Department for Transport

‘Top 10’ overcrowded train services: England and Wales, spring and autumn 2017

Introduction

The ‘top 10’ lists are based on passenger counts carried out by the train operating companies. These counts are used by the Department for Transport to monitor train crowding levels.

Recognising that there is a demand for this type of data, DfT periodically publishes these ‘top 10’ lists. This release includes lists for spring and autumn 2017. The spring data are collected prior to the May timetable change, and the autumn data are collected prior to the December timetable change.

Data represent average passenger loadings for morning and afternoon peak services during a typical weekday in spring and autumn. Passengers are counted on trains at the busiest point as they approach and leave city centre stations in fourteen of the largest cities across England and Wales.

- The ‘top 10’ overcrowded services in spring 2017 were between 67% and 150% over their passenger capacity.
- The ‘top 10’ overcrowded services in autumn 2017 were between 72% and 111% over their passenger capacity.
- Nine of the ‘top 10’ overcrowded services in spring 2017 and eight in autumn 2017 were arriving at or departing from London stations.
- Seven of the ‘top 10’ overcrowded services in autumn 2017 and five in spring 2017 were in the morning peak.

This publication provides lists of the ten most overcrowded peak train services in each of spring and autumn 2017.

All franchises let by the Department for Transport (DfT) require the train operator to address overcrowding. Operators are required to plan their timetables in such a way that, as far as possible, crowding is not unduly concentrated on any particular route or individual service.

These statistics give an indication of the extent of train crowding. Crowding is measured using ‘Passengers in excess of capacity’ (PiXC) figures that show the number of standard class passengers who exceed the standard class capacity of the train, at the busiest point of the journey to or from the city centre. For example, a train with a capacity of 200, carrying 210 passengers has a PiXC of 10, and a Load Factor of 105%.

The ‘top 10’ list for autumn 2017 uses the same data as the Department’s *‘Rail passenger numbers and crowding on weekdays in major cities in England and Wales’*, which can be found at the following link:

https://www.gov.uk/government/statistics/rail-passenger-numbers-and-crowding-on-weekdays-in-major-cities-in-england-and-wales-2017.

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Methodology

The ‘top 10’ lists cover arrivals into fourteen major cities in England and Wales during the morning peak (07:00-09:59) and departures from these cities during the afternoon peak (16:00-18:59) for franchised train operators only. The figures include ‘typical’ weekday passenger counts (usually Tuesday to Thursday) and exclude school and bank holidays, as well as periods of disruption. While recognising there are variations in travel behaviour, this gives a representation of crowding levels at times when passenger demand is generally highest.

Passenger loads are based on data collected at the busiest point on a train’s journey, known as the critical load point, on arrival at (AM peak) or on departure from (PM peak) a city centre. The critical load point can be an interchange point outside the city (e.g. Stratford or Ealing Broadway on approach to London) and may not be the terminal or city centre station.

There are two methods by which the data are collected, either by automatic counting equipment fitted to the trains, or by manual on-train or platform counts. Some services may have been counted only once and therefore may not be an average representation of overcrowding on a service over a period of time.

Historically, the Department monitored crowding levels for London and South East operators only. However, since 2011 more data have been collected for a number of key regional cities in England and Wales. The spring data were collected prior to the May 2017 timetable change, and the autumn data were collected prior to the December 2017 timetable change.

Train capacity

The calculated capacity of a train includes an allowance for standing passengers if the service is scheduled to call at a station 20 minutes or less before the busiest point of the train’s journey in the morning peak, or after the busiest point in the afternoon peak. Otherwise, the capacity of a train is based on the number of seats.

Slight alterations to the timetable can affect a train’s nominal standard class capacity.

First class

Train crowding calculations exclude first class passengers and first class accommodation. As such, the crowding levels are determined by the number of standard class passengers and the standard class capacity.

