train is also cancelled on the day it will be counted again and therefore inflating the adjusted Cancellations score slightly.

Passenger rail performance measures for Control Period 6

The rail industry developed a new set of punctuality and reliability performance measures for Control Period 6 (April 2019 to March 2024) to improve rail performance and increase customer satisfaction. ORR published the outputs of some of these measures in an annual performance factsheet and periodic data tables since August 2017.

After a period of consultation with users and stakeholders, and based on the feedback received, we restructured this statistical release from the April to June 2019 release and

made a number of changes to associated data tables to better reflect these new performance measures in our published statistics.

Timetable change 20 May 2018

Twice every year, in May and December, a new system-wide timetable is produced for the railway network. In May 2018 on some routes and for some operators this change caused disruption, in particular for Govia Thameslink Railway, Northern, and TransPennine Express. This timetable change occurred halfway through the April to June 2018 quarter and so will have had an impact on punctuality and reliability figures for that quarter. [ORR's inquiry into the May 2018 timetable disruption](#) was published on 7 December 2018.

Regulatory targets in Control Period 5

Up to the end of the Control Period 5 (April 2014 – March 2019) Network Rail had regulatory targets for:

- **PPM** for England & Wales and each franchised operator including a separate PPM target for Scotland;
- **CaSL** for England & Wales and each franchised operator (no CaSL target for Scotland);
- National **FDM**.

Through consultation with Network Rail and the rail industry, ORR conducts periodic reviews of Network Rail to determine the outputs they must deliver, and the levels of access charge paid by operators for use of its infrastructure. Subsequently ORR produced a [determination document](#) for the next five year period, Control Period 6 (CP6) which covers 1 April 2019 to 31 March 2024.

The determination document provides challenges and incentivises Network Rail to work together effectively with its industry partners to:

- Ensure the ongoing safety of the rail network;
- Improve the efficiency of operating, maintaining, renewing and enhancing each of the routes;
- Improve its understanding of the capacity and performance of the network

We have finalised a revised framework to hold Network Rail to account to meet the reasonable requirements of its customers in Control Period 6 (CP6). Our [‘CP6 holding](#)

[Network Rail to account](#) policy was published in March 2019 and took effect from the beginning of April 2019.

Public Performance Measure (PPM)

PPM was introduced during June 2000 and combines figures for punctuality and reliability into a single performance measure and is calculated by dividing the number of trains on time (trains within PPM) by the number of trains planned. This figure is expressed as a percentage and a higher figure indicates a greater number of trains 'on time'.

Right time

Right time data focuses on the arrival time of a train and is a supplementary metric to PPM. It was first published on our data portal in July 2012 as part of the rail industry's commitment to improving information to customers and increasing transparency.

- **Right time** measures the percentage of trains arriving at their terminating station early or within 59 seconds of schedule.

Right time data are calculated by dividing the number of trains within 'right time' by the number of trains planned. This figure is expressed as a percentage and a higher figure indicates a greater number of 'right time' trains.

The **On Time** measure differs from the Right Time measure which only records punctuality within a minute at destination.

We publish [right time data](#) periodically at sub operator level on the data portal.

Changes in passenger rail usage

The number of passenger trains planned increased by 33% between the financial year to 1998 and the financial year to 2019. In the same time, the [length of route open for passenger traffic](#) has not increased by a significant amount. The density of trains running on the network is, therefore, higher now than at the end of the last century. Therefore, the potential for disruption to spread around network has increased, while the ability for services to be recovered has been diminished. Furthermore, [twice as many passenger journeys were made in the financial year to 2020 than in the financial year to 1998](#). This may have increased station dwell times and harmed performance as it takes longer for passengers to board and alight trains at busy times.

Relevance to users

The degree to which the statistical product meets the user needs in both coverage and content.

Punctuality and reliability data, delay minutes and CRM-P are key performance measures, which ORR take into account in our regulation of Network Rail over CP6.

This statistical release and the accompanying data published on our data portal are used by a range of individuals for planning, analysis, decision making and data validation.

ORR's last [user survey](#) took place from mid-January to mid-April 2020. The aim of the survey was to gather feedback on ORR's new data portal; this includes statistical releases, data tables and other supplementary material. There were 42 responses to the survey. ORR created an [implementation plan](#) following the 2020 user survey.

More detailed information on users of ORR statistics and meeting the needs of users is available on our [user engagement webpage](#).

How these statistics can and cannot be used



- Monitoring the punctuality and reliability performance of passenger rail services in Great Britain
- Supporting high level understanding of why performance has changed on the rail network
- Comparing rail performance by passenger operator (noting that performance across the rail network will have different challenges e.g. busier sections)
- Monitoring performance over time, broadly based on the railway as it exists today



- Monitoring passenger rail usage (refer to [Passenger rail usage statistics](#))
- Monitoring freight rail performance (refer to [Freight rail usage and performance statistics](#))
- Monitoring the impact of franchise changes on performance (historical data is generally presented based on the railway as it exists today)

Accuracy and reliability

The proximity between an estimate and the unknown true value.

