



Travel in London

Report 14

MAYOR OF LONDON



**TRANSPORT
FOR LONDON**
EVERY JOURNEY MATTERS

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Overview	7
1. Introduction and contents	37
1.1 TfL's Travel in London reports	37
1.2 Mayor's Transport Strategy	37
1.3 About Transport for London (TfL)	38
Section 1: Overall travel demand and mode shares	41
2. The pandemic context	43
2.1 Introduction	43
2.2 Key pre-pandemic travel trends in London	43
2.3 The pandemic and activity in London	44
2.4 The impact of the pandemic on London's population	45
2.5 The impact of the pandemic on UK and London's economy	50
2.6 The impact of the pandemic on travel demand in London	59
2.7 Comparative perspectives on the recovery	62
2.8 Summary	64
3. Consolidated estimates of travel in London in 2020 and early 2021	67
3.1 Introduction	67
3.2 Estimates of trips in 2020	67
3.3 Estimates of trip-based mode shares in 2020	69
3.4 Estimates of journey stages in 2020	75
4. London residents' travel during the pandemic	79
4.1 Introduction	79
4.2 Trip rates by Londoners	79
4.3 Active, efficient and sustainable mode shares by Londoners	83
4.4 Londoners' travel behaviour during the pandemic	85
Section 2: Healthy Streets and healthy people	97
5. Active travel and Healthy Streets	99
5.1 Introduction	99
5.2 Travel-related physical activity	99
5.3 Cycling in London	106
5.4 Pedestrian activity	115
5.5 Streetspace for London	117
5.6 Road danger	125

6.	Air quality and carbon reduction.....	131
6.1	Improving air quality	131
6.2	London Atmospheric Emissions Inventory update	132
6.3	Air quality, health and inequality	136
6.4	Reducing London's carbon dioxide (CO ₂) emissions.....	137
6.5	Supporting the transition to electric vehicles in London.....	138
7.	Efficient use of London's road space	143
7.1	Introduction	143
7.2	Overall trends for road traffic in London.....	143
7.3	Traffic crossing TfL's strategic cordons.....	145
7.4	Impacts of the pandemic on road traffic volumes.....	147
7.5	Changes to the Congestion Charge.....	151
7.6	Goods vehicles entering the Congestion Charge zone.....	155
7.7	Trends in taxi and private hire vehicles and licences.....	156
7.8	Road traffic congestion, efficiency and delay.....	158
	Section 3: A good public transport experience	163
8.	Trends in public transport demand, service provision and operational performance	165
8.1	Introduction	165
8.2	Demand trends on public transport modes: long-term trends and pandemic impacts	165
8.3	Service provision and operational performance on the main public transport modes.....	184
9.	Customer experience on public transport.....	195
9.1	Introduction	195
9.2	Crowding on TfL's rail networks.....	195
9.3	Public transport accessibility	201
9.4	Customer safety	202
9.5	Crime and antisocial behaviour.....	202
9.6	Public transport customer satisfaction and Care.....	203
9.7	Managing the pandemic recovery	205
	Section 4: Supporting London's recovery.....	207
10.	Behavioural adaptations to the pandemic.....	209
10.1	Introduction	209
10.2	Travel behaviour	209
10.3	Travel for work	209

10.4	Travel for shopping and leisure.....	213
10.5	Personal safety	221
10.6	Localism and the ‘15-minute city’	223
11.	Facilitating London’s growth and recovery.....	233
11.1	Supporting Good Growth	233
11.2	Opportunity Area monitoring	235
11.3	New homes and jobs: the Northern line extension.....	239
12.	Tracking progress towards the Mayor’s aims during the pandemic recovery	245
12.1	Introduction	245
12.2	Tracking progress towards MTS aims: The ‘MTS Tracker’	245
12.3	Adapting our measurements and focus to reflect changing circumstances: active, efficient and sustainable mode share ..	249
12.4	Scenario planning and our Hybrid travel demand forecast	255

Travel in London report 14

Overview

Travel in London report 14

Travel in London is Transport for London's (TfL's) annual publication that summarises trends and developments relating to travel and transport in London. Its principal function is to describe how travel is changing and to provide an interpretative overview of progress towards implementing the Mayor's Transport Strategy. It also provides an evidence and analysis base for the general use of stakeholders and policymakers.

This fourteenth report covers trends and developments up to 2021, including the disruption brought about by the global coronavirus pandemic from early 2020, and London's early recovery during the latter part of 2021. As well as describing overall travel trends, such as patterns of travel demand and mode shares, the report is broadly structured around the Mayor's key aims for transport, these being:

- Healthy Streets and healthy people
- A good public transport experience
- Supporting the growth and development of London

Final sections look at how we are adapting our monitoring, statistics and forecasting to better understand how we are recovering from the pandemic.

Travel in London is beginning to recover from the pandemic

Recent overall travel demand trends on the principal modes

The global coronavirus pandemic brought great disruption to the daily activities of many people and, with it, their travel patterns. The emerging picture during the height of the pandemic in late 2020 was described in [Travel in London report 13](#).

With good progress with the vaccination programme, the lifting of most pandemic restrictions and a gradual return to normal activity, autumn 2021 is a good opportunity to start to gauge the likely longer-term implications of the pandemic for travel demand. Although it is still 'early days', recent demand trends indicate we are in a period of steady and sustained recovery, and it is crucial that the full capabilities of our networks remain available to continue to support a return to normal and the longer-term viability of the Capital.

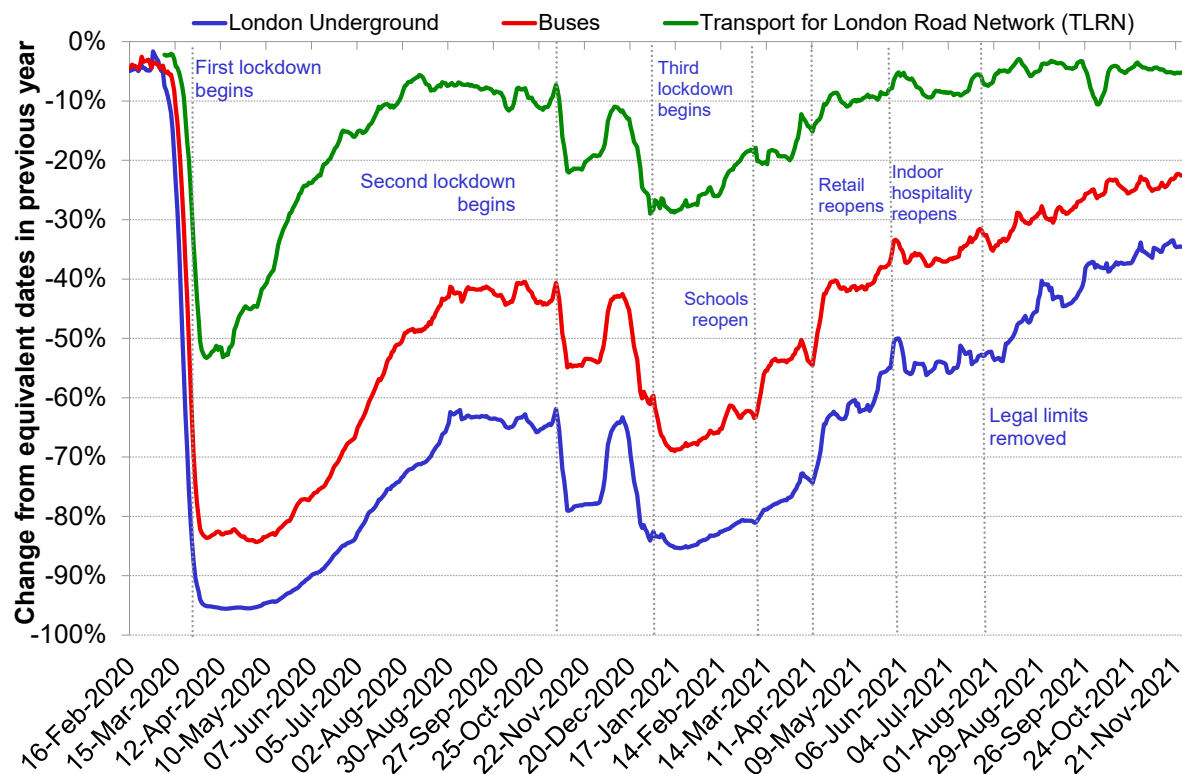
By November 2021 the demand for public transport overall was around 70 per cent of pre-pandemic levels. On London Underground the weekly average demand was typically over 65 per cent of pre-pandemic demand. Average weekly bus demand stood at over 75 per cent. Road traffic on London's major roads was typically 95 per cent of pre-pandemic levels.

Figure 1 demonstrates the scale of the impact of the pandemic on the principal travel modes, including the dramatic dip in the early days of the pandemic and the changes in demand at each stage of the successive lockdowns and recoveries. Notable from the figure is the relatively greater impact on London Underground, compared to

buses, reflecting the greater loss of commuting and tourism-related journeys on the former, and the relatively greater resilience throughout of car travel, which has been close to, but notably not above, pre-pandemic levels for much of the latter half of 2021.

The general upwards trajectory of recent months is encouraging, but public transport demand is still significantly short of pre-pandemic levels. At a global level, these trajectories are comparable to other large cities, taking local conditions into account.

Figure 1 Change in demand on the main transport networks relative to the equivalent period in 2019, 7-day moving average, Feb 2020-Nov 2021.



Source: TfL Traffic and service performance data.

Note: Demand for bus and Underground in January and February 2021 is relative to equivalent dates in 2020.

These averages conceal many distinct features of interest. The following are perhaps the most immediately significant in terms of planning for the next phases of the recovery:

- We are seeing a sustained recovery in our patronage levels, with a steady increase in demand since the spring of 2021.
- Weekend travel has recovered more strongly than weekdays, with Saturday totals typically achieving 73 per cent of the pre-pandemic demand on London Underground (83 per cent on buses) and Sundays 71 and 80 per cent respectively.
- Relative to average overall demand levels, the recovery of the weekday commuter peak is lagging, particularly for London Underground. In late October 2021, typical weekday morning peak London Underground demand was just over 50 per cent of the pre-pandemic baseline, with bus at 70 per cent.
- It is thought that this primarily reflects the persistence, as of late 2021, of flexible working arrangements put in place during the pandemic, as many employers

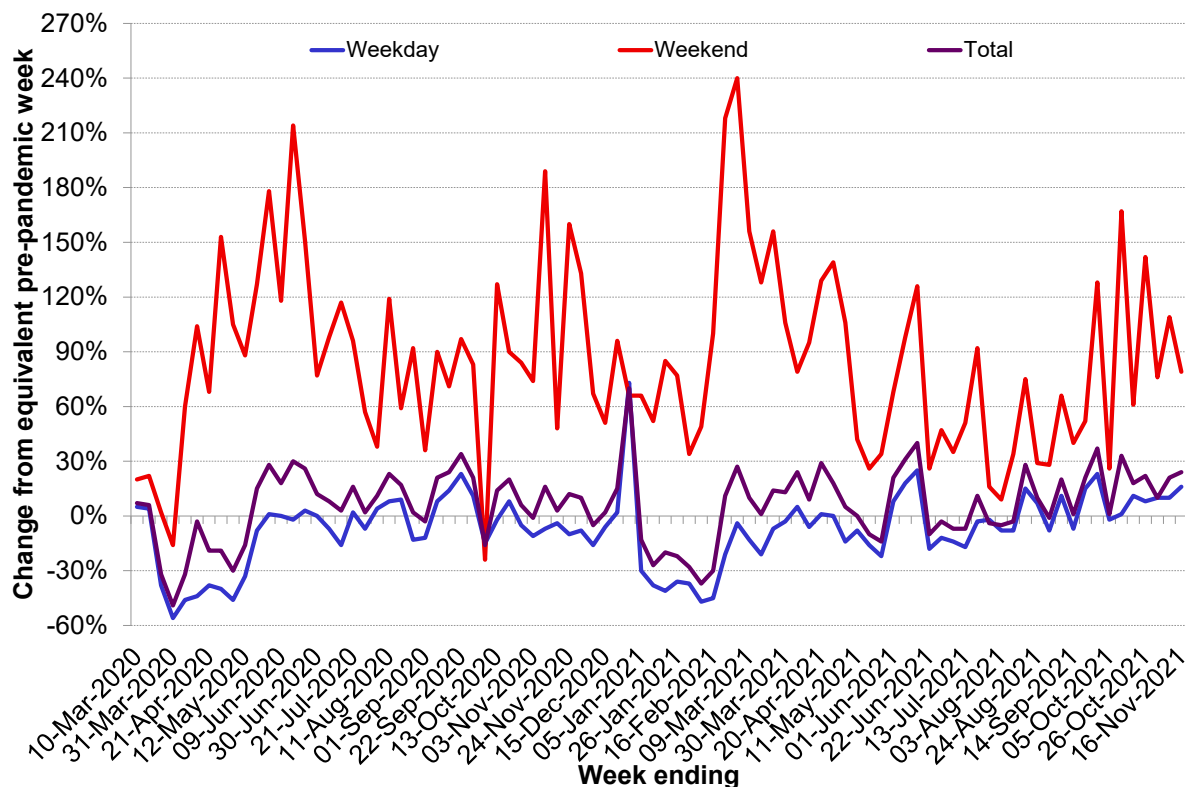
have been cautious to mandate a full return to the office and are experimenting with hybrid working plans.

- The relatively high rates of leisure travel, particularly with a continuing absence of international tourism, however, suggest a widespread acceptance of mass public transport travel by Londoners under these conditions.
- On both buses and London Underground, the pre-pandemic demand pattern by day of week (Monday through Friday) is little changed overall, again suggesting a general 'return to normal' in terms of people's activities, albeit with significantly lower demand across the working week.
- Recent National Rail patronage levels are lagging behind those for the Underground, particularly London-focused train operators, who are also experiencing a 'leisure-led' recovery with a notable shortfall of commuter trips. This demonstrates the close relationship between National Rail and London Underground for weekday commuter demand in London. A further factor, in the light of continued employer flexibility, may be the deterrent effect on prospective commuters of daily full-price train travel for ad hoc journeys, compared to pre-pandemic discounted season ticket rates for more regular journeys.
- Spatially, the 'doughnut' pattern established during the pandemic, of higher relative levels of travel in outer and inner London, with large-scale shortfalls in the central area, has persisted, although lessened in intensity as more people have returned to the central area for work and leisure purposes. This has generally been positive for 'local living' and for active travel modes, for example leisure-related walks and cycling of home workers.
- The recent trend for car travel in London closely mirrors national-scale trends. It is notable in both cases that traffic levels appear to have stabilised at just below pre-pandemic levels. However, the higher relative demand for car travel against the common backdrop of the pandemic recovery, and the substantial scope for a more general 'return to the office' demonstrate ample potential for initiatives to encourage greater relative use of sustainable modes over the next period.

Active travel and the pandemic

In general, active travel 'benefitted' from the pandemic in that walking and cycling were uniquely placed to cater for travel demand during periods of restrictions. Increased local travel at these times also emphasised use of active modes. However, this took place in the context of overall reductions to activity, meaning that although mode shares for these modes were notably higher, absolute trip making overall by these modes remained close to, or below, pre-pandemic levels.

Cycling illustrates this duality, with figure 2 showing data from limited cycle counters around central and inner London. The standout feature is the relative increase in weekend cycling – typically doubling relative to pre-pandemic levels, although with large variation, emphasising the increase in 'leisure' cycling. Weekday cycling shows a different picture, typically close to pre-pandemic levels. However, this reflects a large-scale reduction in commuter cycling, in line with other modes, making this relative resilience especially noteworthy.

Figure 2 Change in cycle flow on automatic cycle counters, 2020-2021 vs 2019.

Source: TfL Network Performance.

Excepting the strict lockdown periods, Santander Cycles (which mostly serve central and some parts of inner London) enjoyed record patronage during the pandemic and continue to see patronage above pre-pandemic levels. This is especially remarkable given overall reduced activity levels and demonstrates the utility of cycle hire for travel around central London under pandemic conditions.

Our analysis of walking data is mainly based on London Travel Demand Survey (LTDS) results. This shows that walking accounted for almost 60 per cent of all trips made by Londoners during the first quarter of 2021 – and typically over 40 per cent during other periods during the pandemic, compared to 35 per cent before the pandemic. Most of these walking trips were local trips in inner and outer London. Although under the unwanted duress of pandemic restrictions, the scale of the shift to active modes during the pandemic highlights a potential opportunity to embed positive aspects of this into our recovery.

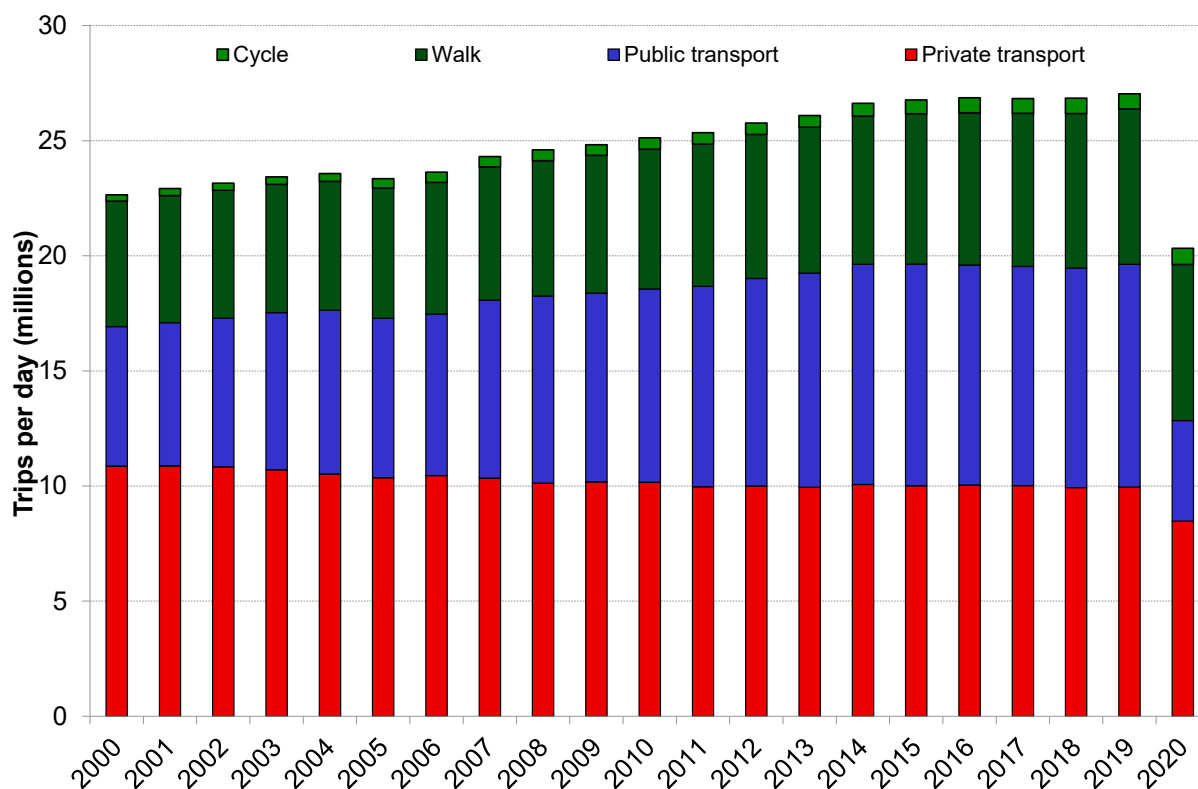
Consolidated estimates of travel demand and mode shares in 2020

Historic and pandemic context

The year 2020 was notable for the unprecedented variability in travel demand, this reflecting the impacts of the pandemic and associated restrictions on many aspects of daily life, and annual averages and totals should be seen in this context. They should also be seen against the longer-term pre-pandemic trends of generally consistent year-on-year growth in travel demand in London, and the longer-term trend of increasing use of active, efficient and sustainable modes.

Before the pandemic, travel demand in London grew from 25.1 million trips per day in 2010 to 27.0 million in 2019 – an increase of 7.6 per cent. The share of trips made by active, efficient and sustainable modes (walking, cycling and public transport) increased from 59.6 per cent in 2010 to 63.2 per cent in 2019 – an increase of 3.6 percentage points. Figure 3 shows these longer-term trends, alongside the scale of the pandemic-related change in 2020.

Figure 3 Estimated daily average trips by main mode, 7-day week, 2000-2020.



Source: TfL City Planning.

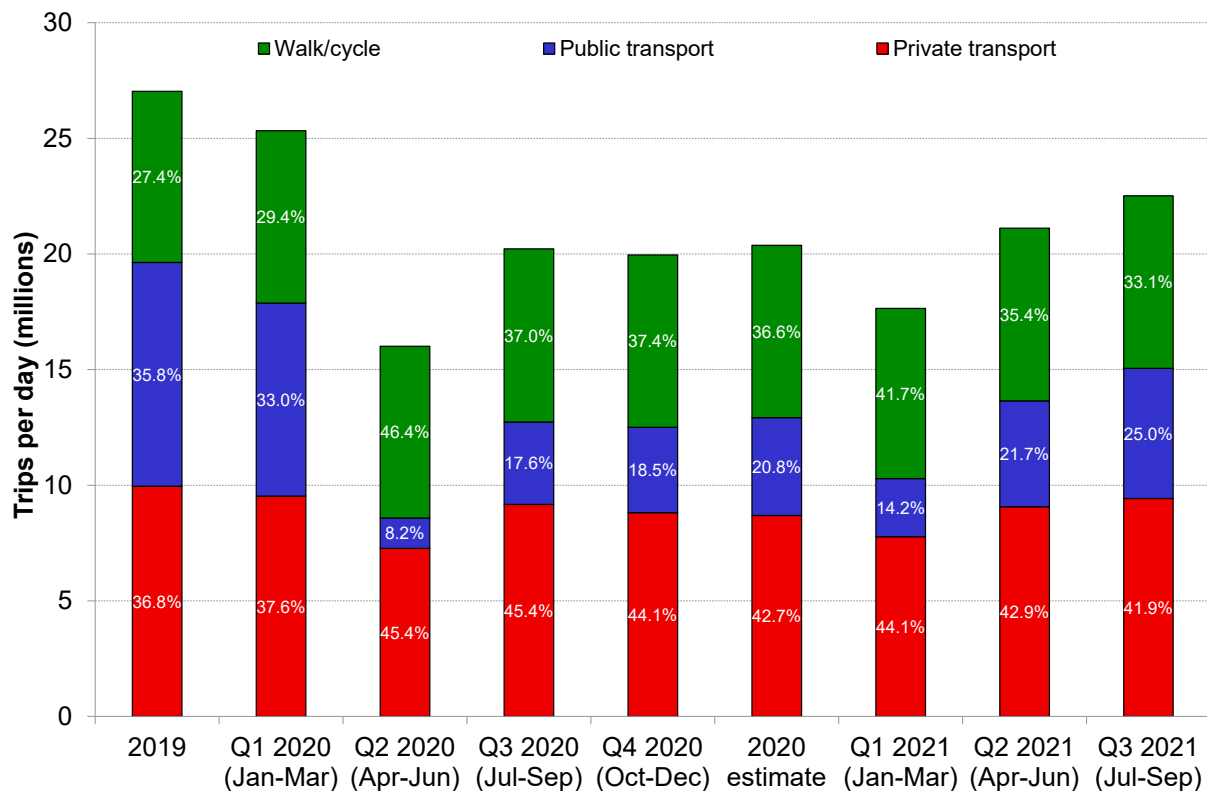
In 2020, it is estimated that 20.3 million trips were made on an average day. This compares to 27.0 million in 2019, a nominal reduction of 24.8 per cent. The overall active, efficient and sustainable mode share for travel in 2020 is estimated at 58.3 per cent, compared to 63.2 per cent in 2019.

Variability in travel patterns during the pandemic

Although these overall totals may be regarded as relatively resilient in the context, they were characterised by unprecedented variability during the year, and it is this variability that is the main point of contemporary interest.

For example, for many people, the lengthy daily two-way commute to and from work, perhaps involving a public transport journey, with active travel elements, may have been replaced, for at least some of the year, with a once or twice daily 'walk around the block' in their local area. Although they may have made the same number of trips, the characteristics of those trips – origin/destination, trip length and duration, time of day, journey purpose and modal mix – may have changed dramatically. Quarter-by-quarter estimates of total travel and mode shares throughout the pandemic (figure 4) demonstrate some of these effects.

Figure 4 Estimated mode shares and daily trip levels, 2019-2021.



Source: TfL City Planning.

In relation to figure 4:

- In 2020 sustainable mode share accounted for 58.3 per cent of circa 20 million trips per day; the quarterly analysis of the data for 2021 indicates that the percentage mode share has not changed significantly, albeit that the number of trips has increased to circa 23 million per day.
- In the context of lower overall travel and activity levels, active travel – cycling and walking – benefitted in relative terms, as they were more suited to ‘local’ lifestyles and permitted activities during periods of lockdown.
- The impact of this on the overall mode share statistic was however countered by the large-scale loss of public transport trips; these also typically involving active travel elements (eg the walk to the station).
- Absolute levels of car travel were relatively more stable throughout, although this fell to 73 per cent of pre-pandemic levels in Q2 2020 (Apr-Jun).

The pandemic and the drivers of travel demand

London’s population and economy

London’s population and economy were affected by the pandemic, both effects having yet to fully work through but being likely to exert a dampening effect on travel demand growth, relative to pre-pandemic expectations, for some years to come.

Although firm figures are not yet available, it seems likely that London’s population did reduce during the pandemic. A collapse in international migration, international

and domestic tourism, an element of domestic migration away from the city, alongside, sadly, morbidity and mortality from the pandemic itself, all contributed to lower travel demand in 2020, alongside the direct effect of the pandemic and related restrictions.

The main question, however, is the extent to which these factors will persist. The Greater London Authority (GLA) recently released its latest trend-based and housing-led projections based on London's 2020 mid-year population estimate of 9.002 million. In this the central range spans a projected population of between 9.97 and 10.25 million by 2041. This is slightly lower than the pre-pandemic range of 10.08 to 10.34 million.

The impacts of the pandemic on London's economy were also marked, coming on top of prevailing background trends relating to affordability that, it is thought, acted as a brake on travel growth during the late 2010s.

Changes to the travel behaviour of Londoners

Looking at Londoners' travel behaviour itself, the following are some of the more significant features of 2020 in the longer-term context:

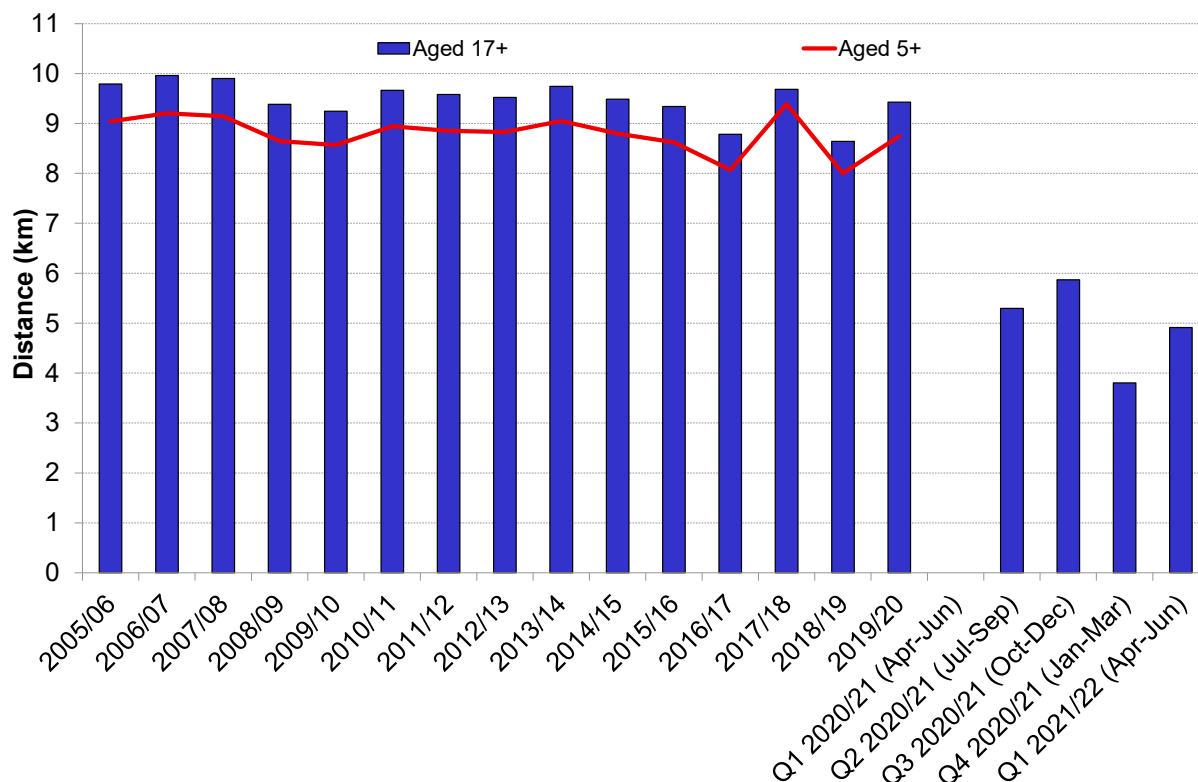
- The number of trips made per person per day in 2020/21 was an average of 21 per cent lower compared to 2019/20 (1.7 trips per person per day compared to 2.3 trips), reflecting strict restrictions on the activities for which travel was permitted for significant periods throughout the year.
- However, given the scale and length of time that travel restrictions were in place, the reduction in London residents' trip rate was relatively modest, suggesting 'substitution' between different types of travel (eg local exercise for a commute).
- As well as trip rates, the average distance per trip also reduced as people 'stayed local', causing an even greater proportional reduction in travel, alongside a shift to modes that were more suited to local travel under pandemic conditions (figure 5 overleaf).

During the pandemic, the share of public transport trips by residents reduced dramatically, although residents' mode shares for both cycling and walking increased, meaning that the active, efficient and sustainable mode share for London residents was similar to the pre-pandemic level of 67 per cent, albeit comprised of a substantially different mix of trips.

Working from home was one of the most prominent pandemic adaptations, and the practice continues to be widespread among office workers as we approach the end of 2021. Figure 6 shows the scale of the change among London residents.

Recognising that working from home is an option available only to some, and that the imperative to work from home changed with different stages of the pandemic, the scale of the change, and the length of time it has had to become embedded, present obvious challenges for the recovery of pre-pandemic commuter travel. It is likely that residents who, previously, undertook only occasional home working may increase the frequency of this given the pandemic experience.

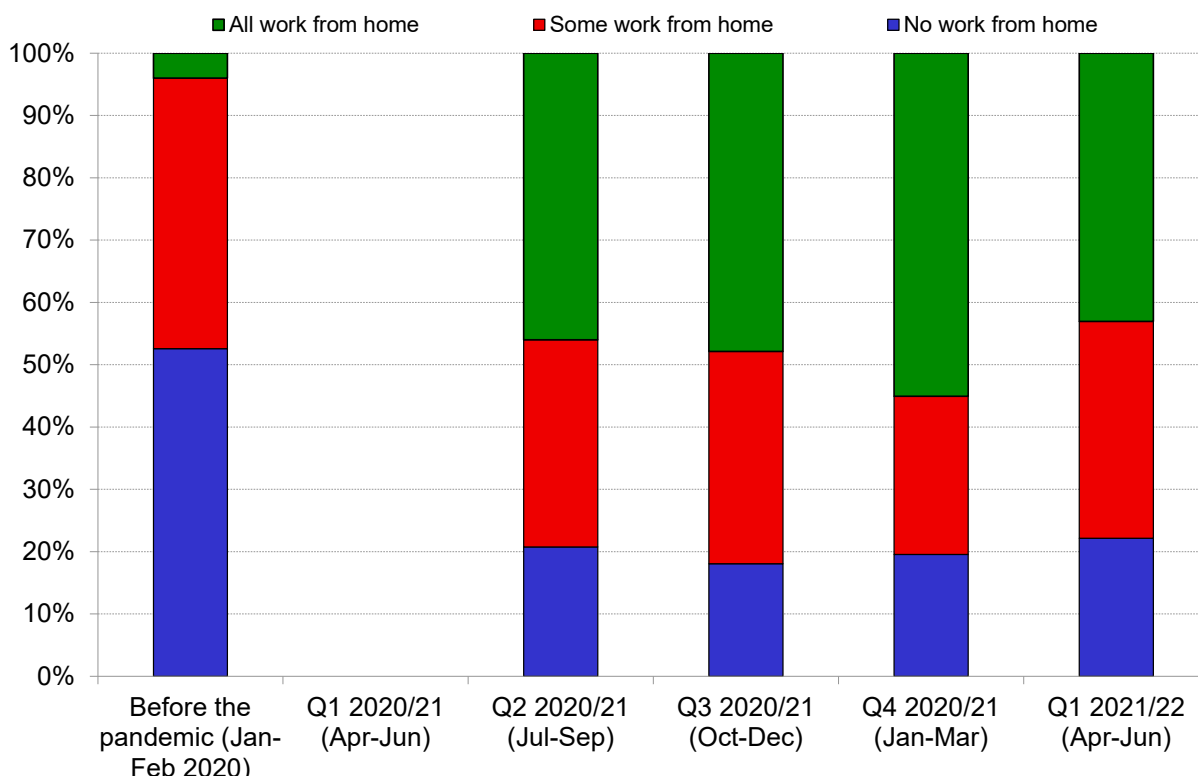
Figure 5 Total distance travelled per person per day, trips fully within London, LTDS, 2005/06-2021/22.



Source: TfL City Planning.

Note: The back series has been amended to represent those aged 17+. The red line shows the trend for those aged 5+.

Figure 6 Proportion of working from home by London workers, LTDS, 2020/21 and before the pandemic.



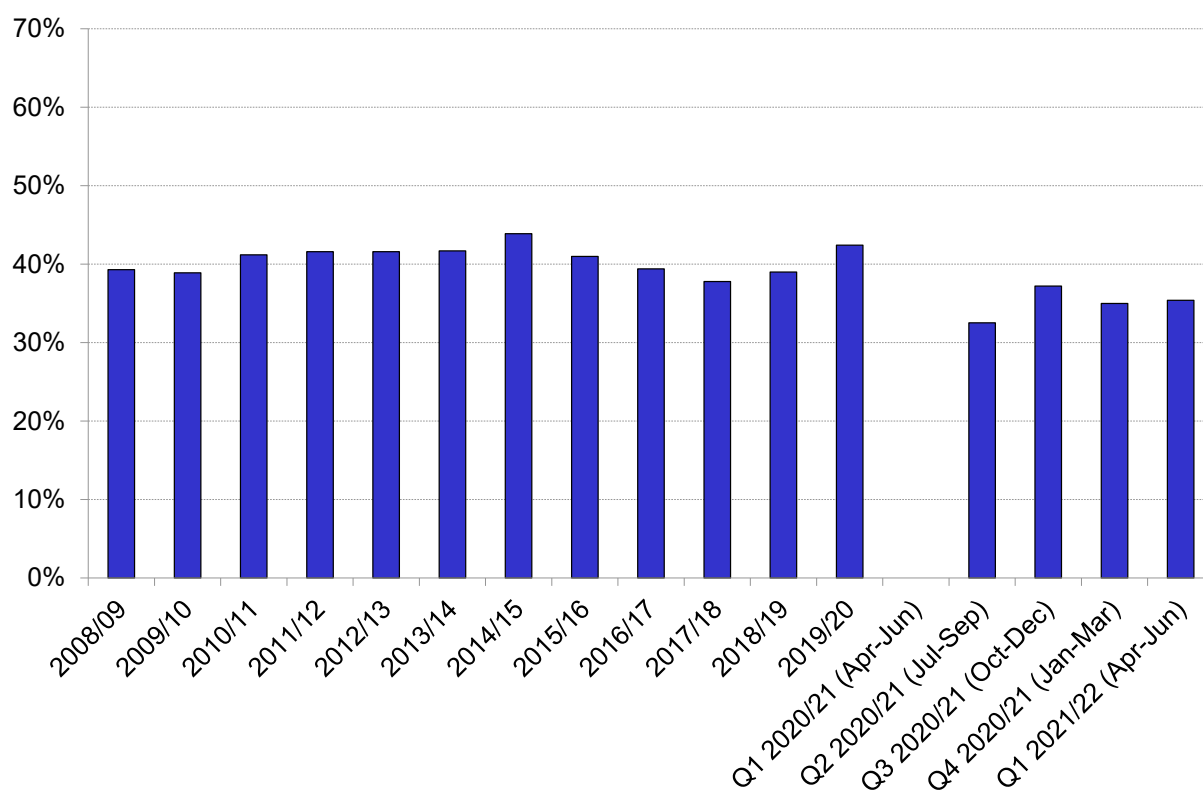
Source: TfL City Planning.

Healthy Streets and healthy people

Active travel

The Mayor's Active People target is for 70 per cent of Londoners to achieve at least 20 minutes of active travel (defined as either walking or cycling) per day by 2041. The historic trend prior to the pandemic was relatively flat, with typically around 40 per cent of Londoners achieving this benchmark. Although comparable quarterly estimates are available during the pandemic, restrictions on surveys mean that the picture is not complete. Nevertheless, results suggest that the proportion of Londoners achieving the target decreased during the pandemic, with quarterly estimates ranging from 33 to 37 per cent (figure 7). This reflects a combination of formal pandemic restrictions limiting travel, and a range of informal personal responses to the pandemic, reducing individual travel overall.

Figure 7 Proportion of Londoners aged 20 and over who achieve at least 20 minutes of active travel per day, LTDS, 2008/09-Q1 2021/22.



Source: TfL City Planning.

Streetspace for London

The Streetspace for London programme started soon after the onset of the pandemic. It was designed to facilitate and encourage safe and active travel during the pandemic and provided opportunities to capture these changed behaviours as part of London's sustainable recovery. It included:

- 101km trial cycle lanes
- 89 Low Traffic Neighbourhoods
- 322 'School Streets'

Overview

- 84km of TLRN bus lanes converted to operate 24/7 Monday to Sunday.

Boroughs and TfL are currently assessing which of these schemes should be made permanent.

Low Traffic Neighbourhoods (LTNs) are street interventions aimed at removing through motor traffic from a residential area to create street environments that are safer and more pleasant for people to walk, cycle and access public transport, while retaining access for residents and essential services. Several reports have been published in the last year that indicate that LTNs have been effective in reducing car use, encouraging more active travel, reducing road danger and improving perceptions of the local street environment.

London's developing cycle network

TfL has an aim to increase the proportion of Londoners living within 400 metres of a high-quality cycle route to 33 per cent by 2025. By autumn 2021, the proportion of Londoners living within 400 metres of a cycle route was 19.4 per cent, up from 11.5 per cent in 2019. Much of this increase is linked to the delivery of new protected cycle routes delivered as part of the Streetspace for London programme.

Road traffic in London

Travel in London reports have tracked a picture of gradual change over the last decade or so, the key elements of which have been:

- A slow but generally consistent trend of reducing traffic volumes in central and inner London, contrasting with relatively stronger growth on public transport, contributing to a progressive increase in the active, efficient and sustainable mode share. Traffic volumes in outer London have, however, grown over this period.
- Different trends affecting the different motorised modes, with generally lower car traffic, higher freight and servicing traffic, particularly Light Goods Vehicles (LGVs), and a dramatic increase to the numbers of private hire vehicles (PHVs).
- Initiatives such as the Ultra Low Emission Zone and more recent changes to the Congestion Charge in central London, will have impacts on traffic levels and composition and further information on this is supplied in this report.

Changes to the Congestion Charge in central London

Prior to the pandemic London's Congestion Charge operated 07:00 to 18:00 Monday to Friday, with an £11.50 daily charge. In 2020, changes were made to the Congestion Charge to address the transport challenges arising from the pandemic. The scheme was suspended from 23 March to 18 May and, in June 2020, the Congestion Charge increased to £15 a day, and the hours of operation were extended to 07:00 to 22:00, seven days a week. In August 2020, the residents' discount scheme was closed to new applicants. The immediate impact of these changes, in the pandemic context, was outlined in [Travel in London report 13](#).

This year, a consultation was undertaken between July and October on new Congestion Charge proposals to support the long-term objectives of the Mayor's Transport Strategy. This consulted on:

- A daily charge of £15.
- Reducing the hours of operation from the current temporary hours of 07:00 to 22:00 each day, to between 07:00 and 18:00 Monday to Friday and between 12:00 and 18:00 at weekends and on bank holidays.
- Re-opening the 90 per cent discount for residents living in the Congestion Charge zone to new applicants.

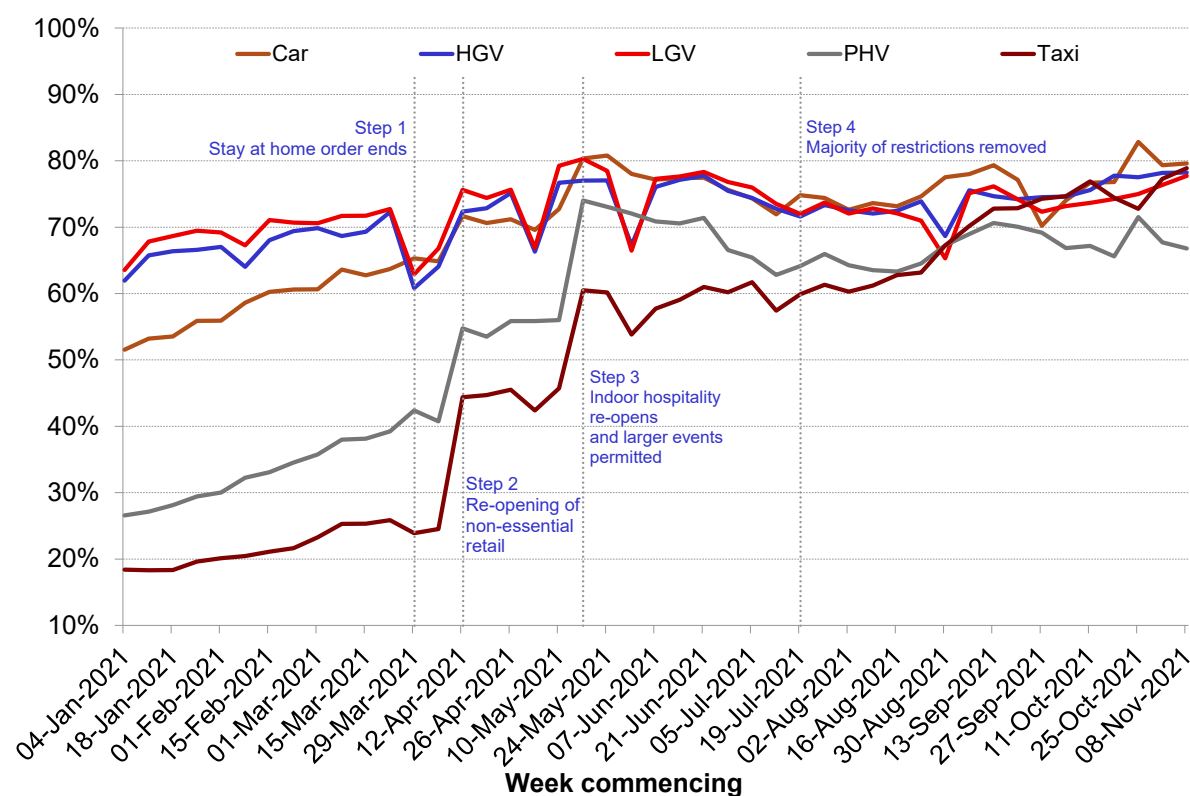
A decision on these proposals will be taken in December 2021.

Traffic in the central London Congestion Charge zone

In this context, at the start of 2021, weekly car entries to the charging zone were just above half of pre-pandemic levels, as the UK entered a third national lockdown. Entries then recovered slowly through the first quarter of the year, standing at 80 per cent of pre-pandemic levels at the start of November 2021 (figure 8).

In January 2021, during the winter lockdown, charging zone entries by heavy goods vehicles were around 66 per cent of pre-pandemic levels, the figure for LGVs was slightly higher at 69 per cent. At the start of November 2021, HGV and LGV entries were both 78 per cent of the pre-pandemic baseline.

Figure 8 Weekly entries (camera captures) to the Congestion Charge zone by mode, Jan-Nov 2021 vs Jan-Feb 2020.



Source: TfL Surface Transport.

Licensed taxi and private hire vehicle (PHV) entries to the charging zone were significantly affected by the winter lockdown at the start of 2021. At the start of 2021, licensed taxi entries were 18 per cent of pre-pandemic levels, and the figure for PHVs was 27 per cent. PHV entries declined over the summer, but recovered in early autumn, and at the start of November 2021 were 67 per cent of the pre-

pandemic baseline. Licensed taxi entries recovered strongly through the summer, and currently stand at 79 per cent of pre-pandemic levels.

Goods vehicles entering the Congestion Charge zone during the weekday morning peak

A specific aim of the transport strategy is to reduce the number of light and heavy goods vehicles (LGVs and HGVs) circulating in the central London Congestion Charge zone during the weekday morning peak, by 10 per cent by 2026, from 2016 levels. Before the pandemic, the overall trend was compatible with good progress towards this aim. By early 2021, however, reflecting the pandemic, the reduction in the number of freight vehicles was more than 20 per cent against the 2016 baseline. As restrictions were released the number of freight vehicles started to increase but remained around 15 per cent below 2016 levels in October 2021.

Road danger

The Mayor's Vision Zero Action Plan makes it clear that no death or serious injury on London's roads is acceptable or inevitable. It sets targets of a 65 per cent reduction in all persons killed or seriously injured (KSI) on London's roads by 2022 and a 70 per cent reduction in people killed or seriously injured (KSI) in or by a bus by 2022, ahead of eliminating all deaths and serious injuries from London's streets by 2041.

In 2020 there was a 19 per cent reduction in the number of people injured in road traffic collisions in London, and a 21 per cent reduction in the number of people (3,070) regrettably killed or seriously injured, compared to 2019. This amounts to a 52 per cent reduction towards the overall target of 65 per cent by 2022. However, this reduction needs to be seen in the context of a significant reduction in travel during periods of lockdown.

There was a 12 per cent increase in the number of people regrettably killed or seriously injured while cycling in 2020 relative to 2019 (with six cyclists sustaining fatal injuries). This increase reflected increased cycling during the pandemic but represented a 64 per cent reduction in cycling fatalities relative to the 2005-09 baseline. The risk of being killed or seriously injured while cycling in London fell by 24 per cent in 2020 relative to 2019.

People walking, cycling and motorcycling ('vulnerable road users') made up 82 per cent of all people killed or seriously injured, compared to 81 per cent in 2019. The number of motorcyclists killed or seriously injured declined by 25 per cent and has continued to decline year on year, despite motorcyclist fatalities remaining at 31 people in 2020. The number of pedestrians killed or seriously injured was 868 in 2020, down by 57 per cent against the 2005-09 baseline, and by 36 per cent against 2019.

The number of people killed or seriously injured in or by a bus fell by 35 per cent between 2019 and 2020 to 135 people – the lowest number on record (and 77 per cent down on the 2005-09 baseline), again reflecting an element of pandemic reduced demand. Unfortunately, however, in 2020 two bus passengers were fatally injured, one while attempting to board a bus, and one bus passenger following a fall within a bus.

Air quality and carbon reduction

London's air quality

In London in 2016 two million Londoners, including 400,000 children, lived in areas that exceeded legal limits for air pollution. Since then significant improvements have been achieved in air quality as we seek to reduce ambient levels of NO₂ towards statutory limits. New analysis from the London Atmospheric Emissions Inventory (LAEI) indicates that by 2019, the number of people who live in areas that exceed legal limits reduced to 174,000 people – a reduction of 91 per cent. It is particularly important that air quality improves around schools and the number of state primary and secondary schools in areas exceeding the legal limit for NO₂ fell from 455 in 2016 to 14 in 2019, a reduction of 97 per cent.

Low Emission Zones

The vehicle standards for the London-wide Low Emission Zone (LEZ) were tightened on 1 March 2021. Compliance with these new standards was 95.7 per cent in October 2021 and this compares to 48 per cent in 2017 when the changes were announced.

The Mayor extended the Ultra Low Emission Zone (ULEZ) up to the North and South Circular Roads on 25 October 2021. This is a significant expansion covering 3.8 million residents and is eighteen times the size of the previous central London zone. In the week before launch, compliance with the scheme was estimated at 87 per cent, which compares to a 39 per cent compliance rate when the Mayor announced his intention to introduce the expanded scheme in February 2017. This demonstrates the important role of 'pre-compliance' in the success of these schemes and bringing forward the air quality benefits. Full updates on all these schemes will be published by the GLA in due course.

London Atmospheric Emissions Inventory (LAEI) update

An updated LAEI has been developed based on the latest available data from 2019 across the main pollution sources, including domestic and industrial fuel consumption, the Environment Agency (large industrial sources) and the NAEI (National Atmospheric Emissions Inventory). Road transport assumptions are based on TfL's transport models.

Vehicle fleet compositions reflect the changes brought about in 2019 on London's roads following the implementation of the ULEZ in central London. Figure 9 shows the NO₂ concentrations across the Capital and while there has been significant progress, there is still more to do to achieve legal compliance.

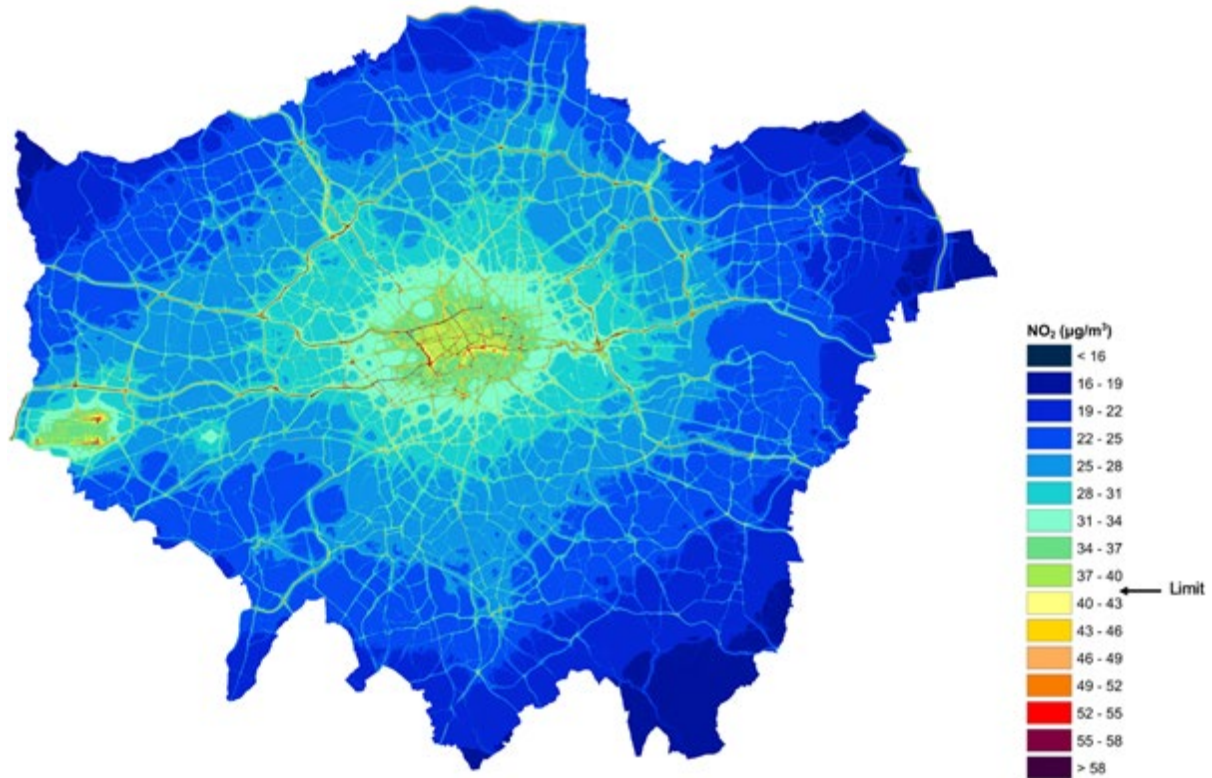
Additional work is currently ongoing as part of the LAEI to forecast emissions and air quality concentration maps for 2025 and 2030. The results will take account of the impacts of the tougher standards for the London-wide LEZ and the expansion of the ULEZ and will help inform what other measures may be needed to meet legal limits for NO₂ across London by 2025 at the latest. The full results will be published on the LAEI website together with the new 2019 baseline data in the new year.

Comparing new figures for 2019 with previously published 2016 data indicates that London's NO_x emissions from road transport have reduced by 31 per cent. Although

Overview

road transport is still the predominant source of NO_x across London, its proportion within total NO_x emissions has gradually decreased over time, from 55 per cent in 2013 and 52 per cent in 2016 to 44 per cent in 2019.

Figure 9 Concentrations of NO₂ in London, 2019.



Source: London Atmospheric Emissions Inventory, TfL City Planning.

Air quality, health and inequality

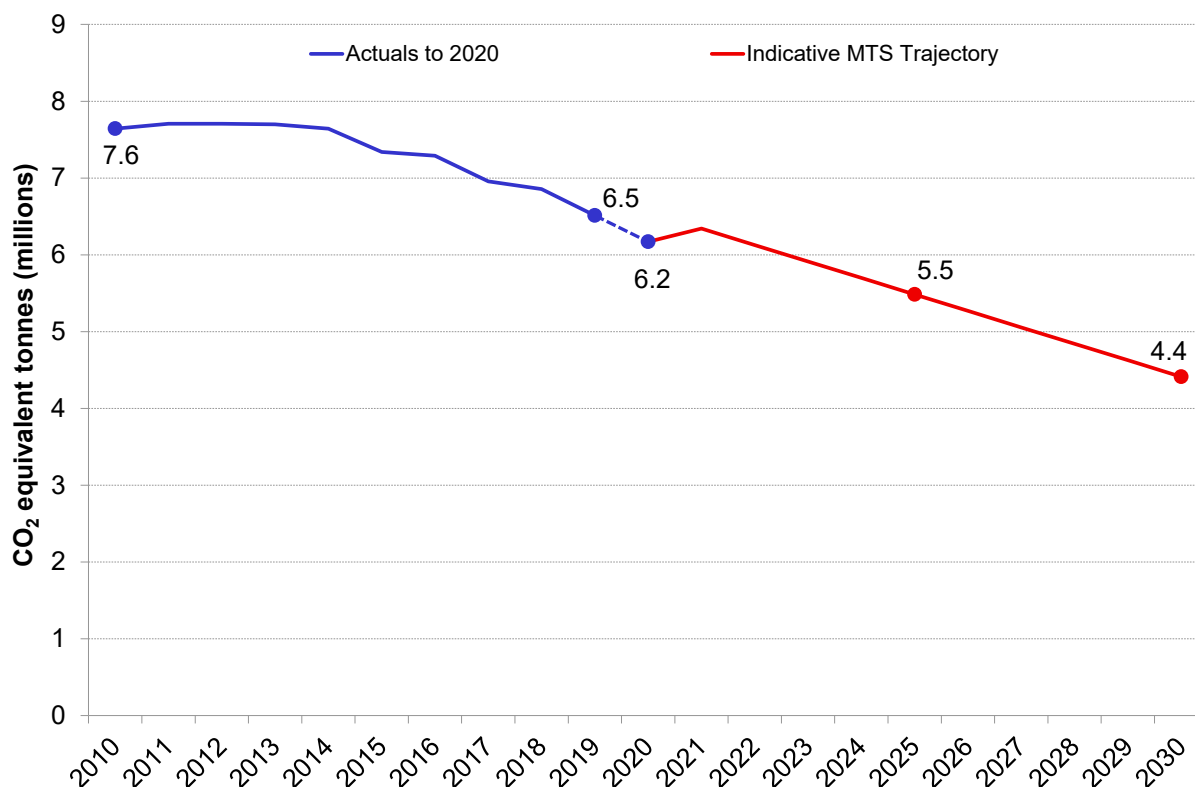
The significant health impacts of poor air quality and the imperatives to improve it have recently been highlighted by the World Health Organisation (WHO), which has suggested a lowering of existing health-based limit values for certain pollutants. A joint TfL/GLA study explored the relationships between air quality and inequalities, albeit based on a previous set of emissions estimates. The report confirmed earlier findings that communities with higher levels of deprivation, or higher proportions of people from non-White ethnic backgrounds, are more likely to be exposed to higher levels of air pollution. It is estimated that areas where the most deprived Londoners are likely to live experience average concentrations of NO₂ that are 13 per cent higher than the least deprived areas, with PM_{2.5} concentrations 6 per cent higher. The report also shows that, following policies to improve air quality in London, the gap in NO₂ exposure between the most and least deprived areas of London in this regard has narrowed by up to 50 per cent since 2013.

Towards zero carbon

The Mayor's Transport Strategy set a target for London to be a zero carbon city by 2050. However, the Mayor has recently called for this to be brought forward to 2030, recognising the importance of the climate change emergency we face.

London's CO₂ emissions have been falling over recent decades, although at a pace commensurate with the 2050 rather than the 2030 target. Furthermore, the contribution of other sectors has fallen as the grid has decarbonised. Road transport is therefore responsible for an increasing proportion of total emissions – now estimated at 28 per cent. Figure 10 shows the need to significantly accelerate decarbonisation in London to meet the Mayor's ambition for 2030.

Figure 10 Historic trend and indicative trajectory in London's CO₂ emissions, 2010-2030.



Source: TfL City Planning.

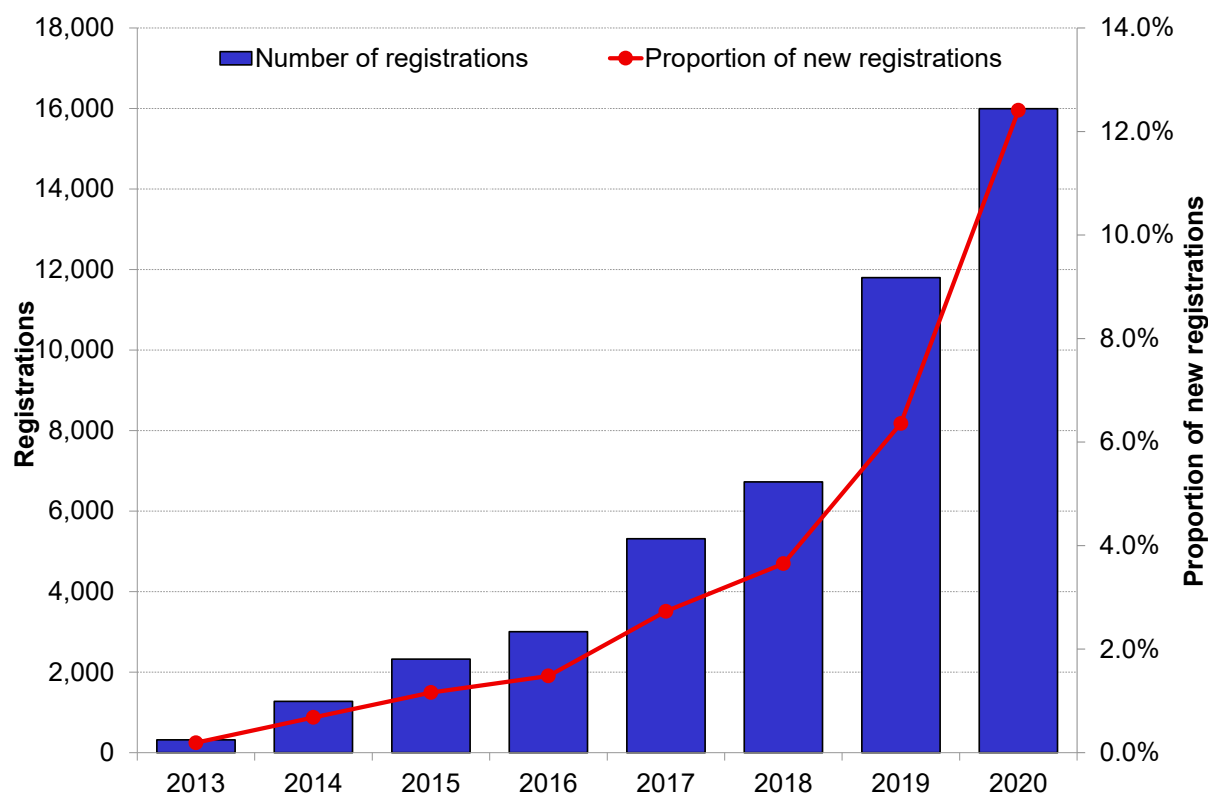
Recent initiatives have included:

- The early introduction of the ULEZ in central London in April 2019, which resulted in an estimated 6 per cent reduction in CO₂ emissions in the central zone.
- The recent expansion of the ULEZ to inner London, estimated to reduce CO₂ emissions London-wide by 4.6 per cent – the equivalent of taking 60,000 cars off the road.
- London has western Europe's largest fleet of zero emission buses, currently 576 vehicles, alongside strict taxi and private hire licensing regulations for vehicle emissions, with 4,406 zero emission-capable taxis registered in London as at October 2021.
- The Mayor launched a consultation on his updated Electric Vehicle Infrastructure summary in October 2021, the full document is to be published in December. This presented an updated plan to help ensure that London has the infrastructure it needs to support a substantial shift to electric vehicles over the next decade. As at mid-2021, there were 7,600 public electric vehicle charge points in the Capital, this reflecting a mix of private and public sector investment, being one third of the UK total. However, it is estimated that as many as 60,000 charge points will be

required by 2030 to fully support the necessary transition to electric vehicles, of which 4,000 would be rapid chargers.

- There were just short of 16,000 first-time registrations of plug-in vehicles in London in 2020, representing 12.4 per cent of all new vehicle registrations and a doubling of the share of new registrations compared to 2019 (figure 11). Data from 2021 is available for the first half of the year and it appears that the shift to electric vehicles is continuing to accelerate. However, despite these recent trends, ultra low emission vehicles only make up two per cent of London's fleet of more than 2.9 million vehicles, showing the scale of the challenge in switching to electric vehicles.

Figure 11 First-time registrations of plug-in electric vehicles, 2013-2020.



Source: TfL City Planning.

A good public transport experience

Long-term trends in public transport demand

A long-term trend of increasing demand on public transport has reflected the growth of London and progressive enhancements to many aspects of connectivity and service delivery. Between 2009/10 and 2019/20, the number of public transport journeys on the principal modes increased by 11 per cent, while the number of kilometres travelled increased by 26 per cent, suggesting an overall shift towards longer journeys. This growth, stronger in the first half of the last decade compared to the second half, has contributed towards the historic shift to active, efficient and sustainable modes, although the long-term positive trend was dramatically interrupted by the pandemic in 2020.

At the time of writing, overall public transport patronage has recovered to an estimated 70 per cent of pre-pandemic levels. This is made up of over 65 per cent of normal on London Underground, and over 75 per cent of normal on buses (weekly averages), reflecting an intermediate stage in the return to a post-pandemic 'settled' state, and in the context of a rapidly evolving picture.

With the approaching Christmas period, the tentative return of some domestic and international tourism, and the further consolidation of 'return to office' plans by employers, demand over the coming months should give a better pointer to longer-term pandemic impacts. Our focus at the time of writing is to understand the key features of how these patterns are developing, and these aspects are considered in detail throughout this report.

Service provision and operational performance

Recent years have seen progressive improvement to public transport in London, including the development of new and enhanced services improving connectivity, alongside improvements to the customer experience, such as increased operational reliability and physical accessibility. These improvements have underpinned the growth in public transport demand over the last decade. The total capacity provided by the public transport networks in London increased by 28 per cent between 2009/10 and 2019/20.

In 2020 and into 2021 the operational focus shifted to meet the pandemic emergency, with an emphasis on continuing to provide a safe and reliable service for essential journeys. Despite the challenges of the pandemic, including, tragically, the deaths of more than 100 transport workers from coronavirus, our services kept London moving, and broader improvements to the networks continued.

In the latter half of 2021, services are moving back to pre-pandemic levels, and the focus is on reassuring Londoners that public transport continues to offer a safe, attractive and sustainable way to move around the Capital as normal activity resumes. Our Customer Plan sets out how we must continue to deliver the core customer expectations: safe, frequent, reliable services; value for money and realtime information, to help recover ridership and contribute to the Mayor's transport aims as the recovery continues to unfold.

Crowding is a key factor in customer comfort and an essential element of the wider customer experience, but it also has important operational implications since it can affect dwell times, reliability and journey times, and is both cause and consequence of poor service performance.

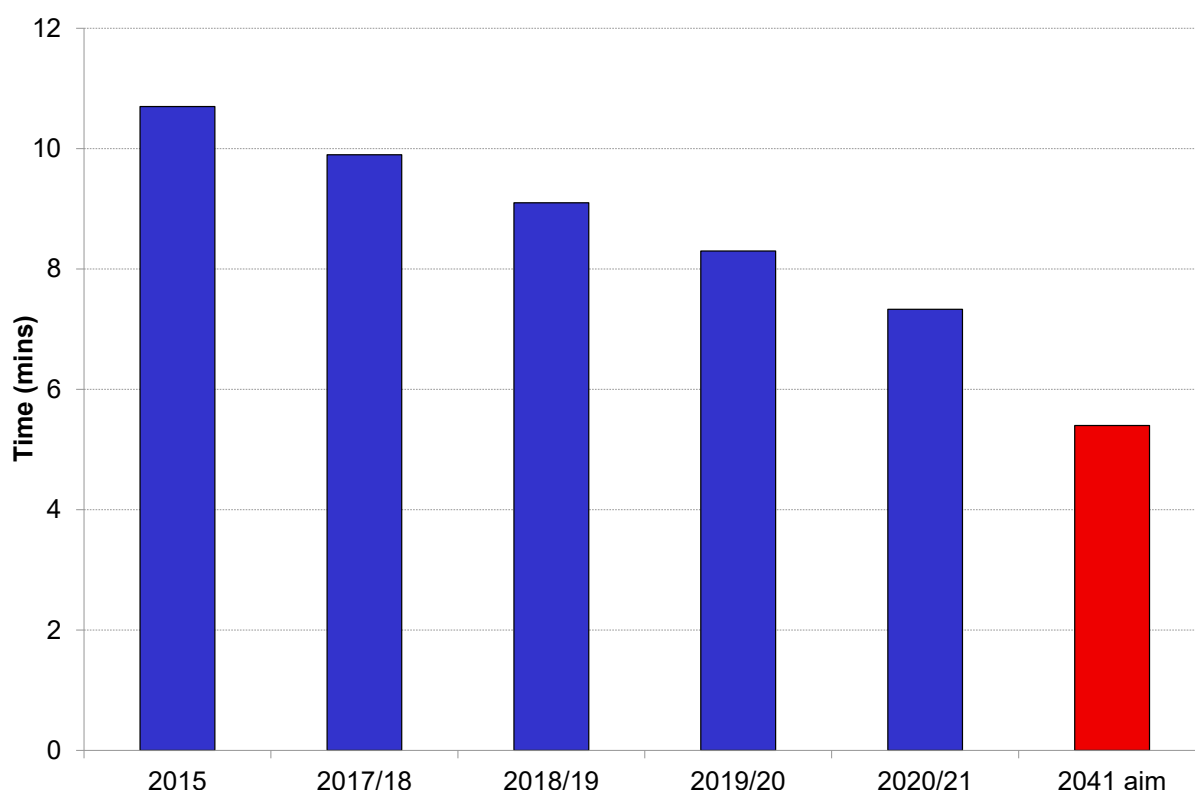
The pandemic, despite 'objectively' reducing crowding levels with the substantial reduction in patronage, has added a new dimension to this complex problem, namely the need and general desire to maintain a certain level of separation from fellow passengers above what was acceptable beforehand. We are closely monitoring detailed demand patterns and customer attitudes as the recovery gathers pace to further understand the nature and implications of public transport crowding over the next period.

Physical accessibility to public transport

Over half (51 per cent) of the TfL rail network – spanning London Underground, DLR, London Overground, London Trams and TfL Rail services – is now step-free. Since 2016, 21 London Underground stations have been made step-free as part of the London Underground accessibility programme, the Elizabeth line and the Northern line extension. The recent completion of work at Osterley station brings the total number of step-free stations on London Underground to 89 – close to 33 per cent of the whole network.

The average additional journey time required through using only the step-free network, compared to the whole network, reduced to 7.3 minutes in 2020/21, a reduction of 12 per cent over the previous year and continuing the trend of recent years towards the Mayor’s aim of halving the differential by 2041 (figure 12).

Figure 12 Relative additional journey time using the step-free network, 2015-2020/21 and 2041 Mayor’s Transport Strategy aim.



Source: TfL City Planning.

Public transport customer safety

With fewer customers travelling on our network, there was a corresponding fall in the number of customer and workforce injuries in 2020/21. However, seven customers were tragically killed on the public transport network through accidental causes. There were 91 serious customer injuries.

At the end of the 2020/21 financial year we had 455 buses that met the first generation of the Bus Safety Standard, with new vehicles meeting the second generation entering the fleet from late 2021.

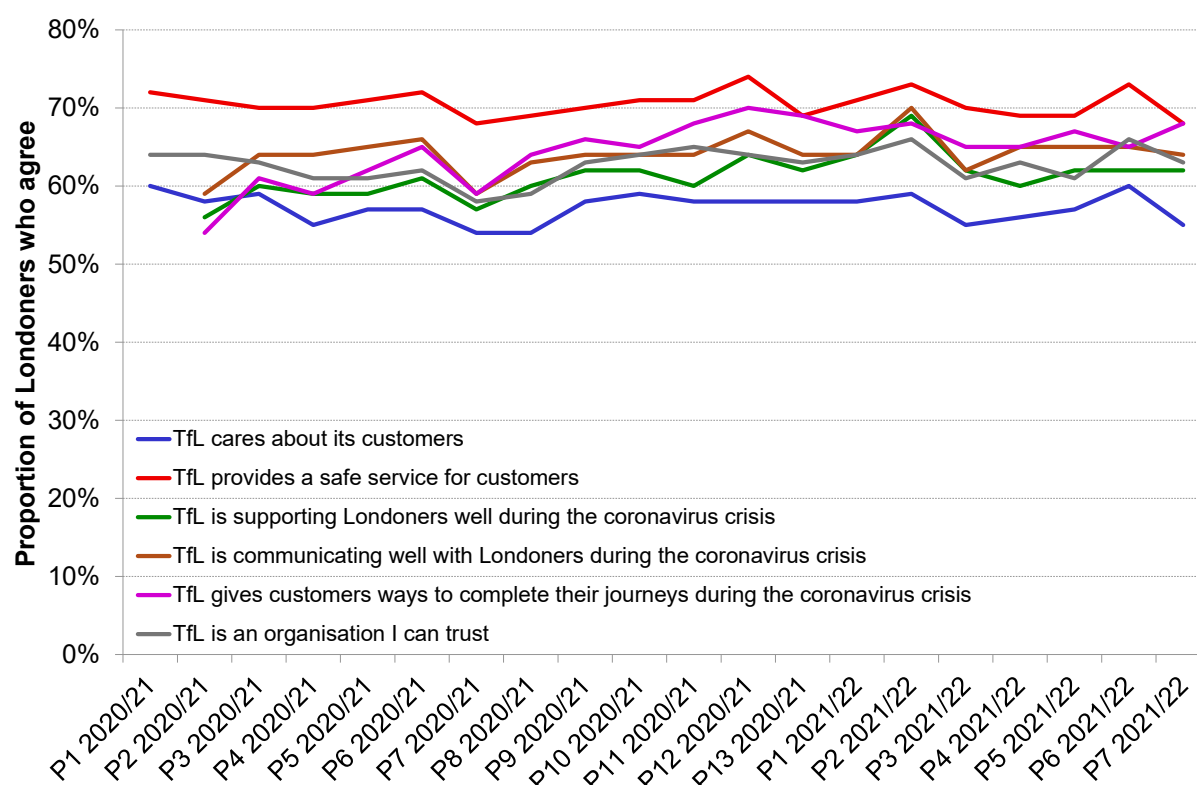
Crime and antisocial behaviour on public transport

Public transport in London continues to offer a low-crime environment and a safe way to travel. These low levels of crime have been driven by a range of initiatives undertaken by TfL in partnership with the police forces in London. In recent years there has been an upturn in reported crime levels, which has partly reflected better enforcement, and in particular, successive campaigns to encourage people to report crime. Although absolute reported crimes fell across all networks in 2020/21, the crime rate increased due to the dramatic fall in public transport passenger volumes because of the pandemic.

Customer evaluation of TfL services

We have adapted well during the pandemic to meet rapidly changing needs and expectations. The relatively consistent customer evaluation scores shown by figure 13 are encouraging, given the extreme challenges brought by the pandemic. The stability of the score for 'TfL cares about its customers', broadly consistent with pre-pandemic values, and the consistently high scores for 'TfL providing a safe service' during the pandemic, are particularly noteworthy.

Figure 13 Customer evaluation scores during the pandemic, 2020/21-2021/22.



Source: TfL Customer Insight.

Supporting New Homes and Jobs

New London Plan

The transport network has a crucial role to play in supporting people to live and work in London. New public transport connections can make parts of London viable places to build new homes and create new jobs. Using the Healthy Streets Approach to plan new developments around walking and cycling for local trips, and public transport where walking and cycling takes too long or is impractical, enables people to live active and healthy lives and the city to function effectively as it recovers and grows.

The new London Plan aims to deliver far more new homes, with a target of 52,000 a year including 12,000 a year from small sites. Transport priorities, including mode shift, Vision Zero and the Healthy Streets Approach, are fully reflected in the London Plan policies. This means that new homes in well-connected locations should be car free, the area around development sites should be designed to prioritise walking and cycling and land for public transport should be protected. The London Plan also allows for financial contributions to be secured from developers to support the walking, cycling and public transport improvements needed to enable growth.

New transport infrastructure to support housing delivery

In September 2021, the Northern line extension opened, improving connectivity and opportunities for sustainable travel in the rapidly growing Vauxhall Nine Elms Battersea Opportunity Area. At the time of writing there are over 100,000 trips per week on the new extension.

The extension is key to regeneration of the local area and delivering much needed new homes. The original planning framework for the area indicated that the Northern line extension could support 16,000 new homes and the latest estimate is that now over 20,000 new homes (including 4,500 affordable) will be delivered. The target of 25,000 new jobs, unlocked by the project, also remains on track to be delivered.

During 2022, TfL is looking forward to opening the central section of the Elizabeth line. The new line will add 10 per cent to London's public transport capacity. Once open we will review the planned benefits of the scheme and compare this with the actual benefits the scheme has delivered.

TfL Growth Fund

TfL's Growth Fund is designed to unlock homes and regenerate areas of London where transport acts as a constraint. Over the past year, despite a pause on several projects due to the pandemic and funding uncertainty, progress has been made to deliver schemes funded by the programme which support Good Growth. These include:

- Tottenham Hale station upgrade (currently in construction and due to open late 2021) is supporting the delivery of 5,000 new homes and 4,000 new jobs in the Tottenham area.
- The new step-free Barking Riverside London Overground station will support the delivery of 10,800 new homes, schools, and community space. Construction of the station and 1.5km viaduct is nearing completion and the new line is due to open in 2022.

- Construction work on the new southern entrance at Ilford station for TfL Rail, which was completed successfully in January 2021. This will support the development of 2,000 new homes, accommodating the new demand and benefiting bus passengers alighting at stops along Ilford Hill.

Housing on TfL land

Prior to the pandemic, TfL had a target to start on site for 10,000 homes across the Capital by March 2021, including 50 per cent affordable housing on average across its sites brought to the market since May 2016. This was always a challenging target and the pandemic and multiple lengthy lockdowns has had a significant impact on our ability to build more homes, as it has for housebuilders across the country.

Construction work has already either started or completed on more than 1,500 homes and we have planning approval for a further 6,500 homes across 21 sites. We have schemes submitted for planning approval, pending decisions, that should be capable of delivering 1,300 more new homes, and up to a further 4,000 homes are due to be submitted for planning approval.

Recent approvals at planning committee have included:

- 139 homes (40 per cent affordable) at Montford Place (Lambeth) including 29,000 sqft of 'makers space' for small local businesses.
- 454 homes (40 per cent affordable) at Wembley Park (Brent).
- 852 homes (50 per cent affordable) at Bollo Lane (Ealing).
- 479 homes (40 per cent affordable) at Nine Elms.

During the pandemic, we had to work with the GLA, London boroughs and our development partners to fully understand the effect of the outbreak on our housing programme and review the timescales for it accordingly. It was vital that we continued to ensure that there was and is transparent and robust public consultation on all of our proposals and planning applications, as the public must have a full opportunity to scrutinise plans and make representations, so that we can deliver homes and schemes that work for and benefit each local community. Critically, because of the wider impact of the pandemic on TfL's funding, all new expenditure on property development in TfL has been effectively paused since March 2020, with the only exceptions being expenditure that was contractually committed or required for health and safety reasons. For this reason, TfL is now working with both government and banks to allow TfL to access commercial funding to accelerate the development programme to allow 20,000 homes to be built on TfL land over the next ten years.

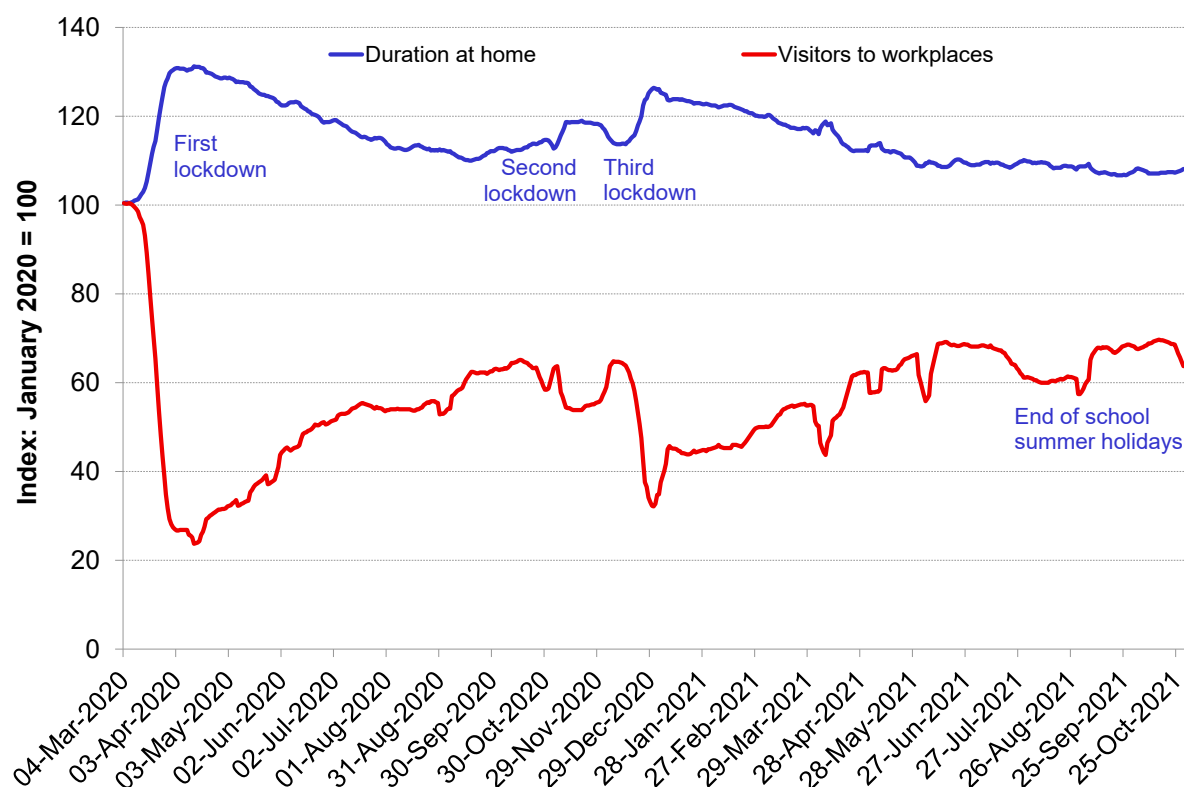
Perspectives on future travel demand in the context of the pandemic recovery in London

The pandemic has had an unprecedented impact on travel demand in London and on other aspects of the Mayor's transport aims. As the recovery progresses, we can start to monitor some of the potential longer-term impacts of the pandemic and try to understand the extent to which some of these changes may become embedded or persist at some level in the future.

Perspectives on travel behaviour and the 'return to office'

- The lifting of all pandemic restrictions in July 2021 was not the catalyst for the swift return to normal that many expected. Several factors contributed to this, including, at the time, a surge in case numbers, the imminent start of the school summer holidays and the continued requirement for contacts of people who had tested positive to self-isolate.
- Since July, and particularly since the end of the school summer holidays (from September onwards) there has been a steady and sustained return to work among office workers. However, Google activity data suggests that the number of people travelling to workplaces in London remains at around 70 per cent of the pre-pandemic baseline (figure 14).
- The evidence so far suggests that there is appetite among individuals and businesses for flexible working to continue in the long term and many businesses have already begun changing their work practices. Results from the London Travel Demand Survey indicate that 84 per cent of employees who are able to work from home would like to split their working time between home and their usual workplace and 82 per cent of those employees think that their employer will encourage a flexible or hybrid working arrangement in the future.

Figure 14 Change in duration of home working and number of visitors to workplaces in London, 7-day rolling average, Mar 2020-Oct 2021 compared to pre-pandemic baseline.



Source: Google COVID-19 Community Mobility Reports.

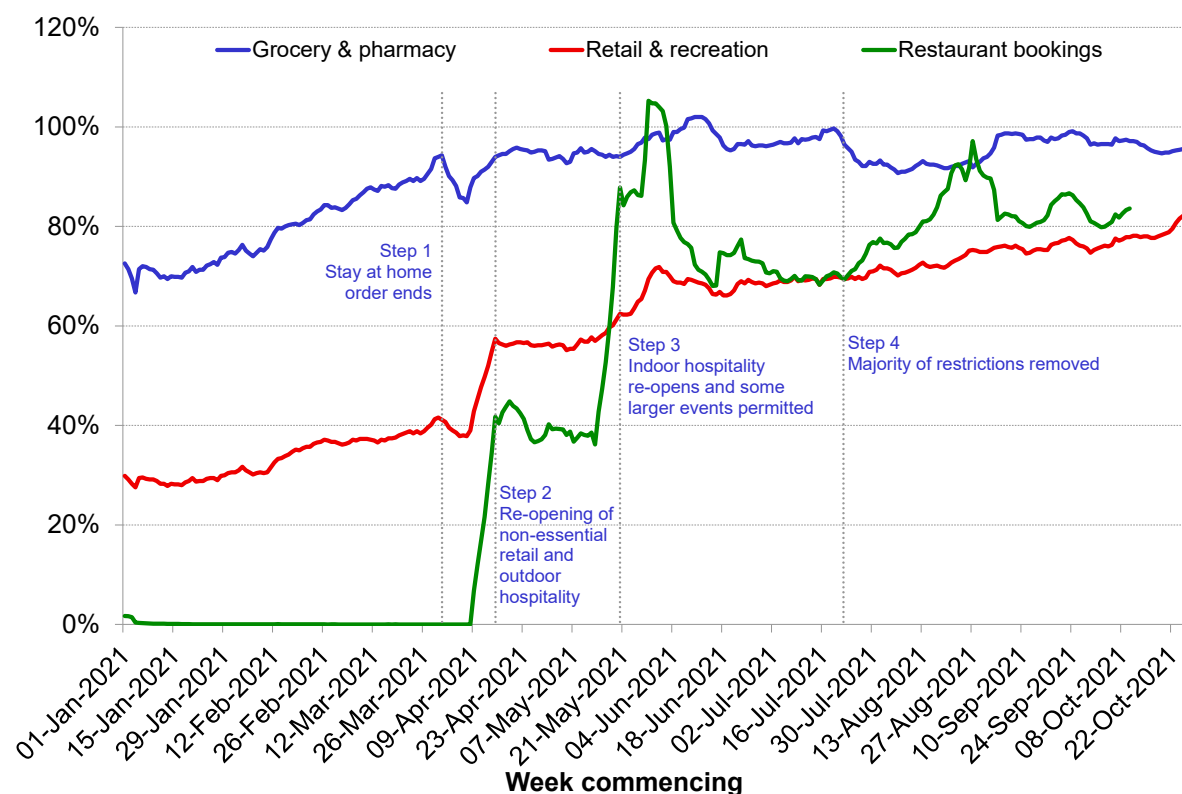
Perspectives on travel behaviour for shopping and leisure

Travel for shopping and leisure purposes recovered strongly through the re-opening of retail and hospitality, although it remains below pre-pandemic levels (figure 15).

Several factors are impacting on the recovery of discretionary travel: changing work patterns, increased online shopping and a significant fall in tourism.

- There has been a strong recovery of public transport demand on weekends, compared to weekdays, indicating a return to leisure and shopping activity. Weekends also have the greatest recovery in seated diners in London restaurants, although this remains below the UK average.
- The proportion of shopping undertaken online continues to be higher than before the pandemic and has begun to level off around 7 percentage points above pre-pandemic levels. However, LTDS shows that Londoners expect to return to in-person shopping once coronavirus risk is reduced, although at lower levels than before the pandemic.
- Spatially, a return to shopping and leisure activity in central London is lagging, likely due to changing work patterns leading to fewer employees in central London during the week, and the virtual absence of international tourism.

Figure 15 Recovery of retail and leisure activity compared to pre-pandemic baseline, 7-day rolling average, Jan-Oct 2021.



Source: OpenTable, Google Mobility Reports and GLA Coronavirus Mobility Report.
Note: Restaurant bookings baseline is 2019, Google Mobility baseline is 3 Jan to 7 Feb 2020.

Perspectives on personal safety

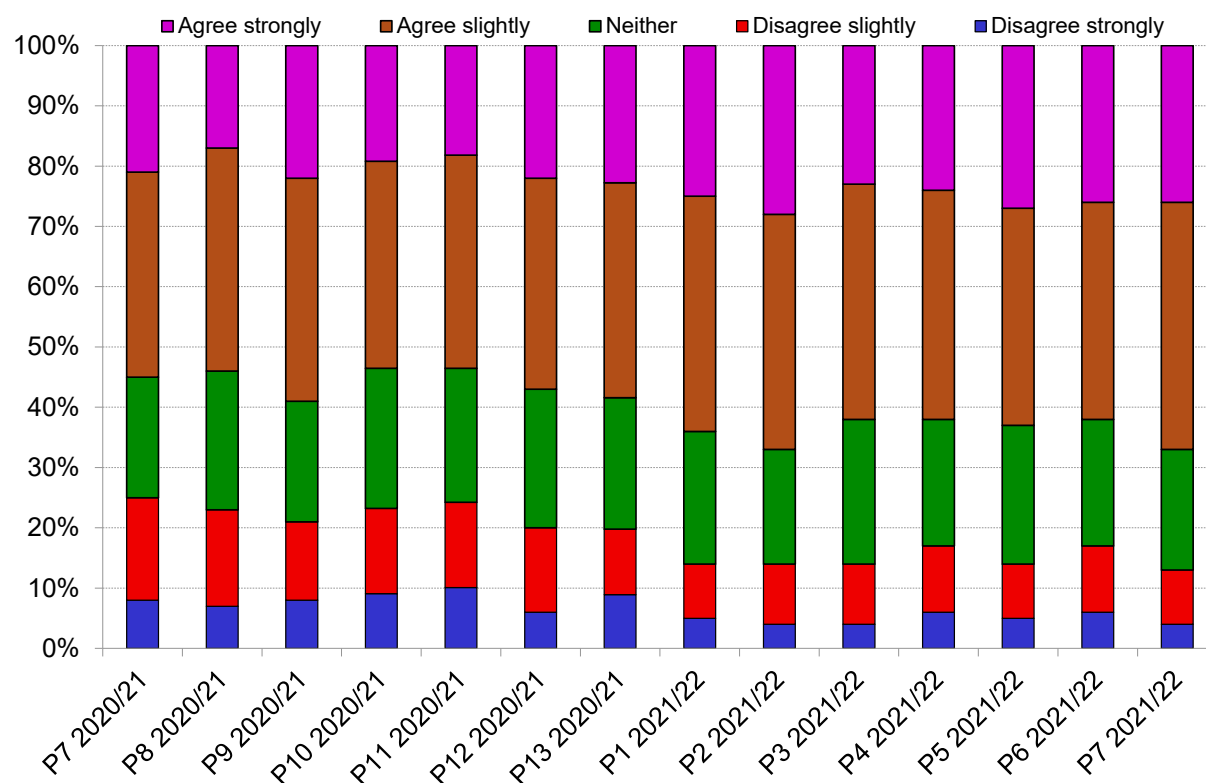
As we recover from the pandemic, it is crucial that public transport continues to offer a safe, reliable and sustainable means of travel.

- The percentage of Londoners who agree with the statement 'I feel confident to travel around London' gradually increased in 2021 and reached 67 per cent in the latest period up to mid-October 2021 (figure 16).

Overview

- The perceived importance of pandemic safety measures, such as increased cleaning, ventilation, face coverings, ability to keep a distance from other passengers and visible staff has been decreasing slowly among our customers as the recovery progresses. Ventilation continues to be the most important factor in Londoners' decision to use public transport.
- The latest evidence suggests that most Londoners feel that TfL is welcoming them back to the network and fewer Londoners were uncertain about when they will return to the network.

Figure 16 Agreement with the statement 'I feel confident to travel around London', Customer Pulse, P7 2020/21–P7 2021/22.



Source: TfL Customer Insight, Strategy & Experience.
Note: Sample size is 1,000 respondents per financial period.

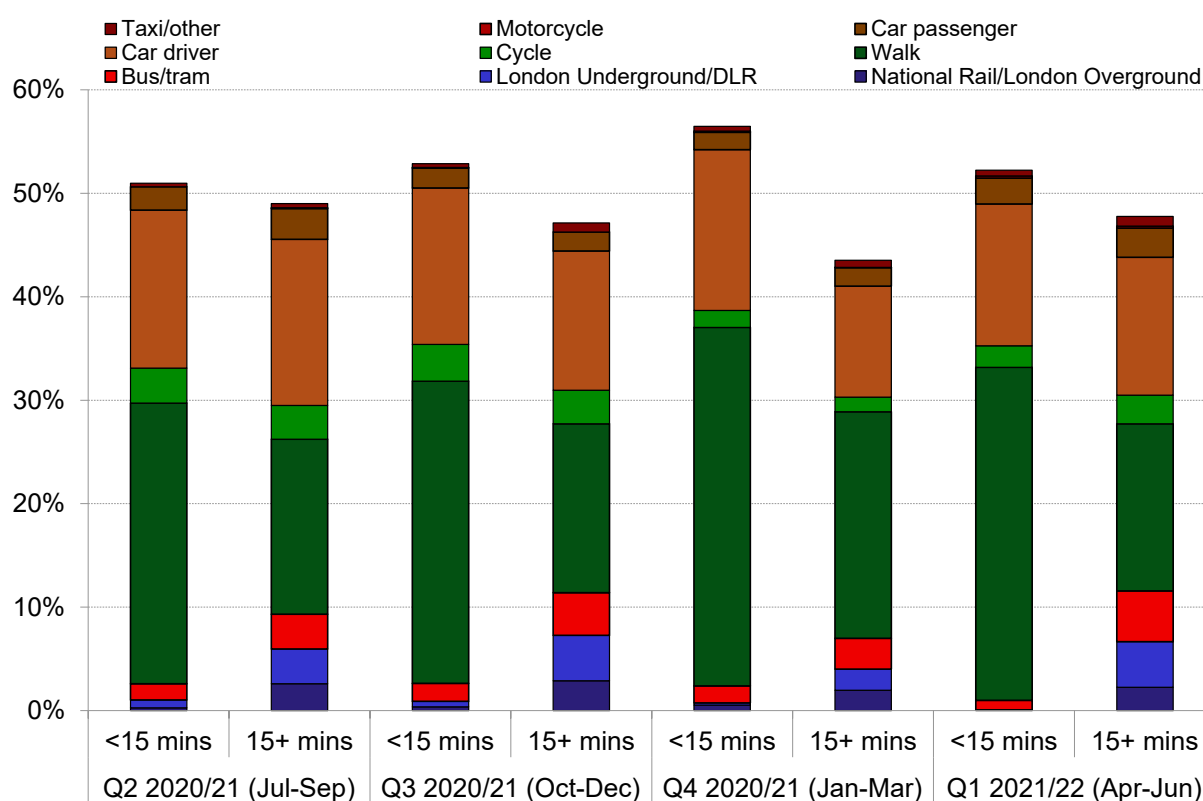
Perspectives on London as a '15-minute city'

During the pandemic Londoners' travel patterns became more localised as a result of formal restrictions and informal adaptations. An increase in working from home also reduced the need to travel and meant that many Londoners were spending more time in their local area for discretionary activities as well as for employment. Given this, there has been an increasing focus on localism, notably the concept of the 15-minute city. Comparing pre-pandemic LTDS data with data collected during the pandemic:

- Prior to the pandemic, 47 per cent of all trips made by Londoners were undertaken in 15 minutes or less. Although 55 per cent of these trips were made by active modes, some 39 per cent were made by car – reflecting the greater distance that can be covered in that time.

