Department for Transport

Rail passenger numbers and crowding on weekdays in major cities in England and Wales: 2016

About this release

This publication provides information on the number of passengers travelling by rail into and out of major city centres in England and Wales.

The statistics are based on passenger counts carried out by franchised train operators in autumn 2016. They represent passenger numbers on National Rail services on a 'typical' weekday.

More information is available in the accompanying notes and definitions document.

How is crowding measured?

The main measure of crowding in these statistics is 'Passengers in excess of capacity' or PiXC. It shows the percentage of standard class passengers above a service's capacity at its busiest point.

London Kings Cross

Whilst the number of rail passengers grew between 2015 and 2016, there was slightly less crowding overall on trains into major cities in the morning peak, but more crowding overall in the afternoon peak.

Main results

Passenger Numbers

- With the exceptions of Birmingham and Liverpool, rail demand has grown at all the major cities included in this release.
- In 2016, 583 thousand passengers arrived into central London during a typical weekday morning peak. This compares with 42 thousand at Birmingham, the second busiest city.
- Morning peak passengers arriving into central London have increased each year since 2010.

Crowding

- Morning peak crowding was highest in London (5.7%), followed by Manchester (3.5%) and Leeds (2.7%).
- Crowding on train services was generally worse during the morning peak than the afternoon peak.
- Blackfriars had the highest crowding level of all central London stations, while Fenchurch Street had a higher percentage of standing passengers.
- Almost 150 thousand passengers were standing at trains' busiest points on arrival into central London in the 3-hour morning peak. Nearly two-thirds of all services in the morning peak had standing passengers.

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1. Introduction

In this publication we present information on rail passenger numbers and crowding during a typical autumn weekday in 2016 for eleven major cities across England and Wales, as well as central London stations.

Scope

Counts of rail passengers are collected on DfT franchised passenger train operators' services and those of concession operators. The count period covers services in the May timetable running between September and December. Data are collected for train services entering and leaving eleven of the largest cities across England and Wales. The statistics are designed to represent rail travel during a 'typical' midweek day in the autumn period, i.e. counts from days when there was disruption are excluded.

Statistics

The statistics on passenger numbers show the total level of rail demand for each city centre, including all standard and first class passengers. The city centre is defined using a cordon to include the major city centre stations. In some cases passengers will not alight at the cordon station, but they will be counted there.

The crowding statistics show overall levels of passenger crowding along routes into city centres. Passengers are counted at the busiest station along the line of route for each service entering and leaving the city centre.

Passengers in excess of capacity (PiXC) is the main measure of passenger crowding used in these statistics. PiXC is the number of passengers above a train's capacity and is calculated as a percentage of all standard class passengers. First class passengers are not included in the crowding statistics.

Capacity

The capacities used for PiXC are calculated as the total number of standard class seats, plus a 'standing allowance' where passengers are standing for 20 minutes or less. The standing allowance is included because some rolling stock used for local services is designed with a higher standing capacity and fewer seats, in which passengers may generally expect a comfortable standing space rather than a seat.

Peak demand

Rail usage tends to be concentrated in the morning peak for trains arriving into city centres, and in the afternoon peak for trains departing from city centres. For this reason, these tend to be the times when rail demand and train crowding is highest. These statistics present morning and afternoon peak totals to show the extent of demand and crowding in major cities across England and Wales.

More detailed information is included in the accompanying Notes and Definitions document, which can be found at: https://www.gov.uk/government/publications/rail-statistics-guidance.

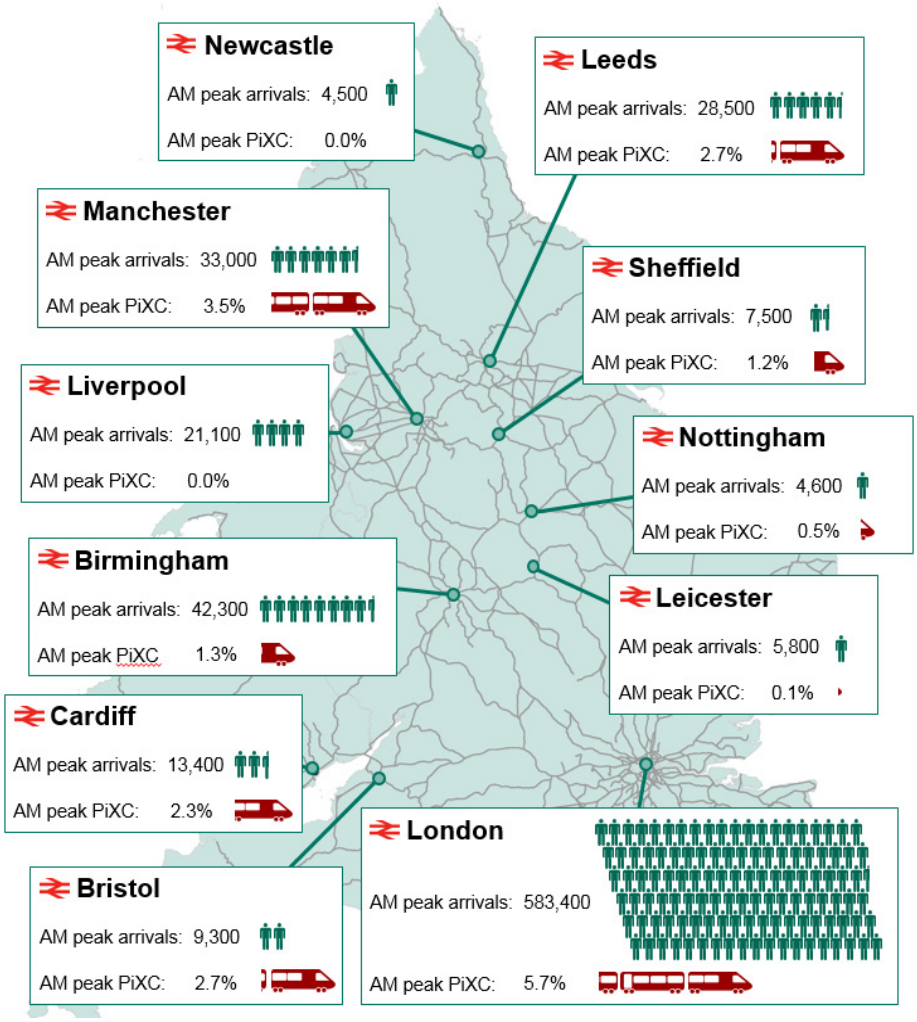
Weekday morning peak passenger numbers and crowding at major cities in England and Wales

Key

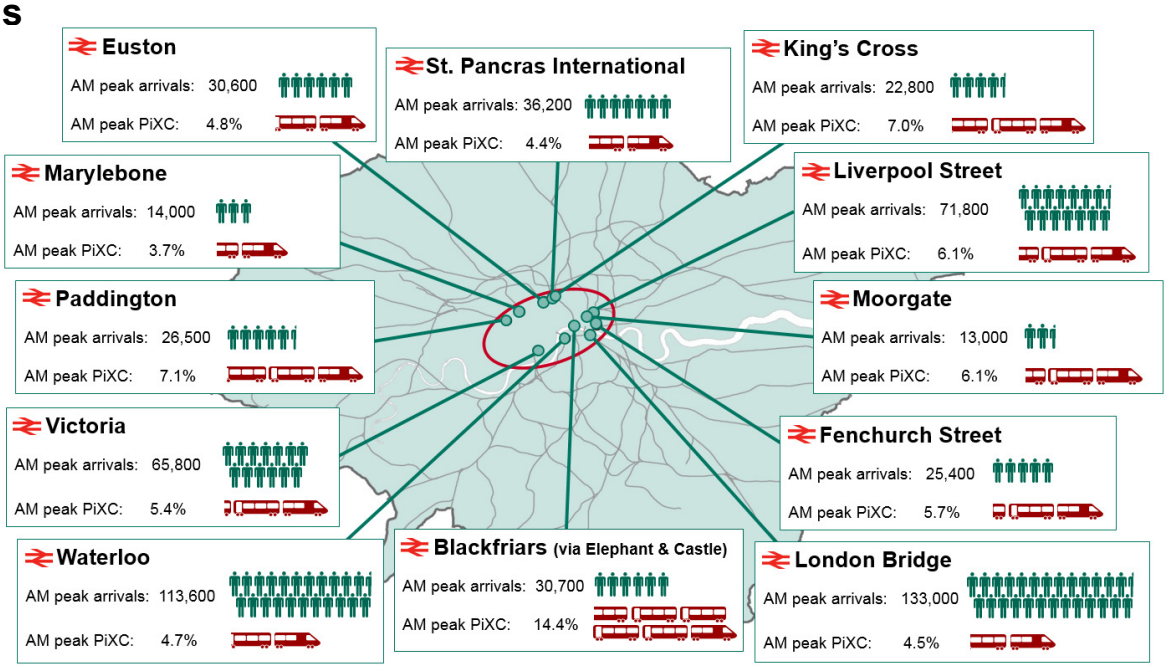
AM peak arrivals is the number of passengers arriving into the city centre by National Rail on a typical autumn weekday during the 3-hour morning peak (7-10am).

AM peak PiXC is the percentage of passengers in excess of capacity (PiXC) across the morning peak on a typical autumn weekday. A higher PiXC percentage represents a worse crowding level.

- represents central London (zone 1 TfL Travelcard area)



Weekday morning peak passenger numbers and crowding at major London stations



3. Context: Growth in rail usage

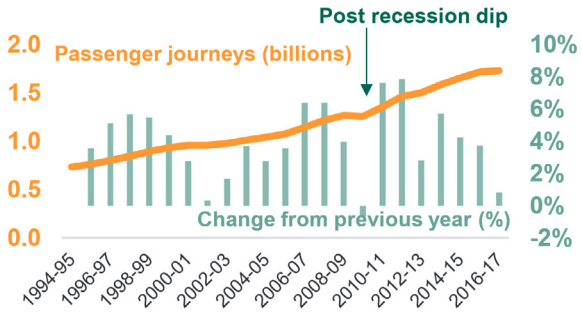
Rail passenger journeys continue to rise, and are now at their highest level since the 1920s

Over the last 20 years:

- Rail passenger journeys have **more than doubled** on Great Britain's railways.
- Average growth in passenger journeys each year has been **4%**.

There has been almost unbroken growth in passenger journeys across Great Britain since 1994-95, with the exception of a dip during the post-recession period in 2009-10.

Chart 1: GB rail passenger journeys with annual percentage change from 1994-95



In 2016-17:

- **1.73 billion** journeys were made with Great Britain's franchised train operators.
- **14 million** extra journeys (up 0.8%) compared with 2015-16.
- Almost **1 billion** more rail journeys were made than in the mid-1990s.

The Long Distance and Regional rail sectors had annual increases in passenger journeys of around 4% in 2016-17 compared with the previous year. Over the same period, there was a decline in journeys made on London and South East (LSE) services.

Table 1: Franchised passenger journeys by rail sector

	Passenger journeys in 2016-17	Change since 2015-16
Long Distance	144 million	↑3.8%
Regional	389 million	↑3.9%
London and South East	1,197 million	↓0.5%
Total	**1,729 million**	**↑0.8%**

More rail journeys were made with Govia Thameslink Railway (GTR), a LSE operator, than any other train operator.

During 2016-17 GTR experienced industrial disputes and significant planned cancellations leading to a fall in journeys.

Figure 1: Rail passenger journeys 2016-17

Source

The statistics on this page are produced by the Office of Rail and Road (ORR), who are the lead publisher of official statistics for the rail industry in Great Britain. These ORR statistics are the best source of information available on the overall level of rail travel over time.

Rail sectors

The rail network is subdivided into three sectors – Long Distance, London & South East and Regional. Following the refranchising of some services in 2006 and 2007 some train operating companies now operate services in more than one of the sectors.

4. Context: Passenger satisfaction

Commuters are most likely to experience train crowding, and are less satisfied than other passengers

The passengers most likely to experience train crowding are commuters, particularly those travelling into cities in the morning peaks. Transport Focus' National Rail Passenger Survey (NRPS) shows consistently that commuters are much less satisfied than other passengers.

The Autumn 2016 NRPS that equates most closely to the passenger counts statistics presented in this release showed 81% of people were satisfied with their journey overall, but for commuters, satisfaction levels are much lower.

Chart 2: Satisfaction by journey purpose

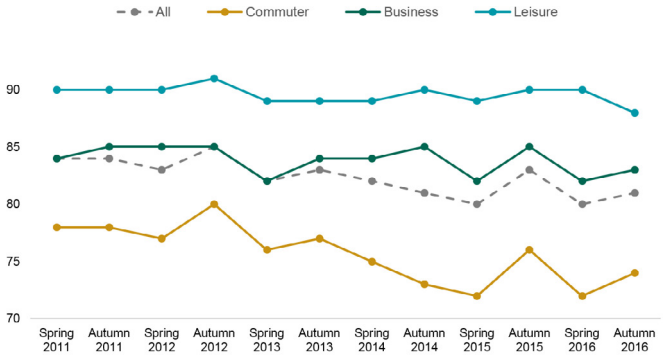


Table 2: Satisfaction with 'sufficient room to sit or stand'

	Commuters	Business	Leisure
Overall satisfaction	**74%**	**83%**	**88%**
Sufficient room to sit/stand	**55%**	**73%**	**77%**

Passengers travelling into London during the morning peak tend to report considerably lower levels of satisfaction with their journey as a whole.

