Rail Infrastructure and Assets
2018-19 Annual Statistical Release

Background

This release contains the following rail statistics for Great Britain in 2018-19:

Rail infrastructure statistics provide details on track and route length (including electrified). Sourced from Network Rail and is available from 1985-86.

Number of mainline stations are sourced from Estimates of Station Usage (ORR) and Network Rail and is available from 1985-86.

Average age of rolling stock (railway vehicles, e.g. locomotives) is sourced from the Rail Safety & Standards Board (RSSB) and is published by train operator from 2007-08.

Contents

Infrastructure:

- Track: **31,091 km**
- Route open for trains: 1**5,847 km**

As a result of various electrification schemes across Great Britain, **6,012km** of the mainline railway route is now electrified. This is **38%** of all route km.

Mainline stations:

Three additional stations were served by mainline rail services in 2018-19, bringing the total to **2,566**:

- Kenilworth
- Maghull North
- Corfe Castle

Kenilworth and Maghull North are new stations. Corfe Castle was an existing rail station served by a heritage rail service (Swanage Railways). In 2018-19 South Western Railway train services began stopping at this station.
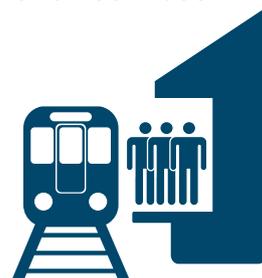
Average age of rolling stock (railway vehicles):

The average age of rolling stock is **19.2 years**, a 0.4 year decrease over the course of 2018-19. This is a result of the introduction of new rolling stock by several operators.

Please note: previous editions of this release were published under the name *Rail infrastructure, assets and environmental*. The release has now been split into two, and environmental data is published in a separate release: Rail emissions.

1. Infrastructure on the railways

Infrastructure on the railways shows data on the number of kilometres of route and track open for passenger and freight traffic, the length of route which is electrified and the number of open passenger stations on the Great Britain rail network.

For a detailed history on how route length has changed, including information on the 'Beeching cuts', please see the accompanying quality and methodology report.

Route kilometres are the total extent of routes available for trains to operate.

Track kilometres takes into account multiple track routes (e.g. for each route kilometre where there is double track, there are two track kilometres).

Sidings and depots are excluded from both measures.

Route open for traffic

Route km open for traffic in 2018-19 15,847 km

Track km in 2018-19   31,091 km

In England and Wales, the track km for 2018-19 was 26,819 km.

In Scotland, the track km for 2018-19 was 4,272 km.
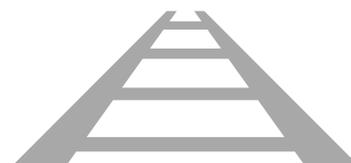
Data Quality: Between 2016-17 and 2017-18 Network Rail replaced GEOGIS, its master database for track assets, with a new system called INM (Integrated Network Model). As part of this process a number of data improvement and cleansing actions were undertaken. Therefore, some of the changes in track and route kilometres between 2016-17 and future years may be due to this system change rather than an actual physical change on the ground.

Electrification

At the end of 2018-19 there was a total of **6,012km of electrified route,** approximately 38% of the total. This has increased from 5,766m (36%) in the previous year.

NOTE: Some of the changes between 2017-18 and 2018-19 are due to data cleansing and improvement in methodology rather than actual physical changes. This means any comparison of the current electrified route with previous years must be treated with caution. See quality and methodology report for more information.

Over recent years, the proportion of route electrified has been increasing as a result of various Network Rail electrification schemes. The following electrification schemes were completed in 2018-19:

- In London North Western (LNW) route, completed schemes were: Walsall to Rugeley[1], Bromsgrove Electrification[2], and North West Electrification Phase 4 Manchester to Preston.

- In Western route, there was a new electrification upgrade, between Wootton Bassett Junction (near Swindon) and Bristol Parkway Station. Electrification was completed from Reading to Newbury, on the Great Western Mainline.

