

Rail passenger numbers and crowding statistics: 2012

Statistical Release

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**Department
for Transport**

Rail passenger numbers and crowding on weekdays in major cities in England and Wales: 2012

This publication presents rail passenger numbers on trains throughout the day in several major cities and the levels of peak crowding in these cities.

The statistics in this report are based on passenger counts carried out by franchised train operators of the numbers of passengers using their services in autumn 2012. They represent passenger numbers on national rail services on a 'typical weekday'.

The key findings from the 2012 report include:

- On a typical weekday in autumn 2012, 536,000 passengers arrived into central London by rail during the morning peak and 981,000 across the whole day.
- More passengers arrive into London by rail in the morning peak than depart during the afternoon peak, but the reverse is true in all other cities in the statistics, which have more passengers on trains departing during the afternoon peak.
- In London, overall crowding across both peaks in 2012 was lower than in 2011. However, over 100,000 passengers had to stand at trains' busiest points in the morning peak, a fifth of the overall total.
- First Great Western had the highest level of passengers in excess of capacity (PiXC) of any London & South East operator with 7.1 per cent across both peaks, but this was a fall from the previous year following an increase in capacity provided at Paddington.
- The highest PiXC levels outside London in the 2012 statistics were at Leeds, Manchester and Sheffield, which all had just over 2 per cent PiXC in the morning peak and between 1 and 2 per cent PiXC in the afternoon peak.

Growth in rail usage has been marked in recent years such that the annual figures published by the Office of Rail Regulation (ORR) show the number of passenger journeys having doubled since rail privatisation, from 735 million in 1994/95 to nearly 1.5 billion in the latest financial year (2012/13). Commuter travel into the major cities makes up a substantial component of the total. The National Travel Survey (NTS) suggests that on an average weekday around 50 per cent of rail trips are for commuting purposes and a further 9 per cent is for business travel. Because this release focuses on travel into cities, commuter journeys are likely to account for a much higher percentage of trips.

1. Passenger numbers on weekdays

This section shows total passenger numbers on trains, on arrival into and departure from city centres on a typical weekday in autumn 2012. These statistics are based on passenger counts carried out by train operators, either using automatic counting equipment fitted to trains or manual counts carried out on board trains or at stations. They are designed to represent a 'typical' weekday in the autumn period during school term time. Counts are carried out between mid-September and mid-December, excluding school half term, and counts from days when there was disruption leading to abnormal passenger loads are excluded where possible. The autumn period is used because it is the time of year when commuter demand is generally at its greatest, and is relatively stable across the period.

Note that as these statistics are based on counts of the numbers of passengers on board trains they do not necessarily represent the numbers of passengers alighting or boarding at each city, as passengers on services that are passing through a city will be included in the statistics as well. This predominantly affects cities outside London, as in London the large majority of services either start or terminate in the city.

Passenger numbers on individual train services fluctuate from day to day and may vary across the autumn period, which can have an impact on the aggregate statistics, depending on the sample of days each year on which particular services are counted. This means that changes from one year to the next may reflect these fluctuations rather than genuine changes, particularly in cases where numbers are based on counts on a relatively small number of services or where services have only been counted a small number of times. The Office of Rail Regulation (ORR) publishes rail usage statistics based on ticket sales which provide a more reliable guide to overall trends in rail travel over time. These can be found on the ORR data portal: <http://dataportal.orr.gov.uk/>.

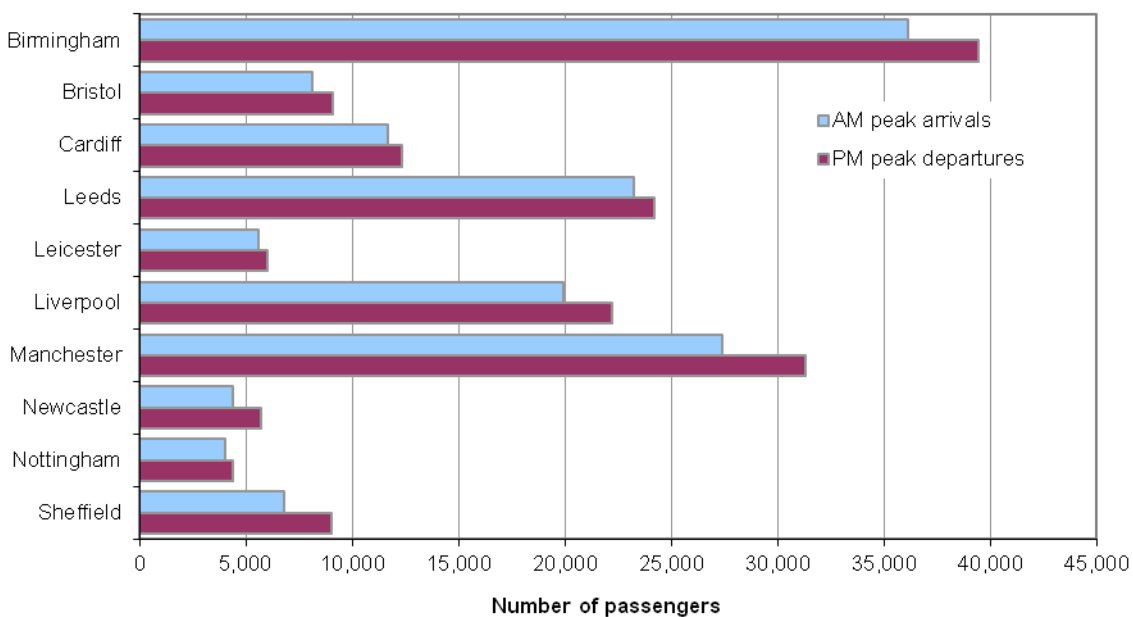
For more information about the methodology behind these statistics please see the [notes and definitions](#) document that accompanies this statistical series.

Figures for Birmingham were not included in the tables initially published for 2012 following an issue being identified with the data supplied by London Midland. These figures have now been included, although passenger demand on some routes in Birmingham was, in fact, unusually low in autumn 2012 due to disruption on London Midland services during this period, and this is reflected in the statistics.

2012 results

- On a typical autumn weekday in 2012, 536,000 passengers arrived into central London (Zone 1 of the TfL travelcard area) during the three hour morning peak (07:00 to 09:59). This was a 0.6 per cent increase from 2011. Across the whole day 981,000 passengers arrived into central London by rail, a 0.9 per cent increase from 2011.
- Birmingham had the highest number of passengers travelling outside London, with 36,000 passengers on trains arriving into the city centre in the morning peak and 106,000 across the whole day. Manchester had the next highest number of passengers travelling outside London with 27,000 arrivals in the morning peak, followed by Leeds with 23,000 and Liverpool with 20,000.
- London had a higher number of passengers on trains arriving into the city centre in the morning peak than departing in the afternoon peak, with 450,000 passengers on trains departing from central London in the 3 hours between 16:00 and 18:59. As Chart 1 shows, the reverse pattern is seen in all other cities, with a higher number of passengers in the afternoon peak. This difference reflects the travel patterns seen in different cities. London has a high concentration of arrivals into the city in the morning peak whereas departures are more spread out, and are still high in the hour following the afternoon peak. Other cities have more long-distance trains passing through the cities in the afternoon peak than in the morning, which in part explains the higher passenger numbers seen then, as passengers on trains passing through a city are included in the figures as well as those that board or alight there.