For weekday commuters who arrive into a central London station before 10am…

… 42% were satisfied with their journey overall

… 38% were satisfied with room to sit/stand

Large London city centre stations tend to have lower levels of passenger satisfaction. However some other regional city centre stations have higher levels of passenger satisfaction than the national average.

Table 3: Commuter satisfaction by destination; Autumn 2016

	London Victoria	London Bridge	Liverpool Street	Paddington	Birmingham New Street	Manchester Piccadilly
Overall satisfaction (GB average: 74%)	**54%**	**60%**	**75%**	**68%**	**83%**	**77%**
Sufficient room to sit/ stand (GB average: 55%)	**50%**	**54%**	**48%**	**50%**	**66%**	**62%**

Passenger satisfaction

Transport Focus publishes the National Rail Passenger Survey (NRPS), a biannual survey that collects information about passenger satisfaction each spring and autumn.

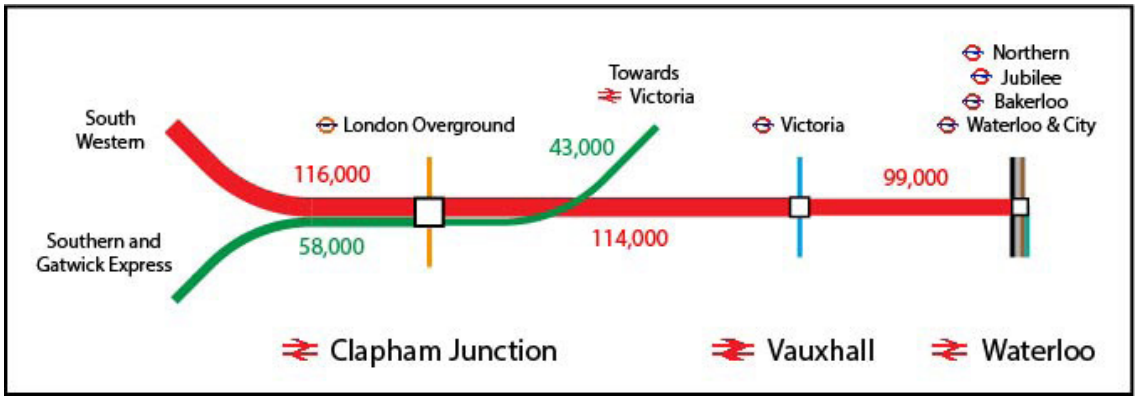
Priorities for improvement

Research shows that the ability to get a seat on a train is the second highest priority for improvement among rail passengers, behind value for money. *Source: Transport Focus Rail passengers' priorities for improvement in Great Britain, 2014*

Rail passengers using routes into city centres often transfer onto local public transport networks

Rail services into city centres are often busiest at locations where passengers can interchange with other local transport networks to complete their journey. In this example, passenger demand is shown to be higher along the route into Waterloo than at the city centre terminal. There were 17 thousand fewer passengers at Waterloo than at Clapham Junction on South West Trains services during the AM peak.

Figure 2: Daily passengers using rail services into Waterloo during the 3-hour AM peak



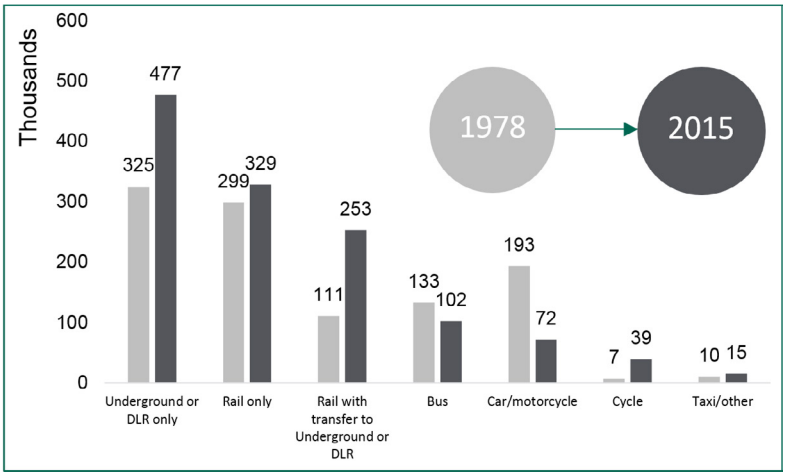
Numbers are approximate and do not take into account intermediate stations; Source: DfT

Travel into central London

Latest data from 2015 show that more than 2 in 5 rail passengers travelling into central London transferred to London Underground or Docklands Light Railway (DLR) services during the weekday morning peak. Between the start of the data series in 1978 and the latest data from 2015, the number of passengers using rail only to travel into London during the morning peak increased marginally, but passenger numbers transferring from rail to London Underground and DLR services have increased more dramatically.

Whilst there has been an increase in rail and London Underground usage in London over the last 40 years, the use of cars in London has dropped by over 60%.

Chart 3: Weekday AM peak central London arrivals



Source: Transport for London's (TfL) annual Travel in London report, which summarises trends and developments relating to travel and transport. Travel in London report (version 9)

6. Passenger numbers: 2016 summary

Half of daily arrivals into London are in the morning peak, whereas in other cities this figure is around one-third.

Rail travel to and from London far exceeds that of other major cities across England and Wales. In 2016, London saw over a million passengers arriving into the city centre during a typical day. This compares to Birmingham, the next highest number with 121 thousand.

Figure 3: Passengers arriving in the AM peak

Table 4: Rail passengers travelling into cities, 2016

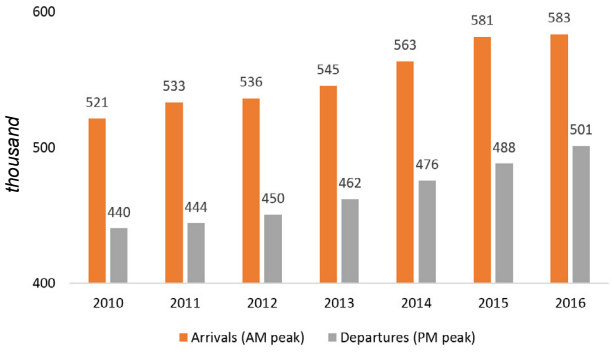
City	AM peak arrivals		All-day arrivals	
	AM peak arrivals	Change from 2015	All-day arrivals	Change from 2015
Birmingham	42,312	↓1.4%	121,477	↓2.7%
Bristol	9,254	↑4.5%	28,059	↓1.2%
Cardiff	13,379	↑1.6%	36,719	↑4.6%
Leeds	28,524	↑7.8%	74,703	↑5.0%
Leicester	5,770	↓3.7%	27,318	↓0.4%
Liverpool	21,073	↓1.3%	66,279	↓2.0%
London	583,432	↑0.4%	1,063,223	↑1.3%
Manchester	32,996	↑7.0%	101,094	↑9.8%
Newcastle	4,496	↓1.6%	23,654	↑9.9%
Nottingham	4,591	↑1.6%	16,448	↑7.4%
Sheffield	7,493	↓2.1%	32,297	↑1.2%

Passenger numbers statistics

The statistics are designed to represent passenger numbers on a 'typical' midweek day in the autumn period, so counts from days when there was disruption leading to abnormal passenger loads are excluded where possible, for example when caused by bad weather or engineering work.

Morning peak passengers arriving into London have increased each year since 2010. However, over the last year the increase was the smallest it has been in six years, consistent with the slowdown in passenger journeys over the same period described in section 3.

Chart 4: Central London 3-hour peak arrivals and departures



7. Passenger crowding: 2016 summary

Crowding levels overall have reduced slightly during the morning peak, but worsened slightly during the afternoon peak.

These statistics give an indication of the extent of train crowding in major cities in England and Wales. PiXC shows the overall percentage of passengers that exceed train capacity on the routes to and from city centres. For example, a train with a capacity of 90 carrying 100 standard class passengers has 10 passengers in excess of capacity, and its PiXC percentage is 10% (that is, 10 passenger out of 100 who are over the train's capacity).

Crowding statistics

Crowding levels, measured using PiXC, are derived from passenger counts at a train's busiest point on its journey into (AM peak) or out of (PM peak) a city centre.

Table 5: Passenger crowding by city and central London station, 2016

	AM peak		PM peak		Both peaks	
City	PiXC	Change from 2015	PiXC	Change from 2015	PiXC	Change from 2015
Birmingham	1.3%	↓1.1pp	0.9%	↓0.4pp	1.1%	↓0.7pp
Bristol	2.7%	↑2.0pp	2.6%	↑0.5pp	2.6%	↑1.2pp
Cardiff	2.3%	↑0.2pp	1.3%	➲0.0pp	1.8%	↑0.1pp
Leeds	2.7%	↑0.5pp	2.1%	↑0.7pp	2.4%	↑0.6pp
Leicester	0.1%	↓1.2pp	3.6%	➲0.0pp	2.0%	↓0.5pp
Liverpool	0.0%	➲0.0pp	0.0%	↓0.1pp	0.0%	↓0.1pp
Manchester	3.5%	↓0.2pp	2.5%	↑0.4pp	3.0%	↑0.1pp
Newcastle	0.0%	➲0.0pp	0.1%	↑0.1pp	0.0%	➲0.0pp
Nottingham	0.5%	↑0.3pp	0.2%	↑0.1pp	0.3%	↑0.2pp
Sheffield	1.2%	↓0.4pp	1.2%	↑0.5pp	1.2%	↑0.1pp
All cities outside London	**1.9%**	**↓0.1pp**	**1.5%**	**↑0.1pp**	**1.7%**	**➲0.0pp**
Routes into major London stations						
Blackfriars (via Elephant and Castle)	14.4%	↓0.3pp	8.9%	↑3.4pp	12.1%	↑0.9pp
Euston	4.8%	↑0.5pp	4.7%	↑0.8pp	4.8%	↑0.7pp
Fenchurch Street	5.7%	↓3.5pp	1.8%	↓1.9pp	3.9%	↓2.7pp
King's Cross	7.0%	↑2.6pp	3.9%	↑1.3pp	5.5%	↑2.0pp
Liverpool Street	6.1%	↑0.9pp	4.3%	↑1.5pp	5.2%	↑1.1pp
London Bridge	4.5%	↑1.8pp	0.4%	↓0.3pp	2.7%	↑0.8pp
Marylebone	3.7%	↓2.5pp	2.4%	↑0.7pp	3.1%	↓1.0pp
Moorgate	6.1%	↓7.4pp	1.5%	↑0.4pp	4.0%	↓4.5pp
Paddington	7.1%	↓1.9pp	6.7%	↑2.7pp	6.9%	↑0.2pp
St. Pancras	4.4%	↓3.0pp	5.2%	↓1.1pp	4.8%	↓2.1pp
Victoria	5.4%	↑1.1pp	1.1%	↓0.1pp	3.4%	↑0.5pp
Waterloo	4.7%	↓0.9pp	3.3%	↓0.6pp	4.1%	↓0.8pp
London total	**5.7%**	**↓0.1pp**	**3.0%**	**↑0.3pp**	**4.5%**	**➲0.0pp**
All cities (incl. London)	**4.9%**	**↓0.1pp**	**2.7%**	**↑0.2pp**	**3.8%**	**➲0.0pp**

'Changes from 2015' are given in percentage points (pp)

How do passenger numbers affect crowding?

Many major cities across England and Wales included in these statistics saw growth in the number of daily rail passengers in 2016 compared with the year before.

With the rise in passenger numbers, crowding levels have worsened in recent years. Between 2011 and 2016 there was an increase of 1.6 percentage points in morning peak PiXC in London.