- In Scotland, the Stirling-Dunblane-Alloa electrification project was completed[3]. This electrified the lines from Polmont Junction and Greenhill Lower Junction through to Stirling, Alloa and Dunblane. Additionally, the Grangemouth Freight branch was electrified which allows electric freight trains to serve the freight facilities. The Shotts Line, between Edinburgh Waverley and Glasgow Central was electrified[4].

Source: Network Rail Infrastructure Annual Return, 2019

- Infrastructure on the railways (route open, electrifed, and track km) annual data is available on the data portal in: Table 2.52

---

[1] https://www.networkrailmediacentre.co.uk/news/electric-trains-to-run-on-walsall-rugeley-line-from-may-after-successful-railway-upgrade

[2] https://www.networkrailmediacentre.co.uk/news/first-electric-train-travels-between-birmingham-and-bromsgrove

[3] https://www.networkrail.co.uk/news/stirling-dunblane-alloa-electrification-goes-live/

[4] https://www.networkrailmediacentre.co.uk/news/shotts-line-electrification-completed-on-time-and-on-budget

Number of mainline stations in Great Britain

2,566 stations

3 new stations

New station	Served by
Kenilworth (opened April 2018)	West Midlands services between Coventry and Leamington Spa.
Maghull North (opened June 2018)	Merseyrail services between Ormskirk and Liverpool.
Corfe Castle (mainline services started May 2018)	South Western services between London Waterloo and Corfe Castle; and between Poole to Corfe Castle. These services run only on Saturdays during summer.[5]

■ Mainline station annual data is available on the data portal in: Table 2.53

The ORR's Estimates of Station Usage dataset is used as the source for the number of mainline stations from 1997-98 onwards. Prior to 1997-98 Network Rail's Operational Property Asset System (OPAS) is used as the source. Therefore there is a series break between 1996-97 and 1997-98. Please see the quality and methodology report for more information.

---

[5] https://www.southwesternrailway.com/destinations-and-offers/offers/summer-saturdays

2. Average age of rolling stock

The average age of the rolling stock fleet[6] in Great Britain decreased by 0.4 years since 2017-18. For franchised operators, the age decreased by 0.5 years and for non-franchised operators the age increased by 1.9 years[7].

Further details on the rolling stock changes throughout 2018-19 are presented on pages 8-10.

All Operators

19.2 years

-0.4

Franchised Operators

19.2 years

-0.5

Non-franchised Operators

19.3 years

+1.9

How average age of rolling stock is calculated:

The average age of rolling stock shown is the age as of the end of March 2019. Changes in rolling stock average age are recorded against the same time period the year before. A vehicle drops out of the dataset if it is no longer leased by a train operator.

As all existing rolling stock will age by one year between one year and the next, any change in average age of less than 1.0 years is an indication of either the introduction of newer rolling stock or the removal of older stock from the fleet.

For further detail, please see the quality and methodology report.

---

[6] Rolling stock are railway vehicles, including both powered and unpowered vehicles, such as locomotives, carriages, and freight wagons.

[7] Franchised operators are train operators who operate under the terms of franchises let by the Government. Non-franchised operators (open access) hold licences to provide supplementary services on chosen routes.