- Trips during 2020/21 were more localised than before the pandemic, although not dramatically so. In Q2 (July to September 2020), when restrictions were limited, just over half of trips (51 per cent) made by Londoners were 15 minutes or less. This increased through the pandemic as the tier system and a second lockdown was introduced in Q3, and a third lockdown through Q4 (figure 17), and fell slightly in Q1 2021/22, as restrictions eased. Walking comprised the highest proportion of trips made both within 15 minutes, and longer than 15 minutes.
- Travel during the pandemic, particularly during periods of lockdown, was more localised as restrictions on travel, and closure of shops and hospitality businesses limited travel demand.
- It remains to be seen whether, as we recover from the pandemic, these trends will persist. In terms of the Mayor's transport goals, there are both positive implications (for example, more active travel), as well as potentially negative ones (for example, the health of the central London economy).

Figure 17 Proportion of daily trips made by Londoners by duration and mode, LTDS, Q2 2020/21-Q1 2021/22.



Source: TfL City Planning.

Note: Total number of trips varies in each quarter.

Update on our scenario-based planning for London

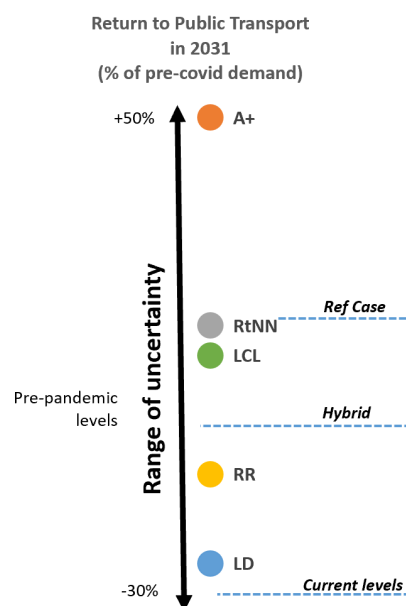
Previous Travel in London reports introduced the concept of scenario-based planning for future projects and policies, reflecting (what was at the time) a sense of growing uncertainty about the future. The pandemic threw this into sharper relief, and there remains uncertainty about London's recovery with implications about when London will see a return to pre-pandemic levels of demand, and indeed overtake them. It is vital that we have a mechanism for articulating and understanding this uncertainty that enables us to continue to plan for London's future.

Our five scenarios describe a range of plausible futures for London post pandemic. They range from a relatively optimistic ‘Agglomeration Plus’, which describes a vigorous rebound, through more ‘central’ scenarios including ‘Return to Nearly Normal’, describing a return to previous trajectories with a lingering pandemic impact, ‘Low Carbon Localism’, where the emphasis is on reducing climate impact, and ‘Remote Revolution’, where the rapid take-up of new technologies impacts travel, to the relatively more pessimistic ‘London Declines’, where a combination of the pandemic and external forces constrain growth. They conceptually ‘bound the envelope of uncertainty’ in relation to future trends in the key drivers of travel demand, such as London’s population. To underpin the planning of major projects and schemes it is necessary to consider how these scenarios should be reflected in our assessment and forecasts of future travel demand.

We have recently undertaken a review of the ‘relative likelihood’ of each of the five scenarios materialising, in terms of evidence that is emerging about the actual pace, nature and direction of London’s pandemic recovery. It is important to note that this scenario planning work does not take into account the cuts to services that would be required if TfL does not get the government funding support it requires to address the ongoing impact on its fares revenue. This review concluded that the emerging evidence about the recovery tended towards the three more central scenarios, with the more extreme scenarios (Agglomeration Plus and London Declines) looking less likely at this point than they did at the height of the pandemic.

As a result of this work, we have generated a revised Hybrid travel demand forecast, which should be used alongside our established Reference Case demand forecasts (based on pre-pandemic planning assumptions). It is not the case that either forecast should be considered ‘right’; the reality is we need to appreciate the full range of uncertainty, which continues to be reflected through the five scenarios (figure 18).

Figure 18 Relative position of current demand, Reference Case and Hybrid Forecast within the ‘envelope of uncertainty’ defined by our scenarios.



Source: TfL City Planning.

Note: A+: Agglomeration Plus // RtNN: Return to Nearly Normal // LCL: Low Carbon Localism // RR: Remote Revolution // LD: London Declines.

In both the Hybrid Forecast and the Reference Case, demand for travel increases well beyond levels currently seen so far in the recovery but the pace and point at which they hit pre-pandemic levels differs, as do elements of detail such as the spatial distribution of travel across London.

It should be stressed that in terms of the full range of uncertainty expressed by the scenarios there is potential for demand to exceed even that in the Reference Case. Principal features of the Hybrid Forecast, and implications for our investment programme, are summarised below.

- There is lower growth in travel demand in the Hybrid Forecast compared to the Reference Case, using 2031 as a future benchmark. This is driven by a lower growth in London's population (-5 per cent, relative to the Reference Case assumption at 2031), amplified by lower trip making, particularly for office-based commuting. This means that, overall, there are 14 per cent fewer trips in the Hybrid Forecast at 2031 compared to the Reference Case.
- Because the growth in trips is lower across all modes in the Hybrid Forecast compared to the Reference Case, the impact on overall active, efficient and sustainable mode share in 2031 is modest. However, without further investment beyond current commitments, it would take up to a decade to recover the lost ground towards the Mayor's aim of an 80 per cent active, efficient and sustainable mode share by 2041.
- Uncertainty in growth by mode increases with time into the future. Modes most closely aligned with pre-pandemic commuting patterns, in particular rail and cycling, see the greatest range of potential demand outcomes.

This potential change in trip patterns means that TfL will need to consider the focus of its future investments. For example, the risk of a 'car-led' recovery would seem to be highest for trips between inner and outer London where the longer journey lengths make these trips less suitable for mode shift to active modes, and bus investment is likely to play a key part in mitigating this risk.

We will continue to monitor trends that influence travel demand and keep our forecasts under regular review. However, it is important to note that the pandemic has highlighted how important it is to be aware of uncertainty when planning for the future. This context is likely to continue especially as we consider major issues such as the changing global climate.

Improving our statistics for the post-pandemic period

Improvements to monitoring technologies and, in particular, new policy questions and priorities arising from the pandemic mean that it is opportune to review how we assess, track and summarise, at the top level, progress towards the Mayor's Transport Strategy aims. It is also appropriate to revisit some of our key statistics in the post-pandemic/improved technology context, to ensure that they are fit for purpose to inform future policy challenges.

A new framework for tracking progress towards Mayoral transport strategy aims

Previous Travel in London reports presented a consolidated view of progress towards Mayoral transport aims using a summary qualitative categorisation. The pandemic has revealed a particular limitation, in that many of the otherwise positive trends in London have been set back, hopefully temporarily but in many cases materially, by force majeure. This has created a need to ‘take stock’ of where we are with each of the aims, perhaps in terms of a new post-pandemic ‘baseline’, to guide priorities for post-pandemic policy. We have therefore identified a need for a more informative presentation that places contemporary developments in the context of the longer-term trend, and sets out a clear trajectory of what progress is required to achieve the Mayor’s vision, the trajectory for which can be revised in future according to actual progress, as detailed in these reports.

Table 1 General framework for tracking progress against Mayoral transport strategy aims.

Outcome	Proposed measure	MTS 2041 aim
Mode share	Proportion of trips undertaken by active, efficient and sustainable modes	80 per cent of trips
Active	Proportion of Londoners doing 20 minutes of active travel per day	70 per cent of Londoners
Safe	Number of people killed or seriously injured on London’s roads	Zero
	Number of people killed on or by a bus	Zero by 2030
Efficient	Number of car trips in central, inner and outer London	3 million fewer daily trips overall
Green	All CO ₂ emissions from London’s transport network	72 per cent reduction from 2015 ¹
	Average roadside concentration of NO ₂ at key locations	In development
	Average roadside concentration of PM ₁₀ and PM _{2.5} at key locations	In development
Connected	Proportion of Londoners living within 400 metres of a bus route (or specifically those served by high frequency routes)	Not in the MTS, but assumes it is maintained at very high level
Accessible	Additional journey time by step-free routes	50 per cent reduction from 2015
Quality	Proportion of kilometres travelled by rail in crowded conditions with density above 2/3/4 people per square metre (threshold to be confirmed)	10-20 per cent reduction from 2015
	Average bus speed (within safety and speed limits)	Increase by 5-15 per cent from 2015
Sustainable growth / unlocking	Proportion of new homes that do not have access to a parking space ²	Not available

Source: TfL City Planning.

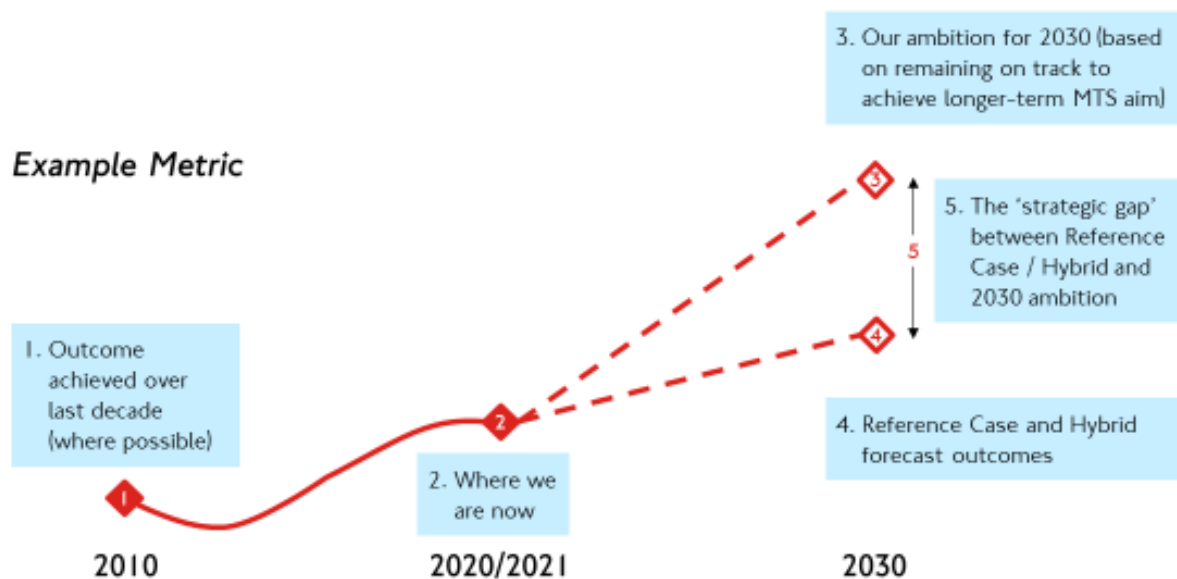
1: This target is likely to be revised soon and replaced by a more ambitious one.

2: Other alternative measures for this outcome are still being explored, including some based on connectivity for new developments.

Each of the Mayor's key aims are shown in table 1 and one or more quantified indicators are given for each of the aims, and information relating to each indicator will be published in Travel in London reports.

Each indicator will be assessed according to a common framework, the general form of which is shown by figure 19. Here, current quantified status is shown as (conceptually) a mid-point on a timeline that extends back several years, and forwards to an interim 2030 planning horizon, aligned to the Mayor's aims for 2041.

Figure 19 Illustration of assessment of progress and improvement required to achieve the Mayoral vision for each indicator.



Source: TfL City Planning.

This framework will be used to summarise overall progress towards the Mayor's transport aims in future Travel in London reports. It will also underpin our own business planning, helping identify and prioritise needs, ensure best value for investment, and to provide a consolidated evidence base for policy discussion.

1. Introduction and contents

1.1 TfL's Travel in London reports

Travel in London is TfL's annual publication that summarises trends and developments relating to travel and transport in London. Its principal function is to describe how travel is changing and to provide an interpretative overview of progress towards implementing the Mayor's Transport Strategy. It also provides an evidence and analysis base for the general use of stakeholders and policymakers.

This fourteenth report covers trends and developments up to 2021, including historical series and, more recently, reflecting the disruption brought about by the global coronavirus pandemic from early 2020, the impacts of which are still working through. As well as describing overall travel trends, such as patterns of travel demand and mode shares, the report is broadly structured around the Mayor's key aims for transport. A final section looks at how we are adapting our monitoring and statistics to better serve the needs of policymakers and those arising from new priorities that are emerging as travel in London recovers from the pandemic.

For further details about any of the items featured in this report, please contact: TILEnquiries@tfl.gov.uk.

1.2 Mayor's Transport Strategy

The Mayor's Transport Strategy, published in March 2018, outlines the Mayor's vision for transport in London. The overarching aim of the transport strategy is to reduce Londoners' dependency on cars and to increase the active, efficient and sustainable (walking, cycling and public transport) mode share of trips in London to an ambitious 80 per cent by 2041.

In addition to the overarching mode share aim, the transport strategy is focused on achieving nine outcomes grouped under three broad themes:

Healthy Streets and healthy people

- London's streets will be healthy and more Londoners will travel actively
- London's streets will be safe and secure
- London's streets will be used more efficiently and have less traffic on them
- London's streets will be clean and green

A good public transport experience

- The public transport network will meet the needs of a growing London
- Public transport will be safe, affordable and accessible to all
- Journeys by public transport will be pleasant, fast and reliable

1. Introduction and contents

New homes and jobs

- Active, efficient and sustainable travel will be the best option in new developments
- Transport investment will unlock the delivery of new homes and jobs

Related Strategies such as the Mayor's London Environment Strategy and the London Plan also have significant implications for transport in the Capital.

1.3 About Transport for London (TfL)

Part of the Greater London Authority family led by Mayor of London Sadiq Khan, we are the integrated transport authority responsible for delivering the Mayor's aims for transport. We have a key role in shaping what life is like in London, helping to realise the Mayor's vision for a 'City for All Londoners' and helping to create a safer, fairer, greener, healthier and more prosperous city. The Mayor's Transport Strategy sets a target for 80 per cent of all journeys to be made by walking, cycling or using public transport by 2041. To make this a reality, we prioritise sustainability, health and the quality of people's experience in everything we do.

We run most of London's public transport services, including London Underground, London Buses, the DLR, London Overground, TfL Rail, London Trams, London River Services, London Dial-a-Ride, Victoria Coach Station, Santander Cycles and the Emirates Air Line. The quality and accessibility of these services is fundamental to Londoners' quality of life. By improving and expanding public transport and making more stations step-free, we can make people's lives easier and increase the appeal of sustainable travel over private car use.

We manage the city's red route strategic roads and, through collaboration with the London boroughs, we are helping to shape the character of all London's streets. These are the places where Londoners travel, work, shop and socialise. Making them places for people to walk, cycle and spend time will reduce car dependency, improve air quality, revitalise town centres, boost businesses and connect communities. As part of this, the Ultra Low Emission Zone scheme and more environmentally friendly bus fleets are helping to tackle London's toxic air.

During the coronavirus pandemic we have taken a huge range of measures to ensure the safety of the public. This includes enhanced cleaning using hospital-grade cleaning substances that kill viruses and bacteria on contact, alongside regular cleaning of touch points, such as poles and doors, and introducing more than 1,000 hand sanitiser points across the public transport network.

Working with London's boroughs we have also introduced Streetspace for London, a temporary infrastructure programme providing wider pavements and cycle lanes so people can walk and cycle safely and maintain social distancing.

At the same time, we are constructing many of London's most significant infrastructure projects, using transport to unlock much needed economic growth. We are working with partners on major projects like the extension of the Northern line to Battersea, Barking Riverside and the Bank station upgrade.

We are in the final phases of completing the Elizabeth line which, when open, will add 10 per cent to central London's rail capacity. Supporting the delivery of high-density, mixed-use developments that are planned around active and sustainable travel will ensure that London's growth is Good Growth. We also use our own land to provide thousands of new affordable homes and our own supply chain creates tens of thousands of jobs and apprenticeships across the country.

We are committed to being an employer that is fully representative of the community we serve, where everyone can realise their potential. Our aim is to be a fully inclusive employer, valuing and celebrating the diversity of our workforce to improve services for all Londoners.

We are constantly working to improve the city for everyone. This means using data and technology to make services intuitive and easy to use and doing all we can to make streets and transport services accessible to all. We reinvest every penny of our income to continually improve transport networks for the people who use them every day. None of this would be possible without the support of boroughs, communities and other partners who we work with to improve our services.

By working together, we can create a better city as London recovers from the pandemic and moves forward.

Section 1: Overall travel demand and mode shares

2. The pandemic context

2.1 Introduction

This chapter sets the scene for the remainder of this report by summarising the broad impacts of the coronavirus pandemic on travel in London. Previous Travel in London reports have tracked progress against the Mayor's transport aims, in the wider context of social and economic change in London, noting generally good incremental progress towards these aims. [Travel in London report 13](#), written during the crisis in late 2020, set out the emerging impacts of the pandemic on travel demand as they stood at the time. At late 2021, we are beginning to see what will hopefully come to be regarded as the start of London's definitive transport recovery, albeit that it is still relatively 'early days' and that the threat of further setbacks remains. Over the coming months and years, the lingering impacts of the crisis on travel and activity more generally will become part of the 'business as usual' landscape, and this transition provides the broad framework for the content of this report.

The material in this chapter therefore brings the broad pandemic context up to date, ahead of more detailed consideration of many aspects of travel under separate headings in the following chapters. We start by summarising the key long-term trends in overall travel in London, describing prevailing trends before the pandemic. We then look at the pandemic impacts on the principal drivers of travel demand in London – London's population and economy. We then consider the impacts of the pandemic on top-level trends for each of the principal modes of transport. It should be borne in mind that these overall trends conceal more important detail at the more granular scale, considered further later in this report, that provide important insights to help us drive London's recovery, and that they reflect a 'point in time' in a rapidly evolving picture. Finally, we provide a brief summation of 'where we are' in late autumn 2021, highlighting key issues for consideration in the next period.

2.2 Key pre-pandemic travel trends in London

Previous Travel in London reports have tracked developments with key indicators of overall travel demand and mode shares in London, relating these to the Mayor's overall aim of an 80 per cent mode share for active, efficient and sustainable modes (walk, cycle and public transport) for all travel in London by 2041. Over the decade 2010-2019, prior to the pandemic, the following were the main distinguishing trends:

- Overall demand for travel grew steadily during the first part of the decade, the number of trips on an average day in London growing by 1.6 million between 2010 and 2015 (an average of 1.3 per cent per year).
- In the latter part of the decade, however, this growth slowed, with an average annual growth of just 0.2 per cent per year between 2015 and 2019.
- This slowing rate of growth in travel demand was thought to reflect changes to London's hitherto rapid rate of population growth, and economic factors stemming from the 2008 financial crisis of the previous decade, particularly affecting housing affordability for younger people.

2. The pandemic context

- It was also thought, before the pandemic, that wider changes to society – such as increasing remote working and trends such as e-commerce – were beginning to reduce the need for certain types of trip, representing activities for which the ‘need to travel’ was becoming less strong.
- This slowing in the rate of growth for travel affected the different modes in different ways. A particular feature was a marked slowing in the growth of public transport demand – particularly affecting buses. Car travel however remained relatively resilient, and there was strong growth in active modes, particularly cycling.
- In combination, however, this meant that the hitherto steady positive change in active, efficient and sustainable mode share, which grew by an average of 0.6 percentage points per year between 2010 and 2015, slowed to an average increase of just 0.1 percentage points per year between 2015 and 2019, to end the decade with 63.2 per cent of trips in London being made by active, efficient and sustainable modes.

2.3 The pandemic and activity in London

The underlying trends of (a) slowing population growth (b) economic and affordability factors, particularly affecting certain groups, and (c) potentially wider societal trends reflecting technological and lifestyle change were therefore already acting on travel demand trends in London before the onset of the pandemic. In general, and beyond the dramatic impact of short-term lockdowns, the impact of the pandemic has been to further embed all three of these factors – certainly in the short term and probably over the longer term.

The emerging short-term impacts of the pandemic on travel in London in 2020 were described in [Travel in London report 13](#), alongside consolidated 2019 pre-pandemic results in their historical context. It was clear that travel demand during 2020 was highly variable, reflecting the sudden onset of the pandemic in March and successive stages of lockdown thereafter, which severely restricted activity and travel.

The extensive disruption continued over winter 2020/21 but began to ease from spring as the vaccination programme gathered pace, and most formal pandemic restrictions were lifted during summer 2021. However, during autumn 2021, case numbers remained relatively high, and it is not yet clear that mass vaccination can provide enough reassurance to all in society that the threat posed by the virus has diminished to the point where they can confidently resume full daily activity.

More widely, office-based employers have been relatively slow to mandate a ‘return to the office’, many trialling various forms of hybrid working. This has been reflected in a so-far incomplete return to pre-pandemic levels of travel demand on many modes, and particularly on rail in central London, and continues to affect travel behaviour at the individual level, as people continue to optimise their activities to the new opportunities and challenges this presents. Other activities potentially not requiring travel that became more embedded during the pandemic, such as e-commerce, also seem set to persist at a greater level than before the pandemic, meaning that contemporary forecasts of future travel demand (see section 12.4 of this report) see a lag of several years before the impacts of the pandemic have fully

worked through, and the longer-term trends of population and economic growth, with increasing travel, reassert themselves.

2.4 The impact of the pandemic on London's population

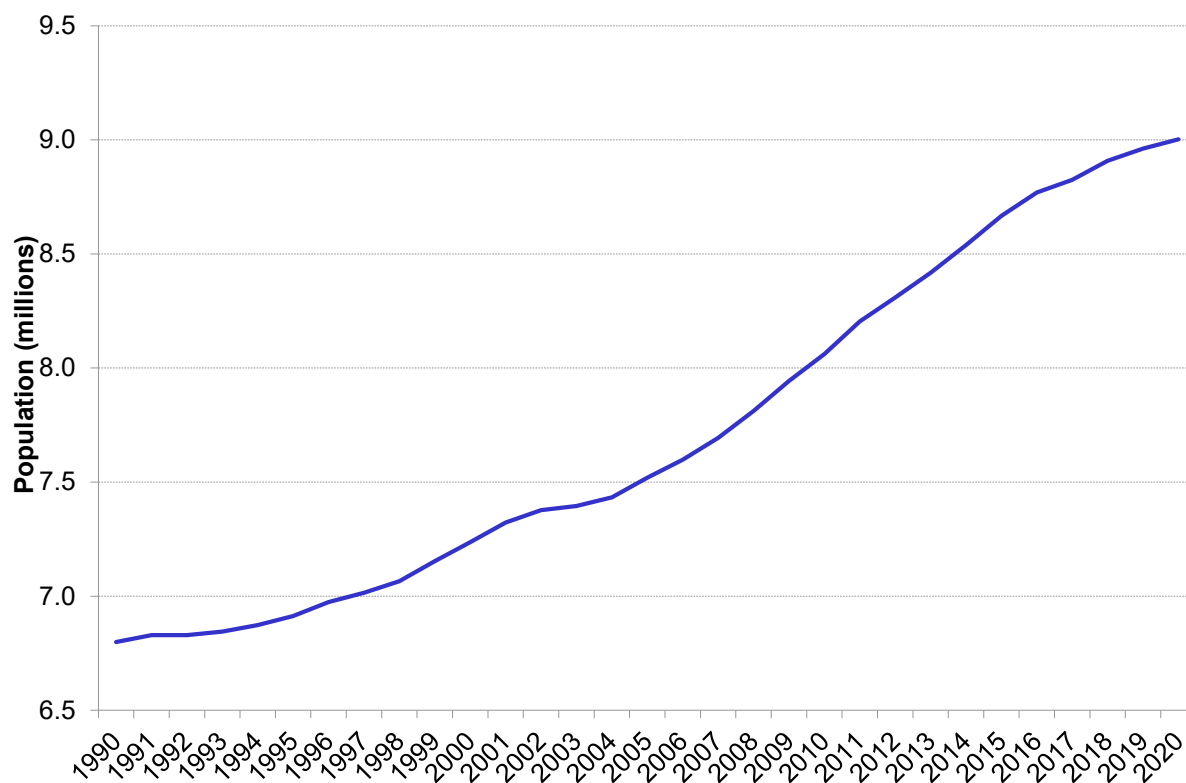
Introduction

The number of people living in London is the principal determinant of the amount of travel, albeit that daily longer-distance commuters and non-resident visitors, such as tourists, also contribute to the overall travel demand in London. This section reviews the longer-term trend in London's population, before looking more specifically at the (limited) available evidence relating to more recent factors – the pandemic and Britain's departure from the European Union.

Long-term trend in London's resident population

Following a period of decline between 1939 and the late 1980s, London's resident population grew rapidly, by over 1.3 million people, in the two decades up to 2011. More recently, the rate of growth has slowed, with particularly slow growth since 2016, increasing by an estimated 0.5 per cent in 2020, the slowest rate of growth since 2003 (figure 2.1). Between 2005 and 2016, annual growth was typically between 1 and 2 per cent, but from 2017 has been below one per cent each year. Since 2016, London's population has grown by just 2.7 per cent in total. This slowing growth trend is thought to be the main factor underlying the general slowing of the rate of travel demand growth that has been seen in London over the past five years.

Figure 2.1 Long-term trend in London's resident population, 1990-2020.



Source: Office for National Statistics.

2. The pandemic context

London's population change over the last decade: components of population change

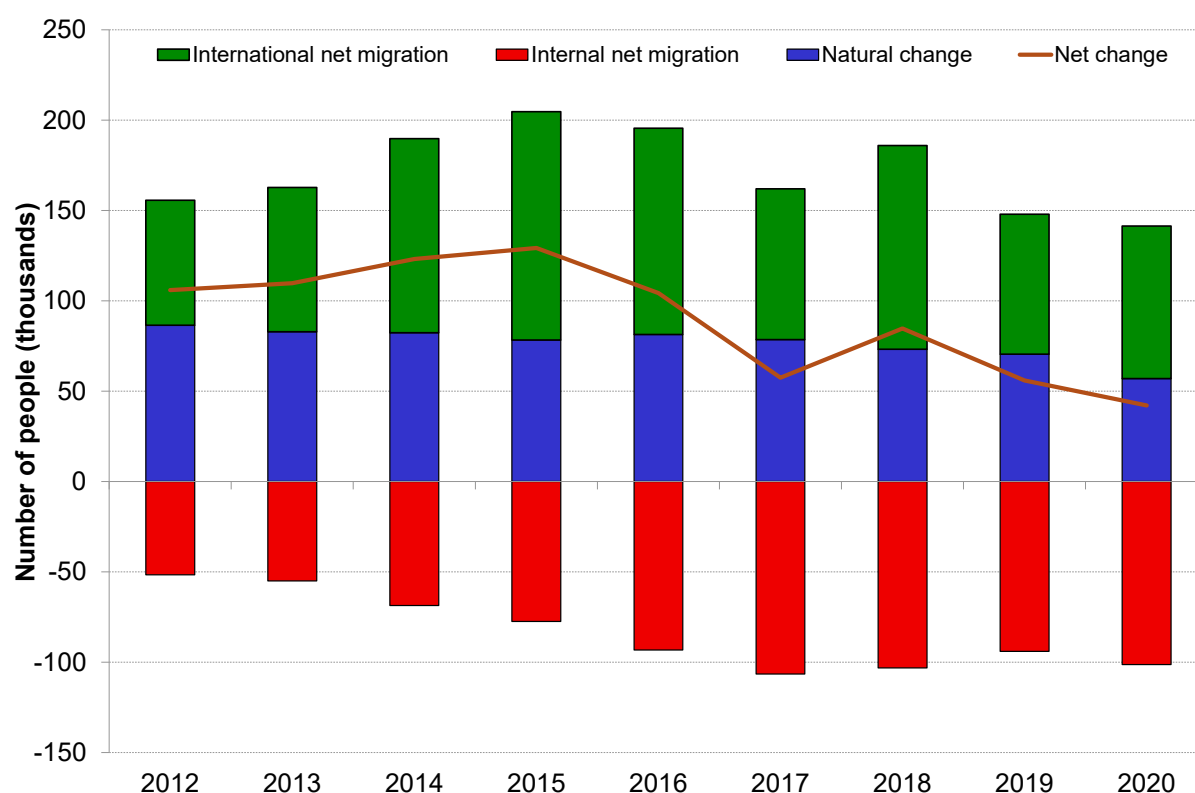
Table 2.1 and figure 2.2 show the trend in the components affecting London's population over the last few years. Between 2015 and 2017, the factors driving the slower growth in London's population were the increases in domestic and international emigration, coupled with a decline in international immigration, with net migration in 2017 falling below zero.

Table 2.1 Components of change in London's resident population, 2014-2020.

Year	2014	2015	2016	2017	2018	2019	2020
Population (millions)	8.54	8.67	8.77	8.83	8.91	8.96	9.00
Natural change (thousands)	82.4	78.4	81.3	78.5	73.1	70.5	56.9
Internal net migration (thousands)	-68.6	-77.5	-93.3	-106.6	-103.2	-94.0	-101.4
International net migration (thousands)	107.4	126.4	114.2	83.5	112.8	77.4	84.5

Source: Office for National Statistics.

Figure 2.2 Natural and migratory change in London population, 2012-2020.



Source: Office for National Statistics.

In 2020 international net migration increased, although it remained below the levels seen in recent years. As migration from the EU has decreased since the referendum in 2016, non-EU migration has increased year on year. It should be noted that data for 2020 reflects the mid-year estimate, so will not reflect the full effects of the pandemic.

The level of net domestic migration continues to be high, with net domestic migration (negative) at -101,400 in 2020. As total migration levels almost balance each other out (the net flow of domestic and international migration was -17,000 in 2020), the main driver of population growth in London in 2020 was therefore natural change, with 57,000 more births than deaths. This natural change was lower than usual, due to the increased excess deaths in the first wave of the coronavirus pandemic, where London was particularly adversely affected.

The pandemic and London's population

The pandemic is thought to have had short-term and potential long-term impacts on London's population; the consensus being of a net loss to the number of people living and travelling in London during the second half of 2020 and into 2021. Accurate estimates of the magnitude of these changes are however not available. This partly reflects the stage in the life cycle of the decennial Census. The last Census was conducted in 2011 and, although a new Census was conducted in spring 2021, results from this will not be available until 2022 and, given the extraordinary circumstances prevailing in March 2021 when the Census was conducted, it is not clear that it will give a wholly reliable view of London's resident population for future planning.

Immediately before the pandemic, data suggested a potential increase in people moving to the UK. The latest ONS data for migration to the UK is available up to the end of March 2020 (just before the pandemic took hold). This shows net migration was around 313,000 over the financial year 2019/20, up from 221,000 in the previous year. This was the highest level of net migration to the UK since March 2016 and was driven by increases in non-EU nationals arriving to study in the UK, principally from India and China.

However, since then, there has been a large decline in visa approvals, with just under one million visas granted in 2020, 69 per cent fewer than the previous year. There were an estimated 39.5 million international passenger arrivals in 2020 (including returning UK residents), a 73 per cent decrease compared with the previous year. This was driven by significantly fewer international passenger journeys in the last three quarters of 2020, when there was an 87 per cent decrease compared to the same period in the previous year. Between April 2020 and July 2021, arrivals to the UK by air were, on average, around 90 per cent lower than levels seen prior to the pandemic. Passenger numbers have increased over autumn 2021, but the latest data for October 2021 still shows a 45 per cent decrease in arrivals to the UK compared to October 2019. It is likely that the pandemic has also led to some temporary relocation of residents away from the city, for example those able to work from second homes for prolonged periods.

Coronavirus-related excess deaths that have occurred in London during the pandemic could also be expected to have an impact on the population estimates for 2021. This will be coupled with a decrease in international migration to London given the difficulties associated with travelling internationally throughout the pandemic. Given opportunities to reduce risk by relocating, and the increase in working from home, it could also be expected that domestic migration may have increased as well. There will also have been an impact on student flows both into London from overseas, and out of London to the rest of the country. The net student outflow from London to the rest of the UK is typically around 55,000, while around 110,000

2. The pandemic context

overseas students typically study in London each year. All these factors ultimately mean fewer people travelling in London over the medium term.

During the second half of 2021, the UK started to experience a shortage of HGV drivers, leading to some businesses reporting difficulties importing and exporting, leading to some consumers reporting not being able to find certain items in shops. Prior to the pandemic the average age of an HGV driver was 55 years and had been increasing and there were signs of a potential driver shortage looming. An estimated 268,000 people were employed as HGV drivers between July 2020 and June 2021. This is 39,000 fewer than the year ending June 2019 and 53,000 fewer than the peak for HGV driver employment, during the year ending June 2017. The reasons behind this are complex, and partly linked to EU nationals leaving the industry (although 88 per cent of HGV drivers are UK nationals), as well as the coronavirus pandemic leading to the suspension of driving tests for 7 months in 2020 and 2021. Hospitality businesses are more than twice as likely as other industries to be experiencing challenges in filling vacancies compared with normal expectations for this time of year, with a lack of EU applicants contributing to recruitment challenges. The hospitality and transport and storage industries were among those with a record number of vacancies in June to August, with job openings up by 59.1 per cent and 32.5 per cent respectively compared with Q1 2020 (Jan-Mar).

Longer-term prospects

The longer-term impacts on London's population are uncertain, with downside risks to growth currently outweighing the upside. The initial shocks of the coronavirus pandemic could lead to structural changes, such as a longer-term increase in remote working and studying, although potential long-term outcomes are very uncertain. There may also be a weaker link between workplace jobs and resident population, and possible shifts in international relations. Many of these factors could contribute towards lower travel demand in future than would otherwise have been expected and established relationships, for example, between the number of people and jobs in London and travel demand, could become more tenuous.

The GLA released their latest trend-based and housing-led projections based on London's 2020 mid-year population estimate of 9.002 million in late-2021. In this the central range spans a projected population of between 9.965 and 10.254 million by 2041. This is slightly lower than the 2019-based range of 10.078 to 10.339 million.

London's population: visitors to London

While London residents make most of the trips in London, it is estimated that approximately 25 per cent of all trips in London on an average day were made by non-residents.

In 2019 there were an estimated 281 million domestic day visitors to London, a large decline of 12 per cent on the previous year, and the third successive year that the number of domestic visits had declined (all before the pandemic). In 2020, no data was available for this measure due to the pandemic. However, available data on rail travel in London suggests a large decline in domestic visitors to London, with passenger journeys on London & South East operators declining by 76 per cent in 2020/21. Data on pedestrian flows in central London (an area that would typically

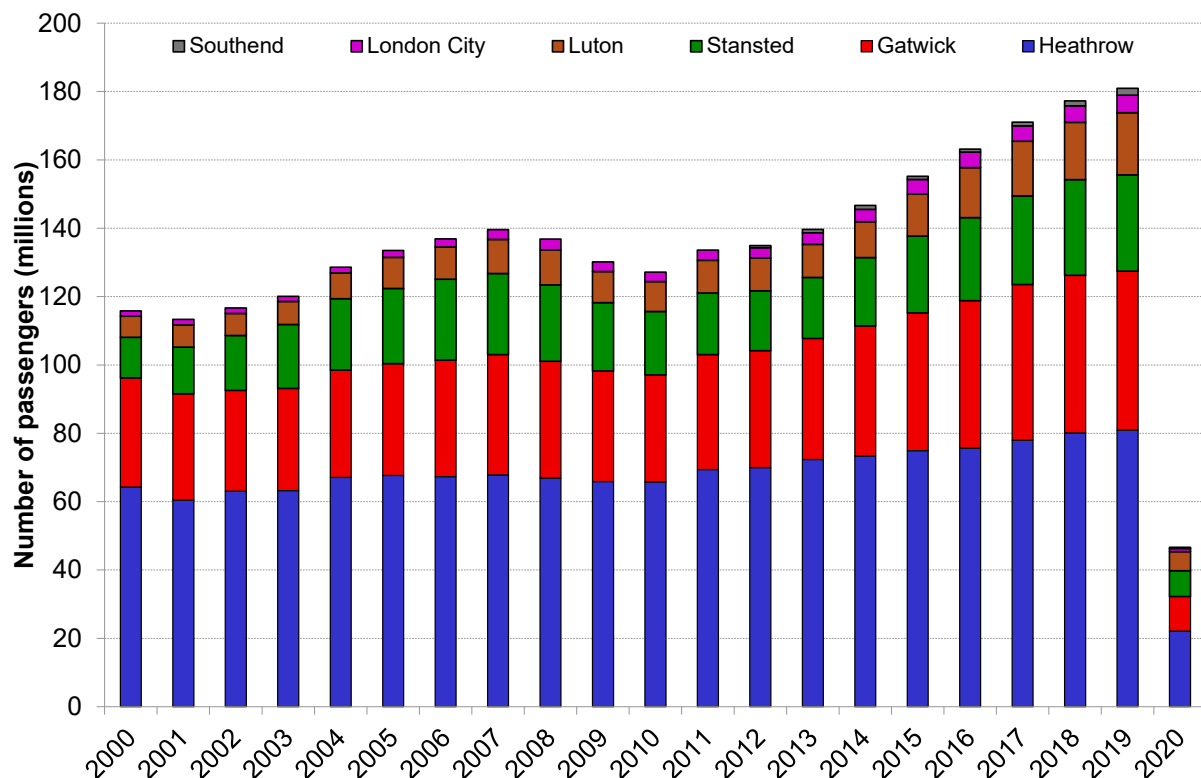
have a large proportion of non-London visitors) show large decreases, with the latest data for Q3 2021 showing just 47 per cent of pre-pandemic pedestrian activity.

The number of international visitors to London had increased each year since 2009, with an aggregate increase of 44 per cent over the period. As with domestic visitors, the International Passenger Survey (IPS) that tracks international visitors to the UK was suspended at the start of the pandemic, meaning that data for this measure is unavailable for 2020.

However, data is available on passengers at London's airports, as well as the number of passengers arriving in the UK as a whole, with both of these data sources suggesting very steep falls in the number of international visitors in 2020 and 2021.

Demand for air travel through London's airports had been increasing steadily since 2012, reflecting recovery from the recession in the latter part of the last decade. However, due to the pandemic, the number of passengers declined substantially in 2020, falling by 74 per cent to just 46.7 million (figure 2.3).

Figure 2.3 Terminal passengers by London airport, 2000-2020.



Source: Civil Aviation Authority.

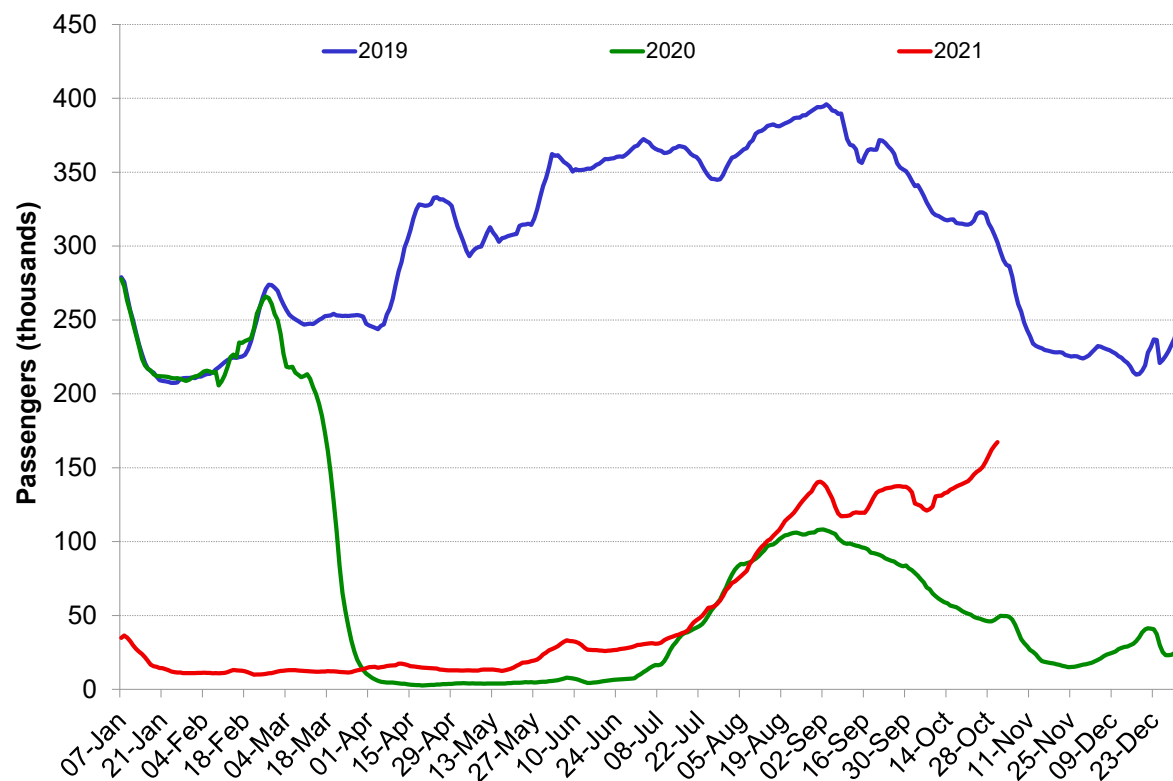
The number of passengers arriving in the UK dropped substantially in March 2020, with total arrivals down by 99 per cent by April 2020 (figure 2.4). Following the relaxation of restrictions, the number of arrivals increased gradually over the summer, but remained 74 per cent below 2019 even in August 2020. As restrictions were reintroduced in autumn 2020, continuing into 2021, passenger arrivals declined again, and were at just 10 per cent of normal up until May 2021.

As restrictions on international travel have been gradually relaxed, passenger arrivals have increased, although by July 2021 still showed a 77 per cent reduction against 2019. The latest relaxation in testing and quarantine rules boosted

2. The pandemic context

passenger numbers further, although they remained 54 per cent below pre-pandemic levels in October 2021. It is clear that international passenger numbers are recovering more slowly than almost any other metric. As London is a city that has always attracted large volumes of international tourists, this is likely to have a continuing impact on travel demand, particularly in central London and to/from the major airports.

Figure 2.4 Daily air passengers arriving in the UK, 7-day rolling average, 2019-2021.



Source: Home Office.

2.5 The impact of the pandemic on UK and London's economy

Key economic trends affecting travel in London up to 2019

Prior to the pandemic, London's growing economy, alongside population growth, was a key driver of growing travel demand. In the years leading up to 2019, Gross Domestic Product (GDP) was rising slowly, at a rate of around 1.5 per cent per year, while jobs were increasing, and London had a historically low unemployment rate. This meant that commuting trips remained relatively stable, although overall trip rates were falling, likely due to a range of wider economic conditions. For example, the 2008 financial crisis, and subsequent impacts on wage stagnation and increased living costs, led to a prolonged squeeze on disposable incomes over the last decade. This particularly affected younger age groups as an increasing proportion continued to rent, with rents rising faster than wage growth.

This continued impact on personal disposable incomes in the years prior to the pandemic influenced consumer spending, and particularly shopping and leisure activities. This was a contributing factor to the decline in trip rates seen prior to the

pandemic, with an acceleration in the reduction of per-person shopping and leisure travel in particular. Some of this could also be attributed to the growth in online shopping, which was growing significantly before the pandemic. For example, in 2007 internet sales as a proportion of retail sales stood at 3.4 per cent and by 2019 this had risen to 19.2 per cent.

Pandemic impacts on London's economy

Against this longer-term backdrop, the pandemic led to the greatest impact on the UK and London's economy since records began. The shuttering of non-essential shops and hospitality business and limits on travel led to a rise in unemployment, a fall in workforce jobs and large changes to the retail environment. However, following the easing of lockdown restrictions throughout 2021, the economy and employment began to recover. This section outlines the scale of the pandemic impact on various economic indicators, including GDP, employment and retail footfall, and their subsequent recovery so far. It also looks at residual impacts and considers what this means for the UK and London's short-term prospects.

Gross domestic product (GDP) and public debt

The initial lockdown in March 2020 led to the greatest quarterly fall in GDP since records began (-19 per cent). However, this recovered significantly in Q3 2020 (Jul-Sep), and overall GDP in 2020 was 10 per cent lower than the previous year. There was a slight fall during the first quarter of 2021, due to the reintroduction of lockdown measures, although this has since recovered as lockdown restrictions eased. The most recent monthly estimates (figure 2.5) show that in September 2021 GDP grew by 0.6 per cent compared to August, although it remained 0.6 per cent below February 2020 levels.

The recovery since March 2021 has largely been driven by the service sector, following the gradual reopening of the retail and hospitality industries through early spring and summer and the removal of lockdown restrictions. In September 2021, the sector with the greatest recovery was the service sector, at 0.3 per cent below pre-pandemic levels. This compares to manufacturing which was 2.5 per cent below pre-pandemic levels, and production and construction which were 1.4 per cent and 1 per cent below pre-pandemic levels respectively. The Office for Budget Responsibility (OBR) expects a recovery to 2019 levels by the start of 2022, signifying that long-term scarring impacts on the economy as a result of the pandemic, as previously forecast, are unlikely.

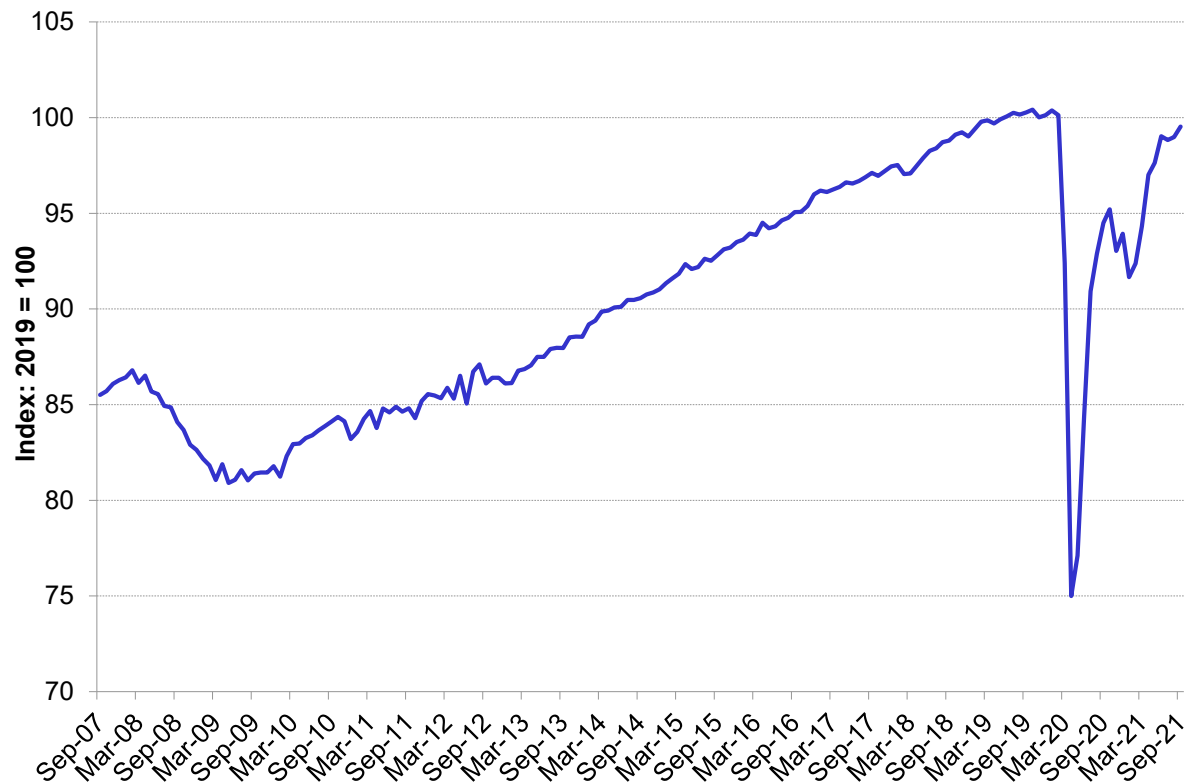
Government debt as a proportion of GDP stood around 83 per cent between 2017 and Q1 2020, however this rose to 96.2 per cent in Q2 2020 and by Q2 2021 stood at 103.2 per cent. This is around 12 percentage points above the EU average although it is lower than the G7 average and lower than all G7 member countries apart from Germany. However, government debt has grown by a higher amount since the start of the pandemic (19.4 percentage points) than most other EU countries.

Figures from the [ONS](#) show that government borrowing was £323.9bn in the financial year ending March 2021, equivalent to 15.1 per cent of GDP. The deficit was the greatest during Q2 2020 following the introduction of lockdown measures and government support schemes such as the Coronavirus Job Retention Scheme,

2. The pandemic context

although it has since reduced quarter on quarter, standing at 12 per cent of GDP in Q1 2021. Comparatively this is higher than all EU member states, 6.4 percentage points higher than the EU average and 0.7 percentage points higher than the G7 average.

Figure 2.5 UK's Gross Domestic Product (GDP), monthly index, 2007–2021.



Source: Office for National Statistics.

The Budget, announced on 27 October, provided a positive outlook for the recovery of the UK economy following the pandemic; however, a number of issues which will likely affect GDP remain. Firstly, the impact of inflation on public finances and the cost of living. Secondly, the OBR stated that the continued impact of Brexit will have a larger impact than the pandemic on the UK economy in the long term, with supply chain issues being further exacerbated by changes to migration and trading. It therefore remains to be seen how these factors will continue to impact economic growth in the years to come.

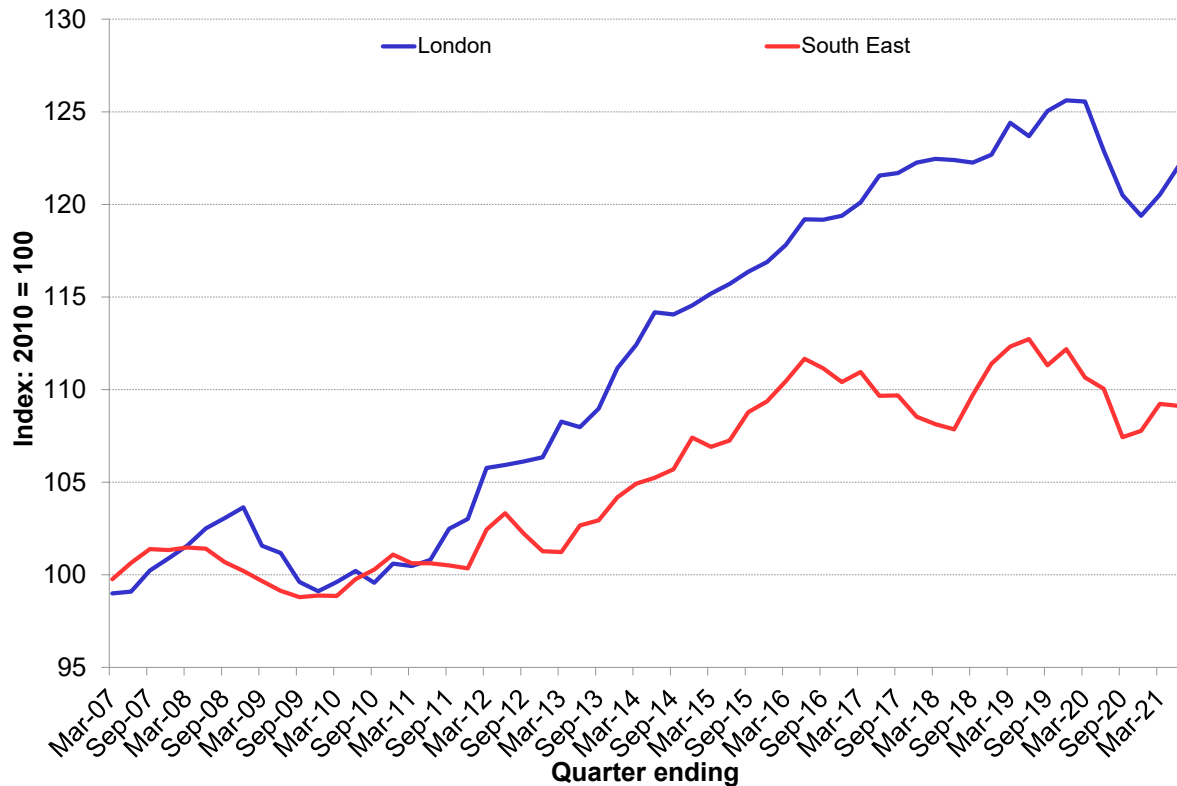
Employment trends

Between March 2016 and March 2020, the number of workforce jobs in London steadily increased (figure 2.6). This compares to jobs in the South East which, in March 2020, remained at a similar level to 2016 following a dip in 2017. In the quarter following the first lockdown in March 2020, jobs fell by 2.1 per cent in London and 0.6 per cent in the wider South East. Data for the most recent quarter, April to June 2021, show that jobs are 1.3 per cent below 2019 levels for the equivalent quarter in 2019 in London, and 3.2 per cent below 2019 levels in the South East.

Figure 2.6 also shows the scarring effects that a fall in workforce jobs can have, as demonstrated by the 2008/09 recession. This resulted in a 4.5 per cent fall in workforce jobs in London, taking around three years to recover to pre-recession

levels. The government measures introduced to minimise employment impacts, such as the Coronavirus Job Retention Scheme, have minimised job losses, although the full impact following the removal of the scheme in late 2021 remains to be seen.

Figure 2.6 Total workforce jobs in London and the South East, 2007-2021.



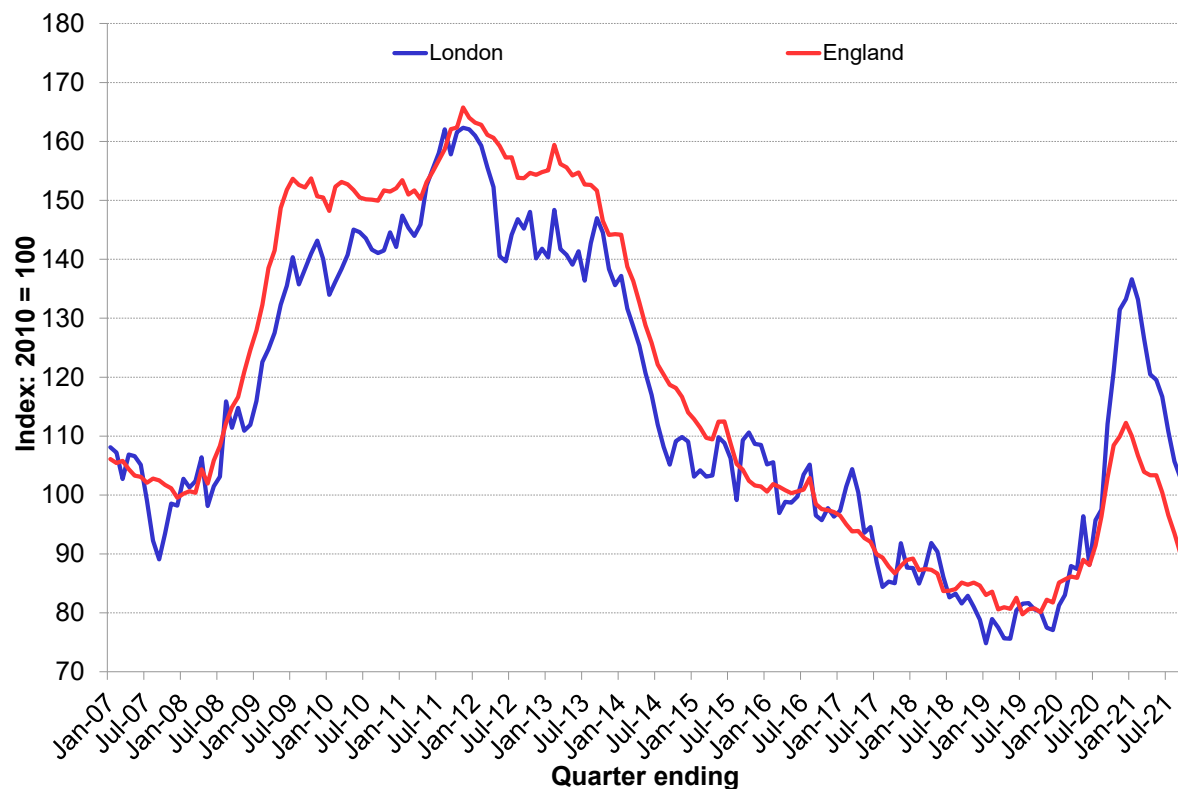
Source: Office for National Statistics.

Total unemployment in the UK and London had been steadily declining since 2013, although since 2019 this trend had begun to flatten (figure 2.7). As a result of the pandemic, the unemployment rate in London rose to 7.4 per cent, and 5.4 per cent nationally. Total unemployment peaked in late 2020 with the number of unemployed people in London rising to levels last seen in 2014.

Since quarter ending January 2021 the unemployment rate has begun to decline, and at the end of September London's unemployment rate stood at 5.6 per cent, slightly higher than the UK unemployment rate of 4.3 per cent. Although this recovery is positive, and is better than forecast at the start of the year, the most recent estimates from the ONS show that in the quarter ending September 2021, around 284,000 Londoners were unemployed, a rise of 28 per cent compared to the equivalent quarter in 2019, with the figure 11 per cent nationally.

2. The pandemic context

Figure 2.7 Total unemployment, quarterly rolling average, Labour Force Survey, 2007-2021.

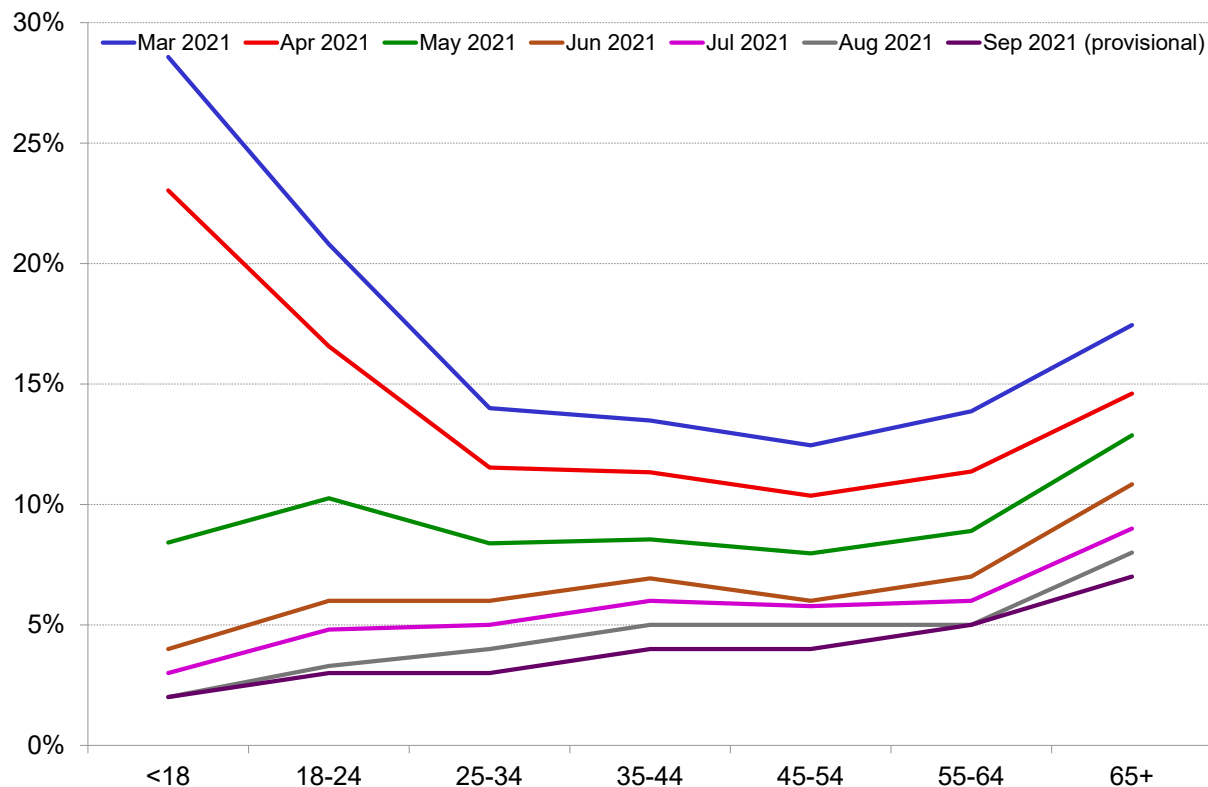


Source: Office for National Statistics.

The most recent data from HMRC shows that at the end of September 2021, London continued to have the highest furlough rates in the country, and a higher rate of furlough for all employment sectors compared to national figures. This can only be partially explained by the sectoral composition of London's economy, as looking at furlough rates by sector and region London still has higher furlough rates. For example, nationally 7 per cent of employees in the construction sector were furloughed at the end of September 2021, compared to 15 per cent in London. In the accommodation and food services sector 9 per cent of employees were furloughed in England, compared to 14 per cent in London.

In addition to variation by sector, the employment impacts of the pandemic have not been felt equally across demographic groups. The Resolution Foundation's [Living Standards Audit 2021](#) uses survey data from June 2021 to show how labour market composition has changed through the pandemic. For example, at the beginning of the pandemic younger age groups were the hardest hit by the employment impacts – both through increasing unemployment and enrolment on the furlough scheme. However, the re-opening of the hospitality industry through spring and summer 2021 led to a change in the age profile of those on furlough (figure 2.8). Data from HMRC shows that at the start of 2021, during the third lockdown, 31 per cent of under 18s in employment were furloughed, compared to 19 per cent of over 65s. By September this had fallen significantly for younger age groups, with 2 per cent of under 18s on furlough, compared to 7 per cent of over 65s.

Figure 2.8 Proportion of employees furloughed by age, Mar-Sep 2021.



Source: HMRC Coronavirus Job Retention Scheme statistics.

Provisional data for September 2021 showed the furlough rates by estimated annual pay. This showed that a disproportionate number of employments on furlough were in low-income bands. The annual income band with the highest take-up rate was £5,000-10,000, with 8 per cent of eligible employments on furlough. Furthermore, employees with an annual income of less than £20,000 comprised 65 per cent of furloughed employees in August, while they comprised only 47 per cent of eligible employments.

The Bank of England's [Monetary Policy Report](#) expects that some employment trends may persist. For example, younger age groups choosing to remain in study for longer and older groups taking early retirement, both contributing to higher levels of economic inactivity. While younger age groups were most affected by the initial employment impacts of the pandemic, it is now those in older age groups who are seeing prolonged impacts, particularly in returning to work following a period of unemployment. Employment trends have also shown that there has been a fall in female economic inactivity for 'looking after the family/home' reasons. This could be linked to an increase in working from home, allowing the flexibility to return to the workforce, or equally could be due to more people having to return to work due to the economic impact of the pandemic on personal finances.

Future employment prospects

The most recent data shows that at the end of September 2021 there remained 231,100 London employments on furlough, despite the introduction of employer contributions to partially cover the cost of furlough since July and the imminent end

2. The pandemic context

of the furlough scheme, although this is significantly down on the figure of 905,800 when it peaked in July 2020.

From August to September 2021 the number of furloughed employees in London declined by 13 per cent and this compares to a UK figure of 15 per cent. London continued to have a higher furlough take-up rate – 6 per cent in September – than any other region nationally, and the reduction in furloughed employments is slower month on month. The boroughs with the highest take-up rates tended to be in north and east London, with Barnet, Brent, Ealing, Hounslow, Newham and Redbridge all having 8 per cent of eligible employees on furlough in September. This has been driven by the high numbers of residents of these boroughs working in industries that serve central London's leisure economy, which has been particularly badly hit by the pandemic.

As a result of both the pandemic and Britain's departure from the European Union, job vacancies in the UK rose to the highest levels on record in the quarter ending October 2021. ONS data for this quarter shows that there were over 1.1 million vacancies, which is 44 per cent higher than the equivalent quarter in 2019. The greatest quarterly rises were in the transport and storage sector (40.4 per cent) and the construction sector (41.1 per cent), although rises above 20 per cent were seen across most sectors. However, the [Institute for Fiscal Studies](#) shows that Londoners, in particular, are struggling to find new work, with only 44 per cent of those who were made redundant finding work within six months, compared to 58 per cent nationally.

In the short to medium term the Bank of England projects that the national unemployment rate will continue to fall; to 4.7 per cent in Q3 2021, 4.4 per cent in Q3 2022 and 4.2 per cent in Q3 2023. It expects that the proportion of people not participating in the labour market will decrease as a result of widespread job vacancies. However, the impact of the end of the furlough scheme, which will affect London to the greatest extent, remains to be seen.

Pandemic impact on poverty and inequality

Prior to the pandemic there were concerns around increasingly squeezed incomes, particularly the significant impact on the lowest income groups. Trust for London's [Poverty Profile 2021](#) report shows that prior to the pandemic 27 per cent of Londoners were living in poverty – significantly more than in any other part of the UK. For some groups this was even higher – the poverty rate of Black minority ethnic Londoners was 39 per cent and for single parents it was 54 per cent. A key factor in this was rising housing costs – on average, households that were not in poverty in London spent 13 per cent of their net income on housing costs (compared to 9 per cent nationally). The situation is even worse for London households in poverty, who on average spent 56 per cent of their net income meeting housing costs.

The pandemic has exacerbated these inequalities and pushed more Londoners into poverty. Looking at unemployment-related benefit claim rates in London, this shows that the most deprived 20 per cent of neighbourhoods in London have seen a 7 percentage point increase in the proportion of working-age adults claiming unemployment benefit over the year to December 2020, compared to a 2.9 percentage point increase in the least deprived 20 per cent of neighbourhoods. Deprived neighbourhoods in London have also been harder hit than those nationally, with the increase in unemployment benefit claim rates in the most deprived 20 per cent of neighbourhoods in the rest of England rising 4.5 per cent over the same

period. Data also shows that there is a clear trend of younger workers being hit the hardest – with the proportion of 18–24 year olds in London claiming unemployment benefit increasing by 7.2 percentage points over the course of the pandemic, compared to a 3.6 percentage point rise among people aged 60–64.

In addition to a disproportionate rise in unemployment in younger and more deprived groups, younger and lower income Londoners were also more likely to be furloughed in 2020. As a result of this, lower income Londoners were more likely to dip into savings, while higher income groups tended to save money during the pandemic, as opportunities for discretionary spending shrunk, further exacerbating inequality. A squeeze on personal finances is likely to impact the recovery of travel demand, as those affected by the financial impacts of the pandemic make fewer discretionary trips due to affordability concerns.

In the short term this is likely to worsen, as detailed in a report by the Resolution Foundation entitled [The Big Squeeze](#). This shows that increases in the cost of living over the next six months, as well as a removal of the Universal Credit uplift are likely to further squeeze incomes. The impact is likely to be focused on low- to middle-income households – high inflation, in particular energy bills, will strain finances, and will be compounded by the £20 reduction in Universal Credit. This will ultimately lead to a fall in real earnings, which is likely to dampen the economic recovery as well as push some low-earning households into poverty.

Retail activity

The latest analysis from YouGov and the Centre for Economics and Business Research shows that in September consumer confidence fell, by 2.3 points to 110.5 per cent. Although any score above 100 means that more consumers are confident than not, confidence has been falling in recent months, following large increases in spring 2021. This could show that the boost following the easing of lockdown restrictions is wearing off. Furthermore, the significant fall in September 2021 is likely due to a number of consumer concerns – fuel shortages, the prospect of rising energy prices and the end of support schemes such as the Universal Credit uplift and furlough. A variety of measures underpin consumer confidence scores, such as household finances, job security and business activity, both over the past 30 days and looking ahead to the next 12 months. The fall in consumer confidence in September 2021 was largely driven by prospects for personal finances over the next 12 months, which fell 10.7 points, the second largest fall on record, after March 2020 when the pandemic emerged.

National retail footfall data from Springboard, reporting year-on-year percentage change, shows that in 2020 footfall fell to around 20 per cent of the pre-pandemic baseline at its lowest levels, in the weeks following the March 2020 lockdown announcement. This recovered through summer 2020, to around 75 per cent of pre-pandemic levels, then was subsequently impacted by the lockdowns in November and early 2021. Throughout the pandemic high street and shopping centre footfall has been impacted to a greater extent than at retail parks – likely due to the retail offer at these locations, for example larger stores where customers may feel more comfortable, and the location of essential shops such as supermarkets. Following the easing of lockdown measures in spring 2021, including the re-opening of non-essential shops, there were large increases in footfall, most notably at high street and shopping centre locations. Recovery of retail park footfall remains strong –

2. The pandemic context

around 96 per cent of pre-pandemic levels at the start of November 2021, while high street and shopping centre footfall was 83 per cent and 78 per cent of 2019 levels respectively.

Retail sales volumes recovered strongly through 2021, following a fall in January as a result of the third lockdown. The recovery was strong through spring, as non-essential shops re-opened in March. Since April, sales volumes have fallen slightly, although in October remained 5.8 per cent higher than pre-pandemic (February 2020) levels, and the amount spent was 8.9 per cent above February 2020 levels. Online shopping as a proportion of all retail sales also rose significantly during the pandemic (peaking at 37 per cent in the November 2020 and January 2021 lockdowns), although in October this had fallen to 26 per cent. The sector with the highest proportion of online sales by value is textile, clothing and footwear with 26 per cent, compared to 19 per cent in the equivalent month prior to the pandemic. The lowest is food retail, with 10 per cent of spend online in October 2021, although this remains significantly higher than the pre-pandemic figure of 5 per cent.

In recent months, supply chains have also been challenged. The ONS Business Insights and Conditions Survey showed that of businesses trading at the end of August 2021, 18 per cent of department stores reported not being able to get materials, goods or services needed from within the UK. It is likely that if this continues into the Christmas period this could in turn affect in-person retail sales and footfall, as people choose to buy online if there is limited availability in store.

Summary

Overall, the economic recovery from the pandemic so far has been better than previously forecast, and the Bank of England expects GDP to increase further through the latter half of the year, conditional on an assumption that significant, widespread restrictions on economic activity are not re-introduced. However, a number of factors are likely to impact the economic recovery, and ultimately, travel demand in London over the medium term:

- Since the start of 2021 unemployment has steadily declined, although the impact of the end of the furlough scheme in October has yet to work through to employment statistics.
- There are signs that the significant boost following the removal of lockdown restrictions through spring and summer may be levelling off, with some indicators such as footfall and retail spend flattening in recent months.
- Concerns around goods supply and shortages in the months leading up to Christmas as well as large numbers of vacancies in some employment sectors could also impact the service sector.
- The longer-term impacts of high government debt, inflationary pressures and interest rates, and international factors affecting the supply and availability of goods, are all likely to be significant factors into 2022.

2.6 The impact of the pandemic on travel demand in London

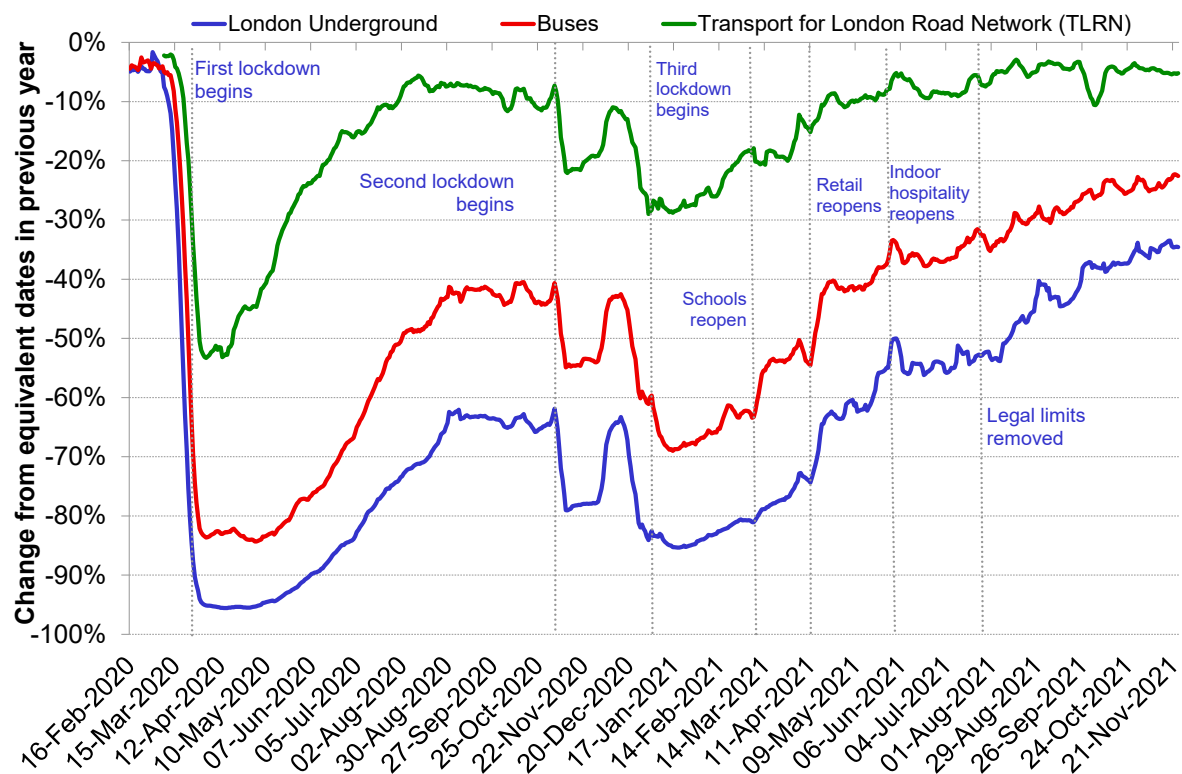
Introduction

The pandemic had a sudden and dramatic impact on travel demand as a direct consequence of the shock to economic and social activity imposed by the March 2020 lockdown and the associated social distancing requirements. The demand for travel not only fell to a fraction of its usual amount in a matter of days; it was transformed in many other ways too. The timing of journeys changed, and so in many cases did their destinations, creating a shift towards more local travel. Finally, people's attitudes to the different modes quickly changed, reflecting the challenges brought by the pandemic, and with that their travel choices and behaviours. This section summarises the scale of the pandemic impact on the main modes in London during 2020 and into 2021, with further details given in later chapters in this report.

Pandemic demand trends on the principal modes

Figure 2.9 shows the demand trend for London Underground, buses and traffic on the Transport for London Road Network (TLRN) since the start of 2020. The immediate pandemic impact from March 2020 is clearly visible. At the low point, London Underground demand was just four per cent of normal. Bus demand fell to 16 per cent of normal. Major road traffic, however, was relatively more resilient, falling to 47 per cent of normal. The partial recovery during late 2020, interrupted by the third lockdown, together with the progressive recovery during the latter half of 2021, are also clearly visible in the demand trends.

Figure 2.9 Demand on the main transport networks relative to the equivalent dates before the pandemic, 7-day moving average, 2020-2021.



Source: TfL Traffic and service performance data.

2. The pandemic context

More recently, successive easing of restrictions over recent months were reflected in increasing demand for all three modes, albeit at different rates and to different extents. While public transport demand is still significantly short of pre-pandemic levels (around 65 per cent on London Underground and around 75 per cent on buses, as weekly averages as of November 2021), the overall trajectory is decisively upwards and levels of demand on both the Underground and bus networks are now their highest since the beginning of the pandemic in March 2020. Road traffic has however been relatively more stable throughout, with current levels not far short of typical pre-pandemic demand.

Underlying these aggregate trends there is an interesting pattern of differential rates of recovery by time of day, day of week and across different parts of London. These differences can highlight the types of trips Londoners are returning to, and locations and trip purposes where a return to travel is lagging. These aspects are described in subsequent chapters of this report for each of the principal modes.

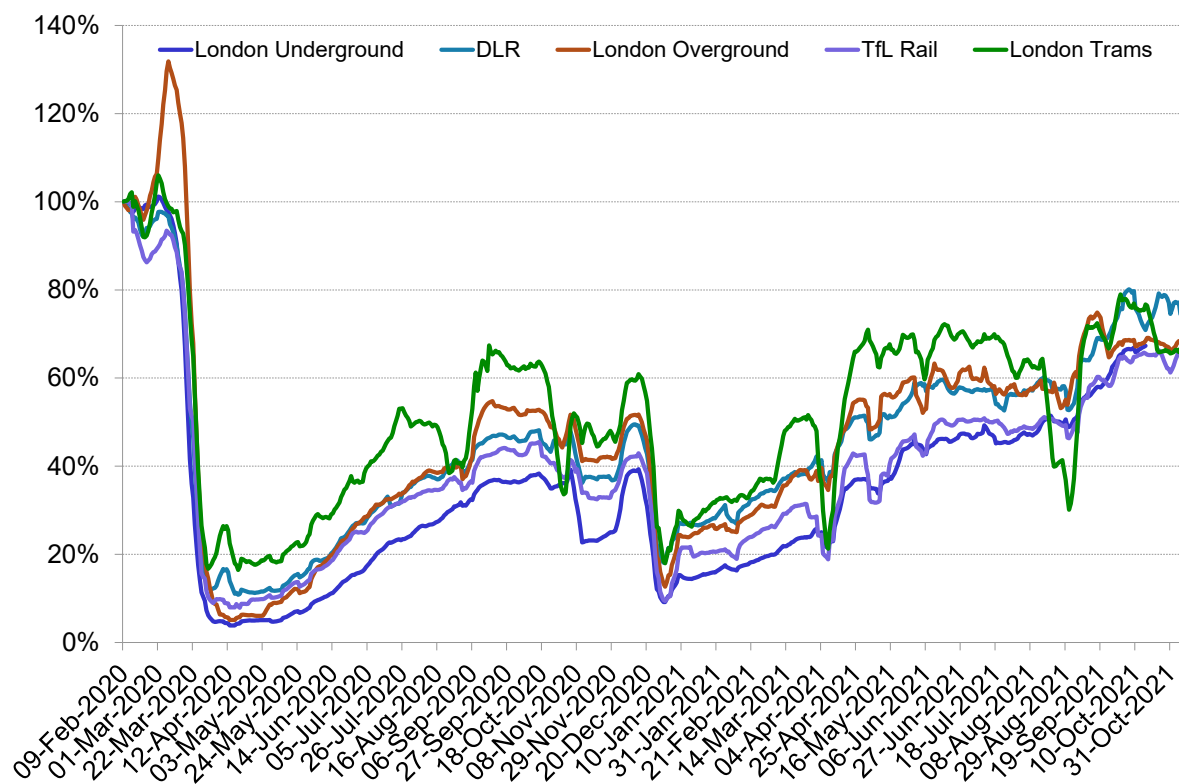
Other TfL rail modes: DLR, London Overground, TfL Rail and London Trams

Figure 2.10 shows the recovery trend on other TfL rail modes since the beginning of the pandemic (alongside the trend on London Underground for context).

The pandemic impact on non-Underground rail modes in London was more modest. In particular, London Trams has proven to be the most resilient of these modes, its recovery trajectory perhaps being closer to that of buses than that of the other rail modes. The recent recovery on DLR and London Overground has been similar, while TfL Rail, which initially recovered quite strongly and was noticeably ahead of London Underground in relative terms, seems to have followed the London Underground trend over more recent weeks.

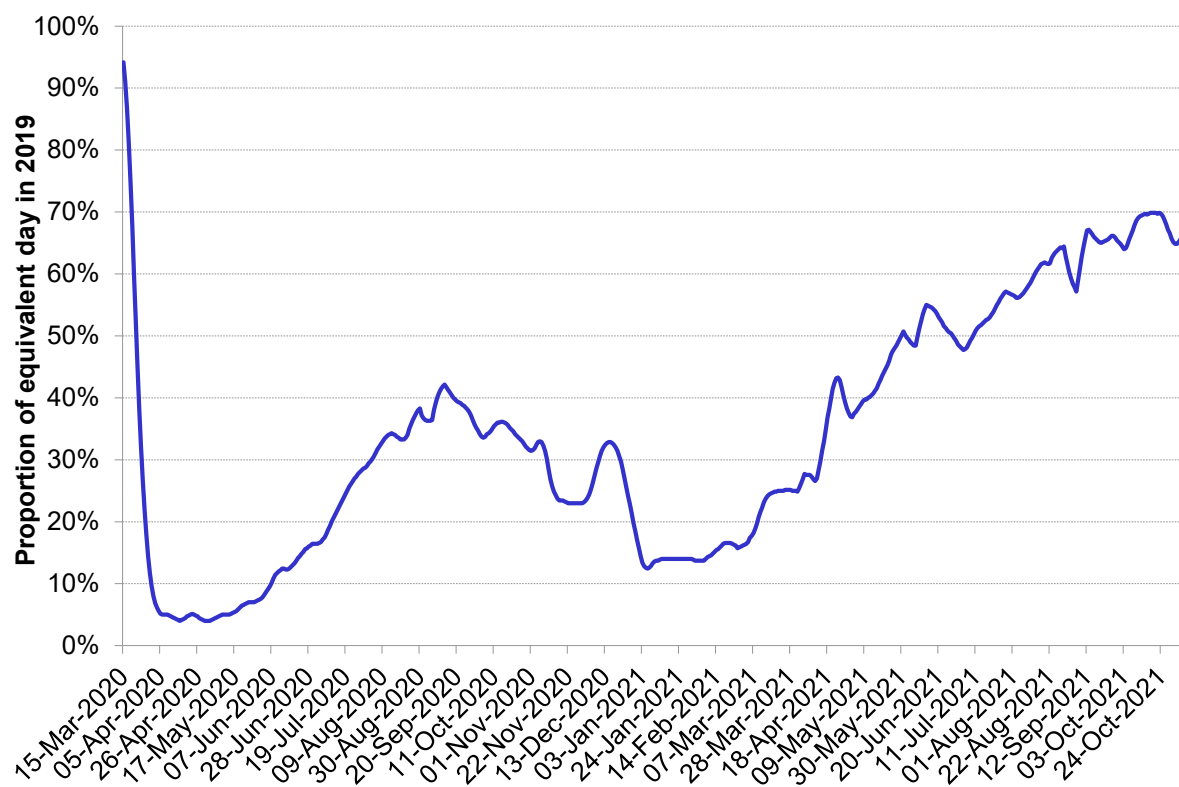
At the end of October 2021, demand on DLR was at 75 per cent of the pre-pandemic baseline, with London Overground at 68 per cent, TfL Rail at 66 per cent and London Trams at 67 per cent, after a drop from 77 per cent in September (all weekly averages).

Figure 2.10 Demand recovery on TfL's rail networks compared to week commencing 3 Feb 2020, 7-day moving average, Feb 2020-Oct 2021.



Source: TfL Public Transport Service Planning.

Figure 2.11 Patronage on National Rail in Great Britain, Mar 2020-Oct 2021.



Source: Department for Transport.

2. The pandemic context

National Rail in London

Figure 2.11 shows the trend in National Rail journeys in 2020 and 2021 across Great Britain. By early April 2020, passenger journeys were just four per cent of normal usage. Following the gradual re-opening of society over the summer, patronage rose to 42 per cent of normal levels by early September. However, journeys declined again with the third lockdown, and were just under 70 per cent of normal at the time of writing.

The fall in passenger usage varied across the three (formerly) franchised sectors and this is proving to be an important distinction. At the Great Britain level, National Rail patronage is recovering more strongly relative to London commuter-focused train operating companies. The close relationship between travel on these latter franchises and weekday morning peak travel on London Underground is thought to be a significant factor underlying the current relative lag in the recovery of London Underground commuter journeys relative to other types of travel in London. A further factor, in the light of continued employer flexibility, may be the deterrent effect on prospective commuters of daily full-price train travel for ad hoc journeys, compared to discounted season ticket rates for more regular journeys before the pandemic.

2.7 Comparative perspectives on the recovery

Activity, mobility and travel

The demand for travel is derived from people's needs to access places to undertake activities. Mobility thus reflects people's daily activity patterns as well as their optimisation of the transport choices that are available. The pandemic has seen both change rapidly over the last 18 months, and the figures above show the out-turn result in terms of modal travel demand. Considering mobility and people's activities alongside each other is increasingly important, because it is possible that the pandemic will have led to some longer-term changes, potentially partially de-linking some activities from the need to travel, and also changed the way that people evaluate and 'optimise' the travel choices that are available to them.

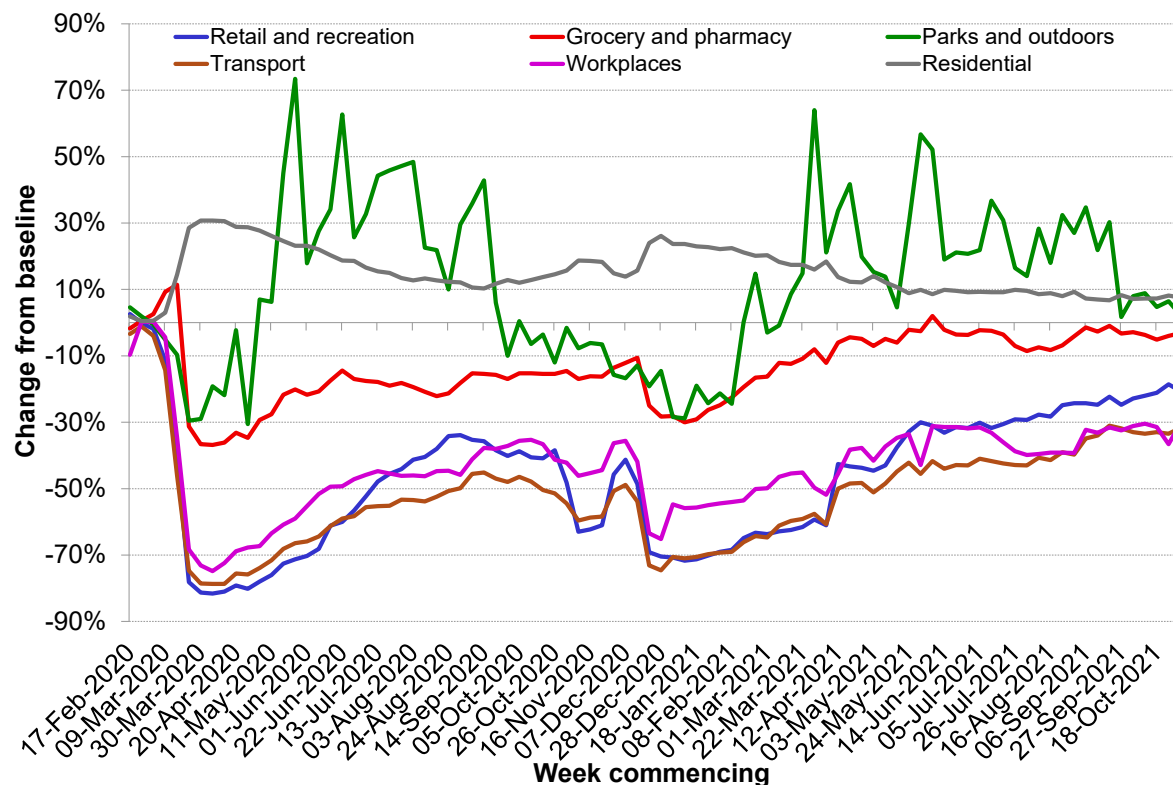
Overall mobility trends

There are no ideal sources to describe overall mobility, but some proxy datasets can be used to get a general idea of pandemic-related changes. Google Maps mobility data for London (figure 2.12) is particularly illustrative because it provides a rough breakdown of places where people spend time that is useful as a proxy for travel demand to various activities. However, the categories are not always intuitive (eg 'transport' includes taxi ranks and rental car agencies as well as public transport stops and stations) and the data are not exempt from biases, so trends are only indicative.

The pandemic trends for workplaces, transport and retail/recreation venues follow a similar trajectory, with recent activity at workplaces at around 70 per cent of the pre-pandemic baseline (after a dip during the summer holidays) and a similar level on transport. Other activities follow a different pattern: grocery/pharmacy ('essential') shopping reached pre-pandemic levels in early June 2021 and has been almost at

that level since the end of the summer, while residential activity has remained very stable since mid-May 2021, at around 10 per cent more than before the pandemic.

Figure 2.12 Indicative mobility in London by sector, Feb 2020-Oct 2021 compared to pre-pandemic baseline.



Source: Google COVID-19 Community Mobility Reports.

Note: The baseline is the median value, for the corresponding day of the week, during the 5-week period 3 Jan–6 Feb 2020. The residential trend represents change in the duration spent at home.

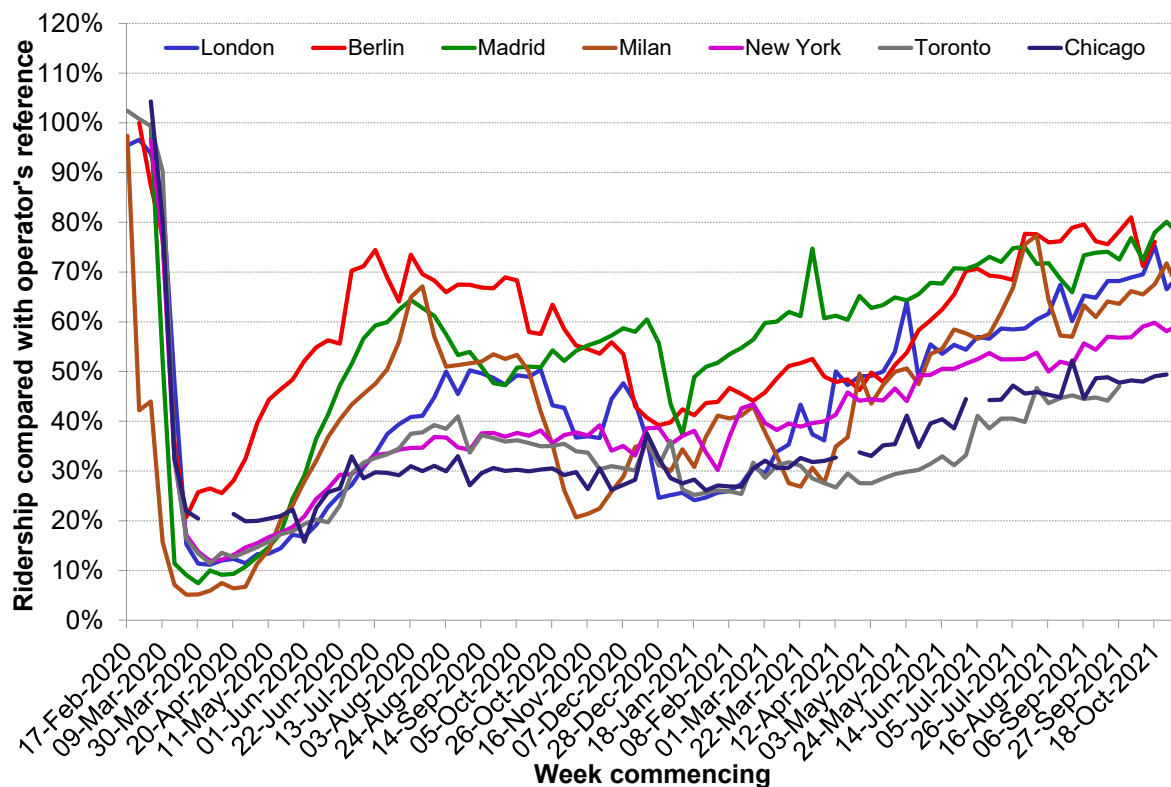
London in the context of other major cities

The pandemic affected travel in cities all around the world. However, the recovery trajectories among those comparable to London have shown differing features, reflecting local circumstances.