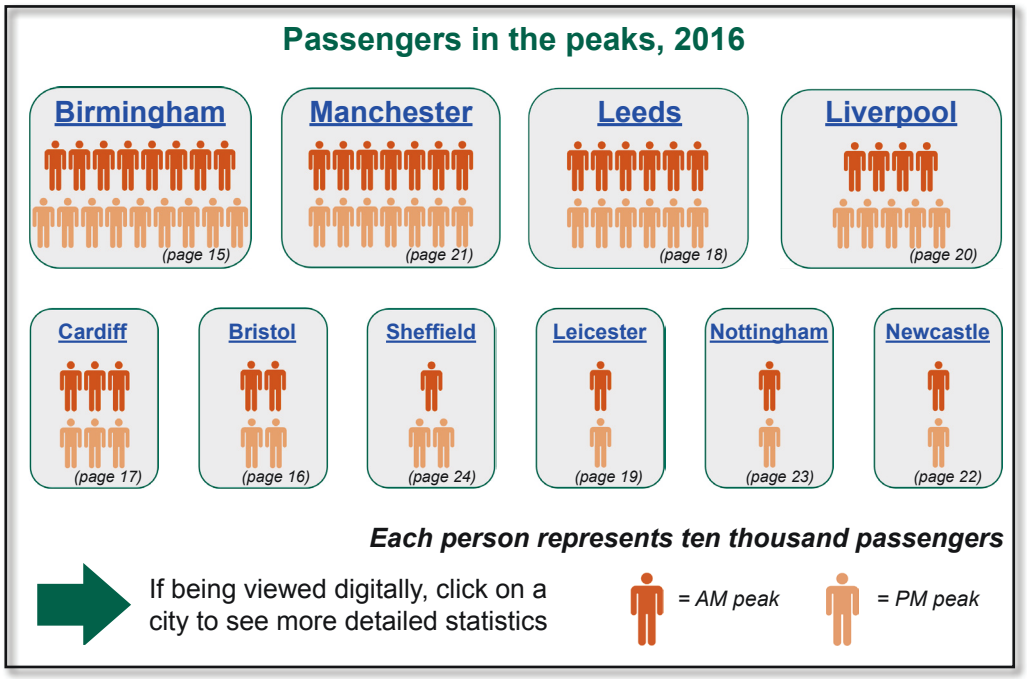
While rail passenger demand is highest in London, it also has more train services compared to other cities. Crowding levels reflect services where capacity provision does not meet the level of passenger demand.

Although variations in PiXC levels can seem small across cities and over time, the actual numbers of passengers affected by crowding can be large. In London, where passenger numbers are in the hundreds of thousands over the peak periods, a small rise in crowding levels can translate to a substantial number of passengers experiencing crowded conditions overall.

Differences between passenger numbers and crowding statistics

Passenger numbers are taken from passenger counts at city centres, whereas the crowding statistics are derived from passenger counts at the busiest point during a train's journey into a terminus.

Crowding statistics look at standard class passengers only, whereas the passenger numbers include both standard and first class passengers.



Cities included in this release

Passengers are counted on arrival at or departure from the city centre. This publication presents passenger numbers at eleven of the largest cities across England and Wales.

For summary pages containing passenger numbers and crowding statistics for major cities see pages 15 to 24.
For London station summary pages, see pages 25 to 30.

8. Passenger numbers and crowding in London

Rail passenger numbers travelling to and from London continue to rise

Over one million passengers arrived into central London by rail over the course of a typical day in autumn 2016. Passenger demand is concentrated in the morning peak when 55% of all passengers arrived. The number of passengers arriving during the morning peak has increased by around 50,000 over the last five years. This is broadly equivalent to the total number of daily passengers using King's Cross station.

London passenger numbers

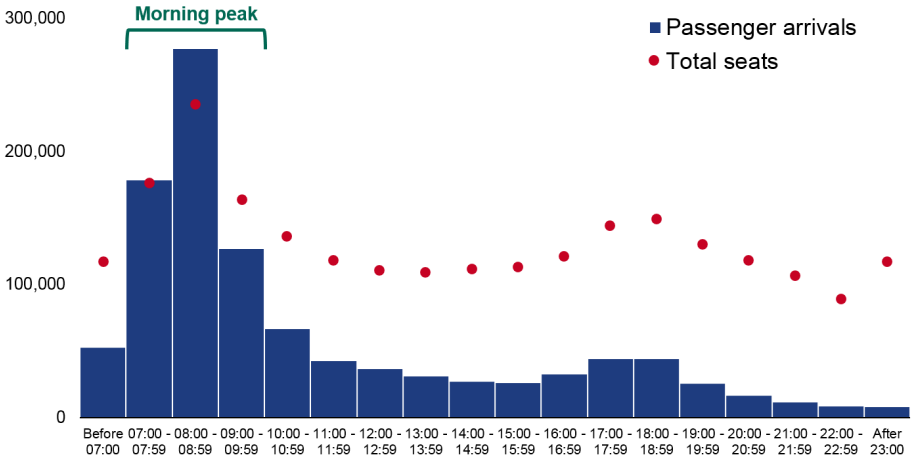
Passenger numbers arriving into London are counted on arrival at the first station in Zone 1 of the TfL Travelcard area en route to London. For example, services terminating at Charing Cross or Cannon Street will be counted at London Bridge.

Table 6: Passenger numbers and PiXC at major London stations during the AM peak

	2010	2011	2012	2013	2014	2015	2016
AM peak passengers	521,200	533,200	536,200	545,300	563,400	581,400	583,400
AM peak PiXC	3.9%	4.1%	4.1%	4.1%	5.4%	5.8%	5.7%

Although the total number of seats can exceed passenger numbers in a particular hour, individual services will be more loaded than others which results in those trains being overcrowded.

Chart 5: London arrivals by time band, 2016



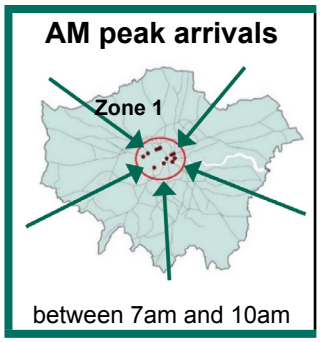
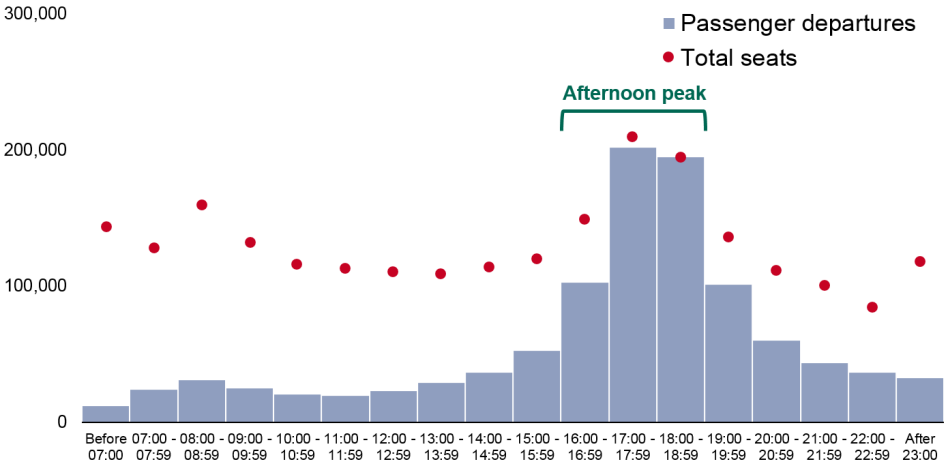
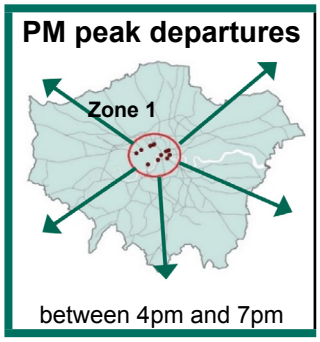


Chart 6: London departures by time band, 2016





Crowding in London is most acute during the morning peak

Although the London and South East sector has seen a decline in passenger journeys over the last year, weekday arrivals into central London have increased. This may be a result of commuter travel being sustained, while more discretionary travel had fallen in this period.

Table 7: PiXC and passengers standing for London train operators

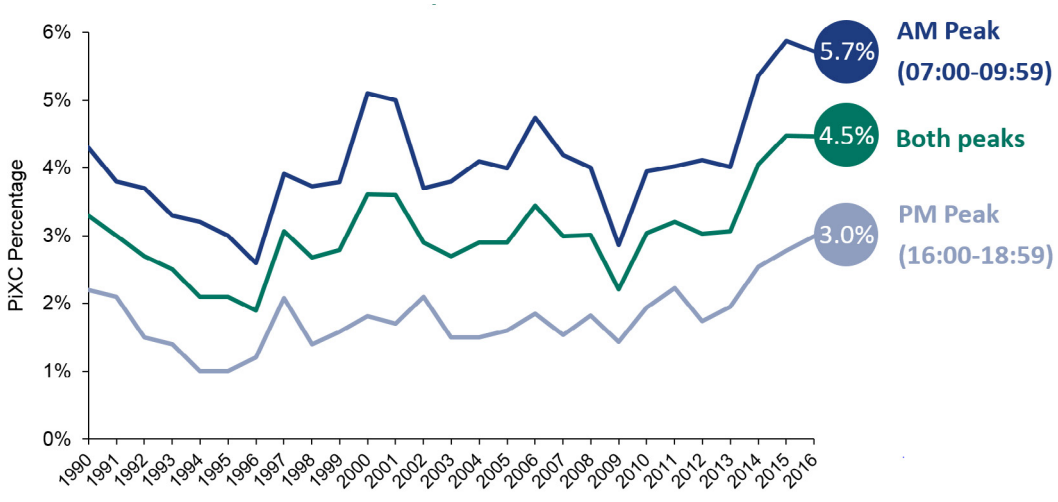
	AM peak	PM peak
Passengers in excess of capacity (PiXC)	5.7%	3.0%
Services with PiXC	27.8%	16.9%
Passengers standing	23.0%	16.3%
Services with standing passengers	64.2%	53.5%

Difference between PiXC and passengers standing

In cases where passengers are standing for less than 20 minutes, the PiXC calculation will apply a standing allowance to a train's capacity. 'Passengers standing' simply uses the number of standard class seats for a train's capacity.

Crowding on trains is worse during the morning peak than the afternoon peak, due to a higher concentration of arrivals in a shorter space of time. For London and South East operators, PiXC across both peaks is unchanged from the previous year, and remains at an historic peak level of 4.5%.

Chart 7: PiXC for London & South East operators, 1990 to 2016



Note: This series does not include Long Distance operators' services.

Historic PiXC regime

In the past DfT monitored crowding for London commuter services using PiXC. Under the historic PiXC regime, DfT set limits on the level of acceptable PiXC at 4.5 per cent in one peak (morning or afternoon) and 3.0 per cent across both peaks. DfT now instead sets a variety of performance targets for its individual franchise holders.

9. London stations summary

Almost 150 thousand passengers were standing at trains' busiest points on arrival into London in the 3-hour morning peak. Nearly two-thirds of all services in the 3-hour morning peak have standing passengers.

Tables 8 and 9: Peak passengers standing and services with standing

AM Peak	1-hour Peak	3-hour Peak
Passengers Standing	28%	23%
Services with Standing	82%	64%

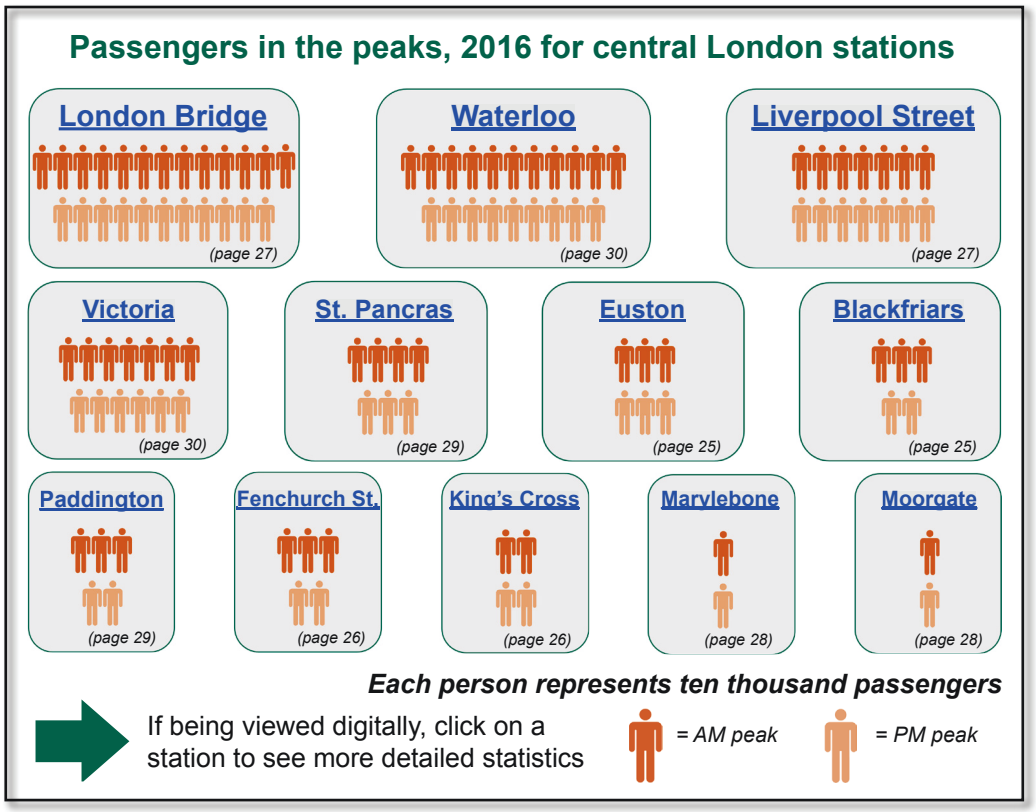
PM Peak	1-hour Peak	3-hour Peak
Passengers Standing	18%	16%
Services with Standing	62%	53%