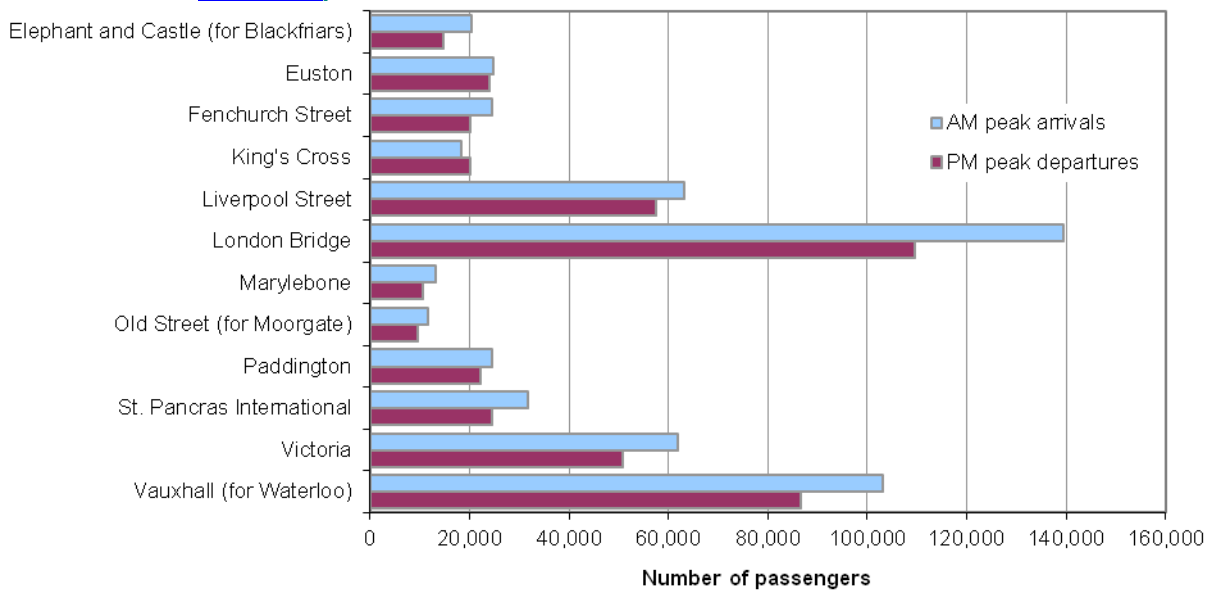
Chart 1: City centre peak arrivals and departures by rail, excluding London: 2012
(Rail web table [RAI0201](#))



Passenger numbers in London

Chart 2 shows how the number of passengers arriving and departing from Zone 1 in London in the peaks varied by route on a typical weekday in autumn 2012. The stations listed are the stations on or closest to the Zone 1 boundary on each route. Note that the Zone 1 boundary is not necessarily the busiest point on all routes and on some routes passenger numbers are higher at a location further from the city centre. This will typically be at a station where passengers can interchange to London Underground or with other rail services, such as Ealing Broadway for services to and from Paddington or Clapham Junction for services to and from Victoria and Waterloo.

Chart 2: Peak arrivals and departures by rail, by station: London Zone 1: 2012
(Rail web table [RAI0201](#))

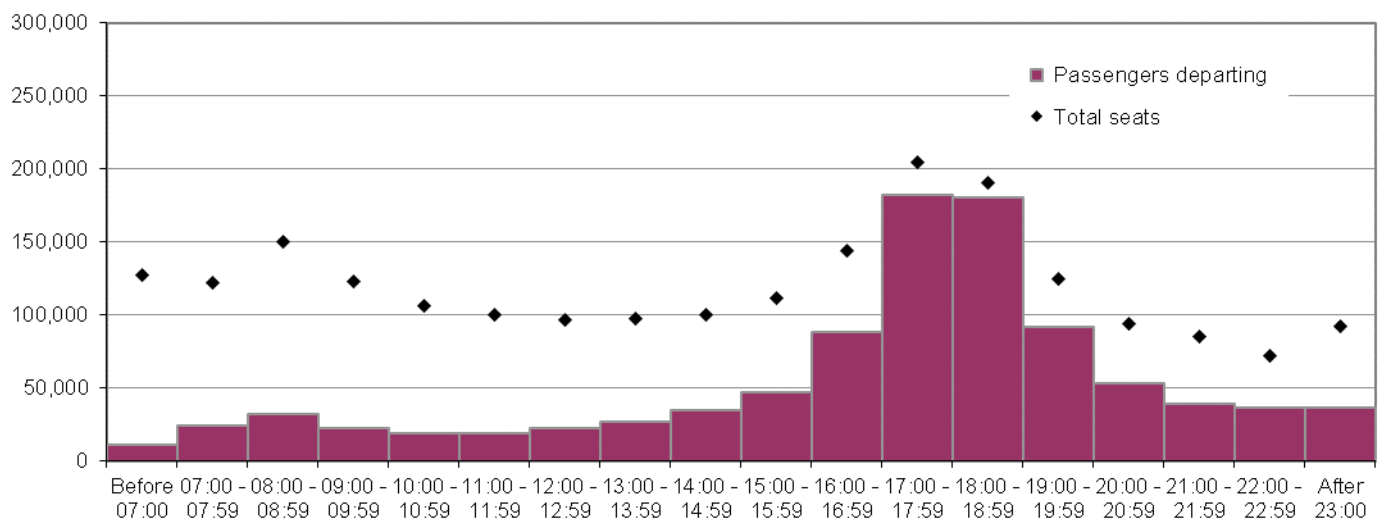
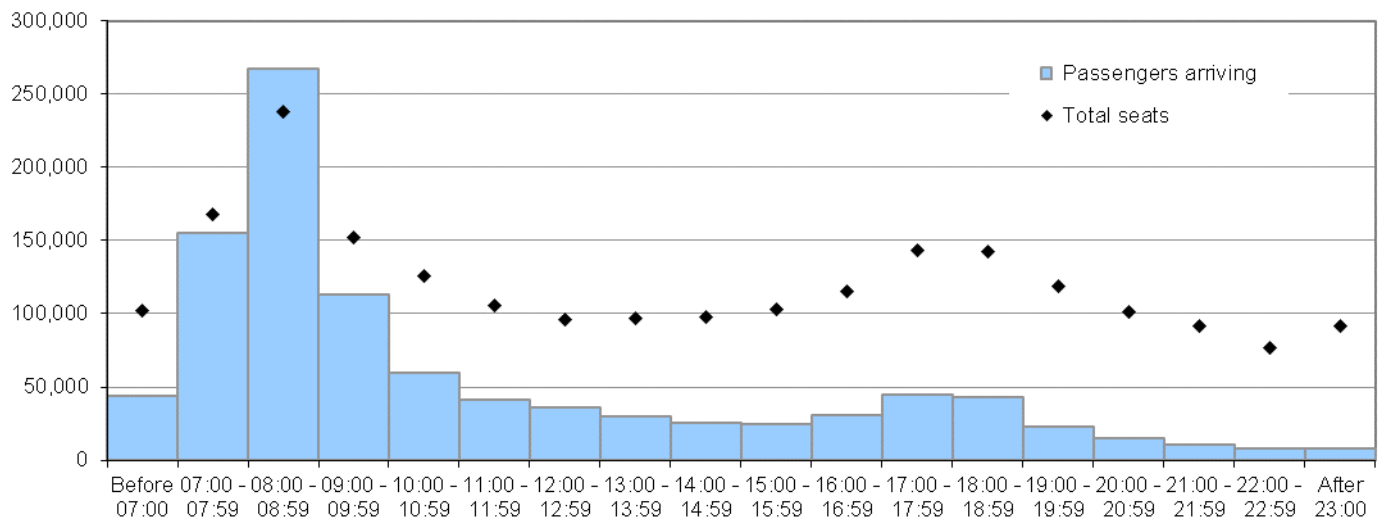


