



Regional Rail Usage: Quality and Methodology Report

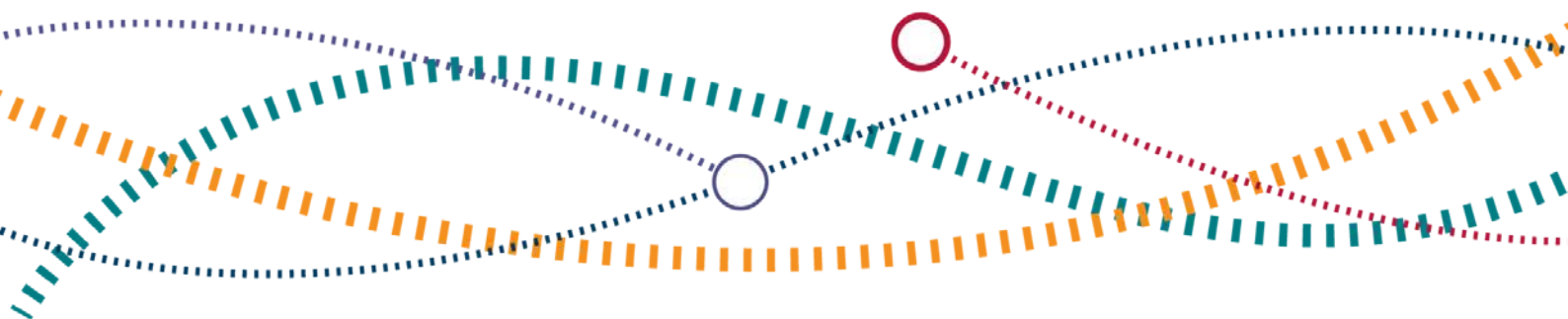
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Introduction

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

This report covers the following areas:

- Data sources, methodology and definitions – detail on the various data sources, methodology used to compile the statistics, and definitions;
- Historic background – background to the time series (summary of methodological improvements contained in annex 2);
- Relevance to users – the users of the statistics, and our engagement;
- Accuracy and reliability – the accuracy, data coverage and quality assurance of the statistics;
- Timeliness and punctuality – our timescales for the production and publication of the statistics;
- Accessibility and clarity – the format of our statistics and where they can be found;
- Coherence and comparability – similar statistics published elsewhere and the degree in which the statistics can be compared over time;
- Annex 1 – Geographic areas;
- Annex 2 – Details of methodology changes over time (2006-07 to 2019-20).

ORR commission [Steer](#) to produce the Origin Destination Matrix (ODM), which is used to derive the Regional Rail Usage statistics. The ODM is also used by Steer to produce the [estimates of station usage](#). More detailed information on methodology and changes each year are available in two reports produced by Steer: [Estimates of Station Usage 2019/20: Methodology Report](#) and [Station Usage & Origin Destination Matrix 2019/20: Historical Methodological Changes](#).

Data sources, methodology and definitions

Data Sources

These statistics are derived from the Origin Destination Matrix (ODM). The ODM is produced each year by Steer on behalf of the ORR. The journey data in the ODM are primarily based on sales data from LENNON, the rail industry's ticketing and revenue system. These are supplemented with some local ticketing data. Listed below are the data sources used to create the ODM:

- LENNON, Transport for London (TfL) data and train operator data (Gatwick Express and Stansted Express) as an input to the MOIRA2.2 base matrix
- Local ticketing data from Passenger Transport Executives (PTEs)
- Manual station counts
- Heathrow Express ticketing data
- Additional LENNON data

Methodology

These statistics on usage are **estimates** based primarily on tickets sales using the methodology described below. This methodology is the best approach possible given Britain does not have a fully gated rail network or comprehensive and robust count data at every station. However, this data does have weaknesses when utilised for this purpose and, although some of these are catered for in the methodology and we continue to seek improvements to address identified issues, the user should be aware of these acknowledged limitations and bear these in mind when using the data. The key **limitations** are detailed in the *Accuracy and reliability* section of this report.