Table 10: Stations with highest percentage of passengers standing

Station	1-hour Peak	3-hour Peak
Blackfriars	39%	31%
Fenchurch Street	37%	34%
Waterloo	36%	30%
Moorgate	35%	22%
Victoria	30%	24%

Table 11: Stations with highest percentage of services with standing

Station	1-hour Peak	3-hour Peak
Fenchurch Street	100%	86%
Moorgate	100%	69%
Waterloo	95%	82%
Blackfriars	94%	72%
Victoria	93%	74%



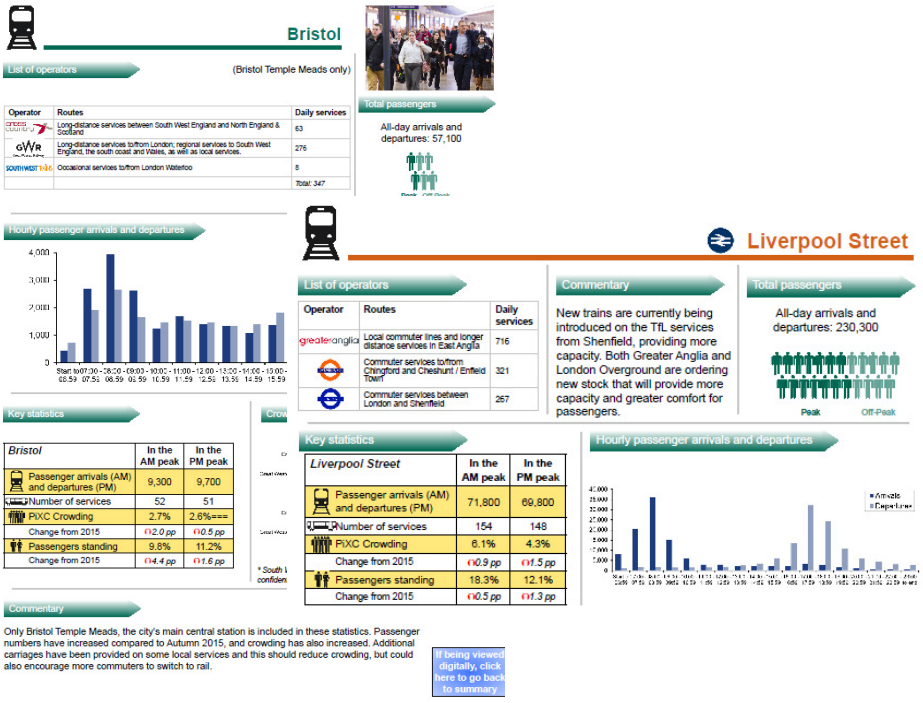
For summary pages containing passenger numbers and crowding statistics for major cities see pages 15 to 24.
For London station summary pages, see pages 25 to 30.

One-page Summaries

Sections 10 and 11 contains summary statistics for each major city and central London station.

For summary pages containing passenger numbers and crowding statistics for major cities see pages 15 to 24.

For London station summary pages, see pages 25 to 30.



Bristol

List of operators

(Bristol Temple Meads only)

Operator	Routes	Daily services
CrossCountry	Long-distance services between South West England and North England & Scotland	63
GWR	Long-distance services to/from London; regional services to South West England, the south coast and Wales, as well as local services.	276
South Western Railway	Occasional services to/from London Waterloo	8
		Total: 347

Total passengers

All-day arrivals and departures: 57,100

Hourly passenger arrivals and departures

Key statistics

Bristol	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	9,300	9,700
Number of services	52	51
PiXC Crowding	2.7%	2.6%===
Change from 2015	↑2.0 pp	↑0.5 pp
Passengers standing	9.8%	11.2%
Change from 2015	↑4.4 pp	↑1.6 pp

Commentary

Only Bristol Temple Meads, the city's main central station is included in these statistics. Passenger numbers have increased compared to Autumn 2015, and crowding has also increased. Additional carriages have been provided on some local services and this should reduce crowding, but could also encourage more commuters to switch to rail.

If being viewed digitally, click here to go back to summary

Liverpool Street

List of operators

Operator	Routes	Daily services
greateranglia	Local commuter lines and longer distance services in East Anglia	716
c2c	Commuter services to/from Chingford and Cheshunt / Enfield Town	321
Southeastern	Commuter services between London and Shenfield	267

Commentary

New trains are currently being introduced on the TfL services from Shenfield, providing more capacity. Both Greater Anglia and London Overground are ordering new stock that will provide more capacity and greater comfort for passengers.

Total passengers

All-day arrivals and departures: 230,300

Peak Off-Peak

Key statistics

Liverpool Street	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	71,800	69,800
Number of services	154	148
PiXC Crowding	6.1%	4.3%
Change from 2015	↑0.9 pp	↑1.5 pp
Passengers standing	18.3%	12.1%
Change from 2015	↑0.5 pp	↑1.3 pp

Hourly passenger arrivals and departures

Birmingham

List of operators

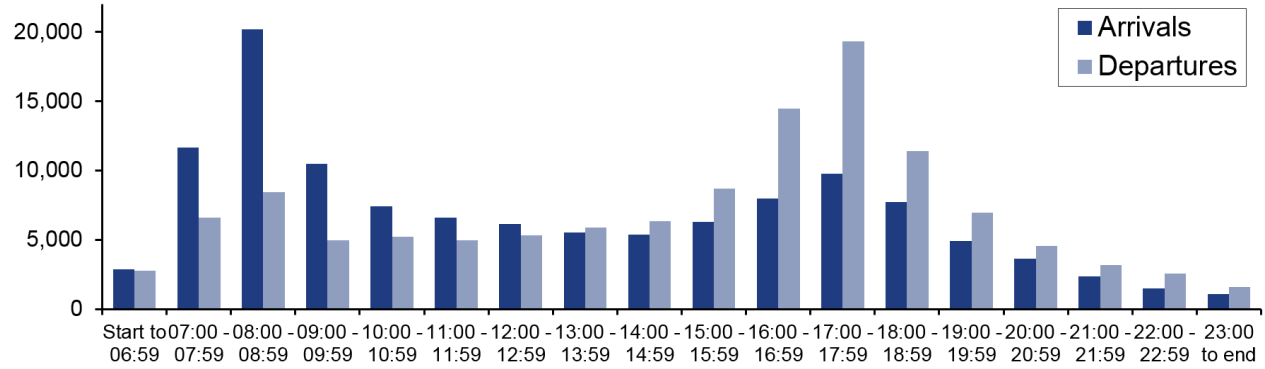
(Stations: New Street, Moor Street & Snow Hill)

Operator	Routes	Daily services
ARRIVA Trains Wales	Regional services to/from Wales	36
Chiltern	Local services to/from Moor Street and Snow Hill, and long distance trains to and from London Marylebone	83
cross country	Long-distance services between Scotland and the South & South West of England; as well as between Cardiff & Nottingham, and services to/from Stansted Airport	277
londonmidland	Local services to and from New Street, Moor Street and Snow Hill; and semi-fast services to and from London Euston and Liverpool.	791
Virgin trains	Long-distance services between London Euston and Wolverhampton, and between London Euston and Scotland.	103
		Total: 1,290

Total passengers

All-day arrivals and departures: 244,500

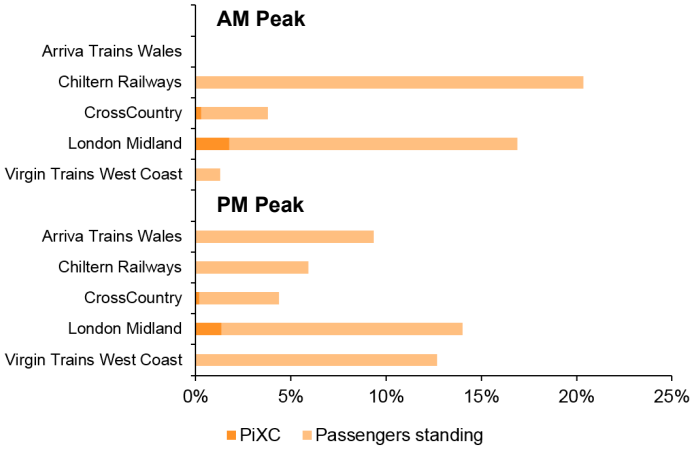
Hourly passenger arrivals and departures



Key statistics

Birmingham	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	42,300	45,100
Number of services	179	186
PiXC Crowding	1.3%	0.9%
Change from 2015	*1.1 pp*	*0.4 pp*
Passengers standing	13.8%	10.8%
Change from 2015	*0.3 pp*	*1.5 pp*

Crowding by operator



Commentary

Birmingham has the most morning peak passengers of the cities included in the statistics except London. New Street is, by far, the busiest of the three city centre stations, the other two being Moor Street and Snow Hill. Morning peak numbers into Birmingham declined slightly in 2016, and might be a result of disruption caused by rebuilding of the station, which has recently been completed.

If being viewed digitally, click here to go back to summary

Bristol

List of operators

(Bristol Temple Meads only)

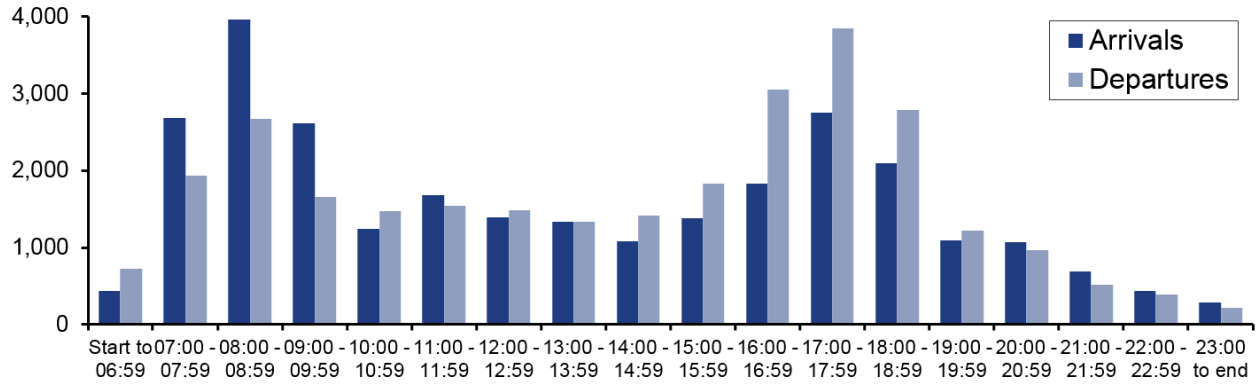
Operator	Routes	Daily services
cross country	Long-distance services between South West England and North England & Scotland	63
GWR Great Western Railway	Long-distance services to/from London; regional services to South West England, the south coast and Wales, as well as local services.	276
SOUTH WEST TRAINS	Occasional services to/from London Waterloo	8
		Total: 347

Total passengers

All-day arrivals and departures: 57,100

Peak Off-Peak

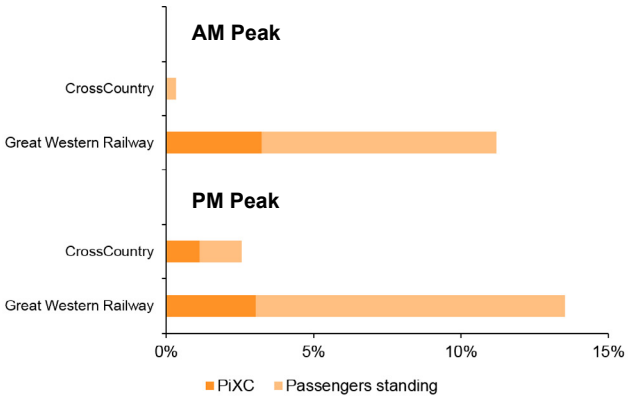
Hourly passenger arrivals and departures



Key statistics

Bristol	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	9,300	9,700
Number of services	52	51
PiXC Crowding	2.7%	2.6%
Change from 2015	↑ *2.0 pp*	↑ *0.5 pp*
Passengers standing	9.8%	11.2%
Change from 2015	↑ *4.4 pp*	↑ *1.6 pp*

Crowding by operator



** South West Trains figures are suppressed to protect commercial confidentiality*

Commentary

Only Bristol Temple Meads, the city's main central station is included in these statistics. Passenger numbers have increased compared to Autumn 2015, and crowding has also increased. Additional carriages have been provided on some local services and this should reduce crowding, but could also encourage more commuters to switch to rail.