- In the morning peak, 139,000 passengers were on trains entering Zone 1 at London Bridge, 26 per cent of all peak arrivals into Zone 1. This total includes passengers who travelled through London Bridge to other stations, such as Charing Cross and Cannon Street. Twenty four per cent of afternoon peak departures were on this route.
- At Vauxhall, 103,000 passengers were on trains entering Zone 1 in the morning peak, 19 per cent of all peak arrivals in London. This includes passengers travelling to Waterloo, including those on trains that did not stop at Vauxhall. Nineteen per cent of afternoon peak departures were on this route.
- Between them, the routes into London Bridge, Vauxhall, Victoria and Liverpool Street accounted for over two thirds of all morning peak arrivals and afternoon peak departures in London.

Passenger numbers in the morning peak were most concentrated in the hour from 08:00 to 08:59, with 268,000 passengers arriving into central London in this time, half of the morning peak total and over a quarter of all arrivals across the day. The afternoon peak was more spread out, and a slightly higher number of people actually departed from Zone 1 in the first hour after the peak (19:00 to 19:59) than in the first hour of the peak (16:00 to 16:59).

Charts 3 and 4 give an indication of how passenger numbers compared to the total seats provided throughout the day. As these are aggregate figures they hide a lot of detail, as there will be crowding on some routes and services while others have spare capacity. However, they do demonstrate how outside the peaks there is often a large amount of spare capacity, although this spare capacity will generally not be transferrable between routes or to other times of day.

Charts 3 & 4: Arrivals and departures by rail, by time band: London Zone 1: 2012
 (Rail web table [RAI0203](#))



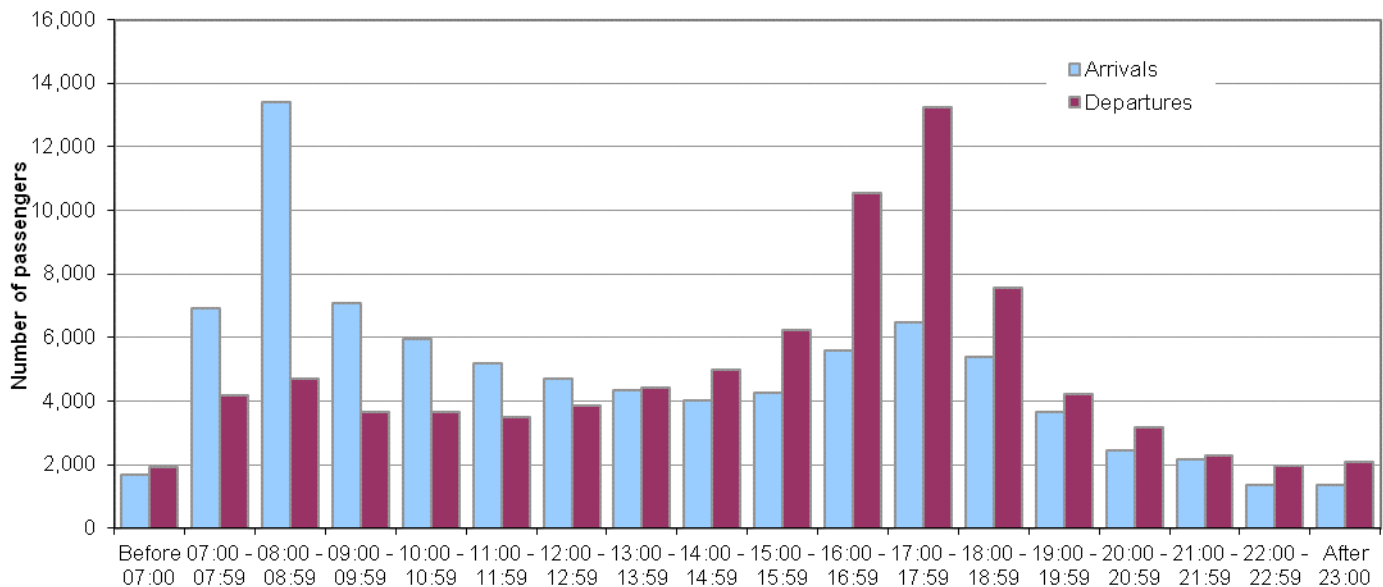
Passenger numbers in cities outside London

Outside London, Birmingham has the largest number of passenger arrivals and departures of any city in England and Wales. On an average weekday in autumn 2012, 36,000 passengers arrived in Birmingham in the morning peak, and 39,000 departed the city during the afternoon peak.

Passenger demand on some routes in Birmingham was unusually low in autumn 2012 due to disruption on London Midland services during this period. This combined with a change in the method used to carry out passenger counts on some routes and the timing of the counts during the autumn period has led to apparent falls in passenger numbers in Birmingham between 2011 and 2012 in the statistics. This is unlikely to represent a real fall and the operator's assessment is that underlying demand has remained at a similar level.

Manchester had the second highest level of rail travel outside London, with 27,000 arrivals in the morning peak and 31,000 departures in the afternoon peak. Chart 5 shows how the number of passengers on trains arriving at and departing from the centre of Manchester varied throughout the day. As in London, arrivals were concentrated in the morning peak (32 per cent of all arrivals) and departures in the afternoon peak (36 per cent of all departures), although these figures were not as high as those for London (55 per cent and 47 per cent respectively).