Definitions

- **Critical load point:** The station where the standard class passenger load on a service is highest on arrival at (AM peak) or on departure from (PM peak) a city centre. Critical load points can vary from service to service, but will usually be at the same location for services on the same route.
- **Standard class passenger capacity:** This includes the number of standard class seats on the service and may include a standing allowance. A standing allowance is included when the time between stations before (AM) or after (PM) the critical load point is 20 minutes or less.
- **Critical load:** The number of standard class passengers on a service at the critical load point.
- **Passengers in excess of capacity (PiXC):** The number of standard class passengers on a service that are in excess of the standard class capacity at the critical load point. First class passengers are not included.
- **Standard class load factor:** The number of standard class passengers on a service expressed as a percentage of the maximum stated standard class passenger capacity for that service. For example, a train which has the same passenger load as the passenger capacity has a load factor of 100%. The ‘top 10’ lists are ranked based on the service’s standard class load factor. Numbers of first class passengers are not included in the calculation of load factors.

The 10 most overcrowded peak train services in major cities in England and Wales: spring 2017

Rank	City	Critical load point (1)	Time at critical load point (1)	Train operating company	Service	Number of cars	Standard class passenger capacity (2)	Standard class passenger load (3)	Passengers in excess of capacity (4)	Standard class load factor (5)
1	London	London Bridge	07:00	Southern	05:40 Uckfield to London Bridge	2	107	267	160	250%
2	London	London Kings Cross	09:02	Great Northern	07:55 Cambridge to London Kings Cross	4	203	427	224	210%
3	London	London St Pancras	18:10	Thameslink	17:11 Sutton to Luton	8	803	1579	776	197%
4	Manchester	Manchester Oxford Road	16:19	TransPennine Express	16:00 Manchester Airport to Edinburgh	4	191	354	163	186%
5	London	London Euston	17:46	West Midlands Trains (6)	17:46 London Euston to Crewe	8	412	754	342	183%
6	London	London Bridge	08:20	Southern	07:16 East Grinstead to London Bridge	12	640	1154	514	180%
7	London	London Blackfriars	17:40	Thameslink	16:26 Bedford to Brighton	8	401	708	307	177%
8	London	London Waterloo	07:49	South Western Railway (7)	07:02 Woking to London Waterloo	12	738	1250	512	169%
9	London	London St Pancras	18:00	East Midlands Trains	18:00 London St Pancras to Melton Mowbray	10	386	648	262	168%
10	London	London Marylebone	07:22	Chiltern	06:19 Aylesbury Vale Parkway to London Marylebone	3	204	341	137	167%

Warning: These figures should be treated with caution - please see notes on page 11.

Notes

(1) The location and time where the highest passenger load was recorded. For morning peak arrivals the load was recorded on arrival at this station, and for afternoon peak departures the load was recorded on departure.

(2) Includes the number of standard class seats on the train and may also include a standing allowance. A standing allowance is included on a service when the time between stations before (AM peak) or after (PM peak) the critical load point is 20 minutes or less. The allowance for standing varies with the type of rolling stock.

(3) The number of standard class passengers on the service at its most crowded point on the journey into or out of the city.

(4) The difference between the standard class passenger load and the standard class passenger capacity.

(5) The number of standard class passengers expressed as a percentage of the maximum allowable standard class passenger capacity for that service. For example, a train which has the same passenger load as the passenger capacity has a load factor of 100%.

(6) The West Midlands Trains franchise began in December 2017. This service was operated under the London Midland franchise during the spring 2017 count period.

(7) The South Western Railway franchise began in August 2017. This service was operated under the South West Trains franchise during the spring 2017 count period.

Autumn 2017

The 10 most overcrowded peak train services in major cities in England and Wales: autumn 2017