In general, London seems ahead of American cities in terms of public transport recovery, and comparable to some similar cities in Europe (towards the top end for the bus recovery and with a middle/high position for rail), taking the timing of restrictions and other local features into account, as per official statistics compiled by the International Association of Public Transport (UITP) shown by figure 2.13.

2. The pandemic context

Figure 2.13 Public transport recovery in selected cities, Feb 2020-Oct 2021.



Source: International Association of Public Transport (UITP).

2.8 Summary

- Most domestic pandemic restrictions were lifted during summer 2021, providing the potential for a sustained recovery of normal activity during the autumn. However, coronavirus case numbers remain high and it is not yet clear that the relative success of the vaccination programme can provide enough reassurance to all in society that the threat posed by the virus has diminished to the point where they can confidently resume full daily activity.
- It seems likely that London's population declined during the pandemic, and there are longer-term factors that may weigh against a resumption of rapid population growth in the medium term. Longer-term forecasts however do suggest a return to sustained growth, with 2041 population levels forecast by the GLA to be only marginally below those previously forecast before the pandemic – at between 9.965 and 10.254 million people.
- The scale and pace of the recovery of international and domestic day visitors to London, which virtually collapsed during the pandemic, will be a major factor influencing travel demand over the short term. Trends in net international migration will also likely be a significant factor affecting London's population growth over the short to medium term, given recent political changes.
- The scale of the pandemic impact on London's economy was undoubtedly huge; however, recovery into late 2021 seems to be progressing faster than previously expected. It is likely however that the pandemic will have left a legacy of significant structural issues that could militate against travel recovery in the medium term. The long-term impacts of record government debt, inflationary and

supply pressures, and the multi-stranded impacts of the pandemic on exacerbating affordability, inequality and poverty in London look likely to be significant limitations over the medium term.

- The pandemic also had a dramatic and immediate impact on travel demand in London, which was wholly unprecedented in scale. At the time of writing, with a sustained increase in demand on public transport, we are hopefully seeing the early stages of a definitive recovery. The contemporary picture is therefore a complex and rapidly evolving one, and long-term 'settled' trends have yet to be reached.
- While it may be expected that travel demand will generally return as people resume normal daily activity, it is already clear that the possibility of 'structural' changes to people's travel behaviour, in particular a further de-linking of people's activities (such as work and shopping) from the need to travel, could be a significant longer-term legacy of the pandemic.
- The scale and pace of London's transport recovery is broadly similar to other comparable cities, both nationally and internationally, taking local features into account.

2. The pandemic context

3. Consolidated estimates of travel in London in 2020 and early 2021

3.1 Introduction

This chapter presents summary statistics for overall travel in London during the 2020 calendar year and into 2021, set in their longer-term context. The pandemic led to highly variable levels of travel demand across the whole of this period, with generally lower levels of travel as well as wholesale changes to the nature of travel (eg mode, journey purposes) by many people. For example, many former lengthy, multi-stage commute trips were replaced by shorter, more local trips, perhaps on foot or by bicycle. The annual averages described below should therefore be interpreted in this context, and quarter-by-quarter resolution is provided where this is available. Further detail on these aspects is provided later in this report.

3.2 Estimates of trips in 2020

Historic trend in total travel (trips)

Between 2000 and 2019, total trips in London increased by 19.3 per cent overall, an average growth of 0.9 per cent per year, with particularly notable increases of 83.6 per cent in rail trips and 53.1 per cent in bus trips, with cycle trips (as main mode) increasing by 137 per cent over this period. Included in these totals are all trips with an origin, a destination, or both, in Greater London by London residents and by non-residents, including commuters and day visitors from outside London as well as overnight visitors and tourists.

The number of trips made in London in 2019 averaged 27.0 million per day, an increase of 0.7 per cent over the previous year (table 3.1). Although the highest annual rate of growth since 2014, it occurred in the context of the general slowing down of travel demand growth in London in recent years, with a net increase in trips of just 1.5 per cent since 2014 compared with an estimated population increase of 4.9 per cent over the same period. In the year immediately before the pandemic, therefore, total travel demand in London had showed signs of returning to growth at a more rapid rate than previous years.

Estimated number of trips in 2020

In calendar year 2020, there were an estimated 20.3 million daily trips on an average day, a decrease of 24.8 per cent on 2019. This yearly average disguises a large amount of variability throughout the year as restrictions related to the pandemic changed, and this is explored further in figure 3.5.

The decrease in trips varies across modes, with public transport trips being particularly affected. Rail trips declined by 59.3 per cent, with London Underground trips down by 66.2 per cent. Bus demand also declined, albeit at a lower rate, and remains the public transport mode where demand is closest to pre-pandemic levels.

3. Consolidated estimates of travel in London in 2020 and early 2021

Private transport was generally less affected by the pandemic than public transport, with car trips 15.5 per cent lower than in 2019, as a whole-year average. In contrast, the active modes saw an increase in trips, as Londoners made shorter, more local trips. Walk trips increased by 0.5 per cent, on the basis of conventional data sources, with cycle trips increasing by 6.7 per cent. These latter two estimates are, however, based on established data series that are unlikely to have fully captured the changes to travel that occurred during the pandemic, for example more 'local' walking. These statistical limitations are further explored in section 12.3 of this report.

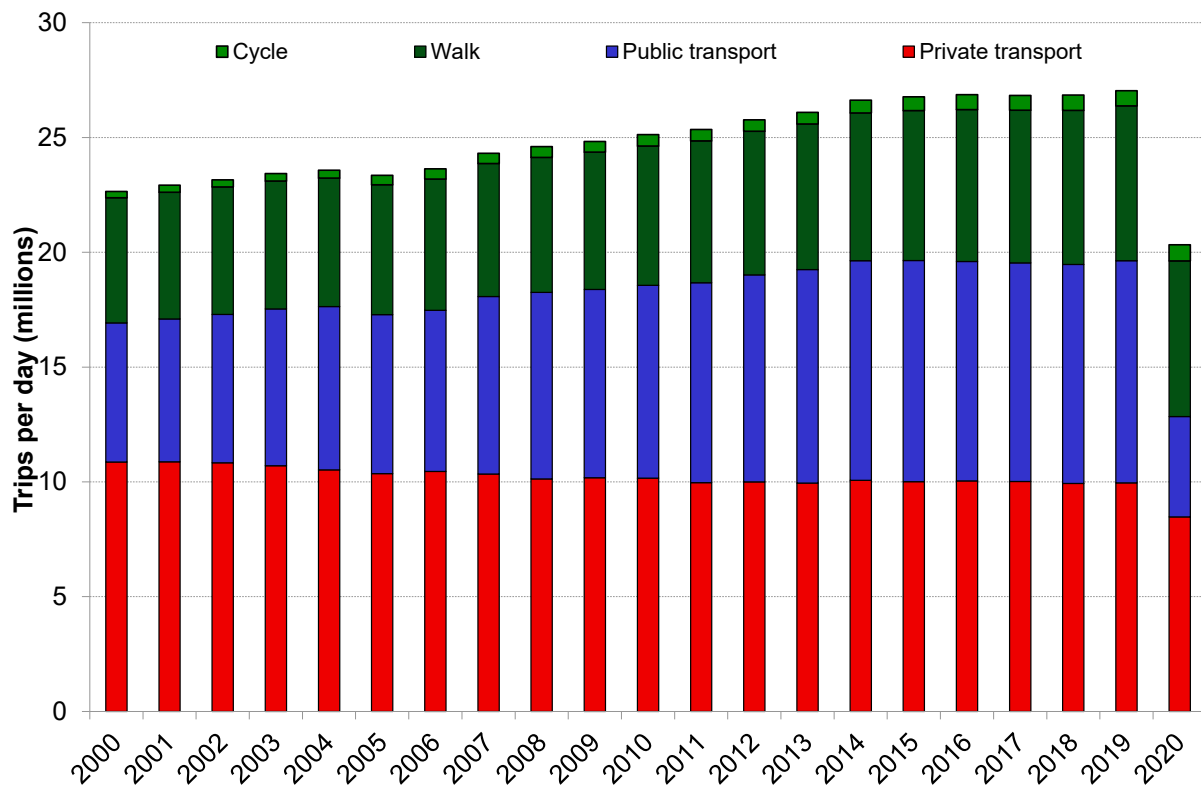
Table 3.1 Estimated daily average number of trips (millions) in Greater London by main mode of travel, 7-day week, 2000-2020.

Year	Rail/ LO	LU/ DLR	Bus/ tram	Taxi/ PHV	Car driver	Car passenger	Motor- cycle	Cycle	Walk	All
(2000)	(1.7)	(2.0)	(2.4)	(0.3)	(6.8)	(3.6)	(0.2)	(0.3)	(5.5)	(22.7)
2011	2.4	2.2	4.1	0.3	5.9	3.6	0.2	0.5	6.2	25.3
2012	2.6	2.4	4.1	0.3	5.9	3.6	0.2	0.5	6.3	25.8
2013	2.7	2.5	4.1	0.3	5.8	3.6	0.2	0.5	6.3	26.1
2014	2.8	2.6	4.1	0.3	5.9	3.7	0.2	0.6	6.4	26.6
2015	3.0	2.8	3.8	0.3	5.9	3.6	0.2	0.6	6.5	26.8
2016	3.0	2.8	3.7	0.4	5.8	3.6	0.2	0.6	6.6	26.9
2017	2.9	2.8	3.8	0.4	5.8	3.7	0.2	0.6	6.6	26.8
2018	3.0	2.8	3.7	0.4	5.8	3.6	0.2	0.7	6.7	26.9
2019	3.1	2.9	3.7	0.4	5.8	3.6	0.2	0.7	6.8	27.0
2020	1.2	1.0	2.1	0.4	4.9	3.1	0.2	0.7	6.8	20.3
Percentage change up to 2020 from...										
2000	-25.2	-50.2	-11.3	22.5	-28.4	-14.2	-11.2	153.3	24.4	-10.3
2011	-47.8	-55.5	-47.9	17.2	-17.7	-13.7	-5.0	42.0	9.7	-19.8
2019	-59.3	-66.2	-42.1	2.1	-15.5	-15.4	-17.7	6.7	0.5	-24.8

Source: TfL City Planning.

Notes: Trips are complete one-way movements. They may include several modes and journey stages but are classified by the mode that is typically used for the longest distance. Round trips are counted as two trips, an outward and an inward leg.

Figure 3.1 Estimated daily average trips by main mode, 7-day week, 2000-2020.



Source: TfL City Planning.

3.3 Estimates of trip-based mode shares in 2020

Historic trend in mode shares (trips)

Mode shares reflect the choices that people make for travel in London, given the connectivity provided by the transport networks. The Mayor's aim for 2041 is for 80 per cent of trips in London to be made by active, efficient and sustainable modes (walking, cycling and public transport). This section looks at historic trends in mode share and recent changes to this.

The previous decade had seen steady progress in the proportion of travel in London undertaken by active, efficient and sustainable modes. Public transport accounted for 35.8 per cent of trips in 2019, up from 26.8 per cent in 2000 and 33.4 per cent in 2010 (table 3.2). Correspondingly, private transport (principally the car) accounted for 36.8 per cent of trips in 2019, down from 48.0 per cent of trips in 2000 and 40.4 per cent in 2010.

Over the longer term, the decrease of 11.8 percentage points between 2000 and 2019 in the private transport mode share in terms of journey stages is equivalent to a decrease of 11.2 percentage points in terms of trips. Similarly, the public transport mode share, which increased by 10.8 percentage points in terms of journey stages, increased by 9.0 percentage points in terms of trips since 2000 (note that public transport trips typically involve more than one stage). To 2019, this was equivalent to 3 million fewer car trips per day in London compared to 2000, if the mode shares had stayed the same.

3. Consolidated estimates of travel in London in 2020 and early 2021

In later years the pace of change had slowed, however, largely reflecting subdued growth or decline in public transport patronage. In 2019, the private transport mode share decreased by 0.2 percentage points compared with 2018. Public transport mode share increased by 0.3 percentage points in 2019. In 2000, cycling accounted for 1.2 per cent of all trips in London, rising to 2.0 per cent in 2010 and 2.4 per cent in 2019.

Table 3.2 Trip-based mode shares by type of transport, 2000-2020.

Year	Public transport	Private transport	Cycle	Walk
(2000)	(27%)	(48%)	(1.2%)	(24%)
2011	34%	39%	1.9%	24%
2012	35%	39%	1.9%	24%
2013	36%	38%	1.9%	24%
2014	36%	38%	2.1%	24%
2015	36%	37%	2.2%	24%
2016	36%	37%	2.4%	25%
2017	35%	37%	2.4%	25%
2018	36%	37%	2.5%	25%
2019	36%	37%	2.4%	25%
2020	22%	42%	3.4%	33%

Source: TfL City Planning.

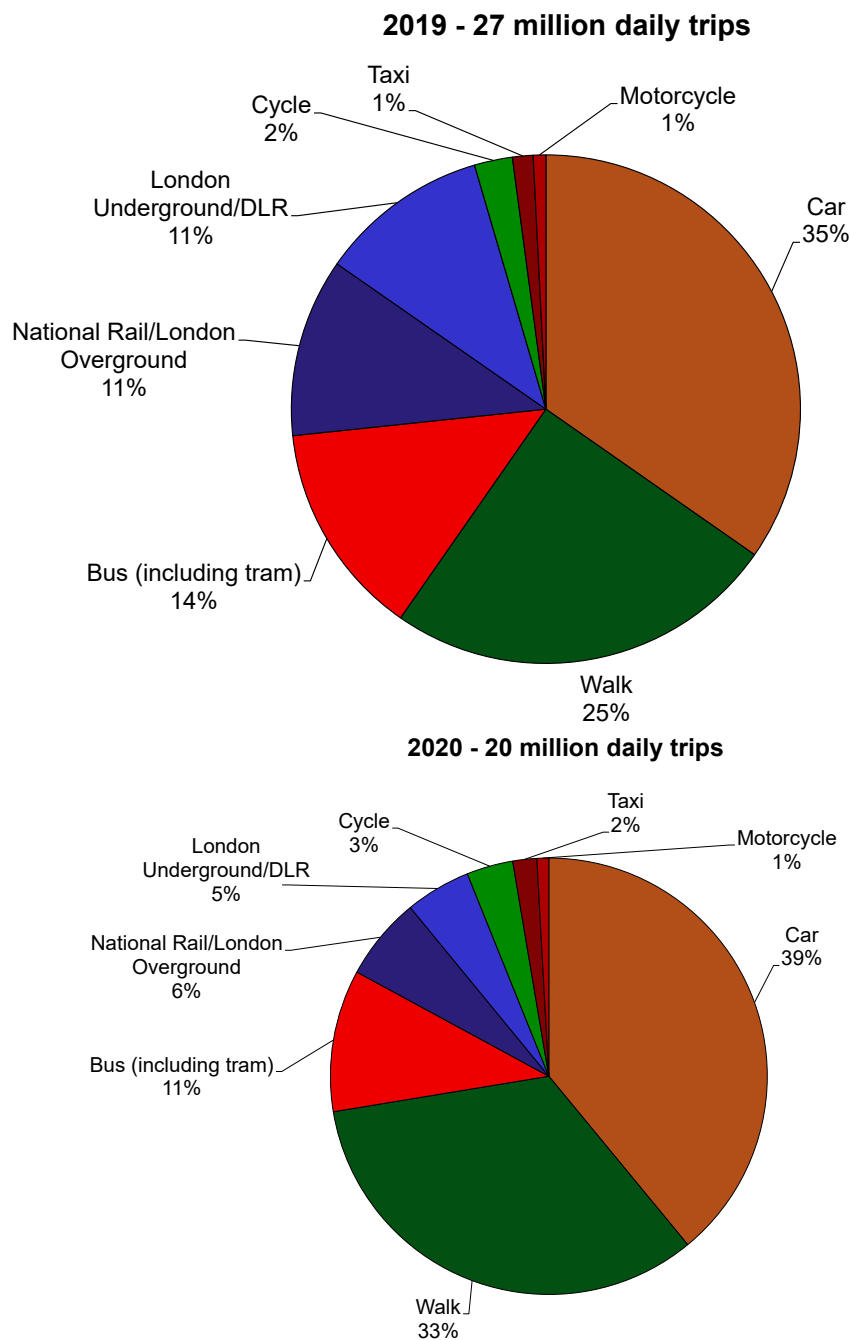
Note: Trips are classified by the mode that is typically used for the longest distance.

Consolidated mode share estimates for 2020

The effects of the pandemic are clear in the estimates for 2020, with the large decline in public transport trips leading to an average public transport mode share for the year of just 21.5 per cent, with private transport making up 41.7 per cent of all trips on an annual average basis. However, the increases in active modes saw both walk and cycle mode shares increase, with a third of all trips in 2020 being walk trips. This meant that, while public transport mode shares were at their lowest level since the early 1990s, walk and cycle mode shares were at their highest recorded levels, with private transport mode shares the highest since 2007. As with the total trip estimates, the overall average mode share for 2020 disguises some major fluctuations in this measure during the pandemic, with a smaller volume of daily trips throughout most of the year leading to higher mode shares for those modes that saw the smallest decreases in demand.

3. Consolidated estimates of travel in London in 2020 and early 2021

Figure 3.2 Mode shares of daily trips in London, 2019 and 2020.



Source: TfL City Planning.

Active, efficient, and sustainable mode shares

Active, efficient and sustainable modes are defined in the Mayor's Transport Strategy as walking, cycling and public transport. The active, efficient and sustainable mode share is calculated in terms of all trips, by all people (including residents and visitors) travelling in London, on an annual average day. Figure 3.3 shows the historic trend, with data up to 2020. There had been a continuous year-on-year increase in the active, efficient and sustainable mode share between 2000 and 2019, averaging 0.6 percentage points per year, but with the pace of change slowing over more recent years.

3. Consolidated estimates of travel in London in 2020 and early 2021

In 2020, the active, efficient and sustainable mode share decreased by 4.9 percentage points to 58.3 per cent, due to the effects of the coronavirus pandemic, primarily the large decrease in public transport trips, and in the context of substantially lower travel activity overall.

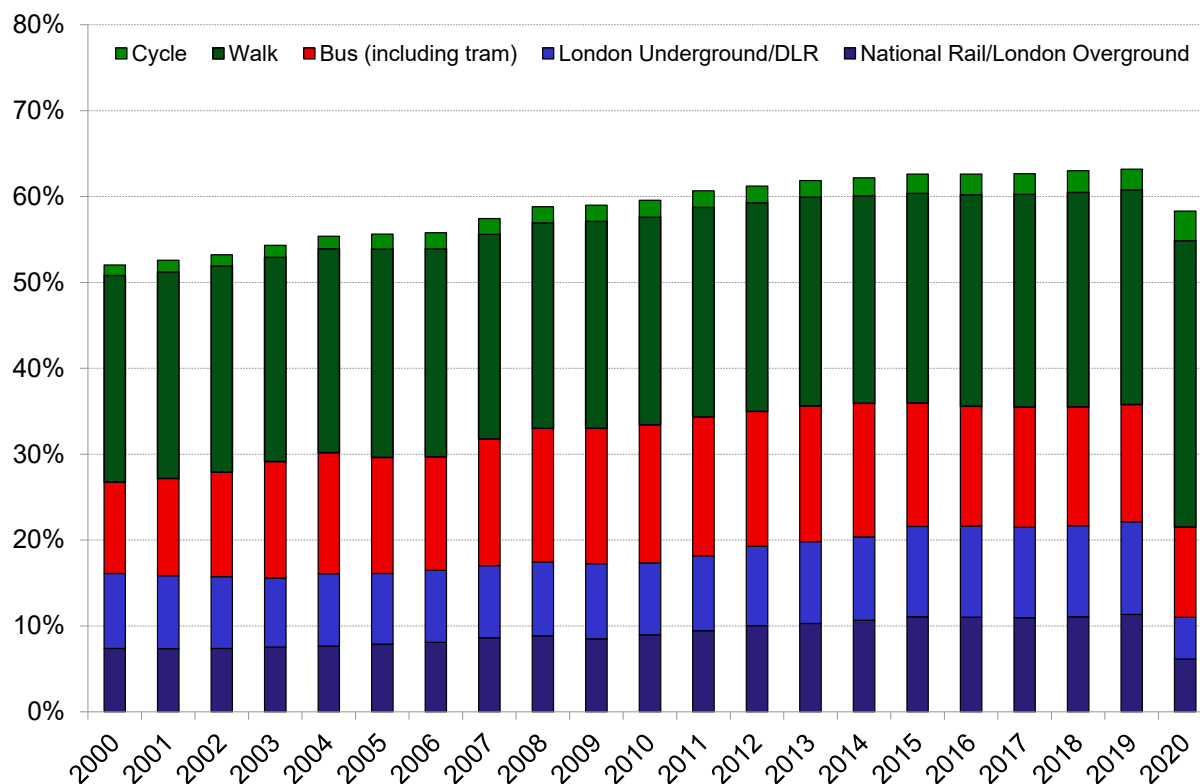
Table 3.3 Share of trips and journey stages made in London by active, efficient and sustainable modes, 2011-2020.

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Trips	60.7%	61.2%	61.9%	62.2%	62.6%	62.6%	62.7%	63.0%	63.2%	58.3%
Journey stages	64.9%	65.4%	66.0%	66.4%	66.8%	66.8%	66.6%	67.0%	67.0%	61.2%

Source: TfL City Planning.

Figure 3.3 shows the breakdown between active, efficient and sustainable modes at the trip level since 2000. The proportion of trips made by sustainable public transport modes (excluding licensed taxi/PHV) had increased up to 2019, from 27 per cent in 2000 to 36 per cent in 2019. However, the effects of the pandemic led to a large decrease in public transport trips in 2020, with the public transport mode share dropping to 22 per cent. This was offset slightly by increases in active travel, with the walk mode share increasing to 33 per cent and cycle mode share to 3.4 per cent. The consolidated estimate for active, efficient and sustainable mode share for 2020 is 58.3 per cent. This is lower than those of recent years but, in the extraordinary context of the pandemic, might be regarded as a relatively resilient performance.

Figure 3.3 Trip-based mode shares for active, efficient and sustainable modes, 2000-2020.



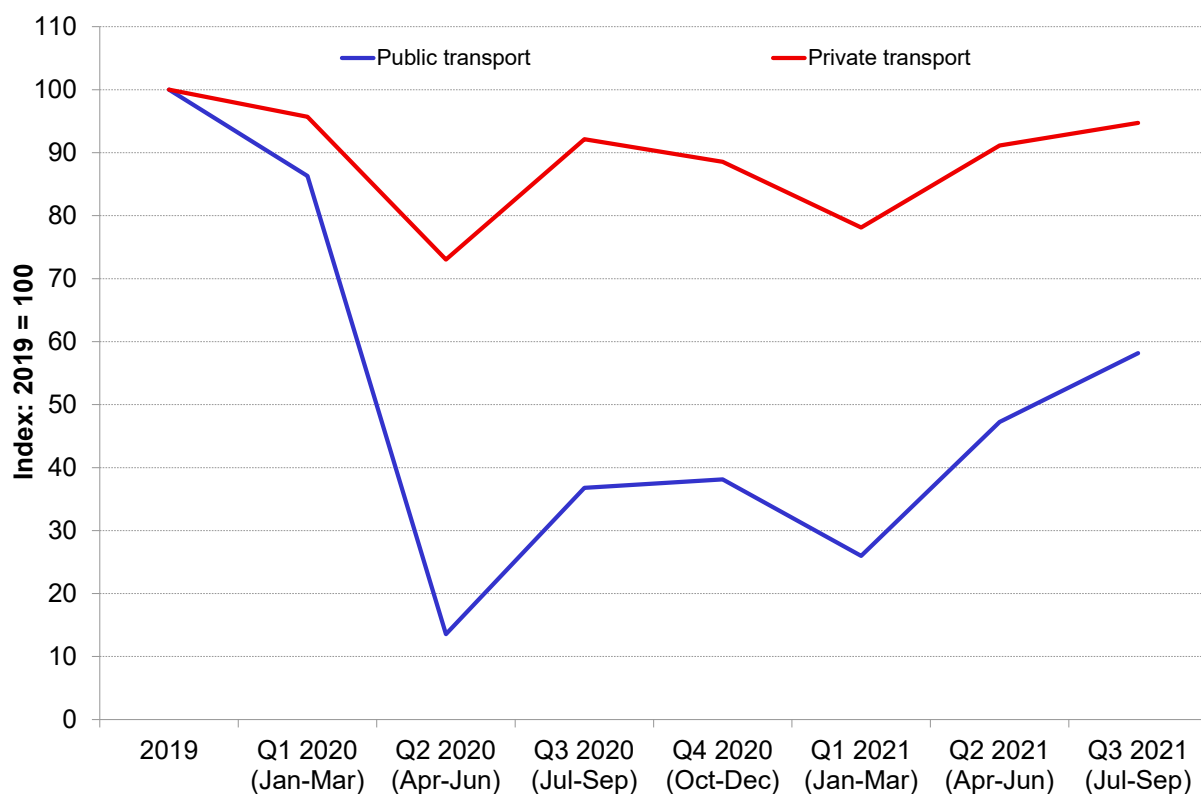
Source: TfL City Planning.

Disaggregate estimates of mode shares during the coronavirus pandemic

The pandemic severely impacted many aspects of travel in London; these impacts occurring rapidly from mid-March 2020. Traditional measures of travel demand – hitherto considered as adequate for (relatively stable) business as usual conditions – have struggled to give timely data for many modes, particularly active travel, but we do have robust data for the main TfL public transport modes and for motorised road traffic. Bearing these caveats in mind, it has been possible to derive indicative quarterly estimates of the impact of the pandemic on mode shares in London.

Figure 3.4 shows the scale of the overall reductions in public and private transport usage during 2020 and 2021. Compared with the 2019 baseline, public transport use was down by 86 per cent in quarter 2 2020, but has been gradually increasing since then, and in quarter 3 2021 was 42 per cent below 2019 levels. Public transport in this case includes buses, London Underground and National Rail services. Private transport usage did not fall at the same rate and was down by just 27 per cent in quarter 2 2020. By quarter 3 2021, private transport usage was only 5 per cent below 2019.

Figure 3.4 Public and private transport usage, 2019-2021.

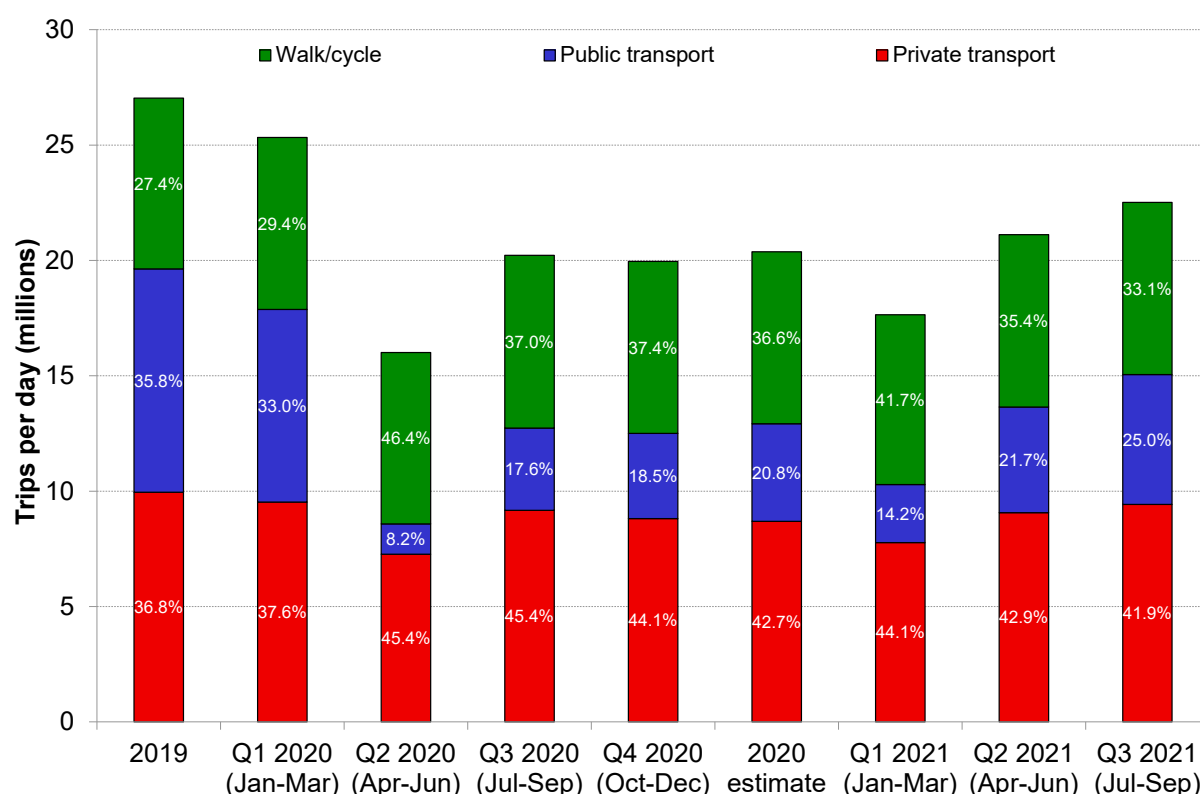


Source: TfL City Planning.

It is estimated that in quarter 2 2020 there were on average 16 million trips per day, compared with 27 million on an average day in 2019. In other words, the 'mode share pie' was around 60 per cent as big as before the pandemic. This increased by 41 per cent in quarter 3 2021, to 22.5 million. However, this is still 17 per cent lower than an average day in 2019. The pandemic clearly did not affect all modes equally, and these patterns, described elsewhere in this report, underlie the pandemic time series shown by figure 3.5.

3. Consolidated estimates of travel in London in 2020 and early 2021

Figure 3.5 Estimated mode shares, 2019-2021.



Source: TfL City Planning.

During relatively normal years, the overall mode share varies little by quarter. However, the impact of the pandemic can be seen even from the first quarter of 2020, which was largely coronavirus-free and without restrictions, with the active, efficient and sustainable measure dropping by 0.8 percentage points (figure 3.5). The disruptions of the various lockdown measures are fully apparent in the quarter 2 2020 figures, with public transport mode share down to just 8.2 per cent and the overall active, efficient and sustainable mode share down by 8.6 percentage points. Despite the reduction in public transport usage, walking and cycling use remained relatively high as Londoners stayed local in order to do essential shopping or their permitted daily exercise, enabling the overall active, efficient and sustainable mode share to remain above 50 per cent.

As lockdown measures were relaxed in quarter 3 2020, public transport mode shares improved, although remained well below normal levels. In contrast, private transport mode shares remained much higher than normal, which contributed to a continued relatively low level of active, efficient and sustainable mode share, which at 54.6 per cent was 8.5 percentage points below the 2019 level.

During 2021, public transport mode shares have gradually increased in line with the gradual relaxation of restrictions, with 25.0 per cent of trips in quarter 3 2021 being made on public transport. This is still well below the pre-pandemic level of 35.8 per cent in 2019. As private transport trips have risen at a lower rate than public transport trips during 2021, the private transport mode share has been decreasing gradually, and stands at 41.9 per cent in the latest quarter. This is still higher than the pre-pandemic level of 36.8 per cent.

3. Consolidated estimates of travel in London in 2020 and early 2021

Walk and cycle mode shares remain high, although they have been decreasing during 2021 as public transport demand has increased (these are trip-based estimates; many public transport trips involve active travel stages that are not enumerated separately in this statistic). The gradual increase in public transport trips, coupled with high levels of walking and cycling has led to an increase in the active, efficient and sustainable mode share measure, which at 58.1 per cent in quarter 3 2021 is at its highest level since before the pandemic began. However, the measure remains 5 percentage points below 2019, and it will not return to this level until public transport trips more closely approach their pre-pandemic levels.

Table 3.4 Estimated mode shares, 2018-2021.

	Public transport	Private transport	Walk and cycle	Active, efficient and sustainable	Estimated daily trips (millions)
2018	35.5%	37.0%	27.5%	63.0%	26.9
2019	35.8%	36.8%	27.4%	63.2%	27.0
Q1 2020 (Jan-Mar)	33.0%	37.6%	29.4%	62.4%	25.3
Q2 2020 (Apr-Jun)	8.2%	45.4%	46.4%	54.6%	16.0
Q3 2020 (Jul-Sep)	17.6%	45.4%	37.0%	54.6%	20.2
Q4 2020 (Oct-Dec)	18.5%	44.1%	37.4%	55.9%	20.0
2020 estimate	21.5%	41.7%	36.8%	58.3%	20.3
Q1 2021 (Jan-Mar)	14.2%	44.1%	41.7%	55.9%	17.6
Q2 2021 (Apr-Jun)	21.7%	42.9%	35.4%	57.1%	21.1
Q3 2021 (Jul-Sep)	25.0%	41.9%	33.1%	58.1%	22.5

Source: TfL City Planning.

3.4 Estimates of journey stages in 2020

Total number of journey stages

- Daily journey stages in London in 2020 were 22.3 million, down from 31.6 million in 2019 and clearly showing the effects of the pandemic.
- Public transport modes saw the biggest decrease in demand in 2020, with rail stages down by 59.5 per cent, London Underground stages down by 63.4 per cent, and bus demand decreasing by 47.7 per cent.
- The decrease in demand was lower for private transport modes, with car stages decreasing by 17.7 per cent in 2020. The only modes to see an increase in demand in 2020 were walking and cycling, with increases of 0.5 per cent and 6.4 per cent respectively (table 3.5). Again, estimates for these modes probably do not fully represent the extent of pandemic changes, such as increases in local cycling and walking.

3. Consolidated estimates of travel in London in 2020 and early 2021

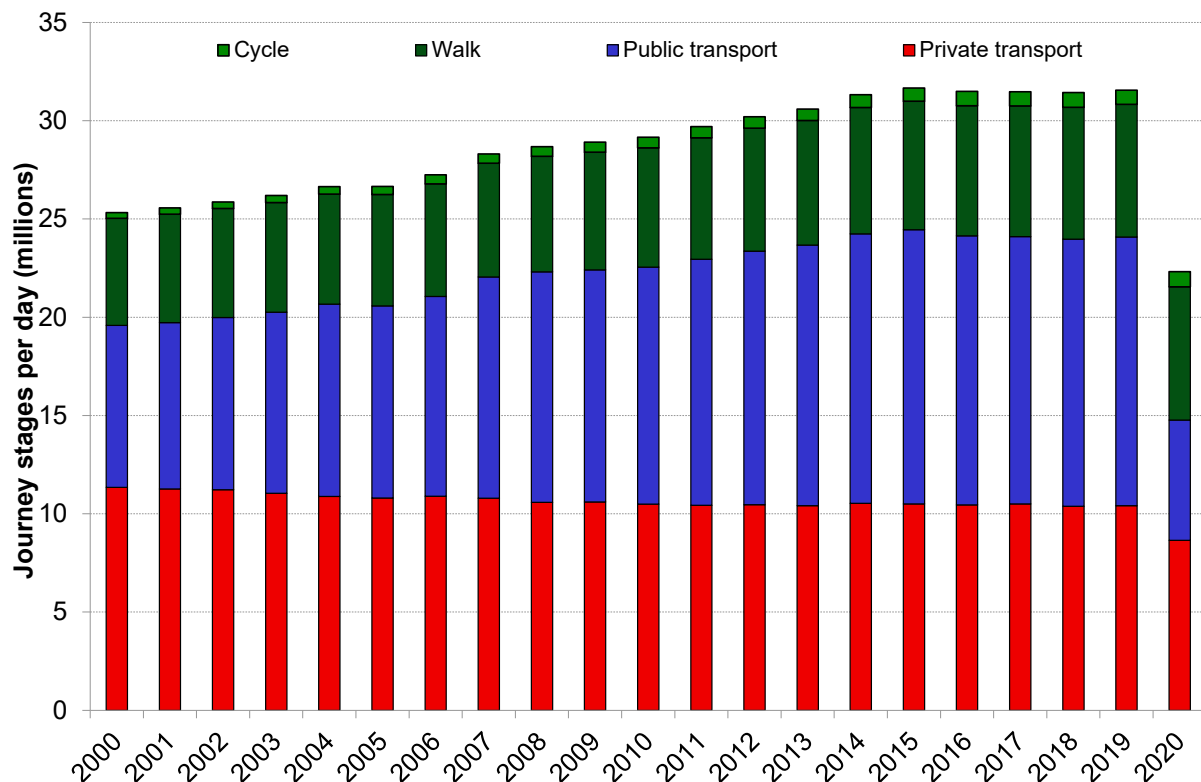
Table 3.5 Estimated daily average number of journey stages (millions) in Greater London by mode, 7-day week, 2000-2020.

Year	NR/ LO	LU	DLR	Bus/ tram	Taxi/ PHV	Car driver	Car pass.	Motor- cycle	Cycle	Walk	All
(2000)	(1.8)	(2.6)	(0.1)	(3.7)	(0.4)	(7.0)	(3.8)	(0.2)	(0.3)	(5.5)	(25.3)
2011	2.7	3.2	0.2	6.4	0.4	6.1	3.8	0.2	0.6	6.2	29.7
2012	2.9	3.3	0.3	6.4	0.4	6.0	3.8	0.2	0.6	6.3	30.2
2013	3.1	3.4	0.3	6.5	0.4	6.0	3.8	0.2	0.6	6.3	30.6
2014	3.2	3.5	0.3	6.7	0.4	6.1	3.9	0.2	0.6	6.4	31.3
2015	3.4	3.7	0.3	6.5	0.4	6.0	3.9	0.2	0.7	6.5	31.7
2016	3.4	3.7	0.3	6.2	0.4	6.0	3.8	0.2	0.7	6.6	31.5
2017	3.3	3.7	0.3	6.2	0.5	6.0	3.9	0.2	0.7	6.6	31.5
2018	3.4	3.7	0.3	6.1	0.4	6.0	3.8	0.2	0.7	6.7	31.4
2019	3.5	3.8	0.3	6.0	0.4	6.0	3.8	0.2	0.7	6.8	31.6
2020	1.4	1.4	0.2	3.2	0.4	4.9	3.1	0.2	0.8	6.8	22.3
Percentage change up to 2020 from...											
2000	-22.5	-47.1	50.8	-14.1	13.9	-29.8	-16.8	-11.6	168.1	24.4	-12.0
2011	-44.3	-53.7	-26.9	-49.8	20.6	-21.4	-15.3	-8.7	41.3	11.7	-23.6
2019	-59.5	-63.4	-54.5	-47.7	0.0	-17.7	-17.7	-17.7	6.4	0.5	-29.4

Source: TfL City Planning.

Note: Each NR interchange to a new operator is a new stage. A new bus boarding is a new stage. An LU entry is a stage, but interchanges within stations are ignored. Walks counted when they are complete trips, not when part of trips by other modes.

Figure 3.6 Estimated daily average stages by mode, 7-day week, 2000-2020.



Source: TfL City Planning.

Trends in journey stages by mode

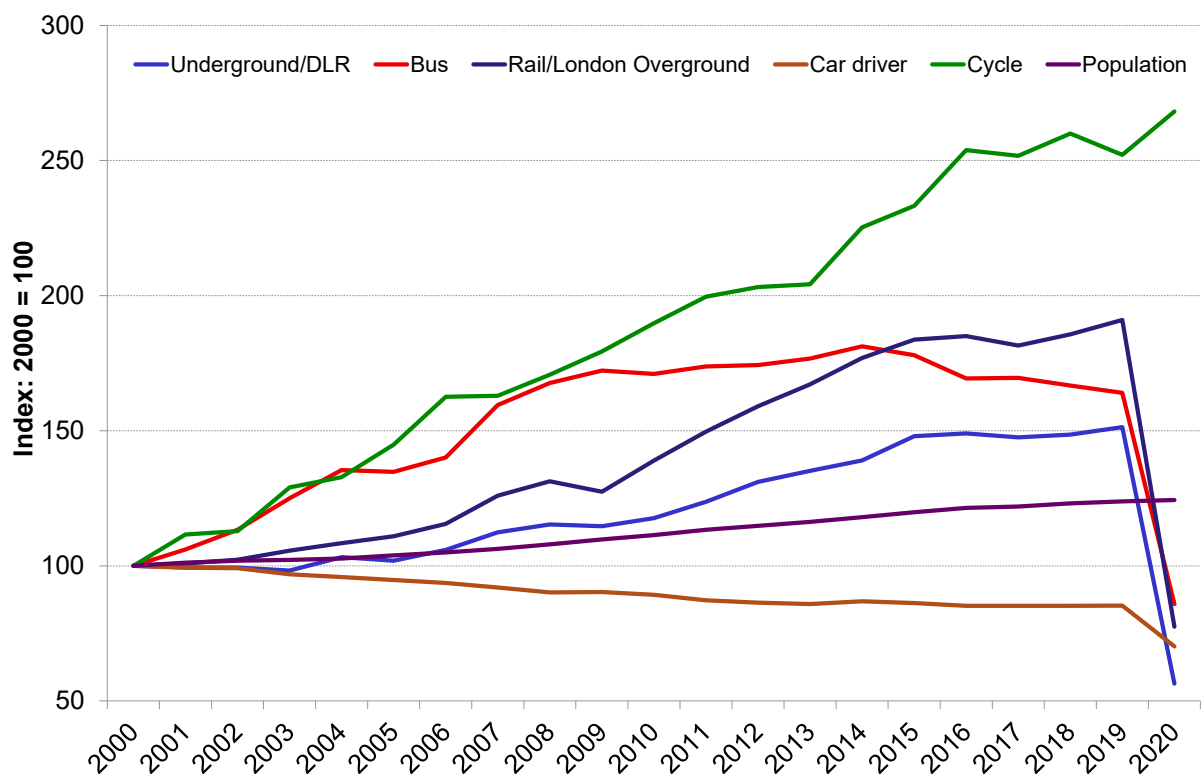
Figure 3.7 shows trends in demand on selected travel modes since 2000. The longer-term trend up to 2015 shows a strong increase in demand across all public transport modes, with all modes growing faster than population, reflecting changing mode shares, and accompanied by substantial investment in public transport. Initially, growth was strongest on the bus network. Growth in National Rail use (including London Overground) was initially slower than bus use until 2009. Between 2009 and 2019, National Rail journey stages increased by 49.9 per cent, partly helped by the opening of TfL's London Overground network.

In contrast, London Underground passenger growth closely followed population growth between 2000 and 2006, although started to grow at a faster rate in more recent years, reflecting completion of upgrades to several lines, which added extra capacity to the network.

Car driver stages in 2019 were 14.7 per cent below the 2000 level. Growth has been highest in cycle journey stages, which have grown by 152 per cent since 2000, albeit starting from a relatively small base.

The effects of the pandemic are clear in 2020, with demand falling heavily on all public transport modes, even below the 2000 base year. While car journeys also decreased, the rate of decrease was much lower than for public transport. Most noticeable on the chart is the sustained increase in cycle journeys, as Londoners made shorter, more local journeys.

Figure 3.7 Growth in journey stages on selected modes, 2000-2020.



Source: TfL City Planning.

3. Consolidated estimates of travel in London in 2020 and early 2021

Journey stage-based mode shares

In 2020, 27.4 per cent of journey stages in London were made by public transport, compared with 38.8 per cent by private transport. Reflecting the extraordinary circumstances of the pandemic, this is the lowest public transport mode share since the early 1990s, with private transport mode share at its highest level since 2006. The increase in walk and cycle trips led to substantial increases in their mode shares, to 30.4 per cent and 3.4 per cent respectively.

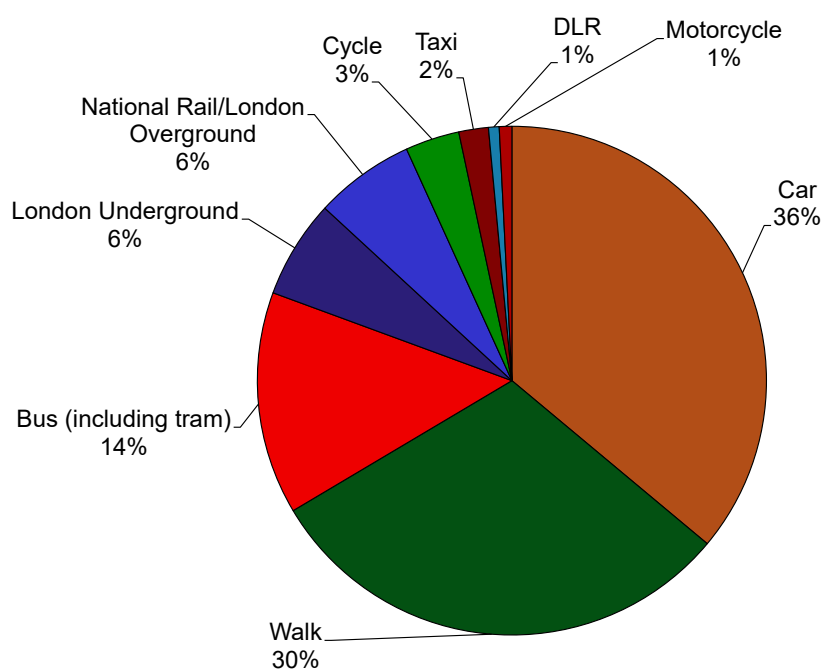
Table 3.6 Journey stage-based mode shares by type of transport, 2000-2020.

Year	Public transport	Private transport	Cycle	Walk
(2000)	(33%)	(45%)	(1.1%)	(22%)
2011	42%	35%	1.9%	21%
2012	43%	35%	1.9%	21%
2013	43%	34%	1.9%	21%
2014	44%	34%	2.1%	21%
2015	44%	33%	2.1%	21%
2016	43%	33%	2.3%	21%
2017	43%	33%	2.3%	21%
2018	43%	33%	2.4%	21%
2019	43%	33%	2.3%	21%
2020	27%	39%	3.4%	30%

Source: TfL City Planning.

Note: Mode shares are calculated consistently with the journey stages in table 3.5. Totals may not add up to 100 per cent due to rounding. Walks counted when they are complete trips, not when part of trips by other modes.

Figure 3.8 Mode shares of daily journey stages in London, 2020.



Source: TfL City Planning.

4. London residents' travel during the pandemic

4.1 Introduction

This section looks at trends in the travel demand and travel behaviour of London residents specifically, using data from the London Travel Demand Survey (LTDS). The LTDS is a continuous household travel survey of the London area and has been running since 2005/06 with an annual sample size of around 8,000 households (equivalent to around 18,500 individuals). It captures information on households, people, trips and vehicles and therefore allows for detailed analysis of trip making and its relationship to socio-demographic factors over time. The required sample for the 2019/20 financial year was completed prior to significant disruption from the coronavirus pandemic, and therefore provides a robust view of travel during the 2019/20 financial year, effectively giving a pre-pandemic baseline, and historically up to that point.

However, face-to-face fieldwork was suspended in the first quarter of 2020/21 in line with government guidance following the national lockdown that commenced on 23 March 2020. An adapted LTDS questionnaire and survey method began in July 2020 and continued for the remainder of the financial year. Although the survey was shortened and adapted to reflect pandemic circumstances, key elements of the survey such as the trip diary were retained to ensure consistency with previous years. The sample size in 2020/21 was 5,600 individuals, significantly smaller than usual. A further difference in the 2020/21 data is that only those aged 17 or more were interviewed. The historic series has been amended to allow direct comparison where appropriate, and the previous trend for those aged five or more is provided for reference where relevant. The 2020/21 results have not been expanded to London-wide totals but have been weighted to ensure broad representativeness across London by age (17+), gender and region. Where data are presented as a 'full-year' average this reflects three quarters of data only, but where appropriate data is reported by quarter.

The National Travel Survey, run by the Department for Transport, is a household survey covering 7,000 households in England and is used for comparison of London trip rates with national trip rates.

4.2 Trip rates by Londoners

Overall per-person trip rates by London residents: historic trend

Trip rates are a basic indicator of travel – relating to the number of trips undertaken on an average day – by Londoners in general or by more specific groups of people. The LTDS has tracked a pattern of generally falling trip rates over the lifetime of the survey, this trend accelerating between 2013/14 and 2017/18 and driven primarily by slow wage growth and high housing costs following the 2008/09 recession. This contributed to a prolonged squeeze on Londoners' incomes and had, it is thought, a knock-on effect on consumer spending, particularly on discretionary activities including travel for shopping and leisure.

4. London residents' travel during the pandemic

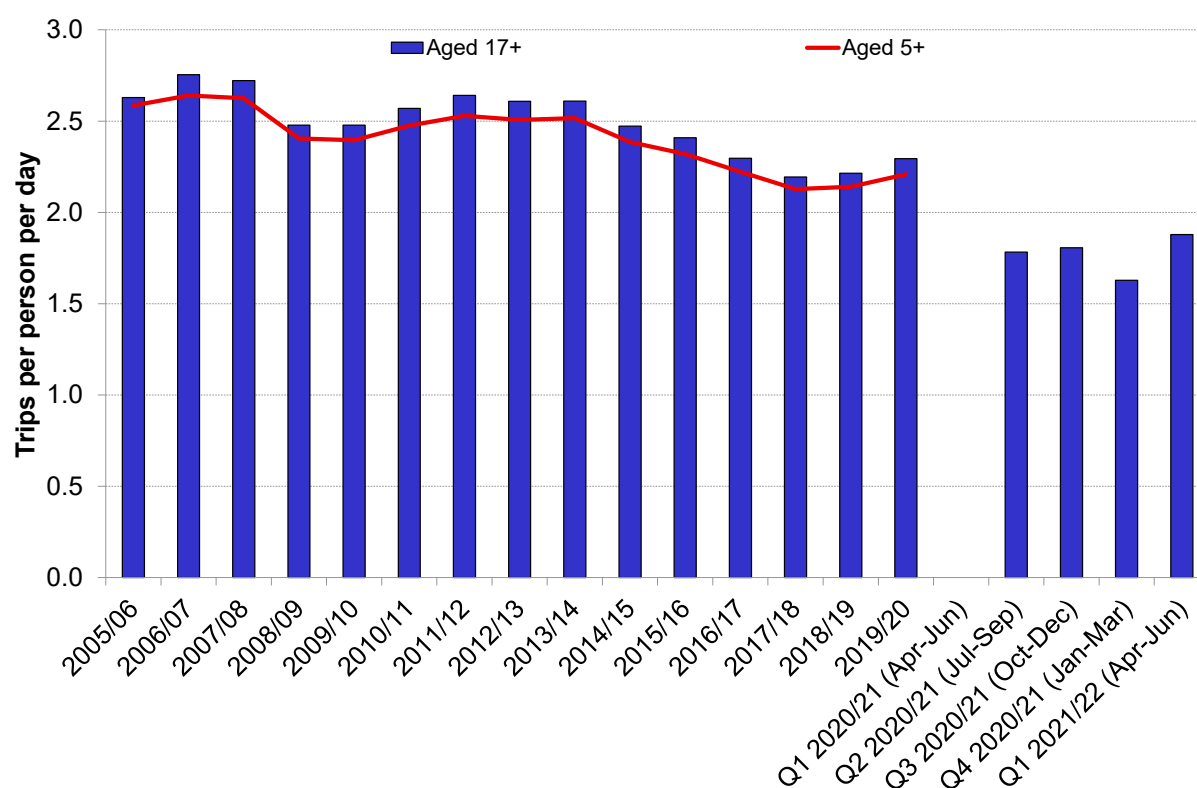
However, in the two years prior to the pandemic, the number of trips per day made by the average London resident increased slightly, from 2.13 in 2017/18 to 2.21 trips per person per day in 2019/20 (figure 4.1). This is thought to have been the result of improving economic conditions for Londoners immediately before the pandemic due to slower growth in London house prices and an increase in real disposable incomes in 2017/18 and 2018/19. Therefore, prior to the coronavirus pandemic, trip rates in London were beginning to stabilise following four successive years of decline.

Overall per-person trip rates by London residents: pandemic trend

The number of trips made per person per day in 2020/21 was an average of 21 per cent lower compared to 2019/20, reflecting strict restrictions on the activities for which travel was permitted for significant periods throughout the year. However, given the scale and length of time that travel restrictions were in place, the reduction in London residents' trip rate was relatively modest, suggesting a large-scale 'substitution' between different types of travel (figure 4.1).

The number of trips per person per day was around 1.8 in the second half of 2020 and reduced to 1.6 in Q4 2020/21, corresponding with winter and also the third national lockdown which was in place throughout the period (from early January to late March). The most recent quarter of data (covering April-June 2021) corresponds with the gradual easing of travel restrictions and shows the highest recorded trip rate since the pandemic began (at 1.9 trips per person per day compared to the average for 2019/20 of 2.3 trips per person per day).

Figure 4.1 Per-person trip rate per day, LTDS, 2005/06-2021/22.



Source: TfL City Planning.

London residents made different types of trip during the pandemic

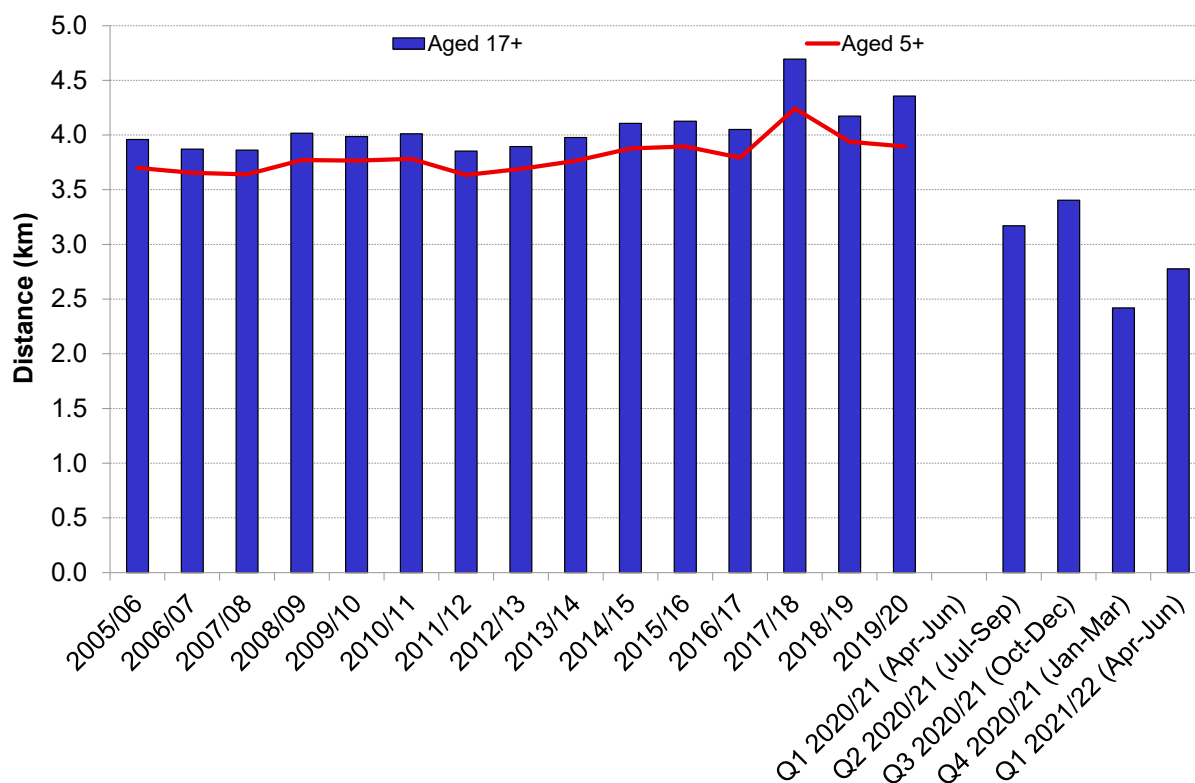
The trip rate measure alone masks many other changes to the travel behaviour of London residents during the pandemic, and the relatively modest decline in overall trip rates during the pandemic must therefore be interpreted in this context.

For example, figure 4.2 shows the historic and pandemic trend in average trip distance. The historic trend shows that over time (prior to the pandemic) residents were tending to make fewer, longer trips overall. This is supported by figure 4.3, which shows the trend in total distance travelled per person per day. This trend has been relatively stable, indicating that as London residents began to make fewer trips overall, the distance of those trips increased, resulting in little change in the total distance travelled (which in 2019/20 before the pandemic was only 4 per cent lower than in 2005/06).

However, during the pandemic both the average trip rate and the average trip distance have decreased, causing an even greater proportional reduction in travel than can be seen from the trip rate alone and this is evident in the total distance travelled during the pandemic, which has been 6km or less per person per day compared to 9-10km per day prior to the pandemic.

Similar to the trend in trip rates, the lowest average trip distance was reported in Q3 2020/21 (at 44 per cent below the 2019/20 average), corresponding with winter and the third national lockdown. However, the decline in distance travelled per person per day in Q3 2020/21 was proportionally greater, at 3.8km per person per day and 60 per cent below the 2019/20 average.

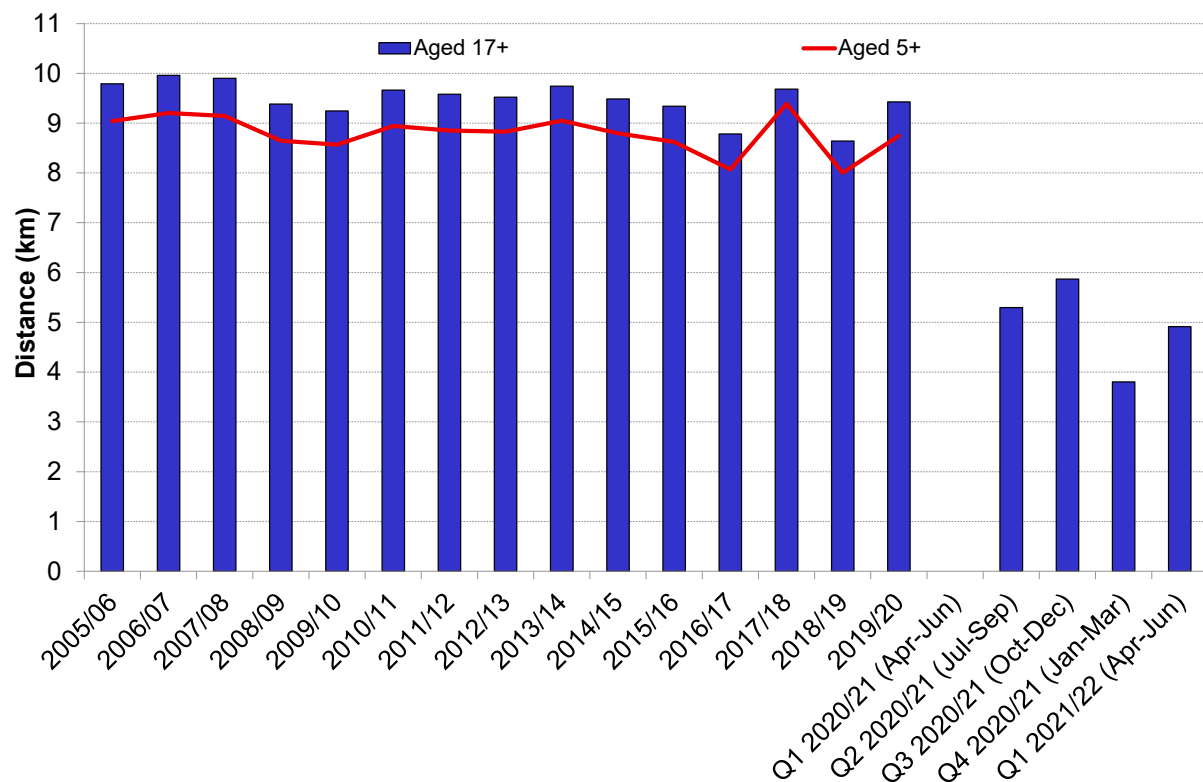
Figure 4.2 Average distance of trips fully within London, LTDS, 2005/06-2021/22.



Source: TfL City Planning.

4. London residents' travel during the pandemic

Figure 4.3 Total distance travelled per person per day, trips wholly within London, LTDS, 2005/06-2021/22.



Source: TfL City Planning.

In addition to the reduction in the volume and distance of trips, the pandemic also caused changes to the spatial and temporal distribution of travel and trends by mode. These changes are explored further in section 4.4 below.

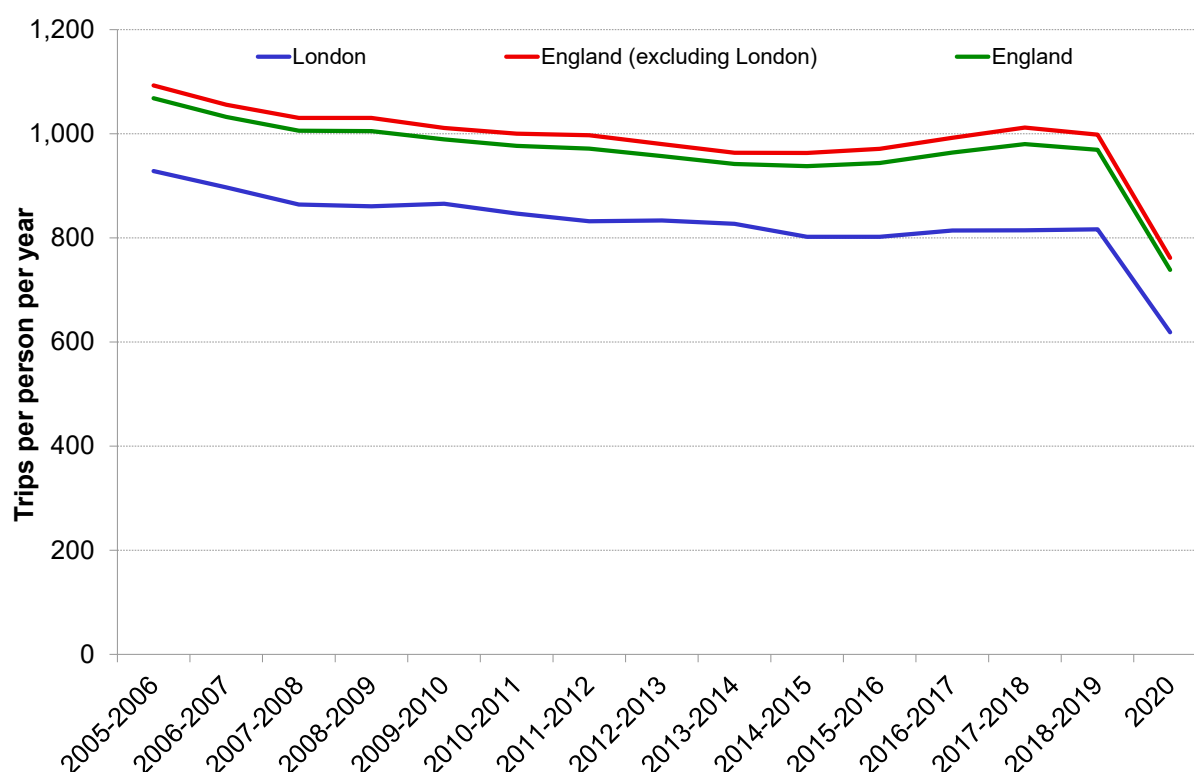
Parallels at the national scale

The trends in trip rates seen among London residents have parallels at the national scale. The National Travel Survey (NTS, GB, latterly England only) shows that the historic trend of declining per-person trip rates was well established and tracks broadly falling trip rates over the period since 2005/06. Like the trend in London, the NTS shows that national trip rates recovered slightly in the last few years prior to the pandemic.

However, in 2020 during the pandemic, the number of trips per person per year decreased by the same magnitude in London and England, declines of 24 per cent respectively (figure 4.4).

4. London residents' travel during the pandemic

Figure 4.4 Trip rates, National Travel Survey, 2005-2020.



Source: National Travel Survey.

Note: NTS data is reported in two-year averages up until 2018-2019. 2020 is available as a single year.

4.3 Active, efficient and sustainable mode shares by Londoners

The LTDS shows the mode share of London residents only, which is not the same as the Mayor's aim (see section 3.3 of this report), relating to all travel in London, whether by residents or non-residents, and uses a different estimation methodology.

Active, efficient and sustainable mode share: historic trend

Figure 4.5 shows that the proportion of trips made by active, efficient and sustainable modes (public transport, walking or cycling) has increased gradually over time, increasing by 10 percentage points from 57 per cent in 2005/06 to 67 per cent in 2019/20. This was mostly driven by consistent growth in public transport use (primarily rail) over the period, in addition to a gradual increase in cycling. Bus and walk mode shares have been relatively more stable over the period.

Active, efficient and sustainable mode share: pandemic trend

During the pandemic, the share of public transport trips declined significantly, driven by a change in the reasons for which people were travelling (eg fewer commuting trips which in London tend to have a high public transport mode share). Bus travel held up better than rail, as it is often used for short trips, by secondary school children who mostly continued to travel to school, as well as some of those who continued to travel to work.

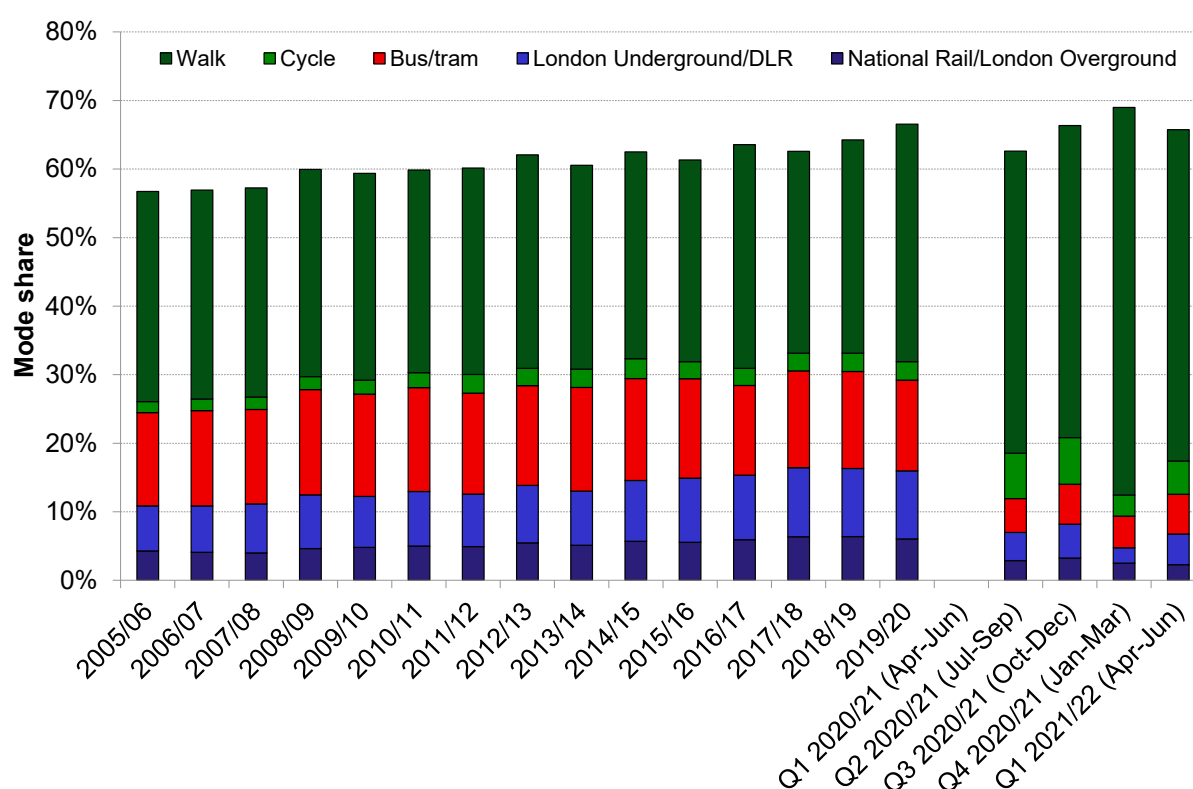
4. London residents' travel during the pandemic

Active travel mode shares (for both walking and cycling) increased during the pandemic compared to the historic trend, with the cycle mode share in Q2 and Q3 2020/21 twice as high as in 2019/20 (figure 4.5). The walking mode share was highest in Q4 2020/21 during the third lockdown when travel restrictions were in place for most of the quarter. In the most recent quarter, as travel restrictions were relaxed, bus and London Underground mode shares increased (as some people began to return to work) and the walk mode share declined from the high in Q4 2020/21, although the cycling mode share increased (again likely correlated with some return to work). Overall, the active, efficient and sustainable mode shares have been comparable to the 2019/20 average, despite the disruption from the pandemic.

This similarity of mode share outcomes, in the context of radical changes to the nature of travel, is particularly noteworthy and perhaps speaks of the applicability of the Mayor's transport aims to a range of future travel contexts.

In relation to the comments in section 3.3 (above) about the overall mode share statistic, it should be noted that the LTDS survey is likely to give a better estimation of local walk trips than is available to that calculation, and it is notable that in all pandemic quarters the share of walk trips was above 44 per cent, reaching 57 per cent in Q4 2020/21, compared to, typically, a share of 32 per cent before the pandemic.

Figure 4.5 Trip-based active, efficient and sustainable mode share, LTDS, 2005/06-2021/22.



Source: TfL City Planning.

Cycling mode shares fluctuated, reflecting seasonality, but were still on average around twice as high (5.3 per cent) as they were before the pandemic (2.7 per cent in 2019/20). London residents' public transport mode shares declined significantly,

4. London residents' travel during the pandemic

by more than half for London Underground and bus and to a slightly lesser extent for rail (the impact on which would be greater if the data included non-Londoners).

Broadly, the relatively high active, efficient and sustainable mode shares among residents reflect a shift during the pandemic to more local lifestyles, and a greater use of the modes that are more suited to this; it must nevertheless be recognised that pandemic conditions were highly atypical and brought significant hardship to many.

4.4 Londoners' travel behaviour during the pandemic

The sections above describe how Londoners' trip rates, trip distance and mode shares changed during the pandemic. The following section describes other ways in which travel behaviour has changed, in terms of travel by mode, journey purpose and the spatial and temporal distribution of travel across London.

For context, table 4.1 provides a timeline of UK coronavirus restrictions that are relevant to the demand for travel throughout the pandemic so far.

Table 4.1 Timeline of UK coronavirus restrictions relevant to travel demand.

Quarter and year	UK coronavirus restrictions
Q1 2020/21 (April to June 2020)	No LTDS data collected First national lockdown (March to May) Essential travel only and work from home if possible Schools closed
Q2 2020/21 (July to September 2020)	Easing of restrictions Non-essential retail opens and schools return (followed by summer holidays) Work from home advice dropped
Q3 2020/21 (October to December 2020)	Restrictions tighten but schools remain open Work from home if possible Second national lockdown (November) Restrictions on household mixing and non-essential shops close at end of December Mass vaccination programme begins
Q4 2020/21 (January to March 2021)	Third national lockdown (January to early March) Schools closed until 8 March Restrictions begin to lift at end of March
Q1 2021/22 (April to June 2021)	Retail reopens and households can mix indoors Indoor hospitality and entertainment venues reopen

Source: TfL City Planning.

Trips by journey purpose

Figure 4.6 shows that prior to the pandemic in 2019/20, just less than one fifth of trips made by London residents were for commuting and a further 7 per cent of trips

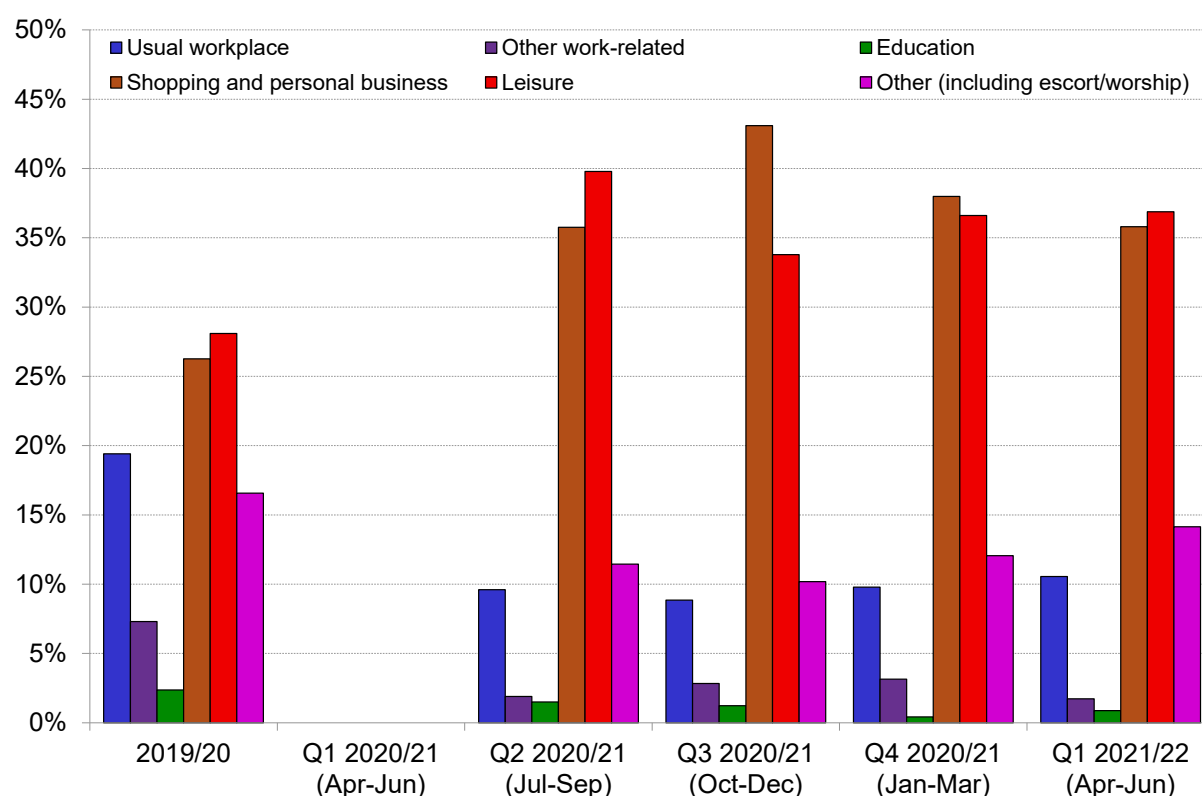
4. London residents' travel during the pandemic

were work-related (eg travelling to a meeting). Shopping, personal business and leisure trips accounted for just more than half of all trips by those aged 17 or more (54 per cent) and 17 per cent were made for other purposes.

During the pandemic, the share of trips for commuting halved to around 10 per cent as did the share of work-related trips (3 per cent) as many office workers began working from home in line with national guidance. By contrast, the share of shopping, personal business and leisure trips increased considerably to account for the majority of trips (between 75-80 per cent), a reflection of the activities that were permitted during travel restrictions (essential shopping and walking or cycling for leisure/exercise). The share of shopping trips increased notably in Q3 2020/21 in the lead up to Christmas, despite non-essential shops being closed during the second lockdown in November 2020. The share of trips for 'other' journey purposes (incorporating some essential purposes such as pick-up/drop-off trips) decreased to around 11 per cent.

The latest available data for Q1 2021/22 (Apr-Jun) shows that the share of trips for commuting has increased slightly as people began to return to their usual workplace (although the share of other work-related trips decreased). The share of shopping, personal business and leisure trips also decreased slightly, and the share of other trips increased.

Figure 4.6 Proportion of trips by journey purpose, London residents aged 17+, LTDS, 2019/20-2021/22.



Source: TfL City Planning.

Working location

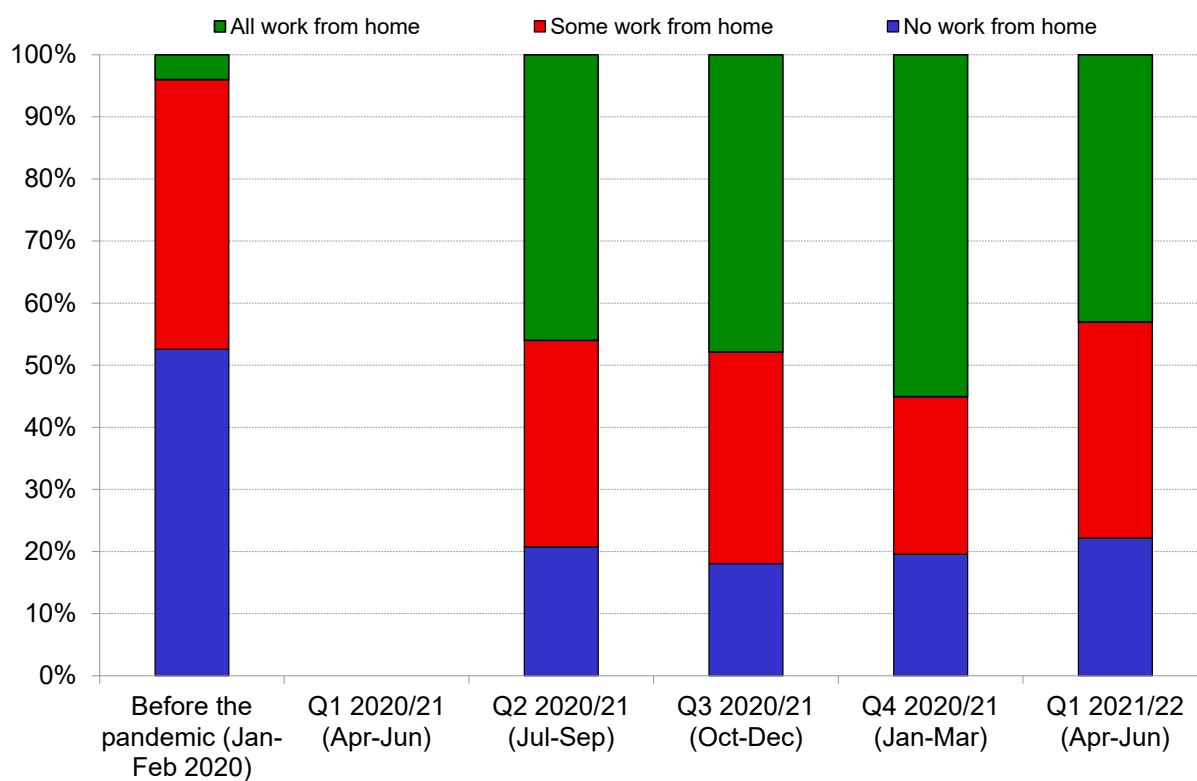
Figure 4.7 shows the proportion of London resident workers by working location over the same time periods as above. Prior to the pandemic in January to February 2020,

4. London residents' travel during the pandemic

the majority of workers (53 per cent) did no work from home, with 43 per cent doing some work from home (with varying frequencies) and very few doing all of their work from home (4 per cent).

This changed significantly following the onset of the pandemic and although there was no LTDS data collected during the first national lockdown, by Q2 2020/21 (Jul-Sep), despite the work from home advice being dropped, 46 per cent of workers were doing all of their work from home with a further 33 per cent doing some work from home, leaving just one fifth travelling to work (21 per cent). These shares remained similar during Q3 2020/21, when the work from home advice was reinstated, however, the proportion doing all of their work from home increased again in Q4 2020/21 coinciding with the third national lockdown, where 80 per cent of resident workers were doing all or some of their work from home. In Q1 2021/22, although the work from home advice was still in place, many other restrictions began to lift and this has resulted in a lower share of resident workers doing all of their work from home (43 per cent against 55 per cent in the previous quarter) with an increase in the share of workers doing some or none of their work from home.

Figure 4.7 Proportion of working from home by London workers, LTDS, 2020/21 vs before the pandemic.



Source: TfL City Planning.

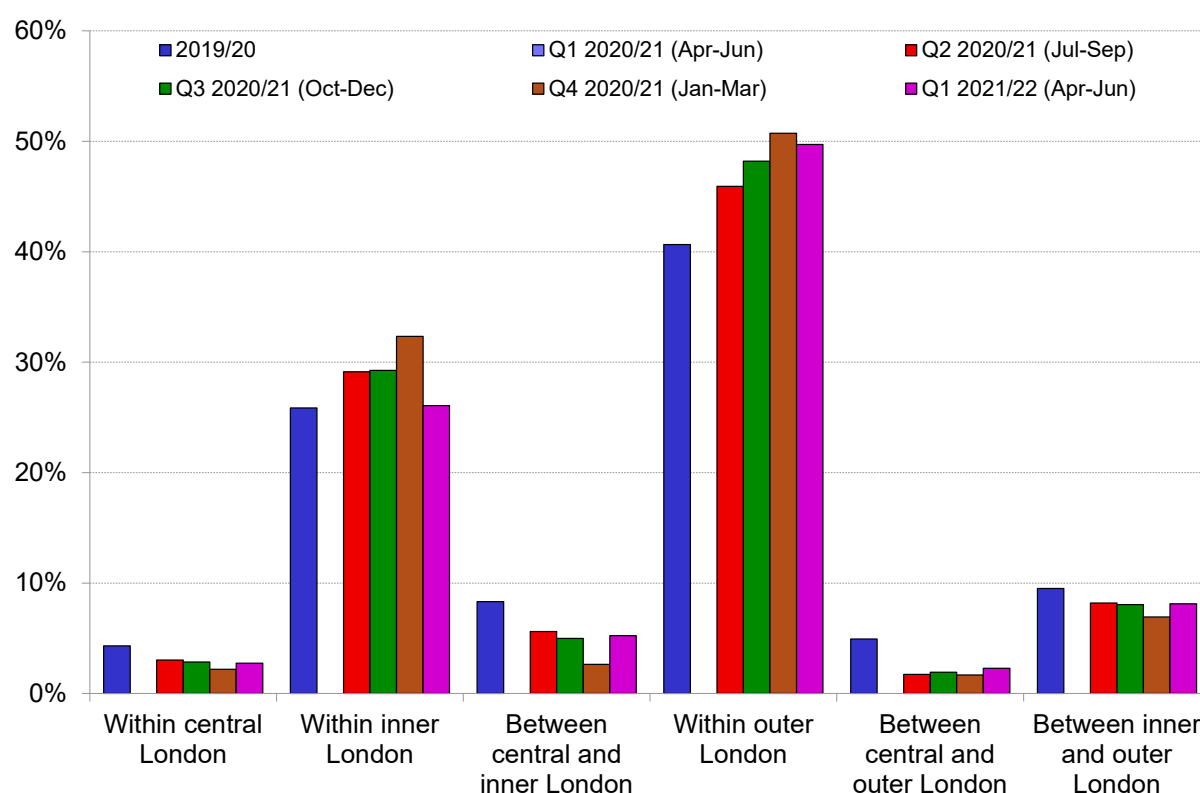
Spatial distribution of trips

The increase in the share of workers doing all or some of their work from home also impacted the spatial distribution of trips, as office workers (many of whom are based in central London) began to make more trips in their local area and fewer to/from or near their place of work. In addition, due to general restrictions on travel, fewer people travelled to central London for non-work-related travel eg leisure and shopping.

4. London residents' travel during the pandemic

Prior to the pandemic in 2019/20, two-thirds of residents' trips took place (wholly) within inner or within outer London (26 and 41 per cent respectively). Just less than one fifth of residents' trips took place within, to or from central London. During the pandemic, a greater proportion of trips took place within inner or within outer London, increasing with each quarter until the end of the third lockdown (Q4 2020/21) where they accounted for more than 80 per cent of trips by residents. There was a corresponding decrease in the share of trips within, to or from central London, which accounted for just 7 per cent of trips in Q4 2020/21 (Oct-Dec). In the latest quarter (Q1 2021/22) there has been greater demand for travel within/to/from central London as restrictions began to ease. The share of these trips increased to 10 per cent as some people returned to work in central London and demand for discretionary trips also increased. This has resulted in a lower share of trips taking place within inner London (down by six percentage points) and outer London (down one percentage point).

Figure 4.8 Proportion of trips by origin and destination area, Londoners aged 17+, LTDS, 2019/20-2021/22.



Source: TfL City Planning.

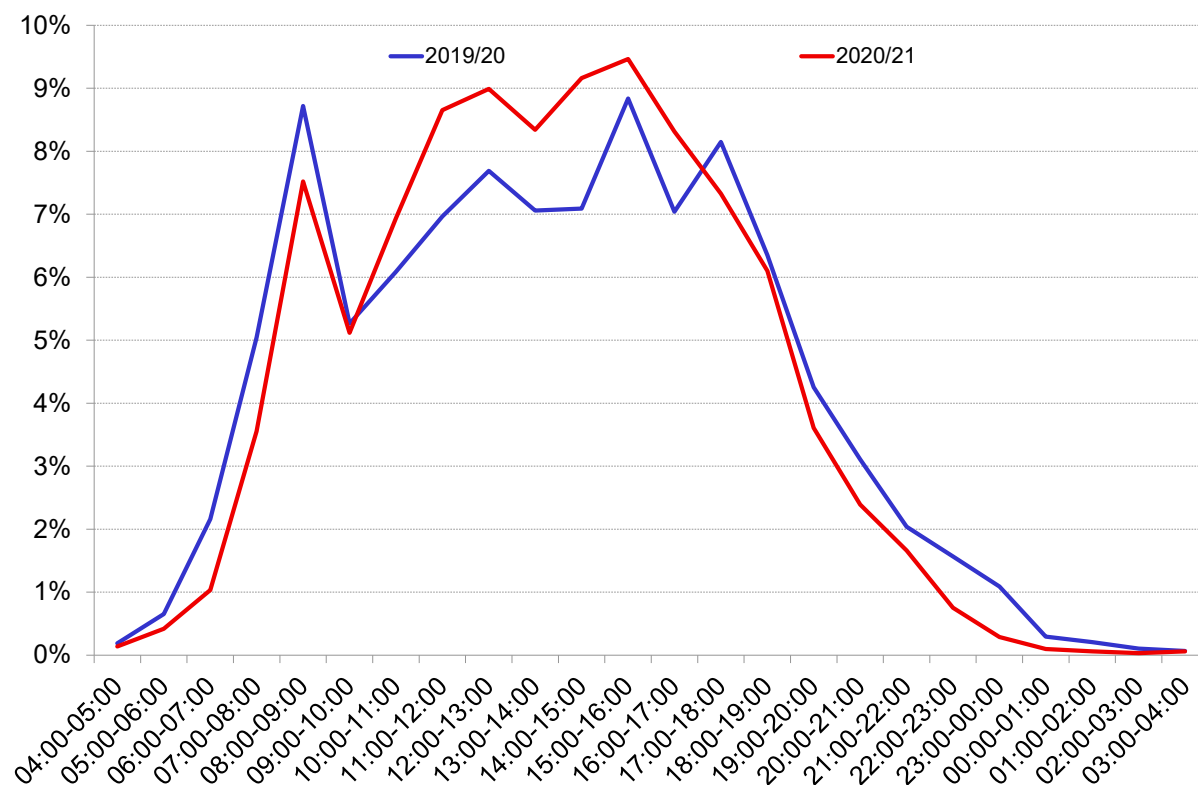
Temporal distribution of trips

As well as changes to the spatial distribution of trips during the pandemic, there have also been changes to the temporal distribution of travel. Figure 4.9 shows that the overall trend has been for a lower share of trips taking place in the morning and evening and a greater share of trips taking place in the middle of the day. The reduction in people commuting to work will have contributed to fewer trips in the morning and evening periods, however in some cases those trips may have been substituted by trips for other purposes eg morning exercise before work. Trips in the morning peak (07:00 to 09:59) were down by three percentage points on 2019/20

4. London residents' travel during the pandemic

although the share of trips in the evening peak (16:00 to 18:59) was the same as in 2019/20 albeit with a slight shift towards earlier in the evening peak. The share of trips being made in the inter-peak (10:00 to 15:59) was 52 per cent in 2020/21 compared to 44 per cent in 2019/20. This shift towards making trips during the middle of the day is likely to have been driven by a number of factors, including workers being more likely to make trips in their lunch hour when working from home and restrictions on evening activities, such as socialising, during lockdown periods.

Figure 4.9 Proportion of trips by start hour, London residents aged 17+, LTDS, 2019/20-2020/21.



Source: TfL City Planning.

Central London

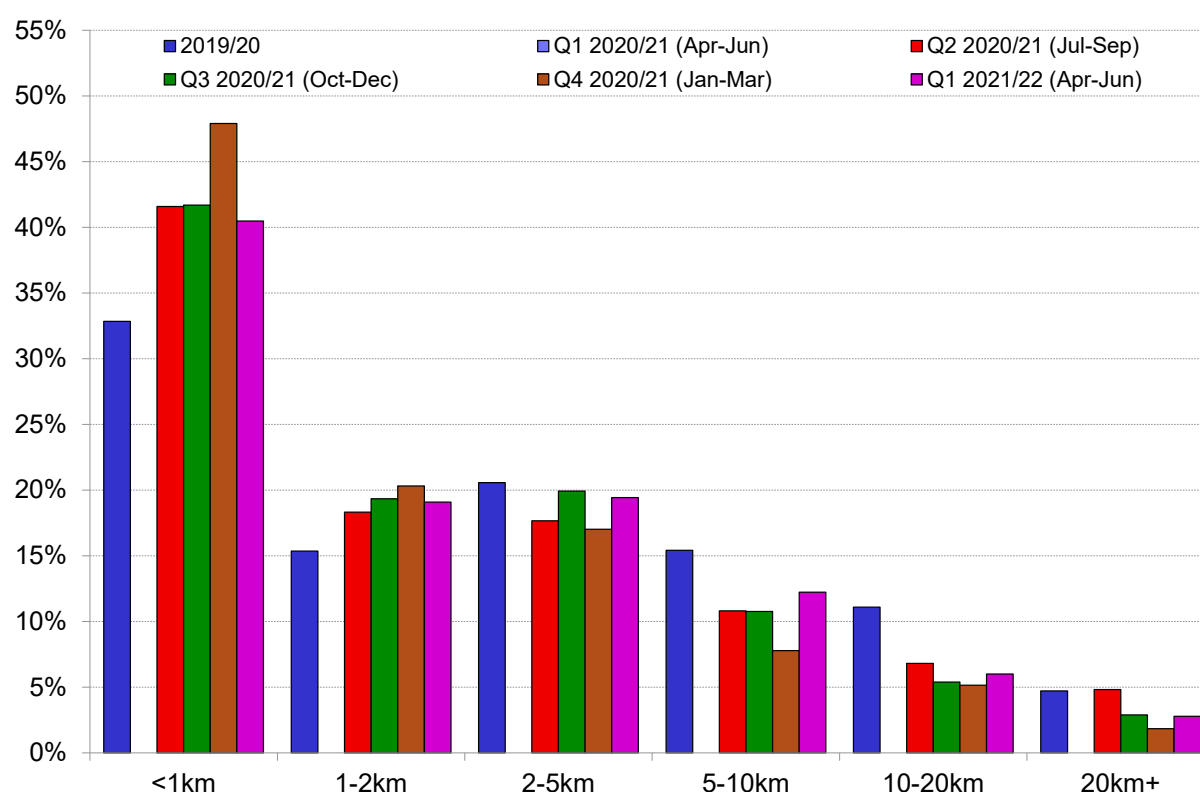
In addition to the fall in demand for trips to/from central London among London residents, the impact on central London will have been exacerbated by the absence of longer-distance commuters and longer-term visitors such as tourists, both of whom were largely absent for lengthy periods of the lockdowns. While leading to a pronounced 'localism' of travel by many residents, it is important to note that these restrictions did not affect people equally. While considerable numbers of office-based employees in central London were required to work from home, and others furloughed for lengthy periods, many 'key workers' continued to attend their workplaces in central London and more widely. The return to central London has been relatively slow during autumn 2021, and the likely full extent of the return of travel demand to central London over the longer term remains unclear.