Regional Rail Usage statistics are primarily based on data originating from LENNON, the rail industry's ticketing and revenue system. LENNON contains the majority of National Rail tickets purchased in Great Britain. However, it excludes some tickets sales e.g. London Travelcards. These ticket sales, together with LENNON data are used to derive a matrix of journeys and revenue which is an input to the MOIRA2.2 rail planning tool. Steer take this MOIRA2.2 base matrix and supplement it with updated local ticketing data for

Passenger Transport Executive (PTE) areas. Various adjustments are made to the data to deal with a range of issues to create a comprehensive matrix of passenger flows throughout Great Britain, the Origin Destination Matrix (ODM). For more information on these adjustments, please see pages 4 to 6 of the [Estimates of station usage quality and methodology report](#). The ODM is used to derive the number of journeys between and within regions.

Adjustment due to season ticket refunds

For 2019-20 only, two adjustments were made to the source data to reflect refunds of season tickets due to the impact of the coronavirus (COVID-19) pandemic. These were:

- Firstly, for refund requests that were received and processed in the final weeks of March 2020 (i.e. at the start of the national lockdown), all the refunded journeys and revenue would appear in the 2019-20 financial year when in ‘reality’ those refunded journeys should be distributed over the season ticket’s remaining validity. Therefore, an adjustment was required to remove the proportion of refunded journeys that should not have applied to 2019-20.
- The second adjustment related to the refund requests that were processed after March 2020. These refunded journeys would all be allocated to the 2020-21 financial year, whereas it is likely that some of the journeys should be backdated to mid-March 2020 when the national lockdown commenced. This meant that a small proportion of these refunded journeys should be added to the 2019-20 estimates (i.e. the 2019-20 usage figures reduced) and Steer undertook this adjustment by using refunds data from LENNON for the first 5 periods of 2020-21 (i.e. to 22nd August 2020) to calculate the adjustment required for each flow.

Underestimate of Scotland journeys to/from other regions

We believe the number of journeys presented for Highlands and Islands and North Eastern Scotland to/from another region in 2019-20 are underestimates due to the way refunds have been included in the source data for certain ticket types. This means that the true percentage decreases in journeys for 2019-20 compared with the previous year will be smaller than the figures presented. There will be a much smaller knock-on impact on the estimated number of journeys between Scotland and other regions in 2019-20.

Adjustment for the TfW Rail Multiflex issue

An adjustment was made to the source data for journeys associated with the TfW Multiflex product to address a known issue with overstatement of journeys associated with the ticket in LENNON.

Methodology changes

The methodology to produce the ODM and therefore Regional Rail Usage statistics is reviewed annually and enhancements are implemented to address known issues. Often these enhancements utilise new sources of data that were not previously available and improve the estimates.

Consistency with past datasets is important to enable comparisons to be made over time. Nonetheless, stakeholders have indicated that they are keen to see improvements, even where this reduces consistency with historic data, provided any changes are clearly explained. ORR has worked with Steer to scope and implement methodological enhancements to address identified issues and utilise new data as it is made available whether this is from primary data collection (e.g. passenger counts at stations), or industry systems such as TfL's Oyster Clicks Model (OCM).

A number of improvements to the methodology have been implemented over recent years (see Annex 2). These changes should be taken into account when considering year-on-year changes in journeys for some regions as it may not reflect an actual change in demand. In the 2019-20 dataset the following methodological improvements have been implemented:

- Updated season ticket journey allocation adjustments;
- Updated allocation of journeys between selected Group stations based on Spring 2020 passenger count surveys. These updates were implemented for: Dorchester BR, Edenbridge BR, Warrington BR and Worcester BR. In addition, updated splits for the Manchester BR group stations were provided by the PTE, Transport for Greater Manchester, and implemented;
- Inclusion of off-network tickets for Merseyside PTE and inclusion of concession (senior and disabled) tickets for South Yorkshire PTE;
- Inclusion of the three Heathrow stations and subsequent improvement to the London Paddington estimates and some other local stations.

For more detailed information on the methodology see [Steer's Estimates of Station Usage 2019/20: Methodology Report](#).