Rank	City	Critical load point (1)	Time at critical Load point (1)	Train operating company	Service Details	Number of cars	Standard class passenger capacity (2)	Standard class passenger load (3)	Passengers in excess of capacity (4)	Standard class load factor (5)
1	Manchester	Manchester Oxford Road	08:24	TransPennine Express	04:22 Glasgow Central to Manchester Airport	4	191	403	212	211%
2	Manchester	Manchester Oxford Road	16:19	TransPennine Express	16:00 Manchester Airport to Edinburgh	4	191	387	196	202%
3	London	London Kings Cross	16:16	Great Northern	16:16 Kings Cross to Royston	4	239	475	236	199%
4	London	London Bridge	08:20	Southern	07:16 East Grinstead to London Bridge	12	640	1220	580	191%
5	London	London Euston	17:46	West Midlands Trains (6)	17:46 London Euston to Crewe	8	412	769	357	187%
6	London	London Bridge	08:24	Southern	07:27 Reigate to London Bridge	12	669	1191	522	178%
7	London	London Waterloo	08:19	South Western Railway	07:32 Woking to London Waterloo	12	720	1267	547	176%
8	London	London Bridge	08:44	Southern	06:54 Bognor Regis to London Bridge	12	669	1175	506	176%
9	London	London Blackfriars	08:20	Thameslink	06:57 Brighton to Bedford	12	638	1115	477	175%
10	London	London Waterloo	07:49	South Western Railway	07:02 Woking to Waterloo	12	720	1235	515	172%

Warning: These figures should be treated with caution - please see notes on page 11.

Notes

(1) The location and time where the highest passenger load was recorded. For morning peak arrivals the load was recorded on arrival at this station, and for afternoon peak departures the load was recorded on departure.

(2) Includes the number of standard class seats on the train and may also include a standing allowance. A standing allowance is included on a service when the time between stations before (AM peak) or after (PM peak) the critical load point is 20 minutes or less. The allowance for standing varies with the type of rolling stock.

(3) The number of standard class passengers on the service at its most crowded point on the journey into or out of the city.

(4) The difference between the standard class passenger load and the standard class passenger capacity.

(5) The number of standard class passengers expressed as a percentage of the maximum allowable standard class passenger capacity for that service. For example, a train which has the same passenger load as the passenger capacity has a load factor of 100%.

(6) The West Midlands Trains franchise began in December 2017. This service was operated under the London Midland franchise during the autumn 2017 count period.

The ‘top 10’ services in spring 2017

1. 05:40 Uckfield to London Bridge (Southern)

During the rebuilding of London Bridge station the timings of trains between East Croydon and London have been extended by a few minutes. This meant that many non-stop services took more than 20 minutes for this section of route and no standing allowance was permitted when determining the capacity of the train. Due to the Thameslink programme, the timetable on this route has now been revised completely.

Recent changes on the Ashford to Brighton route have allowed this service to operate with more carriages.

As part of the government-funded Thameslink Programme more trains will be provided on the route from East Croydon to central London. This additional capacity should relieve pressure on many services.

Critical load point (CLP):	London Bridge
Time at CLP:	07:00
Capacity:	107
PiXC:	160
Load Factor:	250%

Capacity includes seats only. Train has 1st class seating.

2. 07:55 Cambridge to London Kings Cross (Great Northern)

When this service was counted the train only ran with 4 cars. As part of the Thameslink programme all trains on this route are now scheduled to run with either 8 or 12 cars so capacity has significantly increased since these figures were recorded.

When these counts took place there were 40 carriages arriving at Kings Cross on this route during the half hour period around this service. On completion of the Thameslink programme this will increase to 56 carriages to Kings Cross and St Pancras.

Critical load point (CLP):	Lon.Kings Cross
Time at CLP:	09:02
Capacity:	203
PiXC:	224
Load Factor:	210%

Capacity includes seats only. Train has 1st class seating.

3. 17:11 Sutton to Luton (Thameslink)

The figures reflect crowding experienced on the train as it headed north from St Pancras.

These figures were collected before the new timetable was introduced. At the time the preceding service only had 4 carriages, now all Thameslink services are scheduled to operated a minimum of 8 cars.

Once the full timetable is implemented there will be an additional train on this route operating in this part of the peak.

Critical load point (CLP):	Lon. St Pancras
Time at CLP:	18:10
Capacity:	803
PiXC:	776
Load Factor:	197%

Capacity includes seats and standing. Train has no 1st class seating.

4. 16:00 Manchester Airport to Edinburgh (TransPennine Express)

This service is busiest between Manchester Oxford Road and Wigan North Western stations. In order for the train to fit into the right path on the West Coast Main Line, since May 2018 this service no longer calls at Wigan and crowding is expected to have reduced.

New trains that will be introduced by TransPennine Express on this route will have over 30% more seats than the existing services and this will also help alleviate crowding.