Average age of rolling stock (franchised operators), Great Britain, 2000-01 to 2018-19 (Table 2.30 and Table 2.31)
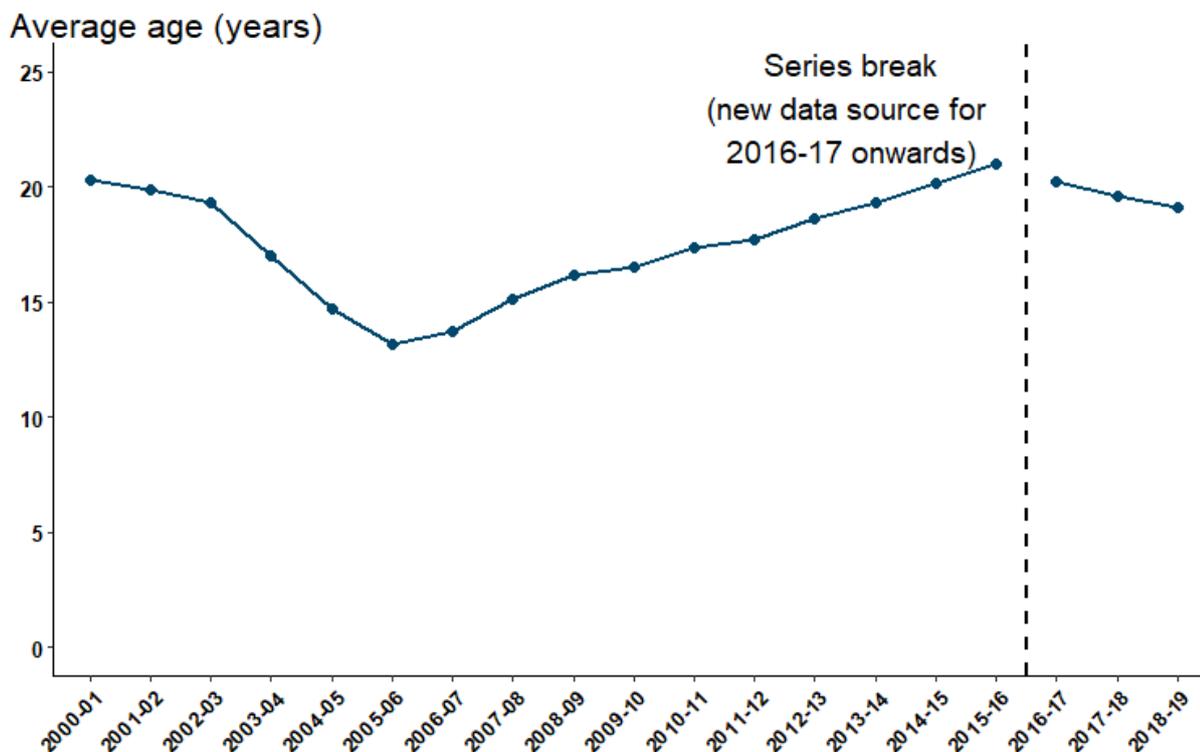

Note: From 2016-17 onwards RSSB's R2 database is being used as the data source for average age, see the quality and methodology report for more information.

Shortly after privatisation in 1997, a number of trains from the British Rail era were replaced which led to the lowest average age of 13.0 years in 2005-06 Q2. After this, up until 2015-16, the average age of rolling stock for franchised operators rose steadily. The average age has fallen over the last two years as a result of a number of rolling stock replacement programmes across the country.

Average age of rolling stock by train operating company

Age change in years of rolling stock between 2017-18 and 2018-19 (all operators), Great Britain (Table 2.31)

Operator	Age change (years)
Caledonian Sleeper	-18.9
Great Western Railway	-7.9
London North Eastern Railway	-5.4
TfL Rail	-4.9
ScotRail	-1.1
Govia Thameslink Railway	-0.2
Northern	0.1
Chiltern Railways	0.8
TransPennine Express	0.8
Greater Anglia	1.0
c2c	1.0
CrossCountry	1.0
Grand Central	1.0
Hull Trains	1.0
Merseyrail	1.0
Southeastern	1.0
TfW Rail	1.0
Virgin Trains West Coast	1.0
East Midlands Trains	1.0
London Overground	1.3
South Western Railway	1.4
West Midlands Trains	1.5
Heathrow Express	3.0

For ten operators, the average age of rolling stock either decreased, or increased by less than a year. This indicates that either new rolling stock was introduced, or older rolling stock phased out.

For eight operators, the rolling stock fleet was unchanged. As the average age increased by exactly one year this indicates there was no, or very little, change to the rolling stock over the course of the year.

For five operators, the average age of the rolling stock increased by more than one year. This indicates that either some older stock was put into service, or some younger stock was removed.