If being viewed digitally, click here to go back to summary

Cardiff

List of operators

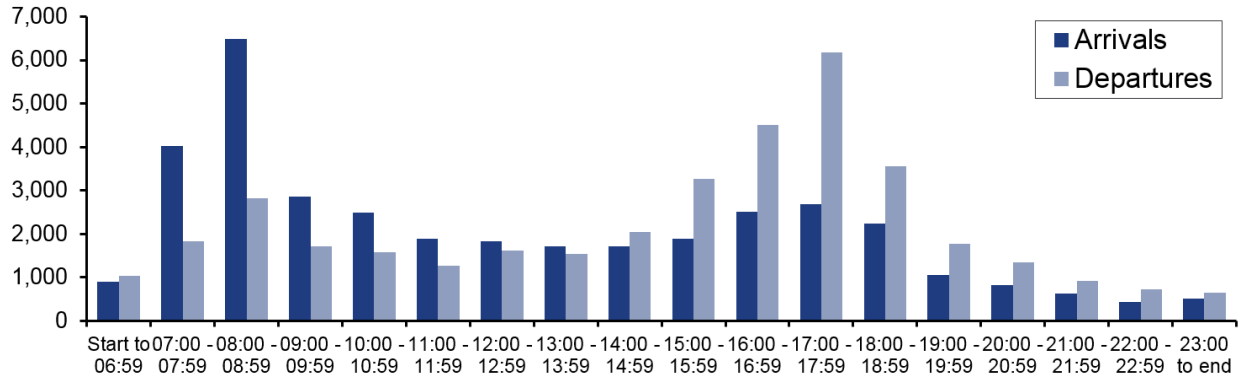
(Stations: Central and Queen Street)

Operator	Routes	Daily services
ARRIVA Trains Wales	Local services to the Valleys, regional services around Wales and longer distance services to Birmingham and Manchester	699
cross country	Long-distance services that mainly go between Cardiff and Nottingham	35
GWR Great Western Railway	Long distance services between London and Swansea, and services to Bristol, South West England and Portsmouth	127
		Total: 861

Total passengers

All-day arrivals and departures: 75,100

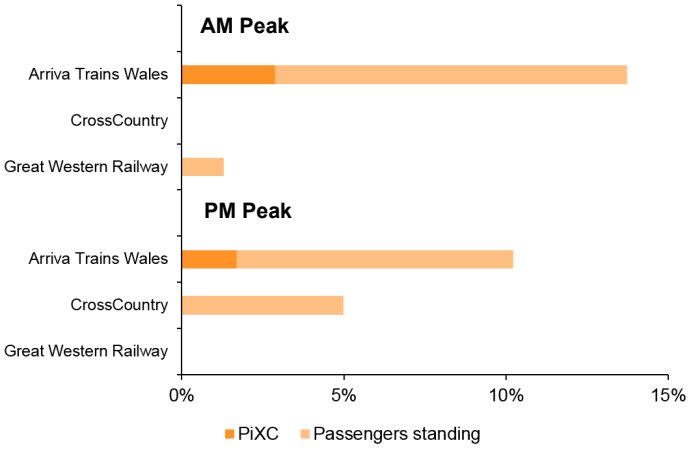
Hourly passenger arrivals and departures



Key statistics

Cardiff	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	13,400	14,200
Number of services	114	115
PiXC Crowding	2.3%	1.3%
Change from 2015	↑ *0.2 pp*	➲ *0.0 pp*
Passengers standing	11.2%	8.2%
Change from 2015	↓ *0.9 pp*	↑ *0.4 pp*

Crowding by operator



Commentary

Cardiff has two main city centre stations: Central and Queen Street. All trains call at Central, whereas Queen Street is served by some of the local trains from the Valleys. Most of the crowding occurs on the large number of local services run by Arriva Trains Wales. Management of the Welsh franchise is largely devolved to the Welsh Government.

If being viewed digitally, click here to go back to summary

Leeds

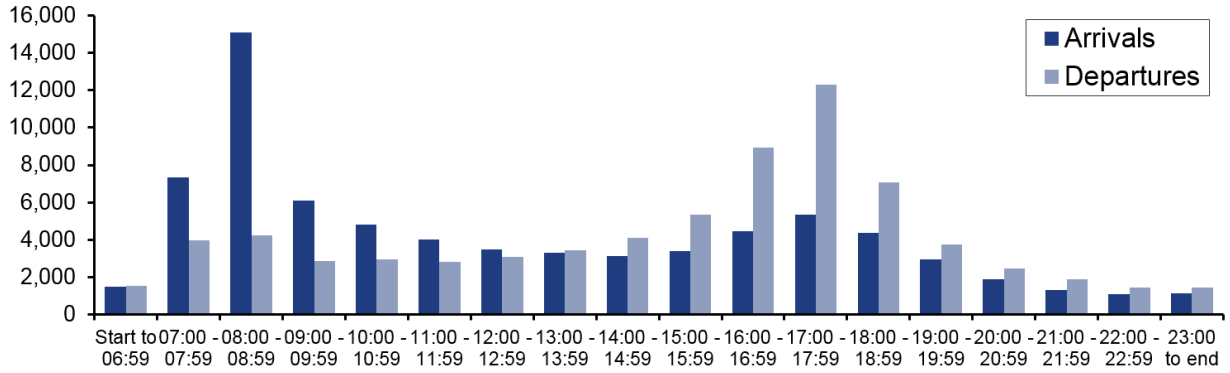
List of operators

Operator	Routes	Daily services
cross country	Long distance services between South and South West England, and Newcastle and Scotland.	35
EAST MIDLANDS TRAINS	Occasional service to/from London St. Pancras	5
northern	Local and longer distance stopping services across the north of England	712
TRANSPENNINE EXPRESS	Long distance regional services across northern England	164
Virgin trains east coast	Long distance services between London and Leeds with some services starting or terminating at other towns in Yorkshire	67
		Total: 983

Total passengers

All-day arrivals and departures: 148,300

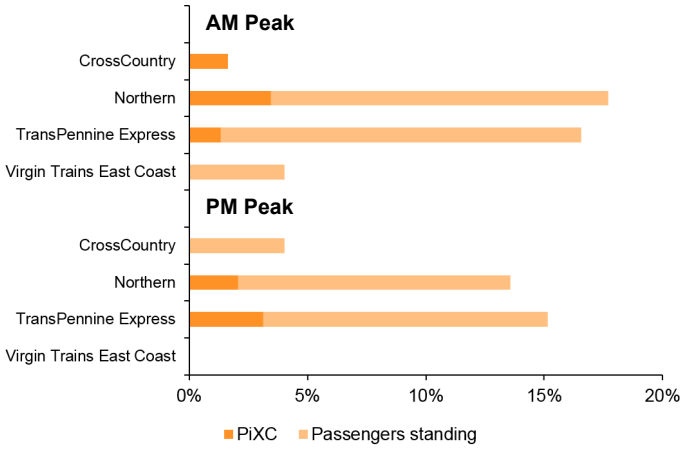
Hourly passenger arrivals and departures



Key statistics

Leeds	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	28,500	28,300
Number of services	119	122
PiXC Crowding	2.7%	2.1%
Change from 2015	↑ *0.5 pp*	↑ *0.7 pp*
Passengers standing	16.0%	12.6%
Change from 2015	↑ *1.9 pp*	↑ *0.3 pp*

Crowding by operator



Commentary

Leeds station has continued to see growth in peak traffic, and this has resulted in an increase in crowding. 38% of all passengers travelling into Leeds on a typical weekday arrive in the morning peak, the highest percentage of any major city in England and Wales except for London. New trains are currently being built for the franchise, these will help alleviate crowding in the peaks as well as providing more comfortable journeys.

If being viewed digitally, click here to go back to summary

Leicester

List of operators

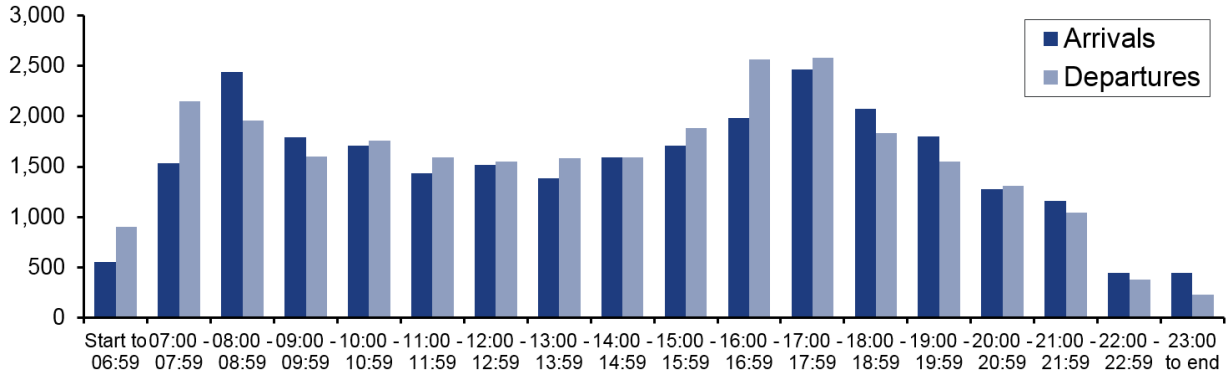
Operator	Routes	Daily services
CrossCountry	Long-distance services between Birmingham and Stansted Airport	70
East Midlands Trains	Long distance services between London and Derby, Nottingham and Sheffield; stopping services to Nottingham and Lincoln.	168
		Total: 238

Total passengers

All-day arrivals and departures: 55,400

Peak Off-Peak

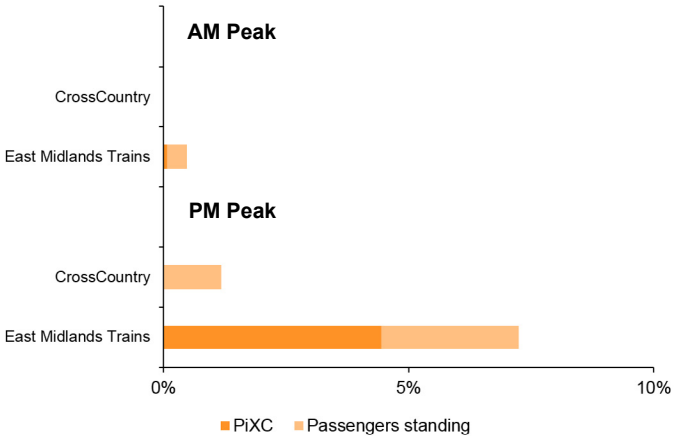
Hourly passenger arrivals and departures



Key statistics

Leicester	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	5,800	7,000
Number of services	38	37
PiXC Crowding	0.1%	3.6%
Change from 2015	↓ *1.2 pp*	⊃ *0.0 pp*
Passengers standing	0.4%	6.1%
Change from 2015	↓ *1.6 pp*	⊃ *0.0 pp*

Crowding by operator



Commentary

Leicester does not have pronounced peaks in demand. Many passengers at Leicester will be travelling through the city towards other destinations. Through passengers are included as both arrivals and departures.