Chart 5: City centre arrivals and departures by rail, by time band: Manchester: 2012
(Rail web table [RAI0202](#))



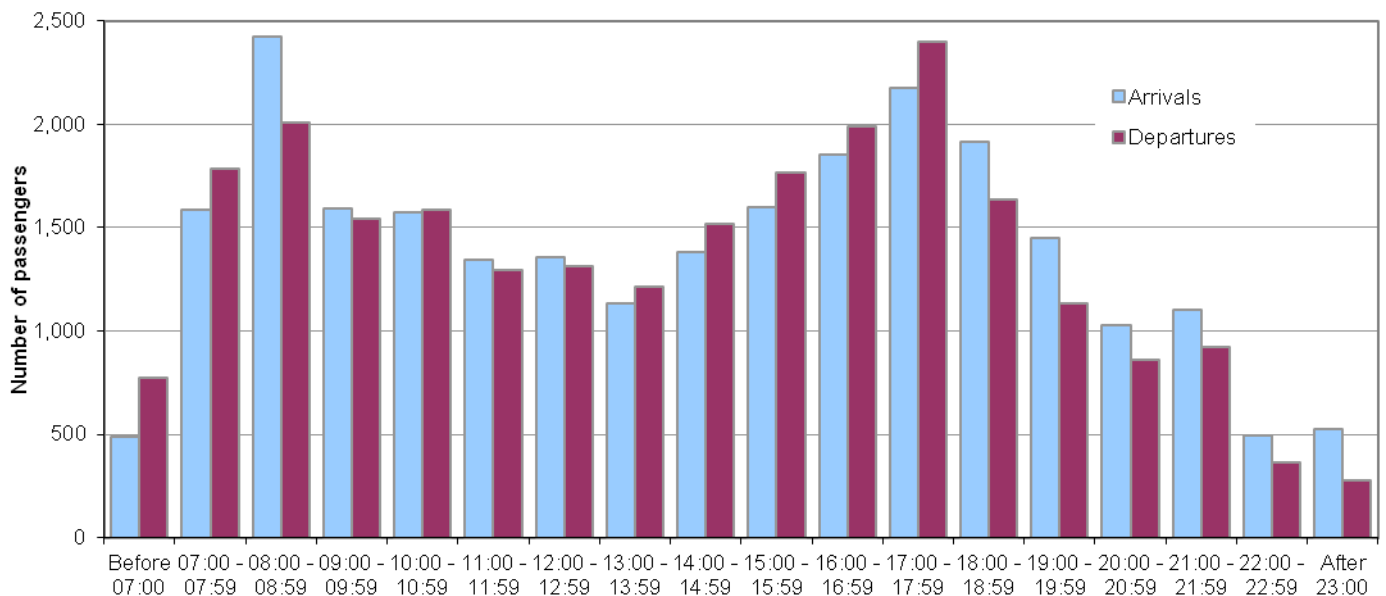
Rail travel in London was more concentrated in the peaks than in other cities, with the highest concentration in the peaks outside London being at Leeds, where 36 per cent of arrivals were in the morning peak and 38 per cent of departures in the afternoon peak. This is partly because passengers on trains passing through a city are included in the statistics as well as those that board or alight there, and most cities outside London have passengers on long-distance services passing through the city throughout the day.

In all cities there was a similar pattern in the morning peak, with around half of all peak arrivals being in the hour from 08:00 to 08:59. In the afternoon however, while departures in London were highest in the last two hours of the peak, in all other cities there were more passengers departing in each of the first two hours of the peak than in the final hour.

Not all cities followed the same pattern as London and Manchester in having the number of passenger arrivals at its highest in the morning peak and the number of departures at it highest in the afternoon peak. Leicester is notable for having had a higher number of passengers on trains arriving into the city during the afternoon peak than in the morning peak, and this number is similar to the number of departures in the afternoon peak.

As chart 6 shows, throughout the day at Leicester the numbers of arrivals and departures in each hour were similar. This is because a large number of long-distance services pass through Leicester, so a number of passengers on these trains would have been passing through the city rather than boarding or alighting there. A similar pattern can be seen in other cities, such as Newcastle, where a high proportion of services are long-distance services travelling through the city.

Chart 6: City centre arrivals and departures by rail, by time band: Leicester: 2012
 (Rail web table [RAI0202](#))



2. Peak crowding on weekdays

This section shows crowding on peak trains in major cities on a typical weekday in autumn 2012. The morning (AM) peak includes services arriving into a city centre between 07:00 and 09:59 and the afternoon (PM) peak includes services departing from a city centre between 16:00 and 18:59. The one hour high peaks are 08:00 to 08:59 in the AM peak and 17:00 to 17:59 in the PM peak. The crowding statistics cover standard class only, and are based on the 'standard class critical load', the number of standard class passengers on board trains at their 'critical load point', which is the point on arrival at (AM) or departure from (PM) a city where the passenger load is highest. This differs from the passenger number statistics in which first class passengers are also included and the passenger numbers are those at city centre stations.

Key definition: Passengers in excess of capacity (PiXC)

This is the primary measure of overcrowding used in these statistics. It is the number of standard class passengers on a service that are in excess of the standard class capacity at the critical load point. It is the difference between the standard class passenger load at the critical load point and the standard class capacity, or zero if the passenger load is within the capacity. Capacities include the number of standard class seats, and also include a standing allowance if the time between stations at the critical load point is 20 minutes or less. For each train operator the numbers of passengers in excess of capacity on each service are aggregated together and expressed as a percentage of the total standard class critical load.

The basis for the standing allowances made in standard class capacities can vary between train operators, meaning that differences in PiXC can in some cases be due to differences in standing allowances. For further information and an example of how PiXC is calculated see the [notes and definitions](#).

As with the passenger number statistics, the crowding statistics are based on counts carried out by train operators on their services and are designed to represent a 'typical' weekday in the autumn period during school term time. Counts from days when there was disruption, leading to abnormal passenger loads are excluded where possible. Counts from Monday mornings and Friday afternoons are usually not included as patterns in passenger travel on these days may be different compared to the rest of the week. Therefore the statistics will not reflect any differences in the level of crowding occurring on these days.

Passenger numbers on individual train services fluctuate from day to day and may vary across the autumn period, which can have an impact on the statistics, depending on the sample of days each year on which particular services are counted. This can have an impact on the crowding statistics as the numbers of PiXC and passengers standing are relatively small. Therefore, small differences in the crowding figures between routes or between years should be treated with some caution, particularly in cases where the figures are based on a relatively small number of services.