Critical load point (CLP):	Manchester Oxford Rd
Time at CLP:	16:19
Capacity:	191
PiXC:	163
Load Factor:	186%

Capacity includes seats only. Train has 1st class seating.

5. 17:46 London Euston to Crewe (West Midlands Trains)

This service was introduced in December 2014 as part of London Midland’s ‘peak 110mph’ service launch. The train is booked to operate with 8 cars, which is the maximum possible due to the platform lengths at some stations. As the service runs non-stop to Milton Keynes, a journey of longer than 20 minutes from Euston, a standing allowance is not taken into account when determining the capacity of this train.

West Midlands Trains are planning to introduce a package of timetable enhancements for trains on the route in the near future. It is anticipated these schemes will lead to an increase in capacity provision on services to and from London Euston.

Critical load point (CLP):	London Euston
Time at CLP:	17:46
Capacity:	412
PiXC:	342
Load Factor:	183%

Capacity includes seats only. Train has 1st class seating.

6. 07:16 East Grinstead to London Bridge (Southern)

During the rebuilding of London Bridge station the timings of trains between East Croydon and London have been extended by a few minutes. This meant that many non-stop services took more than 20 minutes for this section of route and no standing allowance was permitted when determining the capacity of the train. Due to the Thameslink programme, the timetable on this route has now been revised completely.

Since these figures were counted the number of carriages on the route arriving in London between 08:00 and 08:59 has increased from 154 to 172. When the Thameslink timetable has been fully introduced the number of carriages will increase to 197, 27% more than at the time this crowding was reported.

Critical load point (CLP):	London Bridge
Time at CLP:	08:20
Capacity:	640
PiXC:	514
Load Factor:	180%

Capacity includes seats only. Train has 1st class seating.

7. 16:26 Bedford to Brighton (Thameslink)

When this crowding was reported the service ran non-stop between Blackfriars and East Croydon. This took more than 20 minutes and so the capacity of the train was simply the number of seats, and all standing passengers were ‘in excess of capacity’. Due to the Thameslink programme, the timetable on this route has now been revised completely.

As part of the Thameslink programme additional and longer trains are being introduced on this route. When these passenger counts were recorded, there were 74 vehicles departing London Bridge or Blackfriars in the half hour time band around this service. When the phasing of the Thameslink programme is completed there will 104 vehicles, a 40% increase.

Critical load point (CLP):	London Blackfriars
Time at CLP:	17:40
Capacity:	401
PiXC:	307
Load Factor:	177%

Capacity includes seats only. Train has 1st class seating.

8. 07:02 Woking to Waterloo (South Western Railway)

The journey time for the last section of the journey into Waterloo takes slightly longer than 20 minutes, this means that all standing passengers are regarded as being ‘in excess of capacity’. Although this service is at the maximum length possible, services immediately prior to and after this service have now been lengthened from 8 to 10 cars following infrastructure works at Waterloo and other stations. Latest data suggests that the number of passengers on this service has decreased.

Critical load point (CLP):	London Waterloo
Time at CLP:	07:49
Capacity:	738
PiXC:	512
Load Factor:	169%

Capacity includes seats only. Train has 1st class seating.

9. 18:00 London St Pancras to Melton Mowbray (East Midlands Trains)

This service is operated by a train configured for long-distance operation, and despite the carriages being longer than those in other trains in this report, they have a lower calculated capacity. So the reported level of crowding may not accurately reflect the level of crowding that passengers experience.

In the new timetable this service no longer stops at Luton or Bedford and is not believed to be overcrowded.

Critical load point (CLP):	London St Pancras
Time at CLP:	18:00
Capacity:	386
PiXC:	262
Load Factor:	168%

Capacity includes seats only. Train has 1st class seating.

10. 06:19 Aylesbury Vale Parkway to London Marylebone (Chiltern)

While we generally base the passenger numbers on the average of several days, for this service the number of passengers was only reported once.

The particular type of train used for this service was only in place for the period of the December 2016 to May 2017 timetable, and was in response to expected changes in demand on other Chiltern routes following the introduction of the direct service to Oxford. Since May 2017, and following analysis of passenger numbers on other services, this train now operates with 4 carriages.