Average age of rolling stock: further detail by train operator

The table below provides some further detail about key rolling stock changes and future rolling stock orders. Further information on rolling stock changes and future developments can be found in the Department for Transport's Rolling Stock Perspective and the Rail Delivery Group's Long Term Passenger Rolling Stock Strategy.

	Average age of rolling stock	*Age change compared to 2017-18 (years)*	
c2c	**17.0 years**	⇧ **1.0**	**60 carriages of Bombardier's latest Aventra train will be delivered to c2c by the end of 2021.[8]**
Caledonian Sleeper	**19.6 years**	⇩ **18.9**	**75 new carriages were phased in from October 2018, to replace older carriages.[9]**
Chiltern Railways	**25.8 years**	⇧ **0.8**	
CrossCountry	**20.4 years**	⇧ **1.0**	
East Midlands Trains	**26.2 years**	⇧ **1.0**	**A complete fleet replacement is planned for 2022 when 165 new carriages will be introduced.[10]**
Govia Thameslink Railway	**11.1 years**	⇩ **0.2**	**115 Siemens Class 700 trains (1,140 carriages in total) on Thameslink routes were introduced.[11] Introduction of 25 six-carriage 717 trains (150 carriages in total) for Moorgate services on Great Northern routes.[12]**
Grand Central	**18.6 years**	⇧ **1.0**	
Great Western Railway	**14.7 years**	⇩ **7.9**	**93 new Intercity Express Trains will replace existing services by the end of 2019.[13]**

[8] https://www.c2c-online.co.uk/media-centre/latest-news/c2c-signs-major-deal-for-brand-new-british-trains/

[9] https://www.sleeper.scot/first-of-new-caledonian-sleeper-trains-arrive-in-uk-2/

[10] https://www.eastmidlandsrailway.co.uk/help-manage/about-us/news-press/abellio-invests-%C2%A3400-million-in-new-trains-for-east-midlands-railway

[11] https://www.thameslinkrailway.com/-/media/goahead/gtr-all-shared-pdfs-and-documents/passenger_charter_may_2019.pdf?la=en

[12] https://www.greatnorthernrail.com/about-us/our-commitments/improving-your-railway/new-trains-for-moorgate-services

[13] https://www.gwr.com/about-us/modernising-gwr/iet

Greater Anglia	**28.2 years**	⇧ **1.0**	The whole fleet is being replaced with the introduction of 665 carriages.[14] The roll out started in August 2019.[15]
Heathrow Express	**20.7 years**	⇧ **3.0**	
Hull Trains	**16.9 years**	⇧ **1.0**	The whole fleet will be replaced with five new trains by the end of 2019.[16]
London North Eastern Railway	**25.7 years**	⇩ **5.4**	The introduction of 65 new Azuma trains has started, which will see the existing fleet of 45 trains replaced.[17]
London Overground	**16.8 years**	⇧ **1.3**	New trains have started on the Gospel Oak to Barking route, and by the end of 2019 new trains will be running on services into London Liverpool Street.[18]
Merseyrail	**39.3 years**	⇧ **1.0**	New state-of-the-art trains will be introduced on to the Merseyrail network from 2020 replacing the current fleet which is approaching 40 years old.[19]
Northern	**28.5 years**	⇧ **0.1**	Northern has ordered 101 new trains as part of a £500m investment in rail in the North. There are already 15 trains operating on a number of routes and more will follow throughout 2019 and into 2020.[20]
ScotRail	**22.3years**	⇩ **1.1**	As part of its programme of new trains, 70 electric trains have been introduced.[21]
South Western Railway	**20.5 years**	⇧ **1.4**	From 2021 five replacement trains will start operating on the Isle of Wight.[22]
Southeastern	**18.8 years**	⇧ **1.0**	
TfL Rail	**18.4 years**	⇩ **4.9**	A fleet of 70 new 200 metre trains will serve the Elizabeth line when it is completed.[23]

[14] https://www.greateranglia.co.uk/about-us/news-desk/news-articles/greater-anglias-commuter-trains-start-roll-production-line