Estimates

Train performance data are provided by Network Rail 13 times a year (each period) and the only estimates made are those ORR do to convert this periodic data into quarterly data (as explained above in the methodology section). No imputed or manually edited data are required in the production of these statistics.

The latest periodic data from Network Rail should always be treated as provisional. Data can be refreshed when operators provide updated cancellations data as they finalise their data. Network Rail provides us with the final figures one period later, once they have received the final cancellations data from the operators.

Coverage

These statistics cover all passenger train operators in Great Britain, both franchised and non-franchised (open access). Franchised operators run services as part of contracts awarded by government (although no longer franchises we have retained this term for referring to these operators for consistency and until a new term is adopted across the industry). The coverage of performance data can vary over time based on the operators operational at the time. For example, the non-franchised operator Wrexham and Shropshire ceased operations in January 2011. Figures prior to this date include this operator.

Quality assurance

Train performance data are supplied by Network Rail and stored in a secure data warehouse maintained by ORR. The data supplied is subject to an extensive quality assurance process, including a suite of validation checks to ensure the data meets the required specification and is in line with previous trends. Any arising issues are flagged with Network Rail who must confirm the anomalies or correct the data and re-submit.

Explanations from Network Rail regarding data anomalies are included within our commentary to clarify the data and trends.

These data are then prepared for publication. The process includes quality assuring the tables and charts produced and providing supporting commentary regarding the key trends, methodology and quality measures. These reports are subject to peer review.

The final stage of the quality assurance process is a sign off by the statistics Head of Profession confirming the data and outputs meet the quality standards and are fit for publication.

Train performance measures

Punctuality measures monitor the performance of individual trains against their planned timetable. These plans, technically called 'plan of the day' as agreed by the operator and Network Rail at 22:00 the night before, are usually the same as the published timetable with amendments reflecting pre-published engineering works; however, they may differ from their published timetable. Differences may exist for example when an operator and Network Rail agree to move to an emergency timetable in bad weather. An emergency timetable aims to minimise the effects of extended disruption and provide a structured return to the working timetable after the network has been restored to normal use. In this case, provided the cancelled services are removed from the railway systems before the 22:00 deadline the prior day, these trains will be excluded from the punctuality measures recording. This also requires agreement from the relevant franchising body.

Trains which complete their journey as planned are measured for punctuality at each recorded station stop. A train's performance is generally recorded by an automated monitoring system which logs performance using the signalling equipment. At termini, an allowance (known as berthing offset) is often added to the time recorded by the signalling equipment to allow for the time taken for the train to stop at the platform.

Trains that fail to stop at one or more scheduled stops on its journey are excluded from the On Time punctuality measure as they are separately classified as either a part or full cancellation depending on the proportion of the scheduled journey completed.

Most cancellations are captured by the automated monitoring system; however, trains still need to be 'entered' as cancelled so they appear accurately on information systems. Failure to do this may require manual editing by the operators.

Delay minutes

Delay minutes data are subject to change after the resolution of incident disputes between train/freight operating companies and Network Rail over who is responsible for the delay and the affected operators. Based on this, delay minutes can be re-attributed between Network Rail and train/freight operating companies.

Independent reporter's assessment of accuracy and reliability of data

Arup (in partnership with Winder Phillips Associates) was appointed as an independent reporter by ORR and Network Rail in 2009 to review Network Rail's data and provide us with assurance of the accuracy and reliability of their information.

PPM and delay minutes data each received very high confidence grades of A1 for both 2009/10 and 2010/11. The confidence grade for CaSL improved from B2 in 2009/10 to A2 in 2010/11. The latest [independent reporter review of Performance Measures](#) took place in 2012/13 with PPM and CaSL remaining at A1 and A2 respectively.

Arup also conducted a [review of the new performance metrics](#) in 2017, to provide an indication of their current accuracy, reliability and general suitability for use in CP6, and how they could be improved. Punctuality measures, 'On time' scored C2 and 'Time to 15' scored C2. Reliability measures, Cancellations scored B2 and Severe disruptions scored B1.

For further details about the reliability and accuracy confidence grades or assessment please see the [independent reporters page](#) on our website.

Revisions policy

ORR's statement on [orderly release and revisions policy](#) outlines ORR's revision policy. Details of any revisions are available in the [revisions log](#). Further information on revisions and data series breaks can also be found in the data tables.

Timeliness and punctuality

Timeliness refers to the time gap between publication and the reference period.
Punctuality refers to the gap between planned and actual publication dates.

ORR aims to publish these statistics as soon as possible after the end of the period. Periodic train performance data are typically available on the data portal within 20 days of the period ending. Quarterly data are published around two months after the quarter ends.