Critical load point (CLP):	London Marylebone
Time at CLP:	07:22
Capacity:	204
PiXC:	137
Load Factor:	167%

Capacity includes seats only. Train has no 1st class seating.

The ‘top 10’ services in autumn 2017

1. 04:22 Glasgow Ctl to Manchester Airport (TransPennine Express)

This service is busiest between Wigan and Manchester. Since May 2018 this service is no longer able to call at Wigan because of timetabling constraints and crowding is likely to have reduced.

New trains that will be introduced by TransPennine Express on this route will have over 30% more seats than the existing services and this will also help alleviate crowding.

Critical load point (CLP):	Manchester Oxford Road
Time at CLP:	08:24
Capacity:	191
PiXC:	212
Load Factor:	211%

Capacity includes seats only. Train has 1st class seating.

2. 16:00 Manchester Airport to Edinburgh (TransPennine Express)

This service is busiest between Manchester Oxford Road and Wigan North Western stations. In order for the train to fit into the right path on the West Coast Main Line, since May 2018 this service no longer calls at Wigan and crowding is expected to have reduced.

New trains that will be introduced by TransPennine Express on this route will have over 30% more seats than the existing services and this will also help alleviate crowding.

Critical load point (CLP):	Manchester Oxford Road
Time at CLP:	16:19
Capacity:	191
PiXC:	196
Load Factor:	202%

Capacity includes seats only. Train has 1st class seating.

3. 16:16 London King Cross to Royston (Great Northern)

When this service was counted the train only ran with 4 cars. As part of the Thameslink programme all trains on this route are now scheduled to run with either 8 or 12 cars so capacity has significantly increased since these figures were recorded.

When these counts took place there were 24 carriages departing from Kings Cross on this route during the half hour period centred around this service. On completion of the Thameslink programme this will increase to 56 carriages from Kings Cross and St Pancras.

Critical load point (CLP):	London Kings Cross
Time at CLP:	16:16
Capacity:	239
PiXC:	236
Load Factor:	199%

Capacity includes seats only. Train has 1st class seating.

4. 07:16 East Grinstead to London Bridge (Southern)

During the rebuilding of London Bridge station the timings of trains between East Croydon and London have been extended by a few minutes. This meant that many non-stop services took more than 20 minutes for this section of route and no standing allowance was permitted when determining the capacity of the train. Due to the Thameslink programme, the timetable on this route has been revised completely.

Since these figures were counted the number of carriages on the route arriving in London between 08:00 and 08:59 has increased from 158 to 172. When the Thameslink timetable has been fully introduced the number of carriages will increase to 196, 24% more than at the time this crowding was reported.

Critical load point (CLP):	London Bridge
Time at CLP:	08:20
Capacity:	640
PiXC:	580
Load Factor:	191%

Capacity includes seats only. Train has 1st class seating.

5. 17:46 London Euston to Crewe (West Midlands Trains)

This service was introduced in December 2014 as part of London Midland’s ‘peak 110mph’ service launch. The train is booked to operate with 8 cars, which is the maximum possible due to the platform lengths at some stations. As the service runs non-stop to Milton Keynes, a journey of longer than 20 minutes from Euston, a standing allowance is not taken into account when determining the capacity of this train.

West Midlands Trains are planning to introduce a package of timetable enhancements for trains on the route in the near future. It is anticipated these schemes will lead to an increase in capacity provision on services and to/from London Euston.

Critical load point (CLP):	London Euston
Time at CLP:	17:46
Capacity:	412
PiXC:	357
Load Factor:	187%

Capacity includes seats only. Train has 1st class seating.

6. 07:27 Reigate to London Bridge (Southern)

During the rebuilding of London Bridge station the timings of trains between East Croydon and London have been extended by a few minutes. This meant that many non-stop services took more than 20 minutes for this section of route and no standing allowance was permitted when determining the capacity of the train. Due to the Thameslink programme, the timetable on this route has been revised completely.

Since these figures were counted the number of carriages on the route arriving in London between 08:00 and 08:59 has increased from 158 to 172. When the Thameslink timetable has been fully introduced the number of carriages will increase to 196, 24% more than at the time this crowding was reported.