[15] https://www.greateranglia.co.uk/new-era

[16] https://www.hulltrains.co.uk/news/2019/milestone-moment-as-hull-trains-new-fleet-arrives-in-europe

[17] https://www.lner.co.uk/news/azuma-has-arrived/

[18] https://tfl.gov.uk/modes/london-overground/improving-london-overground

[19] https://www.merseyrail.org/about-merseyrail/new-trains.aspx

[20] https://media.northernrailway.co.uk/news/northern-launches-all-new-fleet-for-lakes-line

[21] https://www.bbc.co.uk/news/uk-scotland-44921127

[22] https://onthewight.com/new-trains-coming-to-the-isle-of-wight/

[23] https://tfl.gov.uk/travel-information/improvements-and-projects/preparing-for-the-elizabeth-line?intcmp=56250#on-this-page-1

TransPennine Express	**12.6 years**	⇧ **0.8**	**The first phase of new trains Nova 3 is being delivered in 2019 with the introduction of 13 five-carriage trains.[24]**
TfW Rail	**28.5 years**	⇧ **1.0**	**From 2021, TfW is due to take delivery of new fleets of trains to enable the growth and development of the network[25] The fleet average age is planned to be 7 years by 2023.[26]**
Virgin Trains West Coast	**14.5 years**	⇧ **1.0**	
West Midlands Trains	**15.3 years**	⇧ **1.5**	**100 new carriages are planned for the Cross City Line and 80 new carriages are planned for the Snow Hill Line.[27]**

---

[24] https://www.tpexpress.co.uk/travelling-with-us/the-nova-fleets/nova-3

[25] https://tfw.gov.wales/sites/default/files/inline-files/TFW%20Annual%20report%20and%20financial%20statements%20201819_1.pdf

[26] https://tfw.gov.wales/sites/default/files/inline-files/Detailed%20Briefing.pdf

[27] https://www.westmidlandsrailway.co.uk/about-us/investing-improve

Owners of rolling stock

Ownership of rolling stock fleet, December 2017
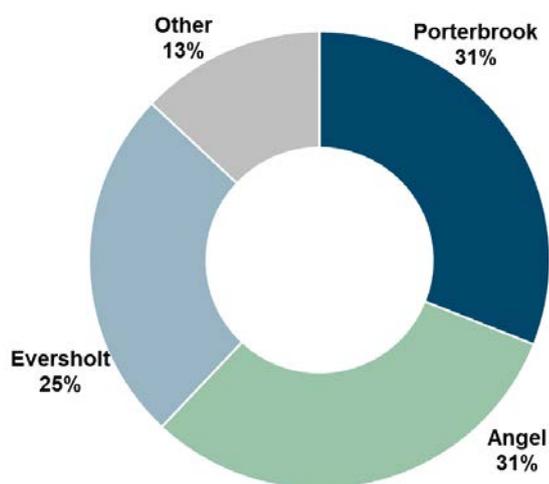
Rolling stock leasing companies (ROSCOs) own the majority of rolling stock in Great Britain, with the three main companies owning 87% of the national fleet. As of December 2017[28] 13% of the fleet was owned by other parties, this is up from 8% in March 2016 and 11% in March 2017. The ROSCOs lease rolling stock to train operating companies.

Source: Long Term Passenger Rolling Stock Strategy for the rail industry (sixth edition), March 2018

- Average age of rolling stock by train operating company annual data (2007-08 to 2018-19) are available on the data portal in Table 2.31

- Average age of rolling stock by sector (2000-01 to 2016-17) can be found on the data portal in Table 2.30 *(NOTE - this table is no longer updated due to a change of data source from 2017-18 onwards)*

---

[28] There is no update for 2018-19 from Rail Delivery Group.

Annex 1 – Rolling Stock

While new rolling stock may be more efficient and technologically advanced, existing trains can be refurbished during their lifetime to add better facilities (e.g. WiFi capability). Therefore both newly-built and refurbished rolling stock can offer a more comfortable service for passengers. The age of rolling stock does not necessarily affect passenger satisfaction. The introduction of refurbished rolling stock is not reflected in these statistics.