Definitions

- **Origin Destination Matrix (ODM)** – a comprehensive matrix of passenger flows throughout Great Britain.
- **MOIRA2.2 base matrix** – produced by Resonate as an input into the MOIRA2.2 rail panning tool, it provides an estimate of journeys on the Great Britain rail network for the duration of a financial year. It includes all journeys associated with point to point flows and includes overlays (“infills”) to reflect travel using tickets not included in LENNON (e.g. London Travelcards and some specific tickets to/from airports and multi-modal and zonal products sponsored by PTEs).
- **Lennon** – ‘Latest Earnings Networked Nationally Over Night’ is the rail industry’s ticketing and revenue system. It contains information on the majority of national rail tickets purchased in Great Britain. However, it excludes some tickets sales.
- **Passenger Transport Executive (PTE)** – There are six metropolitan counties in England. These are Greater Manchester, Merseyside, South Yorkshire, Tyne and Wear, West Midlands, West Yorkshire. Formerly, each of these areas had a Passenger Transport Executive (PTE), which was a local government body with public transport responsibilities. They were accountable to Integrated Transport Authorities (ITAs), which have now been reformed into Combined Authorities, some with a larger geographic coverage than the ITA they replace. Some Combined Authorities (Greater Manchester, Merseyside, North East, South Yorkshire) continue to have a free-standing transport executive, whilst in others (West Midlands and West Yorkshire) the transport executive has been incorporated within the Combined Authority. In Scotland the Strathclyde Partnership for Transport is the equivalent body covering the region of Strathclyde. For convenience, in this report we continue to refer to these seven areas as PTEs.
- **Passenger journeys** are estimated based on travel from an origin station to a destination station. For the purpose of these statistics, travel between an origin and destination counts as one journey irrespective of any changes of train. For example, a journey from Leicester to Manchester would be classed as one journey despite the need to change trains. This differs from the definition used in the [Passenger Rail Usage](#) statistical release, which would class this example as two journeys.

- The data are disaggregated by the following geographies, which are based upon the [2021 International Territorial Levels \(ITL\)](#) classification. These were formerly known as **Nomenclature of Territorial Units for Statistics (NUTS)** areas:
 - **ITL1 – Scotland, Wales, and Regions of England:** journeys within each ITL1 area and journeys between each pair of ITL1 areas.
 - **ITL2 – Groups of local government areas:** journeys within an ITL1 area beginning and/or ending within an ITL2 area and journeys to/from other ITL1 areas beginning or ending within an ITL2 area.

A full list of the local authorities in each of the ITL2 areas can be found in Annex 1.

Historical background

1997-98 to 2002-03:

Regional Rail Usage statistics were calculated from CAPRI (Computer Analysis of Passenger Revenue Information) which was the rail industry's former central ticketing system.

2003-04 to 2019-20:

From 2003-04 onwards, LENNON (Latest Earnings Networked Nationally Over Night), which is currently the rail industry's central ticketing and revenue system, has been the basis for calculating these statistics.

Several improvements to the methodology have been implemented over the years. A summary of methodology improvements between 2006-07 to 2019-20 can be found in Annex 2. Also see [Steer's *historical methodological changes report*](#).

Steer has been contracted by ORR to produce these statistics since 2011-12. Between 2005-06 and 2010-11 DeltaRail (now known as Resonate) were the contractor.

Relevance to users

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

Regional rail usage statistics provide a clear indication of the number of passengers using rail and the volume of journeys made on the network, providing an indication of the levels of demand for rail travel at a regional level. This can help in both short-term and long-term planning for the industry and wider stakeholders.

One of the main strengths of these statistics is that they provide a data series going back to 1995-96. This means that users can explore trends over time and combine the data with their own local knowledge to understand the impact of infrastructure projects or changes to the usage of the rail network.

In 2008-09, following feedback and consultation with our stakeholders, we changed the format for presenting Regional rail usage estimates, moving from an index based approach to providing underlying numbers. As part of this, we also published data at a greater level of disaggregation, providing district level data for both journeys between regions and journeys within regions.

How these statistics can and cannot be used



- Monitoring the number of annual journeys within and between Scotland, Wales and Regions of England
- Monitoring how usage in different regions changes over time (subject to methodology changes) and insights as to why
- Comparing the relative usage of regions and sub-regions (ITL2 areas) across the whole of Great Britain



- Monitoring passenger rail usage by train operating company or by ticket type (refer to Passenger rail usage statistics)
- Monitoring the number of entries and exits or interchanges at individual stations (refer to Estimates of station usage)
- Exploring rail journey flows between origin and destination stations

When using Regional rail usage statistics, it is important to be aware of:

- Methodological improvements made to the dataset over time which can impact consistency between years.
- Limitations of the data and specifically factors, e.g. some ticket sales not being included, that may mean that demand on particular flows is underestimated or overestimated. For example, some train operators, primarily Eurostar, are not included in rail industry ticketing systems, travel using these operators' tickets are not included in these statistics.
- Caledonian Sleeper journeys are currently not included in the estimates. These journeys were previously included in the source data used to produce our statistics, but were gradually excluded over time.