If being viewed digitally, click here to go back to summary

Liverpool

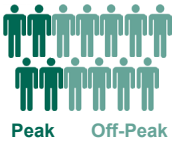
(Stations: Lime Street, Central, James Street and Moorfields)

List of operators

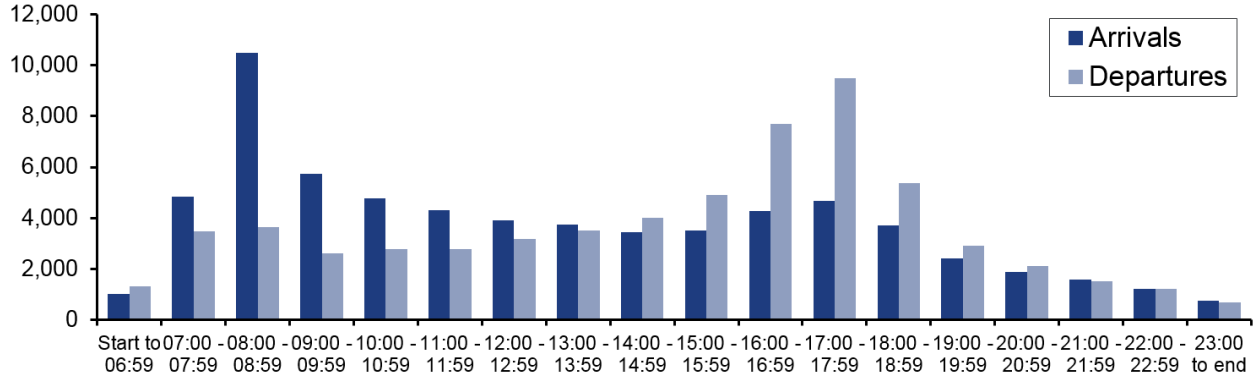
Operator	Routes	Daily services
East Midlands Trains	Long-distance services between Liverpool and Norwich via Nottingham	29
London Midland	Services between Liverpool and Birmingham	64
Merseyrail	Local services to the Wirral, Chester and Liverpool suburban areas	618
Northern	Stopping services to towns across North West England, including Manchester, Preston and Wigan	254
TransPennine Express	Regional services to Manchester and major towns in Yorkshire and the North East of England	63
Virgin Trains	Long-distance services between London Euston and Liverpool	35
		Total: 1,063

Total passengers

All-day arrivals and departures: 129,500



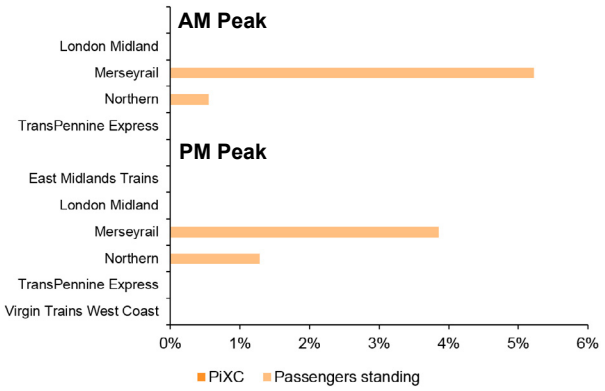
Hourly passenger arrivals and departures



Key statistics

Liverpool	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	21,100	22,600
Number of services	128	139
PiXC Crowding	0.0%	0.0%
Change from 2015	➲ *0.0 pp*	⇩ *0.1 pp*
Passengers standing	4.3%	3.1%
Change from 2015	⇩ *0.6 pp*	⇩ *1.1 pp*

Crowding by operator



** East Midlands Trains and Virgin Trains West Coast figures for the AM peak to protect commercial confidentiality*

Commentary

The arrival figures include passengers on services arriving at the main Lime Street terminus, as well as Merseyrail trains arriving at James Street station from the Wirral, at Moorfields from the northern suburbs, and at Central station from the south. Passenger numbers and crowding have changed very little since 2015.

If being viewed digitally, click here to go back to summary

Manchester

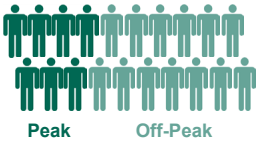
List of operators

(Stations: Piccadilly, Oxford Road, Victoria)

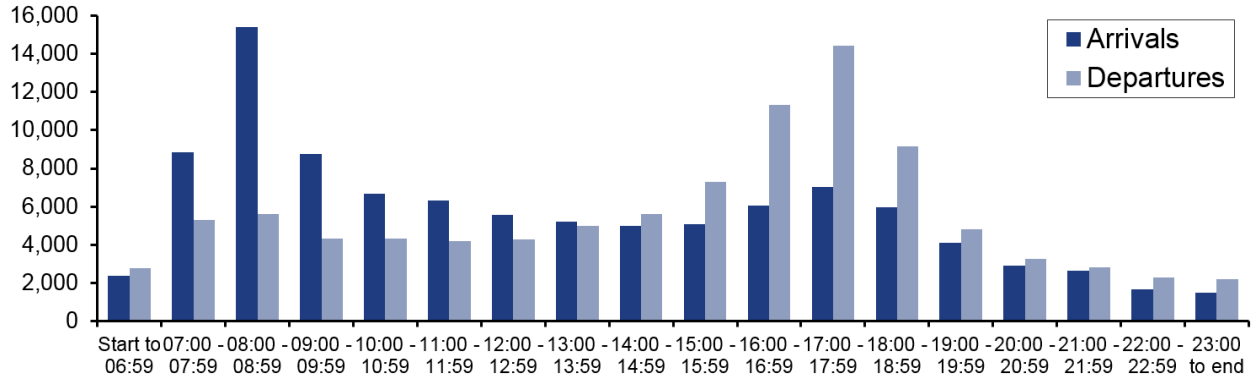
Operator	Routes	Daily services
ARRIVA Trains Wales	Long-distance services between Wales and Manchester Piccadilly	77
cross country	Long-distance services between Manchester and the South & South West of England	65
EAST MIDLANDS TRAINS	Regional services between Liverpool, Sheffield, Nottingham and Norwich	31
northern	Local services across northern England	996
TRANSPENNINE EXPRESS	Regional services across northern England and to Scotland	232
Virgin trains	Long-distance services between London Euston and Manchester	94
		Total: 1,495

Total passengers

All-day arrivals and departures: 200,100



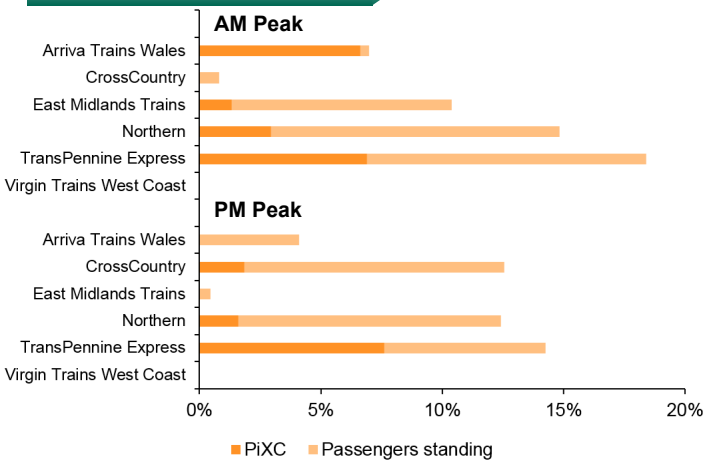
Hourly passenger arrivals and departures



Key statistics

Manchester	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	33,000	34,900
Number of services	185	192
PiXC Crowding	3.5%	2.5%
Change from 2015	*0.2 pp*	*0.4 pp*
Passengers standing	14.1%	11.1%
Change from 2015	*1.7 pp*	*0.5 pp*

Crowding by operator



Commentary

Manchester has three main city centre stations, Piccadilly, Victoria and Oxford Road. The number of morning peak passengers has increased since 2015, but overcrowding has decreased slightly. New trains are being built for both Northern and Trans Pennine services which will provide more capacity on local and longer distance routes.

If being viewed digitally, click here to go back to summary

Newcastle

List of operators

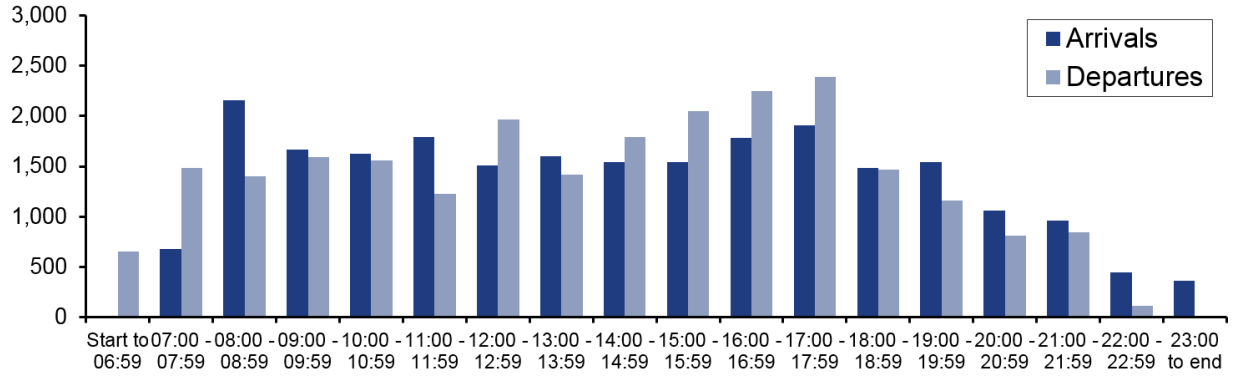
Operator	Routes	Daily services
CrossCountry	Long-distance services on lines between South West England and Scotland	58
Northern	Local services across northern England	120
TransPennine Express	Longer distance services between Liverpool and Newcastle	33
Virgin Trains East Coast	Long-distance services between London King's Cross and Scotland	67
		Total: 278

Total passengers

All-day arrivals and departures: 47,800

Peak Off-Peak

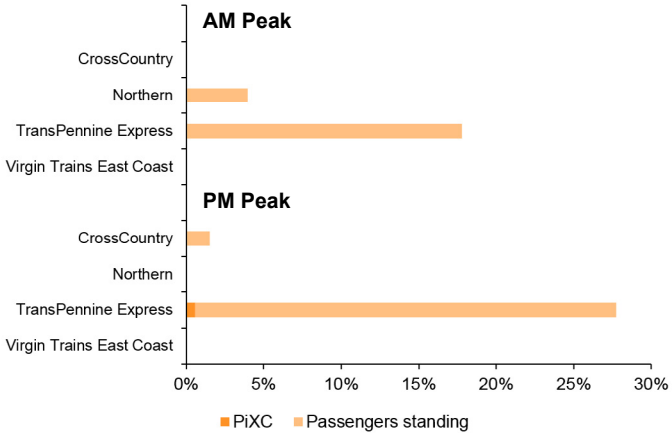
Hourly passenger arrivals and departures



Key statistics

Newcastle	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	4,500	6,100
Number of services	34	39
PiXC Crowding	0.0%	0.1%
Change from 2015	➲ *0.0 pp*	↑ *0.1 pp*
Passengers standing	3.2%	3.9%
Change from 2015	↓ *0.5 pp*	↑ *0.7 pp*

Crowding by operator



Commentary

These figures do not include passengers on the local Tyne and Wear Metro network, as well as the eight services run by ScotRail that visit Newcastle. The number of passengers using National Rail services is low compared to most of the other cities in these statistics, and has not changed significantly since 2015. The peaks are not particularly pronounced, which could be because of the relatively low number of commuters using National Rail service.

If being viewed digitally, click here to go back to summary

Nottingham

List of operators

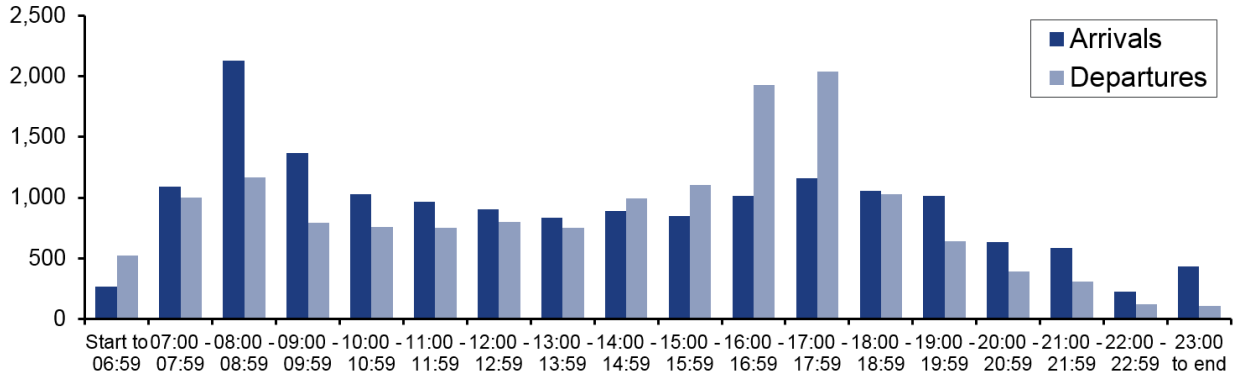
Operator	Routes	Daily services
cross country	Long-distance services to Birmingham and Cardiff	62
EAST MIDLANDS TRAINS	A variety of short distance services and long distance services to London St. Pancras	249
northern	Local services between Leeds and Nottingham	32
		Total: 343

Total passengers

All-day arrivals and departures: 31,700

Peak Off-Peak

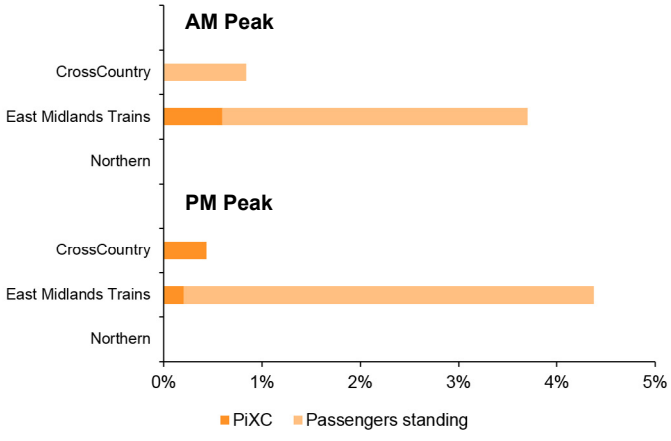
Hourly passenger arrivals and departures



Key statistics

Nottingham	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	4,600	5,000
Number of services	38	42
PiXC Crowding	0.5%	0.2%
Change from 2015	↑ *0.3 pp*	↑ *0.1 pp*
Passengers standing	3.1%	3.5%
Change from 2015	↑ *1.2 pp*	↓ *0.2 pp*

Crowding by operator



Commentary

Nottingham has the lowest all-day passenger demand of all major cities in England and Wales. The number of morning peak passengers have increased since 2015, but were less than the increases seen in the two years prior to this. The Nottingham Express Transit tramway system opened an extension to the network in August 2015, part of this parallels one of the rail routes into the city which could have had the effect of reducing some rail traffic, but also may have acted as a feeder to Beeston and Nottingham stations.