4. London residents' travel during the pandemic

Trips by distance

The localism of travel during the pandemic also had an impact on the distribution of trip distances by London residents, as shown in figure 4.10. Prior to the pandemic in 2019/20, one third of trips in London were 1km or less, 15 per cent were between 1km and 2km and 21 per cent were between 2km and 5km (31 per cent were 5km or more). In the first quarter of available pandemic data, the share of very short trips (1km or less) increased to 42 per cent and the share of trips between 1km and 2km increased to 18 per cent. The share of mid-length trips (between 2km and 5km) reduced from 21 per cent to 18 per cent and the proportion that were 5km or more reduced to 22 per cent. These proportions remained similar in Q3 2020/21 (Oct-Dec) but during the third lockdown (Q4 2020/21) the share of very short trips increased again to 48 per cent and the share of trips between 1km and 2km increased to 20 per cent, meaning almost 7 in 10 trips were less than 2km (compared to less than half of trips in 2019/20). As restrictions have relaxed in the latest quarter, there has been a reduction in the share of trips less than 2km to 60 per cent suggesting that Londoners are beginning to make longer trips (for a more diverse range of purposes and with greater spatial variation than in previous quarters).

Figure 4.10 Proportion of trips by distance, Londoners aged 17+, LTDS, 2019/20-2021/22.



Source: TfL City Planning.

Trips by mode

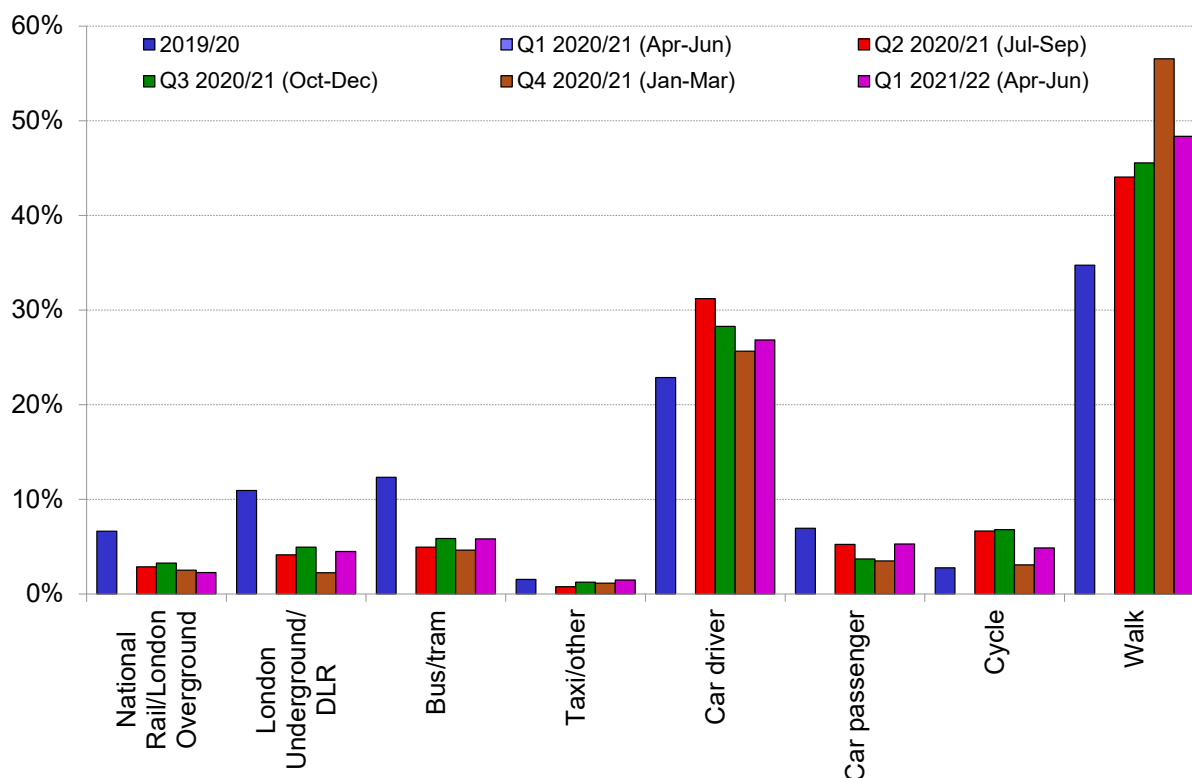
All of the changes to travel behaviour mentioned above, for example the shift in journey purposes, the reduction in trips to/from and within central London and the shift towards shorter, more local trips has resulted in a change in the mode share of trips (shown in figure 4.11 as share of trips by distance-based main mode).

4. London residents' travel during the pandemic

Prior to the pandemic, the majority of trips made by Londoners were as car driver or by walking (23 and 35 per cent respectively) and while this has still been the case during the pandemic so far, the share of both has increased. This is due to several reasons, including the lower perceived risk of catching coronavirus when using private or active modes, and the fact that walking is more feasible for shorter, local trips and that it was one of the few permitted activities during lockdown periods. The walking mode share increased in each quarter up to the end of 2020/21 (correlating with successively stricter restrictions in each quarter) and peaking at 57 per cent in Q4 2020/21 (Jan-Mar). For similar reasons the share of cycling trips also increased compared to 2019/20, however, the trend here is more reflective of seasonal changes, with higher cycle mode shares in Q2 and Q3 2020/21 (7 per cent respectively compared to 3 per cent in 2019/20), corresponding with summer and autumn. Although walk mode shares increased in Q4 2020/21 (Jan-Mar), the cycle mode share decreased from 7 per cent to 3 per cent, coinciding with winter. In the latest quarter (spring 2021) the cycling mode share is up again, at 5 per cent, whereas the walk mode share has decreased to 48 per cent (but remains well above average).

Public transport mode shares have decreased significantly across all modes, due in particular to the lower rates of commuting which, for many Londoners, involves travel on public transport. In the latest quarter, with the easing of restrictions and a lower share of residents working from home, the mode share on London Underground or DLR and buses increased. The mode share for rail decreased by one percentage point in the latest quarter. Car passenger mode share has, overall, been slightly lower compared to the 2019/20, perhaps linked to fewer people car sharing or giving lifts to others during the height of the pandemic.

Figure 4.11 Proportion of trips by mode, London residents aged 17+, LTDS, 2019/20-2021/22.



Source: TfL City Planning.

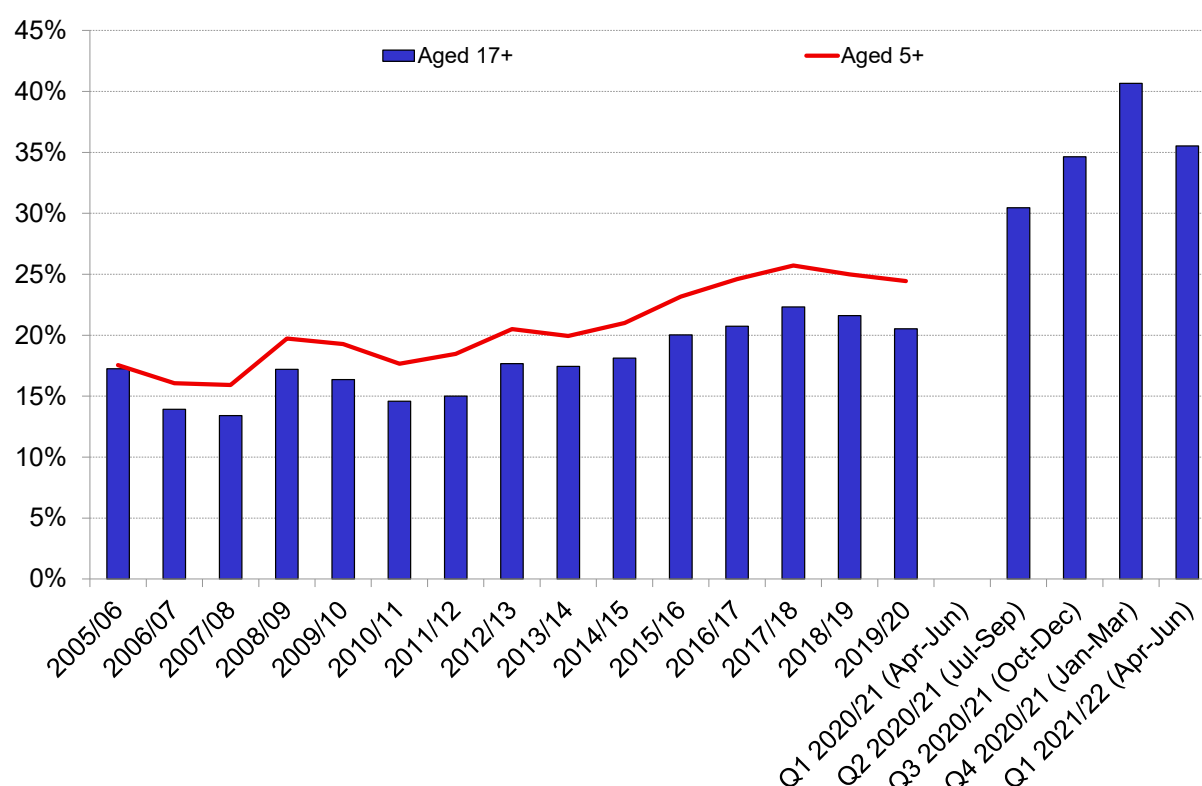
4. London residents' travel during the pandemic

Non-travel

The proportion of London residents who recorded no travel on the day they were surveyed for the LTDS is monitored as the 'non-travel' rate. Figure 4.12 shows that, prior to the pandemic, the historic trend was one of a gradual increase in non-travel over the survey period, increasing from 17 per cent in 2005/06 to 21 per cent (for all ages 17+) in 2019/20.

Since the start of the pandemic, the proportion of London residents who made no travel on the survey day has increased considerably, reaching a peak of 41 per cent in Q4 2020/21 (coinciding with the third national lockdown). The non-travel rate reduced in the latest quarter (Q1 2021/22) as lockdown restrictions began to lift but remains 15 percentage points higher than the 2019/20 average.

Figure 4.12 Proportion of London residents making no trips, LTDS, 2005/06-2021/22.

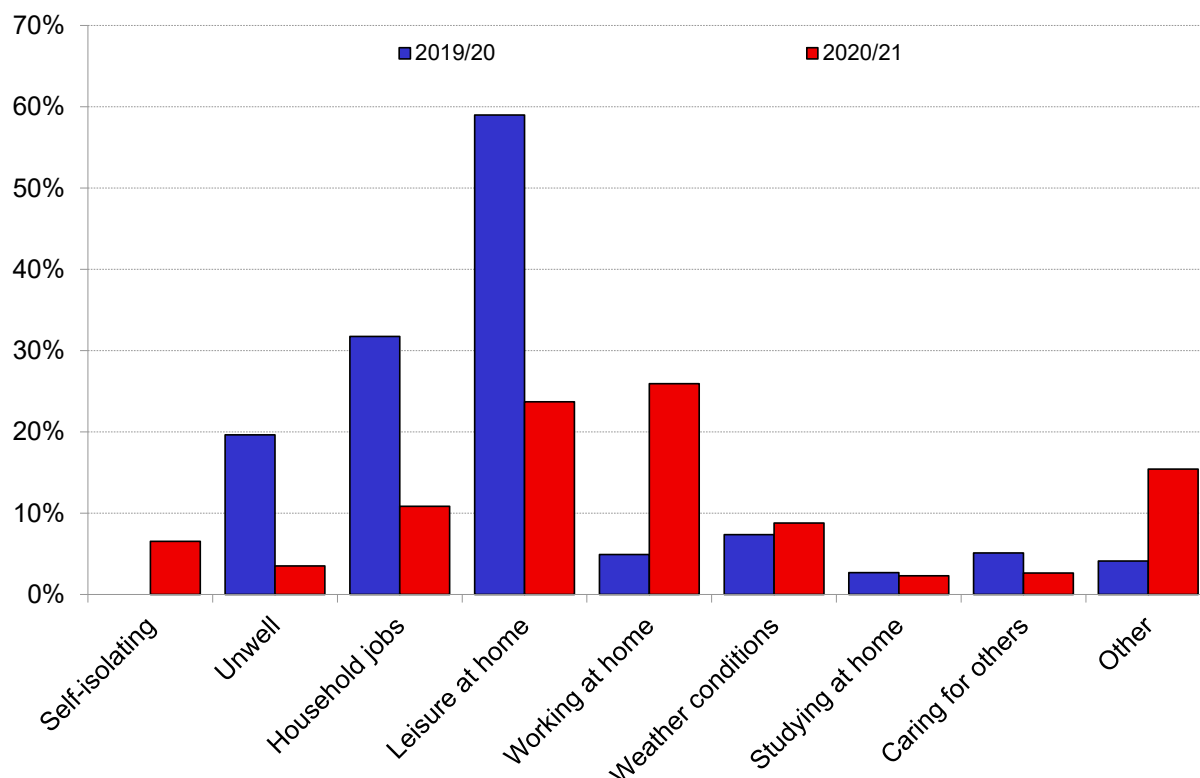


Source: TfL City Planning.

Figure 4.13 shows the reasons for non-travel for respondents in 2019/20 compared to respondents in 2020/21 (note that respondents can pick more than one reason). The proportion of residents who reported that they were working at home increased to 26 per cent in 2020/21 compared to 5 per cent in 2019/20. The proportion who gave 'other' as a reason was also higher in 2020/21 (15 per cent compared to 4 per cent in 2019/20) and many of these responses could have been during lockdown periods where national restrictions were the main reason for no travel. In addition, there was a small proportion (7 per cent) who reported no travel due to them self-isolating. Interestingly the proportion of people who reported staying at home because they were unwell, doing household jobs or doing leisure at home was lower in 2020/21 than in 2019/20.

4. London residents' travel during the pandemic

Figure 4.13 Proportions of people who did not travel by reason (multiple choice response), London residents aged 17+, LTDS, 2019/20-2020/21.



Source: TfL City Planning.

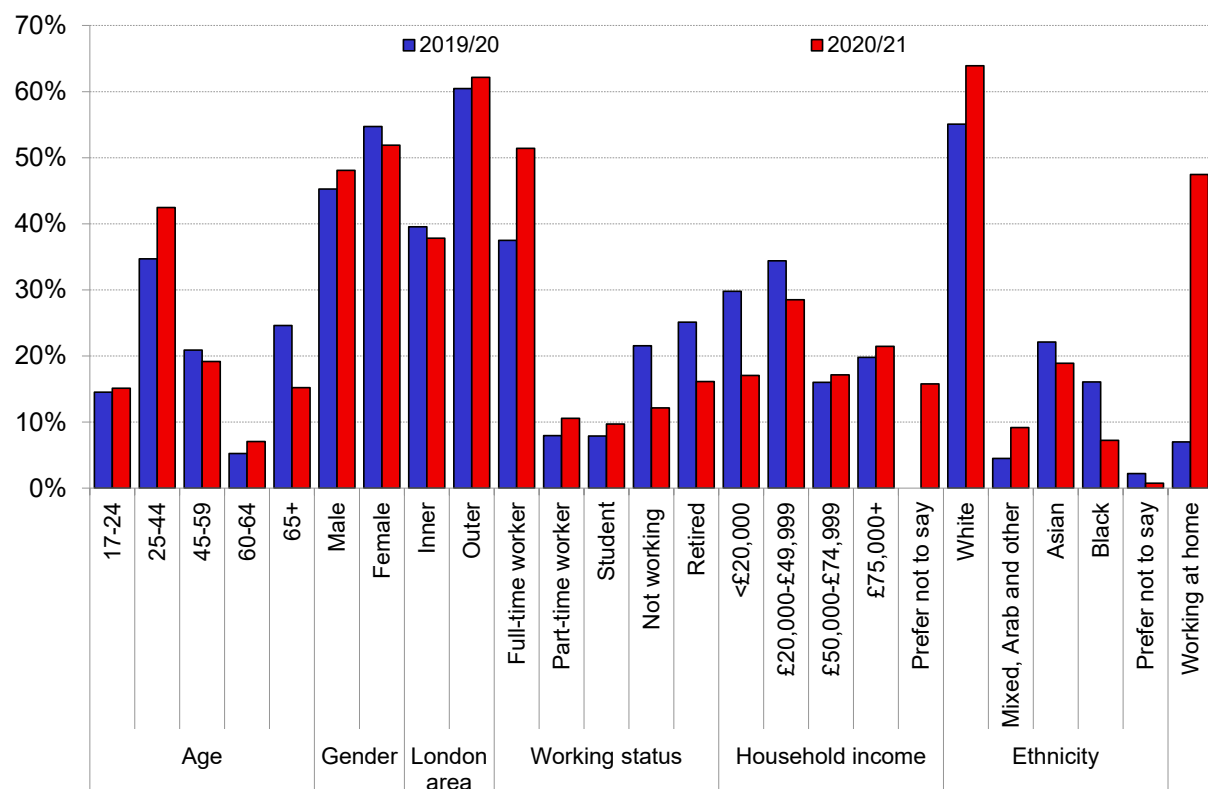
Note: Self-isolating was not a response option in 2019/20.

Analysis of the demographic breakdown of those who reported no travel in 2019/20 vs 2020/21 shows that the driving factor of the changes in demographic breakdown is a much higher proportion of people not travelling because they are workers or students who were working from home (evident in the breakdown by working status). This has resulted in a higher proportion of working age residents not travelling compared to 2019/20 (particularly among those aged 25-44), a higher proportion of those living in higher-income households (with annual household incomes over £50,000) and a higher proportion of white, mixed, other or Arab residents.

Non-travel, either through illness from the pandemic, shielding or other medical advice, or simple fear of catching the virus, has been a particularly concerning feature of the pandemic that negatively impacts those affected, and recent levels should perhaps be regarded as a concern from a wider wellbeing perspective. Data also suggest that many who work from home are perhaps failing to achieve recommended levels of daily active travel.

4. London residents' travel during the pandemic

Figure 4.14 Proportion of non-travellers aged 17+, by socio-demographic group, LTDS, 2019/20-2020/21.

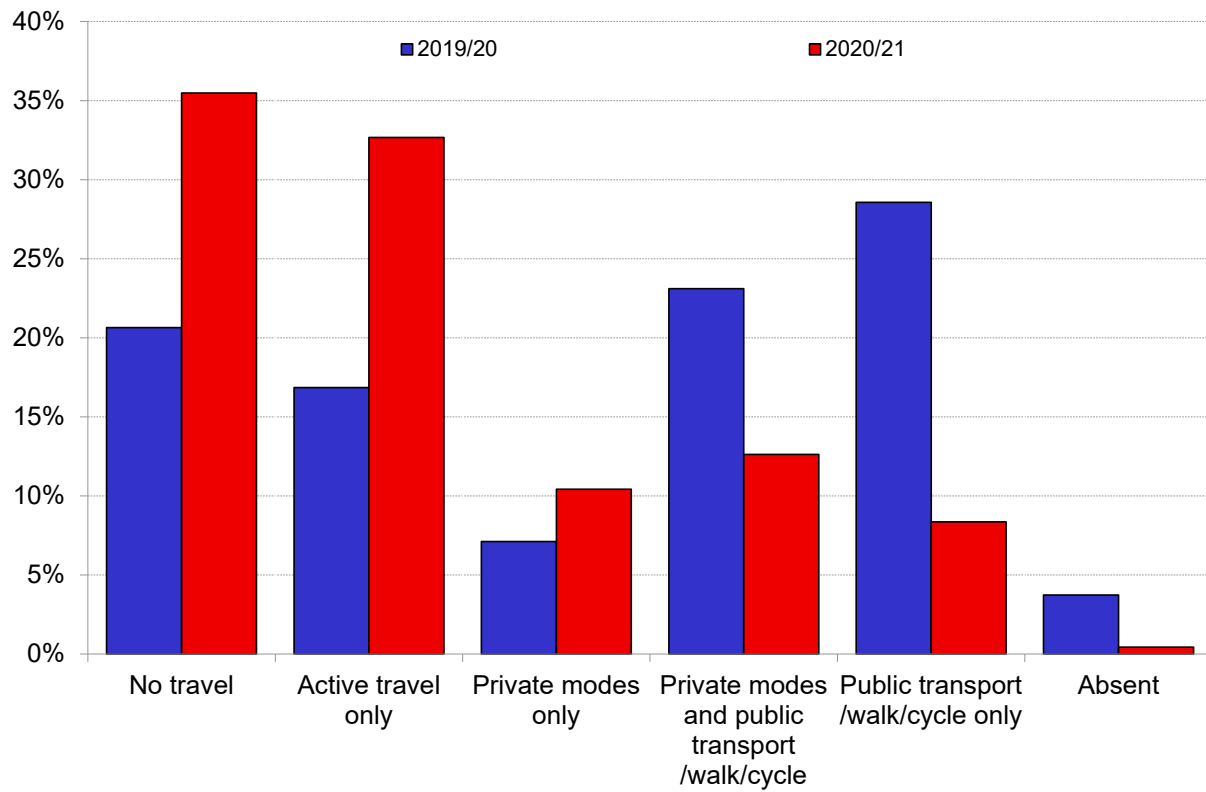


Source: TfL City Planning.

Lastly, in addition to a significant increase in the share of residents who reported not travelling, among those who did travel there was a shift in the mix of modes used (figure 4.15). In 2019/20, the share of residents who used only active modes (walking or cycling) on an average day was 17 per cent, increasing to 33 per cent in 2020/21. This increase is likely to have been driven by a shift away from public transport among non-car owners during periods of strict restrictions where the perceived risk of coronavirus on public transport was high. Some of the increase may also have come from the shift towards people making fewer, more local trips which are generally more feasible by active modes. The share of people who used only private modes also increased, from 7 per cent to 10 per cent. The share of those using public transport, either in combination with private and active modes, or only with other active, efficient and sustainable modes both decreased. Again, this has been driven by the shift away from public transport and the preference towards private or active modes during much of the pandemic.

4. London residents' travel during the pandemic

Figure 4.15 Proportion of London residents aged 17+, using various combinations of modes, LTDS, 2019/20-2020/21.



Source: TfL City Planning.

4. London residents' travel during the pandemic

Section 2: Healthy Streets and healthy people

5. Active travel and Healthy Streets

5.1 Introduction

This chapter sets out the main trends in indicators relating to the Mayor's Healthy Streets and active travel aims, covering the historic period up to the end of the 2019/20 financial year, just prior to the widespread disruption arising from the coronavirus pandemic, and also looking at how these trends developed during the pandemic itself and into the more recent period of recovery.

The Healthy Streets Approach is central to the Mayor's vision to create a better city for all Londoners. It means creating streets that work for everyone and are accessible, safe and inclusive. Reducing Londoners' dependency on cars will be an essential component of this. Although before the pandemic London made real progress in encouraging people to switch from the car to active, efficient and sustainable alternatives, many more car journeys could still be made in other ways. As we recover from the pandemic, these initiatives will play an important role in helping to ensure that London avoids a 'car-led recovery'. More details on this Approach and how it is being taken forward in terms of strategic and local planning in London can be found on our dedicated [Healthy Streets website](#).

5.2 Travel-related physical activity

Introduction

A priority within the Mayor's Transport Strategy is to increase the proportion of Londoners who travel actively so that, by 2041, all Londoners will achieve the minimum recommended requirement of 20 minutes of active travel each day that is needed to stay healthy (referred to as our Active People target). This will deliver significant health and wellbeing benefits for Londoners and contribute to the Mayor's aim for 80 per cent of all trips made in London to be by active, efficient and sustainable modes by 2041.

Progress towards this aim is currently measured using our LTDS. This tells us the proportion of Londoners who report having walked or cycled for at least 20 minutes on the previous day. We acknowledge that a certain proportion of people will be routinely active but may not have travelled actively on the previous day eg due to sickness or caring responsibilities, so our proxy aim is for 70 per cent of adults to report 20 minutes of active travel on the previous day by 2041.

By measuring the proportion of people who report doing 20 minutes of walking or cycling on the previous day, we can identify the percentage of Londoners who are likely to be achieving minimum healthy levels of activity through active travel alone. This does not include other forms of physical activity, such as sport, which are additional to this measure. However, we know that active travel is the easiest and most equitable type of physical activity for people to engage in.

5. Active travel and Healthy Streets

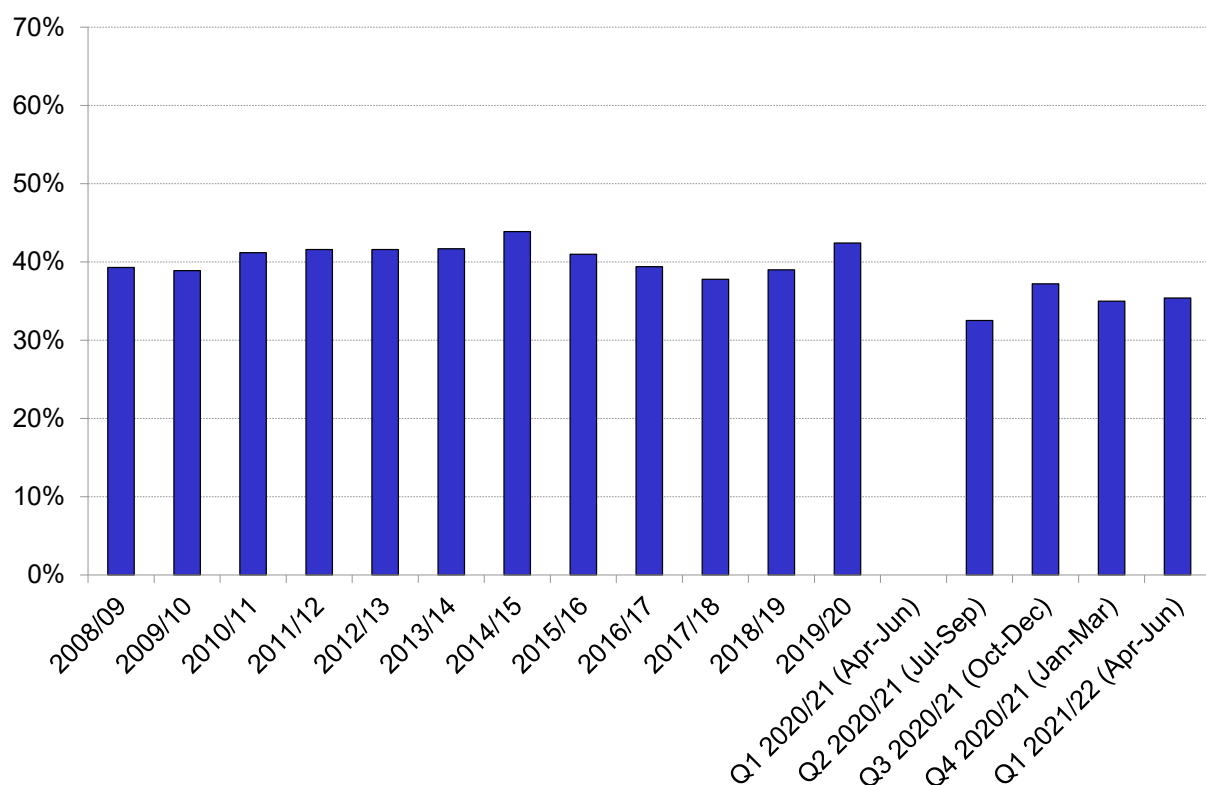
Trend in achievement of recommended daily active travel

The LTDS offers the best available data source on active travel in London, giving a daily snapshot of travel behaviour by London residents. Data is available for three of the four financial quarters of 2020/21, although it is based on a smaller sample size than usual. The historic trend prior to the pandemic was relatively stable, with values fluctuating at around 40 per cent of Londoners achieving at least 20 minutes of active travel per day up to 2019/20.

Chapter 4 explained the changes to Londoners' travel behaviour observed since the outbreak of the pandemic, including a shift to shorter, more local trips, a decline in the share of commuting trips and an increase in the share of shopping and leisure trips, as well as an increase in the mode shares of active travel and car trips, albeit in the context of lower overall levels of travel. The following section explains how these changes have impacted the achievement of the active travel target.

Estimates from 2020/21 suggest that the proportion of Londoners achieving the target has decreased, with values ranging between 33 and 37 per cent. In the latest quarter (Q1 2021/22), the value was 35 per cent, up 0.4 per cent on the previous quarter. Although lockdown restrictions gave Londoners greater opportunity to partake in active travel more locally, in practice this was countered by general restrictions on mobility, resulting in many fewer (and shorter) trips being made per day compared to before the pandemic. Another main contributory factor to lower overall achievement of 20 minutes of active travel across the population as a whole is the reduction in walking (and to some extent cycling) as part of the journey to work on behalf of those working from home.

Figure 5.1 Proportion of London residents aged 20+ who achieve at least 20 minutes of active travel per day, LTDS, 2008/09-2021/22.

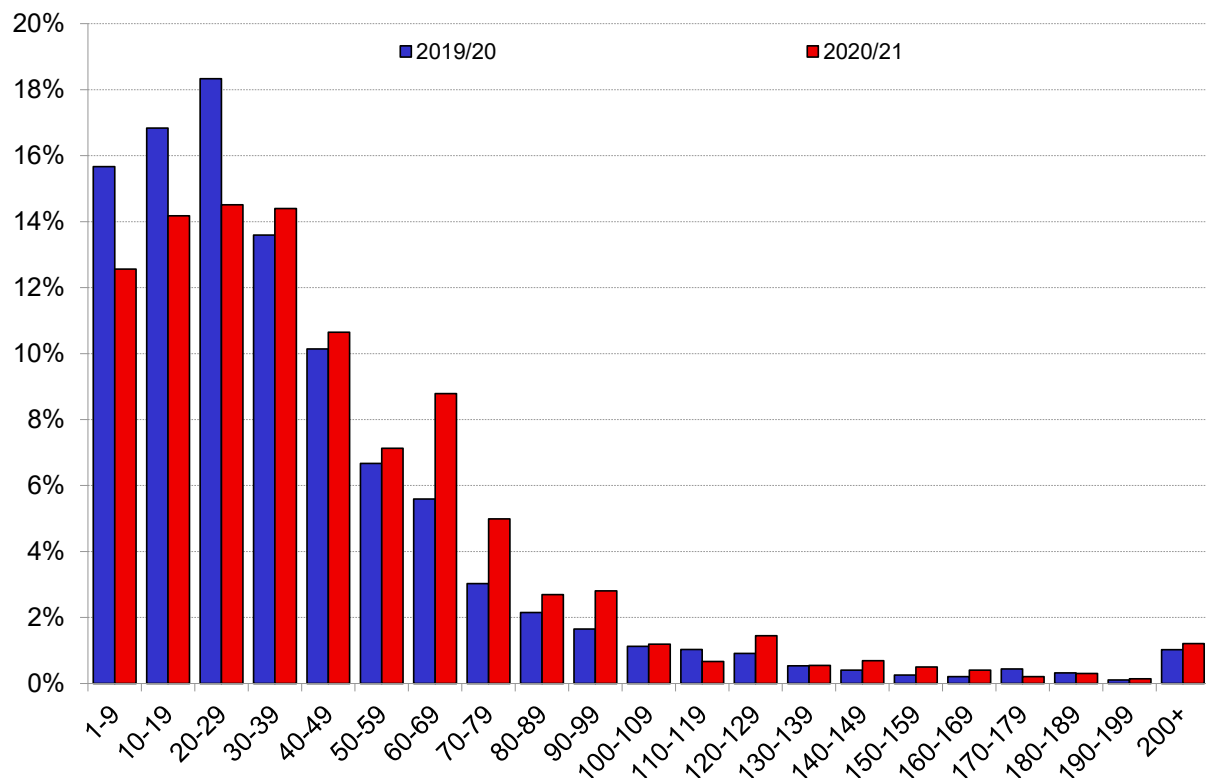


Source: TfL City Planning.

Distribution of time spent doing physical activity

Figure 5.2 shows the distribution of total minutes spent walking or cycling by adults aged 20 or more who did any walking or cycling in 2019/20 vs 2020/21. On average in 2020/21, the share of people doing up to 30 minutes of walking or cycling was lower and the share of those achieving more than 30 minutes of walking or cycling was higher with a pronounced shift towards the middle of the distribution. This resulted in higher achievement of the 20 minute target among those who did any walking or cycling (73 per cent in 2020/21 compared to 66 per cent in 2019/20). However, as described previously, among those who did travel, there was a higher share of people who did not complete any walking or cycling, that is, all of the travel that took place was by private modes (26 per cent in 2020/21 compared to 23 per cent in 2019/20). Furthermore, the share of people who did not travel was much higher in 2020/21, reflecting pandemic conditions, compared to 2019/20 (35 per cent against 21 per cent), contributing to lower overall achievement of the target across the whole population.

Figure 5.2 Distribution of minutes spent walking or cycling (by those who did some active travel), London residents aged 20+, LTDS, 2019/20-2020/21.



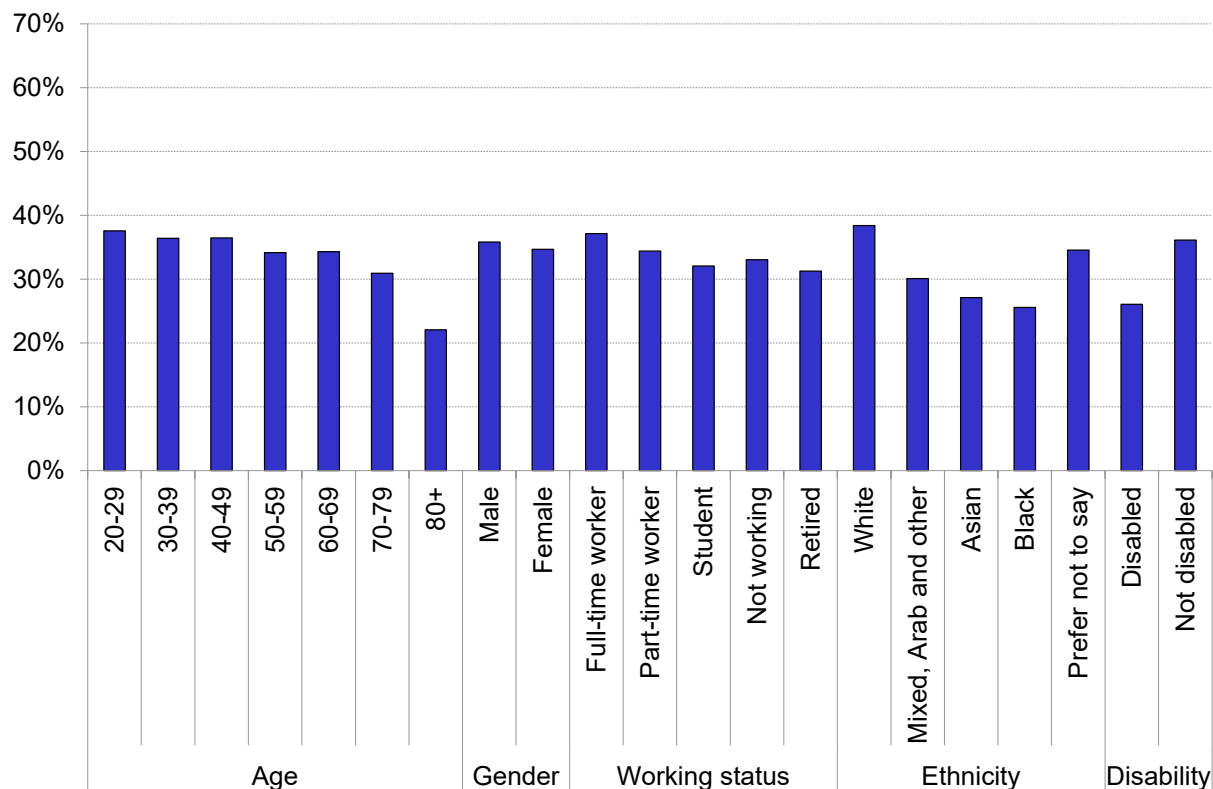
Source: TfL City Planning.

Figure 5.3 shows that those who are more likely to achieve 20 minutes of active travel are White, working (particularly those who work full-time), are not disabled and are in younger age groups. The rate of achievement decreases with age, partly driven by a lower frequency of travel among older people. By ethnicity, White residents (38 per cent) are much more likely to meet the target than any other group, with achievement among Black residents the lowest at 26 per cent. There is also a considerable difference between disabled residents (26 per cent) and residents who

5. Active travel and Healthy Streets

are not disabled (36 per cent). Conversely there is very little difference between male and female residents (36 per cent vs 35 per cent respectively).

Figure 5.3 Proportion of London residents aged 20+ who achieve at least 20 minutes of active travel per day, by socio-demographic group, LTDS, 2020/21.



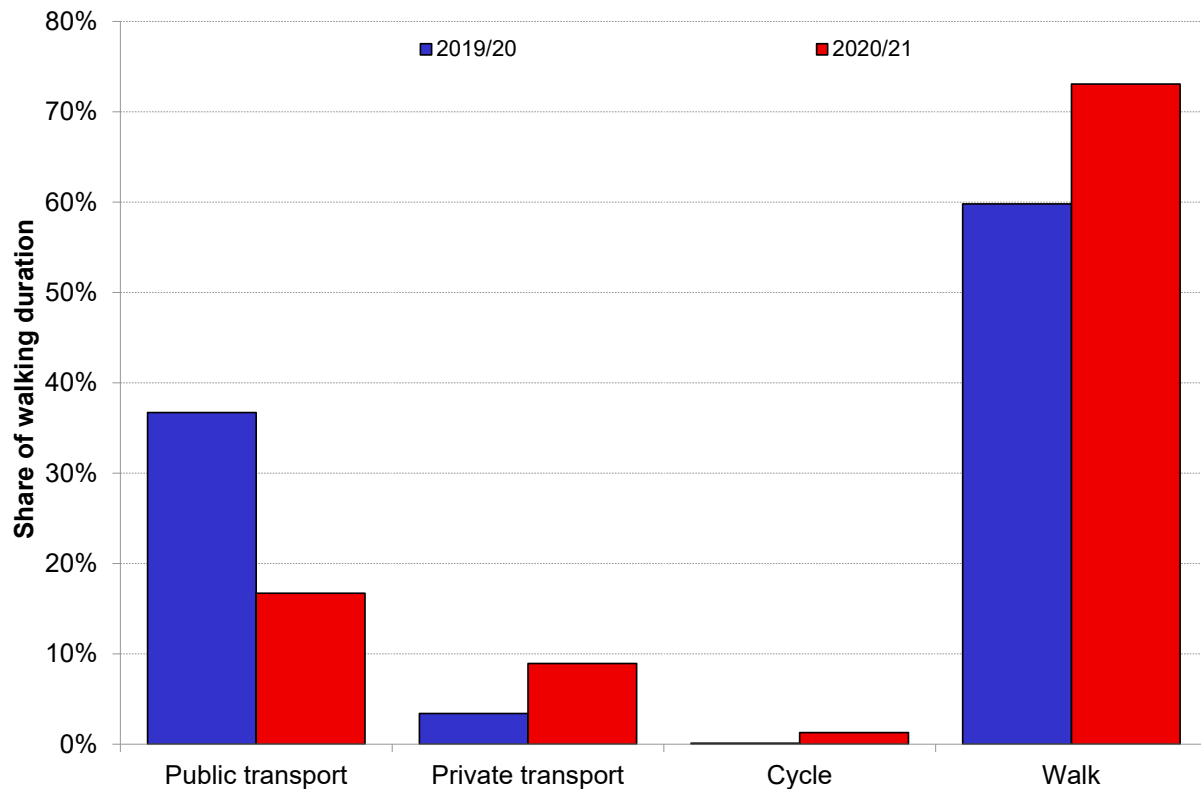
Source: TfL City Planning.

Changes to active travel during the pandemic

Figure 4.15 in section 4.4 explained how there has been a change in the mix of modes used since the pandemic, with the shift away from public transport (which almost always includes at least one walk or cycle stage) leading to an increase in the share of residents who have been using only active modes as well as an increase in those who have been using only private modes. Coupled with a significant increase in the number of people not travelling on an average day, this has contributed to lower overall achievement of the 20 minutes of active travel aim, although evidence shows that those who are travelling actively are doing so for longer than before the pandemic. The rest of this section gives some more detailed impacts of the pandemic on walking and cycling.

Figure 5.4 shows that, during the pandemic, there has been a decline in walking associated with public transport (reducing from 37 per cent of all walking duration in 2019/20 to 17 per cent in 2020/21). The share of walking duration as part of walk all the way trips has increased from 60 per cent to 73 per cent, alongside small increases in walk duration as part of private or cycle trips. This in part reflects the shift to shorter-distance, more local trips made since the start of the pandemic.

Figure 5.4 Share of walking stage duration by main mode of trip (distance-based), London residents aged 17+, LTDS, 2019/20-2020/21.

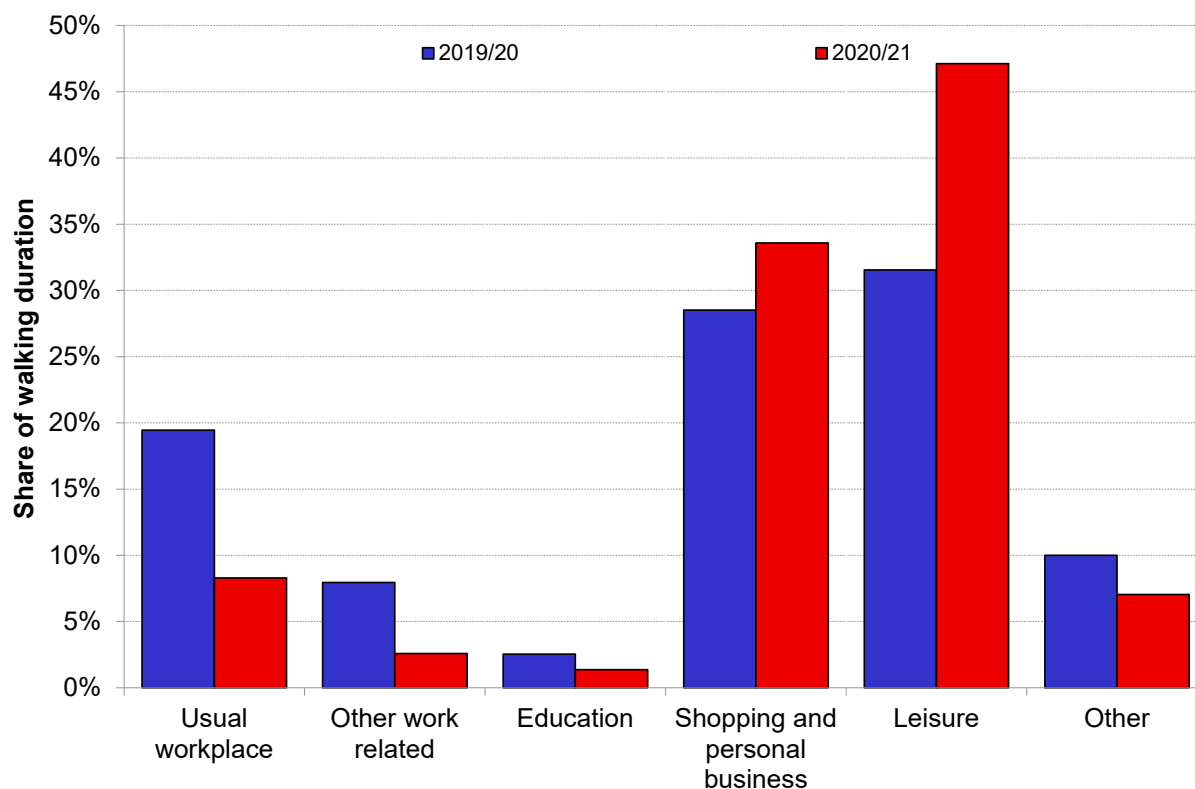


Source: TfL City Planning.

Figure 5.5 shows the change in walking duration by the associated trip journey purpose and shows that walking associated with commuting and work-related trips has decreased in 2020/21 compared to 2019/20 (from 19 per cent to 8 per cent and from 8 per cent to 3 per cent respectively). Conversely the share of walking duration for shopping or personal business and leisure increased, particularly so for leisure, which incorporates walking for exercise (one of the few permitted reasons to travel during national lockdowns), increasing from 32 per cent to 47 per cent. Walking for leisure is more likely to have taken place near to where people live, ie in inner or outer London rather than central London.

5. Active travel and Healthy Streets

Figure 5.5 Share of walking stage duration by associated trip journey purpose, London residents aged 17+, LTDS, 2019/20-2020/21.

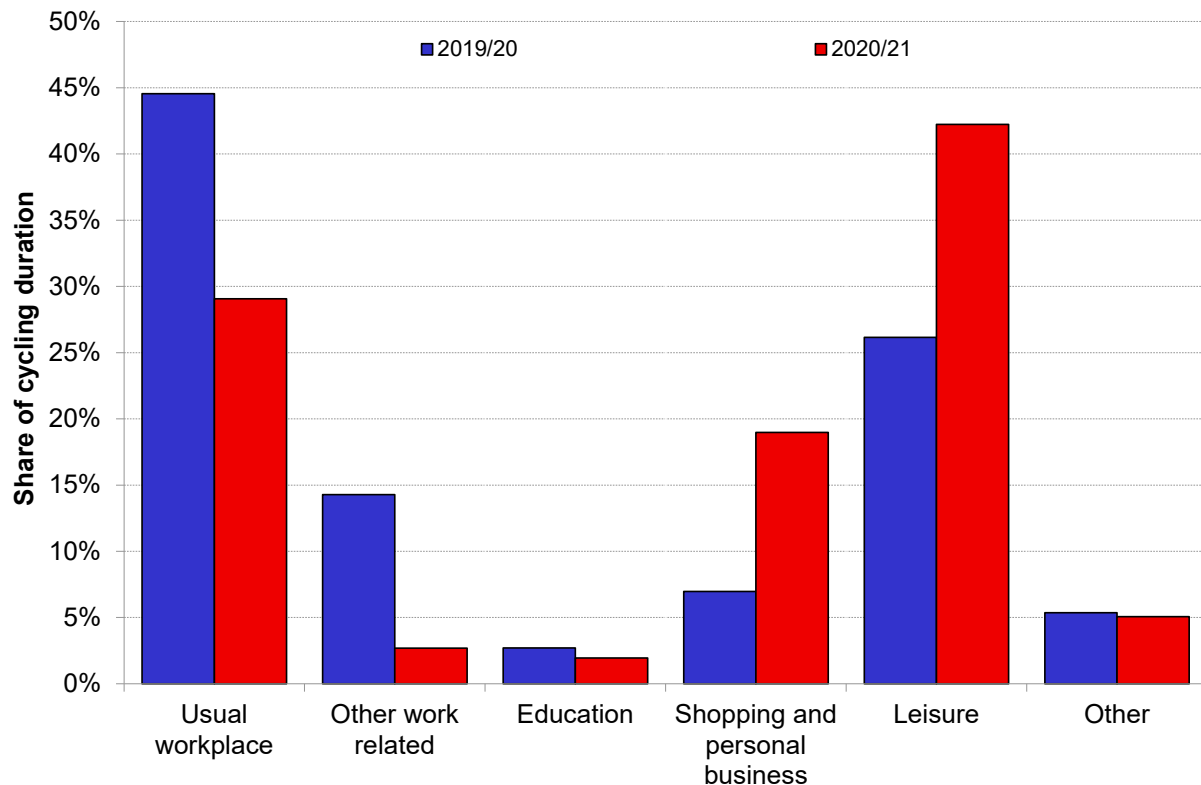


Source: TfL City Planning.

Although a high proportion of walking is associated with public transport trips (53 per cent of journey stages and 37 per cent of walking duration in 2019/20), this is not so much the case for cycling. Most cycling (around 93 per cent of journey stages and 98 per cent of cycling duration) takes place as part of cycle all the way trips, rather than as an access or egress mode. However, in 2020/21 there was an increase in the share of cycling duration associated with private transport trips (increasing from 0 per cent to 3 per cent) and also as part of walking trips (0 per cent to 11 per cent) meaning that although the majority of cycling duration was still done as cycle all the way trips, the proportion decreased from 98 per cent in 2019/20 to 84 per cent in 2020/21.

Figure 5.6 shows that, similar to the trend for walking duration, the purposes for which London residents cycled has changed as a result of the pandemic. The share of cycling duration associated with commuting trips decreased from just less than half (45 per cent) to 29 per cent and for other work-related trips it decreased from 14 per cent to just 3 per cent. The pattern is also the same as walking for shopping or personal business and leisure trips, which both saw an increase in the share of cycling duration (from 7 per cent to 19 per cent for shopping/personal business and from 26 per cent to 42 per cent for leisure). This supports findings reported in section 5.3 showing that the reduction in commuter cycling as a result of workplace restrictions has been compensated by an increase in home-based leisure trips (a 'purpose shift').

Figure 5.6 Share of cycling stage duration by associated trip journey purpose, London residents aged 17+, LTDS, 2019/20-2020/21.



Source: TfL City Planning.

Attitudes to walking and cycling in the future

The graphs above have shown that the changes to walking and cycling since the pandemic have been driven by two main factors: a change to the daily activities undertaken by Londoners and a shift away from public transport.

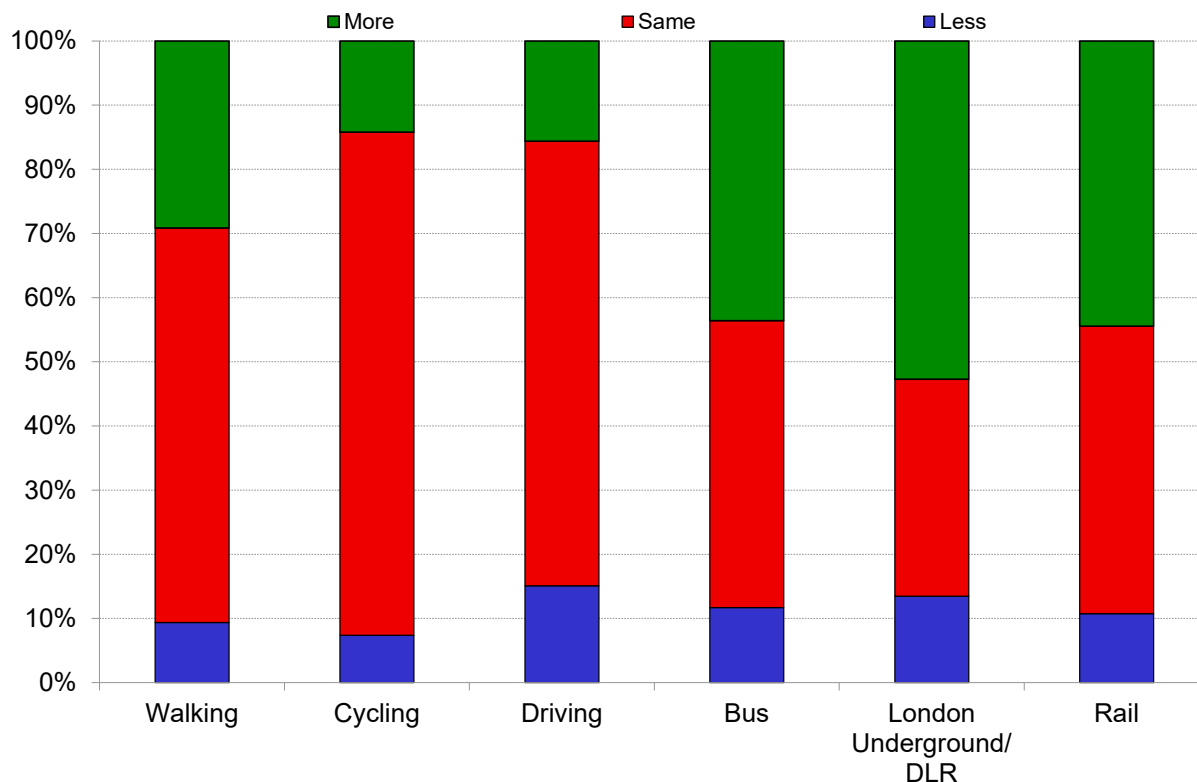
The long-term impact on walking and cycling will be driven by, most importantly, the activities that people need to travel for and the location of those activities. This will depend on the extent to which new daily routines formed during the pandemic persist and there are many factors which will affect this, for example the prevalence and frequency of home working in the future. The perceived attractiveness of public transport in the medium term as the pandemic recedes will also have an impact, particularly on the duration and location of walking.

Figure 5.7 shows data from the latest available quarter of LTDS data (Q1 2021/22) and gives responses to the frequency with which residents feel they will use different modes when coronavirus ceases to be a major public health risk compared to now. The majority of respondents expect to walk and cycle as frequently as they did in Q1 2021/22 (Apr–Jun). However, encouragingly, the proportion who think they will walk or cycle more is higher than the proportion who think they will walk or cycle less. For driving, the majority of respondents expect the frequency to remain the same as it was in Q1 2021/22 (Apr–Jun) and the proportion who think they will do more is about the same as the proportion who think they will do less (16 per cent vs 15 per cent). However, among the public transport modes, there is a noticeably higher proportion of respondents who expect to use these modes more once coronavirus ceases to be a major public health risk (44 per cent for buses, 53 per cent for London

5. Active travel and Healthy Streets

Underground or DLR and 44 per cent for rail). This indicates that further recovery in relation to public transport use can be expected, which will boost public transport-associated active travel (particularly walking) although it may also cause a decline in walk or cycle all the way trips (eg in the local area).

Figure 5.7 Expected change in travel frequency by mode 'once coronavirus ceases to be a major public health risk', LTDS, Q1 2021/22.



Source: TfL City Planning.

Overall then, the evidence suggests that the pandemic has had diverging impacts on active travel, with the decline in public transport use associated with a decline in walking for access or egress alongside an increase in walk and cycle all the way trips, particularly for shopping, personal business and leisure purposes. The extent to which this persists as we recover remains to be seen. While there are significant opportunities to further embed active travel habits developed during the pandemic, it is likely that proportions will return more closely to pre-pandemic levels, particularly as public transport use recovers and, with it, access and egress by active modes.

5.3 Cycling in London

Introduction

Following a rapid increase in the early 2000s and into the mid-2010s (particularly in central London), cycling volumes grew at a slower rate in the years just before the coronavirus pandemic. The picture during the pandemic itself has however been encouraging, albeit that restrictions on survey conduct limit the available data.

Key indications are that cycling has proven to be one of the most resilient modes during the pandemic, with a lower-than-average drop in demand following the first lockdown in March 2020 and a faster-than-average recovery to demand levels similar and sometimes exceeding those seen before the pandemic, all of this in the context of reduced activity and travel more generally.

This has been especially true for Santander Cycles (TfL's cycle hire scheme), which, despite predominantly operating in central London, has continued to break its own record levels of use despite the pandemic.

Bearing in mind the substantial overall reductions to activity and travel in general during much of 2020, and the great variability in travel during the pandemic, our provisional estimates of cycling levels in spring 2021 (based on a cross-sectional survey) were: down by 16.4 per cent in central London but up by 4.6 per cent in inner London and by 19.9 per cent in outer London, compared to spring 2019.

These outcomes reflect large-scale geographical changes to the nature of people's trip making, in particular a large reduction in radial commuter cycling trips, to and from work locations in central London and increases in leisure-based cycling in inner and (particularly) outer London.

Cycling during the pandemic

Breaking this down further, it is apparent that the nature of cycling in London underwent a comprehensive transformation during the pandemic.

The dramatic reduction in commuter cycling, due to workplace restrictions, has been compensated by an increase in home-based leisure trips (a 'purpose shift'). Furthermore, where people used to cycle most days a week before the pandemic they do so slightly less frequently now (a 'frequency shift'), reflecting a combination of flexible working practices among the cycling commuters and a second-order effect of the 'purpose shift' noted above. Also as a second-order impact of the change in purposes there has been a 'temporal shift' of cycling demand, with large reductions in the busy weekday peak periods that existed before the pandemic and increases in off-peak periods, including the weekday inter-peak but mostly and to a much larger extent on weekends. Finally, the changes in the origin and destination of trips from mostly radial commuting trips to circular or orbital home-based trips has also shifted the balance in the spatial distribution of cycling volumes (a 'spatial shift'), with a decrease observed in central London and increases in inner and outer London.

The adaptability of cycling and robustness of the out-turn numbers to the many challenges posed by the pandemic speak for the resilience of this mode to different travel contexts, and the potential to further embed these travel behaviours into the recovery.

Long-term trends in cycling volumes and the pandemic impact in 2021

TfL has an extensive programme of area-based cycle counts across London that provide cycling volume estimates for central London (Congestion Charge zone) on a quarterly basis and for inner and outer London once a year.

Between 2015 and 2019, the number of kilometres cycled across Greater London increased by almost 5 per cent, with most of the growth in this period observed in

5. Active travel and Healthy Streets

central London (7 per cent), followed by inner (6 per cent) and outer London (2 per cent).

Table 5.1 compares year-on-year change in cycling volumes across London. Due to pandemic restrictions (see footnotes to table for details), it was not possible to conduct full counts during 2020, but the survey programme was able to resume in spring 2021. The results from the spring 2021 counts are compared against those from spring 2019. It is necessary to recognise that the spring period of 2021 was not necessarily representative of the whole year, due to the extent of formal pandemic restrictions affecting travel during the survey period.

Table 5.1 Estimates of year-on-year change in cycling volume, spring 2016-2021.

	Central London	Inner London	Outer London	London total
2016	-0.3%	-3.7%	-3.4%	-3.2%
2017	0.8%	7.2%	5.7%	5.8%
2018	8.3%	2.0%	7.5%	4.9%
2019	-1.6%	0.5%	-7.1%	-2.7%
2020	-24.0% ¹	7.5% ²	24.4% ²	n/a
2021 (from 2019)	-16.4% ³	4.6% ³	19.9% ³	n/a

Source: TfL Traffic Data.

1: Central London cycling data could not be collected in the spring quarter of 2020 due to the lockdown restrictions and thus this value represents the change in the summer quarter 2020 (Jun-Sep) with respect to that same quarter in 2019.

2: Inner and outer London data could not be collected in the spring quarter of 2020 due to the lockdown restrictions and thus the collection was postponed to autumn 2020 (Oct-Dec) and the panel of count locations reduced by about a third. Therefore, these values represent the change in cycle flows on the subset of sites that were counted in autumn 2020 with respect to the flows on those same sites in spring 2019 (note the difference in season). The change is provided at face value without seasonal adjustments.

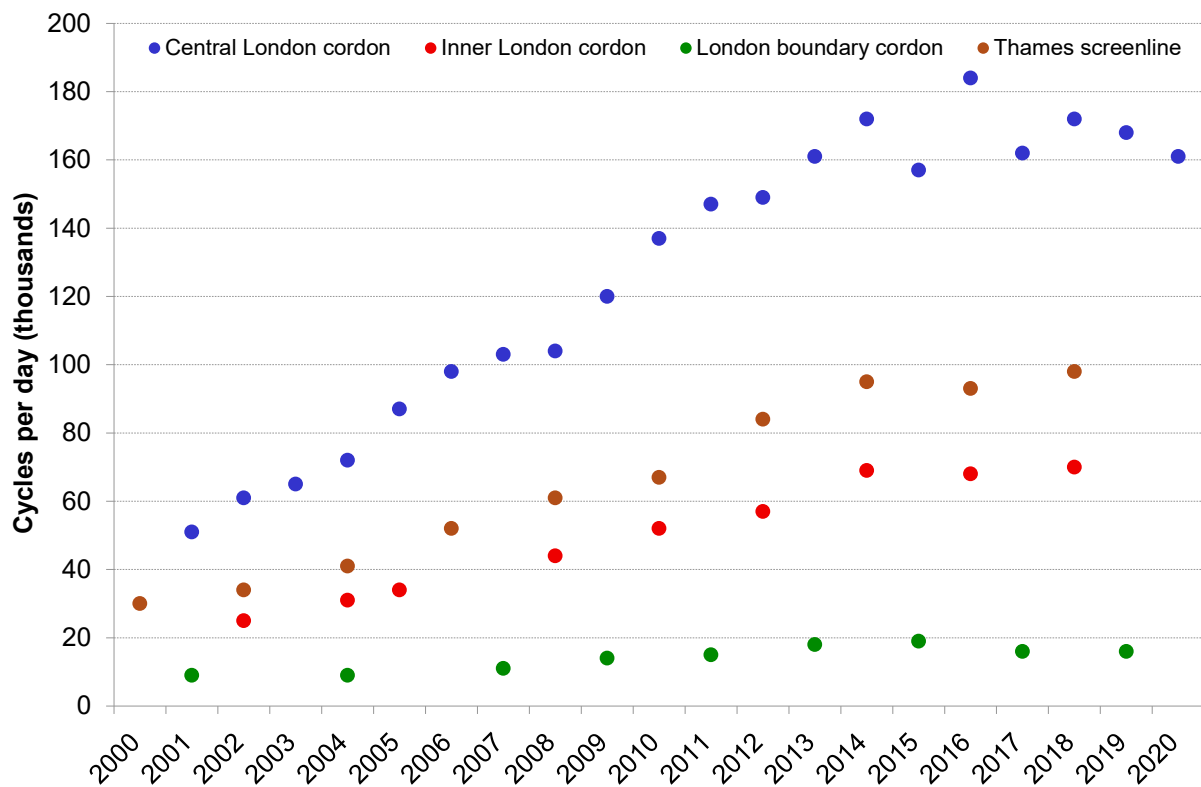
3: At the time of writing only a subset of the full panel of sites counted in spring 2021 have been validated. The figures provided here are therefore provisional and represent the change in cycle flows on the subset of available sites in spring 2021 with respect to the flows on those same sites in spring 2019 (note that the baseline is two years earlier).

Our provisional estimates of cycling recovery in spring 2021 (compared to the 2019 baseline) show a move towards the pre-pandemic status quo. For central London, this means that the large reduction in cycling volume observed in 2020 has recovered by a noticeable amount, while for inner and outer London it means that the increases in cycling seen during 2020 (when for long periods cycling was one of the few permitted activities) had started to fall back, albeit still showing encouraging cycling levels above 2019, by 4.6 per cent and 19.9 per cent in inner and outer London, respectively.

Long-term trends in cycling across strategic cordons and screenlines

Another useful indicator of long-term changes in cycling are our annual or biennial cycle counts across the central London, inner London and GLA boundary cordons and the Thames screenline (figure 5.8). In 2020 only the central London cordon could be counted (in the autumn season between September and October 2020). This showed a relatively modest 4 per cent reduction since 2019, but in the context of the pandemic changes to travel, and in particular the large impact on general activity in central London.

Figure 5.8 Cycle flows across strategic cordons, 2000-2020.



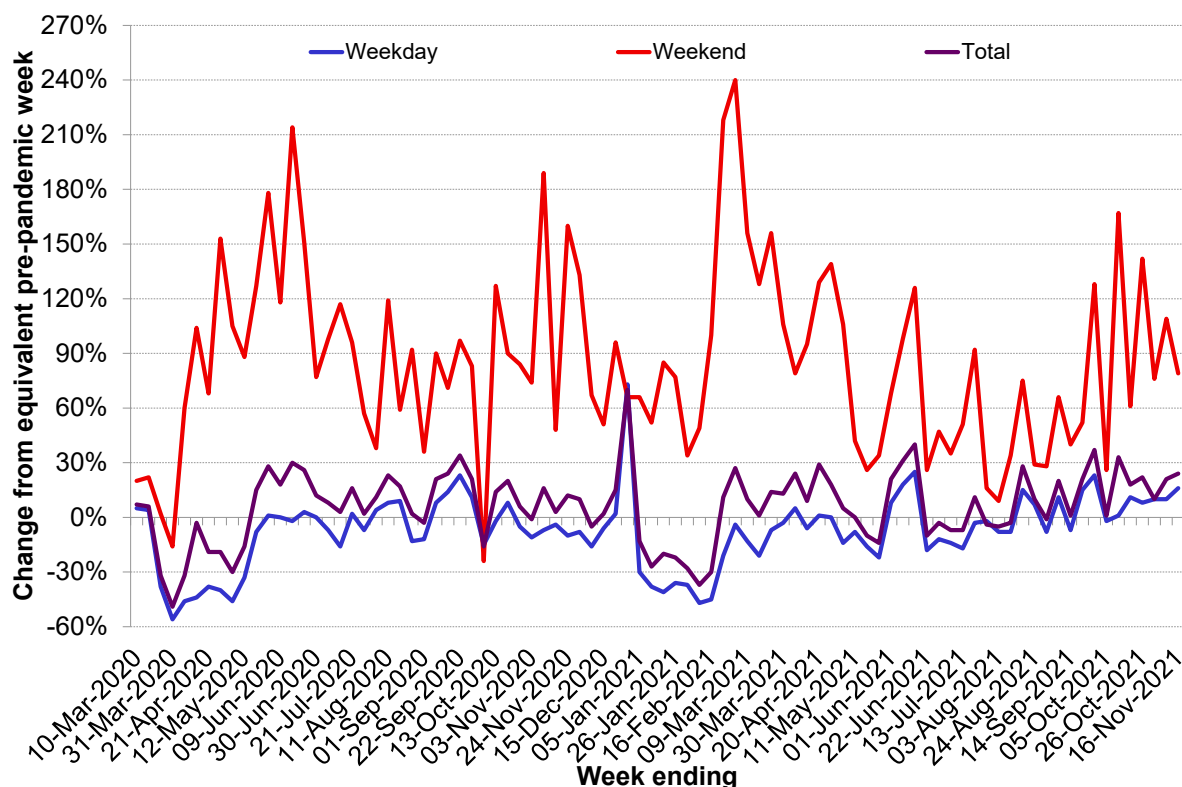
Source: TfL Traffic Data.

Indicative recent trends in cycling during the pandemic

During the pandemic, TfL made use of 27 automatic cycle counters, mostly located in central London with some in inner London, to provide indicative weekly estimates of the change in cycling on a continuous basis. Although these counters cannot be considered to represent London-wide trends, in particular due to the absence of any coverage in outer London where it is thought that much 'leisure' related cycling took place, they nonetheless provide some useful high-level insights (figure 5.9).

5. Active travel and Healthy Streets

Figure 5.9 Cycle flow on automatic cycle counters, Mar 2020-Nov 2021 vs 2019.



Source: TfL Traffic Data.

Note: Week ending 6 Oct 2020 was affected by particularly bad weather.

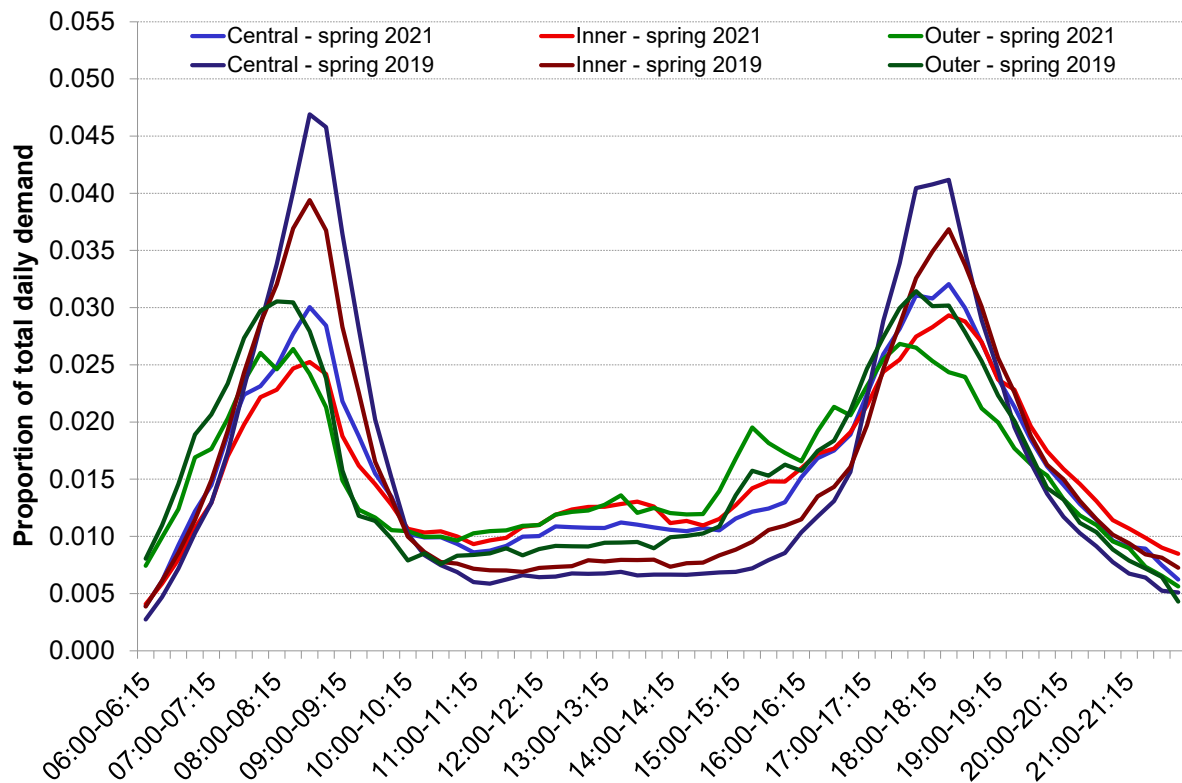
The distinct pattern on weekends and weekdays is immediately evident from figure 5.9. While weekday demand remained slightly subdued in relation to the baseline for most of the pandemic period outside the major lockdowns, weekend demand has been much higher (between 1.5 and 2.5 times) than before the pandemic. The net result ('total' line) is that overall cycling levels at these counters have been closely similar to the pre-pandemic average, a remarkable result in the context of lower general activity and, in particular at these locations, major reductions to workplace commuting.

Recent demand trends by time of day

The pandemic has brought about not only changes to the overall cycling volumes and their split between weekdays and weekends, but also to the distribution of cycle flows throughout the day.

Figure 5.10 shows the demand profiles (relative to the total daily demand) in each of the London areas in spring 2021 compared to the pre-pandemic (2019) baseline.

Figure 5.10 Relative weekday cycle flows by functional area, 2021 and 2019.



Source: TfL Traffic Data.

Note: These figures are based on the subset of validated count locations from spring 2021 and compared like-for-like with the same subset of sites in spring 2019.

In 2019, before the pandemic, cycling was mostly concentrated around the peak periods in all London areas (reflecting commuting trips). Data from spring 2021, with some pandemic restrictions still in place, however, show a significant reduction in the relative importance of both peaks on the total daily flows for all areas. This is particularly noticeable in central and inner London and is slightly more acute in the morning than in the evening peak. The other side of this trend is the relatively higher proportion of cycling taking place outside the peaks, but most notably in the inter-peak (in the middle of the day and in the run-up to the evening peak).

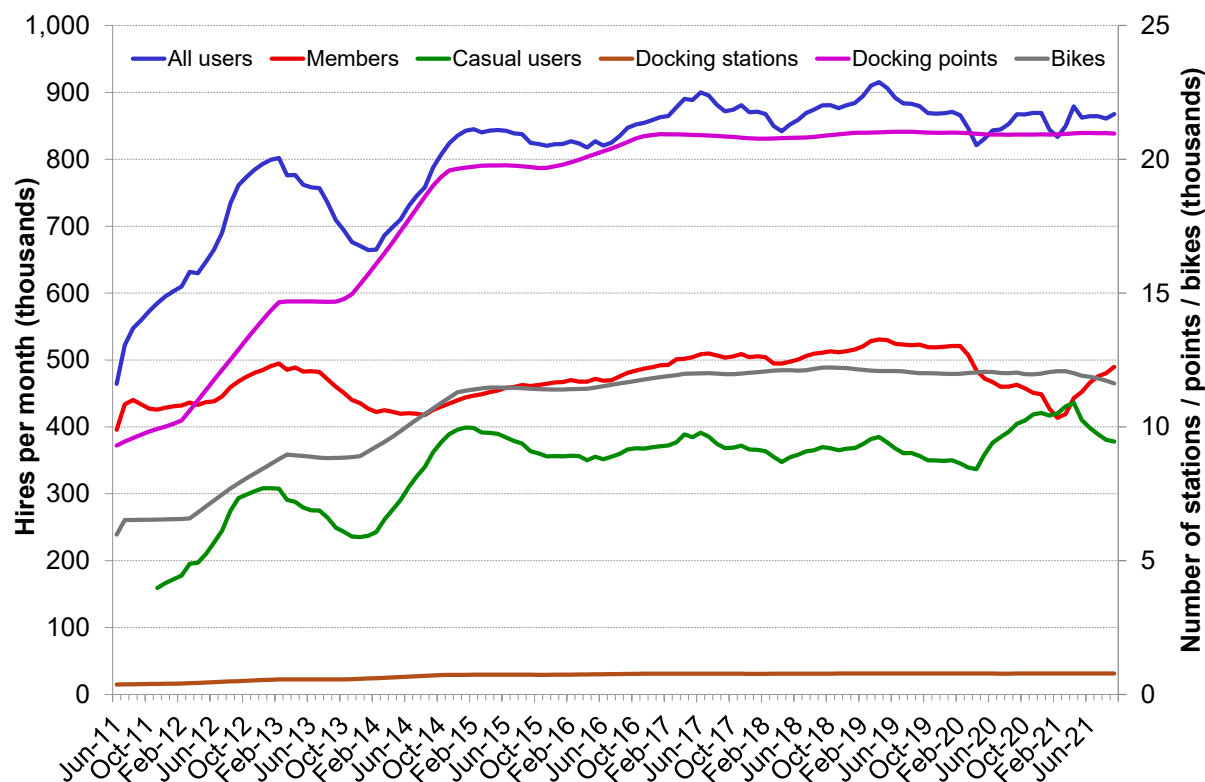
Santander Cycles: long-term demand trends

Santander Cycles is the commercial name of TfL's cycle hire scheme, which has been in operation since July 2010. The scheme currently covers central London and some parts of inner London up to Hammersmith and Fulham in the west, down to areas close to the river in Wandsworth and Clapham, reaching into the Isle of Dogs and the Olympic Park (Stratford) eastwards, and up to Regents Park, Camden and the parts of Islington closest to the northern edge of the Congestion Charge zone in the north.

Figure 5.11 shows the long-term trend in demand (in terms of average monthly hires) and infrastructure provision (in terms of docking stations, docking points and bikes) for this service.

5. Active travel and Healthy Streets

Figure 5.11 Hires by user type and infrastructure provision on Santander Cycles, 2011-2021.



Source: TfL Cycle Hire.

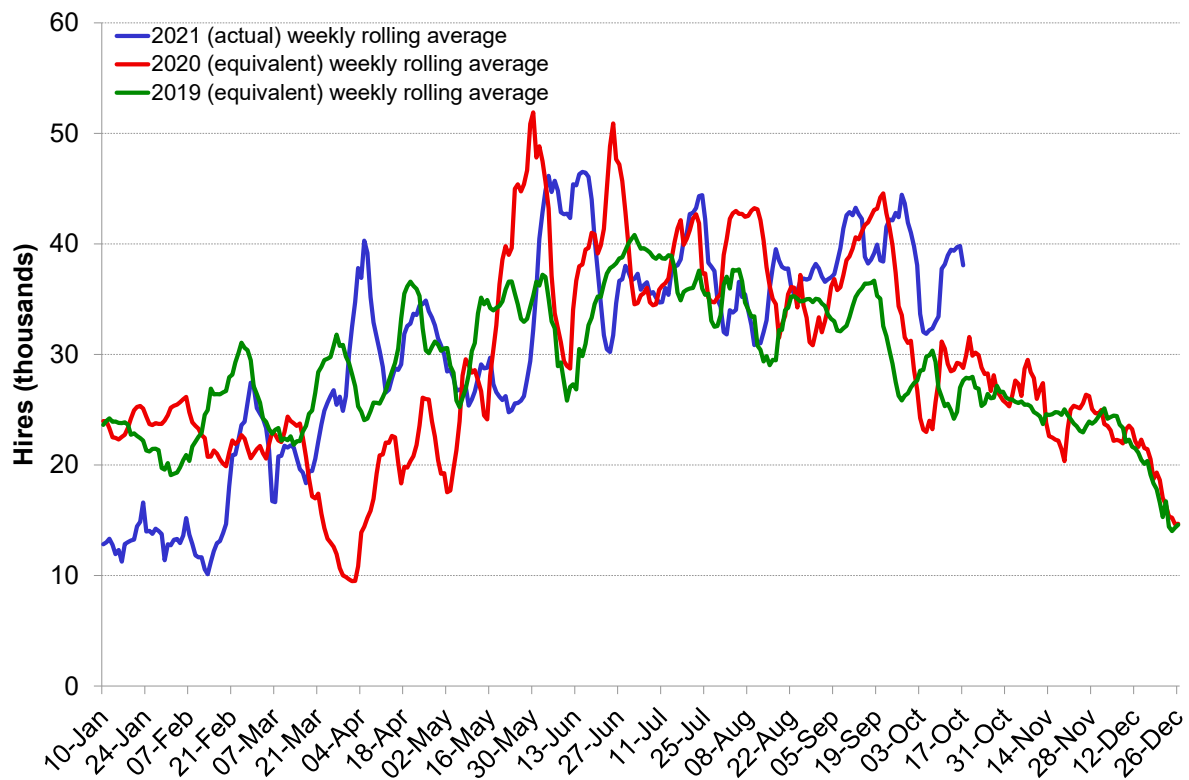
The first 4 to 5 years of operation of the scheme were characterised by a rapid and stepped expansion of the infrastructure provision, which was matched by a proportionate growth in the number of hires. Of note is the demand boost triggered by the London Olympic and Paralympic Games in summer 2012. After all the major expansions to the scheme were completed (around the end of 2016) and up until the outbreak of the pandemic, the infrastructure remained fairly constant or expanded slowly while demand continued to grow, albeit at a much more modest rate than before.

The pandemic impact shown in figure 5.11 is however most notable for its relative absence. Although periods of formal lockdown were marked by a reduction in hires by regular users, this was compensated by increased hires by casual users. The progressive easing of restrictions throughout 2021 shows the breakdown and total returning towards pre-pandemic levels, but the utility of the scheme for providing safe travel around central and inner London during the pandemic is clear, with highest-ever levels of casual users during the spring of 2020 and again in 2021.

Santander Cycles: recent demand trends

Figure 5.12 looks in more detail at the demand trends for Santander Cycles since the beginning of the pandemic, in comparison to a 2019 baseline.

Figure 5.12 Santander Cycles hires, 7-day rolling average, 2019-2021.



Source: TfL Cycle Hire.

The main feature of note is how, outside the strict lockdown periods in spring 2020, November 2020 and early 2021, demand during the pandemic and recovery has been usually above the 2019 baseline and, where comparisons are appropriate, it has also been higher in 2021 than in 2020. This is particularly true in the most recent weeks since mid-September 2021.

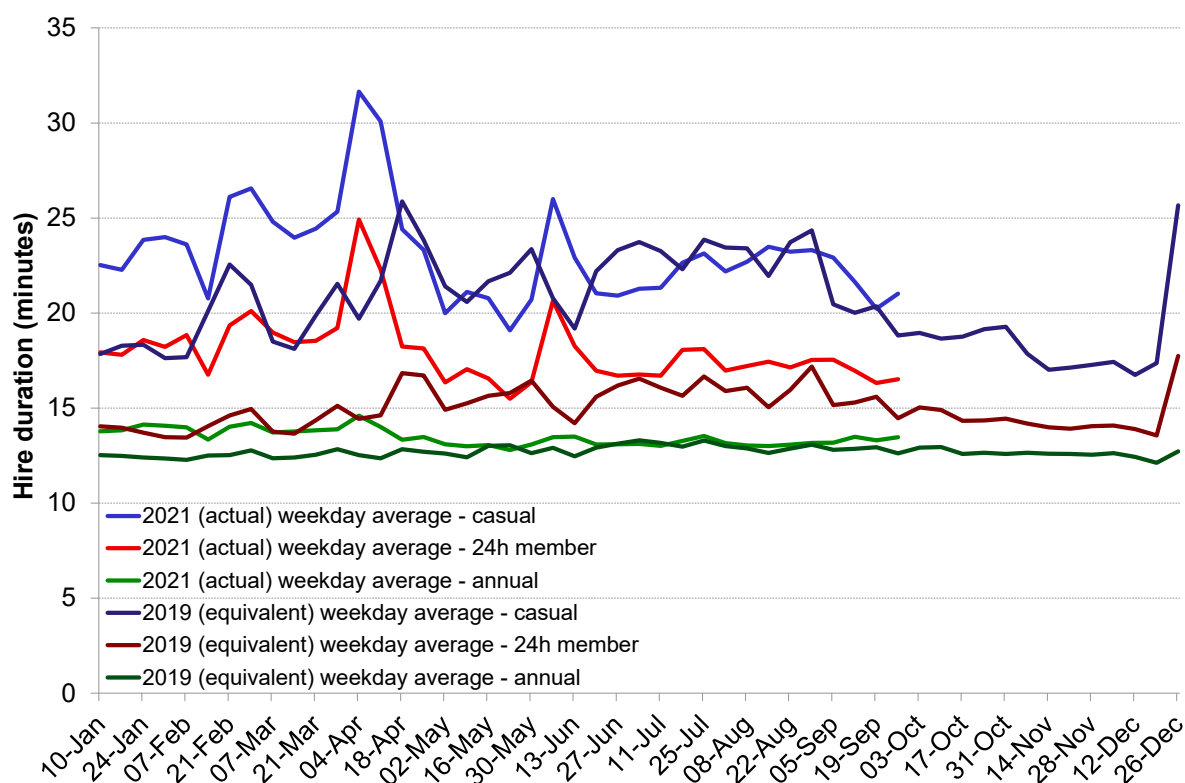
Finally, an aspect of specific interest about Santander Cycles are the changes in average hire duration since the start of the pandemic, which can be used as a proxy to understand wider changes in cycling patterns. Figure 5.13 shows the trend in average hire duration by user type on weekdays in 2021 compared to the 2019 baseline.

The average hire duration on weekdays increased significantly during the third lockdown (up until April 2021), more so (in both absolute and relative terms) for casual users and 24-hour members. Since summer 2021, this gap has closed but the average hire duration remains higher than before the pandemic for all users, which suggests an increase in the average journey length, which could also be a reflection of a change in the mix of purposes, given that leisure journeys tend to be longer than those for utility purposes.

Similar trends are found for the average hire duration on weekends, albeit that the overall duration is higher for all user types, as shown in figure 5.14.

5. Active travel and Healthy Streets

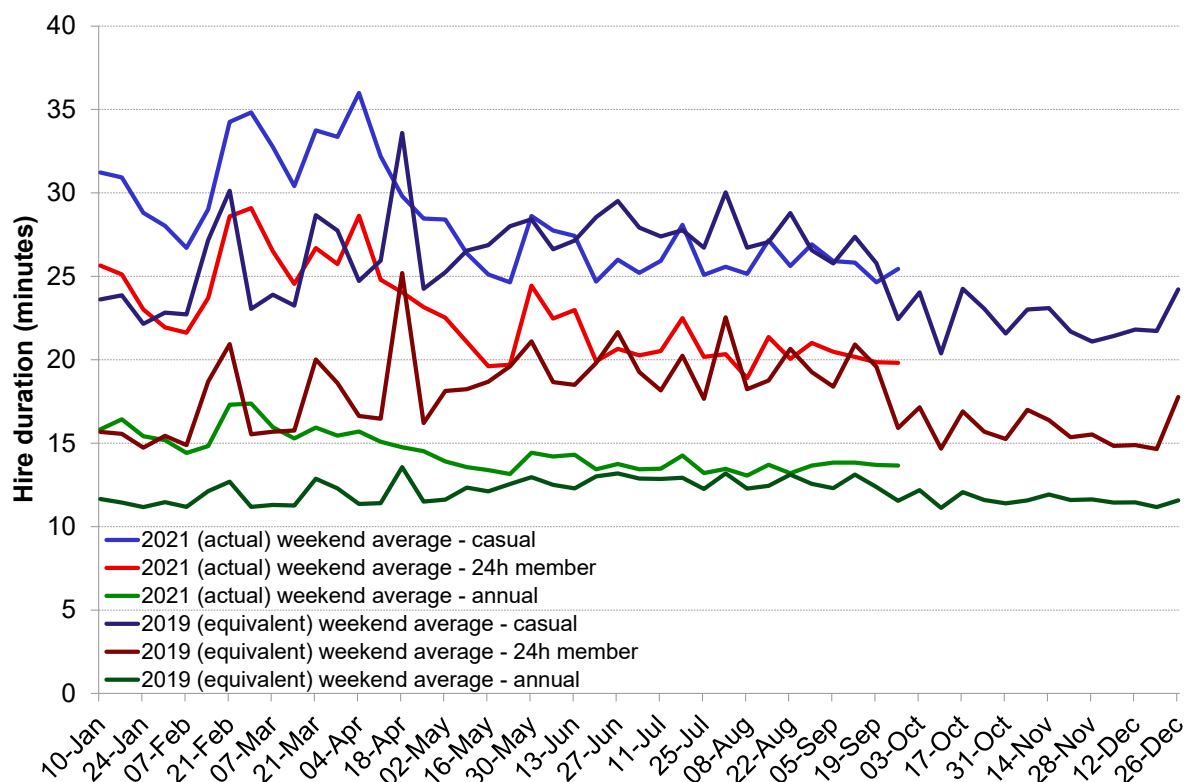
Figure 5.13 Average weekday hire duration by user type, 2019 and 2021.



Source: TfL Cycle Hire.

Note: Casual users are those who purchase a 24-hour access period each time they wish to hire a bike and can only do so via the on-street terminal at the docking station. 24-hour members also buy a 24-hour access period every time they hire a bike but are registered and can therefore complete the hire through the app or with an access key directly at the docking point. Annual members pay an annual fee for unlimited hires and can hire via a key or through the app.

Figure 5.14 Average weekend hire duration by user type, 2019 and 2021.



Source: TfL Cycle Hire.

London's developing cycle network

TfL is working to expand the network of high-quality cycle routes and has an aim to increase the proportion of Londoners living within 400 metres of a high-quality cycle route to a third (33 per cent) by 2025. This is part of the work that TfL delivers in partnership with the London boroughs and other organisations to improve London's cycle facilities and create a connected, high quality and easily accessible network of cycle routes for all Londoners.

By autumn 2021, 19.4 per cent of Londoners lived within 400 metres of a high-quality cycle route, an increase of almost 8 percentage points since 2019 (when it was 11.5 per cent), or approximately 750,000 more Londoners living within 400 metres of the cycle network since 2019. Much of this increase is linked to the delivery of new protected cycle routes delivered as part of the Streetspace for London programme (see section 5.5).

5.4 Pedestrian activity

Perspectives on walking and the pandemic

There is limited data available on aggregate levels of walking in London during the pandemic owing to restrictions on surveys – although see material from our LTDS survey reported in sections 4.3 and 4.4 above, which suggest large relative increases in walking at the individual level among London residents against a backdrop of lower overall activity and pandemic restrictions.

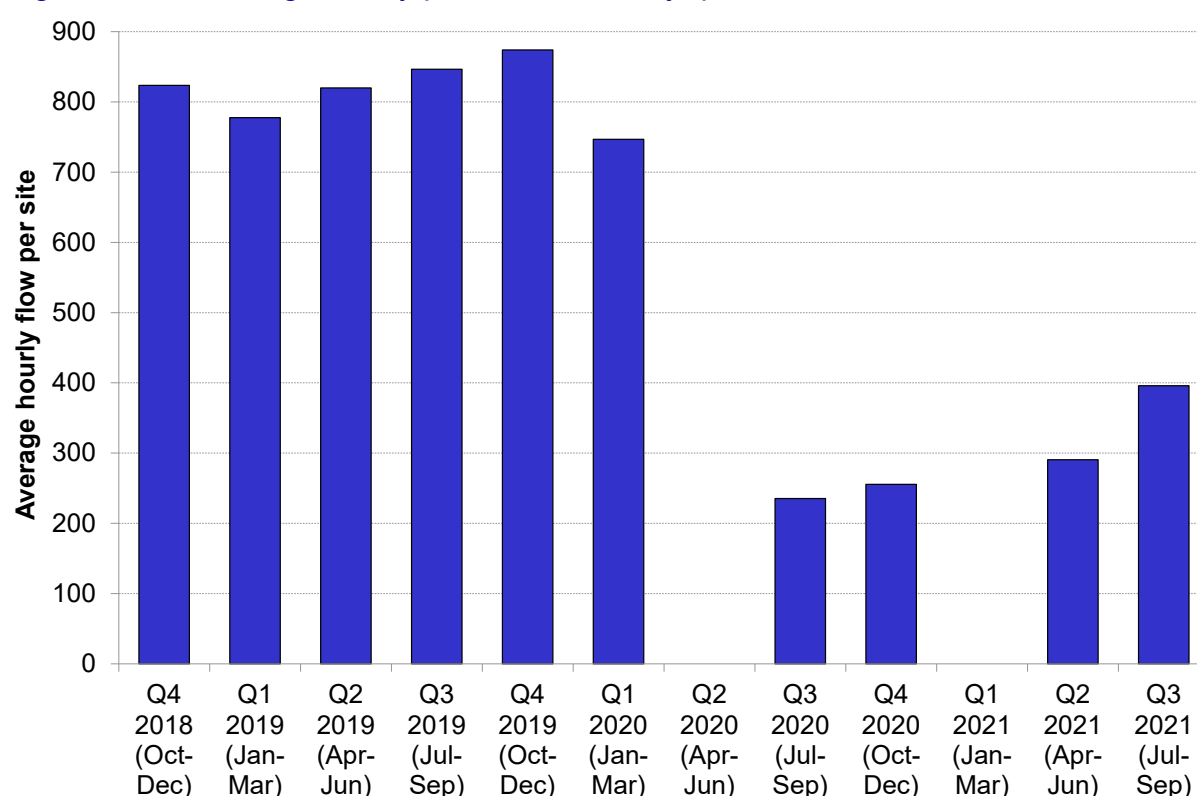
Pedestrian footfall in central London

TfL's regular survey of pedestrian activity (footfall) in central London is a long-term survey that reports quarterly, although restrictions meant that some quarters were not surveyed during the pandemic (figure 5.15).

The picture since this new survey started in 2018 has been for growth throughout most of 2019, with an expected clear seasonal pattern and with spatial differences across different parts of central London reflecting the different functional areas of the Congestion Charge zone (see [Travel in London report 12](#)).

5. Active travel and Healthy Streets

Figure 5.15 Average hourly pedestrian flow by quarter, central London, 2018–2021.