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

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

Accuracy and reliability

The proximity between an estimate and the unknown true value.

Passenger journeys

These statistics on passenger journeys are estimates based primarily on tickets sales using the methodology described above. This methodology is the best approach possible given Britain does not have a fully gated rail network or comprehensive and robust count data at every station. The methodology's national coverage makes it suitable as a basis for the production of these National Statistics accredited statistics.

Data coverage

The data presented in this release cover journeys made to/from all open mainline stations in Great Britain, i.e. those with a timetabled train service, made using mainline operators in Great Britain. The data do not include journeys on Eurostar, London Underground, light rail, heritage and charter services.

Limitations

A number of improvements to the methodology have been implemented in recent years. These changes should be taken into account when considering changes in usage between years, as it may be a result of improved methodology, rather than reflecting an actual change in demand at stations. These improvements, and the reasons for them are documented in [Steer's historical methodological changes report](#).

As these statistics are primarily based on ticket sales, there are a number of limitations that users should be aware of which are summarised below. There is more detail on these in Chapter 5 of [Steer's methodology report](#).

Regions with stations with known under estimates or no estimates - Eurostar ticket sales are not the rail industry's ticketing system (LENNON). Therefore our estimated number of journeys to/from St. Pancras, Ashford International and Ebbsfleet stations will not be a true reflection of the total usage at these stations, and therefore in London and the South East regions. There are two other stations which we do not have estimates for as tickets sales are not recorded in LENNON: Corfe Castle in the South West and Manchester United Football Ground in the North West.

Concessionary travel - TfL and most PTEs subsidise some form of free travel for certain types of users including those over a certain age, students and those with disabilities. This creates a substantial additional element of demand which is very difficult to include in these estimates as information on the level and distribution of journeys associated with these free travel products is not recorded and will not even have point of sale information. The current approach to this in the ODM is to include this demand where data has been made available by TfL/PTEs which would generally be estimates based on surveys. Currently concessionary travel data are included for London, Greater Manchester, Merseyside, South Yorkshire, and West Midlands areas. No information is available for Strathclyde, West Yorkshire or Tyne and Wear, therefore there will be some under estimates of usage at some stations in these areas.

Ticketless travel - As these statistics are based on ticket sales, journeys associated with ticketless travel are not included in the data. This is more likely to be an issue on some flows and where ticketless travel is significant. As more stations have been gated over time and train operating companies (TOCs) focus on revenue protection activities, this is likely to be less of an issue than in the past. It can be argued that it is not appropriate to include ticketless travel in the dataset as its purpose is to record genuine journeys on the rail network. It is worth noting that ticketless travel also includes an element of individuals who are legitimately travelling for free, such as the British Transport Police or some rail industry employees.

Season ticket journey factors – Ticket sales in LENNON are converted into an estimate of the number of journeys made by applying a series of ticket type journey factors. Therefore these statistics are based on an assumed number of journeys made based on the ticket type sold. The journeys factors used for the main season tickets are as follows:

Season ticket validity	Journey factor
Weekly	10.3
Monthly	45
3 monthly	135
6 monthly	270
Annual	480

Quality assurance

Prior to finalising the ODM, the ORR conducts a thorough quality assurance of the estimates of station usage dataset, which is also based on the ODM. This process is

described in detail on pages 17 and 18 of the [station usage quality and methodology report](#).

Steer provide the ODM to the ORR in a standard format that can be loaded into our data warehouse. We check the data is provided in the correct format, there are no inconsistencies in the data and trends over time are similar, to ensure accurate data is published.

These data are then prepared for publication. The process includes quality assuring the tables and charts produced and providing supporting commentary regarding the key trends and any methodology changes. These are subject to peer review by another analyst following a well-documented process which is followed for all ORR statistical releases. The final stage of the quality assurance process is a sign off by the Head of Profession for Statistics confirming the statistical release and associated outputs, e.g. data tables, meet quality standards and are fit for publication.