If being viewed digitally, click here to go back to summary

Sheffield

List of operators

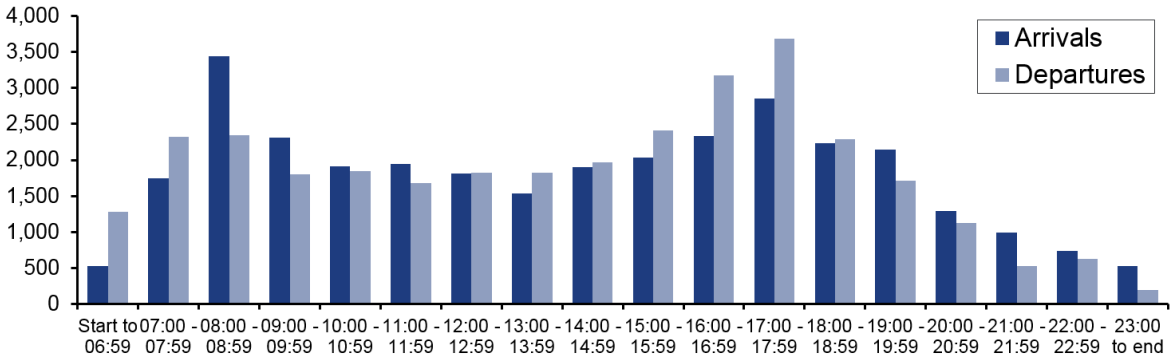
Operator	Routes	Daily services
cross country	Long-distance services on lines between South West England and Scotland	64
EAST MIDLANDS TRAINS	Services between Leeds/Sheffield and London St. Pancras	96
northern	Local services across northern England	310
TRANSPENNINE EXPRESS	Long-distance services between Manchester Airport and Cleethorpes	39
		Total: 509

Total passengers

All-day arrivals and departures: 64,900

Peak Off-Peak

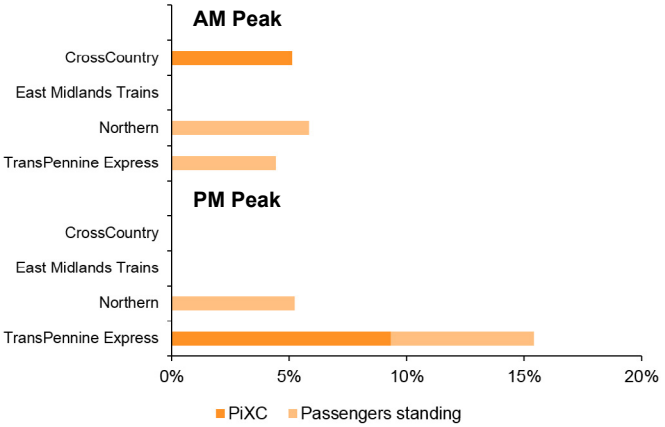
Hourly passenger arrivals and departures



Key statistics

Sheffield	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	7,500	9,100
Number of services	58	63
PiXC Crowding	1.2%	1.2%
Change from 2015	↓ *0.4 pp*	↑ *0.5 pp*
Passengers standing	4.3%	4.2%
Change from 2015	↓ *2.0 pp*	↑ *0.4 pp*

Crowding by operator



Commentary

Sheffield has a much higher number of passengers departing in the afternoon peak than arriving in the morning peak (22% more passengers). The number of morning peak passengers has decreased since 2015, but that year was considerably higher than 2014.

If being viewed digitally, click here to go back to summary

11. Results by London station

Blackfriars (via Elephant & Castle)

List of operators

Operator	Routes	Daily services
southeastern	Peak Commuter services from Kent	14
ThamesLink	Local commuter lines around London	372

Commentary

These figures are for passengers on trains that travel to the South. Blackfriars has a very high level of crowding, which has been exacerbated by the ongoing works at London Bridge. The Thameslink programme will increase train capacity at Blackfriars when completed in 2018.

Total passengers

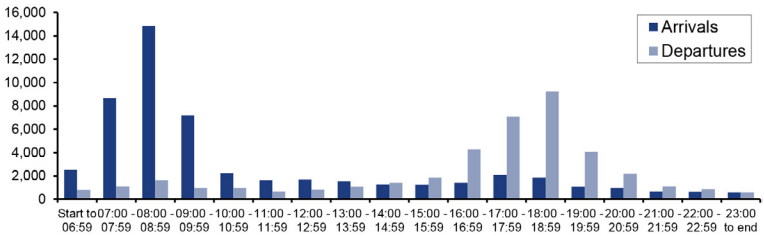
All-day arrivals and departures: 93,100

Peak Off-Peak

Key statistics

Blackfriars	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	30,700	20,600
Number of services	43	35
PiXC Crowding	14.4%	8.9%
Change from 2015	↓ *0.3 pp*	↑ *3.4 pp*
Passengers standing	30.8%	22.6%
Change from 2015	↓ *4.0 pp*	↑ *6.7 pp*

Hourly passenger arrivals and departures



Euston

List of operators

Operator	Routes	Daily services
London Midland	Services between London and Birmingham, Milton Keynes and Northampton	248
Overground	Commuter services to/from Watford Junction	106
Virgin trains	Long-distance services between West Midlands, North West England and Scotland	288

Commentary

Compared to other London stations Euston does not have a very pronounced peak due to the number of long-distance services carrying business and leisure passengers at all times of the day.

Total passengers

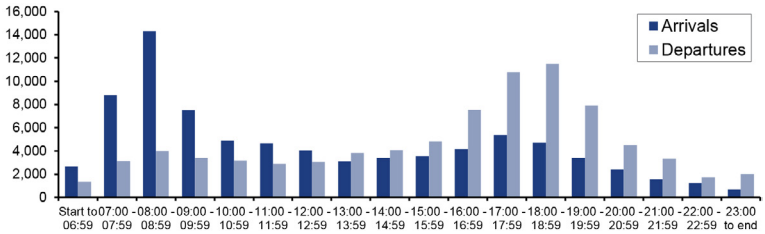
All-day arrivals and departures: 163,800

Peak Off-Peak

Key statistics

Euston	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	30,600	29,900
Number of services	63	70
PiXC Crowding	4.8%	4.7%
Change from 2015	↑ *0.5 pp*	↑ *0.8 pp*
Passengers standing	18.1%	15.5%
Change from 2015	↑ *1.8 pp*	↑ *3.0 pp*

Hourly passenger arrivals and departures



Fenchurch Street

List of operators

Operator	Routes	Daily services
c2c	Services between London and Southend / Shoeburyness via Barking	397

Commentary

Demand on services into Fenchurch Street is dominated by commuter peak traffic to central London and the Docklands. There were more services at Fenchurch Street in 2016 than in 2015, when the number of peak services rose from 92 to 109, which has reduced PiXC crowding.

Total passengers

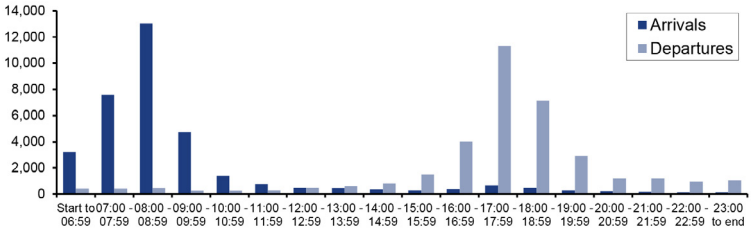
All-day arrivals and departures: 70,100

Peak Off-Peak

Key statistics

Fenchurch Street	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	25,400	22,500
Number of services	57	52
PiXC Crowding	5.7%	1.8%
Change from 2015	↓ *3.5 pp*	↓ *1.9 pp*
Passengers standing	33.9%	30.0%
Change from 2015	↑ *3.5 pp*	↑ *9.4 pp*

Hourly passenger arrivals and departures



King's Cross

List of operators

Operator	Routes	Daily services
Great Northern	Commuter services between London and Cambridge / Peterborough	278
Virgin trains east coast	Long-distance services to/ from Leeds and Scotland	151

Commentary

Kings Cross saw a substantial increase in morning peak demand in the year prior to this survey in Autumn 2016. This has resulted in an increase in crowding. The Thameslink programme will increase train capacity at St. Pancras when completed in 2018.

Total passengers

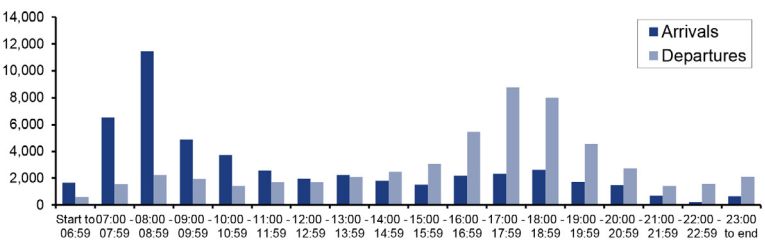
All-day arrivals and departures: 103,800

Peak Off-Peak

Key statistics

King's Cross	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	22,800	22,200
Number of services	48	50
PiXC Crowding	7.0%	3.9%
Change from 2015	↑ *2.6 pp*	↑ *1.3 pp*
Passengers standing	17.1%	11.6%
Change from 2015	↑ *5.6 pp*	↑ *6.6 pp*

Hourly passenger arrivals and departures



Liverpool Street

List of operators

Operator	Routes	Daily services
greateranglia	Local commuter lines and longer distance services in East Anglia	716
OVERGROUND	Commuter services to/from Chingford and Cheshunt / Enfield Town	321
TFL RAIL	Commuter services between London and Shenfield	267

Commentary

New trains are currently being introduced on the TfL services from Shenfield, providing more capacity. Both Greater Anglia and London Overground are ordering new stock that will provide more capacity and greater comfort for passengers.

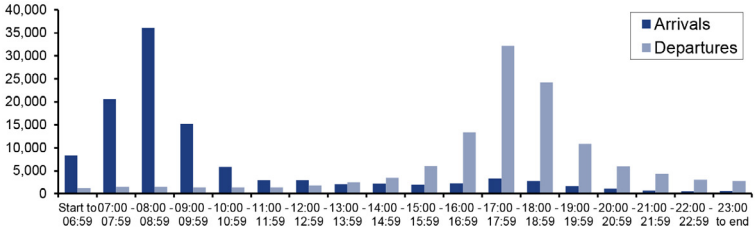
Total passengers

All-day arrivals and departures: 230,300

Key statistics

Liverpool Street	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	71,800	69,800
Number of services	154	148
PiXC Crowding	6.1%	4.3%
Change from 2015	↑ *0.9 pp*	↑ *1.5 pp*
Passengers standing	18.3%	12.1%
Change from 2015	↑ *0.5 pp*	↑ *1.3 pp*

Hourly passenger arrivals and departures



London Bridge

List of operators

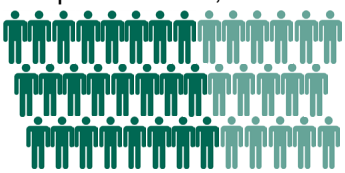
Operator	Routes	Daily services
SOUTHERN	Local commuter lines in South England	519
southeastern	Services to/from Kent and Sussex that terminate at or depart from Charing Cross & Cannon Street	1,149
ThamesLink	Occasional services between London and Brighton	38

Commentary

London Bridge is currently being rebuilt, which has lowered the number of services that currently serve the station. Once this work has finished in 2018 the number of services able to serve the station will increase dramatically.

Total passengers

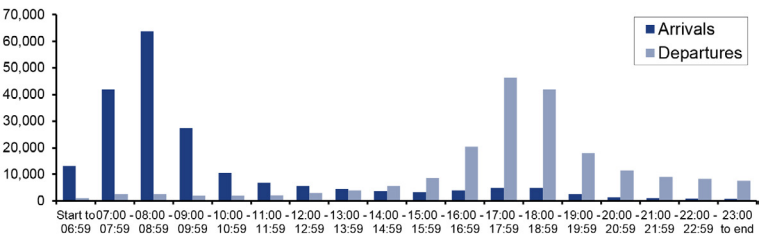
All-day arrivals and departures: 397,700



Key statistics

London Bridge	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	133,000	108,800
Number of services	192	181
PiXC Crowding	4.5%	0.4%
Change from 2015	↑ *1.8 pp*	↓ *0.3 pp*
Passengers standing	22.1%	14.4%
Change from 2015	↓ *2.1 pp*	↑ *1.4 pp*

Hourly passenger arrivals and departures



Marylebone

List of operators

Operator	Routes	Daily services
Chiltern	Services between London and Aylesbury, Oxford and Birmingham	384

Commentary

Marylebone has seen a reduction in morning peak demand since 2015, although that figure was considerably higher than 2014. This reduction has helped reduce crowding on services. Since 2016, Chiltern have started running services through to Oxford station.