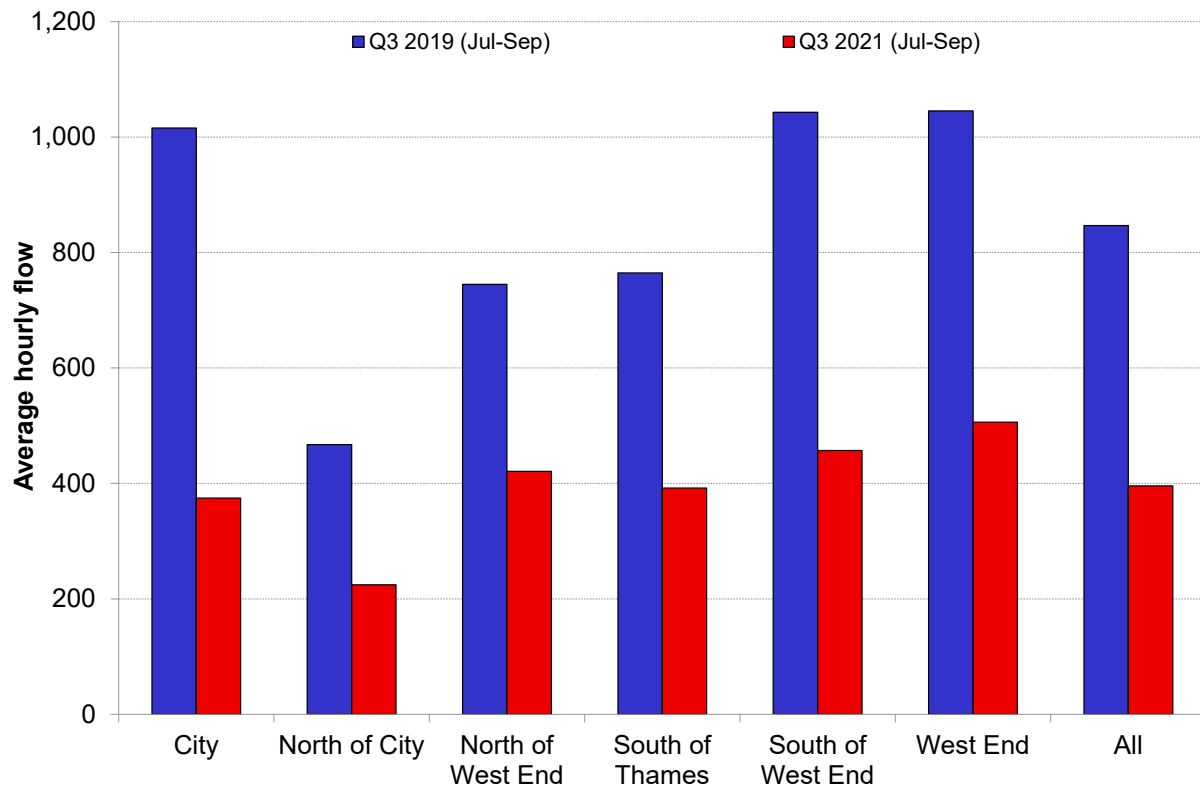


Source: TfL City Planning.

The figure shows the huge scale of the pandemic impact on pedestrian footfall in central London. Flows in Q3 2020 were just 28 per cent of normal, with even Q2 2021 recording just 35 per cent of pedestrian flows that might have been expected for that time of year.

The starkness of these reductions shows the difficulties faced by 'footfall-dependent' businesses in central London during the pandemic. The latest data for Q3 shows that pedestrian flows have increased to their highest levels since the beginning of the pandemic, however, they remain 53 per cent lower than pre-pandemic levels.

Figure 5.16 Average hourly pedestrian flow by area, central London, Q3 2019 (Jul-Sep) and Q3 2021 (Jul-Sep).



Source: TfL City Planning.

Within the scale of the overall reduction of 53 per cent and comparing Q3 2019 (before the pandemic) with Q3 2021 (early stages of recovery), figure 5.16 shows the proportionate change by area of central London. The greatest proportionate reduction was in the City (63 per cent). Pedestrian flows are now highest in the West End, although remain 52 per cent below pre-pandemic levels. The smallest reductions were observed in the more residential areas of central London – south of the Thames (49 per cent) and north of the West End (43 per cent), where residential footfall was, to a degree, maintained.

5.5 Streetspace for London

Introduction

The Streetspace for London programme was designed to facilitate and encourage safe and active travel during the pandemic and provided opportunities to capture these changed behaviours as part of London's sustainable recovery. In May 2020, the Department for Transport issued statutory guidance that gave practical advice on how to maintain social distancing on public road space and ensure the continued movement of traffic during the pandemic. This made it necessary to pause Healthy Streets funding, largely delivered through the Local Implementation Plan process, to focus on London's emergency pandemic response. TfL's Interim Streetspace Guidance noted the important role that active travel was expected to play in alleviating resulting pressure on London's roads, where London's public transport

5. Active travel and Healthy Streets

network, in particular the bus network, was operating at reduced capacity. The Streetspace for London programme delivered a network of temporary cycle routes, Low Traffic Neighbourhoods (LTNs), additional space for people walking in town centres and School Street schemes. This accelerated the delivery of active travel programmes as set out in the Mayor's Transport Strategy.

Programme highlights included:

- 101km trial cycle lanes.
- 89 Low Traffic Neighbourhoods.
- 322 School Streets.
- 84km of TLRN bus lanes converted to operate 24/7 Monday to Sunday.

Boroughs and TfL are currently assessing these schemes to decide if they should be made permanent. Monitoring and understanding the impacts of the interventions is vital in making these evidence-based decisions and can increase our collective London-wide understanding of these schemes. The section below looks in more depth at School Streets, as an example of these initiatives.

School Streets

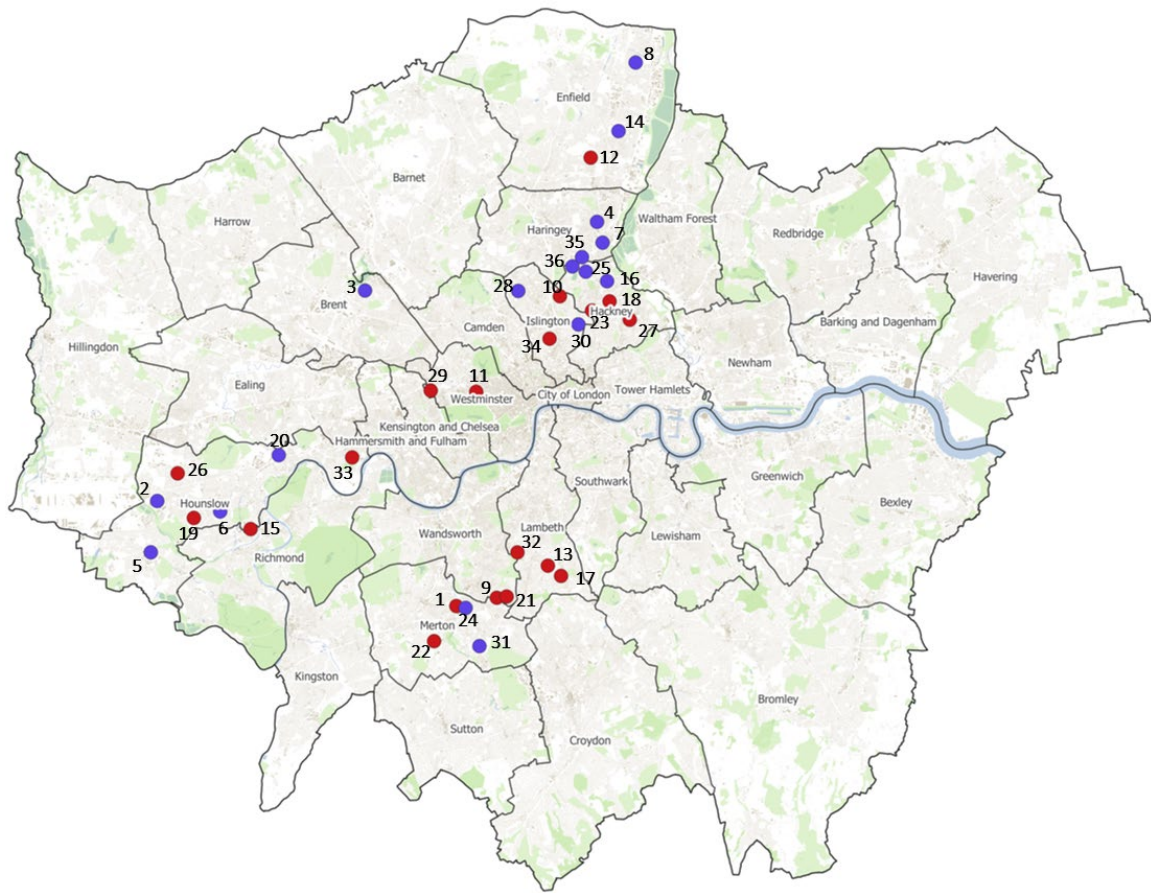
The Streetspace for London programme supported the delivery of over 300 School Streets across London. A School Street is typically a road (or roads) outside a school with a timed restriction on motorised traffic at school drop-off and pick-up times. They were introduced to provide space for social distancing, encourage active journeys to school, reduce car trips and improve air quality outside schools. TfL commissioned the [School Streets evaluation](#) to explore awareness, attitudes, and any changes to travel behaviour among parents and carers of children who attend a primary school with a School Street delivered during the pandemic.

Fifteen boroughs were invited to participate in the parent/carers survey in December 2020. Ten boroughs agreed to take part and sent leaflets containing a link to the ten-minute survey to 19 School Street schools and 17 schools without a School Street (to control for the impacts of the pandemic). Schools were located across London, in areas of high and low deprivation (figure 5.17). Some schools were also part of travel behaviour schemes such as Sustainable Travel: Active, Responsible, Safe (STARS), a TfL accreditation scheme for London schools and nurseries.

The objective of the survey was to gather data on:

- Awareness and support of School Streets.
- How travel habits have changed due to the pandemic and/or School Streets.
- Attitudes towards School Streets in principle.
- Understanding what has contributed to the success or challenges of their local School Street.

Figure 5.17 Map of School Street schools (red) and control schools (purple).



Source: TfL City Planning.

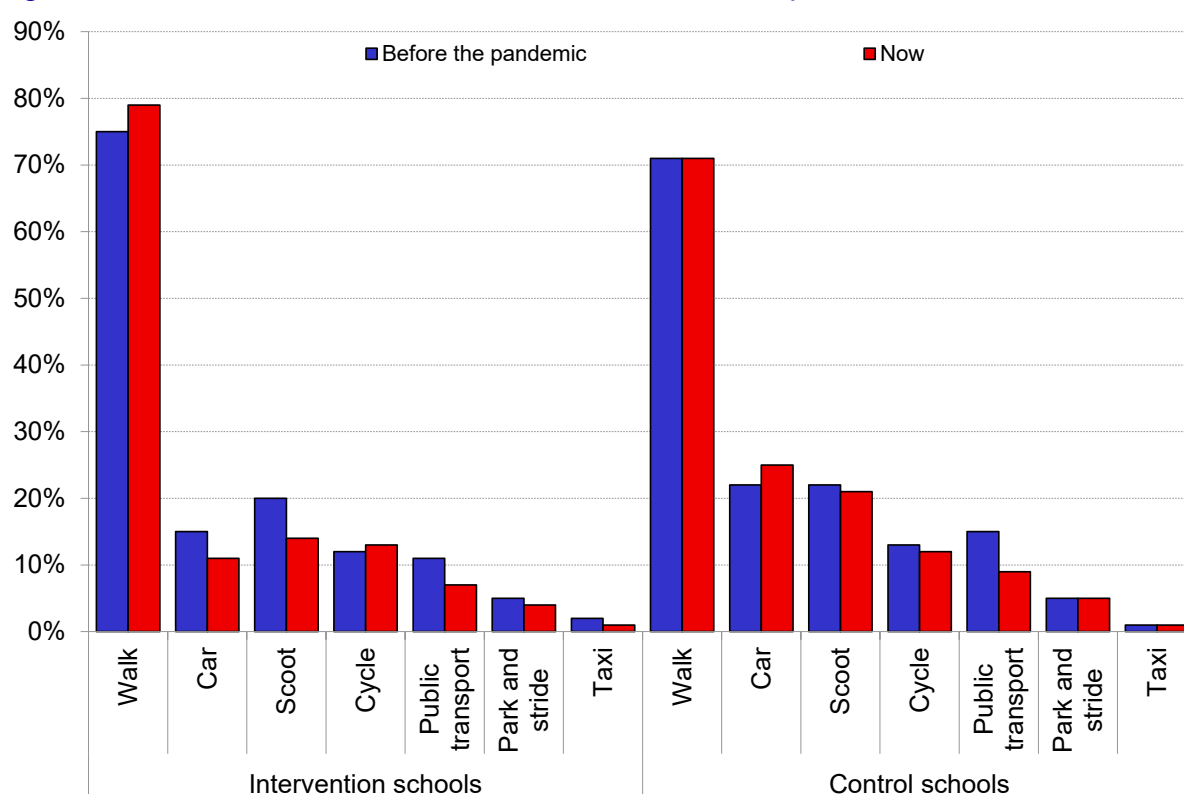
Respondents from School Street schools were more likely to attend schools in inner London boroughs, live closer to their school, have greater access to cycles and were more likely to be older and from a White background. The sample is self-selecting and therefore results reflect only those who responded.

There is a high level of awareness and support of School Streets schools. However, awareness was significantly higher among those living within the School Streets area, among parents and/or children with access to cycles, and those not working full-time.

Figure 5.18 shows that there has been some change in children's mode of travel to or from school compared to before the pandemic, with increases in walking and cycling and decreases in car travel.

5. Active travel and Healthy Streets

Figure 5.18 Children's travel to/from school before the pandemic and now.



Source: TfL Customer Insight, Strategy and Experience.

Note: respondents were able to select more than one option.

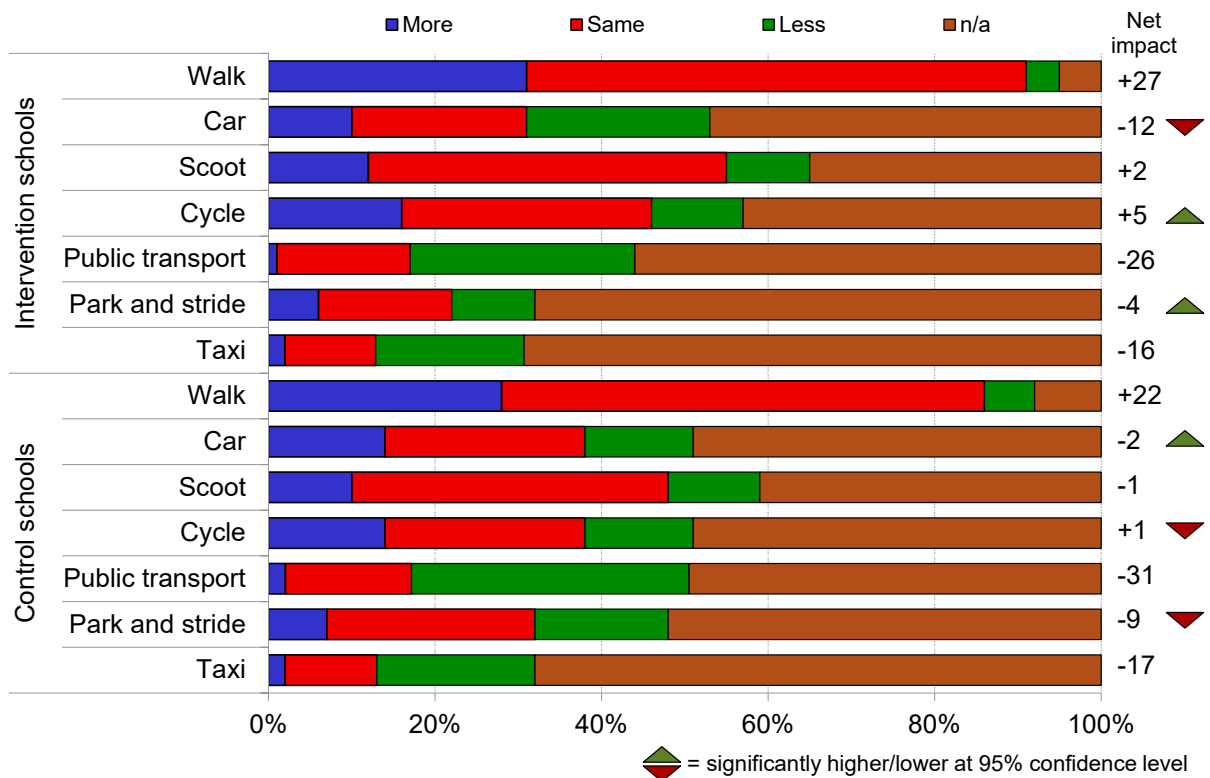
Figure 5.19 shows that active travel (mostly walking) has increased for both groups of schools. Significantly more respondents (5 per cent) reported cycling more as a result of the pandemic at School Street schools compared to schools without a School Street, where there was only a marginal increase (1 per cent). Furthermore, there was a larger decrease in parents/carers driving to or from school as a result of the pandemic at schools without a School Street (12 per cent) compared to the slight fall at schools without a School Street (2 per cent).

Among the minority of parents/carers using 'park and stride' to get to and from school, there were falls for both School Street schools and schools without a School Street. However, the decrease was greater (9 per cent) in reported use of park and stride at schools without a School Street than at School Street schools (4 per cent).

Figure 5.20 shows that both School Streets and the pandemic have had an impact on active travel. Parents reported driving to school less because of the pandemic and also driving to school less as a result of School Streets. However, School Streets had a significantly greater impact on reducing car travel to school (down 18 per cent) than the impact of the pandemic (down 12 per cent).

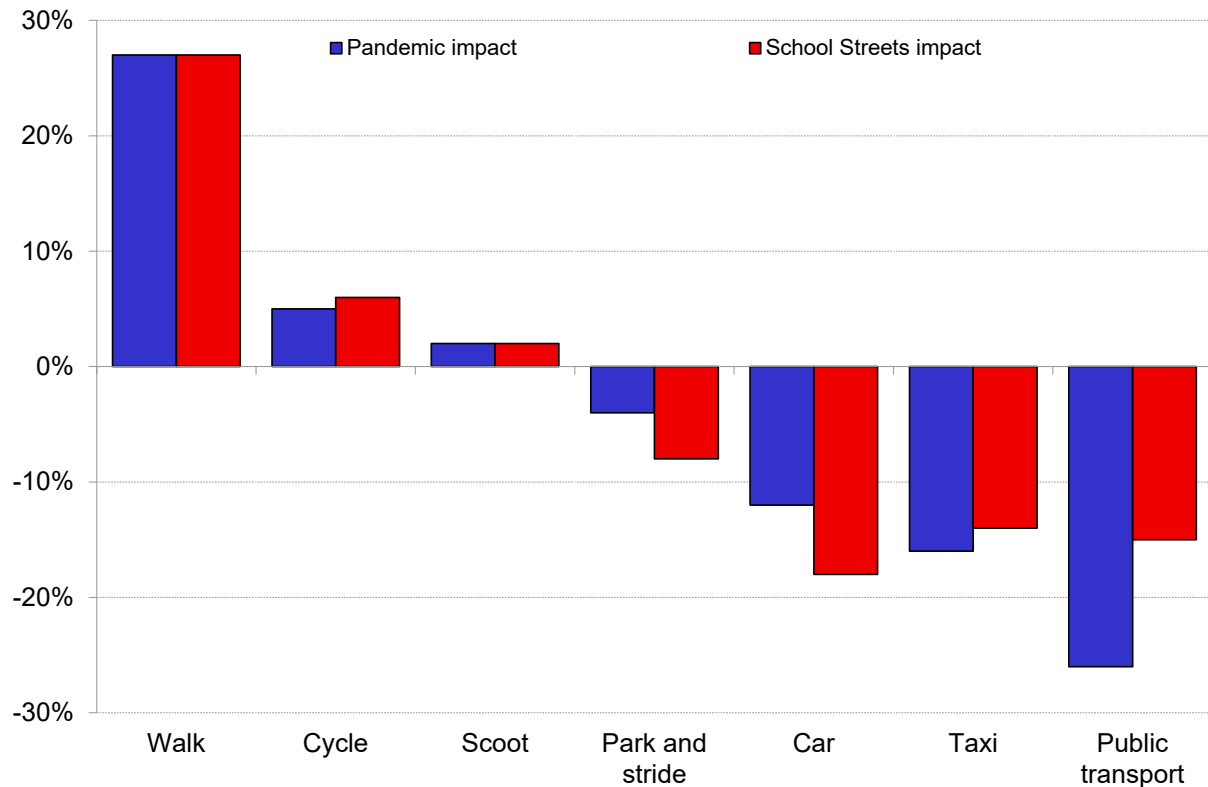
Some 27 per cent of parents reported walking to school more because of the pandemic and the same proportion reported walking more as a result of the School Street. Similarly, 5 per cent of parents reported cycling more because of the pandemic and 6 per cent reported cycling more as a result of the School Street. This suggests that the pandemic and the implementation of School Streets had an equal impact on encouraging more walking and cycling to school at School Street schools.

Figure 5.19 Impact of the pandemic on travel to school.



Source: TfL Customer Insight, Strategy and Experience.

Figure 5.20 Impact of the pandemic and School Streets on School Streets schools.



Source: TfL Customer Insight, Strategy and Experience.

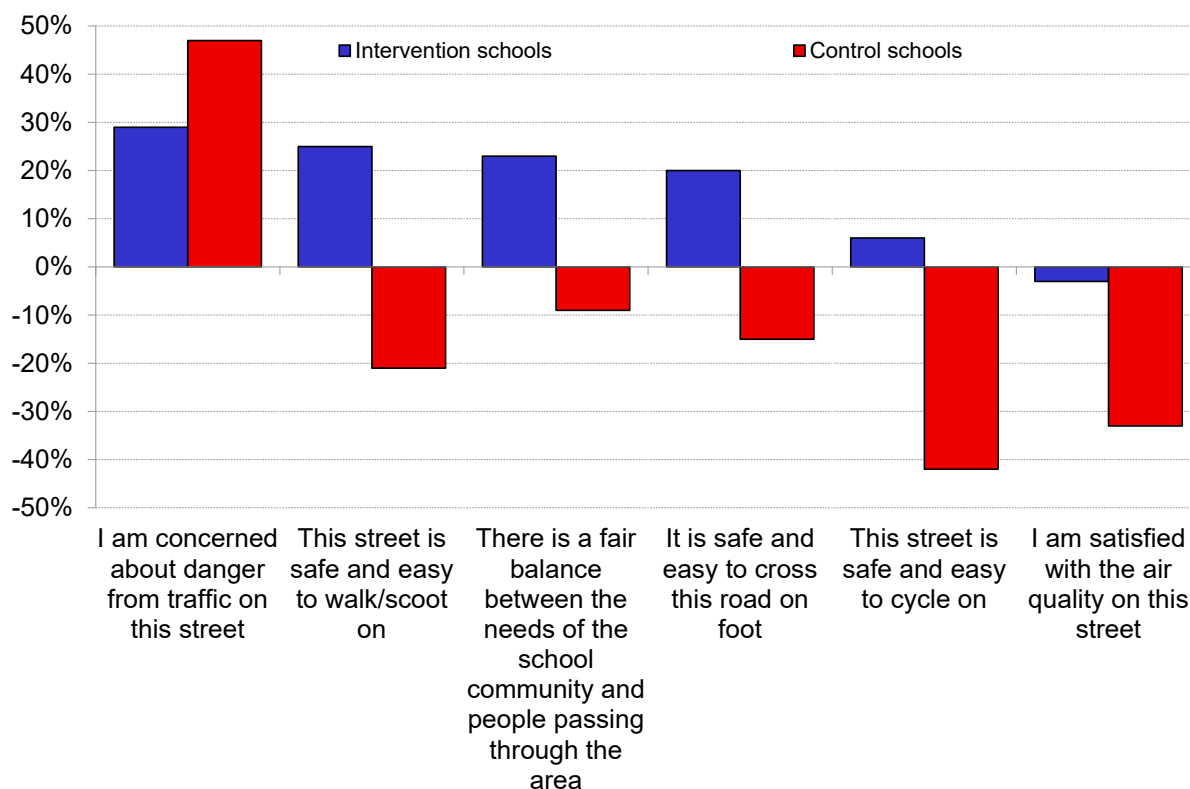
Note: The differences are significant at a 95 per cent confidence interval for park and stride, car and public transport.

5. Active travel and Healthy Streets

Parents/carers at School Street schools were significantly more likely to agree that there is space for social distancing and less congestion than last year. Some 29 per cent (net score – agree minus disagree) agreed that there is space for social distancing at School Street schools, compared to net -10 per cent from schools without a School Street. Parents from School Street schools also reported less congestion on the streets surrounding the schools compared to last year (net 3 per cent at School Street schools vs net -23 per cent at schools without a School Street).

While parents from both groups reported more parking problems on the surrounding streets than last year, this is significantly lower (net 14 per cent) at School Street schools than at schools without a School Street (net 28 per cent). Those at School Street schools are more satisfied with the area. Parents from School Street schools are more satisfied with the ease and safety of active travel and air quality, although there is still concern about danger from traffic albeit significantly lower at School Street schools than schools without a School Street (figure 5.21).

Figure 5.21 Attitudes towards the school area, intervention vs control schools.



Source: TfL Customer Insight, Strategy and Experience.

Note: The difference between intervention and control schools is significant at 95 per cent confidence interval for all categories.

Overall, the results show that School Streets are well supported among parents/carers of children attending schools with a School Street. While the impact of School Streets on travel behaviour has been difficult to disentangle from the impact of the pandemic, the results have shown that School Streets have had an impact on reducing car use, creating more space for social distancing, and increasing safety and ease of active travel.

Low Traffic Neighbourhoods

Low Traffic Neighbourhoods (LTNs) are street interventions aimed at removing through motor traffic from a residential area to create street environments that are safer and more pleasant for people to walk, cycle and access public transport, while retaining access for residents and essential services. Within this overarching principle, LTNs can be implemented using a variety of means and technologies.

While LTNs have been progressively introduced across London over many years, the coronavirus pandemic led to a resurgence of this type of scheme and many more have been trialled and sometimes permanently introduced in the Capital since.

Although still limited in scope, there is a growing body of evidence that is being used to evaluate the transport and wider impacts of these policies. TfL leads or funds some of this research, but boroughs, academic partners and other organisations are also working on various research initiatives to monitor the impact of LTNs.

This section presents a high-level summary of findings from existing research. Further findings will continue to be provided as they become available in subsequent Travel in London reports.

- **Overall public acceptance:** TfL's Customer Pulse survey (Jul-Aug 2021) revealed that 44 per cent of Londoners agree with the creation of LTNs in London, while 23 per cent opposed it.
- **Impact on car use:** In 2021, TfL commissioned the University of Westminster to run a longitudinal survey to study the impacts of LTNs across London over time, with the first results expected in 2022. However, between 2016 and 2021 TfL and the University of Westminster have been doing research on the impacts of the Mini-Holland interventions on outer London boroughs and these, which in some cases included the implementation of LTNs, provide some initial indicative findings (although limited in geographical scope) about the impact of this kind of intervention. In terms of car use, since 2018 (and including 2020 and 2021) there is a consistent and statistically significant reduction of past-week car use in the LTN areas within the Mini-Holland boroughs, compared to the control group of other outer London residents. Furthermore, Waltham Forest also saw a significant reduction in car ownership after two years of the LTN implementation.
- **Impact on active travel:** The Mini-Holland surveys can also shed light on the active travel impacts of LTNs. In all waves since 2017 there is statistically significant evidence of increased participation in cycling in the LTN areas within the Mini-Holland boroughs (in terms of any past-week cycling) compared to the control areas, as well as of an increase in the duration of active travel (walking and/or cycling), although participation in walking and minutes spent walking or cycling alone are not statistically significant in all waves, despite showing results in line with the main trends. In the case of walking, this is thought to be due to time spent walking being already quite high at baseline.
- **Impact on 'Healthy Streets' perceptions:** The Mini-Holland surveys also ask a series of questions related to agreement with statements about the street environment. In all waves since 2017, there is statistically significant evidence of increased scores on these questions in the LTN areas within the Mini-Holland boroughs compared to the control areas, and even a suggestion of these scores increasing over the years.

5. Active travel and Healthy Streets

- **Impact on road danger:** Aside from the Mini-Holland surveys commissioned by TfL, the University of Westminster's Active Travel Academy has recently conducted various studies about the impact of LTNs in London on other aspects of the travel experience. An [analysis of police data](#) showed that traffic-related injuries within LTNs reduced by half in comparison to the background trend, with no statistically significant change in injuries on LTN boundary roads. Another [study](#), specific to Waltham Forest, saw reductions of 70 per cent in road traffic injury risk per trip on roads within LTNs for pedestrians, cyclists, and car occupants, with no negative impact on LTN boundary roads.
- **Impact on crime:** In terms of street crime, a [pan-London study](#) showed that overall crime trends in and around LTNs were more favourable than the background trend in outer London, and similar to or slightly more favourable than the trend in inner London. [Analysis of police data](#) for Waltham Forest specifically found there was a 10 per cent reduction in total street crime inside the LTNs (and larger for the violence and sexual offences category), with no crime displacement to adjacent areas, the effect increasing over time, albeit with an increase in bicycle theft only.
- **Impact on emergency services:** Two studies [analysing fire rescue service data](#) for LTNs across London and in [Waltham Forest](#) in particular found no evidence that response times inside the LTNs or on boundary roads were adversely affected for fire and rescue services. And while more delays were reported by fire crews due to 'traffic calming measures' in LTNs, this was offset by a decrease in delays for other reasons, particularly 'traffic'.
- **Equity impacts:** An important aspect of any transport policy is how it impacts groups with different needs. For LTNs specifically, the best independent evidence so far includes a [spatial review by the University of Westminster](#) of the locations where emergency LTNs were implemented in London in 2020 and 2021 – showing that people in deprived areas were 2.5 times more likely to live in a new LTN than people in less deprived areas and that households without a car were 1.6 times more likely than car owners to live in an LTN. The [Pave the Way](#) report, by Transport for All, shows that disabled people hold both positive and negative opinions on LTNs – reporting easier or more pleasant journeys, an increase in independence, a decrease in traffic danger and benefits to physical and mental health. However, also reported are longer journey times for residents, visitors and carers, which leads to travel becoming more exhausting, expensive, complicated or difficult, and cases of negative impact on mental health, issues with taxis and a perceived rise in traffic danger, as well as not feeling listened to by policy makers.

In summary, LTNs have a wide range of different and interconnected impacts but the evidence suggests that these are largely positive and that it is in the longer term where most of the benefits become apparent. Therefore, TfL shall continue to support and, where appropriate, conduct further research for a complete and thorough evaluation of LTN impacts.

5.6 Road danger

Introduction

This section provides a summary of personal injury road traffic collisions and casualties, as reported to the police, in Greater London in 2020. Full details can be found in our [2020 factsheet](#) and more details on progress in making our roads safer can be found in the recently published [Vision Zero Action Plan progress report](#).

Vision Zero objective

The Mayor's Vision Zero Action Plan makes it clear that no death or serious injury on London's roads is acceptable or inevitable. It sets targets of a 65 per cent reduction in all persons killed or seriously injured (KSI) on London's roads by 2022 and a 70 per cent reduction in people killed or seriously injured in or by a bus by 2022, ahead of eliminating all deaths and serious injuries from London's streets by 2041.

To assess performance, 2020 figures are compared with those for 2019 and with the back-estimated average for 2005-09. This is the baseline against which we measure progress towards the Mayor's targets.

Road danger in 2020

During 2020 there was a substantial decline in the number of people killed or seriously injured on London's roads compared to the 2005-09 baseline, partly reflecting the pandemic and associated lockdowns. The rate of the decline had slowed since 2014, but there was a 21 per cent decrease in 2020 compared to 2019. This amounts to a 52 per cent reduction towards the overall target of 65 per cent by 2022. However, this reduction needs to be seen in the context of a significant reduction in travel during periods of lockdown.

There were 21,001 reported collisions in London during 2020, resulting in 96 people being tragically killed, 2,974 being seriously injured, and 21,275 being slightly injured. The overall casualty level was 19 per cent below 2019, and the number killed or seriously injured was 21 per cent lower.

In terms of travel behaviour, the pandemic resulted in fewer public transport journeys, including bus journeys, and an increase in the use of personal transport modes, especially cycling and new uncategorised travel modes such as e-scooters. The number of people killed or seriously injured while cycling or using uncategorised 'other' vehicles increased relative to 2019, partly reflecting an increase in the number of people using these modes.

Trends by mode

Buses are the safest way to travel on the roads and carry more people than any other public transport mode. Our world-leading Bus Safety Programme is achieving the greatest reduction in people killed or seriously injured per journey of any mode on the roads, with 77 per cent fewer people killed or seriously injured in, or by, a bus by the end of 2020 than in the 2005-09 baseline. This shows the power of using evidence-based approaches to pinpoint how we can tackle danger on our roads. However, more progress is needed to make our roads safer, especially for people walking, cycling or riding motorcycles.

5. Active travel and Healthy Streets

London has become safer for people walking and cycling in the past 10 to 15 years, with a fall in the risk of being killed or seriously injured per journey. However, we have further to go. Together, people walking, cycling and riding motorcycles account for around 80 per cent of people killed or seriously injured on London's roads.

By 2019, the number of people killed or seriously injured while walking had fallen by a third since the baseline. During the pandemic in 2020, 36 per cent fewer people were killed or seriously injured while walking than in 2019, with the greatest reduction in central London. This was largely driven by the change in travel patterns during the pandemic, with significant falls in people visiting and walking in the centre.

Tragically, six people were killed and 862 were seriously injured while cycling in 2020, a 12 per cent increase from 2019. This is largely due to many more people choosing to cycle, and over longer distances, with the Department for Transport estimating that cycling kilometres in London increased by 46 per cent during 2020. Although absolute numbers of cyclist casualties have increased, the number of people killed or seriously injured per cycling journey (which is how we measure risk) has fallen by almost a third since the 2005-09 baseline and by 24 per cent between 2019 and 2020. This means that as levels of cycling reached record highs, the risk to people cycling reached a record low. Where those cycle trips replaced journeys that would otherwise have been made by car, risk to other road users was also reduced.

People riding motorcycles, including mopeds and scooters, make up only three per cent of vehicle kilometres, but accounted for 32 per cent of people killed in London in 2020. There were 31 people killed while riding a motorcycle in 2020, the same as in 2019. However, serious injuries fell by a quarter. Someone travelling by motorcycle is 80 times more likely to be killed or seriously injured than someone in a car.

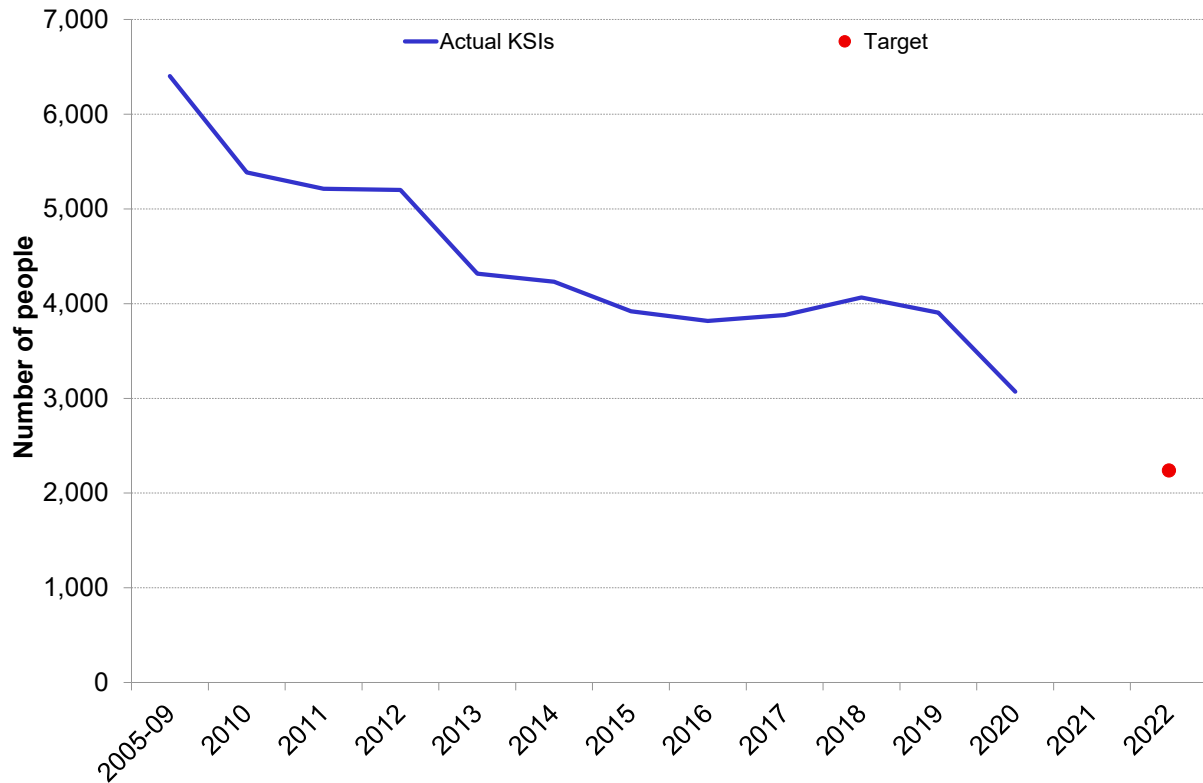
The food delivery industry has more than doubled in size since the beginning of 2020, which has led to a rise in new registrations of small-engine scooters. The increase in people riding for work highlights the need to tackle long-standing poor safety outcomes for people riding motorcycles, but also offers the opportunity to partner with responsible companies to promote safer driving for work.

People from deprived backgrounds are twice as likely to be injured in a road traffic collision as those from the least deprived areas, and Black people are 2.3 times more likely to be killed or seriously injured on London's roads than White people. The risk of being killed or seriously injured for children aged 4-15 living in deprived areas is nearly three times higher than for their peers in the least deprived areas.

Progress towards Mayoral targets: persons killed or seriously injured in road traffic collisions

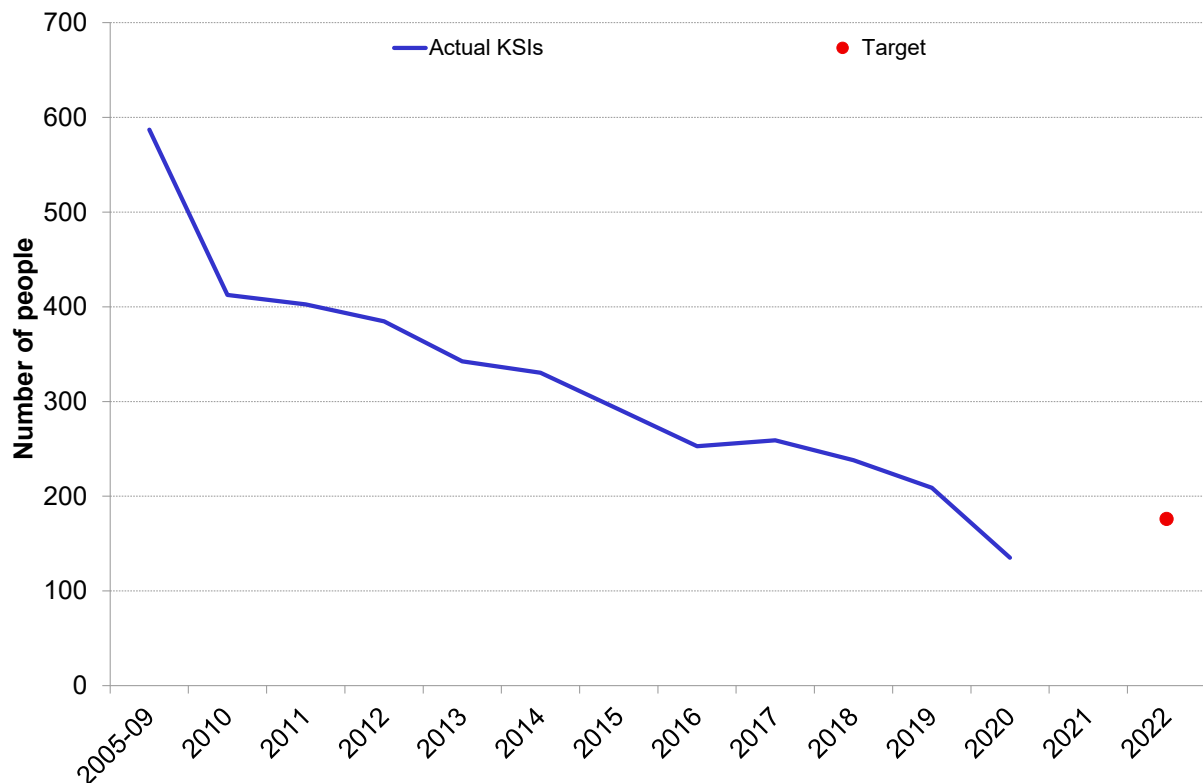
Figure 5.22 shows progress towards the interim Mayoral target of a 65 per cent reduction in persons killed or seriously injured, against the 2005-09 average baseline, by 2022. There has been steady progress towards the target since 2014, although the rate of progress had slowed in more recent years. The relatively sharp reduction in 2020 compared to 2019, of 21 per cent in those killed or seriously injured, at least partly reflected the impacts of the pandemic and associated travel restrictions, alongside the roll-out of protected spaces for walking and cycling as part of the Streetspace for London and Low Traffic Neighbourhood initiatives. In 2020 there was an overall reduction of 52 per cent relative to the 2005-09 average, against the interim Mayoral target of a 65 per cent reduction by 2022.

Figure 5.22 Progress towards Mayor's Vision Zero target for killed or seriously injured casualties in road traffic collisions, 2005-09 baseline to 2022.



Source: TfL Safety, Health and Environment.

Figure 5.23 Progress towards Mayor's Vision Zero target for killed or seriously injured casualties involving London buses, 2005-09 baseline to 2022.



Source: TfL Safety, Health and Environment.

Progress towards Mayoral targets: persons killed or seriously injured travelling by bus or in collisions involving a bus

Figure 5.23 shows the trend in persons killed or injured while travelling by bus or in a collision involving a bus in London.

During 2020 there was a continued decline in the number of people killed or seriously injured in or by a London bus. There was a 35 per cent decrease in people killed or seriously injured in collisions involving a bus in 2020 compared to 2019, down from 209 to 135 people. This represented a 77 per cent reduction against the baseline, exceeding the overall target of a 70 per cent reduction by 2022.

Headline statistics

A total of 24,345 people were reported injured in road traffic collisions by or to the police in London during 2020. 96 people were tragically killed, 2,974 were seriously injured and 21,275 were slightly injured. The number of people killed or seriously injured was 52 per cent lower than the 2005-09 baseline and the number of children killed or seriously injured was 74 per cent lower than the baseline (table 5.2).

Table 5.2 People killed or seriously injured in road traffic collisions in London during 2020, relative to 2019 and the 2005-09 baseline.

User group	Casualty numbers			Change in 2020 from...	
	2005-09	2019	2020	2019	2005-09
Bus or coach occupants	[277]	91	46	-49%*	-83%*
Car occupants	[1,773]	574	416	-28%*	-77%*
Motorcyclists	[1,397]	1,019	768	-25%*	-45%*
Pedal cyclists	[737]	778	868	12%*	18%*
Pedestrians	[2,021]	1,350	868	-36%*	-57%*
Other vehicle occupants	[197]	93	104	12%	-47%*
Total	[6,403]	3,905	3,070	-21%*	-52%*
Child bus or coach occupants	[23]	5	1	-80%	-96%*
Child car passengers	[82]	16	13	-19%	-84%*
Child pedal cyclists	[63]	22	22	0%	-65%*
Child pedestrians	[423]	157	112	-29%*	-74%*
Other child casualties	[18]	11	8	-27%	-56%*
Total child casualties	[608]	211	156	-26%*	-74%*

Source: TfL Safety, Health and Environment, based on STATS19.

Note: Asterisks (*) indicate where changes are significant at the 95 per cent confidence level, applying the Poisson probability distribution. Figures in square brackets are back estimated for the 2005-09 baseline. The number and severity of child casualties are a subset of the total reported casualties in London.

The reductions achieved vary by mode (between 45 and 83 per cent), except for people killed or seriously injured while riding a bicycle, which was up by 18 per cent against the baseline. However, when taking into account the estimated number of kilometres cycled, the risk of being killed or seriously injured as a cyclist on London's roads has reduced by 30 per cent from the baseline and by 24 per cent from last year, from an estimated 1.2 KSIs to 0.9 KSIs per million kilometres cycled. The

number of cyclists killed in 2020 was down by 64 per cent on the 2005-09 baseline, from 17 to six people, while nationally the number of cyclists killed in 2020 increased by 9 per cent on the 2005-09 baseline.

The number of children killed or seriously injured in collisions also fell across all modes, with the greatest percentage reduction among children as bus and coach passengers, alongside reduction in travel during periods of lockdown.

TfL 'bus-involved' casualties

Unfortunately, as reported by the police under national [STATS20](#) guidance, two bus passengers were fatally injured during 2020, one while attempting to board a bus, and one bus passenger as a result of a fall within a bus. The number of people killed or seriously injured in or by a bus fell by 35 per cent between 2019 and 2020 to 135 people, which is the lowest number on record. This is 77 per cent down on the 2005-09 baseline (table 5.3).

Table 5.3 Casualties involving buses in 2020 by severity, compared to 2019.

Mode	Fatal	Serious	Slight	Total
Bus/coach driver/passenger	2 (0%)	41 (-52%)*	571 (-43%)*	614 (-44%)*
Car	0 (-)	6 (-45%)	114 (-34%)*	120 (-34%)*
Goods vehicle	0 (-)	0 (-)	11 (0%)	11 (0%)
Motorcycle	1 (-67%)	13 (44%)	47 (18%)	61 (17%)
Pedal cycle	1 (-)	16 (23%)	46 (-6%)	63 (2%)
Pedestrian	3 (-50%)*	49 (-38%)*	103 (-46%)*	155 (-43%)*
Taxi or private hire	0 (-)	1 (∞)	14 (-40%)	15 (50%)
Other vehicle	0 (-)	2 (∞)	10 (400%)*	12 (500%)*
Total	7 (-36%)*	128 (-35%)*	916 (-38%)*	1,051 (-38%)*

Source: TfL Safety, Health and Environment.

Note: Asterisks (*) indicate where changes are significant at the 95 per cent confidence level, applying the Poisson probability distribution. Values in brackets show change from 2019.

5. Active travel and Healthy Streets

6. Air quality and carbon reduction

6.1 Improving air quality

Introduction

The Mayor's Transport and London Environment strategies aim to clean London's air and decrease emissions from vehicles by encouraging active travel while switching the remaining vehicles to zero emission.

Summary of recent achievements and ongoing challenges

Significant improvements have been achieved in air quality over the last five years, particularly in reducing ambient concentrations of NO₂ towards statutory limits. However, there is still much work to be done. Compliance with legal limits for NO₂ is not yet completely achieved, and the World Health Organisation has recently proposed much tighter limits for key pollutants in the light of evidence about their negative effects on people's health even at very low levels.

In 2016 two million Londoners, including 400,000 children, lived in areas that exceeded legal limits for air pollution. Since then significant improvements have been achieved in air quality as we seek to reduce ambient levels of NO₂ towards current statutory limits. By 2019, the number of people living in areas that exceeded legal limits had reduced by 91 per cent to 174,000 people. It is particularly important that air quality improves around schools and the number of state primary and secondary schools in areas exceeding the legal limit for NO₂ fell from 455 in 2016 to 14 in 2019, a reduction of 97 per cent.

Low Emission Zones

The vehicle standards for the London-wide Low Emission Zone for heavy diesel vehicles were tightened on 1 March 2021. Compliance with these new standards was 95.7 per cent in October 2021 and this compares to 48 per cent in 2017 when the changes were announced.

The Mayor expanded the Ultra Low Emission Zone (ULEZ) to cover inner London up to the North and South Circular Roads on 25 October 2021. This is a significant expansion covering 3.8 million residents and is eighteen times the size of the original central London zone. In the week before launch, compliance with the scheme was estimated at 87 per cent, which compares to a 39 per cent compliance rate when the Mayor announced his intention to introduce the expanded scheme in February 2017. This demonstrates the important role of 'pre-compliance' in the success of these schemes and bringing forward the air quality benefits. An update on this scheme will be published on the GLA website.

6.2 London Atmospheric Emissions Inventory update

Introduction

The London Atmospheric Emissions Inventory (LAEI) is a key dataset underpinning air quality assessment and policy. It has been updated for a new baseline year (2019), which supersedes the previous baseline year (2016). Additional work is ongoing to produce forecast emissions and air quality maps for future years 2025 and 2030, based on the latest available projection data.

The LAEI is a comprehensive and authoritative source of information on spatially disaggregated emissions, covering the area within and including the M25 motorway. It includes emission estimates from all air pollution sources across London, including transport (road, aviation, rail and river), industrial/commercial (heat and power generation, waste, construction and NRMM – Non-Road Mobile Machinery), domestic (heat and power generation) and many other smaller sources.

Emissions are then input to a dispersion model either as point, line, area or volume sources, to calculate ground level concentrations at a 20m resolution across London, taking account of weather data and background pollutant concentrations (originating from outside London).

Annual mean concentration maps have been produced for NO_x (oxides of nitrogen), NO₂ (nitrogen dioxide), PM₁₀ and PM_{2.5} (particulate matter with a diameter smaller than 10 and 2.5 microns respectively). For PM₁₀, the number of days with mean concentrations over 50µgm⁻³ has also been estimated to compare against the short-term legal limit for PM₁₀, which allows no more than 35 days over 50µgm⁻³ per year.

Methodology and assumptions

Most emission estimates are based on a combination of activity data (eg traffic flow for road transport sources) and emission factors (grams of pollutant per kilometre), while a few other sources rely on scaling down UK emissions to London (using the NAEI – the National Atmospheric Emissions Inventory).

Emissions were calculated based on the most up-to-date activity data from various sources, including the Department for Business, Energy and Industrial Strategy (BEIS) for fuel consumptions statistics, the Environment Agency for large industrial sites, or the NAEI, and the method also included several methodological improvements.

One of the main changes in the methodology has been using TfL's latest, extensively validated, LoHAM transport model to determine annual average daily traffic (AADT) and average speeds by vehicle category on the 80,000 road links forming the LAEI major roads network. A principal reason for this change was so that the air quality impacts of future proposals could be more rapidly evaluated, given a close-coupled link to the traffic model.

TfL bus activity data was derived separately from TfL's iBus database, which provides the actual number of buses between each bus stop, including arrival and departure time. This allowed derivation of average daily bus flows and average speeds across the whole LAEI major roads network.

Fleet compositions by vehicle type were updated based on the latest available observation data for 2019, both in terms of engine type (petrol, diesel, hybrid, electric), and 'Euro' emission standards.

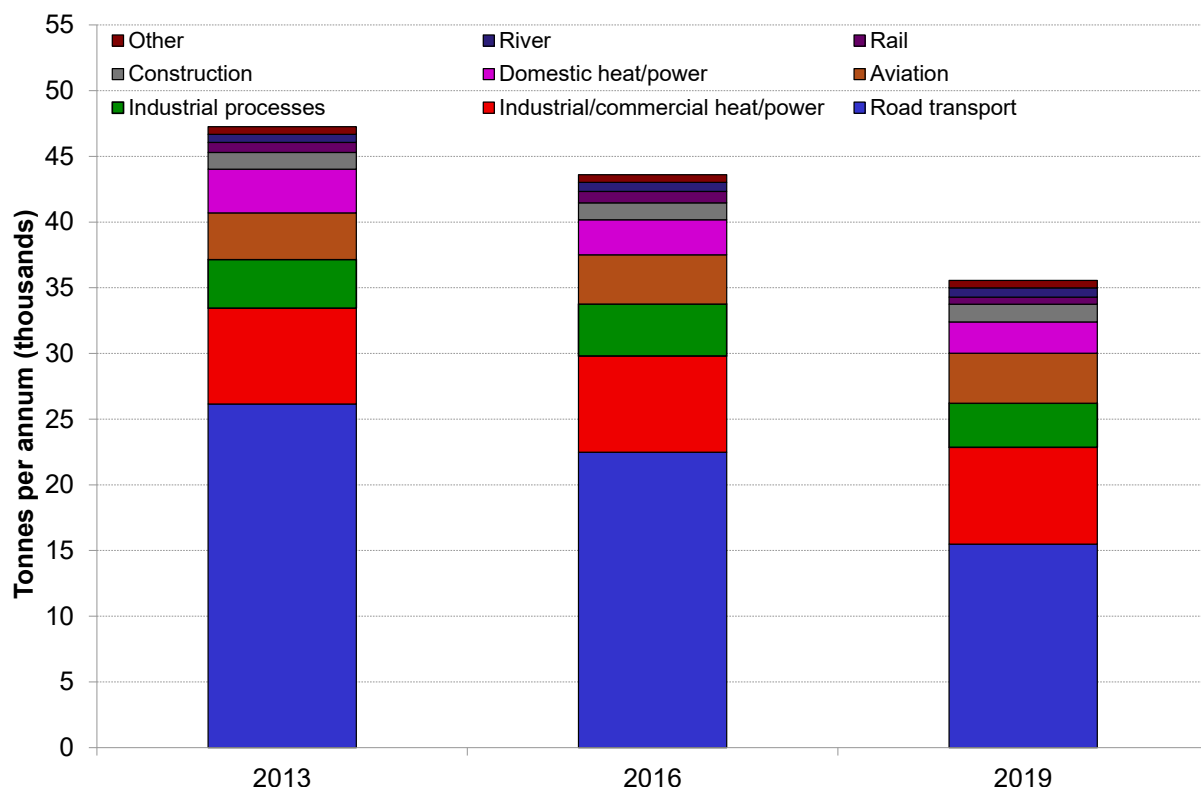
Private hire vehicle (PHV) flows, speeds and fleet compositions have also been incorporated for the first time into the LAEI, while these were previously aggregated together with cars in the inventory.

Estimated emissions from previous baseline years (2013 and 2016) have been revised following changes in methodology and/or underlying activity or emission factor data. Therefore, emissions from 2013 and 2016 shown below are the revised emissions; not those published in the previous LAEI update.

Results: NO_x emissions

NO_x emissions across London decreased from 43,603 tonnes in 2016 to 35,565 tonnes in 2019, a reduction of 8,038 tonnes or 18 per cent (figure 6.1). The main reduction in emissions came from road transport, which accounted for 15,492 tonnes of NO_x in 2019; a reduction of 6,985 tonnes (31 per cent) compared to 2016. Although road transport is still the predominant source of NO_x across London, its proportion within total NO_x emissions has gradually decreased over time from 55 per cent in 2013 and 52 per cent in 2016 to 44 per cent in 2019. Other key sources include emissions from the industrial and commercial fuel combustion to generate heat and power (21 per cent) and aviation (11 per cent).

Figure 6.1 NO_x emissions in London by source, 2013-2019.



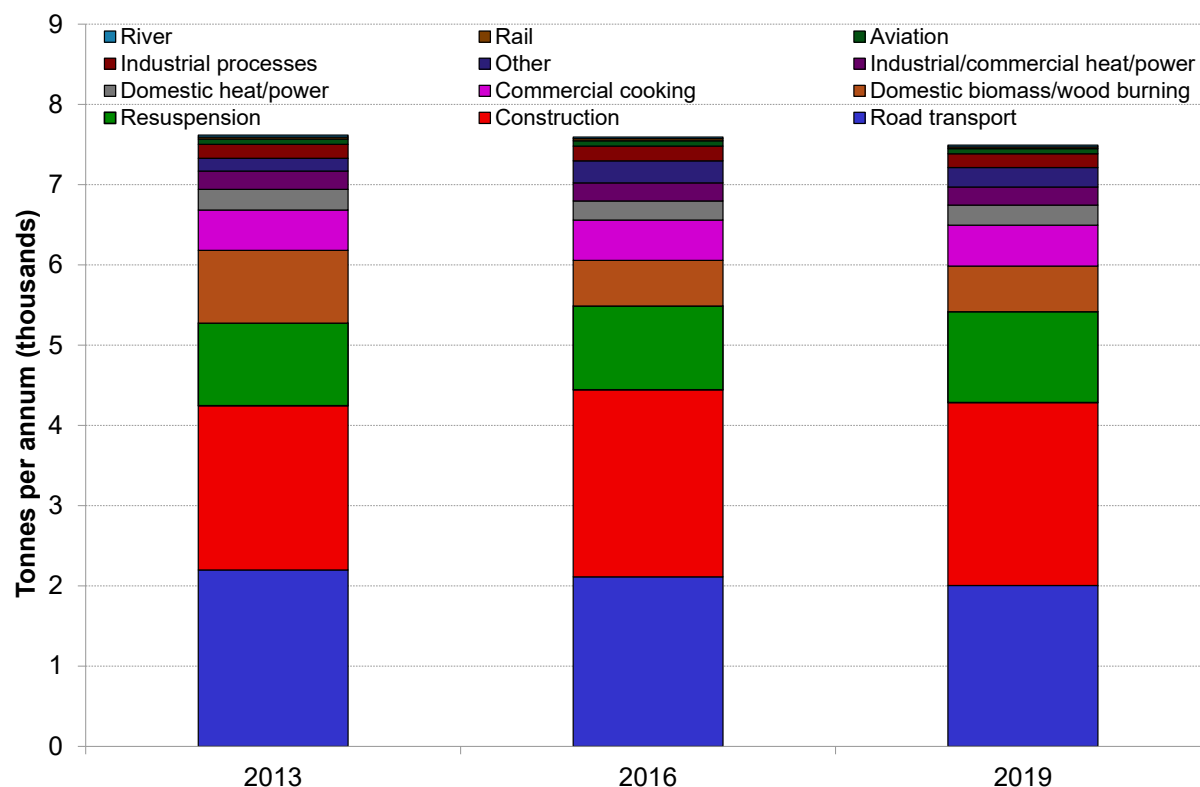
Source: GLA/TfL City Planning.

6. Air quality and carbon reduction

Results: PM₁₀ emissions

PM₁₀ emissions across London slightly reduced from 7,595 tonnes in 2016 to 7,493 tonnes in 2019, a reduction of 102 tonnes or 1.3 per cent (figure 6.2). The main reduction in emissions came from road transport, which accounted for 2,005 tonnes of PM₁₀ in 2019; a reduction of 107 tonnes (5.1 per cent) compared to 2016. The construction sector was the predominant source, representing 31 per cent of total PM₁₀ emissions in 2019, followed by road transport (27 per cent) and dust resuspension from roads (15 per cent).

Figure 6.2 PM₁₀ emissions in London by source, 2013-2019.



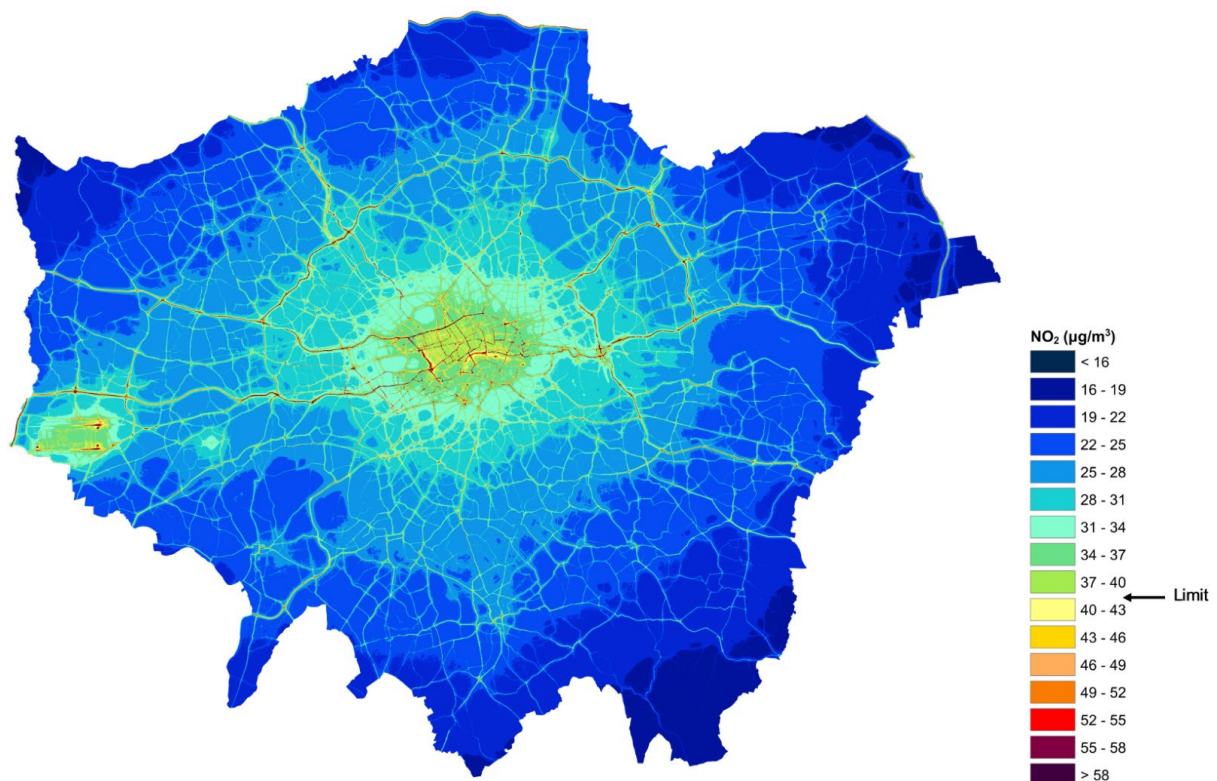
Source: GLA/TfL City Planning.

Note: Due to a change in method road transport emissions from 2013 and 2016 may not be directly comparable to 2019.

Air pollutant concentrations: nitrogen dioxide (NO₂) annual mean

The NO₂ concentration map (figure 6.3) shows that the majority of London is now below the annual mean legal limit of 40µgm⁻³, with most of the exceedances being located along the main busy roads and at Heathrow Airport.

Figure 6.3 Annual mean NO₂ concentrations, 2019.



Source: GLA/TfL City Planning.

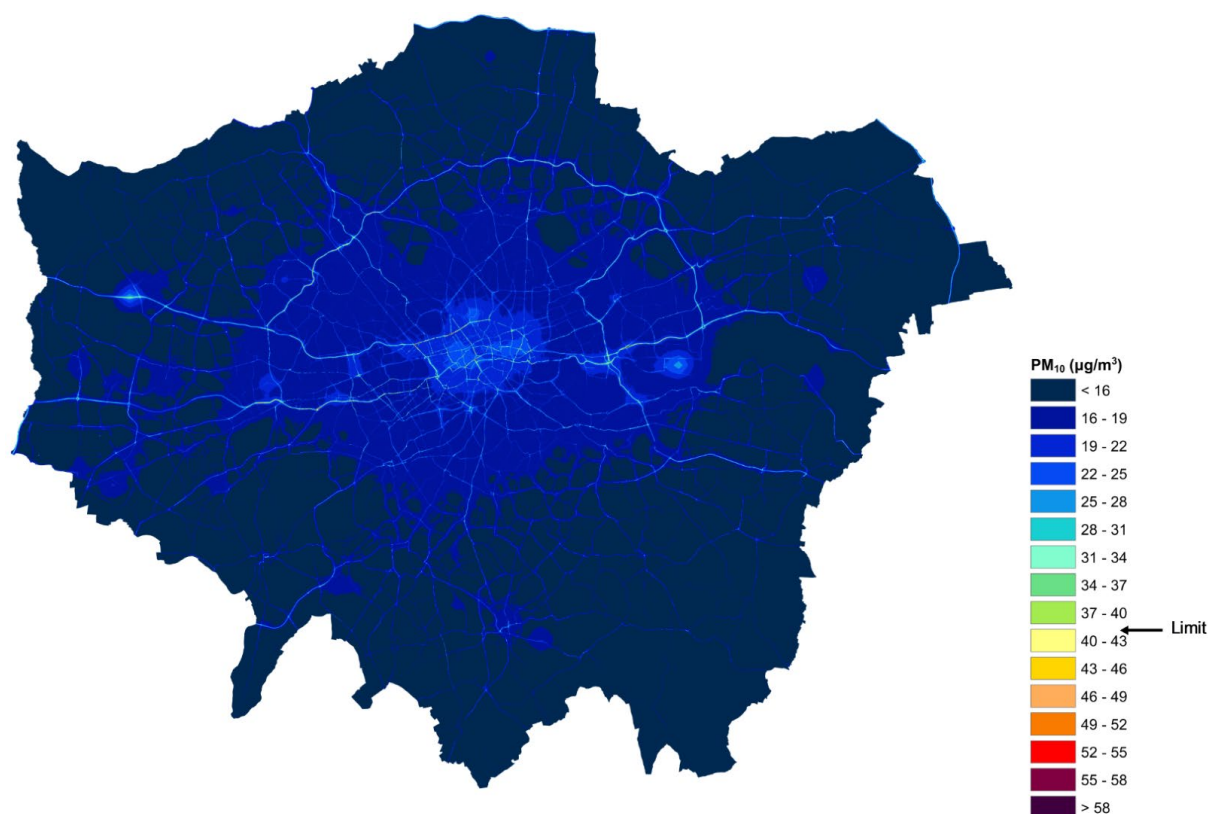
NO₂ modelled concentrations have been combined with population data to determine a population-weighted concentration at Output Area level. Based on this methodology, in the previous LAEI for 2016, it was estimated that over 2 million Londoners were exposed to NO₂ annual mean concentrations over the legal limit. The updated modelling for 2019 shows a significant reduction, with 174,000 Londoners now exposed to these levels (a reduction of 91 per cent).

Air pollutant concentrations: particulate matter (PM₁₀) annual mean

The PM₁₀ concentration map (figure 6.4) shows that the large majority of London is below the annual mean legal limit of 40µgm⁻³.

6. Air quality and carbon reduction

Figure 6.4 Annual mean PM₁₀ concentrations, 2019.



Source: GLA/TfL City Planning.

Next steps

The LAEI update 2019 shows that NO_x, NO₂ and PM emissions and concentrations across London have reduced. More Londoners live in areas below the legal limit and the percentage of roads over the limit has also reduced.

For PM_{2.5}, although progress has been made towards meeting 10µgm⁻³ annual mean, the World Health Organisation (WHO) has recently reduced that guideline to 5µgm⁻³, giving an even more challenging target to achieve across London, which will require more stringent policies in the coming years.

This baseline reflects stable pre-pandemic conditions. Our forecasts for future years (2025 and 2030) will need to account for revised assessments of activity at those dates (see also section 12.4 of this report). These updates will be reported next year.

6.3 Air quality, health and inequality

The significant health impacts of poor air quality and the imperatives to address it have recently been highlighted by the WHO, which has suggested a lowering of existing health-based limit values for certain pollutants. A joint TfL/GLA study explored the relationships between air quality and inequalities, albeit based on a previous set of emissions estimates. The report confirmed earlier findings that communities with higher levels of deprivation, or higher proportions of people from non-White ethnic backgrounds, are more likely to be exposed to higher levels of air pollution. It is estimated that areas where the most deprived Londoners are likely to

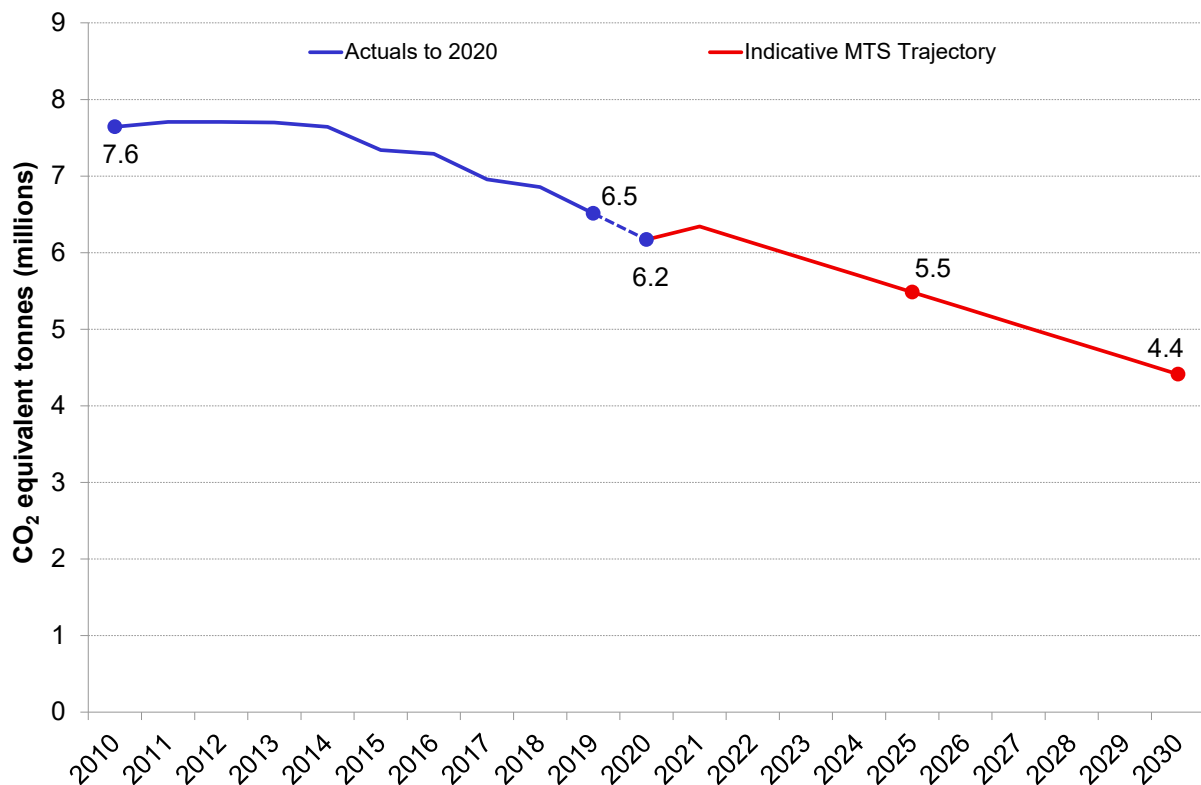
live experience average concentrations of NO₂ that are 13 per cent higher than the least deprived areas, with PM_{2.5} concentrations 6 per cent higher. The report also shows that, following policies to improve air quality in London, the gap in NO₂ exposure between the most and least deprived areas of London in this regard has narrowed by up to 50 per cent since 2013. The full report can be found [here](#).

6.4 Reducing London's carbon dioxide (CO₂) emissions

The Mayor's Transport Strategy set a target for London to be a zero carbon city by 2050. However, the Mayor has recently called for this to be brought forward to 2030, recognising the importance of the climate change emergency we face.

London's transport CO₂ emissions have been falling over recent decades, although at a pace commensurate with the 2050 rather than the 2030 target. Furthermore, the contribution of other sectors has fallen as the grid has decarbonised. Road transport is therefore responsible for an increasing proportion of total emissions, now estimated at 28 per cent. Figure 6.5 shows the need to significantly accelerate decarbonisation in London to meet the Mayor's ambition for 2030.

Figure 6.5 Historic trend and indicative trajectory of London's CO₂ emissions, 2010-2030.



Source: TfL City Planning.

Recent initiatives have included:

- The introduction of the Ultra Low Emission Zone in central London, which resulted in a 6 per cent reduction in CO₂ emissions in the central zone.

6. Air quality and carbon reduction

- The recent expansion of the Ultra Low Emission Zone up to the North Circular and South Circular Roads is estimated to reduce CO₂ emissions in inner London by 4.6 per cent – the equivalent of taking 60,000 cars off the road.
- London has western Europe's largest fleet of zero emission buses, currently 576 vehicles, alongside strict taxi and private hire licencing regulations for vehicle emissions, with 4,406 zero emission capable taxis registered in London as at October 2021.

6.5 Supporting the transition to electric vehicles in London

London's 2030 Electric Vehicle Infrastructure Strategy

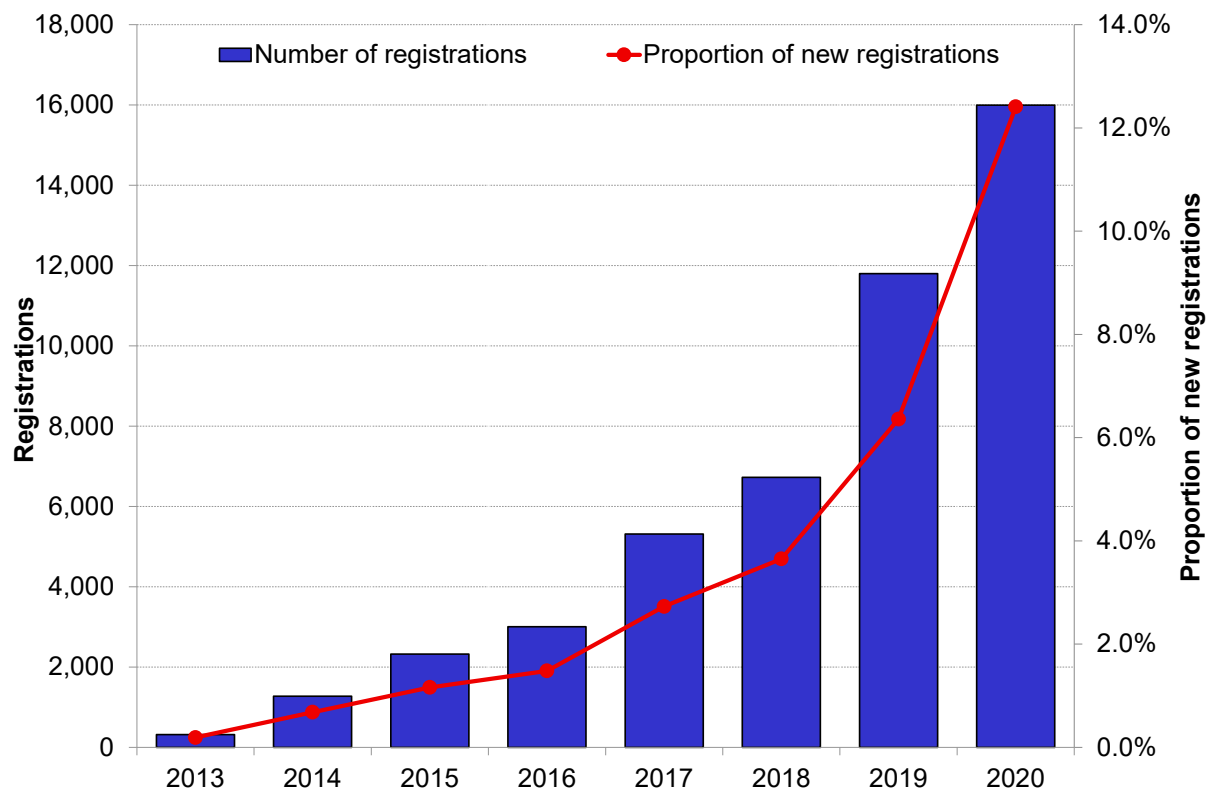
The Mayor launched his [Electric Vehicle Infrastructure Strategy summary](#) in October 2021. This presented an updated plan to help ensure that London has the infrastructure it needs to support a substantial shift to electric vehicles over the next decade. This is an essential part of meeting our climate change and air quality objectives and achieving the Mayor's ambition for the Capital to be a zero carbon city by 2030. The strategy took account of latest industry developments and feedback from users about their experience of electric vehicle charging.

London as a world leader in the shift to electric vehicles

London is a world leader in the shift to electric vehicles, as stated by the International Council on Clean Transportation. The number of electric vehicles is increasing rapidly, with one in eight new cars registered in London in 2020 being electric (this includes battery and plug-in hybrid electric vehicles) compared to one in 16 in 2019 (figure 6.6). Despite the pandemic, 2021 was a strong year for battery electric vehicles (BEVs) sales in the UK, with 117 per cent growth. Data from the Department for Transport indicates that first-time registered ultra low emission vehicles hit a record high in London with 15,997 vehicles registered, representing more than 12 per cent (one in eight) of all new vehicle registrations. Despite these recent trends, ultra low emission vehicles only make up two per cent of London's fleet of more than 2.9 million vehicles, showing the scale of the transition ahead of us.

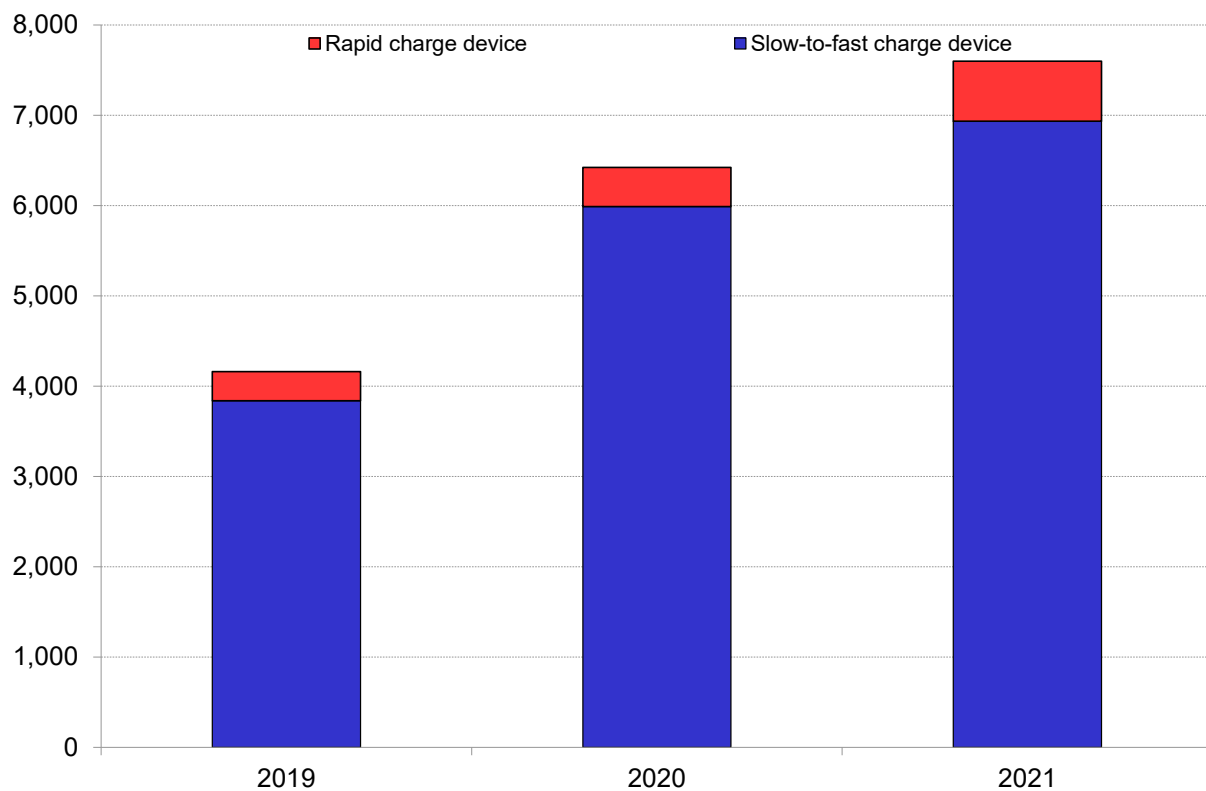
It is essential that we support this growth with a world-class infrastructure network. Much has been achieved over the past few years, and there are now around 7,600 publicly accessible charge points in London, delivered through both the public and private sectors. As part of the Mayor's first term commitments, we installed 300 rapid charge points before the end of 2020, which was ahead of schedule.

Figure 6.6 First-time registrations of plug-in electric vehicles, 2013-2020.



Source: TfL City Planning.

Figure 6.7 Number of electric vehicle charge points, by type, 2019 to mid-2021.



Source: Zap-Map (<https://www.zap-map.com>).

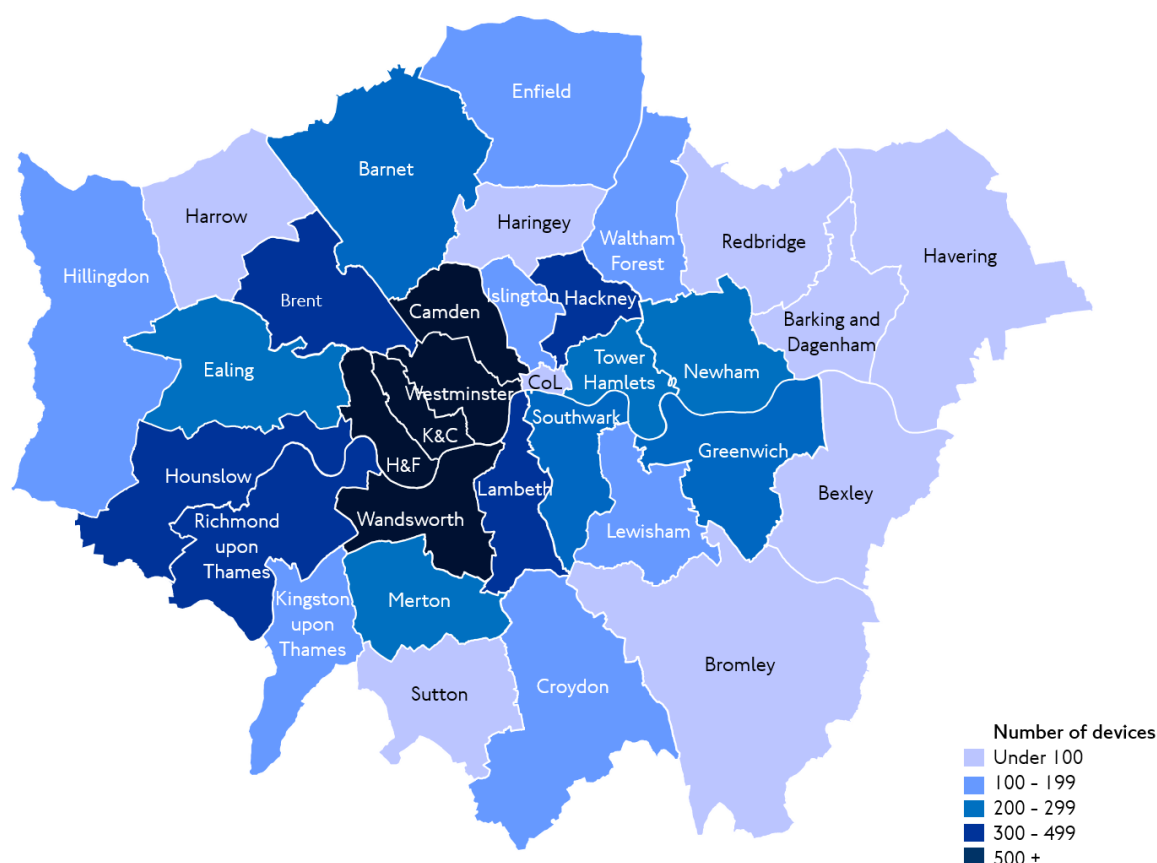
6. Air quality and carbon reduction

Provision of vehicle charging infrastructure

The amount of charging infrastructure in London has grown considerably over the last two years, with significant investment from the public sector (figure 6.7). By June 2021, London boroughs had installed around 4,700 slow-to-fast charge points, accounting for around 65 per cent of all slow-to-fast charge points in London. Progress has also been made on the ambition for a rapid hub in every sub-region of London by 2025. The public sector has supported the opening of hubs at Glass Yard in southeast London and Stratford in east London and will be opening one at Baynard House in central London in 2022. Although delivery of infrastructure is accelerating, further acceleration is needed, using a combination of private and public sector funding.

The spatial provision of infrastructure across London is varied, illustrative of the demand-led approach to delivery of slow-to-fast charge points to date (figure 6.8). London's 2030 Electric Vehicle Infrastructure Strategy sets out the overarching vision which will be realised through six key principles to ensure that all essential trips, that can't be walked, cycled or made by public transport can be made by electric vehicles, with appropriate access to charge points across London.

Figure 6.8 Number of charge points by borough, October 2021.



Source: Zap-Map (<https://www.zap-map.com>).

Rapid charge points: delivery and utilisation

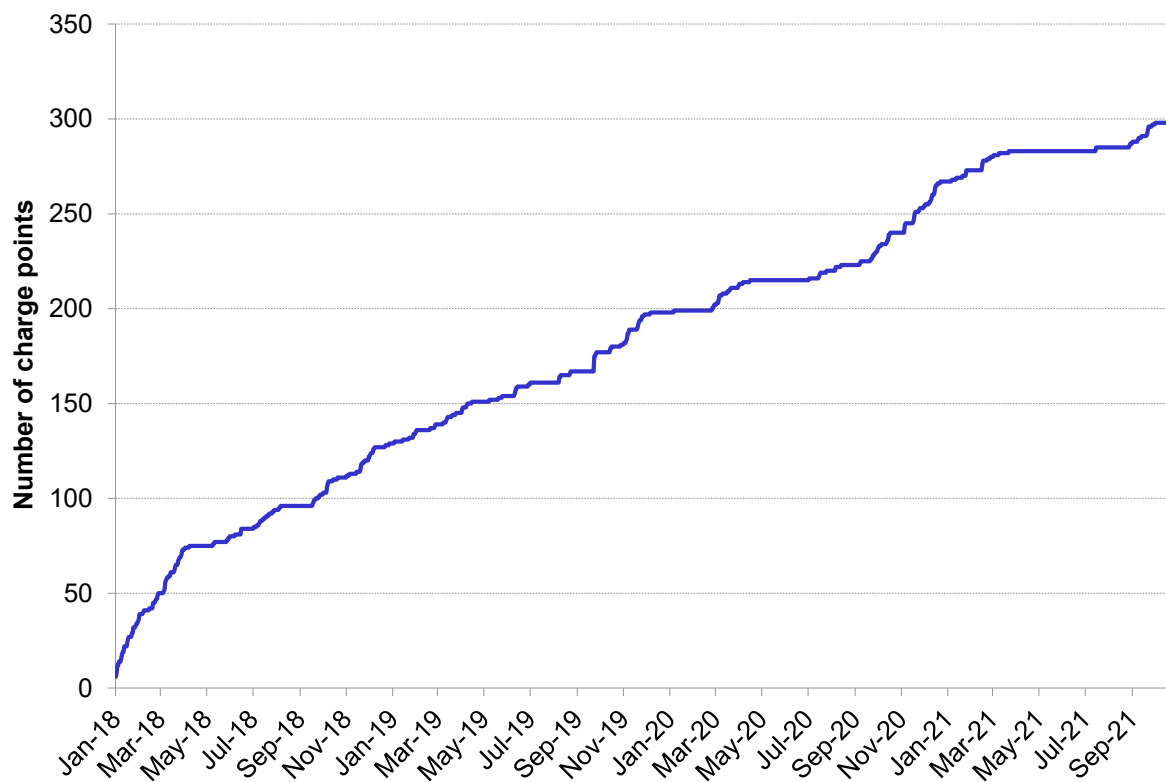
[Travel in London report 13](#) summarised various aspects of the delivery and utilisation of rapid charge points in London. Delivery of these continues steadily, with 298 available at the end of October 2021 (figure 6.9). Figure 6.10 shows an updated breakdown of energy supplied through rapid charge points by borough, while table 6.1 summarises overall utilisation rates.

Table 6.1 TfL rapid charge point utilisation, 2020-2021.

	2020	2021 (Jan-Aug)
At least one charge a day	91%	94%
Three or more charges a day	71%	79%
Five or more charges a day	52%	69%

Source: TfL City Planning.

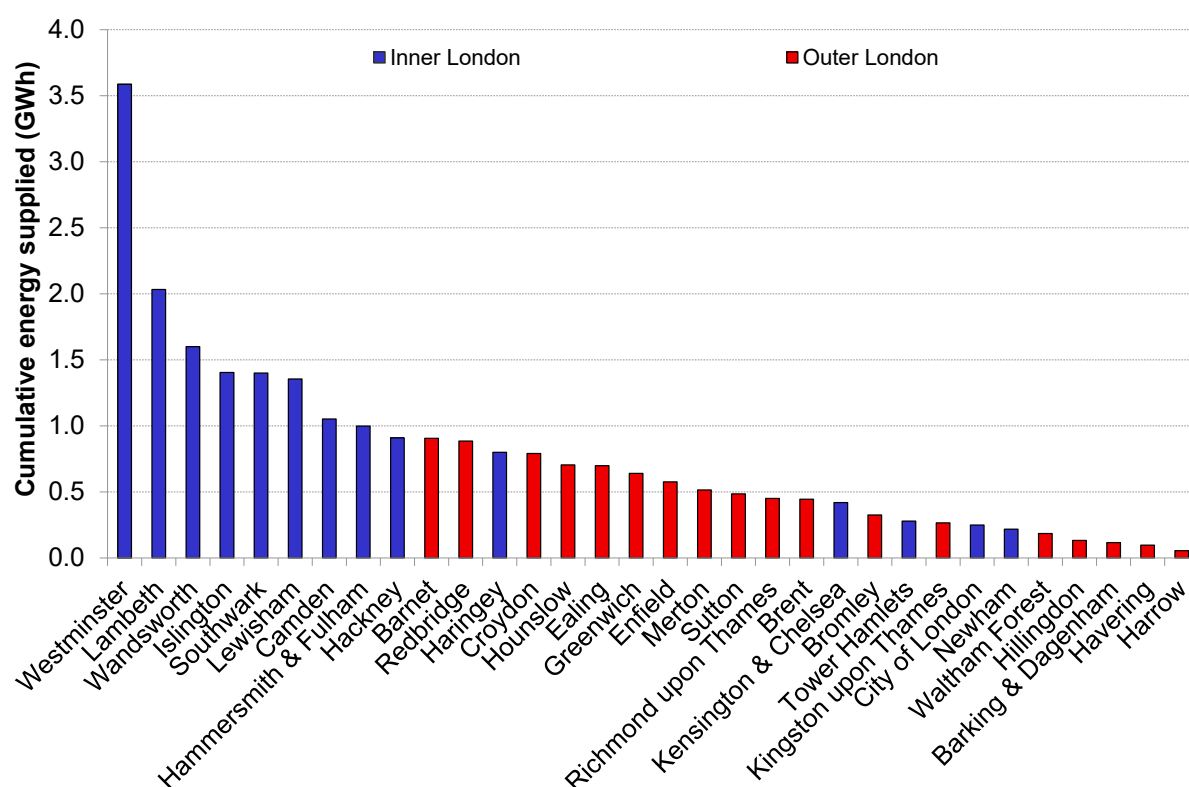
Figure 6.9 Cumulative delivery of rapid charge points in London, 2018-2021.



Source: TfL City Planning.

6. Air quality and carbon reduction

Figure 6.10 Energy supplied by rapid charge points by borough, 2018-2021.



Source: TfL City Planning.

Forecasting London's future electric vehicle infrastructure needs

We have updated our modelling to reflect wider technological changes, user trends and new policies that will affect the rate at which people switch to electric vehicles. This has been used to update our existing estimates of the number of charge points needed within London for 2025, as well as providing an indicative outlook to 2030.

By 2025, the forecasts suggest there could be between 0.3 and 0.6 million electric vehicles in London, equivalent to between 9 and 21 per cent of London's total car and LGV fleet. By 2030, there could be between 1 and 1.4 million electric vehicles, which is between 34 per cent and 49 per cent of London's total car and LGV fleet.

These estimates are indicative and are not targets. They do however give a sense of scale of the infrastructure required. The range in estimates reflects alternative scenarios about user preferences for different types of charge modes.

While these estimates are based on in-depth modelling, incorporating the most up-to-date industry data and insights, there is still a high degree of uncertainty. As such, we have used a scenario-led approach to cater for different trajectories for electric vehicle sales and charging behaviours. We will continue to regularly update our forecasting to account for the greater level of certainty that emerges as we look further ahead and to account for evolving and new trends.

Our analysis suggests the delivery of infrastructure to support this scale of electric vehicle usage could result in around 46 per cent of the overall distance travelled by cars in London being by electric car by 2030. The proportion of electric vehicles in the vehicle stock by 2030 could result in a reduction in emissions of between 1.5 million and 2.6 million tonnes of CO₂ per year.

7. Efficient use of London's road space

7.1 Introduction

The Mayor's Transport Strategy aims to prioritise space-efficient modes of travel to tackle congestion and improve the efficiency of movement for people and goods, with the aim of reducing overall traffic levels. This section looks at a range of indicators relating to traffic on London's streets, considering recent pandemic-related changes in the context of the longer-term trends.

Travel in London reports have tracked a picture of gradual change to road traffic in London over the last decade or so, the key elements of which have been:

- A slow but generally consistent trend of reducing traffic volumes in central and inner London, contrasting with relatively stronger growth on public transport, contributing to a progressive increase in the active, efficient and sustainable mode share. Traffic volumes in outer London have, however, grown over this period.
- Different trends affecting the different motorised modes, with generally lower car traffic, higher freight traffic, particularly LGVs, and dramatic changes to the numbers of private hire vehicles.
- Initiatives such as the Ultra Low Emission Zone and more recent changes to the Congestion Charge in central London, these having impacts on traffic levels and composition.
- Continued reductions to the effective capacity of London's roads, generally reflecting other Mayoral priorities such as reducing road danger, requiring enhanced operational management of the road network.