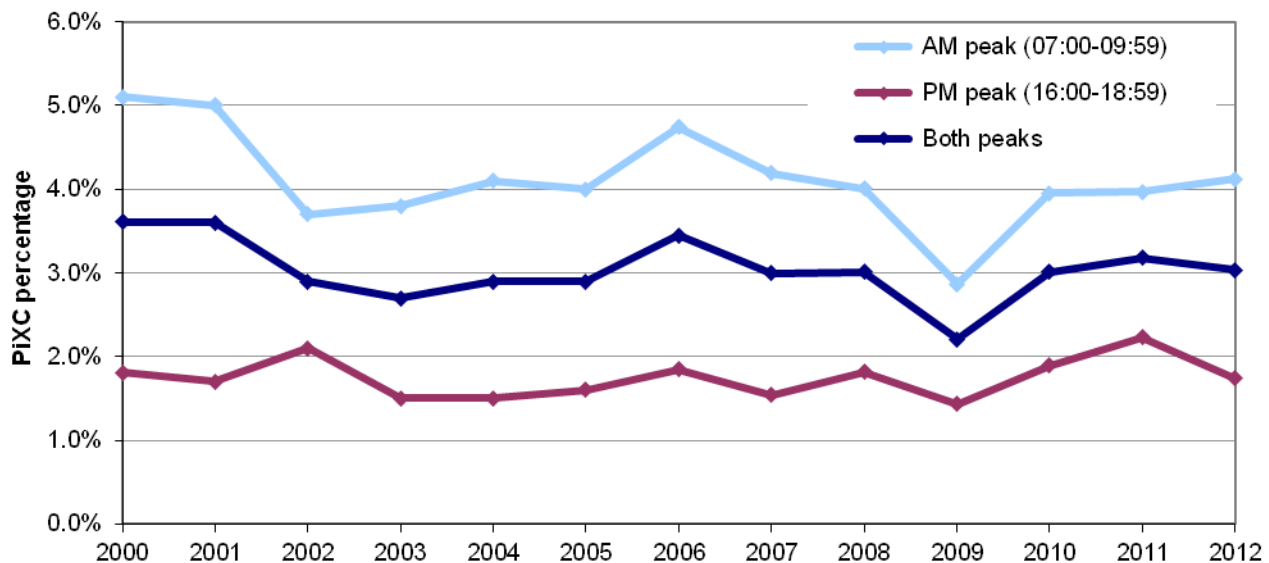
Figures for Birmingham were not included in the tables initially published for 2012 following an issue being identified with the data supplied by London Midland. These figures have now been published, although passenger demand on some routes in Birmingham was, in fact, unusually low in autumn 2012 due to disruption on London Midland services during this period, and this is reflected in the statistics. In particular, this combined with a change in the method used to carrying out passenger counts on some routes and the timing of the counts during the autumn period has led to an apparent large fall in crowding in Birmingham between 2011 and 2012 in the statistics. This is unlikely to represent a real fall and the operator's assessment is that underlying demand has remained at a

Peak crowding in London

On a typical weekday in autumn 2012, across both peaks, 3.0 per cent of passengers were in excess of capacity (PiXC) on London & South East rail services. This was a decrease from 3.2 per cent in 2011. In the morning peak, crowding increased slightly to 4.1 per cent PiXC from 4.0 per cent in 2011, but in the afternoon peak it decreased from 2.2 per cent in 2011 to 1.7 per cent in 2012. The overall standard class critical loads in London stayed at a similar level to 2011, with a small fall of 0.1 per cent in the morning peak and an increase of 0.7 per cent in the afternoon peak.

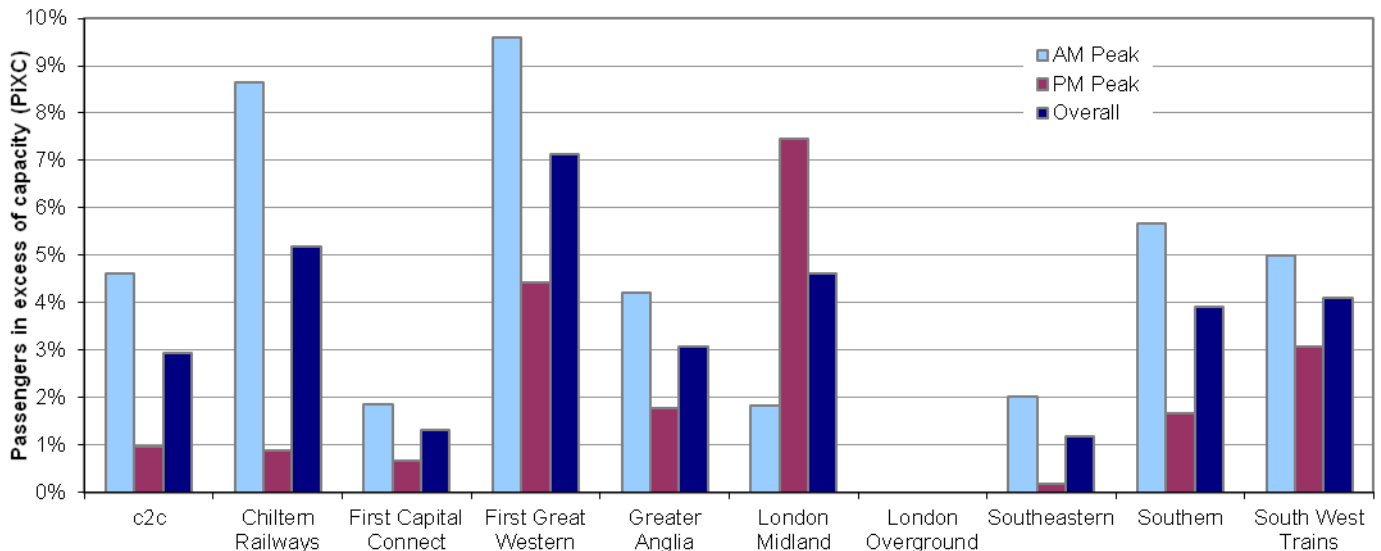
Chart 7 shows how PiXC on London & South East rail services has changed over time. Overall PiXC for both peaks has fluctuated at around 3 per cent for the last ten years, apart from 2009 when it dropped to 2.2 per cent. The recession that ended in late 2009 is likely to have had an impact on this figure, as the number of passengers using London & South East operators' services fell at that time. Other than the fall in 2009, this fairly flat trend in crowding is set against a high level of growth in the number of journeys made on London & South East operators' services over this period.

Chart 7: Passengers in excess of capacity (PiXC): London & South East operators, 2000-2012 (Rail web table [RAI0210](#))



In London, PiXC tends to be higher in the morning peak than the afternoon peak, reflecting the crowding caused by the more concentrated nature of commuter travel in the high peak hour in the morning (08:00 to 08:59) compared to the more spread out nature of departures in the afternoon. In 2012, 5.9 per cent of passengers were in excess of capacity in the morning high peak hour, compared to 2.3 per cent across the rest of the morning peak. In the afternoon high peak hour (17:00 to 17:59) this figure was 2.0 per cent, compared to 1.7 per cent across the rest of the peak.

Chart 8: Passengers in excess of capacity (PiXC) in the morning and afternoon peaks by operator: London & South East operators, 2012 (Rail web table [RAI0211](#))



- First Great Western had the highest level of PiXC of any London & South East operator in 2012 with 7.1 per cent PiXC across both peaks. This represents First Great Western’s lowest PiXC percentage since 2008 and follows an increase in capacity provided on services at London Paddington. Despite having a high PiXC figure, the proportion of passengers standing on First Great Western peak services is lower than for a number of other operators. This is partly because a large number of passengers commute between Reading and London using long-distance services on which standing is not allowed in the PiXC measure, so every passenger standing on these services is in excess of the capacity.
- Chiltern Railways had 5.2 per cent PiXC in 2012, the second highest figure for any London & South East operator, with an increase in its morning peak PiXC from 4.9 per cent in 2011 to 8.7 per cent in 2012. This follows a 3.1 per cent increase in the standard class critical load in the morning peak between 2011 and 2012.
- PiXC has fluctuated over the last few years for London Midland. Following a rise in 2011 to 7.7 per cent for the total across both peaks, it fell to 4.6 per cent in 2012. Unlike most operators, London Midland had more PiXC in the afternoon than in the morning, with 7.4 per cent PiXC in the afternoon peak in 2012 compared to 1.8 per cent in the morning peak. This is because in the morning peak commuters from some stations have the option of travelling with more than

one operator, but for much of the afternoon peak London Midland is the only operator calling at these stations.