An additional 1,565 vehicles were ordered by the industry during 2017-18, meaning the total number of new vehicles expected to be delivered between 2014 and 2021 has reached almost 7,200 (over 50% of the current fleet). Consequently, the average age of rolling stock is forecast to fall to 15 years by March 2021[29].

Accessibility

The Railways (Interoperability) Regulations 2011 and the Rail Vehicle Accessibility (Non-Interoperable Rail Systems) Regulations 2010 require that all passenger rail vehicles meet accessibility standards by 1st January 2020.

These requirements include, for example:

- providing access for wheelchair users

- the size and location of handrails, handholds and control devices

- providing passenger information systems and other equipment

As of January 2019, the Department for Transport estimates that around 88% of heavy rail rolling stock had been built or refurbished to be accessible to disabled passengers[30]. The latest fleets of trains are fully compliant with accessibility standards.

---

[29] Long Term Passenger Rolling Stock Strategy for the rail industry (sixth edition), March 2018

[30] https://www.gov.uk/government/publications/list-of-rail-vehicles-built-or-refurbished-to-modern-accessibility-standards

Annex 2 – List of data tables available on the Data Portal

All data tables can be accessed on the data portal free of charge. The data portal provides on screen data reports, as well as the facility to download data in Excel format. We can provide data in csv format on request.

Infrastructure on the railways

- Infrastructure on the railways (1985-86 to 2018-19) – Table 2.52

- Mainline stations in Great Britain (1985-86 to 2018-19) – Table 2.53

Average age of rolling stock

- Average age of rolling stock by train operating company (2007-08 to 2018-19) – Table 2.31

- Average age of rolling stock by sector (2000-01 to 2016-17) – Table 2.30

Revisions: There have been revisions to the previously published time series. Further details on revisions to the data can be found in the revisions log

Annex 3 – Statistical Releases

This publication is part of ORR's National Statistics accredited statistical releases which consist of annual and quarterly themed releases:

Annual

- Rail Finance

- Rail Fares Index;

- Rail Safety Statistics;

- Rail Infrastructure and Assets;

- Rail Emissions;

- Regional Rail Usage;

- *Estimates of Station Usage (not National Statistics)*.

Quarterly

- Passenger Rail Performance;

- Freight Rail Usage and Performance;

- Passenger Rail Usage;

- Passenger Rail Service Complaints.

A full list of publication dates for the next twelve months can be found in the release schedule on the data portal.

National Statistics

The United Kingdom Statistics Authority designated 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.

National Statistics status means that official statistics meet the highest standards of trustworthiness, quality and public value.

All official statistics should comply with all aspects of the Code of Practice for Official Statistics. They are awarded National Statistics status following an assessment by the Authority's regulatory arm. The Authority considers whether the statistics meet the highest standards of Code compliance, including the value they add to public decisions and debate.

It is ORR's responsibility to maintain compliance with the standards expected of National Statistics. If we become concerned about whether these statistics are still meeting the appropriate standards, we will discuss any concerns with the Authority promptly. National Statistics status can be removed at any point when the highest standards are not maintained, and reinstated when standards are restored.

Our statistical releases hold National Statistics status since being assessed[31] in 2012. Since our assessment we have improved the content, presentation and quality of our statistical releases. Also, in July 2019 we launched our new data portal. We are currently working with the Office for Statistics Regulation (the regulatory arm of the UK Statistics Authority) to conduct a compliance check to ensure we are still meeting the standards of the Code and to therefore reconfirm our National Statistics status.

For more information on how we adhere to the Code please see our compliance statements at: dataportal.orr.gov.uk/code-of-practice/

For more details please contact the Statistics Head of Profession Lyndsey Melbourne at rail.stats@orr.gov.uk.

The Department for Transport (DfT) also publishes a range of rail statistics which can be found at DfT Rail Statistics. For example, Rail passenger numbers and overcrowding on weekdays in major cities.

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

---

[31] https://dataportal.orr.gov.uk/media/1334/uksa-assessment.pdf