7.2 Overall trends for road traffic in London

Vehicle kilometre estimates for London from the Department for Transport

The most direct measure of the amount of road traffic in London is the annual vehicle kilometre estimate produced by the Department for Transport (DfT) as part of their annual UK Traffic census. Over the past decade, this indicator has suggested slowly declining overall traffic levels in London, which has generally been in accord with the trends shown by TfL monitoring over this period.

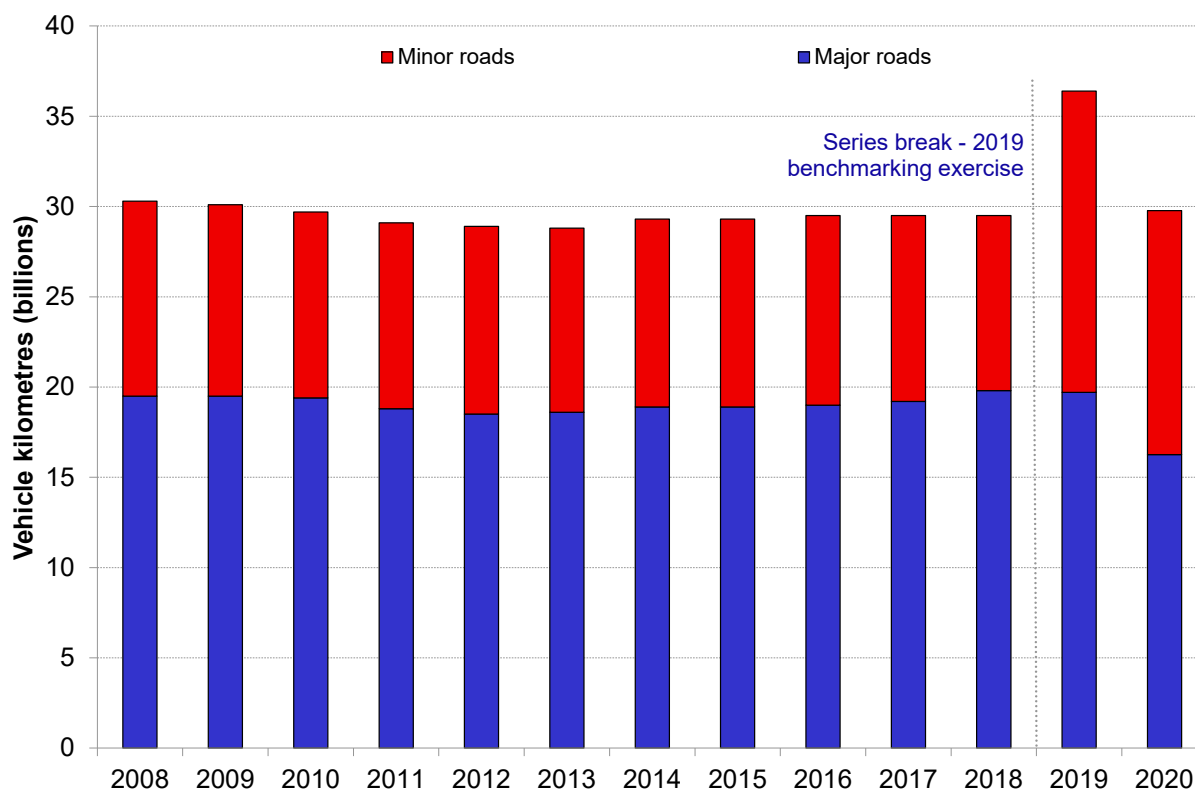
In 2018, however, the DfT embarked on a regular decennial benchmarking exercise for the minor roads (only) element of the UK road network. This exercise resulted in volume estimates (relating to 2019) that were substantially higher – by 60 per cent for traffic on London's minor roads – than had been understood from the previous benchmarking exercise of 2008 (figure 7.1). Notably, the volume estimates for London's major roads remained broadly unchanged, and there was no evidence of an (observed) increasing year-on-year trend in minor road traffic from available independent data over the preceding decade.

It is important to recognise that the revisions to DfT's estimates reflect a statistical re-benchmarking (ie cross-sectional) exercise and not an actual observed trend.

7. Efficient use of London's road space

Nevertheless, they stand as the most up to date aggregate estimate of the volume of traffic on London's roads, and place the estimate of London's road traffic volume to be significantly higher than previously understood.

Figure 7.1 DfT annual vehicle kilometres estimate for London by road type, 2008-2020.



Source: Department for Transport.

In view of the magnitude of this change, and its potential implications for transport policy and evaluation, the DfT are undertaking a review of their minor roads estimation methodology, in which TfL is participating. Details of this exercise can be found [here](#), with conclusions expected during mid-2022. In the interim period, TfL will continue to base assessments on trend-based estimates of traffic change from our own monitoring.

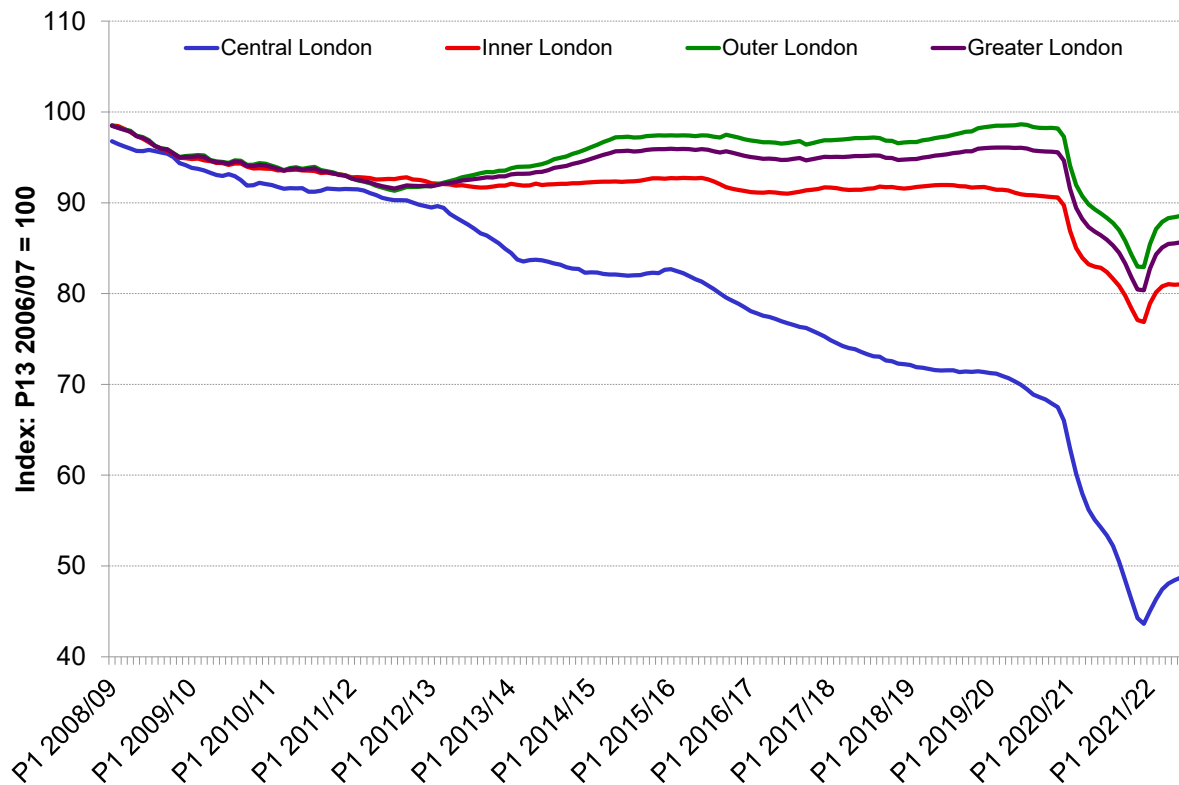
Transport for London's indicators of overall traffic trends in London

TfL indicators of traffic in London do not provide a direct equivalent to the DfT's vehicle kilometre estimates. Instead, they provide robust trend-based estimates of traffic volumes, using a range of index-based indicators across both major and minor roads. Historically, these estimates broadly agreed with the trend in vehicle kilometres provided by the DfT. Between 2018 and 2019 they continued to show a relatively stable overall picture. In 2020, however, traffic volumes were significantly impacted by the pandemic.

Figure 7.2 shows the effects of pandemic restrictions in early 2020, with traffic levels dropping across all parts of London, although the decline was much sharper in central London. Since then, traffic levels have increased gradually, although they seem to have plateaued more recently across all areas, at a lower level than before

the pandemic – approximately 5 per cent below 2019 traffic levels in the latest period.

Figure 7.2 All motor vehicle traffic flows by area, 13-period rolling average, 2008/09-2021/22.



Source: TfL Surface Transport.

7.3 Traffic crossing TfL's strategic cordons

Historic trend

Trends in the numbers of motor vehicles crossing the three London strategic counting cordons and the Thames screenline provide another indicator of traffic volume, and they also show a broadly similar pattern to the other two indicators, prior to the revisions to the DfT series.

Between 2001 and 2019, and bearing in mind that not all cordons are surveyed every year, the number of motor vehicles crossing the central cordon (enclosing a third definition of central London which is not aligned either with the Congestion Charge zone or with the DfT definition) has fallen by 29.1 per cent.

Across the inner cordon, the decline has been 10.2 per cent (between 2002 and 2018), while flows at the London boundary cordon have been relatively stable, with a net 4.8 per cent increase between 2001 and 2019. The number of vehicles crossing the River Thames throughout Greater London has also declined, with 20.8 per cent fewer vehicles observed doing so in 2018 compared with 2000. In considering cordon and screenline counts, it should be noted that there may be considerable variation locally from the trends quoted here, as they include a wide range of locations with differing road network and traffic growth characteristics.

7. Efficient use of London's road space

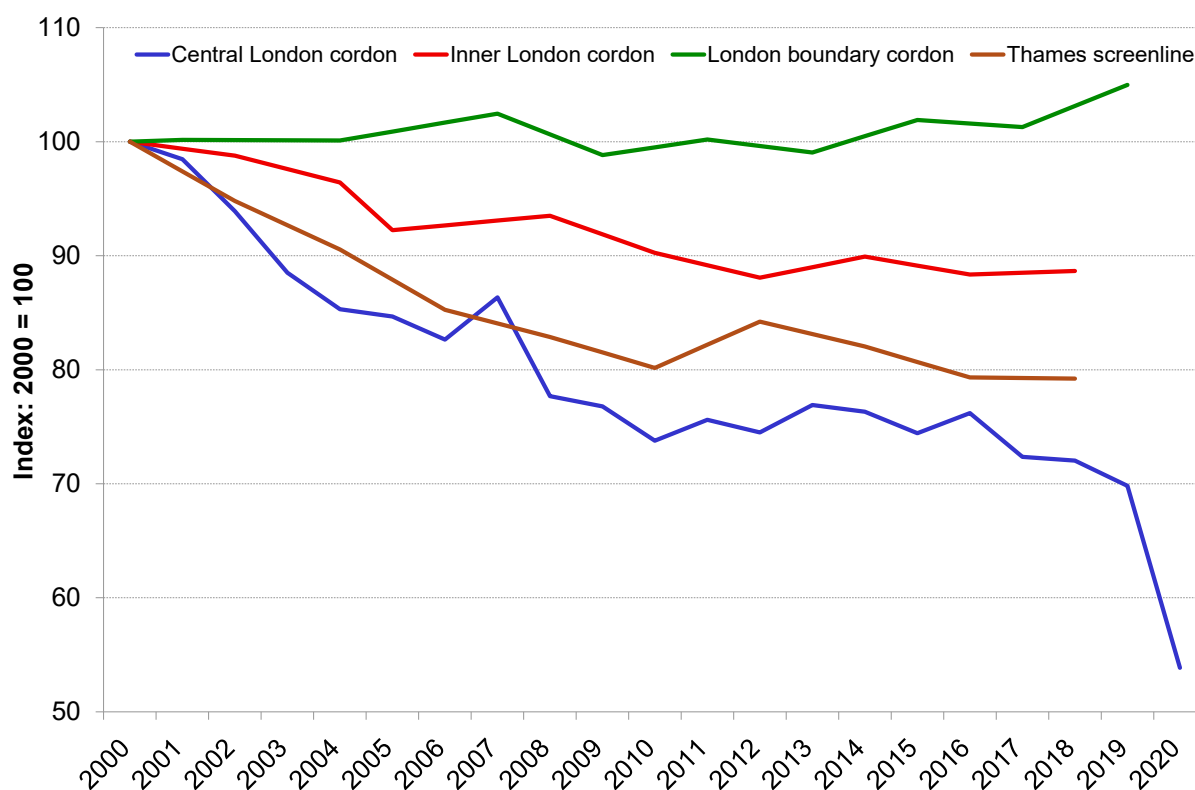
While 78 per cent of vehicles crossing the boundary cordon in 2019 were cars, growth has been strongest in light goods vehicles (LGVs). Since 2010, the number of cars crossing the boundary cordon increased by 5.3 per cent, while the number of LGVs increased by 13.0 per cent over the same period.

Total flows across the three cordons were down by 0.6 per cent between 2009 and 2018 – a broadly similar trend to that shown by other TfL data and, prior to the 2019 revisions, by the DfT data.

Pandemic impact at the central cordon

Data for 2020 is only available at the central cordon. This clearly shows the effect of the pandemic, with vehicle flows in 2020 23 per cent lower than in 2019, and 45 per cent lower than in 2001 (figure 7.3).

Figure 7.3 Daily number of motor vehicles across strategic cordons, 2000-2020.



Source: TfL Surface Transport.

Trends by vehicle type crossing TfL's strategic cordons

Over the past decade, trends in vehicle flows have differed across the three cordons. Flows in central and inner London have declined since 2010. However, the number of vehicles crossing the boundary cordon increased between 2011 and 2019, by 4.8 per cent. This highlights the challenges involved in meeting the Mayor's mode share targets, with central and inner London showing a decline in traffic flows while flows across the boundary cordon are increasing. This is particularly significant as more than 70 per cent of London's traffic is in outer London (table 7.1).

Table 7.1 Daily number of motor vehicles (thousands) across strategic cordons, 2010-2020.

Cordon	Year	Cars	LGVs	HGVs	Total
Central	2010	606	179	51	1,133
	2015	619	181	52	1,143
	2019	581	178	46	1,072
	2020	460	153	35	827
Inner	2010	1,405	286	82	1,945
	2014	1,342	306	88	1,938
	2018	1,355	306	80	1,911
Boundary	2011	2,005	347	137	2,568
	2015	2,034	362	139	2,612
	2019	2,105	387	136	2,691

Source: TfL Surface Transport.

These trends have not been the same across all vehicle types. The number of cars crossing the central and inner cordons has declined over the decade, although car flows increased by 5.0 per cent at the boundary cordon between 2011 and 2019.

In central London, the number of LGVs crossing the cordon has been relatively stable over the decade but has increased at both the inner and boundary cordons, by 7 per cent and 11.5 per cent respectively.

Trends in heavy goods vehicles (HGVs) crossing the cordons have been stable over the last ten years, with virtually no change at both the inner and boundary cordons. However, flows of HGVs in central London have declined by almost 10 per cent.

7.4 Impacts of the pandemic on road traffic volumes

Overall pandemic trend

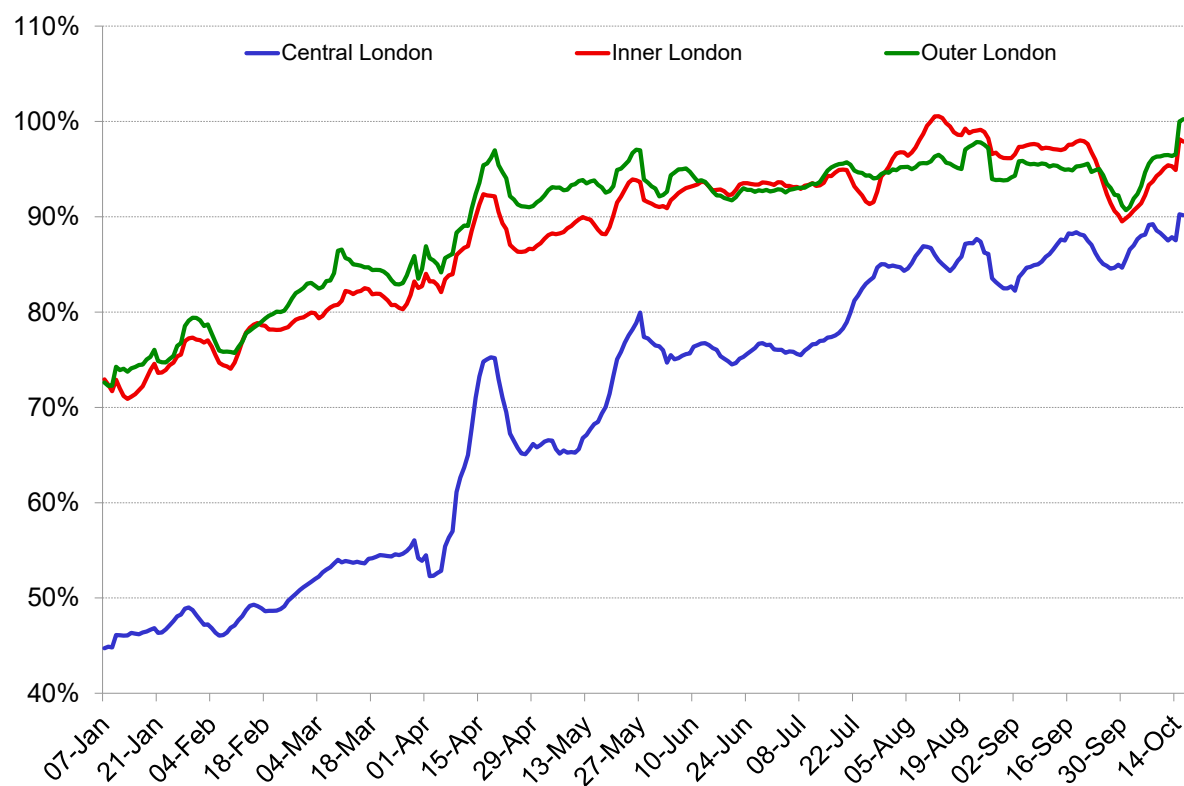
In the context of lower overall pandemic reductions compared to public transport, road traffic volumes in central London fell by the greatest amount (55 per cent) following the introduction of lockdown restrictions in 2020, and they remain below inner and outer London levels into autumn 2021. However, there was a large recovery in volumes through April 2021 as lockdown restrictions eased enabling the reopening of non-essential business. There was also a notable increase in volumes in mid-May when indoor hospitality re-opened. Towards the end of September 2021 traffic volumes in central London stood around 85 per cent of pre-pandemic levels.

From a low point of around 70 per cent of normal at the start of 2021, inner and outer London traffic volumes have been between 90 and 100 per cent of pre-pandemic levels since mid-May, and by the start of September traffic volumes had largely returned to levels seen in 2019 (figure 7.4). The slight decline in inner and outer London traffic volumes towards the end of September 2021 is likely due to the 'fuel crisis' and volumes have since recovered. By mid-October traffic volumes in inner

7. Efficient use of London's road space

and outer London had again returned to pre-pandemic levels, with traffic in central London at around 90 per cent of 2019 levels.

Figure 7.4 Traffic volumes recovery compared to equivalent dates before the pandemic by functional area, 7-day moving average, Jan-Oct 2021.



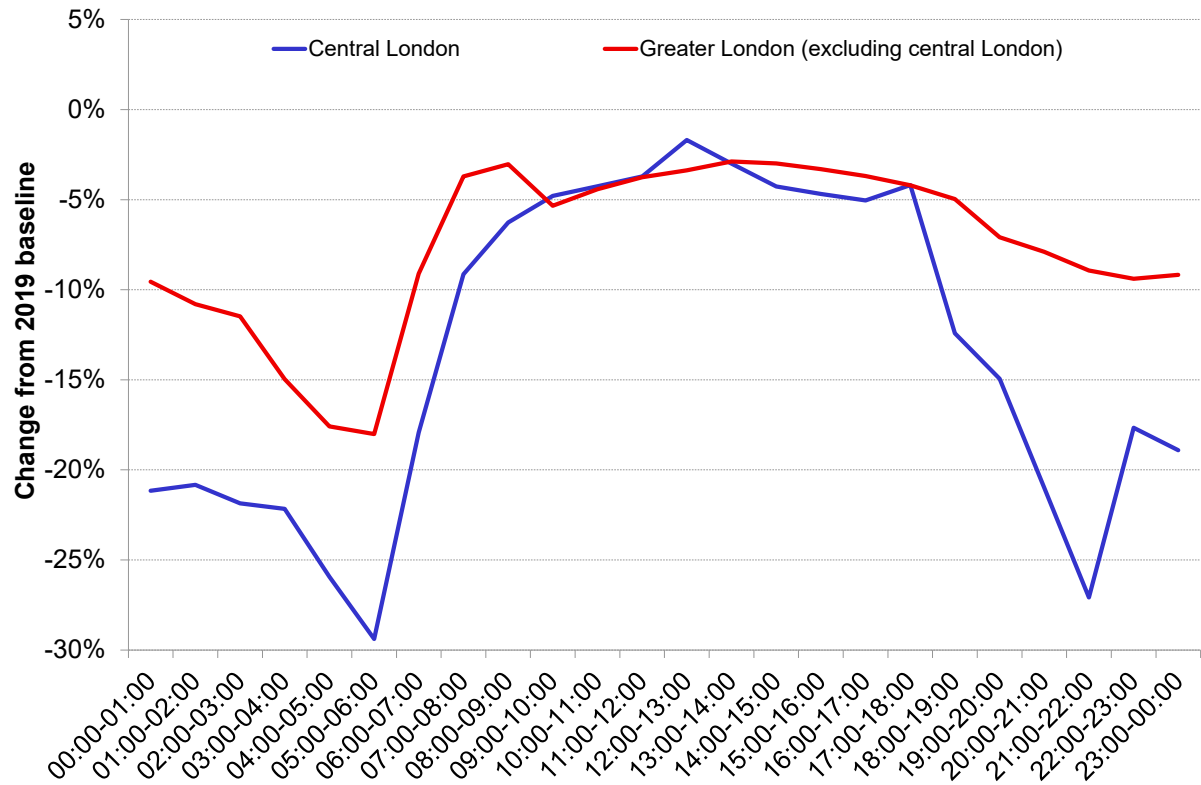
Source: TfL Traffic Data.

Pandemic impacts by time of day and day of week

Motorised traffic volumes in central, inner and outer London vary by time of day and day of week. Figures 7.5 and 7.6 use data from a four-week period in early autumn 2021 (20 September to 17 October) to show how traffic has recovered throughout the day compared to the equivalent period in 2019.

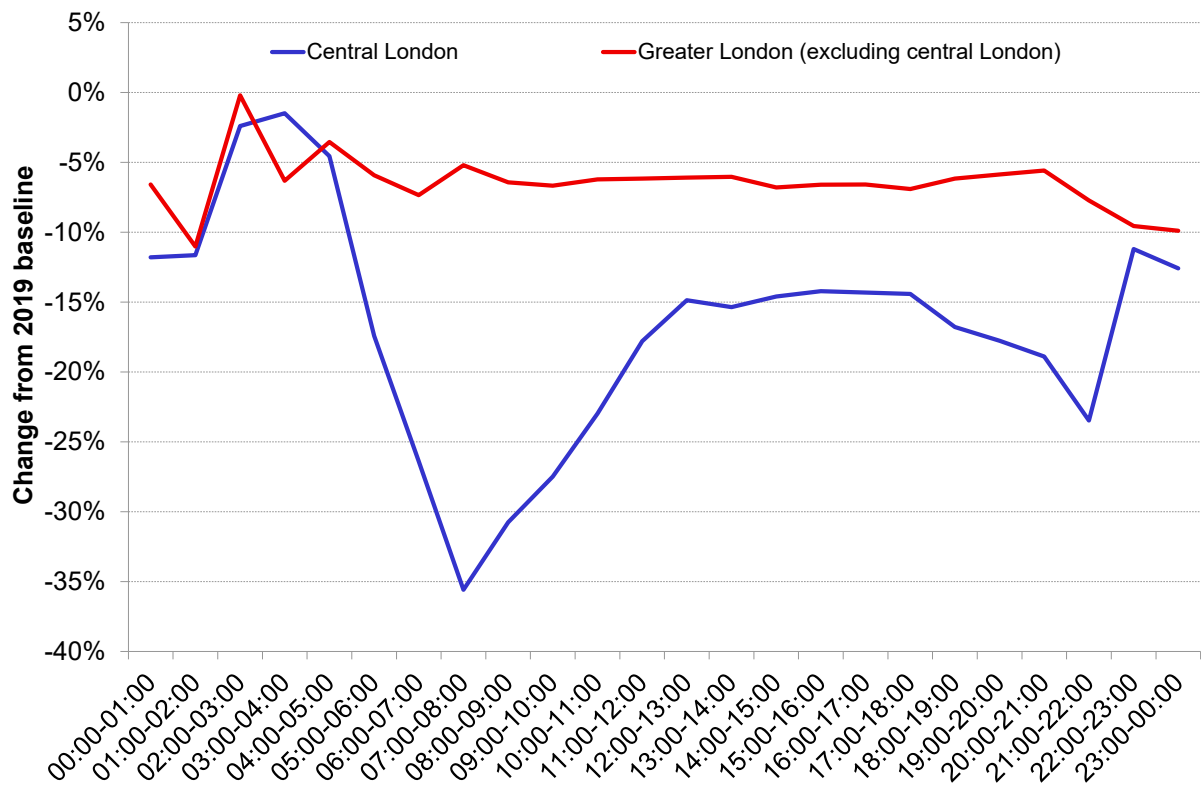
In early autumn, London-wide weekday traffic volumes (excluding central London) were 94 per cent of pre-pandemic levels, this compared to 88 per cent in central London. Figure 7.5 shows that London-wide weekday traffic volumes had largely returned to pre-pandemic volumes between 07:00 and 19:00, falling slightly during the evening but remaining at over 90 per cent of pre-pandemic levels. In central London, traffic volumes during the evening are much lower than in the rest of Greater London during the same time period, likely as a result of the temporary extension of the Congestion Charge operational hours to 22:00. The weekday time period where traffic has recovered the least, in both central London and the rest of Greater London, is during the early morning period, between 04:00 and 06:00. However, traffic during this period only accounts for 4 per cent of daily volumes in central London, and 3 per cent in the rest of Greater London.

Figure 7.5 Change in weekday motorised traffic volumes by area and time of day, 20 Sep-17 Oct 2021 vs 2019.



Source: TfL Surface Transport.

Figure 7.6 Change in weekend motorised traffic volumes by area and time of day, 20 Sep-17 Oct 2021 vs 2019.



Source: TfL Surface Transport.

7. Efficient use of London's road space

Figure 7.6 shows that London-wide weekend traffic volumes (excluding central London) have largely returned to pre-pandemic levels throughout the day. Traffic volumes in central London by time of day are noticeably different. This is, in part, due to the temporary extension of the Congestion Charge during the weekend, which currently operates between 07:00 and 22:00. The time period with the lowest return is between 07:00 and 10:00, where traffic is around 70 per cent of pre-pandemic levels. The return of traffic during the evening period (19:00-22:00) is also lower, particularly between 21:00 and 22:00, the final hour of the charging period.

Pandemic impacts by vehicle type

In the week following the March 2020 lockdown announcement, London-wide total vehicle flows, monitored using automatic number plate recognition (ANPR) cameras, fell for all motorised modes. Flows returned through summer 2020 but were subsequently impacted by the November lockdown. Figure 7.7 shows the return of weekly vehicle flows by mode, since the start of 2021 compared to a pre-pandemic baseline (January to February 2020). The year began with a third national lockdown, impacting licensed taxi and private hire vehicle (PHV) volumes to the greatest extent, with levels standing at 18 and 33 per cent of the pre-pandemic baseline respectively. Comparatively, car volumes stood at just over 60 per cent of pre-pandemic levels and goods vehicles at around 70 per cent.

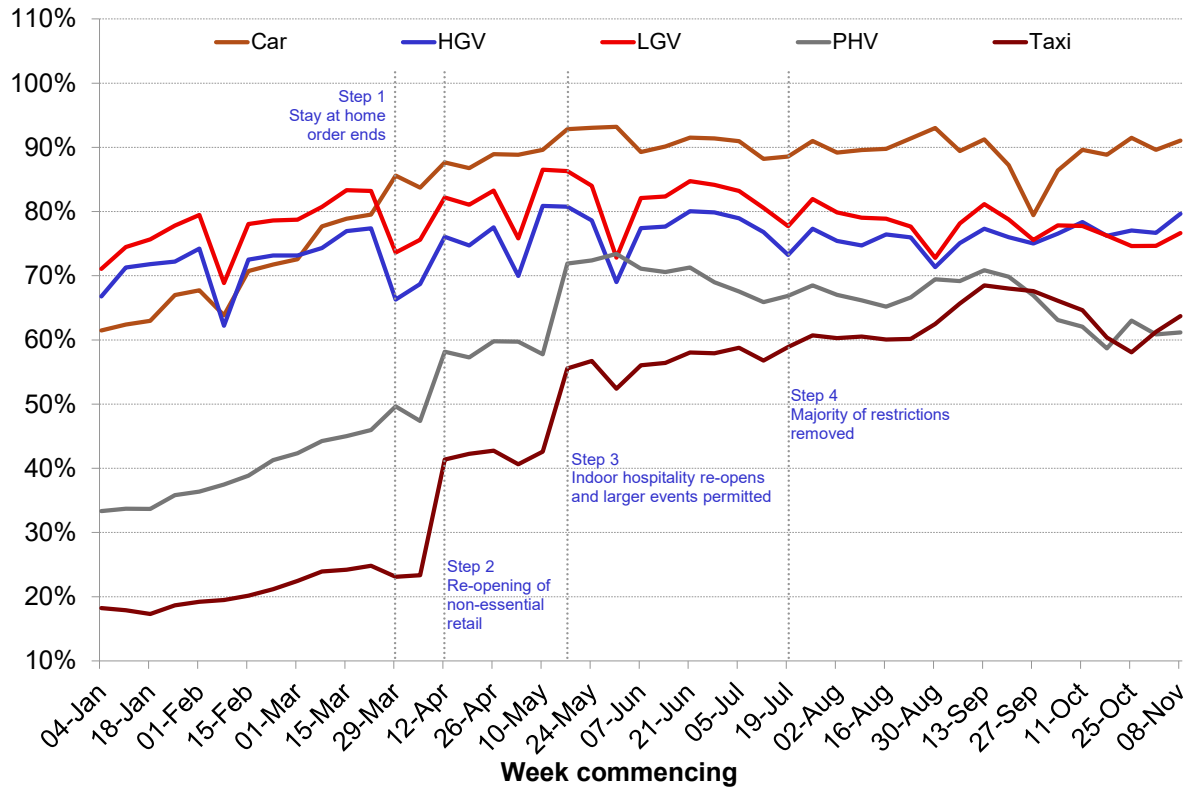
Total weekly car flows returned strongly through spring 2021, increasing by 8 per cent following step 1 of the Government's roadmap in late March, and by 5 per cent following the re-opening of non-essential shops in mid-April. Car flows remained around 90 per cent of pre-pandemic levels through the summer, although declined slightly towards the end of September, likely due to the impact of the 'fuel crisis'.

Of all vehicle types, weekly goods vehicle flows were impacted the least by the third lockdown at the start of 2021 but returned slowly during the first quarter of the year. By mid-April, HGVs stood at 75 per cent of pre-pandemic levels, and the figure was 80 per cent for LGVs. Goods vehicle activity declined slightly through the summer, following a peak of 81 per cent of 2019 levels in May for HGVs and 87 per cent for LGVs. At the start of November 2021, HGV flows were 20 per cent below pre-pandemic levels, and the figure for LGVs was 23 per cent below. This shows that the growth in online shopping over the past 18 months has not led to an increase in LGV traffic. This could be as a result of subdued construction activity, as well as a reduction in servicing and deliveries, particularly in central London, as many office workers continue to work from home, thus demonstrating the differing impacts of the pandemic on freight demand.

As a result of the third national lockdown, licensed taxi and PHV flows at the start of 2021 were significantly below pre-pandemic levels. However, the easing of lockdown restrictions led to large increases in both vehicle types. The re-opening of non-essential retail and outdoor hospitality led to a 23 per cent increase in total PHV flows and a 77 per cent increase in licensed taxi flows, albeit from a low base. Similarly, the re-opening of indoor hospitality saw increases of 24 and 30 per cent for PHVs and licensed taxis respectively. However, total flows remained low, with licensed PHVs recovering to 72 per cent of pre-pandemic levels following the reopening of indoor hospitality, and taxis to just 56 per cent. PHV flows declined slightly over the summer and stood at 61 per cent of pre-pandemic levels at the start of November. Licensed taxi flows increased over summer and saw a noticeable

increase at the start of September, perhaps influenced by some people returning to the office. At the end of November, licensed taxi volumes stood at 64 per cent of the baseline.

Figure 7.7 Weekly vehicle flows (camera captures) across London compared to before the pandemic by mode, Jan-Nov 2021 vs Jan-Feb 2020.



Source: TfL Surface Transport.

7.5 Changes to the Congestion Charge

Prior to the pandemic London's Congestion Charge operated between 07:00 and 18:00 Monday to Friday, with an £11.50 daily charge. In 2020, changes were made to the Congestion Charge to address the transport challenges arising from the pandemic. The scheme was suspended from 23 March to 18 May and in June 2020, a number of temporary changes were made to the Congestion Charge, including increasing the charge to £15 a day, and extending the hours of operation to 07:00 to 22:00, 7 days a week. In August 2020, the residents' discount scheme was temporarily closed to new applicants. The impact of the temporary changes, and of the pandemic, are outlined in [Travel in London report 13](#).

This year, a consultation was undertaken between July and October on new Congestion Charge proposals to support the long-term objectives of the Mayor's Transport Strategy. This consulted on:

- A daily charge of £15
- Reducing the hours of operation from the current temporary hours of 07:00 to 22:00 each day, to between 07:00 and 18:00 Monday to Friday and between 12:00 and 18:00 at weekends and on bank holidays

7. Efficient use of London's road space

- Re-opening the 90 per cent discount for residents living in the Congestion Charge zone to new applicants
- Removing the AutoPay and Fleet AutoPay discounts

These proposals aim to reduce traffic and congestion in London in the long term. Consideration was also given to supporting the persistent challenges arising from the pandemic and encouraging more journeys to be made by walking, cycling or public transport. This section examines the recovery of traffic in central London since the start of 2021, in the light of operational changes and in the context of traffic trends in the rest of London.

Modal traffic flows in the Congestion Charge zone

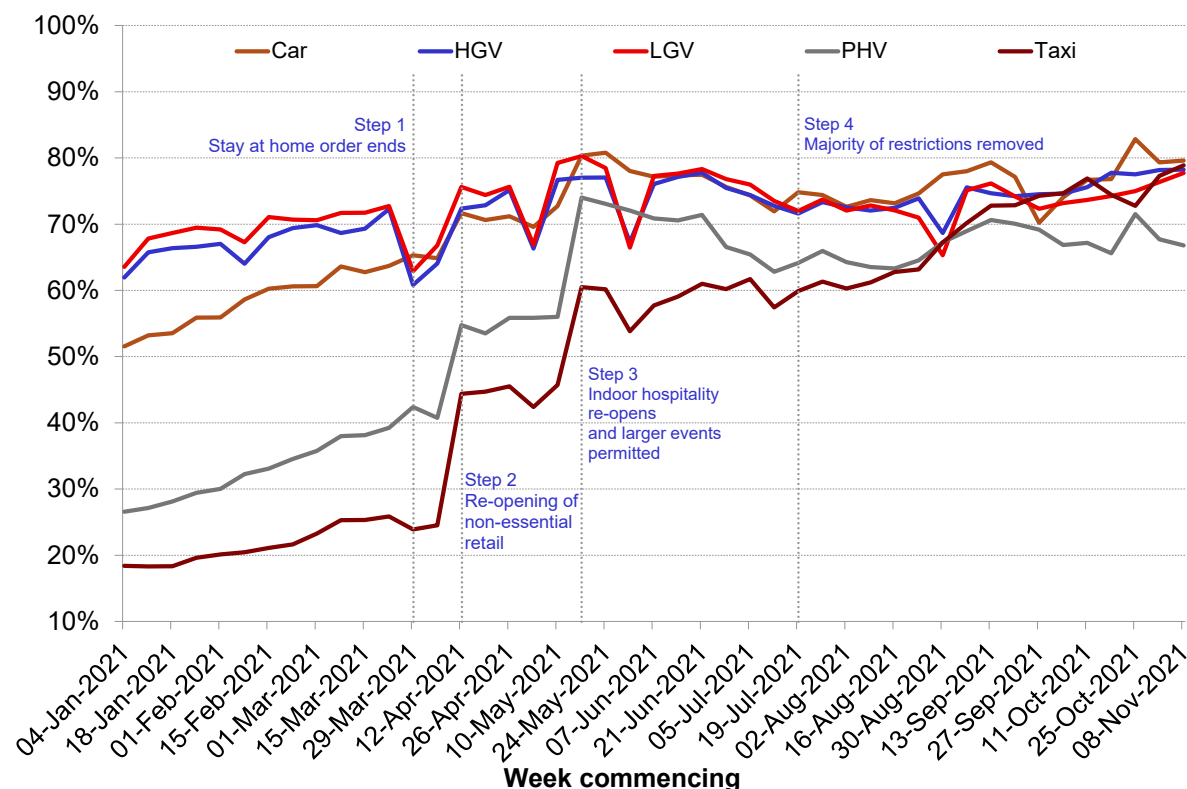
To compare the influence of the pandemic and the changes to the Congestion Charge scheme by vehicle type, a weekly average of entries to the Congestion Charge zone (CCZ) during January and February 2020 (just prior to the pandemic) is used as a baseline.

Despite car entries recovering strongly through 2020, the third national lockdown imposed at the start January 2021 led to weekly car entries to the CCZ falling to just above half of pre-pandemic levels (figure 7.8). Car entries recovered slowly through the first quarter of the year, standing at 60 per cent of pre-pandemic levels at the start of March. Entries rose 11 per cent in the week that non-essential retail and outdoor hospitality re-opened, and 10 per cent following the re-opening of indoor hospitality and some larger events. Car entries fell slightly over the summer and stood at 80 per cent of pre-pandemic levels at the start of November 2021.

Average weekly goods vehicle entries returned slowly through 2021. In January, HGV CCZ entries were around 66 per cent of pre-pandemic levels, the figure for LGVs was slightly higher, at 69 per cent. By mid-May this had risen to 77 per cent for HGVs and 80 per cent for LGVs. Goods vehicle entries fell slightly over summer, although by early November 2021 HGV and LGV entries had both recovered to 78 per cent of pre-pandemic levels.

Licensed taxi and PHV entries to the CCZ were significantly affected by the third lockdown at the start of 2021. At the start of 2021, licensed taxi entries were 82 per cent below pre-pandemic levels, and PHV entries were 73 per cent below. The easing of lockdown, and the re-opening of non-essential shops and hospitality led to large increases in both licensed taxi and PHV entries. Following step 2, the re-opening of non-essential retail, licensed taxi entries increased by 81 per cent, and PHV entries increased by a third. The re-opening of indoor hospitality led to week-on-week increases in both licensed taxi and PHV entries of 32 per cent. PHV entries declined over the summer, but recovered in early autumn, and at the start of November were 67 per cent of the early 2020 baseline. Licensed taxi entries recovered strongly through the summer, and currently stand at 79 per cent of pre-pandemic levels.

Figure 7.8 Weekly entries (camera captures) to the Congestion Charge zone by mode, Jan-Nov 2021 vs Jan-Feb 2020.



Source: TfL Surface Transport.

Traffic flows by time of day

Traffic entering the CCZ has not been uniform across the day or week. Figure 7.9 shows the recovery of car entries to the CCZ during pre-pandemic charging hours (07:00-18:00 on weekdays) and extended hours (18:00-22:00 on weekdays and 07:00-22:00 on weekends) introduced in June 2020, to understand how the charge is impacting the recovery of CCZ entries and how car entries have changed through different stages of lockdown release.

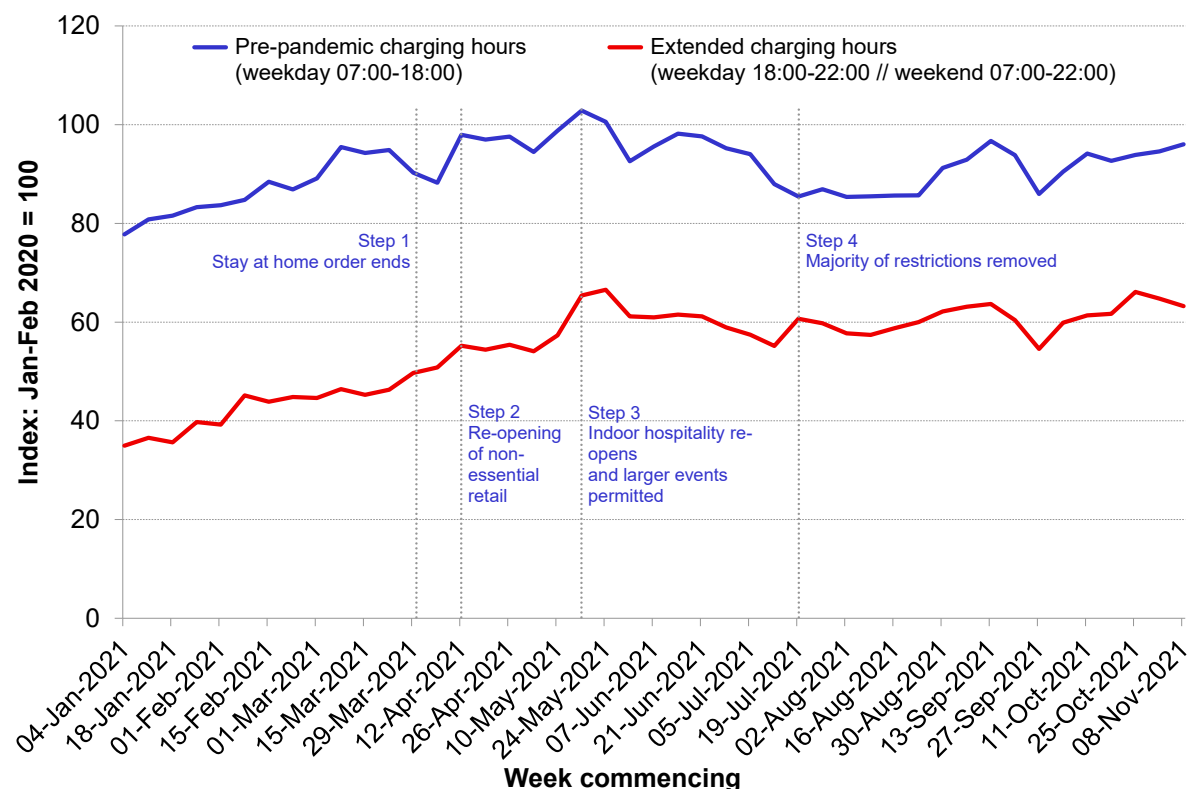
At the start of January, when the UK entered the third lockdown, CCZ car entries remained relatively high on weekdays between 07:00 and 18:00, standing at 80 per cent of pre-pandemic levels at the start of January. This compares to during the extended charging hours where entries were 36 per cent of pre-pandemic levels. This reflects the travel impacts of the Government's 'stay at home' message, with only essential travel taking place, which largely occurred on weekdays during the day.

Following the re-opening of non-essential retail and hospitality, car entries during pre-pandemic charging hours increased by 11 per cent, and the figure was 9 per cent during the extended charging hours. Step 3 – the re-opening of indoor hospitality and some larger events – led to an increase of 14 per cent during the extended charging hours, compared to the previous week. However, entries only recovered to 65 per cent of the pre-pandemic baseline. Weekday car entries between 07:00 and 18:00 rose above pre-pandemic levels following step 3 and fell slightly during the summer, although since September have been between 90 and 100 per cent of pre-pandemic levels. Comparatively, the recovery of car entries

7. Efficient use of London's road space

during weekday evenings and during weekends remains low, at around 65 per cent of pre-pandemic levels at the start of November, demonstrating the impact of the extended charging hours.

Figure 7.9 Weekly car entries (camera captures) to the Congestion Charge zone by charging period, Jan-Nov 2021 vs Jan-Feb 2020.



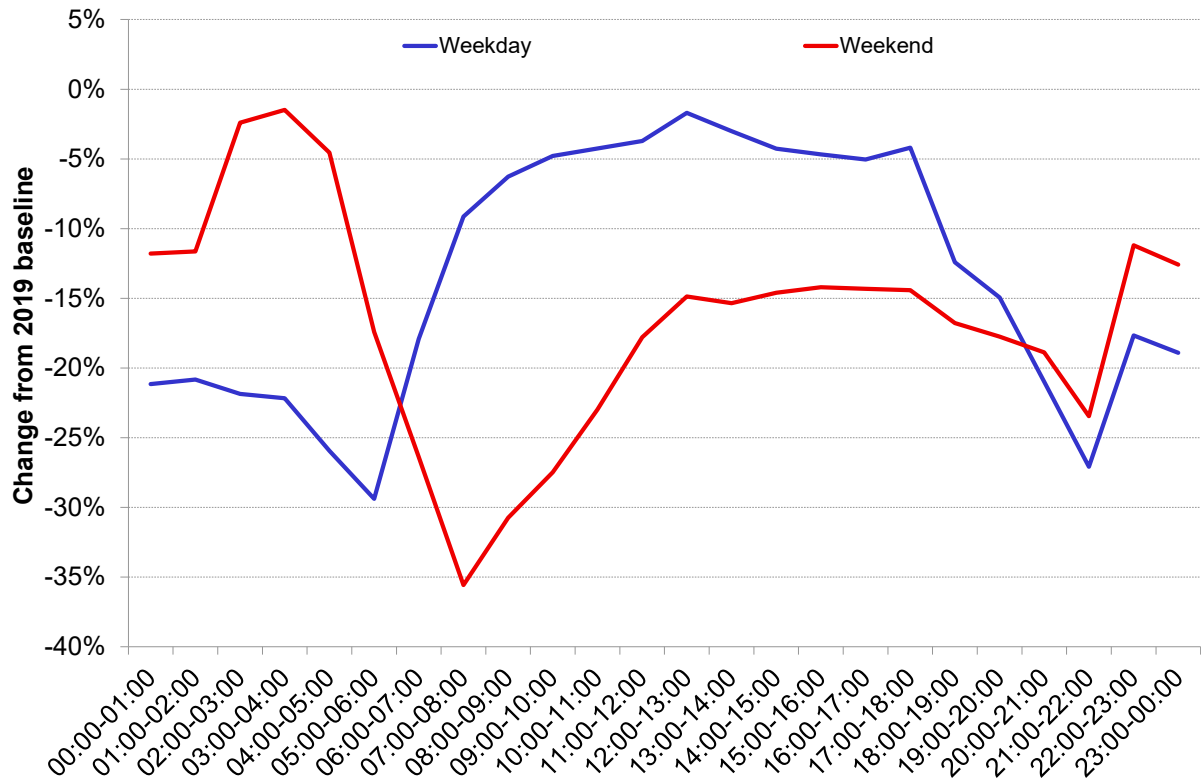
Source: TfL Surface Transport.

Figure 7.10 compares difference in hourly motorised traffic volumes in central London during weekdays and weekends, in early autumn (20 September to 17 October) compared to the equivalent time period in 2019. Overall, weekday volumes have recovered to 88 per cent of pre-pandemic levels, and weekend volumes have recovered to 84 per cent, although the profile of the recovery varies by time of day.

Traffic on weekdays has recovered strongly from 07:00 onwards, and during the weekday inter-peak (10:00-16:00) has largely recovered to pre-pandemic levels. The recovery tails off in the evening, during the extended charging hours (18:00-22:00). Some of this can be attributed to the temporary charge extension, however, wider lifestyle changes as a result of the pandemic could also have an impact. For example, increased working from home is likely to result in subdued evening travel demand.

On weekends, the time period with the lowest recovery is during the morning peak (07:00-10:00). During the day, the recovery is the greatest during the afternoon, recovering to around 85 per cent of pre-pandemic levels. Traffic during this period (12:00-18:00) accounts for 30 per cent of all weekend traffic. Following a lower recovery during the evening period, there is a noticeable increase in the hour the charging period ends (22:00-23:00) where demand is 89 per cent of pre-pandemic levels, compared to the hour before (21:00-22:00) where demand is 77 per cent.

Figure 7.10 Traffic volumes in the Congestion Charge zone by time of day, 20 Sep-17 Oct 2021 vs 2019.



Source: TfL Surface Transport.

The return of traffic in the CCZ since the start of 2021 has been impacted by both the travel demand changes as a result of the coronavirus pandemic and lockdown restrictions, as well as ongoing temporary changes to the Congestion Charge scheme itself. At present, data from mid-autumn 2021 indicates that:

- Car entries have recovered through 2021, from just over half of pre-pandemic levels at the start of the year, to 80 per cent at the start of November. Licensed taxi and PHV entries have also recovered strongly, driven by large increases through the various stages of lockdown release.
- However, recovery is not uniform across the day or week. On weekdays, car entries during pre-pandemic charging hours have largely recovered, reflecting the relative price inelasticity of trips made during this time. Comparatively, evening traffic remains significantly lower. Some of this could be attributed to changing work patterns, in addition to the Congestion Charge temporary changes.
- Weekend traffic volumes have recovered the most during the afternoon, to around 85 per cent of pre-pandemic levels between 12:00 and 18:00. The recovery during the morning and evening periods lag behind this.

7.6 Goods vehicles entering the Congestion Charge zone

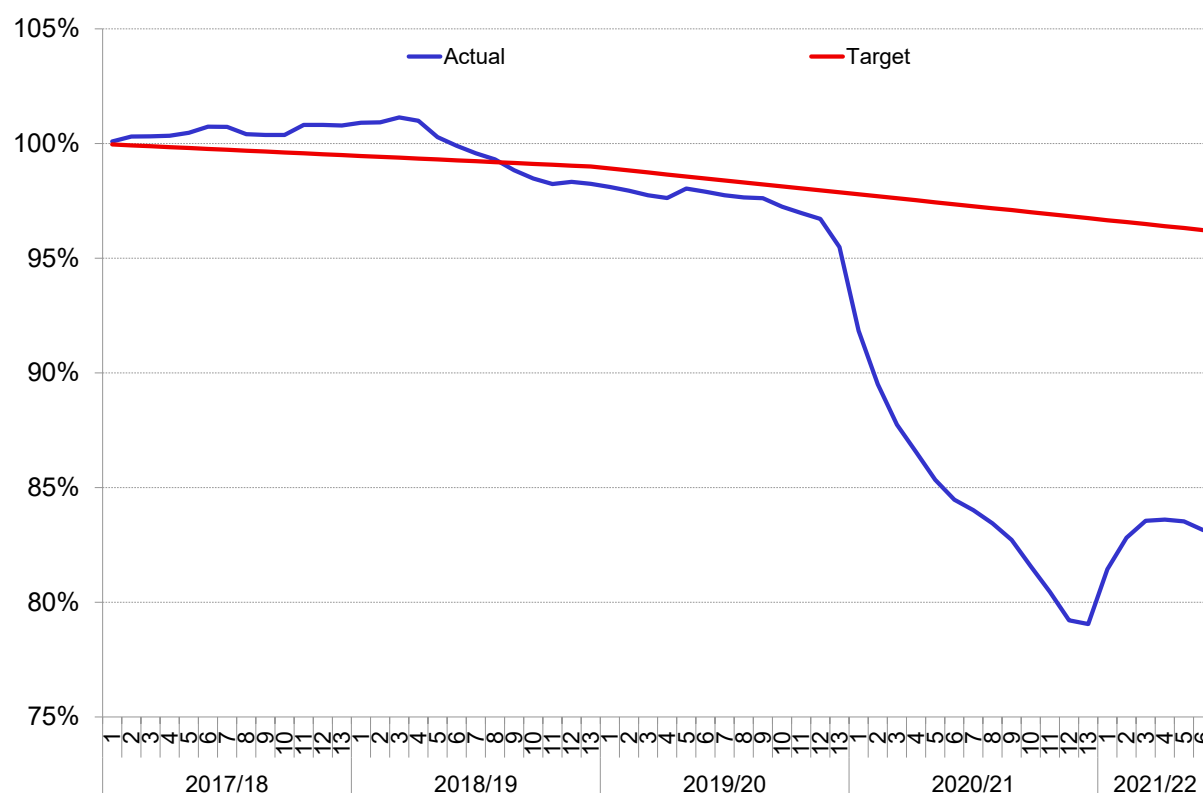
A specific aim of the transport strategy is to reduce the number of goods vehicles (HGVs and LGVs) circulating in the central London Congestion Charge zone during the weekday morning peak by 10 per cent by 2026, from 2016 levels. This reflects

7. Efficient use of London's road space

particular pressures on the road network at this time and would help to reduce road danger.

Figure 7.11 shows the observed trend over recent years and sets this in the context of the nominal trajectory required to meet the target. Although a degree of variability in the actual trajectory is to be expected, the overall trend was compatible with steady progress towards this aim throughout the latter half of 2018 and all of 2019. During 2020, the impacts of the pandemic are apparent, with a reduction in freight vehicles entering the Congestion Charge zone throughout 2020. By early 2021, the reduction in the number of freight vehicles was more than 20 per cent against the 2016 baseline. As restrictions were released the number of freight vehicles has started to increase but remain around 15 per cent below 2016 levels. While the current level remains well below the 2026 target, for exceptional reasons, the recovery from the pandemic will probably increase the number of freight vehicles entering central London in the short term.

Figure 7.11 Freight vehicles entering the Congestion Charge zone relative to 2016, 13-period moving average, 2017/18-2021/22.



Source: TfL Surface Transport.

7.7 Trends in taxi and private hire vehicles and licences

Licensed taxis

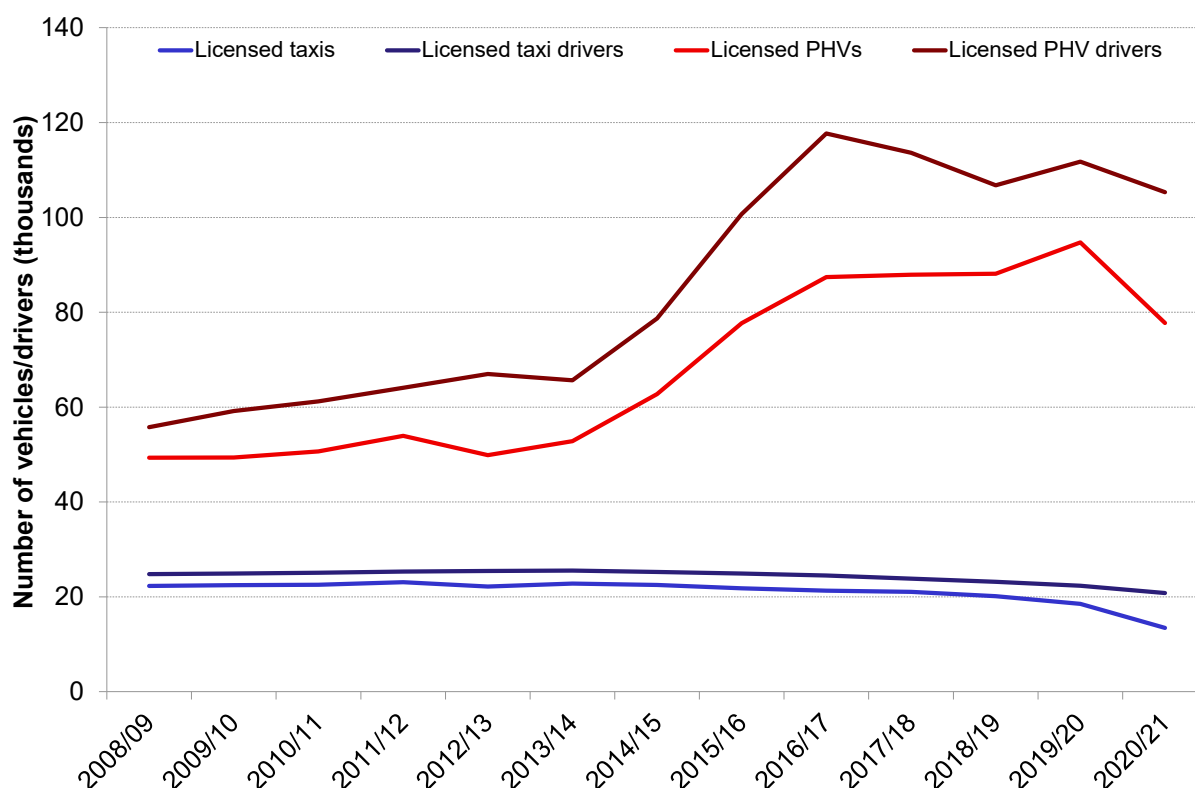
Figure 7.12 shows the trend in the number of licensed taxis and private hire vehicles (PHVs) in London, along with their drivers, since 2008/09. The number of licensed taxis in London has shown a gradual decline in recent years, decreasing by a further 8 per cent in 2019/20 to 18,504. This declined even further in 2020/21 due to the

effects of the pandemic, decreasing by 27 per cent to 13,461. The total number of licensed taxi drivers declined by a further 7 per cent to 20,786 in 2020/21, 19 per cent below the high in 2013/14.

Licensed private hire

The pandemic has also impacted the number of licensed PHVs and drivers in London, which had been increasing up to 2019/20. In 2020/21, the number of private hire drivers declined by 6 per cent, with the number of vehicles declining by 18 per cent (figure 7.12). The number of private hire operators in London has continued to decline. In 2020/21, there were 1,955 operators in London, a decline of 7 per cent on the previous year and a decrease of 38 per cent since 2011/12, indicating consolidation in the industry.

Figure 7.12 Licensed taxis, private hire vehicles and drivers, 2008/09-2020/21.



Source: TfL Surface Transport.

Licensed private hire and traffic flows

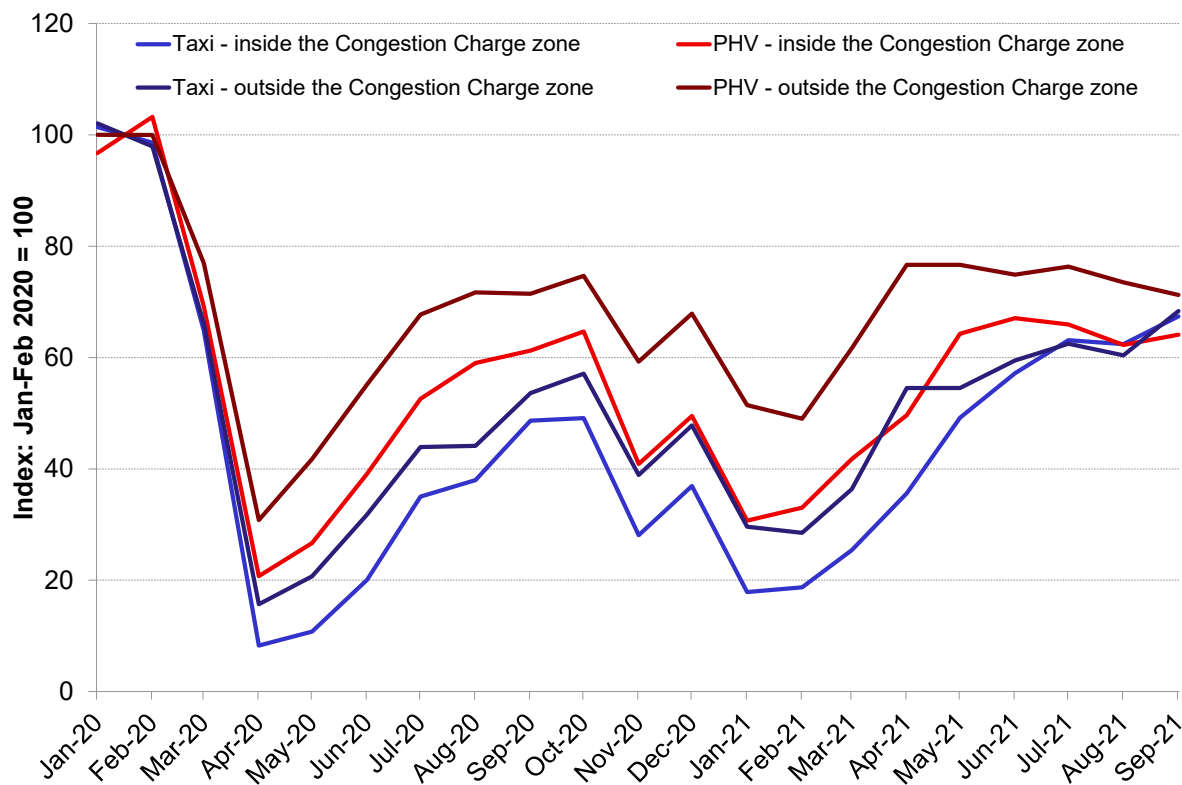
Although it is not straightforward to identify PHVs in traffic counts and historic data are consequently not available, it is estimated that, in March 2019, licensed PHVs accounted for approximately 29 per cent of daily vehicle kilometres in central London, 19 per cent in inner London, and 8 per cent in outer London on an average day.

Figure 7.13 shows how taxi and PHV flows have been affected by the pandemic. Both taxi and PHV flows were heavily affected by the initial lockdown in spring 2020, with a gradual increase as restrictions were eased over the summer. As restrictions were re-introduced in autumn and winter 2020, flows declined again, and only started to rebound in spring 2021 as restrictions slowly eased. Noticeable from the

7. Efficient use of London's road space

graph is that PHV flows outside central London have been much closer to pre-pandemic levels than taxi flows, although they remain just under 20 per cent below pre-pandemic levels. The biggest impact was on taxi flows within the CCZ, which were down by over 80 per cent in early 2021, although growth has been steady throughout the year.

Figure 7.13 Monthly taxi/PHV flows (camera captures) by area, Jan 2020-Sep 2021.



Source: TfL Surface Transport.

7.8 Road traffic congestion, efficiency and delay

Introduction

Road traffic congestion is a condition of the road network characterised by an excess of vehicles (relative to the available 'supply' or capacity of a particular road at a specific time) resulting in average traffic speeds significantly lower than those that would be encountered under 'free-flow' (ie non-congested) conditions. Traffic congestion is also associated with longer travel times and vehicle queues. As a measure of network instability, congestion increases at a greater rate, and journey times are therefore more variable, the closer traffic demand is to the carrying capacity of the network.

Traffic congestion can cause severe disruption to large parts of the road network due to knock-on effects and its wider impacts are far-reaching. Apart from the obvious delays and discomfort that it causes to individuals caught in traffic, congestion can be very detrimental to bus speeds (where there are no segregated bus lanes) and also affect freight traffic for essential supply chain deliveries and even emergency

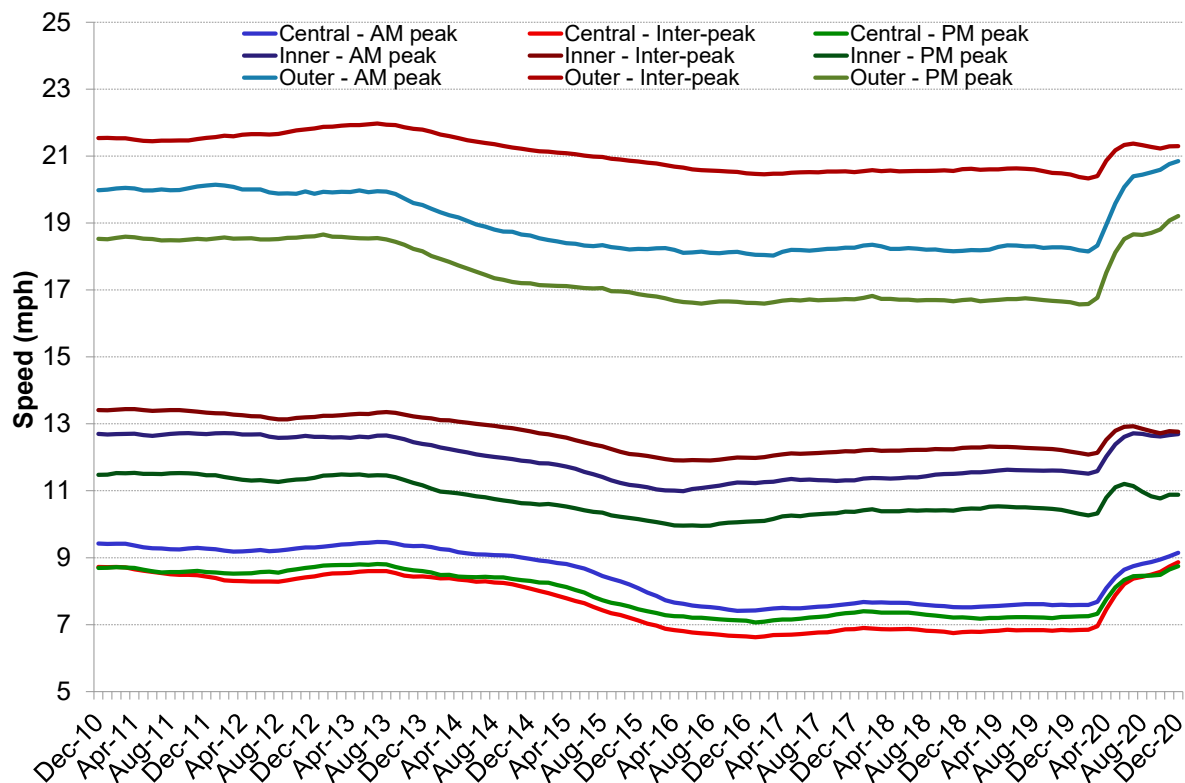
services. Furthermore, idling vehicles in congested traffic create hotspots of noise and air pollution. While for some people the prevalence of traffic congestion may act as a deterrent to use their private cars in the medium to long term, it can also deter people from using buses or from cycling or walking, so that all in all congestion leads to a very inefficient use of the road network.

This section provides an update of established indicators of road network performance in London. It looks at average traffic speeds and delay in the historic context and also at the changes observed more recently since the beginning of the coronavirus pandemic. These indicators are limited to motor vehicle traffic and are essentially 'pragmatic' measures that provide a consistent overview of the performance of the road network for general motorised vehicle traffic.

Recent trends in road network congestion: average vehicle speeds

Figure 7.14 shows the trend in average traffic speeds, weighted by vehicle flow, by functional area of London since 2010.

Figure 7.14 Average speeds on TfL's Network of Interest, by area and time period, 12-month rolling average, 2010-2020.



Source: TfL Traffic Data.

The main features are:

- There are clear and expected differences in the average speeds for each of central, inner and outer London, which reflect the density and characteristics of the different networks.
- The range of speeds throughout the day is narrowest in central London and widest in outer London.

7. Efficient use of London's road space

- Before the pandemic, the trends on a 12-month rolling basis were relatively stable.
- The outbreak of the coronavirus pandemic, and in particular the first national lockdown in March 2020, led to an increase in vehicle speeds in all areas and at all times, as a result of a large drop in overall travel and in motor vehicle traffic in particular. The trends since then and until the end of 2020 varied by area and time of day, but this is in the context of two further lockdowns in that period.

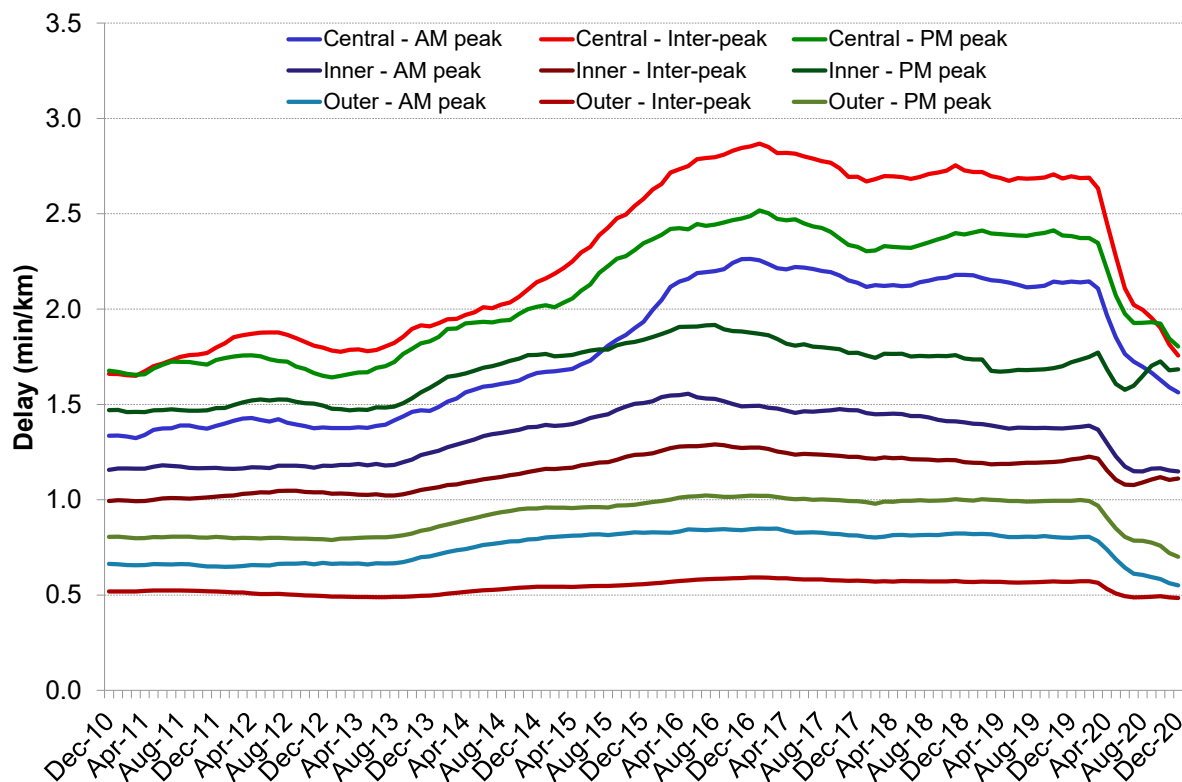
Recent trends in road network congestion: average vehicle delay

Average traffic speed is a simple and intuitive measure, but it does not indicate how actual performance compares to what could be 'expected' for the network, which, for example, would vary between major and residential roads.

Excess delay is the conventional measure to address this. It compares the actual travel rate (in minutes per kilometre) for a given journey against the travel rate for that same journey under 'free-flow' conditions (typically and for practical purposes taken as the overnight period).

Figure 7.15 shows the trend in excess delay (weighted by vehicle flow) that corresponds directly to the average speed data in figure 7.14. These values are calculated against a variable 'free-flow' night-time speed measured on a day-by-day basis, rather than a fixed nominal night-time speed. However, these relate to the period from 22:00 to 06:00, which sees substantial volumes of traffic in many parts of London.

Figure 7.15 Average excess delay on TfL's Network of Interest, by area and time period, 12-month rolling average, 2010-2020.



Source: TfL Traffic Data.

The main features are:

- As with speeds, the expected spatial differences in delay between central, inner and outer London are visible, although not as markedly.
- Excess delay is lowest in outer London and highest at certain times of the day in central London.
- Similar to average speeds, the trends in excess delay before the pandemic only changed noticeably at discrete points. Of particular note was the increase in delay in central London from 2013, first at a slow rate and then from 2015 at a faster rate until a high point in 2016, followed by a small decline through 2017 and then a period of stable but relatively high delay until the pandemic.
- Following the first lockdown in March 2020, excess delay reduced sharply in central London, moderately in inner London, and only modestly in outer London, reflecting the greater reduction in travel and general activity towards the city centre.

Section 3: A good public transport experience

8. Trends in public transport demand, service provision and operational performance

8.1 Introduction

London has one of the most extensive and high-quality public transport networks in the world. The Mayor's aim is to provide a good public transport experience that is efficient and affordable for journeys that cannot be made on foot or by cycling.

This chapter builds on the aggregate public transport demand and mode share trends discussed in chapter 3 by considering individual modes in more detail. It is structured in two parts:

- The first part is a description of travel demand trends on the various public transport networks up to late 2021, covering key developments arising from the coronavirus pandemic in the context of longer-term trends.
- The second part looks at changes in service provision (particularly capacity) during the pandemic in the historic context and provides a review of selected indicators of operational performance for each of the main modes.

Chapter 9 will consider other aspects of the public transport customer experience such as crowding, accessibility and safety; and briefly outline TfL's plans to restore customer confidence on public transport as London recovers from the pandemic.

8.2 Demand trends on public transport modes: long-term trends and pandemic impacts

Previous Travel in London reports described overall demand trends for public transport in London over the last two decades. A picture of strong growth up to the mid-2010s reflected London's population and economic growth alongside numerous improvements to the provision and quality of public transport, with major initiatives such as the creation of the London Overground network and the enhancement of service frequency on several London Underground lines.

In the latter half of the last decade, however, the pace of demand growth slowed, reflecting a slowdown in the rate of population and economic growth and other potential factors affecting per-person trip rates, notably a squeeze on disposable incomes rooted in the 2008 financial crisis.

The pandemic itself began to severely affect travel demand at the end of the financial year 2019/20, dramatically reducing demand on all public transport networks. The impact of the initial stages of the pandemic was described in [Travel in London report 13](#). The start of 2021 was again marked by further lockdown restrictions but, since the easing of these in early summer, we are in a period of sustained recovery with demand on all modes recovering, to varying extents, from pandemic lows.

By early November 2021, and although we are seeing encouraging recovery in patronage, demand remains significantly below pre-pandemic levels across all

8. Trends in public transport demand, service provision and operational performance

networks. The consolidation of return to office plans by major employers, the approaching Christmas period, and perhaps the tentative return of national and international tourism are all factors that should continue to progress the recovery over the short term. Alongside this, TfL is working hard to support the recovery by providing a safe, reliable and high-quality service across our networks.

The historic context of public transport patronage over the last decade is shown in tables 8.1 (journeys) and 8.2 (passenger kilometres). After a couple of decades of significant growth, the early 2010s saw a reduction of the growth rate up to a high point around 2015/16, after which overall public transport demand remained mostly flat for a couple of years and then started a slow decline until the outbreak of the pandemic. These trends are further illustrated by figure 8.1.

Table 8.1 Demand (million journeys) on TfL's modes, 2010/11-2020/21.

Year	Bus	LU	DLR	LO	TfL Rail	Trams	Total ¹	Total ¹ year- on-year change (%)	River	Emirates Air Line
2010/11	2,289	1,107	78	53	-	28	3,556	3.0	6.6	-
2011/12	2,320	1,171	86	103	-	29	3,708	4.3	6.6	-
2012/13	2,311	1,229	100	125	-	30	3,670	2.3	6.3	2.0
2013/14	2,382	1,265	102	136	-	31	3,916	3.2	8.4	1.5
2014/15	2,385	1,305	110	140	-	31	3,972	1.4	10.0	1.5
2015/16	2,314	1,349	117	183	37	27	4,028	1.4	10.2	1.5
2016/17	2,262	1,378	122	189	45	30	4,025	-0.1	10.4	1.5
2017/18	2,247	1,357	120	190	42	29	3,985	-1.0	10.0	1.4
2018/19	2,220	1,385	122	188	51	29	3,995	0.3	9.8	1.4
2019/20	2,112	1,337	117	186	56	27	3,835	-4.0	9.6	1.2
2020/21	865	296	40	59	18	12	1,290	-66.4	1.6	0.4
Percentage change in 2020/21 from 2019/20										
	-59	-78	-66	-68	-68	-57			-83	-66

Source: TfL Service Performance data.

1: This total is calculated for the main modes only for easier comparison of the overall change with table 8.2 below, given that passenger kilometres figures are only available for this subset of modes.

8. Trends in public transport demand, service provision and operational performance

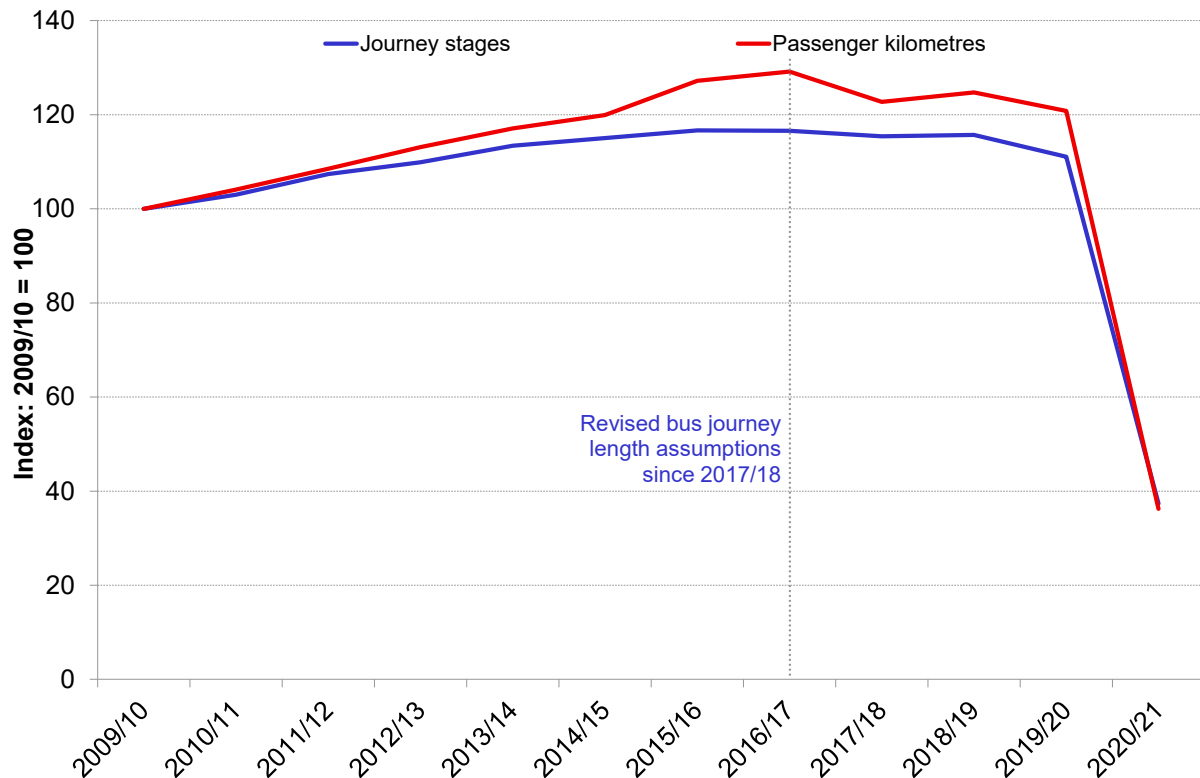
Table 8.2 Demand (million passenger kilometres) on the main public transport modes, 2010/11-2020/21.

Year	Bus	LU	DLR	LO	TfL Rail	Trams	Total	Total year-on-year change (%)
2010/11	8,082	8,875	414	606	-	146	18,124	4.1
2011/12	8,121	9,519	455	645	-	150	18,890	4.2
2012/13	8,148	10,099	510	780	-	156	19,694	4.3
2013/14	8,420	10,423	537	840	-	162	20,383	3.5
2014/15	8,418	10,847	590	863	-	160	20,878	2.4
2015/16	8,188	11,458	623	1,237	505	140	22,150	6.1
2016/17	8,016	11,797	657	1,294	569	154	22,487	1.5
2017/18	6,899 ¹	11,846	644	1,296	534	151	21,370	n/a¹
2018/19	6,836 ¹	12,150	654	1,288	643	149	21,719	1.6
2019/20	6,538 ¹	11,754	621	1,273	706	141	21,033	-3.2
2020/21	2,754 ¹	2,662	207	402	222	60	6,307	-70.0
Percentage change in 2020/21 from 2019/20								
	-58	-77	-67	-68	-67	-57		

Source: TfL Service Performance data.

1: Methodological changes created a break in the time series for passenger kilometres on buses since 2017/18.

Figure 8.1 Journeys and passenger kilometres on TfL public transport modes (excl. Emirates Air Line and London River Services), 2009/10-2020/21.



Source: TfL Service Performance data.

Note: This graph does not include National Rail in London, which is not a TfL-operated mode.

8. Trends in public transport demand, service provision and operational performance

These overall trends, however, conceal variations by mode. Before the pandemic:

- On buses, after years of significant expansion in the 2000s (only interrupted by the 2008/09 recession), bus patronage growth slowed down, more recently entering a period of decline.
- On London Underground, the early 2000s showed relatively stable demand followed by strong and steady growth (save for the 2008/09 recession) between 2005 and 2015. Since then, journey growth flattened but passenger kilometres still grew for some years (suggesting a shift to longer journeys).
- On the other TfL rail networks (DLR, London Overground, TfL Rail and London Trams), albeit with some minor differences among them, the general demand trend in the last couple of decades was one of significant and continuous growth, mostly linked to the progressive expansion of each of the networks and the increase in levels of service following ambitious upgrade programmes. The years since 2015/16 also saw a flattening in demand growth, however, reflecting wider social and economic circumstances.
- Demand on London River Services grew steadily in the late 2000s and early 2010s and continued a trend of steady growth until 2016/17, after which it began a period of slow decline.
- Finally, the Emirates Air Line saw its highest ever level of patronage in 2012/13, the year it opened on the occasion of the London Olympic and Paralympic Games, then demand remained fairly constant until 2015/16, after which followed a steady decline in annual passenger numbers.

Immediate impact of the pandemic on public transport demand

On an annual basis, comparing 2019/20 with 2020/21, demand on TfL's main public transport networks (buses, London Underground, DLR, London Overground, TfL Rail and London Trams) fell 66 per cent in terms of journey stages and 70 per cent in terms of passenger kilometres. The slightly higher decline in passenger kilometres implies a small reduction in the average journey length, which agrees with other evidence suggesting a shift to more local living throughout the pandemic, particularly during the lockdowns that dominated 2020 and 2021.

The change in annualised demand to 2020/21 across the networks reflects the scale of the pandemic impact. But given that the pandemic also affected the end of the 2019/20 year, the actual impact may in reality have been slightly higher. Between 2019/20 and 2020/21:

- On buses, journeys dropped by 59 per cent and passenger kilometres by 58 per cent.
- On London Underground, the drop reached 78 per cent (journeys) and 77 (passenger kilometres) per cent.
- On other TfL rail modes, the drop was in the region of 66-68 per cent (journeys) and 67-68 per cent (passenger kilometres) on DLR, London Overground and TfL Rail and 57 per cent (journeys and passenger kilometres) on London Trams, reflecting order of magnitude similarities with London Underground and buses, respectively.
- London River Services saw annual demand fall by 83 per cent (journeys).
- Finally, journeys on the Emirates Air Line dropped by 66 per cent.

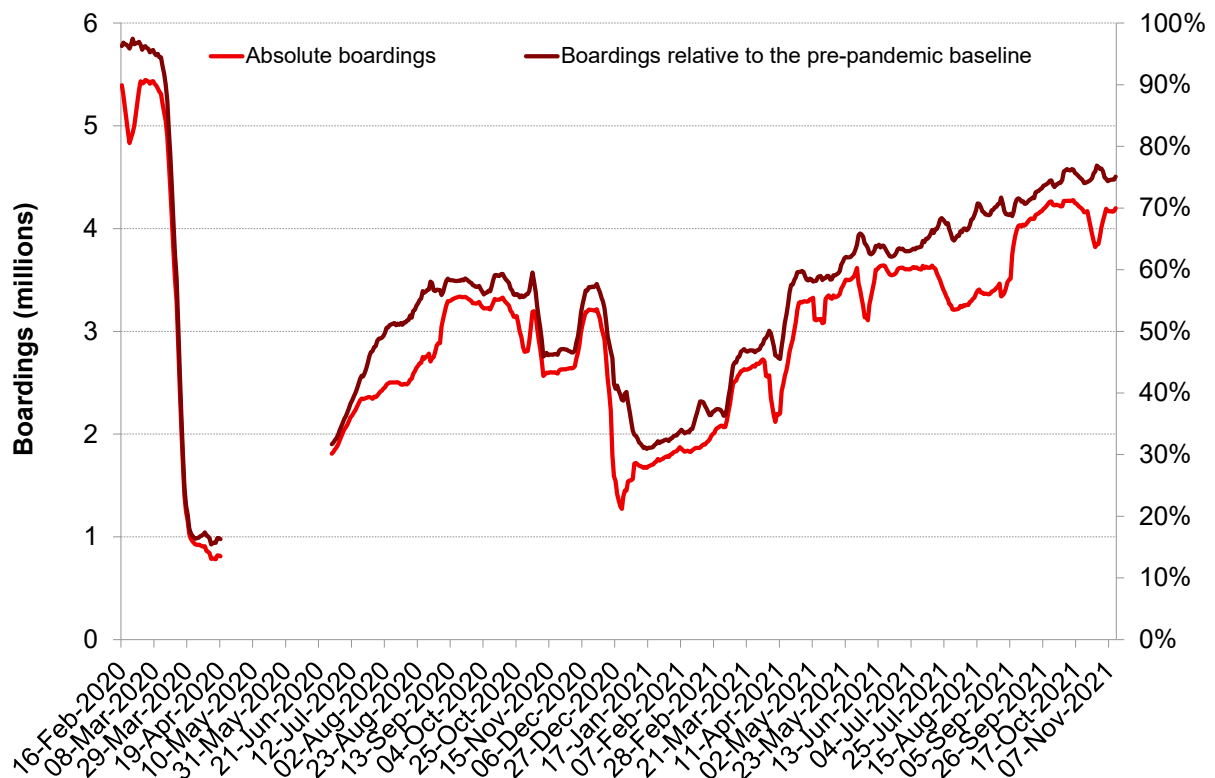
8. Trends in public transport demand, service provision and operational performance

These overall impacts conceal many features of interest and the finer spatial and temporal scales that are described in the following sections, which also look at demand trends in the latter part of 2021 in terms of those aspects of London's transport recovery from the pandemic which are of particular interest.

Buses: recent demand trends

Figure 8.2 shows the number of boardings on London buses since just before the first lockdown in March 2020 alongside the corresponding proportion of pre-pandemic demand on the equivalent dates, both as 7-day moving averages.

Figure 8.2 Absolute boardings and relative recovery compared to equivalent dates before the pandemic, 7-day moving average, Feb 2020-Nov 2021.



Source: TfL Technology & Data.

Note: This data includes only recorded taps with smartcards. Due to the introduction of middle-door boarding between mid-April and the end of June 2020 there is a gap in bus data for this period.

The main features of this graph are:

- Before the pandemic (February-March 2020), boardings were already down by around 5 per cent compared to 2019, reflecting the overall trend of decline in bus patronage before the pandemic and also early pandemic impacts during March.
- After the first lockdown, bus demand dropped by up to 84 per cent to around one million daily boardings, from around 5.5 million before the pandemic.
- This was followed by a rapid recovery between June and September 2020 to around 55 per cent of the pre-pandemic normal, and then a period of little change until December 2020, only interrupted by the November 2020 lockdown. The third lockdown from late December 2020 again had a profound impact on patronage, taking bus demand back to just below 30 per cent. Although increasing for the next couple of months, demand had only reached 55 per cent by April 2021.

8. Trends in public transport demand, service provision and operational performance

Since then, the recovery has been steady. By the beginning of November 2021, recovery was at 75 per cent.

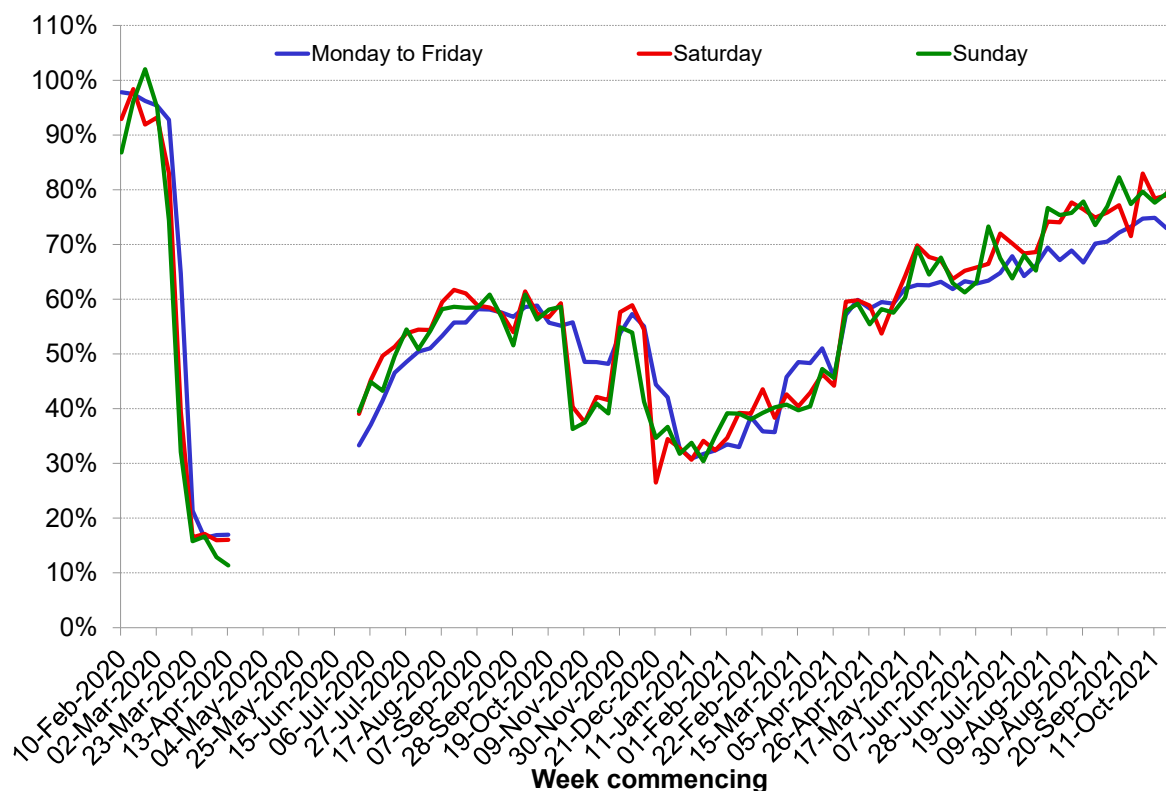
Buses: recent demand trends by day of the week

Figure 8.3 shows the bus patronage recovery trend by day type.

In general, weekends have been ahead of weekdays by a few percentage points in terms of relative recovery, which suggests to some extent a 'weekend-led' or 'leisure-led' recovery, probably as a result of the full or partial closures to schools and workplaces throughout the pandemic.

Figure 8.4 looks in more detail at a single (representative) recent week compared to the equivalent one before the pre-pandemic baseline, with the aim of assessing whether the weekly demand profile has changed.

Figure 8.3 Bus daily demand recovery compared to equivalent dates before the pandemic by day of week, Feb 2020-Oct 2021.