- London Overground had the lowest PiXC of any train operator in 2012, with no PiXC in either peak for the third year running. This follows the introduction of new high-capacity, metro-style rolling stock on the Watford DC line in 2010. These are designed to carry a high number of standing passengers but have limited numbers of seats compared to most other rolling stock, resulting in London Overground having the highest proportion of passengers standing of any operator with 48 per cent standing in the morning peak and 41 per cent in the afternoon peak.
- On an average weekday in autumn 2012, 112,000 passengers were standing at the critical load point on arrival into London in the morning peak, equating to 19.3 per cent of all passengers. 12.0 per cent of passengers were standing at critical load points during the afternoon peak. These figures have come down slightly from 2011.
- East Coast, East Midlands Trains and Virgin Trains are long-distance operators and operate a relatively small number of services to and from London compared to most commuter operators. Because they operate long-distance services that do not usually have standing allowances in their standard class capacities, their PiXC figures are generally the same as the numbers of passengers standing on their services. In 2012, East Coast had no PiXC in the morning peak, and 0.2 per cent PiXC in the afternoon peak. Virgin Trains had 1 per cent PiXC in both peaks. East Midlands Trains had a relatively high level of PiXC with 7 per cent in the morning peak and 9 per cent in the afternoon peak, the same as its percentage of passengers standing in both peaks. These high figures are because commuters use its long-distance services to travel to London from locations such as Bedford and Luton.

Chart 9: Passengers in excess of capacity (PiXC) and passengers standing in the morning peak by London terminal: 2012 (Rail web table [RAI0213](#))

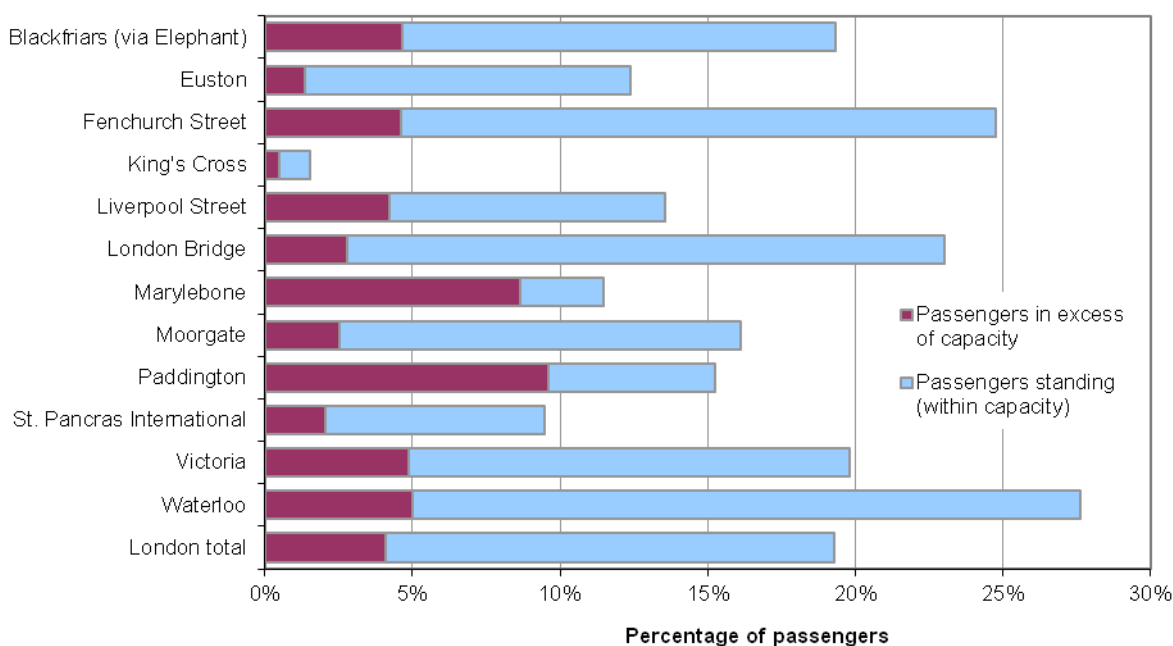


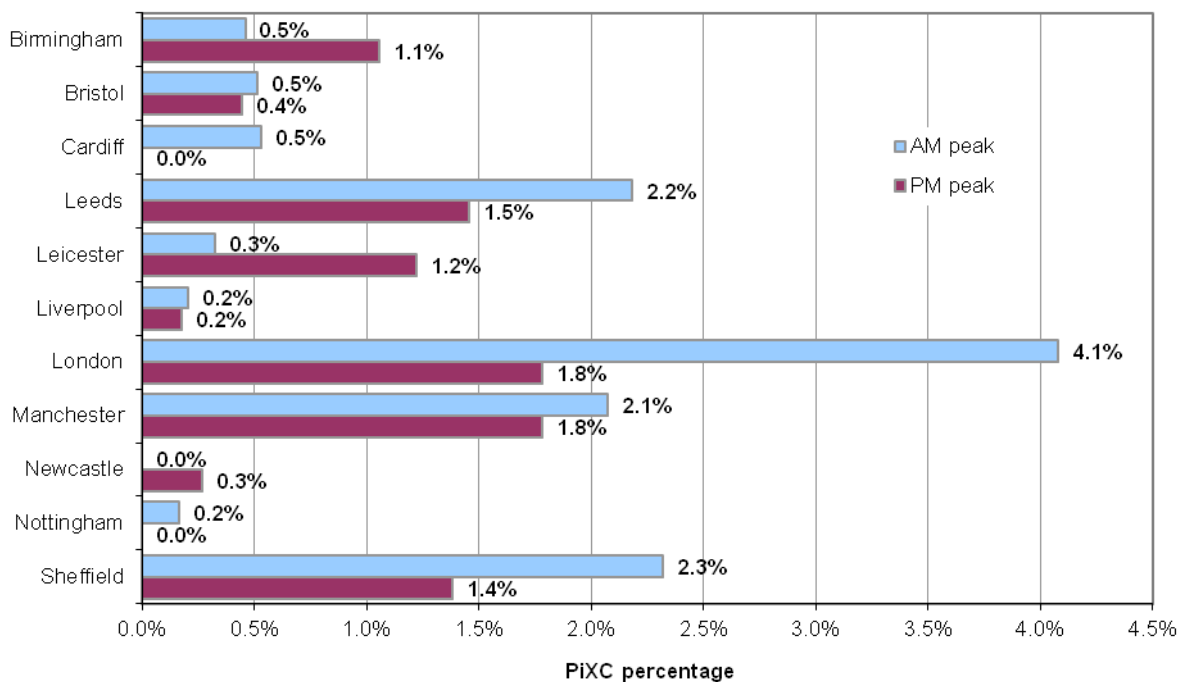
Chart 9 compares the percentages of PiXC and passengers standing on the routes into each London terminal in the morning peak in 2012.