Revisions policy

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

Revision to 2018-19 estimates

In March 2020 an issue was identified with how journeys on the 'Multiflex' ticket, used on Transport for Wales (TfW) services, were recorded in LENNON. This issue meant that the number of journeys associated with this ticket and therefore the regional usage estimates for 2018-19 were overstated for Wales - and to a lesser extent regions of England served by TfW services. The 2018-19 regional rail usage statistics were updated to account for this issue and were published in June 2020. An adjustment was also made for this in the 2019-20 regional rail usage statistics (with the error corrected in the base data from May 2019 onwards).

Timeliness and punctuality

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

ORR aims to publish the Regional rail usage statistics as soon as possible after the end of the financial year, which is currently around eleven months after in February. It is important to take time to implement the detailed methodology, collect additional data (e.g. from PTEs) and carry out a series of quality assurance checks to ensure the final data are as accurate as possible.

ORR will continue to work with our consultants and stakeholders to shorten the time between the reference period and publication.

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

ORR is committed to releasing its statistics in an open and transparent manner that promotes confidence.

Accessibility and clarity

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

All rail statistics data tables can be accessed free of charge on the [ORR Data Portal](#). Commentary about the statistics and trends are provided in the statistical releases.

The annual regional rail usage data tables currently published on the [Regional Rail Usage theme page](#) are:

- Regional passenger journeys between England, Scotland and Wales – Table 1510
- Regional passenger journeys between regions – Table 1520
- Regional passenger journeys – East Midlands – Table 1540
- Regional passenger journeys – East of England – Table 1545
- Regional passenger journeys – London – Table 1550
- Regional passenger journeys – North East – Table 1555
- Regional passenger journeys – North West – Table 1560
- Regional passenger journeys – Scotland – Table 1565
- Regional passenger journeys – South East – Table 1570
- Regional passenger journeys – South West – Table 1575
- Regional passenger journeys – Wales – Table 1580
- Regional passenger journeys – West Midlands – Table 1585
- Regional passenger journeys – Yorkshire and the Humber – Table 1590

Station to station flow data are commercially confidential. As a result we are unable to provide more disaggregated rail usage data without permission from train operators.

Coherence and comparability

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

Related data

Passenger rail usage (ORR):

[Quarterly statistics reporting the volume of passenger journeys, kilometres and revenue on the mainline network in Great Britain](#). Statistics are presented by ticket type, sector, and train operating company. Long-running time series on passenger journeys (Table 1220) and passenger kilometres (Table 1230) are updated annually.

Estimates of station usage (ORR):

[Annual statistics providing estimates for the numbers of entries/exits and interchanges for each mainline station of Great Britain](#). These estimates are also produced by Steer based on the ODM.

Station footfall (Network Rail):

[Quarterly data on station concourse footfall at 18 of Network Rail's managed stations only](#). The footfall data captures the numbers of people entering and exiting these stations.

Passenger numbers and crowding (Department for Transport):

[Rail passenger numbers and crowding statistics](#) provides information on the number of passengers travelling by rail into and out of major city centres in England and Wales. The statistics represent passengers on National Rail services on a 'typical' weekday.

For more information on COVID-19 impacts see:

- [Transport use during the COVID-19 pandemic \(Department for Transport\)](#)
- [All Change? Travel tracker \(Department for Transport\)](#)
- [Coronavirus and the social impacts on Great Britain \(Office for National Statistics\)](#)
- [Weekly travel during COVID-19 survey \(Transport Focus\)](#)
- [Public transport journeys by type of transport \(Transport for London\)](#)

Comparability

The passenger journey totals should not be compared with those published as part of ORR's Passenger Rail Usage release as they are calculated on a different basis. For example, a journey from Leicester to Manchester would be classed as one journey in regional rail usage despite the need to change trains. However, in [Passenger Rail Usage](#), it is treated as two journeys reflecting the change of trains. Please see [Passenger journeys in Great Britain](#) which explains the differences in more detail.

Consistency with past datasets is important to enable comparisons to be made over time. Nonetheless, stakeholders have indicated that they are keen to see improvements, even where this reduces consistency with historic data, provided any changes are clearly explained. See the Historical background section above for more information.