Critical load point (CLP):	London Bridge
Time at CLP:	08:24
Capacity:	669
PiXC:	522
Load Factor:	178%

Capacity includes seats only. Train has 1st class seating.

7. 07:32 Woking to London Waterloo (South Western)

The journey time for the last section of the journey into Waterloo takes slightly longer than 20 minutes, this means that all standing passengers are regarded as being ‘in excess of capacity’. Although this service is at the maximum length possible, services immediately prior to and after this service have now been lengthened from 8 to 10 cars following infrastructure works at Waterloo and other stations. Latest data suggests that the number of passengers on this service has decreased.

Critical load point (CLP):	London Waterloo
Time at CLP:	08:19
Capacity:	720
PiXC:	547
Load Factor:	176%

Capacity includes seats only. Train has 1st class seating.

8. 06:54 Bognor Regis to London Bridge (Southern)

During the rebuilding of London Bridge station the timings of trains between East Croydon and London have been extended by a few minutes. This meant that many non-stop services took more than 20 minutes for this section of route and no standing allowance was permitted when determining the capacity of the train. Due to the Thameslink programme, the timetable on this route has now been revised completely.

Since these figures were counted the number of carriages on the route arriving in London between 08:00 and 08:59 has increased from 158 to 172. When the Thameslink timetable has been fully introduced the number of carriages will increase to 196, 24% more than at the time this crowding was reported.

Critical load point (CLP):	London Bridge
Time at CLP:	08:44
Capacity:	669
PiXC:	506
Load Factor:	176%

Capacity includes seats only. Train has 1st class seating.

9. 06:57 Brighton to Bedford (Thameslink)

During the rebuilding of London Bridge station the timings of trains between East Croydon and London have been extended by a few minutes. This meant that many non-stop services took more than 20 minutes for this section of route and no standing allowance was permitted when determining the capacity of the train. Due to the Thameslink programme, the timetable on this route has now been revised completely.

Since these figures were counted the number of carriages on the route arriving in London between 08:00 and 08:59 has increased from 158 to 172. When the Thameslink timetable has been fully introduced the number of carriages will increase to 196, 24% more than at the time this crowding was reported.

Critical load point (CLP):	London Blackfriars
Time at CLP:	08:20
Capacity:	638
PiXC:	477
Load Factor:	175%

Capacity includes seats only. Train has 1st class seating.

10. 07:02 Woking to Waterloo (South Western Railway)

The journey time for the last section of the journey into Waterloo takes slightly longer than 20 minutes, this means that all standing passengers are regarded as being ‘in excess of capacity’. Although this service is at the maximum length possible, services immediately prior to and after this service have now been lengthened from 8 to 10 cars following infrastructure works at Waterloo and other stations. Latest data suggests that the number of passengers on this service has decreased.

Critical load point (CLP):	London Waterloo
Time at CLP:	07:49
Capacity:	720
PiXC:	515
Load Factor:	172%

Capacity includes seats only. Train has 1st class seating.

Strengths and weaknesses

Work is ongoing to improve the quality and quantity of passenger count data collected and the outputs derived from these data. While we believe that aggregate statistics are of reasonable quality, statistics on individual services are not always robust due to the nature of the data.

Passenger numbers on individual train services fluctuate from day to day and may vary across the spring and autumn count periods. Cases where passenger loading is based on a small number of counts may not give a reliable representation of crowding on the service over a period of time.

Furthermore, passenger counts can be subject to measurement errors. For example with manual counts there is a risk of human error, particularly on busy trains. When determining passenger loads using automatic counting equipment, assumptions are made which might not represent the true picture in every instance. Hence the figures should be treated with caution.

As the figures included in this release are one-off snapshots from spring and autumn they do not provide a reliable, accurate guide to current overcrowding. In some cases extra capacity or timetable changes have already been introduced on some routes.

In addition to the notes here, more detailed information is available in the notes and definitions document that accompanies DfT's annual statistical publication covering passenger demand and rail crowding. This can be found here: https://www.gov.uk/transport-statistics-notes-and-guidance-rail-statistics.