- Paddington and Marylebone had the highest levels of PiXC despite having below average levels of passengers standing. A large number of services into both of these terminals travel for more than 20 minutes between their final stop and the terminal and so do not have standing allowances included in their standard class capacities. This means that a significant part of the PiXC seen on these routes represents passengers having to stand for more than 20 minutes rather than necessarily having to travel in cramped conditions.
- Waterloo had 27.6 per cent of passengers standing in the morning peak, the highest of any terminal, and this rose to 35.2 per cent in the one hour high peak. It had 5,082 passengers in excess of capacity in the morning peak, the highest total for any London terminal, which represents 21.4 per cent of the total London PiXC on services arriving in the morning peak. By comparison Waterloo accounts for 17.5 per cent of the total standard class critical load arrivals in London in the morning peak.
- King's Cross had a much lower level of PiXC and passengers standing than any other London terminal, a pattern which has been seen in each of the three years for which these statistics have been published. Euston had the next lowest PiXC in the morning peak at 1.3 per cent, although in the afternoon peak it has the highest PiXC of any terminal at 5.0 per cent.
- In the morning peak 22 per cent of the 1,041 London services had passengers in excess of their capacity and 57 per cent had passengers standing, compared to 11 per cent of the 1,027 services in the afternoon peak having PiXC and 42 per cent having passengers standing. These figures are greater for services arriving in the high peak (08:00 to 08:59), when 33 per cent of services had PiXC and 74 per cent of services had passengers standing.

Peak crowding in cities outside London

PiXC was calculated for cities outside London for the first time in 2011 to allow crowding to be compared between cities on a consistent basis, so the 2012 statistics are the second year for which these statistics have been produced on a consistent basis with those for London. The number of passengers standing was calculated for cities outside London in 2010, but was based on counts carried out at the stations in city centres rather than at critical load points, meaning that in some cases the figures will have been lower than if they had been carried out at trains' busiest points.

Chart 10: Passengers in excess of capacity (PiXC) by city: 2012
(Rail web table [RAI0212](#))



- The highest PiXC levels outside London in 2012 were at Leeds, Manchester and Sheffield, which all had just over 2 per cent PiXC in the morning peak and between 1 and 2 per cent PiXC in the afternoon peak. In each case these figures are similar to those in 2011.
- Leeds and Manchester had the highest percentages of passengers standing outside London, with 13 per cent and 11 per cent of passengers standing in the morning peak respectively, and 12 per cent of passengers standing the afternoon peak in each city. In both cases these represent slight reductions from the 2011 figures.
- At both Leeds and Manchester crowding was focussed on the main two train operators in the cities, which in both cities are Northern Rail and First TransPennine Express. In both cases First TransPennine Express had higher PiXC and passengers standing figures. At Manchester several other operators had relatively high PiXC percentages in one or other peak, although these operators only operate a small number of services at Manchester during the peaks and the numbers of passengers concerned were relatively small compared to the larger operators.

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- In most cities crowding was predominantly seen on the main commuter operators' services, although at Sheffield in the morning peak CrossCountry had 8 per cent PiXC. This high figure is because of commuters using its long-distance services, which don't have standing allowances included in their standard class capacities. As such, all standing passengers on these services are in excess of their capacity.
 - Liverpool, Newcastle and Nottingham all had less than 0.5 per cent of passengers in excess of capacity in both the morning and afternoon peaks, and Bristol and Cardiff also had relatively low levels of PiXC. Leicester had a low level of PiXC during the morning peak, though 1.2 per cent of passengers were in excess of capacity on services departing during the afternoon peak.
 - At Birmingham 0.5 per cent of passengers were in excess of capacity in the morning peak, and 1.1 per cent in the afternoon peak. The PiXC figure in the morning peak is a large fall from the level seen in 2011, when 3.1 per cent of passengers were in excess of capacity. However, this is likely to reflect the impact of disruption on London Midland services during the autumn period in 2012, which led to passenger demand being unusually low on some routes in Birmingham during this period. This is unlikely to represent a real fall in underlying demand on these routes, which the operator assesses has remained at a similar level.

3. Strengths and weaknesses of the data

These statistics are based on counts carried out by train operators of the numbers of passengers using their services, either using automatic counting equipment fitted to trains or manual counts carried out on board trains or at stations. While the statistics should be a reliable guide to the magnitude of passenger numbers at particular locations and at different times of day, there are a number of factors which can affect these statistics.

- Passenger numbers on individual train services fluctuate from day to day and may vary across the autumn period, which can have an impact on the aggregate statistics, depending on the sample of days each year on which particular services are counted. This can have an impact on the aggregate statistics, particularly in cases where they are based on a small number of services or where services have only been counted a small number of times, as changes from year to year may reflect these fluctuations rather than a genuine trend. For the same reason small differences in the crowding figures between routes or when comparing different years should be treated with some caution.
- Passenger counts can be subject to measurement errors. For example with manual counts there is a risk of human error leading to incorrect counts, particularly on busy trains. Load-weighting equipment calculates the passenger load by assuming an average weight per passenger, which may not always be representative of the passengers on every train, and all automatic counting equipment can sometimes develop faults.
- As the statistics are designed to represent a typical weekday during school term time in the autumn they will not necessarily be representative of passenger numbers and crowding at other times of year, or on particular days of the week. They will also not reflect crowding seen on days when there was disruption. The autumn period is used because it is the time of year when commuter demand is generally at its greatest, but this will not necessarily be the case for all operators and on all routes, and crowding may be higher at other times of year or on particular days of the week in some cases.
- The basis on which standing allowances for different types of rolling stock are calculated can vary between train operators, usually because of the types of rolling stock in their fleets and the types of passenger services they provide. The method for calculating them has also varied over time. This will have an impact on the PiXC figures for each operator.
- Because some services include a standing allowance in their standard class capacity while longer distance services only include the number of standard class seats, the nature of PiXC is different in these cases. On services with no standing allowance it represents passengers having to stand for more than 20 minutes, whereas on other services it represents passengers standing in cramped conditions.

More information about the methodology behind these statistics and factors that affect them can be found in the notes and definitions document that accompanies this statistical series:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69927/rail-notes-definitions.pdf

4. Tables accompanying this release

Nine tables have been published alongside this release, three showing passenger number statistics and six showing crowding statistics. The tables are listed below and can be found at the following link: <https://www.gov.uk/government/statistical-data-sets/rai02-capacity-and-overcrowding>

Passenger number statistics tables

Table no.	Table title
RAI0201	City centre peak and all day arrivals and departures by rail on a typical autumn weekday, by city: 2012
RAI0202	City centre arrivals and departures by rail on a typical autumn weekday, by city and time band: 2012
RAI0203	Central London arrivals and departures by rail in on a typical autumn weekday, by station and time band: 2012

Crowding statistics tables

Table no.	Table title
RAI0210	Passengers in excess of capacity (PiXC) on a typical autumn weekday on London & South East train operators' services: annual from 1990
RAI0211	Passengers in excess of capacity (PiXC) on a typical autumn weekday by operator: London & South East train operators: annual from 2008
RAI0212	Peak rail capacity, standard class critical loads and crowding on a typical autumn weekday by city: 2012
RAI0213	Peak rail capacity, standard class critical loads and crowding on a typical autumn weekday in London by terminal: 2012
RAI0214	Peak crowding on a typical autumn weekday by city and train operator: 2012
RAI0215	Peak crowding on a typical autumn weekday in London by terminal and train operator: 2012

5. Definitions

The following definitions are used in this publication and the accompanying tables.