The [publication schedule](#) available on the data portal outlines the publication dates for National Statistics quarterly and annual statistical releases and other official statistics up to 12 months in advance.

Accessibility and clarity

Accessibility is the ease with which users are able to access data, also reflecting the format in which data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of metadata, illustrations and accompanying advice.

Statistics need to be presented in a clear and understandable form. All our rail statistics data tables can be accessed free of charge on our [data portal](#). Commentary about the statistics and trends are provided in the statistical releases. Interactive dashboards (PowerBI) are also available.

Our data portal and its content meet the accessibility standards of the [Public Sector Bodies Website Accessibility Regulations](#). We support our users by providing the information they need in a way that is clear and accessible. Our statistical releases use plain language, and any technical terms, acronyms and definitions are clearly defined and explained when this is appropriate, to ensure that the statistics can be used effectively. Our data tables are available at the highest level of detail that is practical and in accessible formats. All data tables are available in OpenDocument Spreadsheet (.ods) format. We can also provide data in csv format on request.

Please see our [accessibility statement](#) for further details, including any non-accessible content.

Data tables

All tables associated with this release can be found under the Data tables heading at the bottom of the [Passenger rail performance page](#).

Train punctuality

- Train punctuality at recorded station stops by operator – Table 3133
- Train punctuality at recorded station stops by operator (periodic) – Table 3138
- Public Performance Measure by operator and sector – Table 3113
- Public Performance Measure by operator and sector (periodic) – Table 3114

Train reliability

- Trains planned and cancellations by operator and cause – Table 3123
- Trains planned and cancellations by operator and cause (periodic) – Table 3124
- Days of severe disruption by sub-operator (periodic) – Table 3157
- Cancelled and Significantly Late by operator and sector (periodic) – Table 3194
- Pre-cancellations and adjusted cancellations score by operator (periodic) – Table 3128

Other tables

- Disaggregated train punctuality and reliability performance by sub-operator (periodic) – Table 3167
- Average passenger lateness by operator and sector (periodic) – Table 3144
- Delay minutes by operator and cause (periodic) – Table 3184
- Historic passenger trains planned, PPM, and CaSL - quarterly by operator – Table 3103
- Consistent Region Measure (Passenger) Performance by Region (periodic) – Table 3174

Coherence and comparability

Coherence is the degree to which data that are derived from different sources or methods, but refer to the same topic, are similar. Comparability is the degree to which data can be compared over time and domain.

Related data

[Network Rail](#) and [Rail Delivery Group](#) also publish data on train punctuality and Cancellations in Great Britain every railway period.

Freight rail performance data tables are published on the [Freight rail usage and performance page](#) on the data portal.

The Department for Transport (DfT) also publishes [rail statistics](#). For example, Rail passenger numbers and overcrowding on weekdays in major cities.

Transport Focus publish the [National Rail Passenger Survey](#) (NRPS).

European comparisons

[Comparisons with railways in the rest of Europe](#) are available for the calendar years 2014 to 2016. For trains in Scotland and the Regional and London and South East sectors, 87.8% of services in 2016 arrived less than five minutes after their scheduled arrival time at their final destination. This ranks Britain 19th out of 25 countries. For long distance services, 77.5% arrived less than five minutes after their scheduled arrival time at their final destination. This ranks Britain 15th out of 23 countries.

Length of comparable time series

Measure	Start of time series (first quarter or period)	Any break in time series
Historic passenger trains planned, PPM, and CaSL by operator (Table 3103)	1 Apr to 30 Jun 1997	-
Public Performance Measure by operator and sector (Table 3113)	1 Apr to 30 Jun 1997	-
Train cancellations by operator and cause (Table 3123)	1 Apr to 30 Jun 2014	-

Train punctuality at recorded station stops by operator (Table 3133)	1 Apr to 30 Jun 1997	-
Public Performance Measure by operator and sector (periodic) (Table 3114)	1997 to 1998 Period 01	-
Train cancellations by operator and cause (periodic) (Table 3124)	2014 to 2015 Period 01	-
Train punctuality at recorded station stops by operator (periodic) (Table 3138)	2013 to 2014 Period 01	-
Average passenger lateness by operator and sector (periodic) (Table 3144)	2010 to 2011 Period 01	-
Days of severe disruption by sub-operator (periodic) (Table 3157)	2014 to 2015 Period 01 (National) 2013 to 2014 Period 01 (Sub-operator)	-
Disaggregated train punctuality and reliability performance by sub-operator (periodic) (Table 3167)	2010 to 2011 Period 01	-
Delay minutes by operator and cause (periodic) (Table 3184)	2011 to 2012 Period 01	-
Cancelled and Significantly Late by operator and sector (periodic) (Table 3194)	1997 to 1998 Period 01	-
Consistent Region Measure (Passenger) Performance by Region (periodic) (Table 3174)	2014 to 2015 Period 01	-



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