Length of comparable time series

Measures	Disaggregation	Start of time series	Any break in series
Passenger journeys between ITL1 areas	ITL1 areas: Scotland, Wales and Regions of England	1995-96	<p>Since 2006-07, estimates for rail travel using TfL sold travelcards and airport links have been included. This mostly affected usage estimates for London, but estimates for journeys to/from the East of England, the East Midlands and the South East were also affected.</p> <p>Since 2008-09, usage on PTE products has been included in the estimates. This affected usage estimates for Scotland the North East, the North West, Yorkshire and the Humber, and the West Midlands.</p>
Passenger journeys within ITL1 areas and to/from other ITL1 areas	ITL2 areas: groups of local government areas		<p>Since 2018-19, usage on concessionary tickets in the Greater Manchester PTE area and since 2019-20, usage on Merseyside PTE Saveway and Trio products purchased off network have been included. These changes have affected the number of journeys in the North West.</p> <p>Other changes that have had a smaller impact on the estimates are documented in the Historical background section.</p>

Annexes

Annex 1 – Geographic areas

Listed below is the [2021 International Territorial Levels \(ITL\)](#) hierarchy for ITL1 and ITL2 areas including details of the local authorities included in each area.

Please note that the **North East** and **North Lincolnshire** unitary authorities are part of the **East Yorkshire and North Lincolnshire** ITL2 area rather than the **Lincolnshire** area. Similarly, **Halton** is included in the **Merseyside** ITL2 area rather than the **Cheshire** area.

ITL1 Area	ITL2 Area	County Council / Unitary Authority
East of England	Bedfordshire and Hertfordshire	Bedford Central Bedfordshire Luton Hertfordshire
	East Anglia	Cambridgeshire Peterborough Norfolk Suffolk
	Essex	Essex Southend-on-Sea Thurrock
East Midlands	Derbyshire and Nottinghamshire	Derbyshire Derby Nottinghamshire Nottingham
	Leicestershire, Rutland and Northamptonshire	Leicestershire Leicester Rutland Northamptonshire
	Lincolnshire	Lincolnshire
London	Inner London - East	Hackney Haringey Islington Lambeth Lewisham Newham

ITL1 Area	ITL2 Area	County Council / Unitary Authority
		Southwark Tower Hamlets
	Inner London - West	Camden City of London Hammersmith and Fulham Kensington and Chelsea Wandsworth Westminster
	Outer London - East and North East	Barking and Dagenham Bexley Enfield Greenwich Havering Redbridge Waltham Forest
	Outer London - South	Bromley Croydon Kingston upon Thames Merton Sutton
	Outer London - West and North West	Barnet Brent Ealing Harrow Hillingdon Hounslow Richmond upon Thames
North East	Northumberland and Tyne and Wear	Northumberland Gateshead Newcastle upon Tyne North Tyneside South Tyneside Sunderland
	Tees Valley and Durham	Darlington Hartlepool Middlesbrough Redcar and Cleveland

ITL1 Area	ITL2 Area	County Council / Unitary Authority			
		Stockton-on-Tees County Durham			
North West	Cheshire	Cheshire East Cheshire West and Chester Warrington			
		Cumbria			
	Greater Manchester	Bolton Bury Manchester Oldham Rochdale Salford Stockport Tameside Trafford Wigan			
		Lancashire	Lancashire Blackburn with Darwen Blackpool		
			Merseyside	Knowsley Liverpool Sefton St Helens Wirral Halton	
				Scotland	Eastern Scotland
		Highlands and Islands			

ITL1 Area	ITL2 Area	County Council / Unitary Authority
		Highland Moray
	North Eastern Scotland	Aberdeenshire Aberdeen
	Southern Scotland	Dumfries and Galloway East Ayrshire North Ayrshire Scottish Borders South Ayrshire South Lanarkshire
	West Central Scotland	Argyll and Bute (Helensburgh and Lomond only) East Dunbartonshire East Renfrewshire Glasgow Inverclyde North Lanarkshire Renfrewshire West Dunbartonshire
South East	Berkshire, Buckinghamshire and Oxfordshire	Bracknell Forest Reading Slough West Berkshire Windsor and Maidenhead Wokingham Buckinghamshire Milton Keynes Oxfordshire
	Hampshire and Isle of Wight	Hampshire Portsmouth Southampton Isle of Wight
	Kent	Kent Medway
	Surrey, East and West Sussex	Surrey Brighton and Hove East Sussex West Sussex