Afternoon (PM) peak	All services that depart from a city centre terminal in the three hour period from 16:00 to 18:59. The 1 hour PM peak includes all departures between 17:00 and 17:59.
Automatic passenger count (APC)	A passenger count collected by electronic equipment fitted to a train, either by 'infra-red' or 'load weighing' equipment.
Autumn period	The period from mid-September to mid-December, excluding school half term.
City centre	One or more selected stations in the centre of the city. In London this includes all stations within Zone 1 of the Transport for London (TfL) travelcard area on routes into major terminals.
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. Critical load points can vary from service to service, but will usually be at the same location for services on the same route.
Franchised train operator	A train operator that is franchised by DfT or another government body. Non-franchised train operators' services are not included in these statistics.
Manual passenger count	A passenger count carried out without the use of electronic counting equipment, either on board a train (often by the train guard) or on a platform.
Morning (AM) peak	All services arriving at a city centre terminal in the three hour period from 07:00 to 09:59. The 1 hour AM peak includes all arrivals between 08:00 and 08:59.
Number of passengers	Includes all standard and first class passengers on services when they arrive at or depart from the city centre (unless otherwise stated).
Number of services	The number of services that the statistics are based on. This includes all franchised train operators' services timetabled to run during the autumn period.
Passenger count	A count carried out by a train operator of the number of passengers on board a train at a particular point along its route. These counts are either collected manually or by automatic counting equipment fitted to the train.
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. It is the difference between the standard class critical load and the standard class capacity, or zero if the critical load is within the capacity.
Passengers standing	The number of standard class passengers on a service that are in excess of the number of standard class seats at the critical load point. It is the difference between the standard class critical load and the number of standard class seats, or zero if the number of seats is greater than the passenger load.
Total seats	Includes all standard and first class seats on services when they arrive at or depart from the city centre.
Standard class capacity	Includes the number of standard class seats on the service and may include a standing allowance. No allowance for standing is made on a service when the time between stations before (AM) or after (PM) the critical load point is more than 20 minutes, but it is allowed when it is 20 minutes or less.
Standard class critical load	The number of standard class passengers on a service at the critical load point. It is the highest number of standard class passengers on a service on arrival at (AM peak) or on departure from (PM peak) a city.
'Typical' weekday	A midweek weekday during school term-time on which services are not disrupted and passenger numbers are not affected by any unusual events.

6. Users and uses of these statistics

These statistics and the underlying passenger counts are used within Government and across the rail industry for a wide variety of tasks. Some of the main uses include:

- Informing Government policy on rail, including decisions on infrastructure, station and rolling stock investment.
- As part of the rail franchising process, informing the specification of new franchises and the models used in the assessment of franchise bids.
- In the day to day running of train operating companies, including planning timetables and rolling stock deployment.
- Understanding and monitoring passenger demand and crowding.
- Validating models of passenger demand.

A summary of the feedback we have received from users in a recent consultation is published on the DfT rail statistics notes and guidance webpage: <https://www.gov.uk/transport-statistics-notes-and-guidance-rail-statistics>.

We are always keen to hear how these statistics are used and would welcome your views on this release. Comments and queries can be addressed to rail.stats@dft.gsi.gov.uk.

7. Revisions

Statistics from 2012 based on First Capital Connect passenger counts were revised in October 2013 following revised data being submitted by the operator. Details of these revisions can be found in a separate revision note on the [release page](#) for this publication.

Due to amended data being received from London Midland and Virgin some revisions were made at the time of the 2012 publication in July 2013 to the 2011 London Euston, Birmingham, Manchester and Liverpool statistics and the 2010 London Euston and Birmingham statistics. These had the following impact on the published statistics:

- In the 2011 statistics the number of passenger arrivals and departures at London Euston during the peaks and in total across the day have all been revised up by between 3 and 4 per cent, and there have been small revisions to the number of seats and standard class capacity. The London Midland AM peak PiXC has increased from 2.8 per cent to 4.7 per cent, increasing the combined peak PiXC from 6.8 per cent to 7.7 per cent. The Virgin Trains PiXC and percentage of passengers standing have both increased from 0 per cent to 1 per cent in the AM peak, and from 1 per cent to 2 per cent in the PM peak. The AM peak PiXC percentage at Euston increased from 1.9 per cent to 3.2 per cent. The overall PiXC and passengers standing figures for London changed by less than 0.1 percentage point.

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- In the 2011 statistics AM peak arrivals at Birmingham have increased by 1 per cent and PM peak and all day departures by 2 per cent. Arrivals and departures at Manchester and Liverpool have increased by up to 1 per cent. The percentage of passengers standing on Virgin Trains services in the PM peak increased from 1 per cent to 3 per cent at Birmingham and from 0 per cent to 1 per cent at Manchester. The overall PiXC and passengers standing figures at Birmingham, Manchester and Liverpool changed by less than 0.1 percentage point.
 - In 2010 at London Euston the number of passengers in the PM peak has been revised up by 1.2 per cent. The London Midland PM peak PiXC has increased from 4.6 per cent to 6.3 per cent, increasing the combined peak PiXC from 2.5 per cent to 3.5 per cent. The Euston PM peak PiXC percentage increased from 3.0 per cent to 4.1 per cent and the percentage of passengers standing from 12.0 per cent to 13.0 per cent. The overall PiXC figures for London increased by less than 0.1 percentage point.
 - The number of passengers on services arriving at city centre stations in Birmingham in the AM peak in 2010 has been revised up by 2.3 per cent and total seats by 3.0 per cent, and in the PM peak total seats has increased by 0.6 per cent. In the crowding statistics one fewer service has passengers standing in each of the AM and PM peak. The percentage of passengers standing in the AM peak fell slightly from 8.9 per cent to 8.7 per cent and in the PM peak by less than 0.1 percentage point.

8. Background notes

1. Further information about the statistics in this report can be found in the [notes and definitions](#).
2. To retain data confidentiality two c2c services at London Liverpool Street and two Chiltern Railways services at London Paddington were excluded from the 2012 passenger number statistics. See the [notes and definitions](#) for details of the confidentiality of passenger count data.
3. The United Kingdom Statistics Authority has 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](#).

Designation can be broadly interpreted to mean that the statistics:

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

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

4. Details of Ministers and officials who receive pre-release access to these statistics up to 24 hours before release can be found in the [Pre-release Access List](#).
5. This is an annual publication. The next annual release of rail passenger numbers and crowding statistics will be the 2013 statistics published in July 2014.