Total passengers

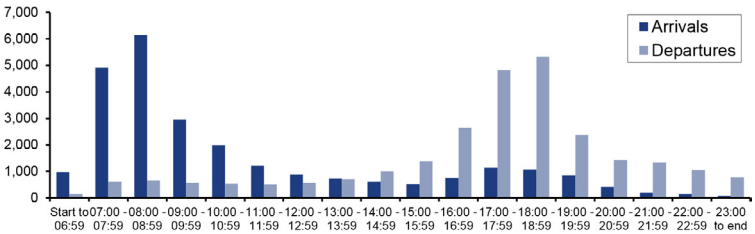
All-day arrivals and departures: 52,000

Peak Off-Peak

Key statistics

Marylebone	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	14,000	12,800
Number of services	45	44
PiXC Crowding	3.7%	2.4%
Change from 2015	↓2.5 pp	↑0.7 pp
Passengers standing	5.8%	5.4%
Change from 2015	↓5.6 pp	↑0.7 pp

Hourly passenger arrivals and departures



Moorgate

List of operators

Operator	Routes	Daily services
Great Northern	Services between London and Hertford, Welwyn Garden City, and Letchworth Garden City	256

Commentary

The demand is dominated by peak commuter flows, to The City, and as such there is very little off peak traffic. Passengers not wishing to travel to the city are more likely to take services to King's Cross.

Total passengers

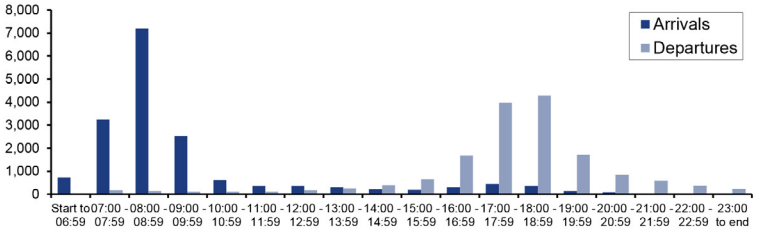
All-day arrivals and departures: 33,200

Peak Off-Peak

Key statistics

Moorgate	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	13,000	9,900
Number of services	31	32
PiXC Crowding	6.1%	1.5%
Change from 2015	↓7.4 pp	↑0.4 pp
Passengers standing	21.9%	11.5%
Change from 2015	↓10.2 pp	↑0.3 pp

Hourly passenger arrivals and departures



Paddington

List of operators

Operator	Routes	Daily services
GWR Great Western Railway	A variety of routes including long-distance services between London and west and South West England, Wales and the Cotswolds; GWR also run local services to Oxford and along the Thames valley	594

Commentary

New long-distance trains will provide more capacity for passengers, and when complete, Crossrail will provide a step change in capacity provision, as well as providing through services to central London and Docklands.

Total passengers

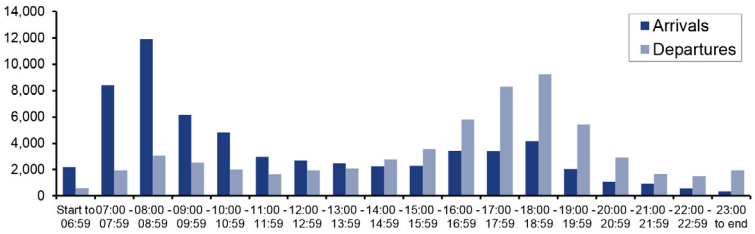
All-day arrivals and departures: 121,100

Peak Off-Peak

Key statistics

Paddington	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	26,500	23,400
Number of services	67	61
PiXC Crowding	7.1%	6.7%
Change from 2015	↓ *1.9 pp*	↑ *2.7 pp*
Passengers standing	11.0%	9.7%
Change from 2015	↓ *3.8 pp*	↑ *0.8 pp*

Hourly passenger arrivals and departures



St. Pancras International

List of operators

Operator	Routes	Daily services
EAST MIDLANDS TRAINS	Long distance services to Leicester, Derby, Nottingham and Sheffield	159
southeastern	High Speed 1 services between London and Kent	164
ThamesLink	Cross London services between the Bedford line and south London and Sussex	368

Commentary

There has been an overall decrease in morning peak demand at the station, and overall crowding has also decreased. The figures here do not include Eurostar services.

Total passengers

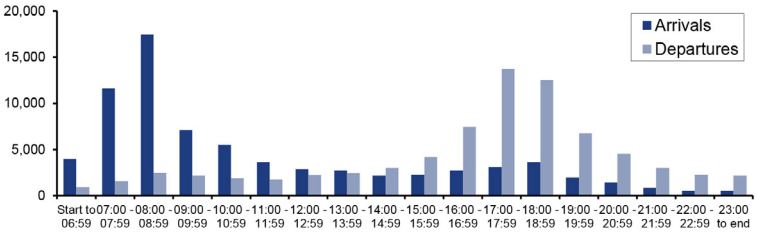
All-day arrivals and departures: 149,400

Peak Off-Peak

Key statistics

St. Pancras International	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	36,200	33,700
Number of services	70	71
PiXC Crowding	4.4%	5.2%
Change from 2015	↓ *3.0 pp*	↓ *1.1 pp*
Passengers standing	21.5%	18.0%
Change from 2015	↓ *3.6 pp*	↓ *3.2 pp*

Hourly passenger arrivals and departures



London Victoria

List of operators

Operator	Routes	Daily services
SOUTHERN	Services to South London suburbs, Surrey and Sussex	966
southeastern	Services to South East London and Kent	424

Commentary

Victoria has the second highest number of passengers in Great Britain for a single station. Office of Rail and Road statistics show that **81 million passengers** used the station in 2015-16. (*Source: Office of Rail and Road*)

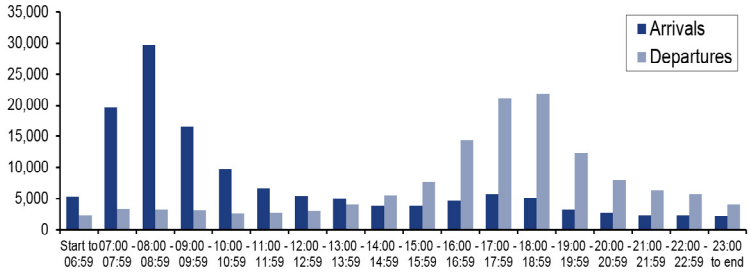
Total passengers

All-day arrivals and departures: 265,300

Key statistics

Victoria	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	65,800	57,300
Number of services	123	122
PiXC Crowding	5.4%	1.1%
Change from 2015	↑ *1.1 pp*	↓ *0.1 pp*
Passengers standing	24.0%	15.2%
Change from 2015	➲ *0.0 pp*	↓ *0.3 pp*

Hourly passenger arrivals and departures



Waterloo

List of operators

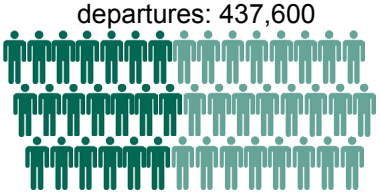
Operator	Routes	Daily services
SOUTH WEST TRAINS	A variety of routes including long-distance services between London and cities such as Weymouth, Exeter, Bristol, Reading and Portsmouth, as well as local commuting services near London.	1,516

Commentary

Waterloo has the highest number of passengers in Great Britain for a single station. Office of Rail and Road statistics show that almost **100 million passengers** used the station in 2015-16. (*Source: Office of Rail and Road*)

Total passengers

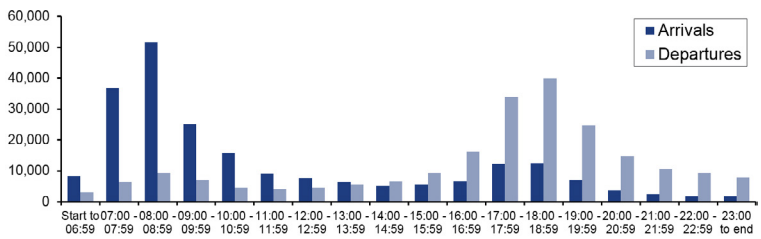
All-day arrivals and departures: 437,600



Key statistics

Waterloo	In the AM peak	In the PM peak
Passenger arrivals (AM) and departures (PM)	113,600	90,200
Number of services	153	149
PiXC Crowding	4.7%	3.3%
Change from 2015	↓ *0.9 pp*	↓ *0.6 pp*
Passengers standing	30.1%	22.0%
Change from 2015	↓ *0.8 pp*	↓ *3.0 pp*

Hourly passenger arrivals and departures



12. Background Notes

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, using automatic counting equipment fitted to trains and/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. This can have an impact on the aggregate statistics, depending on the sample of days each year on which particular services are counted. This particularly affects cases when counts 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 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-weighing 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.
- The statistics are designed to represent a typical weekday during school term time in the autumn and may not be representative of other times of year, or of 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.

Notes and definitions

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.

Tables accompanying this release

Ten tables have been published alongside this release, three showing passenger number statistics and seven 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 arrivals and departures by rail on a typical autumn weekday, by city and time band: annual from 2010
RAI0202	City centre arrivals and departures by rail on a typical autumn weekday, by city and time band: annual from 2010
RAI0203	Central London arrivals and departures by rail on a typical autumn weekday, by station and time band: annual from 2010

Crowding statistics tables

Table no.	Table title
RAI0209	Passengers in excess of capacity (PiXC) on a typical autumn weekday by city: annual from 2011
RAI0210	Passengers in excess of capacity (PiXC) on a typical autumn weekday on London and South East train operators' services: annual from 1990
RAI0211	Passengers in excess of capacity (PiXC) on a typical autumn weekday by operator: London and South East train operators: annual from 2000 *(revised since last publication to include historic data from 2000 to 2007)*
RAI0212	Peak rail capacity, standard class critical loads and crowding on a typical autumn weekday by city: annual from 2010
RAI0213	Peak rail capacity, standard class critical loads and crowding on a typical autumn weekday in London by terminal: annual from 2010
RAI0214	Peak crowding on a typical autumn weekday by city and train operator: annual from 2011
RAI0215	Peak crowding on a typical autumn weekday in London by terminal and train operator: annual from 2011

Revisions

Revisions in February 2017 were made to the back-series of PiXC statistics from 2011 to 2014. This was following a change of methodology used for calculating PiXC which involved the estimation of the number of first class passengers. These changes were small in magnitude and the commentary presented in the previous release still applies. More information on these revisions can be found in the correction note given here: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/590534/rail-passengers-crowding-2015-revision-note.pdf.

Definitions

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

Afternoon (PM) peak	All services that depart from a city centre in the 3-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	A passenger count collected by electronic equipment fitted to a train, for example 'infra-red' or 'load weighing' systems.
Autumn count period	The period from mid-September to mid-December, excluding school holidays and bank holidays.
City centre	One or more selected railway stations in the centre of the city. In London this includes all stations within Zone 1 of the Transport for London (TfL) Travelcard area.
Cordon point	For arrivals this is the first city centre station that a service calls at or passes . For departures it is the last city centre station that a service calls at or passes.
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 each time a service runs 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 in the 3-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 .
Number of services	The number of services that the statistics are based on. This includes alltrain operators' services timetabled to run during the autumn period.
Passengers in excess of capacity (PiXC)	The number of standard class passengers on a service that are in excess of the standard class capacity, which may include a 'standing allowance', at the critical load point.
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.
Total seats	Includes all standard and first class seats on services when they arrive at or depart from the city centre.
Service	A train service refers to a specific train that operates routinely during the autumn timetable period, for example, the 10:00 King's Cross to Aberdeen 17:06 service.
Standard class capacity	Includes the number of standard class seats on the service and may include a standing allowance.
Standing allowance	The standard class capacity of the service will include an allowance for standing passengers when the time between the station before (AM) or after (PM) the critical load point is 20 minutes or less.
'Typical' weekday	A midweek (usually Tuesday to Thursday) weekday during school term-time on which services are not disrupted and passenger numbers are not affected by any unusual events.

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 purposes. 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 how they plan timetables and assess rolling stock deployment.
- Understanding and monitoring passenger demand and crowding.
- Validating models of passenger demand.

A summary of feedback received from users in a 2013 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.

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 Chiltern Railways services at London Paddington were excluded from the 2016 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.
4. 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.

5. 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.
6. This is an annual publication. The next annual release of rail passenger numbers and crowding statistics will be the 2017 statistics published in summer 2018.