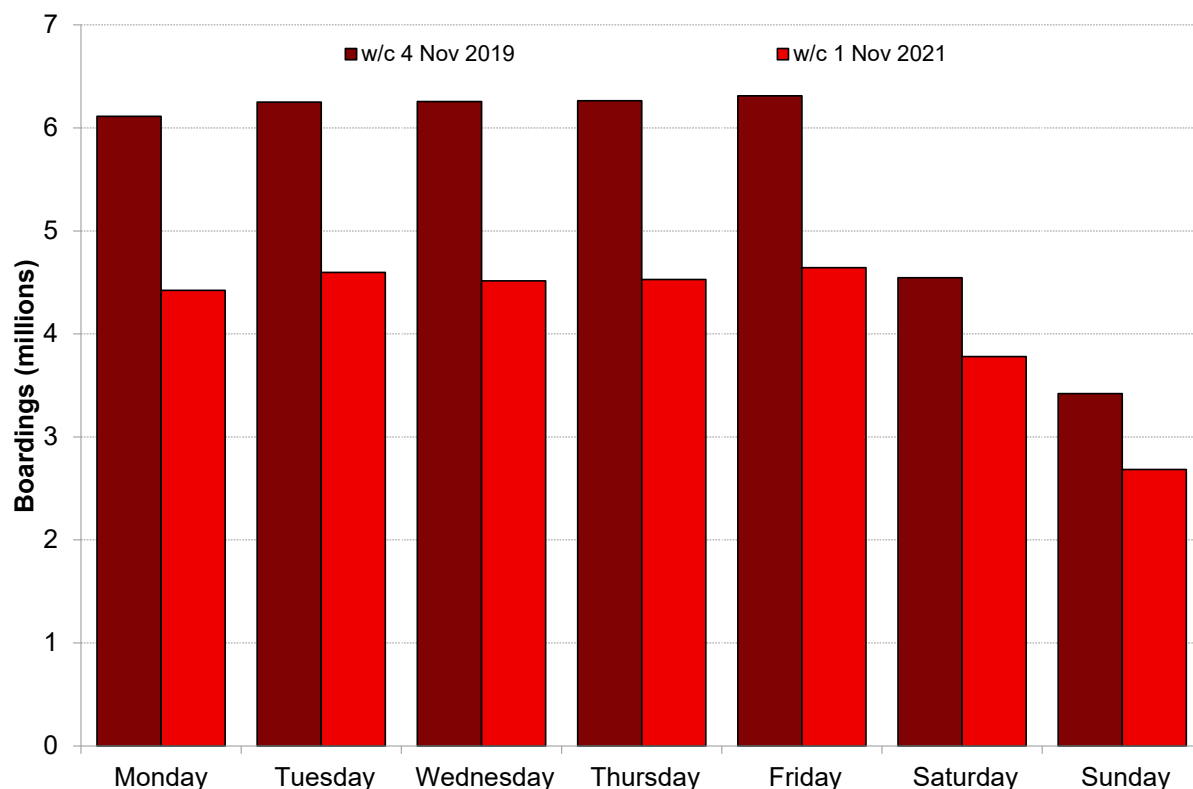


Source: TfL Technology & Data.

Note: This data includes only recorded taps with smartcards. Due to middle-door boarding there is a gap in bus data.

8. Trends in public transport demand, service provision and operational performance

Figure 8.4 Bus demand by day of week, Nov 2019 and Nov 2021.



Source: TfL Technology & Data.

Note: This data includes only recorded taps with smartcards.

Besides the evident drop in absolute demand there are no major differences in the relativities among weekdays either side of the pandemic. In both cases, demand on Wednesday, Thursday and Friday is very slightly above that of Tuesdays and particularly Mondays, where the relative difference is highest. Based on this, it seems that the profile of daily weekday demand has not materially changed since the pandemic. The relative return on Saturdays and Sundays is, however, noticeably higher.

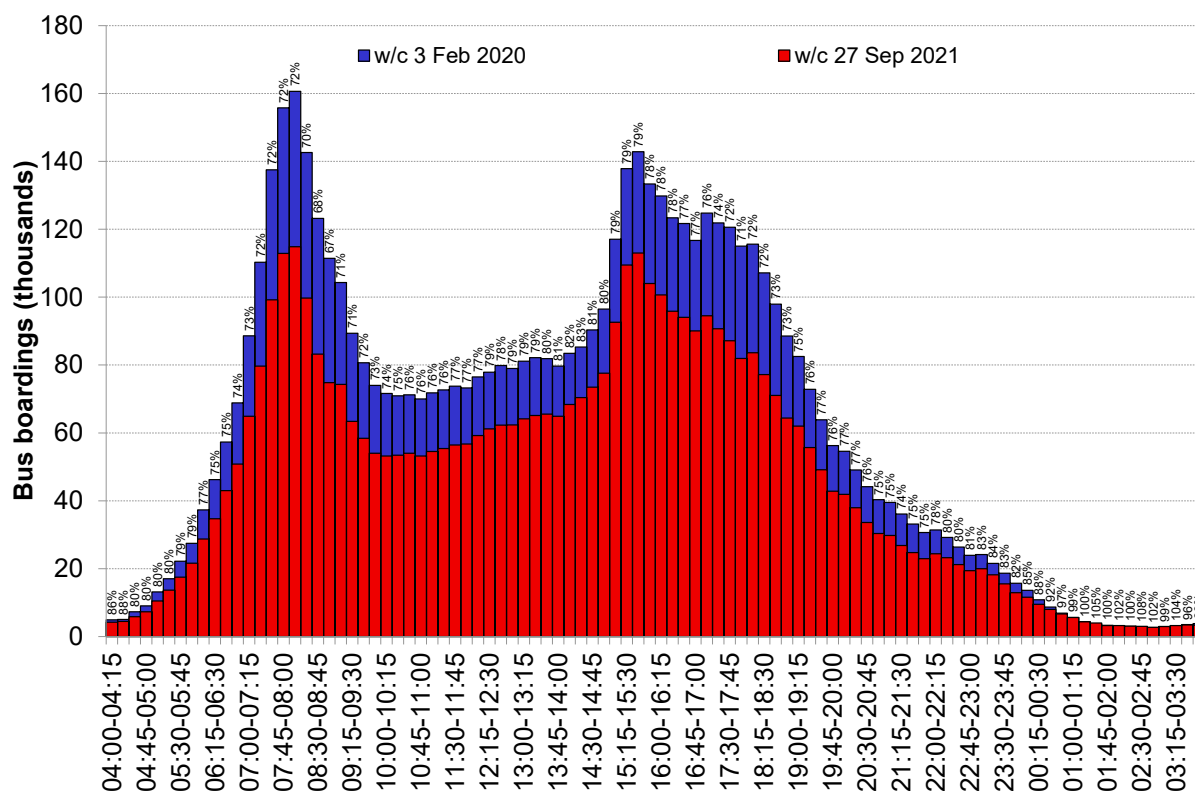
Buses: recent demand trends by time of day

This section looks at differences in the recovery of bus patronage by time of day.

Figure 8.5 shows absolute demand throughout the day on a recent average weekday compared to the equivalent average weekday before the pandemic.

8. Trends in public transport demand, service provision and operational performance

Figure 8.5 Weekday bus demand recovery by time of day, indicative weeks, w/c 3 Feb 2020 and 27 Sep 2021.



Source: TfL Technology & Data.

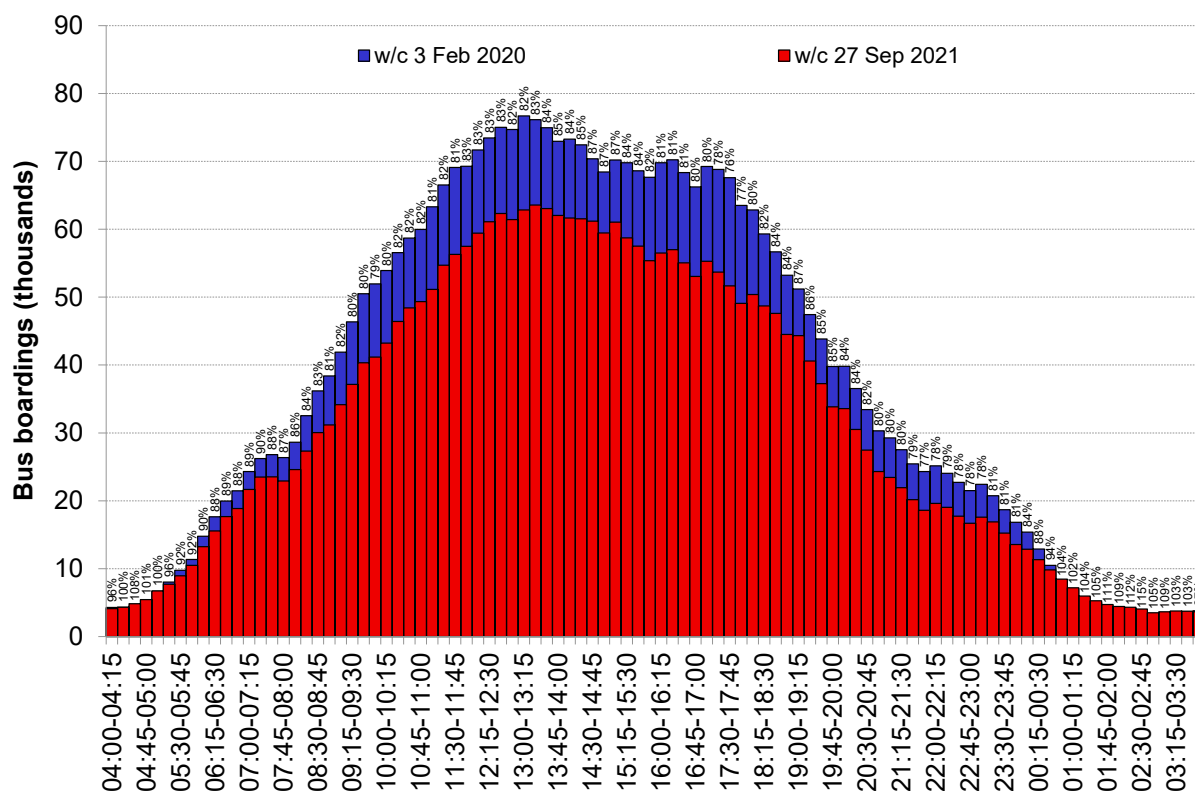
Note: This data includes only recorded taps with smartcards.

The graph shows that in the most recent week, bus demand had recovered to more than 67 per cent in all time periods, with the greatest recovery figures (above 80 per cent) happening outside of the peaks and notably in the later part of the inter-peak and the early part of the evening peak (ie between approximately 14:30 and 16:30). By contrast, the recovery of the morning peak is at around 70-72 per cent of the pre-pandemic baseline, compared to a whole-day figure of 76 per cent.

Figure 8.6 shows the equivalent results for weekends. On the most recent weekend, bus demand had recovered to at least 77 per cent in each period, sometimes exceeding this. The recovery was greatest with demand exceeding 83 per cent in the afternoon (between 13:30 and 15:30) and in the evening between 19:00 and 20:30. This compares to a whole-day figure of 83 per cent.

8. Trends in public transport demand, service provision and operational performance

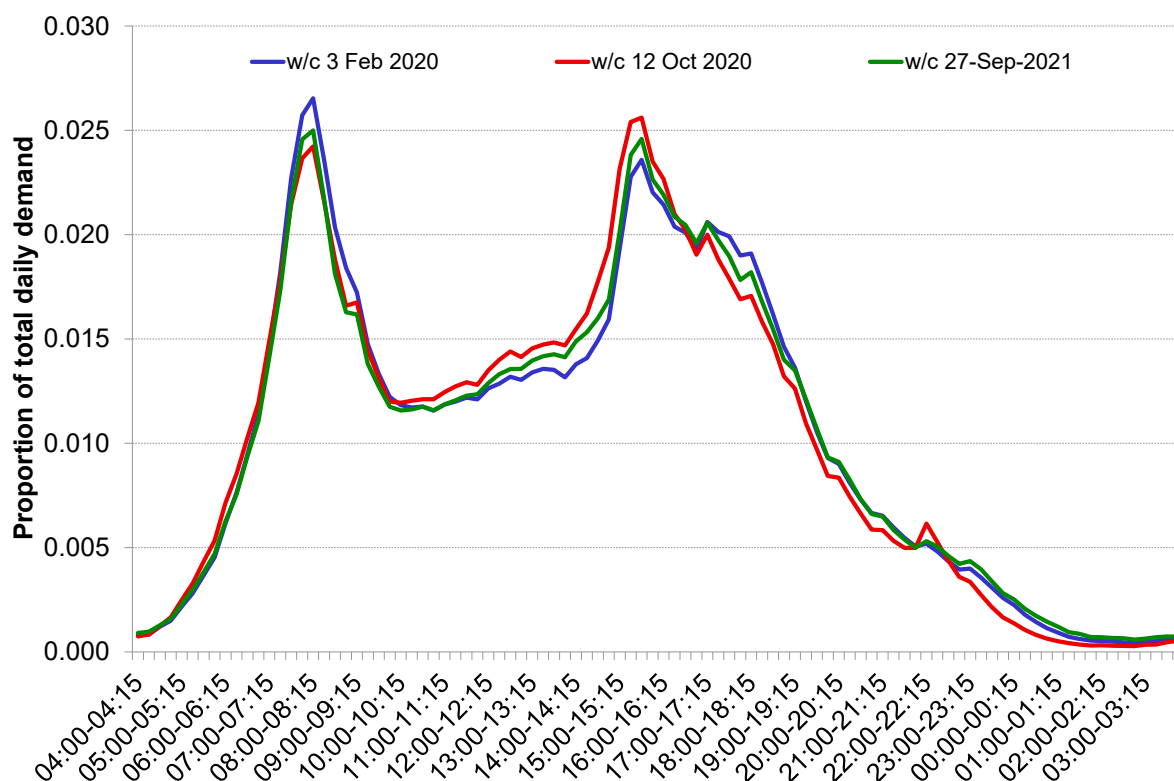
Figure 8.6 Saturday and Sunday average bus demand recovery by time of day, indicative weeks, w/c 3 Feb 2020 and 27 Sep 2021.



Source: TfL Technology & Data.

Note: This data includes only recorded taps with smartcards.

Figure 8.7 Relative weekday bus boardings profile, selected weeks, 2020-2021.



Source: TfL Technology & Data.

Note: This data includes only recorded taps with smartcards. The daily total represents 100 per cent of prevailing demand.

8. Trends in public transport demand, service provision and operational performance

Finally, figure 8.7 compares the relative daily profiles on average weekdays at various stages throughout the pandemic with the baseline, to explore shifts in travel patterns by time.

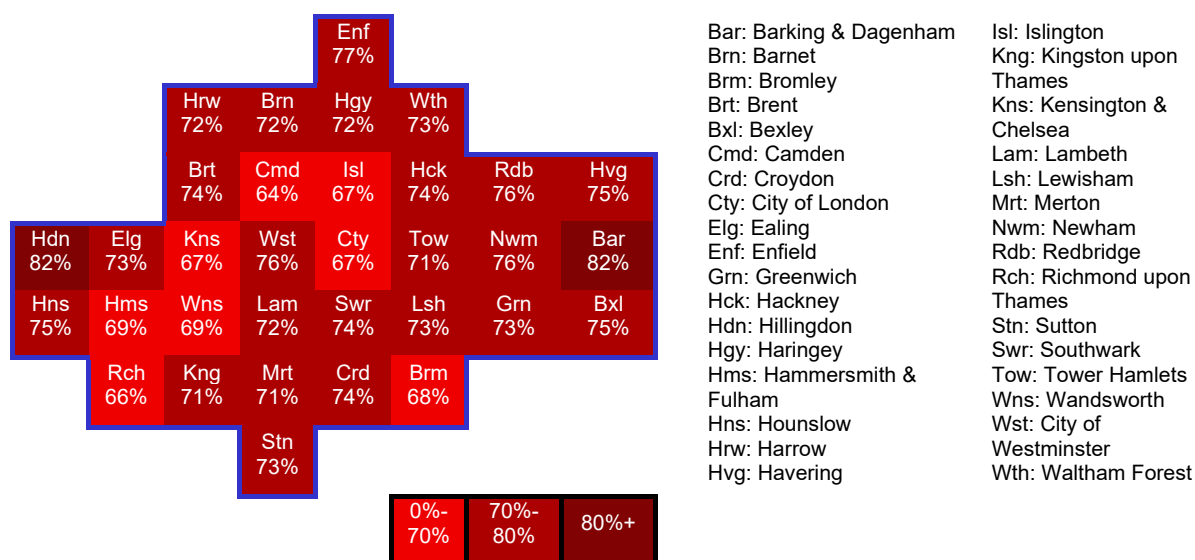
The main feature is that, despite the changes in the daily demand profile observed in the early stages of the pandemic (see [Travel in London report 13](#)) at present the demand profile on buses is in general very similar to before the pandemic, with only modest changes in the profile of bus demand throughout the day.

Buses: recent spatial demand patterns

The pandemic recovery is progressing differently in different parts of London. This section explores high-level spatial trends in the return of bus demand.

Figure 8.8 shows the proportion of weekday bus demand by borough on a representative day in autumn 2021 compared to a pre-pandemic 2019 baseline.

Figure 8.8 Recovery of weekday bus demand by borough, 13 Oct 2021 vs autumn 2019 baseline.



Source: TfL Public Transport Service Planning.

The main features of the recovery as of mid-October 2021 are levels of demand above 64 per cent of the pre-pandemic baseline in all boroughs and lower than average recovery in central London and parts of inner and outer southwest London.

These limited differences in the overall pattern of bus demand are encouraging for a more general return to normal. Despite the overall lower levels of demand, the main features of bus travel seem little changed compared to before the pandemic.

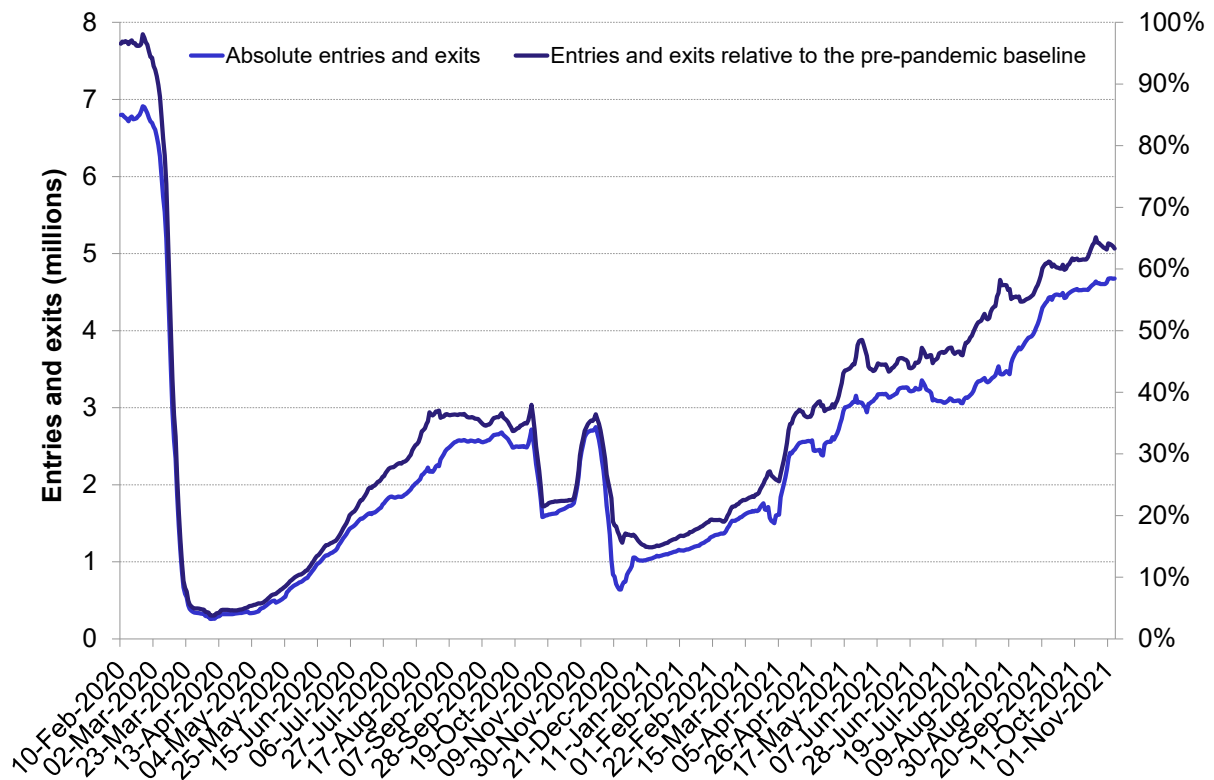
London Underground: recent demand trends

This section explores overall London Underground demand trends since the beginning of the pandemic. The sections that follow focus on specific features of the spatial and temporal distribution of these trends.

Figure 8.9 shows 7-day moving averages of the number of entries and exits on London Underground alongside the proportion of pre-pandemic demand on the equivalent dates since March 2020.

8. Trends in public transport demand, service provision and operational performance

Figure 8.9 Absolute London Underground entries and exits and demand recovery compared to equivalent dates before the pandemic, 7-day moving average, Feb 2020-Nov 2021.



Source: TfL Technology & Data.

Note: This data includes only recorded taps with smartcards.

The main features of this graph are:

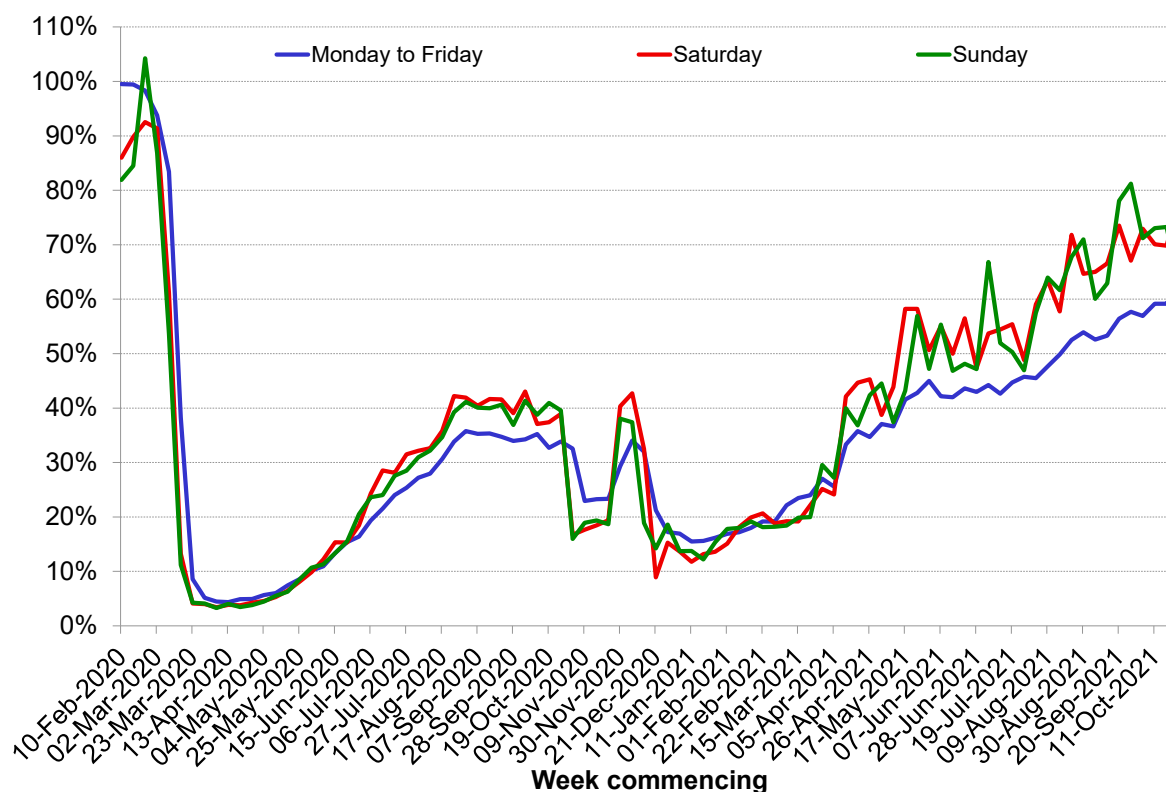
- Before the pandemic (February-March 2020), demand was already a couple of percentage points down on the 2019 baseline, possibly reflecting early pandemic impacts during March or the continuation of a slight decline seen in earlier years.
- After the first lockdown, London Underground patronage dropped by up to 96 per cent, to around 0.3 million daily entries and exits (approximately half of which would be journeys), from some 7.8 million before the pandemic.
- Following that, demand recovered steadily from April until the end of August 2020, albeit at a slower pace than other modes. The level of recovery at that point (circa 36 per cent) remained constant throughout the autumn (save for a hiatus during the autumn 2020 lockdown) before seeing another big drop due to the third lockdown that started in late December 2020, taking the relative level of demand back to a low point of 15 per cent. For the next few months, the recovery continued but at a slower pace than before. A step change in mid-April took the level of demand up to almost 40 per cent (similar to before the third lockdown).
- From July 2021 there has been a steady and sustained recovery in demand and at the beginning of November 2021 overall demand was around 63 per cent of the pre-pandemic baseline.

8. Trends in public transport demand, service provision and operational performance

London Underground: recent demand trends by day of the week

Figure 8.10 shows the trend in London Underground demand recovery by day type since the beginning of the pandemic.

Figure 8.10 London Underground daily demand recovery compared to equivalent dates before the pandemic by day of week, Feb 2020-Oct 2021.



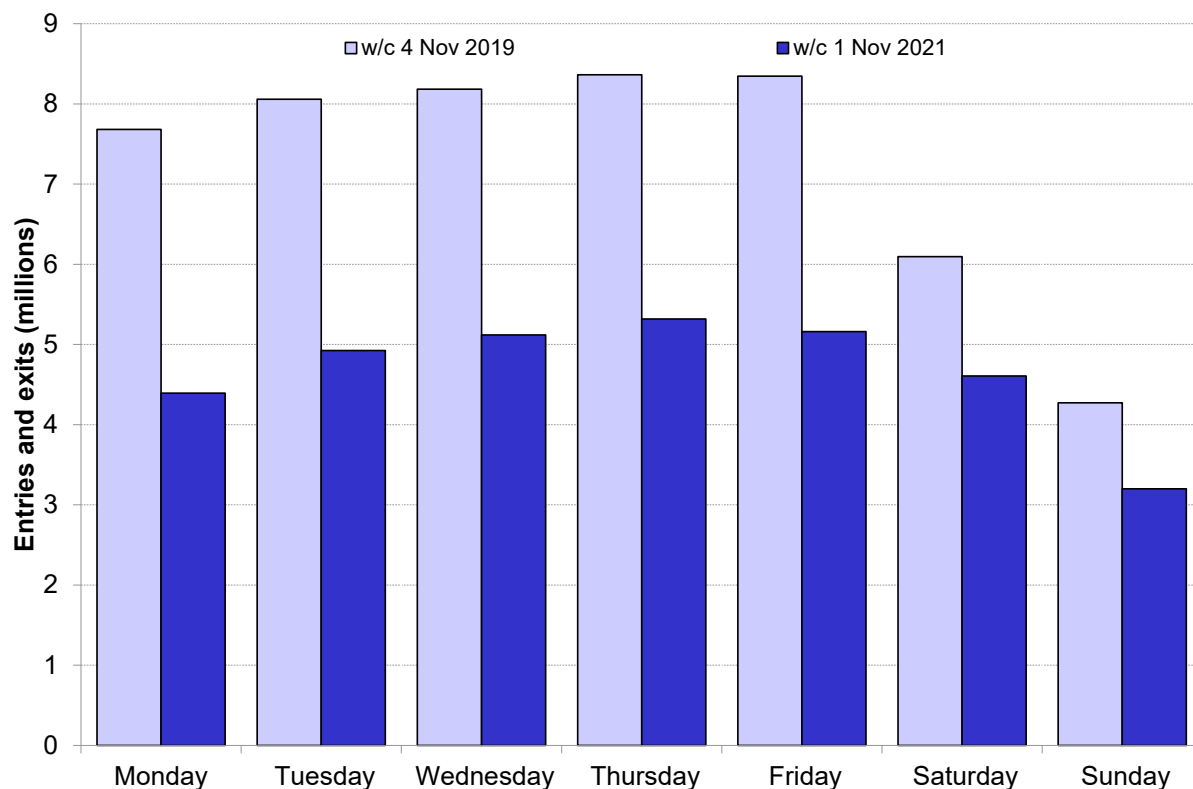
Source: TfL Technology & Data.

Note: This data includes only recorded taps with smartcards.

Overall, the return of London Underground demand at weekends has been quicker than on weekdays, similarly to that observed on buses. This was particularly apparent throughout the summer and early autumn months of 2020 (after the first lockdown), and since the establishment of a steady recovery in April 2021, from which point the divergence between the weekday and weekend trends has continued to increase. At present, recovery on weekdays is around 63 per cent while weekends have typically seen demand above 70 per cent of the pre-pandemic baseline in recent weeks. Besides the relative recovery trend, the trend in relative daily demand is also of interest (figure 8.11), based on a recent representative week.

8. Trends in public transport demand, service provision and operational performance

Figure 8.11 London Underground demand by day of week, Nov 2019 and Nov 2021.



Source: TfL Technology & Data.

Note: This data includes only recorded taps with smartcards.

As with buses, there is little change in the relative pattern of demand on the five weekdays compared to before the pandemic, although at significantly lower levels overall. Wednesdays and Thursdays remain the busiest days. The extent of the recovery on Saturdays and Sundays is notably higher. Regarding the weekday morning peak, there is some evidence that the emerging pre-pandemic pattern of lower relative demand on Mondays and Fridays compared to the other weekdays has been more pronounced in recent months.

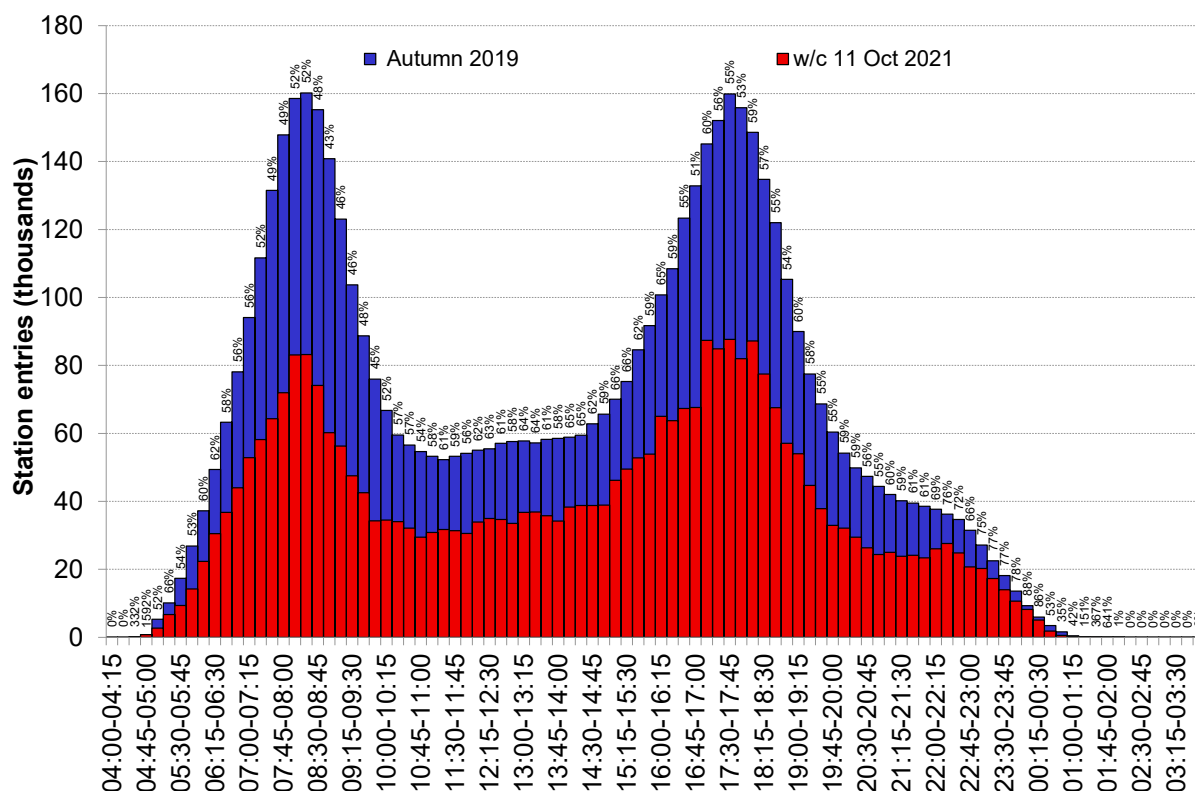
London Underground: recent demand trends by time of day

This section looks at the recovery of London Underground demand by time of day, and at the changes in the relative daily profile of demand on weekdays.

Figure 8.12 shows absolute demand throughout the day on a recent average weekday compared to the equivalent average weekday at mid-October 2021 before the pandemic. Figure 8.13 shows the equivalent results for weekends.

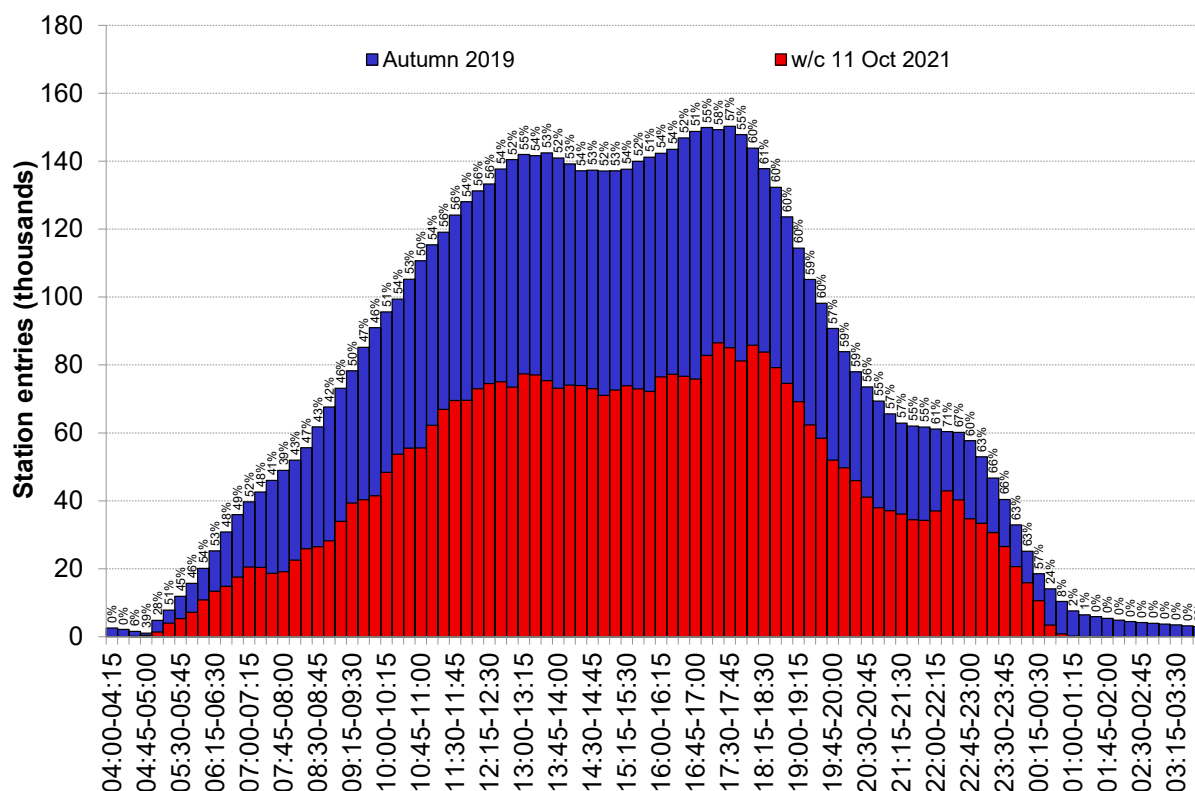
8. Trends in public transport demand, service provision and operational performance

Figure 8.12 Weekday London Underground entries recovery by time of day, indicative weeks, autumn 2019 and w/c 11 Oct 2021.



Source: TfL Technology & Data.

Figure 8.13 Saturday and Sunday average London Underground entries recovery by time of day, indicative weeks, autumn 2019 and w/c 11 Oct 2021.

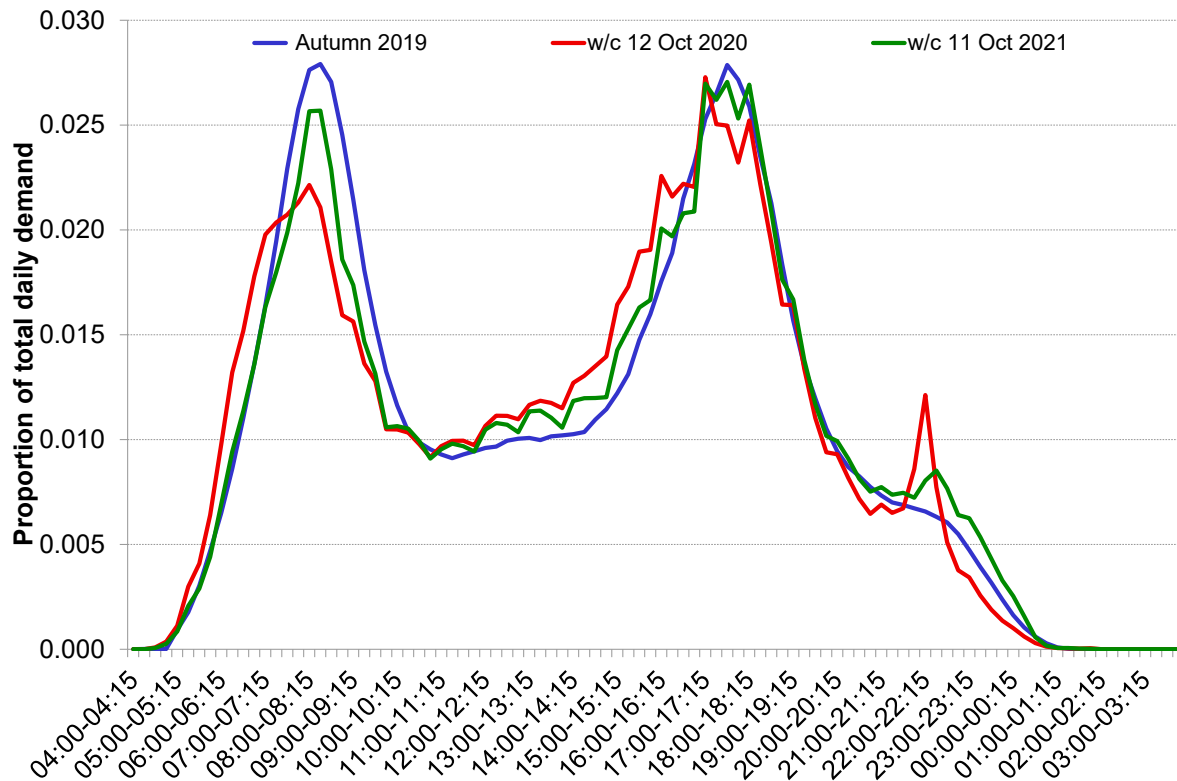


Source: TfL Technology & Data.

8. Trends in public transport demand, service provision and operational performance

Finally, figure 8.14 compares the relative daily profiles on average weekdays at various stages throughout the pandemic with the pre-pandemic baseline.

Figure 8.14 Relative weekday London Underground entries profile, selected weeks, 2019-2021.



Source: TfL Public Transport Service Planning.

London Underground: recent spatial demand patterns

This section explores spatial trends in the return of London Underground demand.

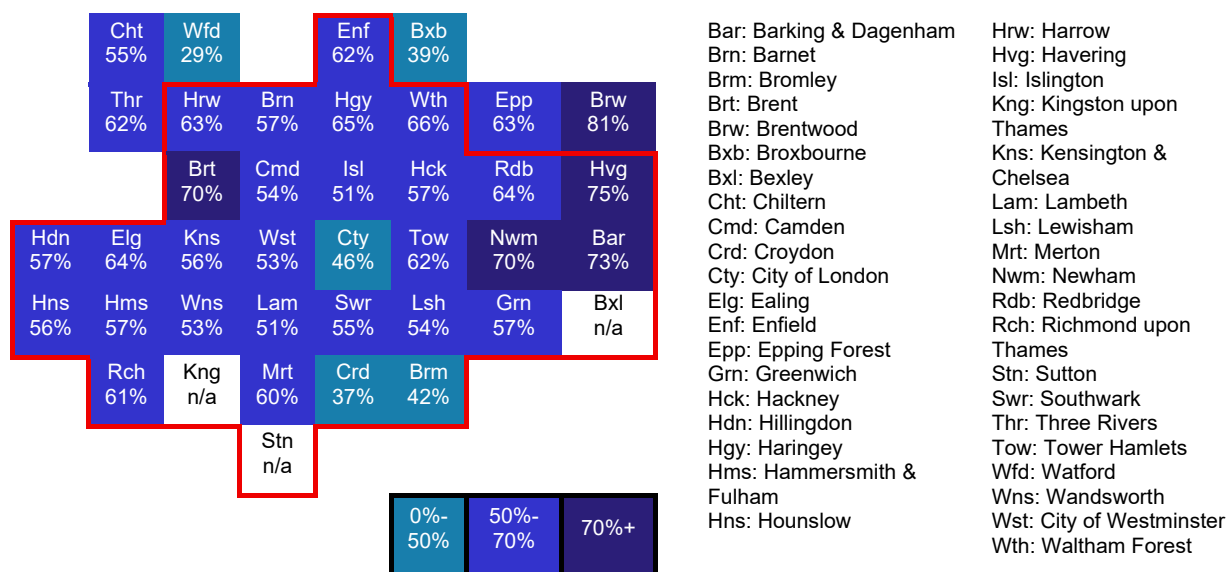
Figure 8.15 shows the proportion of weekday demand by local authority on the main TfL rail networks (London Underground, London Overground and DLR combined) on a representative week in autumn 2021 compared to a pre-pandemic 2019 baseline. The diagram extends outside the GLA to reflect TfL operations in those areas, while some London boroughs do not have TfL rail stations.

The recovery of demand on TfL rail services has been notably faster outside the centre. The continuing relative shortfall in central and inner London is evident, reflecting a slower return to activity here.

In interpreting these trends, it is important to remember that relative metrics conceal large variations in absolute demand, and so a modest relative recovery in a typically 'busy' borough like Camden or City of Westminster could mean many more journeys and people travelling than many other boroughs with fewer stations combined, even when the relative recovery is a lot higher.

8. Trends in public transport demand, service provision and operational performance

Figure 8.15 London Underground, London Overground and DLR weekday entries by borough, week commencing 11 Oct 2021 vs autumn 2019 baseline.



Source: TfL Public Transport Service Planning.

Note: Boroughs in the Greater London Authority (GLA) are enclosed within a red border. Note that some do not have any London Underground, London Overground or DLR stations and therefore there is no data available.

Finally, Table 8.3 shows the proportion of London Underground demand by broad **station categories**, in terms of origin-destination pairs for a representative week in autumn 2021 compared to a pre-pandemic baseline in early February 2020.

Table 8.3 London Underground weekday demand for origin-destination pairs by station category, week commencing 11 Oct 2021 vs week commencing 3 Feb 2020.

		Destination					
		City	Shopping	Terminus	Tourist	Inner suburb	Outer suburb
Origin	City	42%	53%	49%	49%	52%	52%
	Shopping	52%	53%	51%	56%	59%	63%
	Terminus	50%	55%	51%	54%	58%	60%
	Tourist	49%	58%	53%	45%	58%	60%
	Inner suburb	53%	61%	61%	61%	66%	68%
	Outer suburb	55%	64%	65%	62%	69%	70%

Source: TfL Public Transport Service Planning.

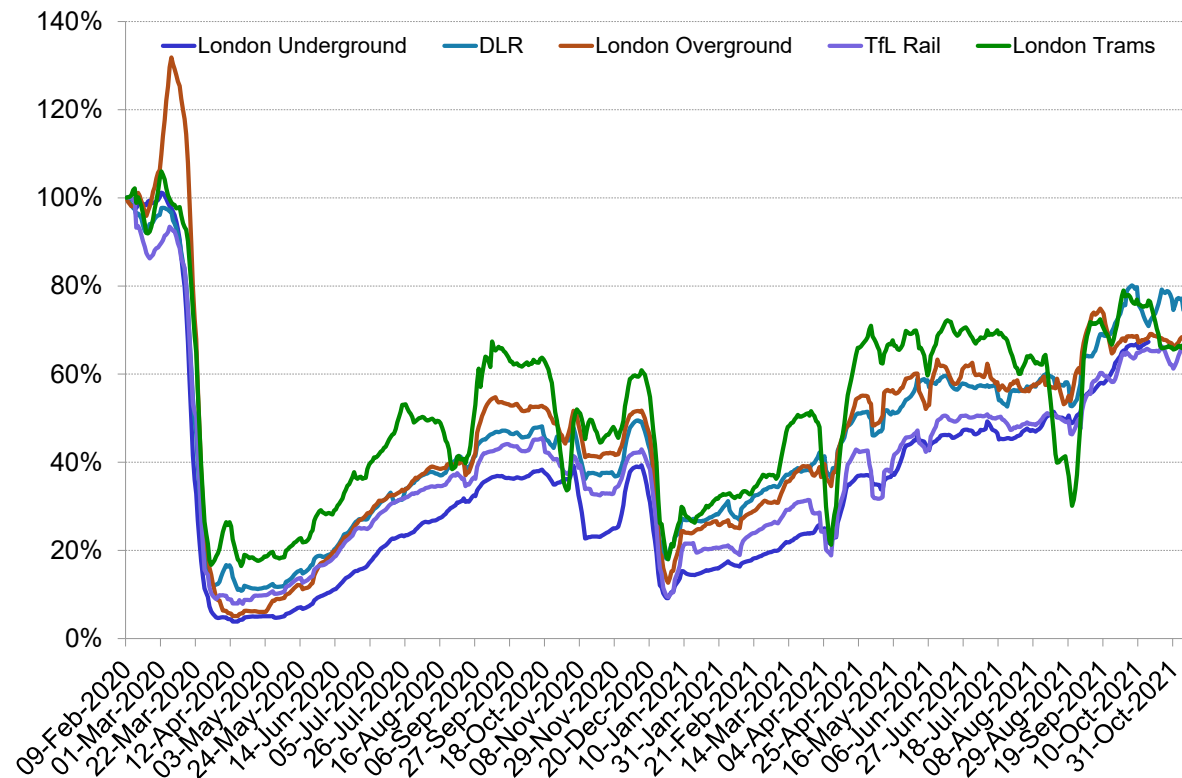
In the context of an overall demand recovery of around 65 per cent, there is a wide range of variation between different origin-destination station type pairs, with some at less than 50 per cent recovery (notably in central London destinations including the City, rail termini and tourist attractions) while others are nearing 70 per cent, particularly for inner to outer London trips and for shopping trips.

8. Trends in public transport demand, service provision and operational performance

Other TfL rail modes: recent demand trends on DLR, London Overground, TfL Rail and London Trams

This section provides a high-level overview of demand recovery since the beginning of the pandemic on other TfL rail modes. Figure 8.16 shows the recovery trends on these modes alongside London Underground for context.

Figure 8.16 Demand recovery on TfL's rail networks compared to week commencing 3 Feb 2020, 7-day moving average, Feb 2020-Oct 2021.



Source: TfL Public Transport Service Planning.

The main features are:

- Following the first lockdown, demand dropped dramatically on all TfL rail modes, but not to the same extent as for London Underground.
- London Trams was the most resilient rail mode and has recovered to the greatest extent.
- DLR and London Overground have followed similar recovery trajectories, albeit with a relatively stronger recovery on London Overground in the early stages of the pandemic and on DLR in recent weeks.
- TfL Rail saw a relatively strong recovery.
- At the end of October 2021, demand on DLR was at 75 per cent of the pre-pandemic baseline, with London Overground at 68 per cent, TfL Rail at 66 per cent and London Trams at 67 per cent, after a slight drop from 77 per cent in September.

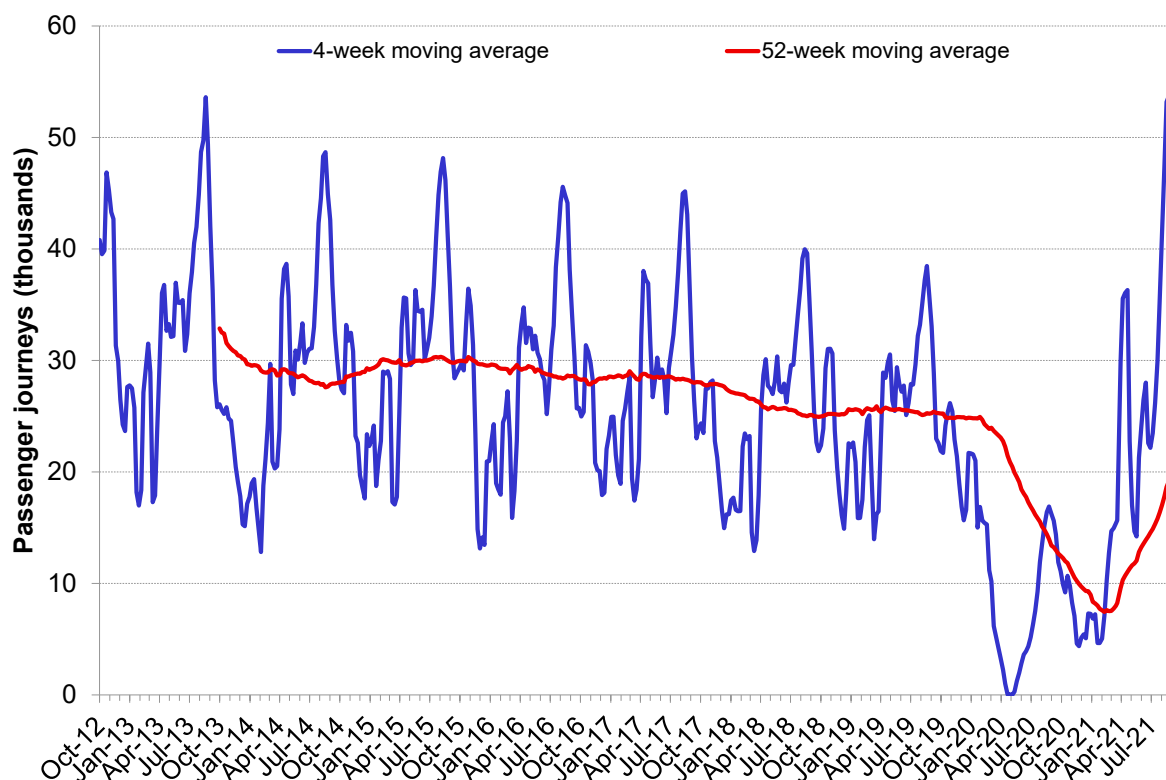
8. Trends in public transport demand, service provision and operational performance

Other modes: recent demand trends on London River Services and Emirates Air Line

Demand on London River Services fell by 83 per cent on an annual basis from 2019/20 to 2020/21. This reflected the suspension of River Tours and River Bus services during lockdown periods. Demand on the Woolwich Ferry however only reduced by 23 per cent, reflecting the nature of the motor vehicle market served.

Similarly, the drop in annualised demand on the Emirates Air Line (of 66 per cent between 2019/20 and 2020/21) conceals a more positive picture as shown by figure 8.17, where it is apparent that since April 2021 the demand on the cable car service has met and sometimes exceeded seasonal records, showing a particularly strong recovery trajectory. This is thought to be due to a combination of favourable weather and the removal of lockdown restrictions in the context of campaigns to promote local and national tourist attractions.

Figure 8.17 Demand by financial period on the Emirates Air Line, 2012-2021.



Source: TfL Service Performance data.

National Rail in London: overall long- and short-term demand trends

This section reviews indicators of passenger demand relating to travel on National Rail services, with a particular focus on the London area.

Table 8.4 shows the long-term trend in National Rail demand in London over the last decade. This data represents aggregate demand on operators that the Office of Rail and Road (ORR) classifies as 'franchised in London and the South East', and as such includes some travel that does not strictly take place within the London boundary. However, this information is a good proxy for National Rail demand in the

8. Trends in public transport demand, service provision and operational performance

London area, which is essential for a comprehensive interpretation of overall travel trends in London.

The historic context is one of modest but continuous expansion in the 2000s followed by a period of stronger growth in the first half of the 2010s. Since around 2015/16, and in line with public transport in London more generally, National Rail demand on London and South East franchised operators entered a period of slower demand growth over the next few years up to the pandemic. Annual demand between 2019/20 and 2020/21 saw a drop of 76 per cent in terms of journeys and almost 80 per cent in terms of passenger kilometres, suggesting a shortening of average trip length.

Table 8.4 Demand on National Rail London and South East franchised operators (as defined by the ORR), 2010/11-2020/21.

Year	Passenger journeys (millions)	Passenger journeys year-on-year change (%)	Passenger kilometres (billions)	Passenger kilometres year-on-year change (%)
2010/11	911	8.1	25.0	5.0
2011/12	991	8.8	26.3	5.5
2012/13	1,030	3.9	27.1	3.0
2013/14	1,099	6.7	28.4	4.5
2014/15	1,144	4.1	29.3	3.3
2015/16	1,195	4.4	30.2	3.1
2016/17	1,191	-0.4	30.4	0.6
2017/18	1,165	-2.1	30.0	-1.3
2018/19	1,209	3.7	31.0	3.4
2019/20	1,196	-1.1	30.7	-1.1
2020/21	288	-75.9	6.2	-79.7

Source: Office of Rail and Road.

Table 8.5 shows the quarterly trend before and through the pandemic, both in absolute terms and as a proportion of the relevant reference quarter.

8. Trends in public transport demand, service provision and operational performance

Table 8.5 Short-term demand by quarter on National Rail London and South East franchised operators, Q4 2018/19-Q1 2021/22.

Quarter	Passenger journeys (millions)	Proportion of baseline journeys (%)	Passenger kilometres (billions)	Proportion of baseline passenger kilometres (%)
Q4 2018/19	309.0	-	7.7	-
Q1 2019/20	301.1	-	7.9	-
Q2 2019/20	306.6	-	8.0	-
Q3 2019/20	314.5	-	8.0	-
Q4 2019/20	273.7	89	6.8	88
Q1 2020/21	27.0	9	0.6	7
Q2 2020/21	94.3	31	2.2	27
Q3 2020/21	105.9	34	2.2	28
Q4 2020/21	60.5	20	1.2	16
Q1 2021/22	127.1	42	2.9	37

Source: Office of Rail and Road.

Note: The baseline for the relative calculations is the equivalent quarter at the top of the table.

At the national level, National Rail demand has broadly mirrored that of London Underground throughout the pandemic, noting in particular that passenger kilometres dropped slightly more than journeys, which implies a reduction in the average journey length.

More recently however, there are signs of relative weakness in the London and South East commuter market, an important feeder to our services, with demand here below operator projections and lagging what appears to be a wider 'leisure-led' recovery on non-London focused operators.

8.3 Service provision and operational performance on the main public transport modes

Introduction

The first part of this chapter explored demand trends on each mode. This section provides further context by looking at selected aspects of service provision and operational performance both at aggregate level and by individual modes.

The long-term trend of public transport service provision has been described in previous [Travel in London reports](#). Despite the severe impact of the pandemic on public transport patronage, the emphasis has been on providing a safe and reliable service to support essential journeys and, latterly, to facilitate London's recovery.

Long-term trends in TfL's public transport provision

Table 8.6 shows the trend in the capacity provided (in terms of place-kilometres) on the main public transport modes over the last ten years. After two decades of sustained growth in capacity on all modes, with step changes following upgrades and extensions on the newer networks (DLR, London Overground, TfL Rail), the

8. Trends in public transport demand, service provision and operational performance

years before the pandemic saw slight decreases in the capacity offered by buses and trams.

The drop observed in 2019/20 is explained by the sudden reduction to many services following the first lockdown in March 2020. Overall, however, and despite severe operational challenges faced at various stages during the pandemic, we have been able to provide a comprehensive and reliable service to support essential journeys and, latterly, to provide for London's recovery in the context of continuing public sensitivity about social distancing and coronavirus risk.

Notably, during various stages of the pandemic, scientific studies conducted by Imperial College London repeatedly found no trace of coronavirus in the public transport environment.

Table 8.7 shows these historic capacity trends in the context of aggregate public transport demand, comparing the relative changes in place-kilometres to the relative changes in passenger kilometres. Due to unavailability of bus capacity figures for 2020/21, this comparison uses only data from the main TfL rail modes.

Table 8.6 Capacity (million place-kilometres) provided by the main public transport modes, 2010/11-2020/21.

Year	Bus	LU	DLR	LO	Trams	Rail total and year-on-year change (%)		Total and year-on-year change (%)	
2010/11	29,175	54,567	2,104	1,788	534	58,993	3.0%	88,168	1.8%
2011/12	29,804	57,694	2,371	3,317	536	63,918	8.3%	93,722	6.3%
2012/13	29,626	60,572	2,980	3,686	574	67,813	6.1%	97,439	4.0%
2013/14	29,605	61,461	3,061	4,106	599	69,227	2.1%	98,832	1.4%
2014/15	30,057	65,010	3,083	4,153	596	72,842	5.2%	102,899	4.1%
2015/16	30,386	66,880	3,029	7,654	601	78,164	7.3%	108,550	5.5%
2016/17	30,903	68,224	3,065	7,885	634	79,808	2.1%	110,711	2.0%
2017/18	33,602 ¹	68,844	3,060	7,906	653	80,464	0.8%	114,066¹	n/a¹
2018/19	32,360 ¹	69,310	3,096	8,312	640	81,358	1.1%	113,718	-0.3%
2019/20	31,529 ^{1,2}	67,171	3,081	8,587	632	79,471	-2.3%	111,000	-2.4%
2020/21	n/a ³	59,263	3,006	6,441	609	69,318	-12.8%	n/a	n/a

Percentage change in 2020/21 from 2019/20

n/a -11.8 -2.4 -25.0 -3.5

Source: TfL Service Performance data.

Note: Values for rail modes represent capacity using a standing density assumption of 4 people per square metre.

1: A new methodology to calculate bus capacity was introduced in 2017/18, so values before this break are not comparable.

2: This value is subject to minor issues with the definition of some bus route capacities but is broadly accurate.

3: Various changes to capacity restrictions on buses, alongside the introduction of additional school services outside the contracted network mean that this figure cannot be accurately calculated for this financial year.

8. Trends in public transport demand, service provision and operational performance

Table 8.7 Demand and supply change on the main TfL rail networks (London Underground, DLR, London Overground and London Trams), index: 2009/10 = 100, 2009/10-2020/21.

Year	Demand	Supply
2009/10	100	100
2010/11	107	103
2011/12	115	112
2012/13	123	118
2013/14	127	121
2014/15	133	127
2015/16	149	136
2016/17	154	139
2017/18	154	140
2018/19	158	142
2019/20	154	139
2020/21	38	121

Source: TfL Service Performance data.

Since the beginning of the series, rail demand and supply were growing simultaneously up until the start of the pandemic in 2019/20, and generally demand did so at a faster rate, as would be expected given that service enhancements to increase supply are planned in response to demand growth.

The pandemic, however, caused demand on these modes to fall by 62 per cent while capacity only dropped by 13 per cent following the closure of some non-essential services while keeping service levels as high as possible to aid social distancing and the recovery.

Buses: service provision and operational performance

Prior to the pandemic, bus service provision had seen some decline from a high point around 2016 (table 8.8). This was due to a rationalisation of services introduced in response to a general fall in demand. These changes were aimed at removing duplication on certain corridors and redistributing capacity mostly from the city centre out into the suburbs.

8. Trends in public transport demand, service provision and operational performance

Table 8.8 Overall bus service provision and reliability, 2010/11-2020/21.

Year	Scheduled kilometres (millions)	Scheduled kilometres...			Avg. speed (mph)
		...operated	...lost due to congestion ¹	...lost due to other causes ²	
2010/11	499	97.4%	2.1%	0.5%	
2011/12	502	97.6%	1.9%	0.5%	
2012/13	503	97.6%	1.7%	0.7%	
2013/14	502	97.7%	1.9%	0.4%	9.6
2014/15	504	97.1%	2.0%	0.9%	9.5
2015/16	507	97.2%	2.3%	0.5%	9.3
2016/17	508	97.4%	2.0%	0.6%	9.2
2017/18	500	98.1%	1.4%	0.5%	9.3
2018/19	491	98.1%	1.3%	0.5%	9.3
2019/20	486	97.8%	1.5%	0.7%	9.3
2020/21	471	98.7%	1.5%	0.5%	10.3

Source: London Buses.

1: Includes other lost kilometres outside the control of the operator.

2: Includes all lost kilometres within the control of the operator.

On an annual basis, the number of scheduled kilometres on buses fell by 3 per cent between 2019/20 and 2020/21, but the impact of the pandemic is likely to have been slightly higher since the end of the 2019/20 year was also affected by the first lockdown. This compares to an almost 60 per cent drop in demand in the same period, which illustrates the efforts to keep operating a high level of service to enable social distancing and essential journeys throughout the pandemic.

Table 8.8 also shows operational performance metrics over the last decade. After a few years of very high levels of reliability and performance, the unique circumstances of the pandemic led to improvements in some indicators:

- Of particular note is the step increase in bus speeds (by 10 per cent from 2019/20 to 2020/21). This was most likely due to the reduction in general traffic and bus demand.
- The proportion of scheduled kilometres operated also increased in this same period by 0.9 percentage points.

Other reliability indicators specifically for high- and low-frequency bus services are shown in table 8.9, where it is evident that the pandemic has led to changes.

8. Trends in public transport demand, service provision and operational performance

Table 8.9 Bus punctuality and reliability by service type, 2010/11-2020/21.

Year	High-frequency services ¹		Low-frequency services ¹	
	Average wait time (min)	Customer journey time (min)	Timetabled services on time ²	
	Actual	Excess		
2010/11	5.4	1.0	-	81.4%
2011/12	5.4	1.0	-	83.2%
2012/13	5.9	1.0	-	83.6%
2013/14	5.9	1.0	-	82.5%
2014/15	6.0	1.1	-	81.8%
2015/16	6.1	1.2	-	80.6%
2016/17	6.1	1.1	-	80.1%
2017/18	6.0	1.0	32.4	82.3%
2018/19	6.1	1.0	32.5	82.3%
2019/20	6.2	1.0	32.2	83.3%
2020/21	6.1	0.6	30.5	89.5%

Source: London Buses.

Note: In 2012/13 (high-frequency) and 2013/14 (low-frequency) there was a methodology change.

1. High/low frequency: operating with a scheduled frequency of 5 or more/less than five buses an hour.

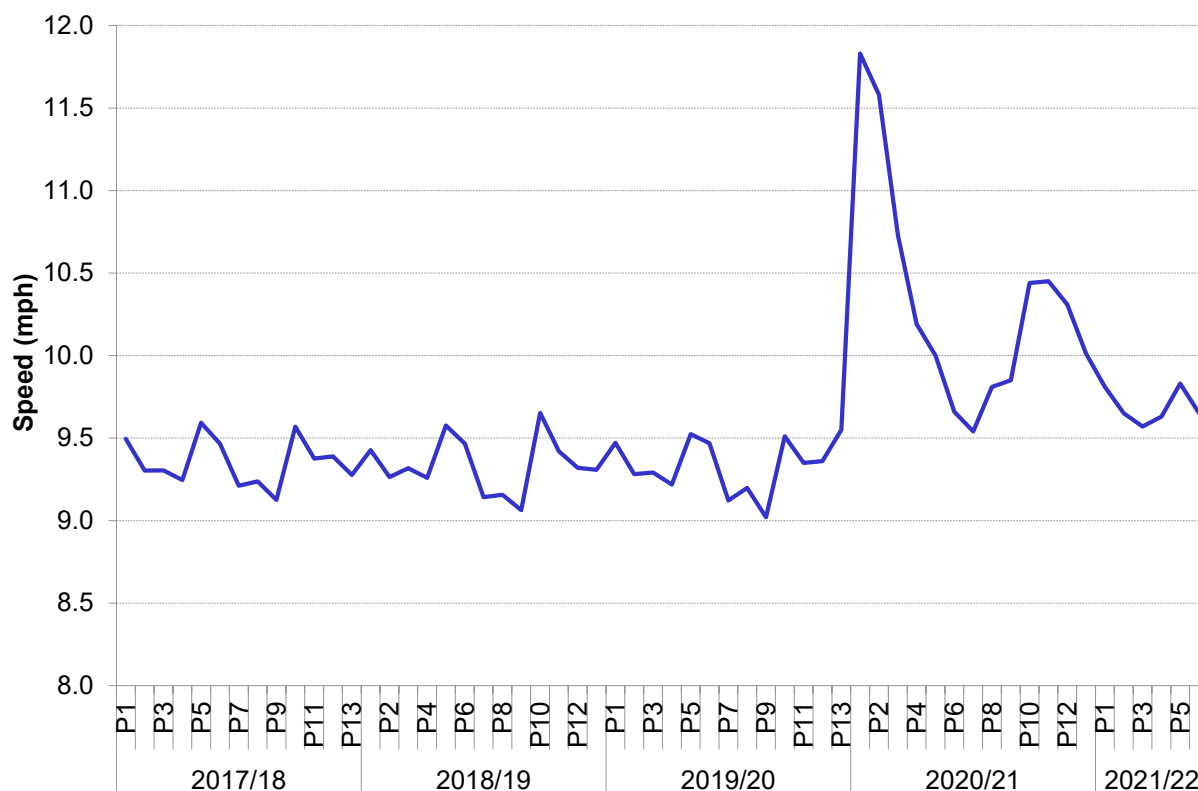
2. Buses are defined as 'on time' if departing between 2.5 and 5 minutes after their scheduled departure times.

Figure 8.18 shows the recent trend in bus speeds at the network level. In the years before the pandemic, average bus speeds had been relatively stable (save for the expected seasonal variations) at around 9.3mph. After the first lockdown (P13 2019/20 onwards), and given the reduction in road traffic, bus speeds increased to almost 12mph, albeit temporarily. The more recent picture is of bus speeds still relatively higher than baseline levels, in the context of slightly reduced general road traffic levels.

- While actual wait time on high-frequency services did not change very much, the excess wait time (that beyond what would be expected) reduced by 40 per cent between 2019/20 and 2020/21 to about 36 seconds.
- Customer journey time reduced by almost 2 minutes (5 per cent) over the same period, although more recent data suggest it may have reverted slightly.
- On low-frequency services, the proportion of services on time increased by 6.2 percentage points to a record 89.5 per cent.

8. Trends in public transport demand, service provision and operational performance

Figure 8.18 Bus network speeds, 24-hour, 7-day average by period, 2017/18-2021/22.



Source: London Buses.

London Underground: service provision and operational performance

Selected indicators of service provision and operational performance on London Underground over the last decade are shown in table 8.10. Overall, service provision in terms of scheduled and operated kilometres grew steadily throughout the 2010s until the outbreak of the pandemic. Alongside this growth in supply, operational performance also improved in the first half of the decade but then tended to flatten, albeit at relatively high levels, more recently.

The pandemic started to have an impact on service provision in March 2020 (end of financial year 2019/20). On an annual basis, operated kilometres fell by 12 per cent between 2019/20 and 2020/21 (while demand did so by some 78 per cent in the same period).

Figure 8.19 further shows the trend for the proportion of scheduled kilometres operated throughout the pandemic. This is shown alongside a relative indication of the scheduled level of service and the relative trend in demand.

8. Trends in public transport demand, service provision and operational performance

Table 8.10 London Underground service performance, 2010/11-2020/21.

Year	Scheduled kilometres (millions)	Operated kilometres (millions)	Scheduled kilometres operated	Average generalised journey time (min)	Excess journey time ¹ (min)	Share of excess in generalised journey time
2010/11	72.1	68.9	95.6%	44.6	6.5	14.6%
2011/12	74.6	72.4	97.0%	45.1	5.8	12.9%
2012/13	77.5	75.6	97.6%	43.6	5.3	12.1%
2013/14	78.2	76.2	97.5%	43.4	5.2	12.0%
2014/15	82.3	80.3	97.6%	42.3	4.6	11.0%
2015/16	85.0	82.4	97.1%	41.7	4.6	11.0%
2016/17	86.3	83.7	96.9%	41.7	4.7	11.0%
2017/18	87.2	84.3	96.7%	41.6	4.6	11.2%
2018/19	88.7	85.0	95.8%	41.6	4.6	11.0%
2019/20	87.7	82.4	94.0%	41.9 ²	5.0 ²	11.8% ²
2020/21	71.8 ³	72.6	90.8% ³	n/a	n/a ⁴	n/a ⁴

Source: London Underground.

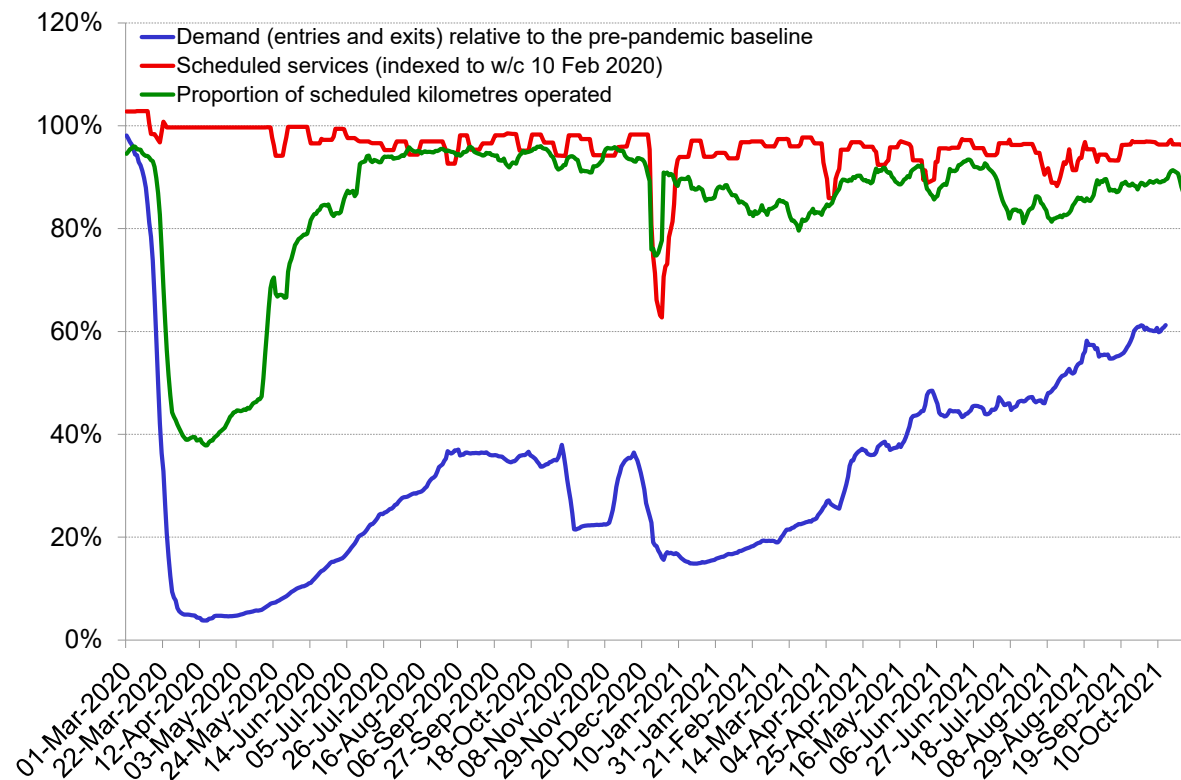
1: Difference between actual journey time and time if services run to time, weighted to reflect how customers value time.

2: Average from financial periods 1 to 12. Period 13 has been excluded because it was impacted by the coronavirus pandemic.

3: These figures are based on only 11 financial (4-week) periods from and including period 3 of the 2020/21 financial year.

4: While demand remains subdued, it is not possible to compute excess journey time.

Figure 8.19 London Underground demand and supply during the coronavirus pandemic, Mar 2020-Oct 2021.



Source: London Underground.

Note: The proportion of scheduled kilometres compares the actual number of train trips versus the scheduled number of train trips using a predetermined set of measuring points. It is based on the working timetables and includes adjustments for planned closures, weekend engineering works, and timetable notices, but Night Tube is excluded.

8. Trends in public transport demand, service provision and operational performance

The main story from figure 8.19 is of a level of scheduled service only slightly below that normally provided, with the emphasis on accommodating essential journeys and social distancing requirements throughout the pandemic. The impact of acute operational challenges such as staff sickness and isolation, particularly during lockdown periods, is reflected in the proportion of scheduled services actually operated. At all stages, the service provided has been much higher than proportionate demand. At the time of writing, we are restoring further services, such as the Night Tube, to play a full part in London's recovery from the pandemic.

Finally, although unrelated to the pandemic, the London Underground network saw a historic major extension in 2021 (the most recent for two decades) with the opening of two new stations – Nine Elms and Battersea Power Station – on the Northern line as part of a major regeneration programme of the surrounding area. See also section 11.3.

DLR: service provision and operational performance

Service provision and performance on the DLR followed similar trends to other modes, with expansion for a couple of decades until the mid-2010s and a fairly stable picture since then and until the outbreak of the pandemic (table 8.11).

Table 8.11 DLR service provision and reliability, 2010/11-2020/21.

Year	Operated kilometres (millions)	Scheduled services operated	Excess wait time (min)	Network availability measure ¹
2010/11	4.7	97.5%	n/a	n/a
2011/12	4.9	97.7%	0.23	94.7%
2012/13	5.7	98.5%	0.14	97.8%
2013/14	5.8	99.2%	0.08	98.6%
2014/15	5.8	99.3%	0.07	99.1%
2015/16	5.9	98.5%	0.09	99.2%
2016/17	6.0	99.0%	0.10	99.1%
2017/18	6.1	98.4%	0.11	98.0%
2018/19	6.1	99.0%	0.09	99.1%
2019/20	6.1	99.0%	0.11	99.1%
2020/21	5.1	99.3%	0.08	99.0%

Source: Docklands Light Railway.

1: This metric accounts for the physical extent and the duration of planned closures and, with appropriate weightings, provides an estimate of how much of the network is available for customers, that is 100 per cent represents the whole DLR network open for the whole of the service hours.

Of particular note is the significant reduction in excess wait time during this period (by 28 per cent) to less than 5 seconds, alongside very high reliability and network availability levels.

8. Trends in public transport demand, service provision and operational performance

London Overground and TfL Rail: service provision and operational performance

Table 8.12 shows service provision (in terms of train kilometres operated) and operational performance (in terms of the Office of Rail and Road's Public Performance Measure – PPM) for London Overground and TfL Rail networks.

Table 8.12 London Overground and TfL Rail service provision and reliability (annual average of the Public Performance Measure), 2010/11-2020/21.

Year	Operated train-kilometres (millions)		Public Performance Measure (PPM)	
	London Overground	TfL Rail	London Overground	TfL Rail
2010/11	4.7	-	94.5%	-
2011/12	5.6	-	95.7%	-
2012/13	6.1	-	96.1%	-
2013/14	6.0	-	95.8%	-
2014/15	6.0	-	95.0%	-
2015/16	8.1	2.3	94.4%	91.4%
2016/17	7.9	2.7	94.5%	91.8%
2017/18	8.2	2.8	94.4%	89.8%
2018/19	8.7	3.8	93.8%	93.8%
2019/20	8.7	4.7	92.6%	95.2%
2020/21	7.9	5.9	96.2%	96.0%

Source: Office of Rail and Road.

Note: The Public Performance Measure (PPM) is a metric that combines punctuality and reliability to represent the proportion of all scheduled trains that are 'on time', which for operators in the London and South East region means arriving at the destination no later than 5 minutes after the scheduled arrival time.

Following half a decade of rapid expansion in the early 2010s, the operated capacity on London Overground grew more slowly until the outbreak of the pandemic, after which, in 2020/21, the number of operated kilometres decreased by 9 per cent from 2019/20. Operational performance (PPM), however, increased by 3.6 percentage points over the same period, taking it to a record level.

The trend for TfL Rail is somewhat different, with the operated service constantly increasing (even through the pandemic) since its inception. However, this increase includes various extensions and transfers of services to TfL. Similarly, performance in terms of PPM increased by 0.8 percentage points, the highest value on record.

London Trams: service provision and operational performance

On London Trams, operated kilometres fell in 2020/21 by 4 per cent from 2019/20, while the scheduled capacity fell by 5 per cent in the same period (table 8.13). This small difference accounts for the increase of 1 percentage point in the proportion of scheduled services operated, matching the high reliability scores seen at the beginning of the decade but in the context of a larger network.

8. Trends in public transport demand, service provision and operational performance

Table 8.13 London Trams service provision and reliability, 2010/11-2020/21.

Year	Scheduled kilometres (millions)	Operated kilometres (millions) ¹	Scheduled services operated
2010/11	2.72	2.70	99.2%
2011/12	2.74	2.71	98.9%
2012/13	2.98	2.90	97.3%
2013/14	3.06	3.03	98.9%
2014/15	3.03	3.01	97.9%
2015/16	3.07	3.04	99.0%
2016/17	3.30	3.20	97.1%
2017/18	3.35	3.30	98.5%
2018/19	3.28	3.23	98.5%
2019/20	3.25	3.19	98.2%
2020/21	3.10	3.08	99.2%

Source: London Trams.

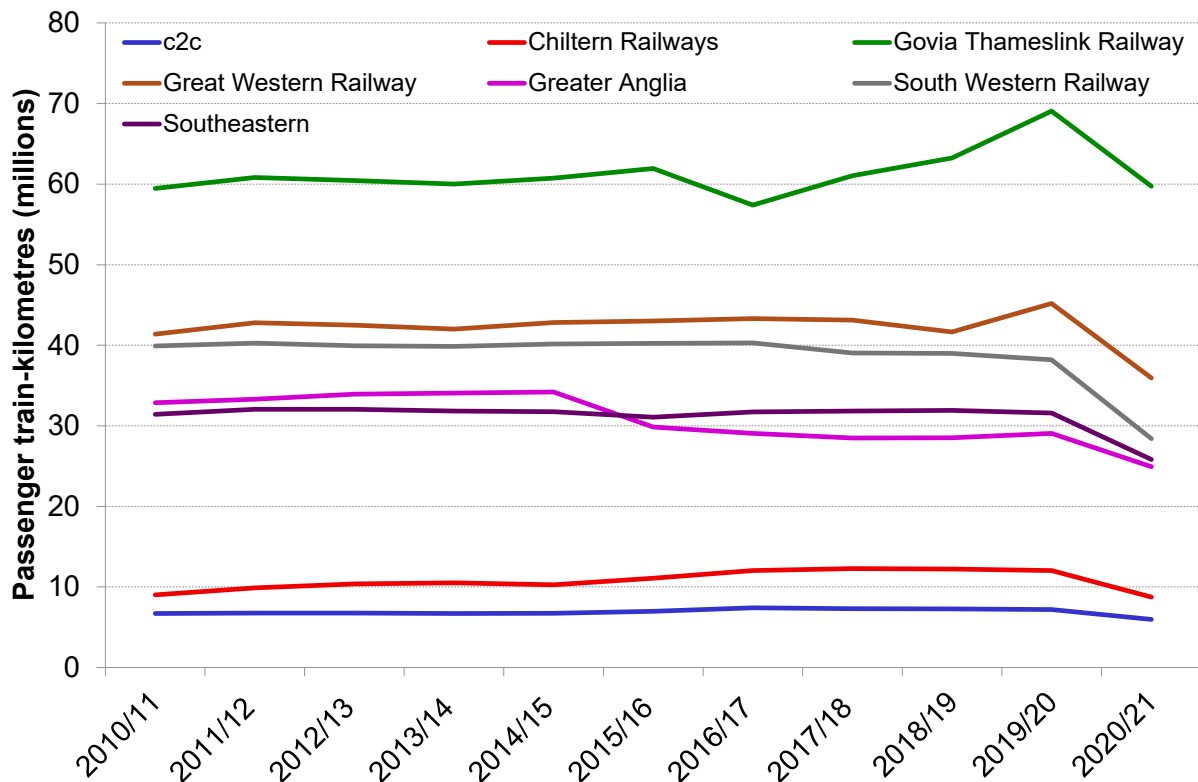
Note: Values for 2016/17 were affected by the tragic Sandilands incident.

1. Operated kilometres exclude replacement bus services operated during periods of track repair works.

National Rail in London: service provision and operational performance

Figure 8.20 shows the operated train kilometres on the franchises that serve the London area (which also includes some travel outside the London boundary).

Figure 8.20 Service provision on franchised London and South East operators, 2010/11-2020/21.



Source: Office of Rail and Road.

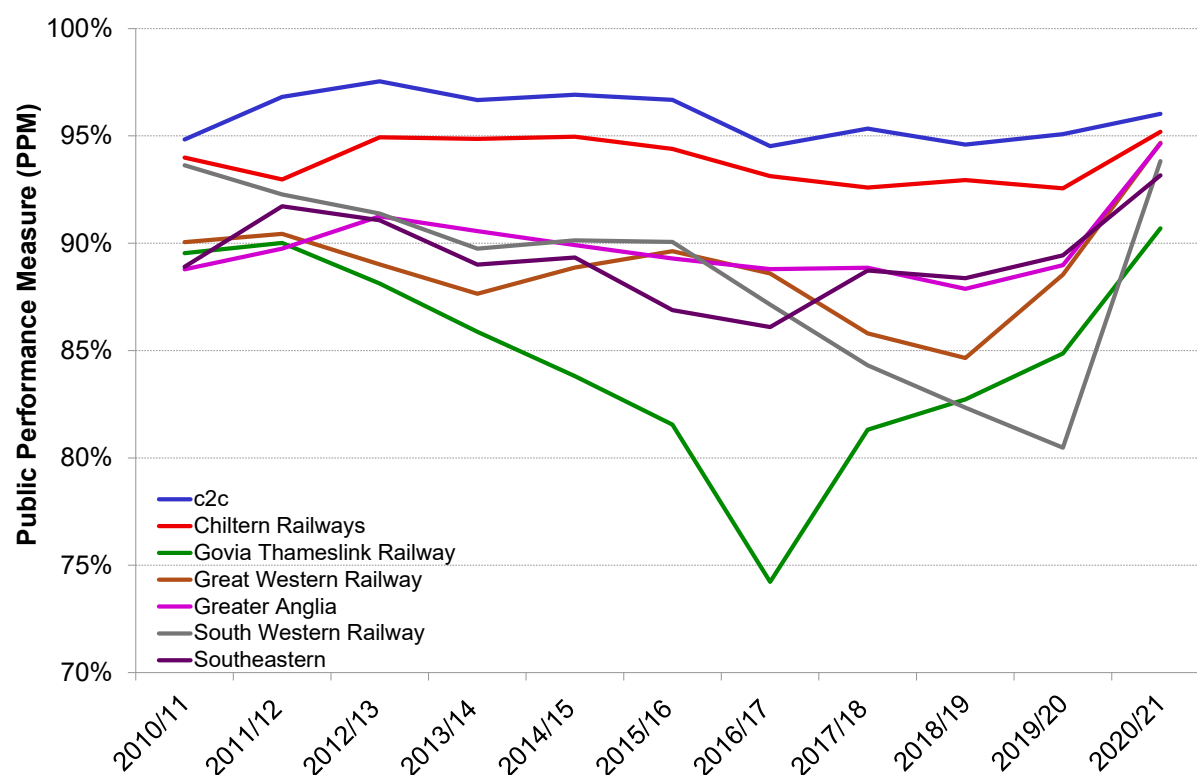
8. Trends in public transport demand, service provision and operational performance

Long-term trends in service provision and operational performance on National Rail are difficult to establish due to changes to individual franchises. Bearing this in mind, the main conclusion is that after a decade of little change on most operators (save for a few exceptions associated to upgrade programmes and network transfers), the year 2020/21 saw reductions in capacity of 14 to 27 per cent from 2019/20 on all operators, as a consequence of the coronavirus pandemic.

As with the London Underground, National Rail has played a key role in providing generally good levels of service throughout the pandemic, in the face of unprecedented operational challenges, to support essential journeys and facilitate our recovery.

Alongside this, performance improved for all operators (figure 8.21), sometimes significantly (eg South Western Railway), but in the context of a longer-term trajectory of deterioration in service performance exacerbated by difficulties in the introduction of new timetables, industrial action and major engineering works.

Figure 8.21 Performance (annual average of the Public Performance Measure) on franchised London and South East operators, 2010/11-2020/21.



Source: Office of Rail and Road.

9. Customer experience on public transport

9.1 Introduction

One of the three pillars of the Mayor's Transport Strategy is to provide a good public transport experience in London. This has always been essential to maintain ridership levels and attract new customers utilising the competitive advantages of public transport over other modes, and particularly to reduce car use. But since the coronavirus pandemic this is more important than ever to restore confidence on public transport services, bring back customers and support a steady recovery of activity and travel in the Capital.

The fundamental customer priorities of safety, security, accessibility, affordability, journey times, reliability and comfort have not changed since the pandemic, but their relative importance for customers has and TfL is adapting to step up to the task. This chapter builds upon the service performance results from chapter 8 and reviews established indicators of other aspects of the public transport customer experience.

9.2 Crowding on TfL's rail networks

Introduction

The level of 'busyness' of a public transport service is a function of demand (the number of people who want to travel on that service) and the available capacity or 'supply' (which in turn depends on the service frequency – vehicles per hour – and on the vehicle capacity – seats and standing space). Crowding occurs when the demand for a particular service exceeds a certain comfort threshold.

Crowding is an essential element of the customer experience and a key driver of customer comfort – given that passengers find travelling in crowded conditions stressful and unpleasant – as well as a potential deterrent to public transport use.

Furthermore, crowding tends to disproportionately affect passengers with additional needs and those who have longer journeys and/or less ability to use alternatives. Crowding also has a measurable impact on dwell times, reliability and journey times and is both cause and consequence of poor service performance, so it has an important operational dimension, too, as well as a safety one when instances of crowding occur in and around stations, particularly at the platform-train interface.

Crowding is primarily a subjective experience and is best analysed from the passenger point of view. However, this presents difficulties for system-level monitoring and it is common to use occupancy or density of standing passenger metrics to provide an average overview. When standing densities are used, a conventional threshold for planning purposes is often set at two people per square metre, above which most passengers feel uncomfortable. In practice, however, each mode has a unique combination of resources and constraints which leads to different occupancy goals and acceptance thresholds for planning.

Before the pandemic, crowding was a top priority for TfL since it was often mentioned as a barrier to using public transport. The pandemic has added a new

9. Customer experience on public transport

dimension to this complex problem with the desire (and at times, requirement) to maintain a certain level of separation from fellow passengers (social distancing), often above what was acceptable beforehand.

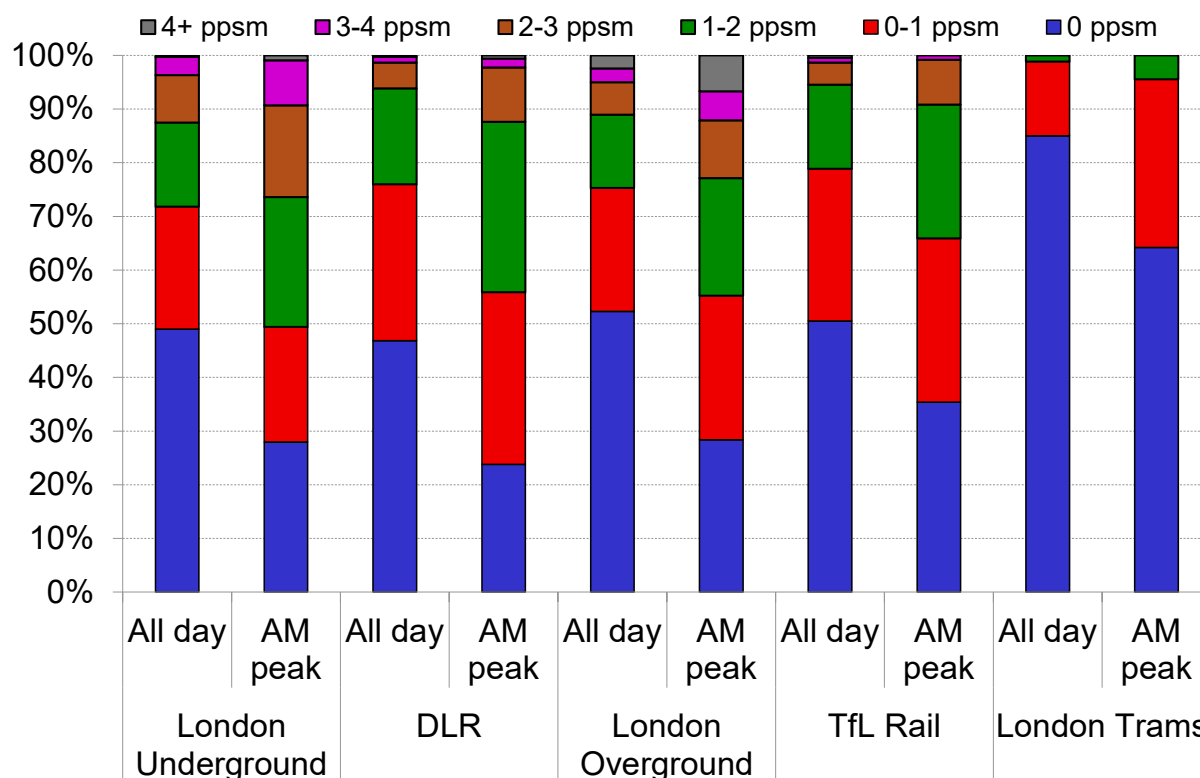
This section presents an overview of the network-level position before the pandemic (autumn 2019) for rail modes only, as well as a summary of key developments since the pandemic for recent weeks in autumn 2021, where data are available.

Crowding trends before the pandemic

Previous analysis of crowding on TfL's public transport networks (see [Travel in London report 11](#)) showed that the long-term growth in population and higher growth in travel demand within the context of a highly optimised and utilised network whose capacity grew at a slower and uneven pace led to crowding becoming a priority issue for customers and transport operators throughout the 2010s. This analysis showed that, although crowding was localised both in space and time across the network, where it occurred it affected a large number of people.

Figure 9.1 shows the distribution of standing passenger densities (expressed in people per square metre – ppsm) for each of the TfL rail networks in terms of the proportion of passenger kilometres at each density, both for the whole day (24h) and for the morning peak (07:00-10:00) on a typical weekday.

Figure 9.1 Proportion of passenger kilometres by standing density, by TfL rail network, all day and morning peak (07:00-10:00), 2019.



Source: Public Transport Service Planning.

Note: London Underground results exclude the links to and from Turnham Green on the Piccadilly line.