ITL1 Area	ITL2 Area	County Council / Unitary Authority
South West	Cornwall	Cornwall
	Devon	Devon
		Plymouth
		Torbay
Dorset and Somerset	Dorset Bournemouth, Christchurch and Poole Somerset	
Gloucestershire, Wiltshire and Bristol/Bath area	Gloucestershire, Wiltshire and Bristol/Bath area	Gloucestershire
		South Gloucestershire
		Swindon
		Wiltshire
		Bristol
		Bath and North East Somerset North Somerset
Wales - Cymru	East Wales	Cardiff - Caerdydd Flintshire - Sir Y Fflint Monmouthshire - Sir Fynwy Newport - Casnewydd Powys - Powys The Vale of Glamorgan - Bro Morgannwg Wrexham - Wrecsam
	West Wales and The Valleys	Blaenau Gwent Bridgend - Pen-Y-Bont Ar Ogwr Caerphilly - Caerffili Carmarthenshire - Sir Gaerfyrddin Ceredigion - Sir Ceredigion Conwy - Conwy Denbighshire - Sir Ddinbych Gwynedd - Gwynedd Isle of Anglesey - Sir Ynys Mon Merthyr Tydfil - Merthyr Tudful Neath Port Talbot - Castell-Nedd Port Talbot Pembrokeshire - Sir Benfro Rhondda Cynon Taff - Rhondda Cynon Taf Swansea - Abertawe Torfaen - Tor-Faen
West	Herefordshire, Worcestershire	Herefordshire

ITL1 Area	ITL2 Area	County Council / Unitary Authority
Midlands	and Warwickshire	Worcestershire Warwickshire
	Shropshire and Staffordshire	Shropshire Telford and Wrekin Staffordshire Stoke-on-Trent
	West Midlands	Birmingham Coventry Dudley Sandwell Solihull Walsall Wolverhampton
Yorkshire and the Humber	East Yorkshire and Northern Lincolnshire	East Riding of Yorkshire Kingston upon Hull North East Lincolnshire North Lincolnshire
	North Yorkshire	North Yorkshire York
	South Yorkshire	Barnsley Doncaster Rotherham Sheffield
	West Yorkshire	Bradford Calderdale Kirklees Leeds Wakefield

Annex 2 – Methodology changes since 2006-07

2006-07:

Additional estimates for rail travel using TfL sold travelcards and airport links were included.

2008-09:

The generation of the ODM was integrated with the demand matrix in MOIRA, a software tool used by the industry to model the impact of timetable changes on the rail market. In addition to having LENNON data, MOIRA also provided more robust estimates of rail travel on TfL sold travelcards and airport links. It also included estimates of rail travel in PTE areas which had previously been excluded from the ODM due to a lack of data.

2009-10 / 2010-11:

From January 2010, rail travel using Oyster pay-as-you-go (PAYG) was included in LENNON so these data were included in the ODM from 2009-10 with the first full year of data being 2010-11.

2011-12:

- Improved estimates of travel in the West Midlands (Centro) PTE area included.
- Estimates of rail travel made using a small number of Rover and Ranger products included. The tickets included were: St Ives Day Rangers, Valleys Night Rider, and Cambrian Coaster Ranger. Whilst volumes of travel on these products are relatively small, in the specific area of use they can be significant.

2012-13:

- An improved PTE infill was included for two more PTEs – West Yorkshire (WYPTE) and Greater Manchester (GMPTE/TfGM).
- Estimates of rail travel using TfL's concessionary product, the 'Freedom Pass', were included for the first time.
- A further five Rover and Ranger products were included: Anglia Plus, Devon Day Ranger, Devon Evening Ranger, Ride Cornwall, and Freedom Travel Pass (West of England product).

2013-14:

A number of changes were made to improve the representation of journeys on PTE-sponsored tickets in South Yorkshire, Merseyside and Strathclyde.

2014-15:

- An improved infill for the Tyne & Wear PTE area was included.
- An adjustment process was made to account for the change in LENNON treatment of PAYG journeys to make the statistics more consistent with previous years. This adjustment was a one off as in 2015-16 it was included in the MOIRA base matrix.
- An adjustment was required due to changes in journey patterns as a result of the London Bridge works. Data from Transport for London's (TfL's) Oyster Clicks Model (OCM) was used to estimate the number of journeys 'to London Bridge' and the number of journeys 'to London Terminals'.
- Journeys using a season ticket product for students have been redistributed to Exeter Central and Exeter St. David's from Digby & Sowton to better reflect actual journey destinations.

2015-16:

- London (In-boundary) Travelcard Methodology - Oyster Clicks Model (OCM) data used to allocate journeys made wholly within the London Travelcard Area to individual London stations rather than based on a survey from 2001.
- London Terminals Demand Allocation - improved due to MOIRA base matrix now disaggregated by individual London Terminal where possible, such as where a ticket is bought to a specific terminal rather than to the generic 'London Terminals.'
- St. Ives Branch Line Counts - Passenger counts were carried out at all five stations on the St. Ives Bay line (St. Erth to St. Ives) in August 2016 and the results of these counts were used to produce a more accurate allocation of entries and exits from sales of ranger or rover tickets across the stations.
- Season Ticket Journey Adjustment (Southend) – An adjustment to the allocation of usage at stations around Southend was made to account for season tickets issued for travel to/from Southend Victoria which were actually being used to travel from alternative stations on the branch, as the price of a season ticket is the same.

2016-17:

- London BR Allocation Update - Reallocation of some journeys for Kensington Olympia due to previous over estimates.
- Season Ticket Journey Adjustments (expanded number stations) - In the production of the 2014-15 and 2015-16 statistics, some adjustments were made to account for

situations where passengers buy season tickets for travel to/from a station other than the one they generally travel from, in order to allow additional flexibility. For the production of the 2016/17 statistics additional LENNON analysis was conducted and discussions with train operators to identify and include additional stations in the adjustment to better reflect their usage.

- Updated Demand Allocation at Group Stations – In order to validate and improve the allocation of journeys between stations within groups (e.g. Worcester BR), passenger counts were carried out at selected group stations on the network. These counts were carried out in Autumn/Winter 2016 and have informed the allocation of demand at the following station groups: Dorchester BR, Newark BR, Southend BR, Warrington BR, Wigan BR and Worcester BR.

2017-18:

- Season Ticket Journey Adjustments - Similar to previous years, adjustments were made to account for situations where passengers buy season tickets from a station other than the one they generally travel from. The analysis underpinning this reallocation was updated with 2017-18 LENNON data.
- Updated Demand Allocation at Group Stations – Passenger counts were carried out in Autumn 2017 and have informed the allocation of demand at the following station groups: Bicester BR, Birmingham BR, Farnborough BR, Southend BR, Warrington BR, Wigan BR and Worcester BR.

2018-19:

- Concessionary travel in Greater Manchester - Concessionary ticketing data were available for Greater Manchester PTE for inclusion in the ODM. This led to a total increase of 3.6m journeys, or 7.2m entries and exits, across Greater Manchester.
- Season Ticket Journey Adjustments - Similar to previous years, adjustments were made to account for situations where passengers buy season tickets from a station other than the one they generally travel from. The analysis underpinning this reallocation was updated with 2018-19 LENNON data.

2019-20:

- Merseyside PTE – Off network sales (commercial retailers, non-commercial retailers and Merseytravel centres) of Saveway and Trio tickets included. Previously only sales at stations and on trains were included.
- South Yorkshire PTE - Concessionary tickets (senior and disabled) included.

- Season Ticket Journey Adjustments - analysis underpinning this reallocation was updated with 2018-19 LENNON data.
- Updated Demand Allocation at Group Stations – Passenger counts were carried out in Spring 2020 and have informed the allocation of demand at the following station groups: Dorchester BR, Edenbridge BR, Warrington BR and Worcester BR. In addition, updated splits for the Manchester BR group stations were provided by TfGM and implemented.
- Estimates for the three Heathrow stations were included for the first time. This addition also improved the estimates for London Paddington station and other local stations.

See [Steer's historical methodological changes report](#) for more detail.



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