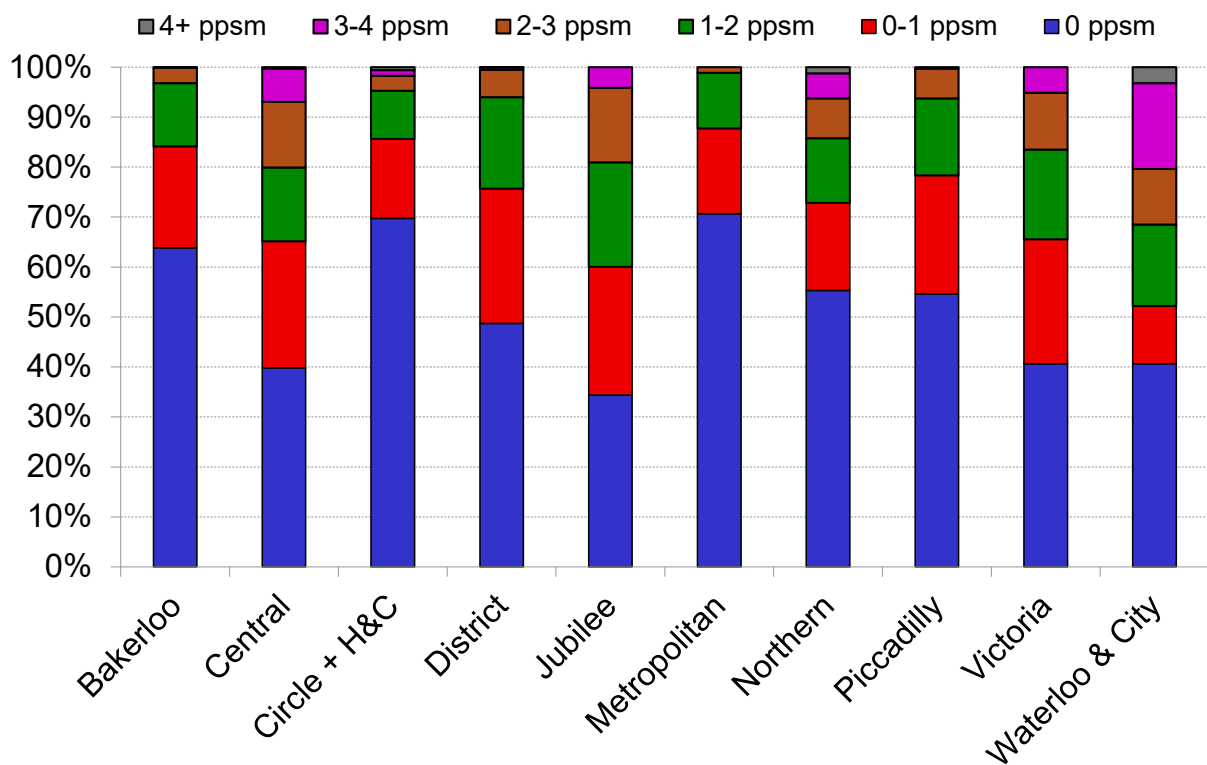
The main features are:

- In 2019, the majority of passenger kilometres (at least 87 per cent on each mode) travelled in uncrowded conditions (below two people per square metre). However, this average conceals instances of intense crowding, especially related to small perturbations in service regularity.
- When looking specifically at the morning peak, crowding increases noticeably across all modes. During this period, up to 25 per cent of London Underground passenger kilometres are travelled in crowded conditions.
- When looking at the different modes, London Underground and London Overground see relatively more crowding than the others.

Figures 9.2 and 9.3 show further detail on standing densities by line on London Underground and London Overground, respectively. These show that within each mode there are noticeable variations by line, with the Jubilee and Central lines on the London Underground and the routes from Liverpool Street to Chingford, Cheshunt and Enfield Town on the London Overground seeing the highest levels of crowding.

At the other end of the scale, the Bakerloo, Metropolitan, Romford-Upminster and Watford Junction-Euston lines showed the least crowding in 2019.

Figure 9.2 Proportion of passenger kilometres by standing density on each of the London Underground lines, all day, 2019.

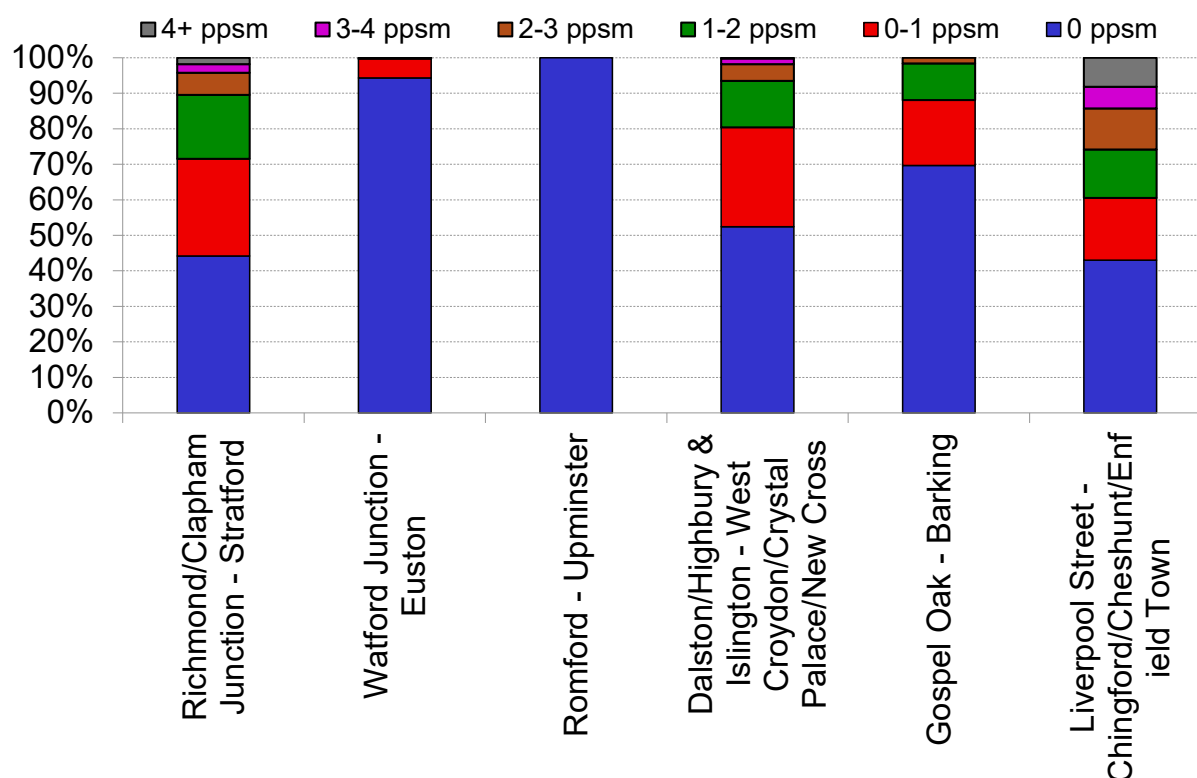


Source: Public Transport Service Planning.

Note: Piccadilly line results exclude the links to and from Turnham Green.

9. Customer experience on public transport

Figure 9.3 Proportion of passenger kilometres by standing density on each of the London Overground lines, all day, 2019.



Source: Public Transport Service Planning.

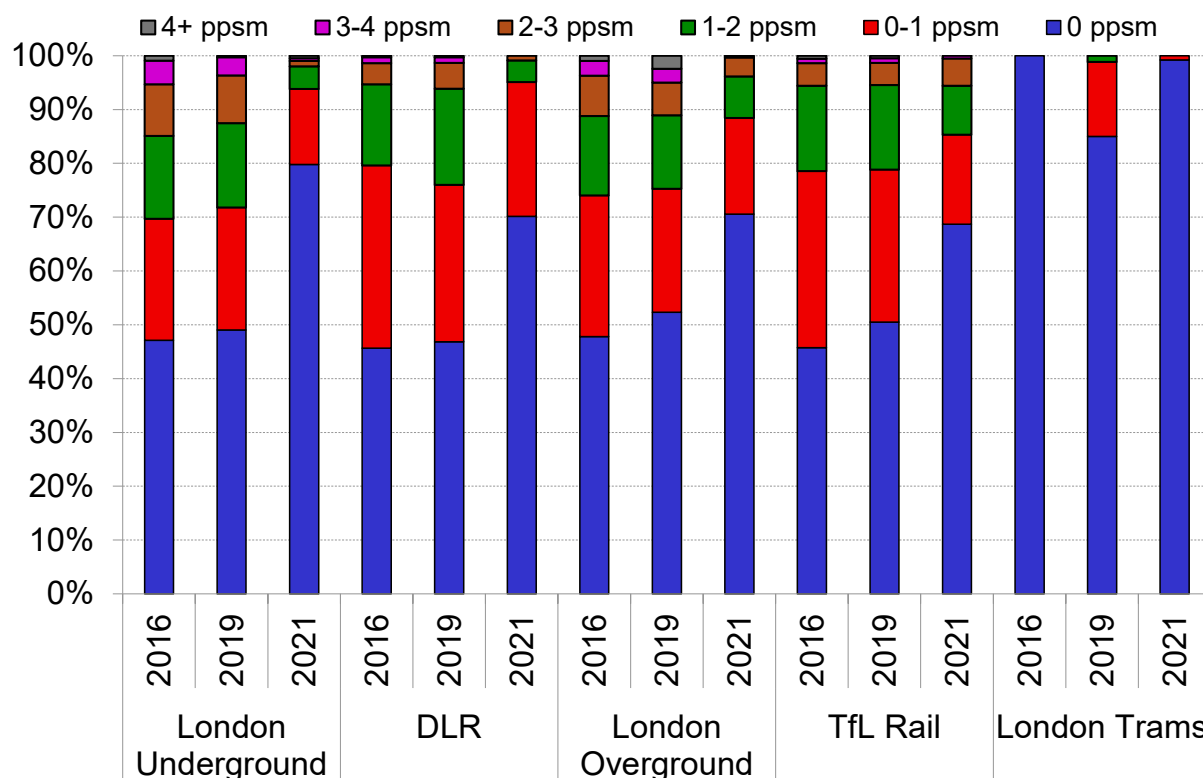
Crowding trends: pandemic trends

As discussed in chapter 8, the coronavirus pandemic caused a drastic reduction in public transport patronage but with only small reductions in the supplied capacity. With that, 'objective' measures of crowding also showed an overall reduction in crowding across London, while the sustained recovery since summer 2021 has not yet led to overall demand levels that would make crowding an objective issue again, albeit that the pandemic has changed perceptions in this regard.

On the other hand, the pandemic has had a profound impact on the experience of travelling on public transport in relation to crowding. The subjective elements of the crowding experience may therefore have become more important for customers during the pandemic, although this cannot be easily measured quantitatively.

Figure 9.4 shows the trend in the all-day distribution of standing densities (as a proportion of passenger kilometres) for all TfL rail modes for a typical weekday in autumn 2016 (the earliest comparable data available), in autumn 2019 (just before the pandemic) and in a recent week in autumn 2021.

Figure 9.4 Proportion of passenger kilometres by standing density on each of the TfL rail networks, all day, autumn 2016, 2019 and w/c 11 Oct 2021.



Source: Public Transport Service Planning.

Note: London Underground results exclude the links to and from Turnham Green on the Piccadilly line.

The main features are:

- Between 2016 and 2019, before the pandemic, there was little change in the overall levels of crowding on TfL's rail networks, with only a minor overall reduction observed as a consequence of the slight decline in public transport demand in the late 2010s.
- In 2021, crowding reduced on most networks, but particularly on London Underground, DLR and London Trams. While crowding reduced at the lower end (seats becoming available) and at the high end (above three people per square metre) on London Overground and TfL Rail, moderate levels of crowding between two and three people per square metre were still seen in autumn 2021, despite much reduced demand for travel.

A new metric for measuring crowding

As part of the need for a new public transport quality indicator, a new system-level metric for crowding is currently being developed.

An initial proposal is a 'threshold-based' metric defined as the 'proportion of passenger kilometres travelled on rail services in standing densities above two people per square metre'.

The main advantages of this metric are its relatively simple definition and the fact that it is relative (to a network total).

9. Customer experience on public transport

This metric, however, also has some disadvantages. The main one is that it is not sensitive to changes in crowding either side of the threshold. For example, if a section of the network were to see standing densities reduced from four to two passengers per square metre (a significant achievement tackling the worst instances of crowding), the metric would be unable to capture it. Similarly, it would not be able to pick up improvements under the threshold (eg a section of the network where standing densities reduce from one to zero, which means that seats become available, which is a qualitative step change in the customer experience) or deteriorations on either side of the threshold. The other main drawback is that it does not account for the absolute number of people who are affected by crowding, since it only looks at relativities and it is insensitive to demand fluctuations.

In order to overcome these issues, an alternative metric is proposed which is expressed in absolute terms (indexed to a reference year, since the actual value is arbitrary and the focus is on the changes from that year) and weighted to capture the full range of crowding experiences (from no crowding and seats available to the highest levels of crowding seen on the network). In the initial illustration of this metric, the weights have been chosen to increase exponentially for all modes from 0 where there is no crowding and seats are available through 1 at two people per square metre, 3 at four people per square metre, and so on. However, there is no reason why these weights could not be adjusted to better reflect the customer experiences on the different modes.

As an example, table 9.1 shows the results of network-level crowding for the three years of data available using both metrics.

Table 9.1 Illustration of alternative crowding metrics for the main TfL rail networks, all day, autumn 2016, 2019 and w/c 11 Oct 2021.

Network	Proportion of passenger kilometres above 2ppsm (%)			Weighted crowding metric (indexed to 2016)		
	2016	2019	w/c 11 Oct 2021	2016	2019	w/c 11 Oct 2021
London Underground	14.9	12.5	2.0	100	85	3
DLR	5.3	6.1	0.9	100	106	3
London Overground	11.2	11.1	3.9	100	125	18
TfL Rail	5.6	5.5	5.6	100	120	42

Source: Public Transport Service Planning.

Note: London Underground results exclude the links to and from Turnham Green on the Piccadilly line.

The advantages of the weighted metric are best seen in the London Overground and TfL Rail results, where the threshold-based metric changes very little from 2016 to 2019 (and even to 2021 on TfL Rail) but the weighted metric is able to capture many more dimensions, namely the increase in the number of passengers (that is why despite a reduction in the relative, threshold-based metric there is an actual increase of the impact of crowding on the weighted metric) as well as the reduction in crowding on TfL Rail in 2021 caused by a reduction in volume.

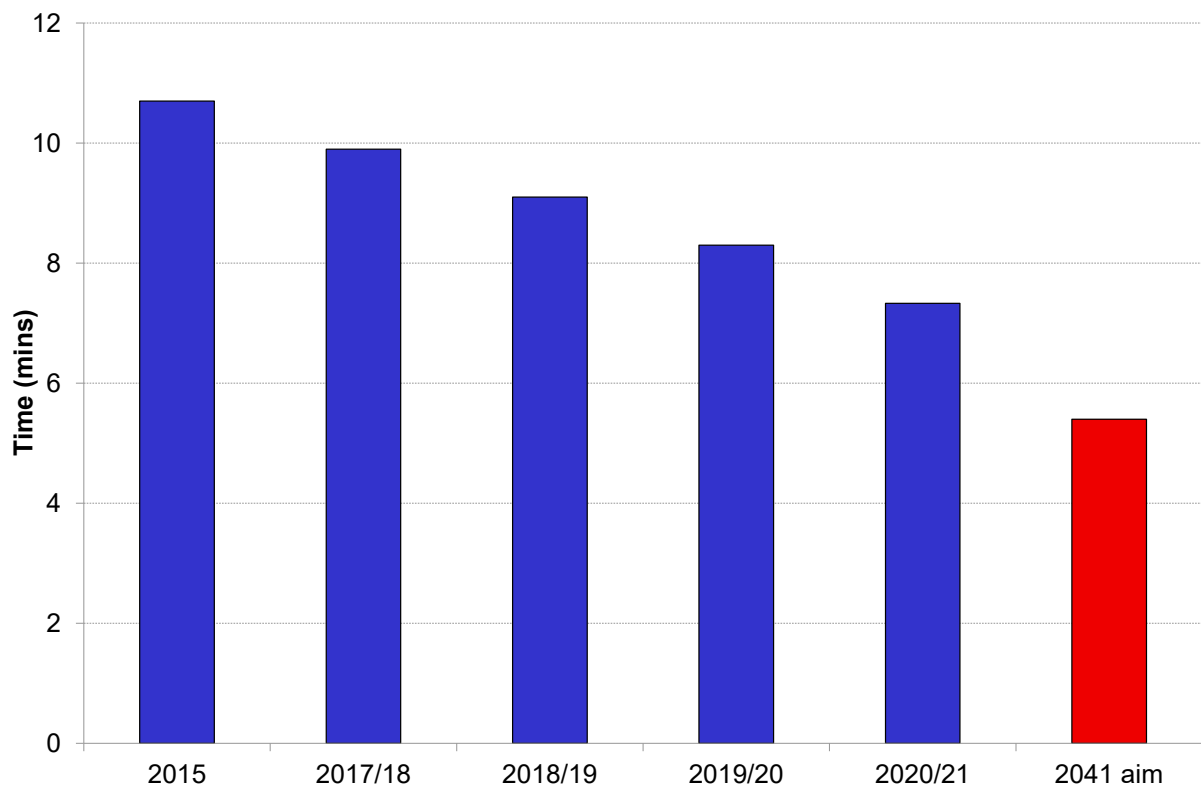
9.3 Public transport accessibility

Improving the accessibility of public transport is critical to delivering a better whole-journey experience for all Londoners, but especially for those with specific physical accessibility needs. Currently, 45 per cent of disabled Londoners find planning and making trips on public transport stressful. A more accessible public transport system will improve the journey experience and make it easier for disabled and older people to travel more spontaneously and independently; but it will also improve the quality of public transport for all travellers. TfL is working to improve this situation, with a Mayoral aim to halve the additional journey time required by those using only the step-free network by 2041, relative to 2015 (figure 9.5).

Over half (51 per cent) of the TfL network – London Underground, DLR, London Overground, London Trams and TfL Rail services – is now step-free. Since 2016, 21 London Underground stations have been made step-free as part of the London Underground accessibility programme, the Elizabeth line project and the Northern line extension. The recent completion of work at Osterley London Underground station brings the total number of step-free stations on London Underground to 89, close to 33 per cent of the whole network.

The average additional journey time required using the step-free network, compared to the whole network, was 7.3 minutes in 2020/21, a reduction of 12 per cent on the previous year and continuing the trend of recent years towards halving the differential by 2041.

Figure 9.5 Relative additional journey time using the step-free network, 2015-2020/21 and 2041 Mayor's Transport Strategy aim.



Source: TfL City Planning.

9. Customer experience on public transport

9.4 Customer safety

With fewer customers travelling due to the pandemic, there was a corresponding fall in the number of customer and workforce injuries over the last year. Despite this, seven customers tragically lost their lives across our public transport networks in 2020/21 through accidental causes, four of which were on London Underground and three on buses (one more than was accounted for under the more specific STATS19 reporting protocols in section 5.6 of this report). There were 91 serious customer injuries.

There were 3,280 injuries of all severities across our network, which is a decrease of 65 per cent compared to 2019/20 (table 9.2).

Table 9.2 Customers injured on London's public transport networks.

Year	2017/18	2018/19	2019/20	2020/21
Number of injuries	9,791	9,544	9,344	3,280

Source: TfL Safety, Health and Environment.

This decrease was driven predominantly by the reduction in passenger journeys caused by the pandemic. The number of customer injuries was lowest in April 2020, at the start of the first lockdown. Injury numbers then gradually grew, broadly in line with the easing of restrictions as customers returned to the public transport network. When restrictions were tightened again in autumn and winter 2020, both customer journeys and the number of injuries gradually fell again.

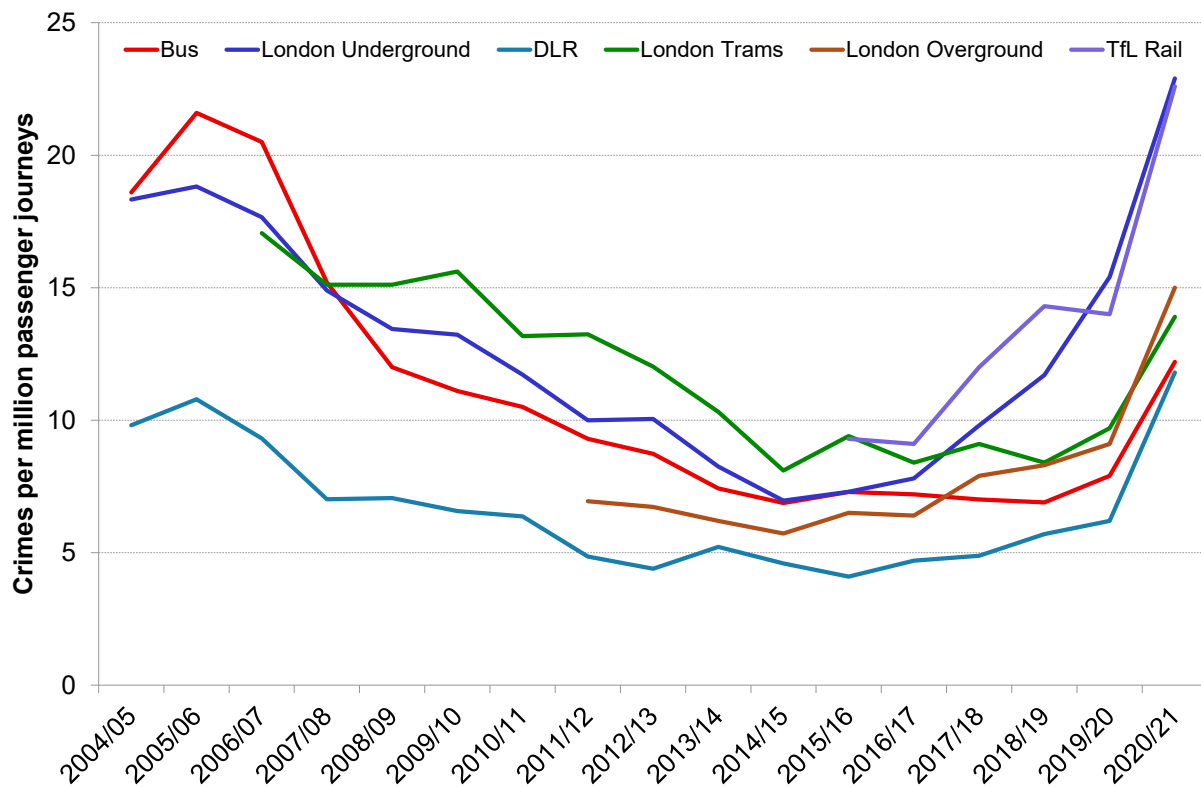
Across all our transport services, slips, trips and falls are routinely the top cause of customer injury. Last year, they accounted for 89 per cent of London Underground injuries and 72 per cent across all surface transport modes, including buses. The most common reasons for slipping, tripping and falling vary between modes, but some common themes are intoxication, not holding on and carrying luggage. Older customers are also particularly vulnerable to these types of injuries. On buses, many slips, trips and falls are the result of the driver needing to brake hard in reaction to other road users.

In the short term, we are trialling posters on stairways and new announcements to encourage customers to hold on to rails and poles inside buses. We have also reissued guidance to drivers on giving customers plenty of time to settle on board following calls at bus stops. A longer-term strategy is being developed and will consider vehicle improvements, such as to flooring and lighting, and outcomes from predictive technology being trialled that warns drivers of hazards to help give them more time to be able to brake smoothly. We are also reviewing research and evidence, as well as best practice, from other transport authorities.

9.5 Crime and antisocial behaviour

Public transport in London continues to offer a low crime environment and a safe way to travel. These low levels of crime have been driven by a range of initiatives undertaken by TfL in partnership with the police forces. While absolute reported crimes fell across all networks in 2020/21, the reported crime rate increased due to the dramatic fall in public transport volumes due to the pandemic (figure 9.6).

Figure 9.6 Reported crime on TfL's public transport networks, 2004/05-2020/21.



Source: TfL Enforcement and on-street operations.

9.6 Public transport customer satisfaction and Care

Care and customer satisfaction are our primary measures for understanding the quality of the customer experience we deliver, from a customer perspective. They are complementary elements in determining how we are working for our customers, providing a rounded picture of our performance.

What is 'Care'?

'TfL cares about its customers' is the measure we use to understand whether we are meeting expectations and making Every Journey Matter for our customers. Care measures Londoners' overall perceptions of TfL and is the best reflection of how we meet expectations in every interaction with us (eg all journeys, interactions with the Contact Centre and communications such as email updates), not just the last journey. TfL tracks Care through an online survey, which asks a representative sample of Londoners about their opinions of TfL every period. An ongoing focus on Care helps us understand, in the short term, how we work for our customers, and in the longer term, how to encourage greater use of active, efficient and sustainable modes.

The key influences on the Care score

Understanding the key influencers, or drivers, of the Care score allows us to prioritise actions to improve the customer experience. These are: TfL is an organisation I can trust; TfL is communicating openly and honestly; and TfL is

9. Customer experience on public transport

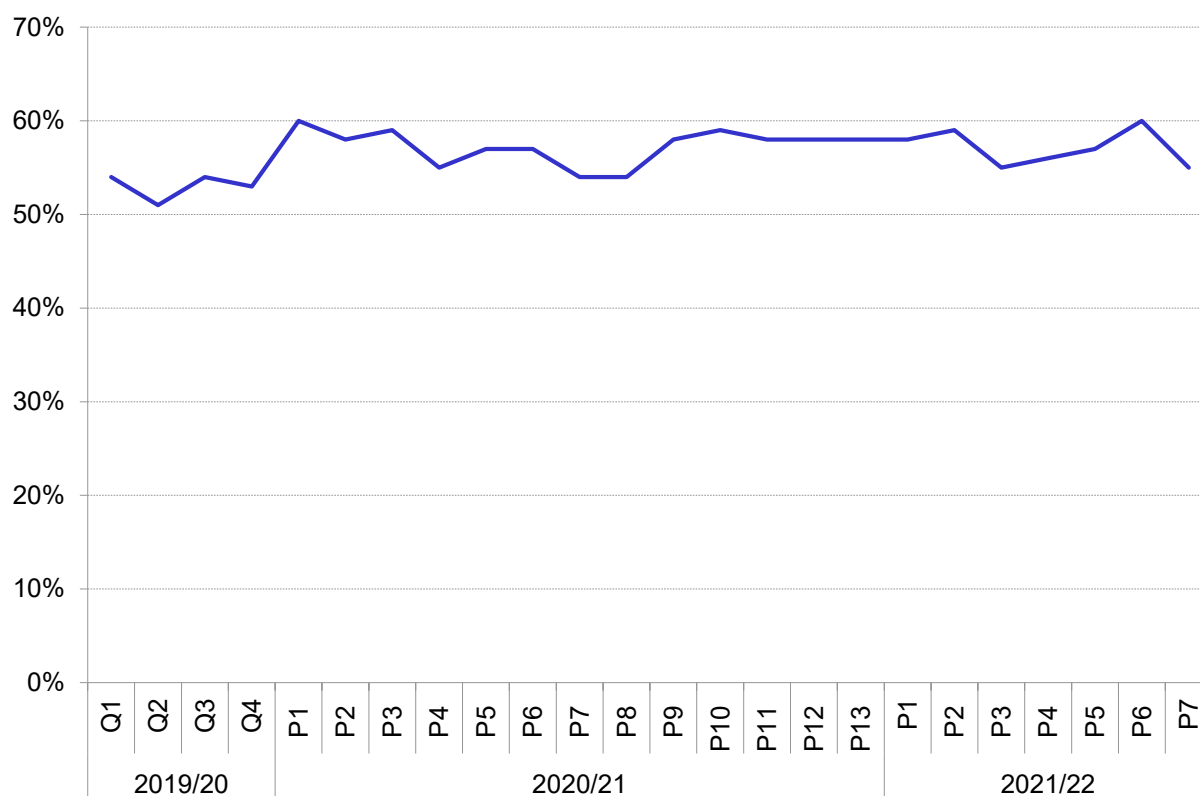
supporting customers when things go wrong. Being an organisation customers trust is the greatest driver of Care. Our performance in this area is already strong, but we continue to aim to deliver a consistently good customer experience as we know this builds customer trust. When customers trust us, they will travel with us.

Supporting customers when things go wrong is a key priority area to improving Care. When things go wrong on the network, our response and how well supported customers feel, is crucial. Key aspects of demonstrating support include supporting customers with live accurate information, empathising with customer needs and rectifying mistakes. Supporting customers also means taking preventative measures, such as providing advance information about forthcoming engineering work or how customers can obtain best value for money, for example through fare capping.

Trend in Care scores

Figure 9.7 shows the recent trend for the Care measure. Historically, the trend showed strong improvement between 2012 and 2014, which is thought to reflect a focus on customer service improvements eg the introduction of contactless payments and the commencement of the Night Tube. In recent years, there has been a relative lack of visible innovations as well as rising customer expectations. Despite that, Care scores have been gradually increasing since 2017/18 to a high of 60 per cent in period 1 2020/21. Throughout 2020/21 and into 2021/22 Care has remained resilient to the challenges of the pandemic. Slight dips in scores have generally been at points when there has been increased pressure on the network as customers return for the first time. 2020/21 also saw annual highs for trust, open and honest communication, supporting customers when things go wrong, and friendly and helpful staff.

Figure 9.7 Agreement with 'TfL cares about its customers', 2019/20–2021/22.



Source: TfL Customer Insight, Strategy & Experience.

9.7 Managing the pandemic recovery

Introduction

The nature and scale of the impacts on travel demand during the pandemic have been described above. This has affected TfL in several ways:

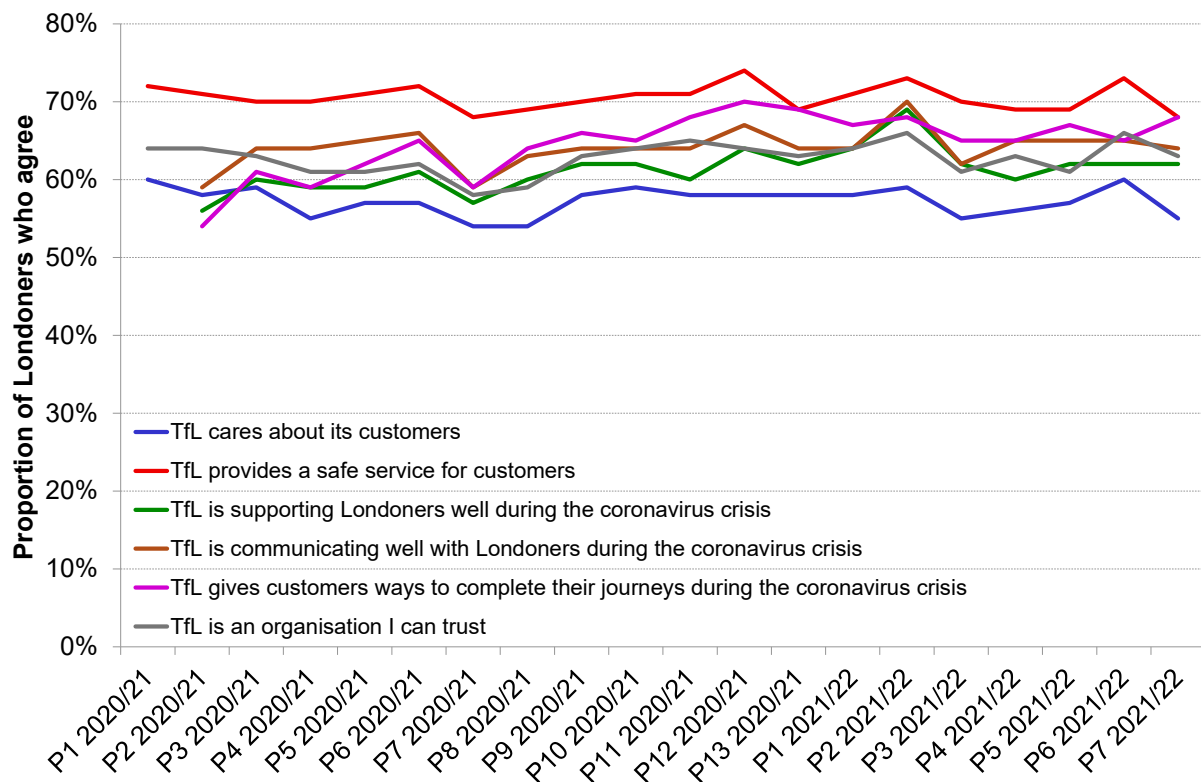
- It has been important for TfL to continue to provide reliable and safe transport services for London, to provide for essential journeys during lockdown periods.
- Much lower levels of patronage on bus and rail-based modes which have led directly to corresponding reductions in TfL revenues, which has largely been offset by government grants.
- Into the recovery, it is important that TfL's services are seen as a safe, attractive and sustainable option as people return to their normal daily activities – both to facilitate London's recovery more generally and to work towards achievement of the Mayor's transport aims in the post-pandemic context.

The pandemic has also required TfL, like many other organisations, to learn and adapt rapidly to changing circumstances, and this extends to the contemporary priority of how best to encourage a wider return to normal activity through our transport services and, in turn, encourage achievement of the Mayor's aims.

The current challenge

We have adapted well to meet changing needs and expectations. The relatively consistent customer evaluation scores shown by figure 9.8 are encouraging, given the extreme challenges brought by the pandemic.

Figure 9.8 Customer evaluation scores during the pandemic, 2020/21-2021/22.



Source: TfL Customer Insight, Strategy & Experience.

9. Customer experience on public transport

However, the pandemic has forced Londoners to re-evaluate their views of TfL and transport, alongside elements of their daily activities, with knock-on implications for travel. Recovering lost ridership on the public transport networks is key to achievement of the Mayor's transport aims and our own long-term financial stability. During the pandemic and early stage of recovery, we focused on ensuring our customers felt safe to travel. To recover ridership, we must deliver the core customer expectations: safe, frequent, reliable services, value for money and live information. These are largely unchanged since the pandemic, but some have assumed heightened importance. Customers continue to want regular progress and investment to improve their journeys.

Customer programme

Our customer programme (table 9.3) will make improvements in all these areas and, alongside delivery of the customer programme, we must also ensure that customer impacts are properly considered as we adapt to the post-pandemic context.

Table 9.3 **Principal elements of TfL's customer programme.**

(1) Boosting public transport ridership by winning back our customers	(2) Brilliant basics: safety, reliability, the environment and design	(3) Enhancing customer information
(4) Ways to pay	(5) Affordable and accessible travel choices for everyone	(6) Transforming the Tube station customer proposition
(7) Revolutionising bus services	(8) Roads customer proposition	(9) Encouraging more trips on foot and by cycle

Source: TfL Customer Directorate.

Section 4: Supporting London's recovery

10. Behavioural adaptations to the pandemic

10.1 Introduction

Preceding chapters have described the scale and scope of the pandemic impacts on travel demand in London, and on other aspects of the Mayor's transport goals. As we look forward to a period of recovery, it is important to assemble and interpret evidence as it emerges that will help inform some of the likely longer-term impacts of the pandemic. This chapter considers some specific aspects of this, looking in more detail at aspects of travel behaviour change in relation to the pandemic.

10.2 Travel behaviour

The travel trends described in preceding chapters reflect the net outcome of a combination of emergency regulation (eg lockdown), business and individual responses to the direct challenges posed by the pandemic (eg temporary closure, working from home), and changes to business and personal behaviour to adjust to the new realities (eg preferring one travel mode over another).

All of this has taken place in the context of those factors and trends that have traditionally determined travel demand in London: the size of London's population and economy, the location of homes, jobs and services, the availability and price of transport options, prevailing societal trends about how people organise and optimise their daily lives in terms of activities and travel, and, of course, the wider transport policy context, factors which will continue to apply after the pandemic.

The immediate challenge in terms of planning for our recovery is to understand the extent to which the impacts and exigencies of the pandemic are likely to have changed what individuals need to do, in terms of activities such as employment and travel, in the medium-term future, and how their personal evaluation of the pandemic and post-pandemic world are likely to affect the travel choices that they make.

This section reviews and interprets a range of available evidence from surveys of businesses and individuals that shed light on these potential impacts.

10.3 Travel for work

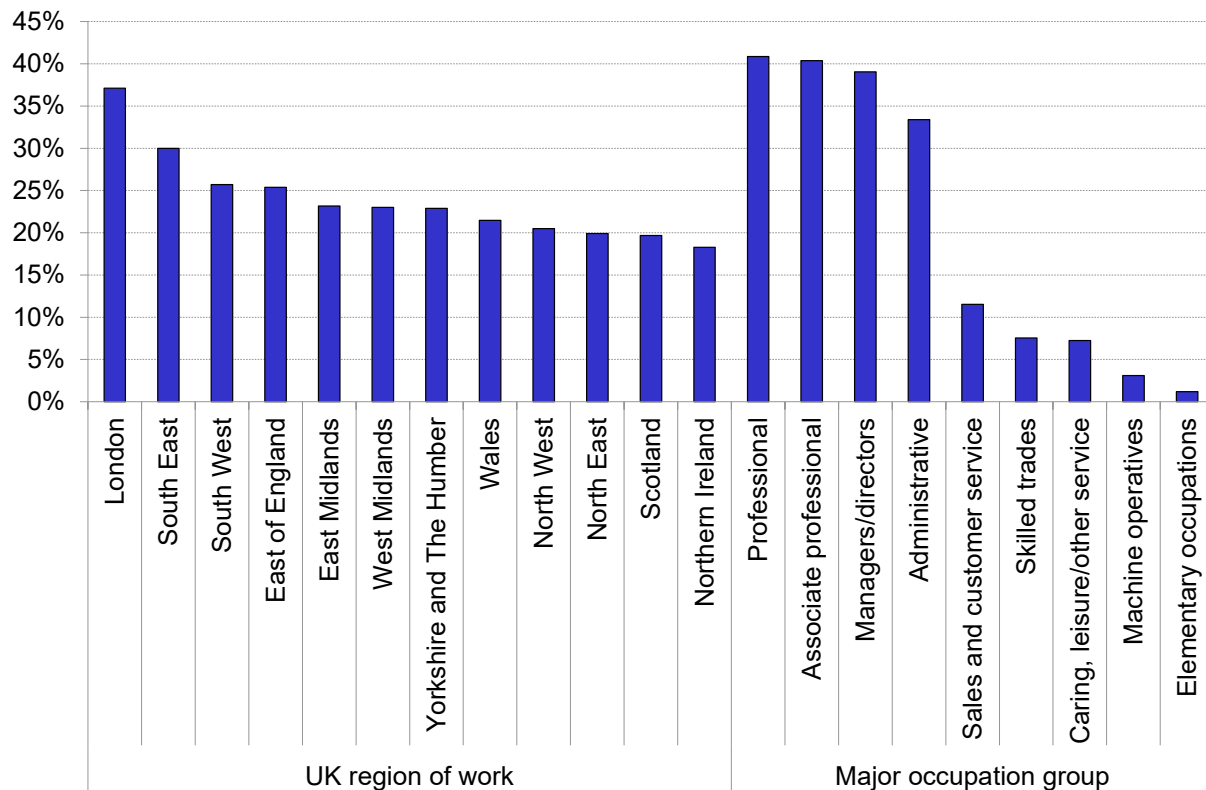
The changes to government guidance on 19 July 2021 meant nearly all pandemic restrictions were lifted and advice to work from home was dropped. However, the so-called 'Freedom Day' was not the catalyst for the mass return to the office that many expected. A number of factors contributed to this, including, at the time, a surge in case numbers, the imminent start of the school summer holidays and the continued requirement for contacts of people who had tested positive to self-isolate, labelled the 'pingdemic' which remained in place for those fully vaccinated until 16 August 2021.

London was the region with the highest proportion of homeworkers in the UK in 2020. According to figures from the Annual Population Survey, 37 per cent of

10. Behavioural adaptations to the pandemic

London workers surveyed during the 2020 calendar year did some working at home in the week prior to being interviewed. Figure 10.1 shows that the rate of working from home has been heavily skewed to professionals and managers, of which there are a higher proportion in London compared to other regions, which explains why London workers have been more likely to work at home than other UK workers.

Figure 10.1 Proportion of employees working at home by UK region and occupation group, 2020.

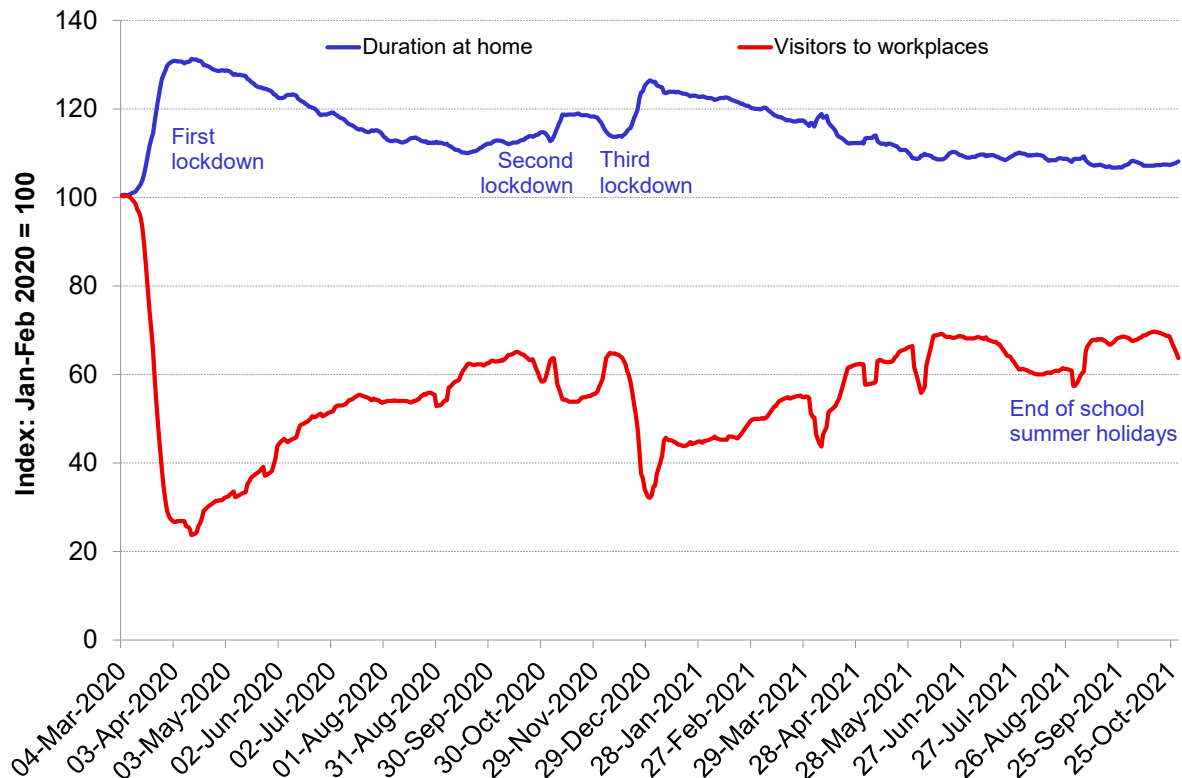


Source: ONS Annual Population Survey.

Centre for Cities data indicates that, in addition to the highest proportion of homeworkers, London is lagging behind other UK cities in terms of the return to work.

Figure 10.2 shows Google activity data which estimates the change in the duration that people spent working at home and the number of visitors to workplaces compared to normal since the start of the pandemic. Despite hopes that commuting patterns might begin to approach pre-pandemic levels after the end of the school summer holidays, the data shows that, although a small step increase is visible, the number of people travelling to workplaces remains at just less than 70 per cent of the pre-pandemic baseline. Furthermore, although the duration that people spent working at home was declining steadily between January and June 2021, since June the decline has levelled off, flattening at around 10 per cent above the pre-pandemic baseline.

Figure 10.2 Change in duration of home working and number of visitors to workplaces in London, 7-day rolling average, Mar 2020-Oct 2021 compared to pre-pandemic baseline.



Source: Google COVID-19 Community Mobility Reports.

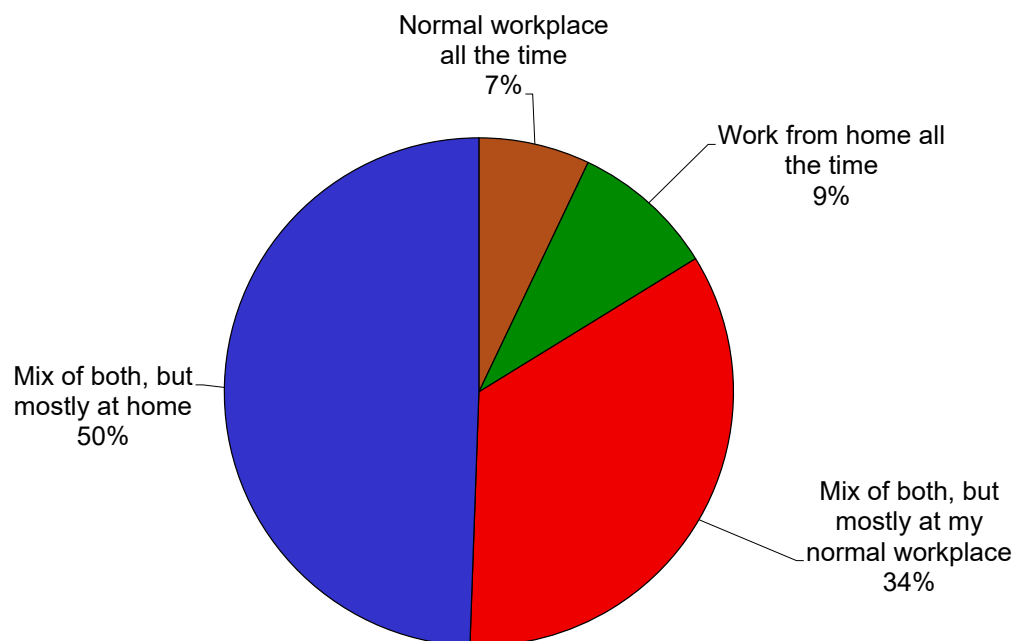
Note: The baseline is the median value, for the corresponding day of the week, during the 5-week period 3 Jan–6 Feb 2020. The residential trend represents change in the duration spent at home.

The evidence so far suggests that there is strong appetite among individuals and businesses for flexible working to continue in the long term and many businesses have already begun changing their work practices. Figure 10.3 shows the preferred long-term working location of London resident employees who are able to work from home and shows that 84 per cent of employees would like to split their working time between home and their usual workplace, with a greater share preferring to spend more time at home than at their usual workplace (50 per cent against 34 per cent). Only seven per cent would choose to return to their normal workplace all the time and nine per cent would like to work from home all the time.

Figure 10.4, from our LTDS survey, shows that, among London resident employees who are able to work from home, 82 per cent think their employer will encourage a flexible/hybrid arrangement in the future, compared to eight per cent who think their employer will encourage employees to return to work all the time and four per cent who think their employer will encourage employees to continue working at home all the time.

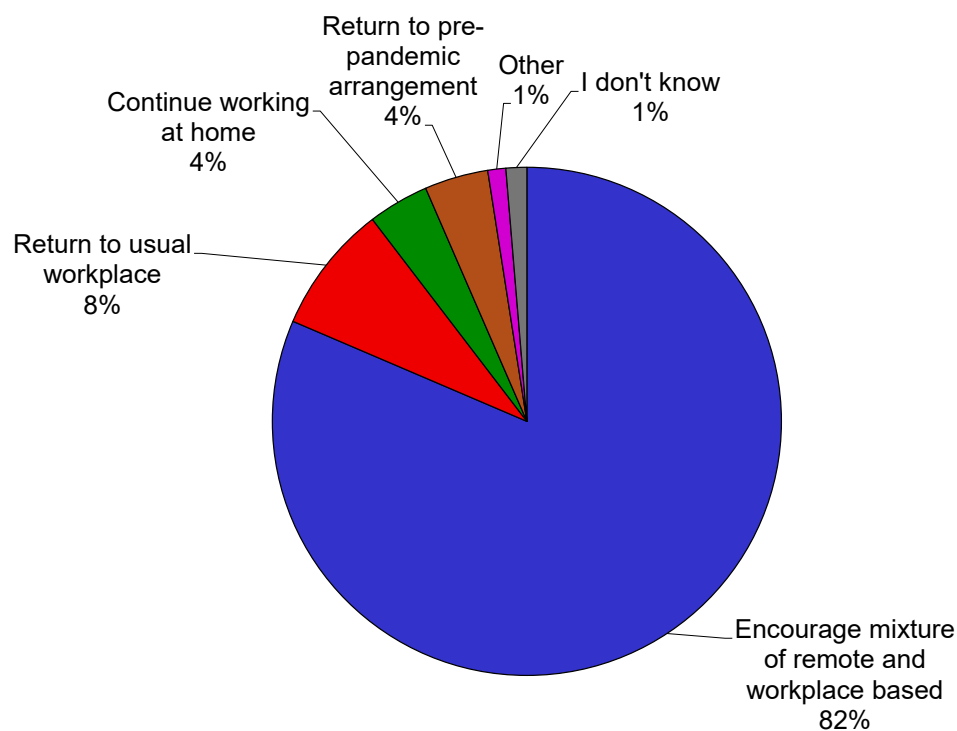
10. Behavioural adaptations to the pandemic

Figure 10.3 Preferred long-term working location, London resident employees, LTDS, Q1 2021/22.



Source: TfL City Planning.

Figure 10.4 Expected future employer working arrangement, London resident employees, LTDS, Q1 2021/22.



Source: TfL City Planning.

The evidence so far suggests that working from home will be more common than it was before the pandemic, with many employers implementing long-term hybrid working plans, although a settled position will likely take some considerable time to establish, as employers and employees test new modes of working and as the pandemic further diminishes.

10.4 Travel for shopping and leisure

Introduction

Changes to shopping and leisure demand as a result of the pandemic have taken place in the context of background changes to discretionary travel in recent years. These include a squeeze on disposable incomes reducing trip rates for discretionary purposes, as well as a rise in online shopping. This is explained further in [Travel in London report 12](#).

In 2020, the emergence of the coronavirus pandemic, the spring and November lockdowns and ongoing social distancing measures impacted travel for shopping and leisure purposes. The varying impact of the coronavirus restrictions through 2020, as well as measures to encourage greater leisure travel, such as the 'Eat Out to Help Out' scheme, are covered in [Travel in London report 13](#). This section focuses on the recovery of leisure travel through 2021 and implications for discretionary travel in the short to medium term. At the beginning of 2021 a third lockdown was introduced, this was then eased in England through a series of 'steps'. Key events and measures which have influenced travel for discretionary purposes through 2021 include:

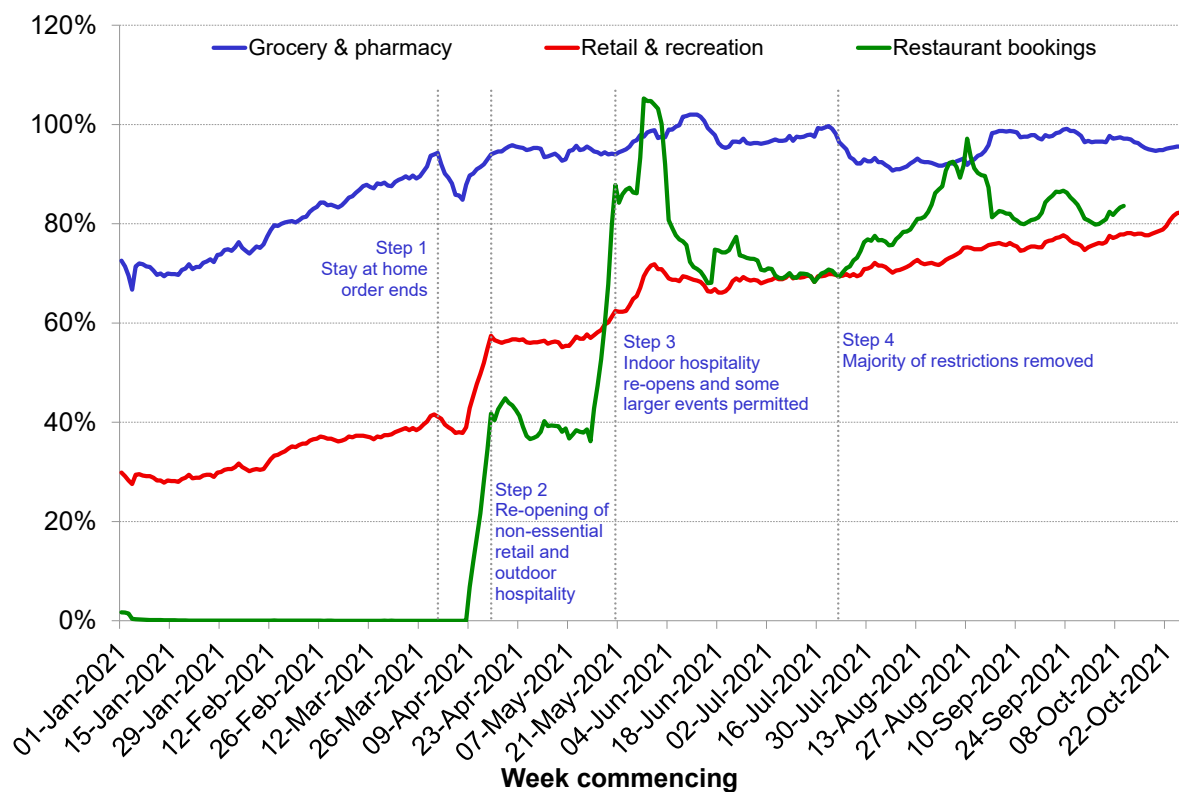
- A third national lockdown introduced on the 4 January, with the government instructing people to stay at home and only leave the house for essential purposes such as exercise and shopping for essential items.
- The first step in the government's roadmap out of lockdown, Step 1, introduced on 29 March, when the 'stay at home' rule ended and people were able to meet outside under the 'rule of six', or as two households.
- Step 2, on the 12 April, saw the re-opening of non-essential retail, including hairdressers and indoor leisure facilities such as gyms. Hospitality venues also re-opened, albeit limited to outdoor table service.
- As part of Step 3, indoor hospitality, including cinemas and hotels, re-opened on the 17 May, although the 'rule of six' indoors remained. Some larger events, such as outdoor sporting events, were also permitted.
- The final step, Step 4, occurred on 19 July, after a four-week delay, when all restrictions on social contact were removed and advice to work from home was dropped.

Figure 10.5 shows how shopping, personal business and leisure trips have changed through 2021 with the easing of lockdown restrictions. This uses estimates of the frequency of trips to grocery shops, pharmacies, shops and leisure locations from Google Mobility data as well as the trend in London restaurant bookings made through OpenTable. The trend since the easing of restrictions has been one of a gradual increase in trips to retail and recreation locations (reaching just more than 80 per cent of the pre-pandemic baseline at the end of October 2021), and a decline in grocery and pharmacy trips, particularly over summer. This reflects the broader

10. Behavioural adaptations to the pandemic

range of journey purposes that are now permitted and to some extent may be the result of a substitution of previous 'essential' trips with discretionary trips following each step of the relaxation of the rules. The reopening of non-essential retail on 12 April had a clear impact, as well as the reopening of indoor hospitality and entertainment on 17 May. Step 4 and the removal of restrictions on 19 July also coincided with a noticeable drop in essential trips. The trend in restaurant bookings has been more sporadic, with no activity between January and April while restaurants were closed. Increases in bookings coincide with the opening of restaurants on 12 April and on 17 May when six people could meet indoors again – facilitating restaurant bookings for people from different households. Restaurant bookings fell below 80 per cent of the pre-pandemic baseline between June and July, although they had recovered to around 85 per cent by mid-October.

Figure 10.5 Retail and leisure recovery, 7-day rolling average, Jan-Oct 2021 compared to pre-pandemic baseline.



Source: OpenTable, Google COVID-19 Community Mobility Reports.

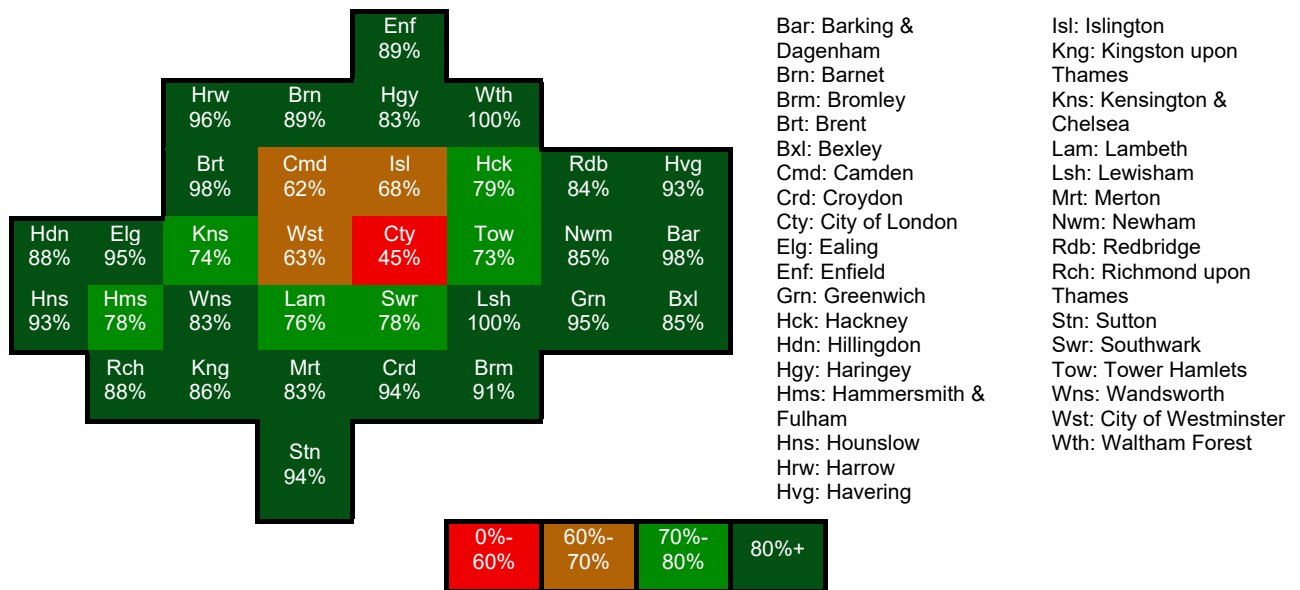
Note: Restaurant bookings baseline is 2019, Google Mobility baseline is the median value, for the corresponding day of the week, during the 5-week period 3 Jan–6 Feb 2020.

The variation in the public transport recovery by different times of the day and week, outlined in section 8.2, suggests that travel for discretionary purposes is a significant factor in the return of people to the transport network. Travel on weekends and evenings has recovered to a greater extent compared to weekdays. However, the recovery of travel for discretionary purposes is not uniform across London, due to a variety of factors. One of these is the result of working patterns, and a move towards hybrid working in sectors where working from home is possible, as detailed in section 10.3. A high proportion of jobs, particularly those in sectors where employees are more likely to be able to work from home, are heavily concentrated in central London. Therefore, shopping and leisure trips which may have previously been undertaken as part of the working day are no longer being made in the same way.

10. Behavioural adaptations to the pandemic

The impact of this on leisure patterns spatially is shown by Google Mobility data. Figures 10.6 and 10.7 show recovery of retail and recreation activity by borough for weekdays and weekends in October. On weekdays, the recovery of retail and recreation activity in the City of London is low; boroughs in inner London to the north of the river are also lagging. There has been a strong recovery of weekday leisure activity in outer London boroughs. Mobility data for weekends shows that retail and recreation activity has recovered to a greater extent compared to weekdays. This is most noticeable in central London, where in the City of London activity is 25 percentage points higher on weekends compared to weekdays.

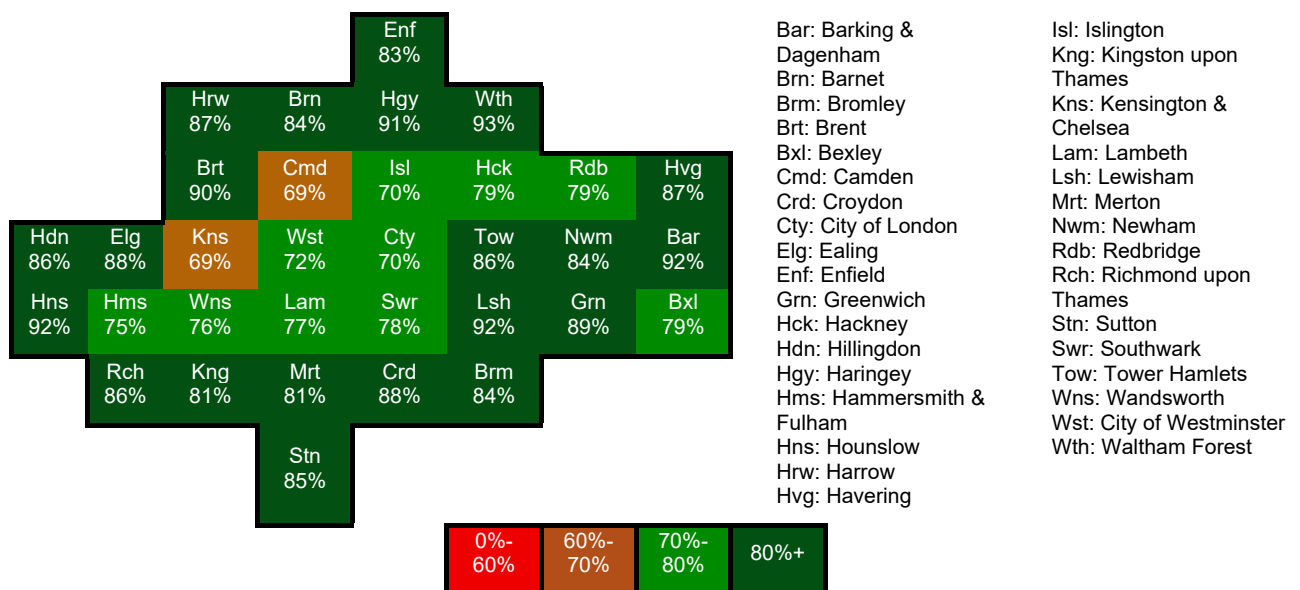
Figure 10.6 Weekday retail and leisure recovery by borough, Oct 2021 vs baseline.



Source: Google COVID-19 Community Mobility Reports.

Note: Baseline is median values on the same day of the week in the five weeks from 3 Jan 2020.

Figure 10.7 Weekend retail and leisure recovery by borough, Oct 2021 vs baseline.



Source: Google COVID-19 Community Mobility Reports.

Note: Baseline is median values on the same day of the week in the five weeks from 3 Jan 2020.

10. Behavioural adaptations to the pandemic

Retail footfall

UK footfall data from Springboard highlights a number of key trends impacting upon national retail footfall during the pandemic. Firstly, a shift towards more local shopping. In 2020 regional cities saw a 54 per cent fall in footfall, compared to 37 per cent in market towns, likely due to an increase in working from home leading to a reduction in travel to large cities. Home working has also impacted the frequency at which people shop. A [survey](#) undertaken by Springboard showed that in September around a third of workers went to the office at least one day a week. Of those working from home 51 per cent said this led to no change in their shopping habits, although 24 per cent said they visit shops less frequently.

Nationally, the recovery of footfall also varies by retail location. Retail parks were impacted less than high streets, perhaps due to the location of essential retailers, as well as the provision of larger stores where shoppers can more easily socially distance or travel by car. In London, local high streets fared better than retail parks, but there was a large gap in the recovery in footfall in central London, compared to the rest of London, although this has narrowed in recent months.

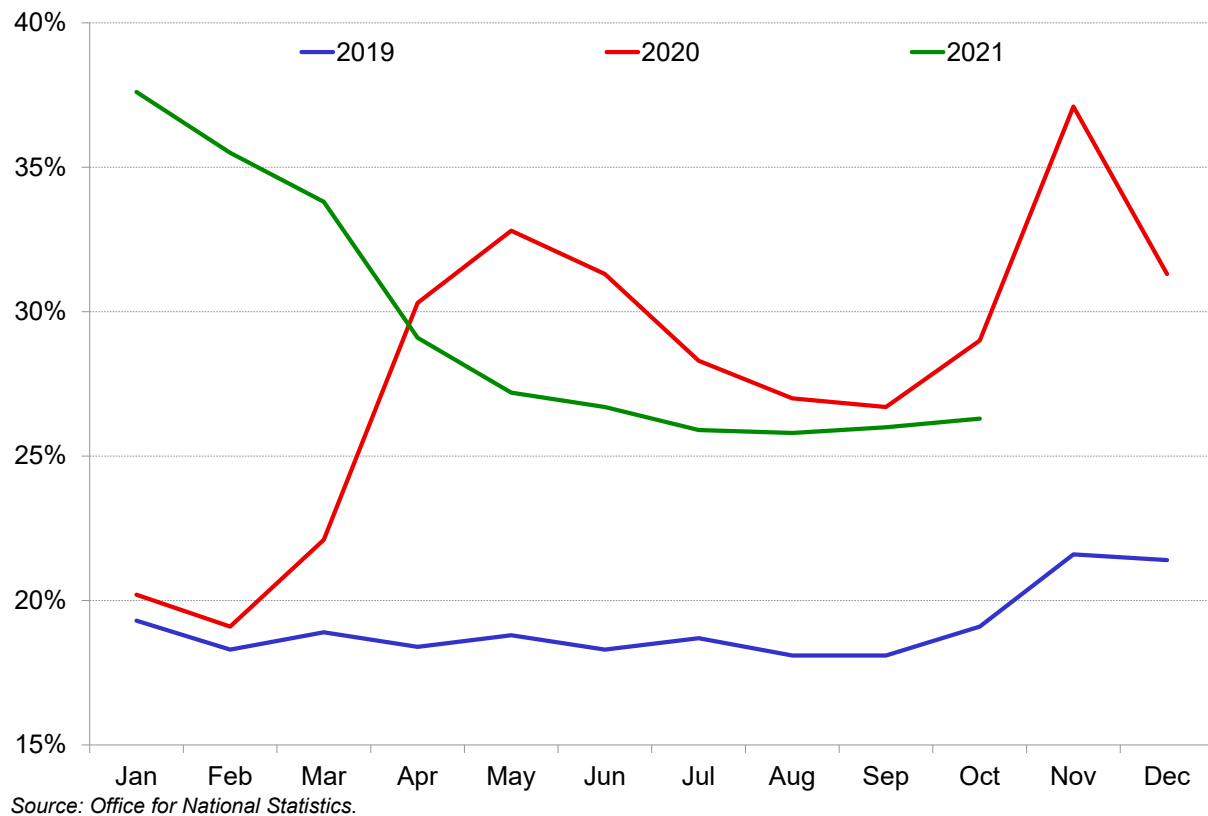
In the short term, it is likely that footfall will continue to be impacted by working patterns and a move towards hybrid working, as well as the impact of unemployment and inflation on disposable incomes. It is important to note, however, that this is an acceleration of a pre-pandemic trend. Footfall was declining prior to the pandemic due to a rise in online shopping, as well as due to wider economic circumstances impacting incomes and a rise in high street vacancy rates, although behaviour adopted during the pandemic has led to an acceleration of this trend.

Online shopping

In 2019 online sales comprised 19 per cent of retail sales nationally. As a result of the closure of non-essential retail and concern around coronavirus risk in public spaces, online sales rose significantly in 2020 (figure 10.8), to 37 per cent of all UK retail sales at the peak during the November lockdown. Overall, online sales as a proportion of total retail sales volumes totalled 28 per cent in 2020. Online sales remained high in January 2021 as England entered a third lockdown, however, as non-essential shops began to re-open online sales as a proportion of total sales fell month on month. Since July this has flattened, and in October the proportion of sales made online was 26 per cent, 11 percentage points lower than the pandemic peak, and 7 percentage points higher than the 2019 average.

Online shopping as a proportion of retail sales value remains highest for non-food retail, particularly clothing and footwear. However, this has fallen from a peak of 60 per cent of all sales (by value) undertaken online in February 2021, to 26 per cent in September 2021. The proportion of food shopping undertaken online has remained relatively consistent through the pandemic – between 10 and 13 per cent of sales values. However, this is a large increase from pre-pandemic levels, where around 5 per cent of sales were online. Safety concerns and the closure of non-essential shops encouraged people to shop online over the past 18 months. However, even as shops have reopened and the virus risk diminished due to the vaccine roll-out, online shopping has continued to be higher than pre-pandemic levels.

Figure 10.8 Internet sales as proportion of retail sales by month, 2019-2021.

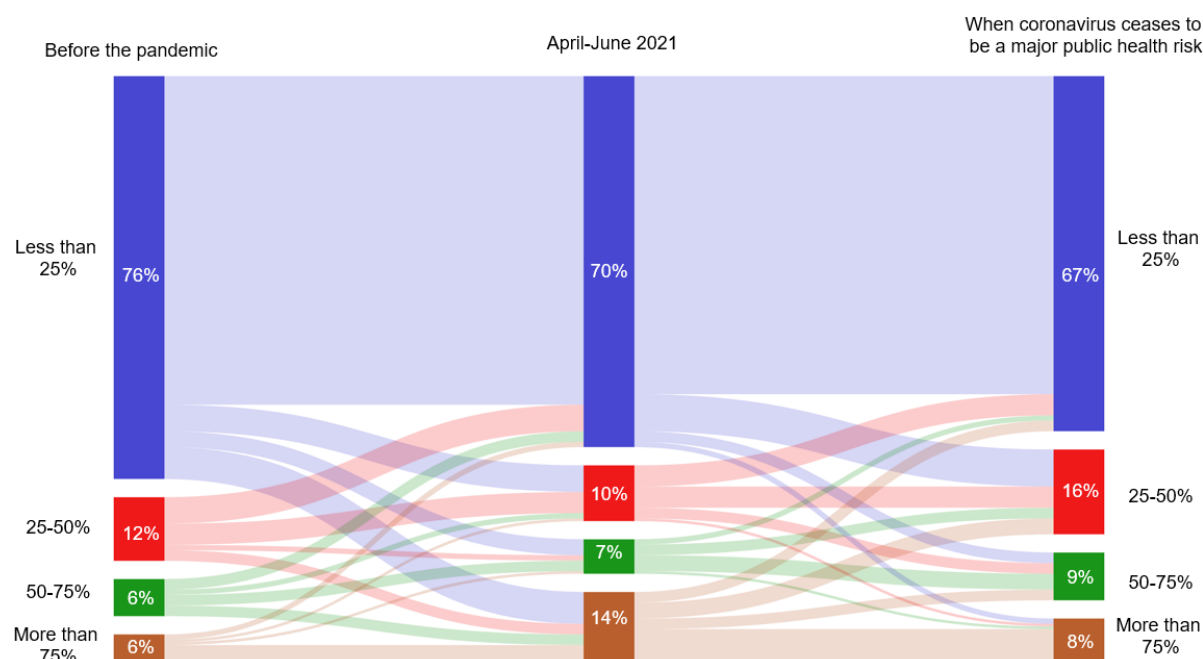


The LTDS shows that Londoners are also shopping more online since the start of the pandemic, and this rose through the 2020/21 survey year. In July to September 2020, 56 per cent of respondents stated that they receive more deliveries in a typical week compared to before the pandemic, this rose to 59 per cent in quarter 3 (October to December 2020), and to 66 per cent during the third lockdown (January to March 2021). Data from the survey also shows how Londoners' shopping habits have changed during the pandemic, and how they expect this may change once the threat of coronavirus recedes. Figures 10.9 and 10.10 use data collected between April and June 2021, to show the proportion of food shopping and non-food shopping undertaken by Londoners at home before the pandemic, during April to June 2021, and at a future point when coronavirus ceases to be a major public health risk.

Prior to the pandemic the majority of Londoners left their home for food shopping, with 76 per cent undertaking most of their food shopping in person, and only 6 per cent undertaking more than 75 per cent of their food shopping online. While essential shops remained open throughout the pandemic, it is evident that the risk of coronavirus has influenced the food shopping patterns of some Londoners, as between April and June 2021 the proportion of Londoners undertaking more than 75 per cent of their food shopping online rose to 14 per cent. However, 70 per cent of respondents did less than a quarter of their shopping online during this period. Looking to the future, 8 per cent of Londoners expect to do more than 75 per cent of their food shopping online. The majority of Londoners expect to undertake most of their food shopping in person, although this has fallen from around three-quarters of Londoners prior to the pandemic, to just over two-thirds once the threat of coronavirus has receded.

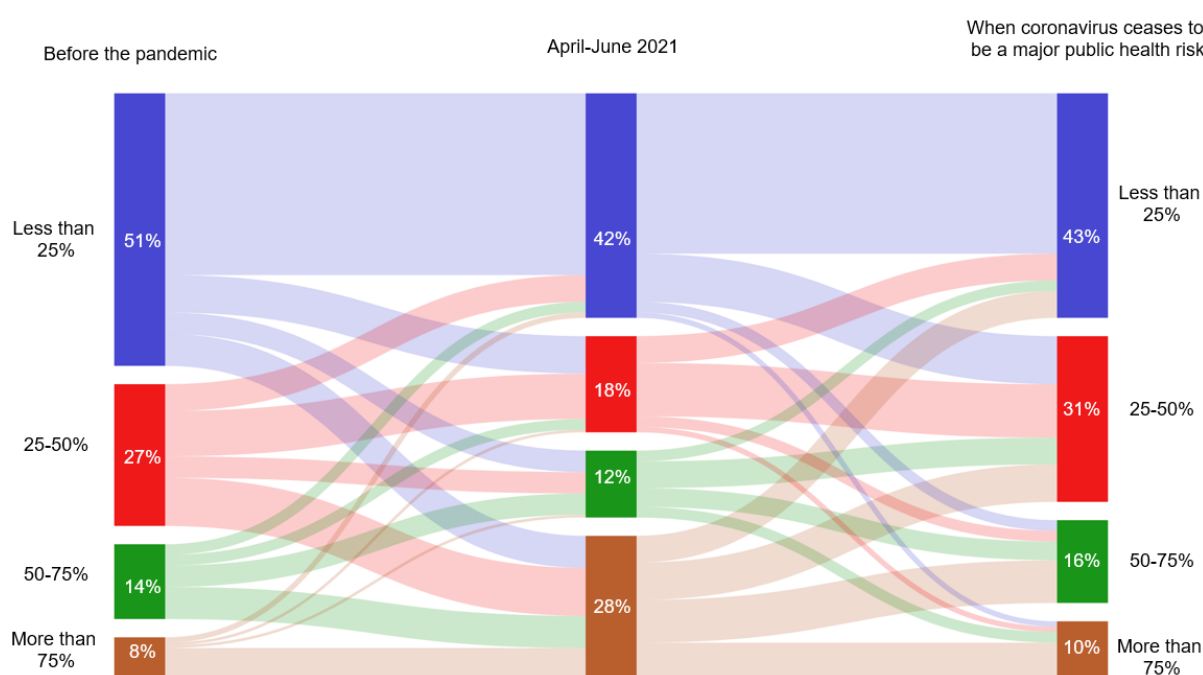
10. Behavioural adaptations to the pandemic

Figure 10.9 Proportion of food shopping at home by Londoners, LTDS, Q1 2021/22.



Source: TfL City Planning.

Figure 10.10 Proportion of non-food shopping at home by Londoners, LTDS, Q1 2021/22.



Source: TfL City Planning.

Before the coronavirus pandemic, 22 per cent of Londoners did over half of their non-food shopping online. While non-essential shops re-opened in March 2021, the data collected between April and June shows that 40 per cent of Londoners continued to undertake over half of their non-food shopping online, which could indicate a shift in behaviour, or continuing concern about coronavirus risk. Once the

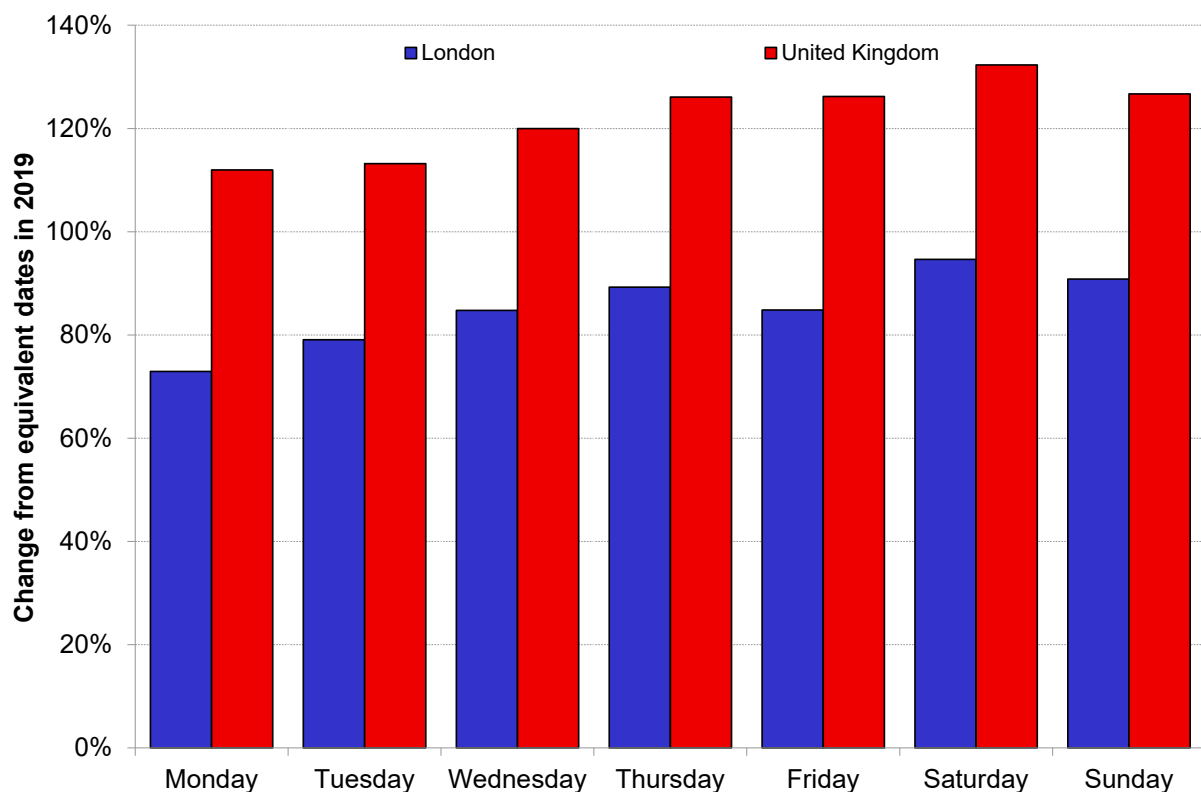
risk of coronavirus dissipates, 43 per cent of Londoners expect to do the majority of their non-food shopping in person, down from 51 per cent before the pandemic. Just over a quarter expect to do the majority of their non-food shopping from home, a rise of 4 percentage points compared to before the pandemic.

Restaurants, leisure and hospitality

Data from the LTDS shows that, before the pandemic, 78 per cent of Londoners went out for a meal or drinks at least once a week. In Q1 2021/22 (Apr–Jun), the figure was 42 per cent, this likely impacted by hospitality only opening outdoors during part of this period and, once indoor hospitality opened, numbers still being limited by the ‘rule of six’. However, respondents expected that they would largely return to pre-pandemic leisure habits ‘once coronavirus ceases to be a public health threat’, with 81 per cent thinking that they would eat out once a week or more then.

Figure 10.11 shows the recovery of seated diners in London and UK restaurants by day of the week. This shows that, overall, the recovery nationally has been greater than in London. In London, the recovery of seated diners is the highest at weekends, at around 94 per cent of pre-pandemic levels, compared to 80 per cent during the week. It is likely that this is due to several factors, firstly the proportion of people working from home is highest in London, reducing the number of employees working and socialising in central London on weekdays, in particular. London has also been hit the hardest by the employment impacts arising from the pandemic – experiencing a greater fall in workforce jobs, and a higher proportion of employees on furlough, which will impact discretionary spending. Lastly, the virtual absence of international tourism is also likely to be impacting the recovery of the hospitality industry.

Figure 10.11 Seated diners in re-opened restaurants in London and the UK by day of the week, Oct 2021 vs 2019.



Source: OpenTable.

10. Behavioural adaptations to the pandemic

The reduction in **domestic and international tourists** visiting London since the outbreak of the pandemic is also impacting on London's recovery, particularly in central London. It is estimated by the GLA that the virtual absence of tourism in London in 2020 led to £10.9bn of lost spend, five times higher than the impact from the absence of office workers, at £1.9bn. Furthermore, the GLA's [Economic Future of the CAZ \(phase 1\)](#) report, estimates that the future of arts and culture industries in London is heavily reliant on tourism demand, with over 40 per cent of theatre bookings being made from outside of London. It is possible, therefore, that a sustained decrease in international visitors due to the pandemic will impact the quantity and quality of the cultural offer. There remains uncertainty around when tourists will return – due to changing restrictions for arrivals to the UK as well as when tourists return to their home countries. The [Economic Future of the CAZ \(phase 2\)](#) report predicts a return to 2019 levels by the middle of the 2020s in some scenarios, or 2031 or later in the most downbeat scenarios. Therefore, as visitor numbers remain subdued in the short to medium term due to national and international restrictions, concern around coronavirus risk and uncertainty when booking to travel, this will have an ongoing impact on leisure travel and the hospitality industry, particularly in central London.

Summary of discretionary travel trends

It remains uncertain whether travel habits developed during the pandemic will persist over the medium term, although the data currently points towards the following trends for discretionary travel:

- Nationally, footfall has largely recovered to pre-pandemic levels, but remains lower on high streets. The proportion of shopping undertaken online continues to be higher than before the pandemic and has begun to level off at around 7 percentage points above pre-pandemic levels. Londoners expect to return to in-person shopping, although at lower levels than prior to the pandemic.
- There has been a strong recovery of transport demand on weekends, compared to weekdays indicating a return to leisure and shopping activity. Weekends also have the greatest recovery in seated diners in London restaurants, however this remains below the UK average.
- Spatially, a return to leisure demand in central London is lagging, likely as a result of changing work patterns leading to fewer employees in central London during the week.
- It is likely that travel restrictions and perception of coronavirus risk will continue to have an impact on tourism in London. This will have the greatest impact on the central London economy, and particularly the arts and hospitality sector.
- It is important to note, however, that some shopping and leisure trends— a decline in footfall and an increase in online shopping – were evident prior to the pandemic, although they have been significantly accelerated as a result of coronavirus and lockdown measures. A squeeze on disposable incomes was also a factor influencing the decline in discretionary trip rates in recent pre-pandemic years, therefore emerging employment impacts, as well as the forecast rise in inflation, may also lead to subdued leisure travel in the short to medium term.

10.5 Personal safety

The outbreak of the coronavirus pandemic had an immediate and sustained impact on Londoners' perception of safety when travelling around London and on public transport, particularly as crowding was an existing concern prior to the pandemic. The pandemic has changed people's perceptions of a good public transport experience, with cleaning, information on quieter times to travel and the ability to keep a distance from other passengers having a higher level of importance to customers than in previous years.

Safety, cleanliness and reliability

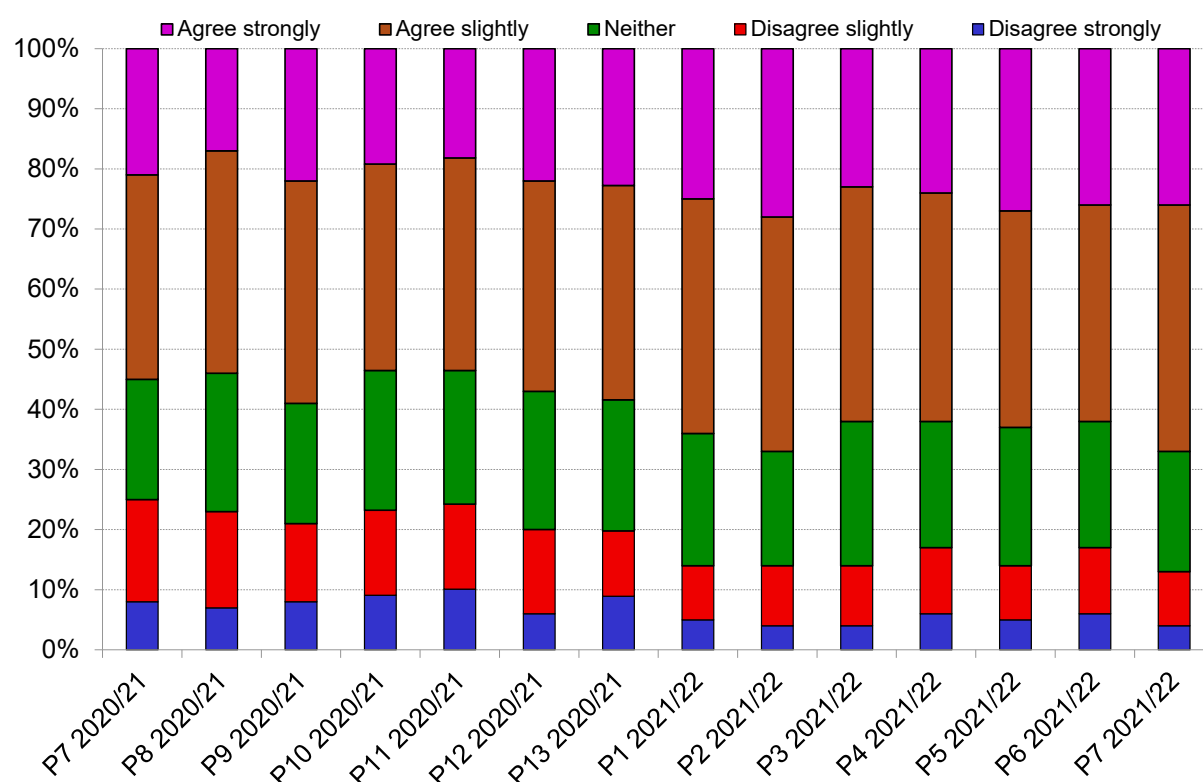
Results from TfL's Customer Pulse survey showed that, since January 2021, the proportion of Londoners who have reported using public transport in the previous week has been steadily increasing, reaching 70 per cent in period 7 (up to mid-October 2021), up three percentage points on period 6 and continuing a gradual upwards trend since period 2 (May 2021).

The Customer Pulse survey has also tracked how customers feel about travelling around London each financial period. Figure 10.12 shows agreement with the statement 'I feel confident to travel around London' over the last year. In the last few months of 2020, just more than half of respondents agreed they felt confident to travel around London, while just less than a quarter disagreed. Confidence to travel around London increased in each period between period 11 (January 2021) and period 2 (May 2021) where 67 per cent of respondents agreed they felt confident to travel around London (14 per cent disagreed). Between period 3 and period 6, the percentage who agreed was 62 per cent, before increasing back to 67 per cent in the latest period (up to mid-October 2021).

The importance of coronavirus safety measures, such as ventilation, mandatory face coverings, ability to keep a distance from other passengers and visible staff generally decreased in period 6 compared to period 5 and has remained stable in period 7. The proportion stating that they would not use public transport if face coverings were not mandatory has fallen significantly by 2 percentage points, although the overall proportion who consider mandatory face coverings to be important remained unchanged at 71 per cent. Ventilation continues to be the most important factor in Londoners' decision to use public transport (figure 10.13).

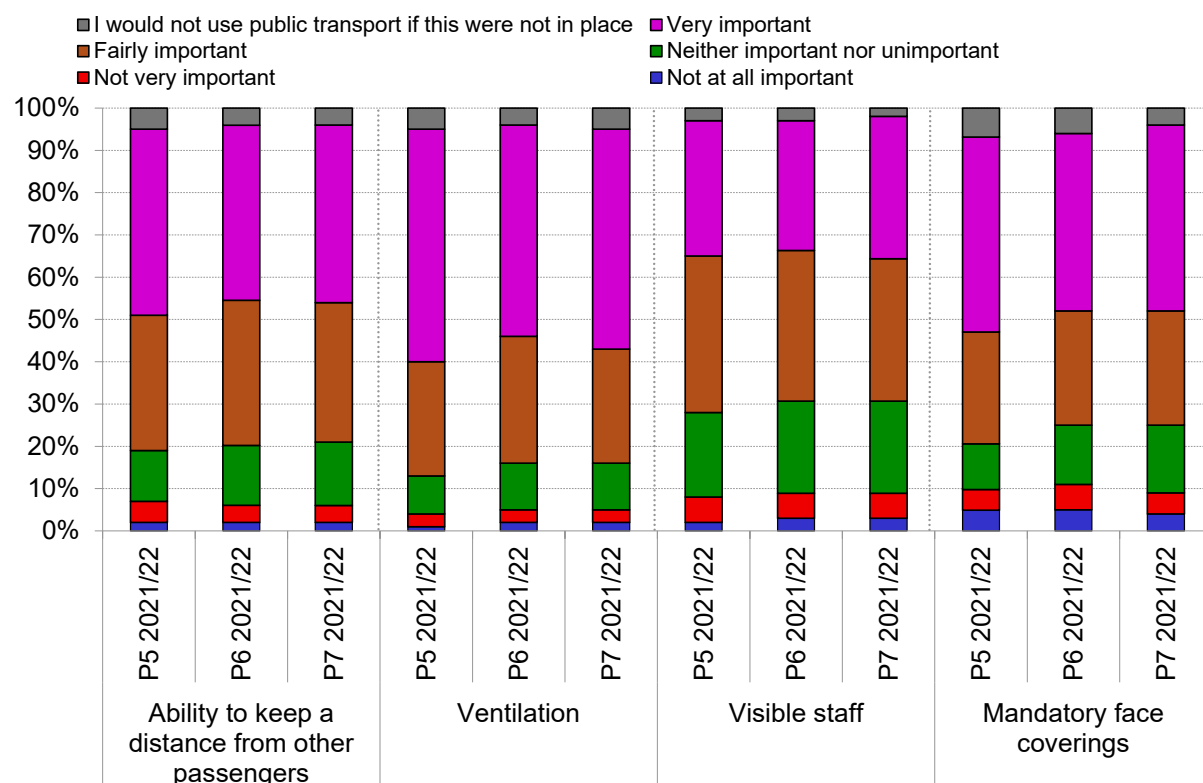
10. Behavioural adaptations to the pandemic

Figure 10.12 Agreement with 'I feel confident to travel around London' by period, Customer Pulse, period 7 2020/21-period 7 2021/22.



Source: TfL Customer Insight, Strategy & Experience.

Figure 10.13 Importance of safety measures to Londoners' decision to use public transport, Customer Pulse, period 5-7 2021/22.



Source: TfL Customer, Insight, Strategy and Experience.

Section 9.2 of [Travel in London report 13](#) described how TfL used agent-based modelling to investigate the relationship between public transport demand and the individual perception of coronavirus risk. It was predicted that demand would return in a non-linear way once all restrictions were relaxed, with a small minority of people who would be very resistant to returning to public transport. The latest evidence suggests that the majority of Londoners (54 per cent in period 7) feel that TfL is welcoming them back to the network and the number of Londoners who were uncertain about when they will return to the network was down by 3 percentage points from period 6. The share of those who don't see themselves using public transport again decreased by 1 percentage point.

One of the key aims for TfL is to rebuild confidence to use public transport for all Londoners through a number of different measures. Safety and reliability remain top priorities for TfL, including providing information and encouraging/enforcing face coverings while recognising that some people are exempt. Other priorities include managing capacity to help customers avoid crowding, maintaining high standards of cleanliness and ambience and providing better live information to support decision making, particularly during periods of disruption.

10.6 Localism and the '15-minute city'

A review of pandemic trends shows that during lockdown periods Londoners travelled more locally and there was an increase in active travel. An increase in working from home also reduced the need to travel and meant that many Londoners were spending more time in their local area for discretionary activities as well as for employment. In the light of this there has been an increasing focus on localism, how these trends may continue following the pandemic, and the desirability of this. Many of these discussions have focused around the concept of the 15-minute city. Therefore, this section considers the extent to which London operated as a 15-minute city before the pandemic, the spatial and socio-economic aspects of this, and how this has changed over the last 18 months. The analysis also looks at the implications of this for London's different communities, and illustrates how further work, beyond the data, is necessary to explore the needs, preferences and travel choices of London's diverse population.

The 15-minute city concept

Originally formulated in Paris by Professor Carlos Moreno of the Sorbonne, and applying to the small inner area of Paris, which is much smaller in extent than London, the concept of the '15-minute city' has assumed greater prominence as we emerge from the pandemic and try to rationalise, and capitalise upon, the challenges and opportunities that present themselves. The basic idea is of a city in which daily urban necessities are within 15 minutes reach, nominally only requiring journeys that may be readily made on foot or by bike. This would minimise the need to travel longer distances, especially by car, thereby reducing the amount of non-sustainable travel.

The pandemic has, at least temporarily, enforced a greater element of 'localism' in how people have had to lead their lives. However, this is not to say that London is necessarily well-adapted to this model – either structurally, spatially in terms of the

10. Behavioural adaptations to the pandemic

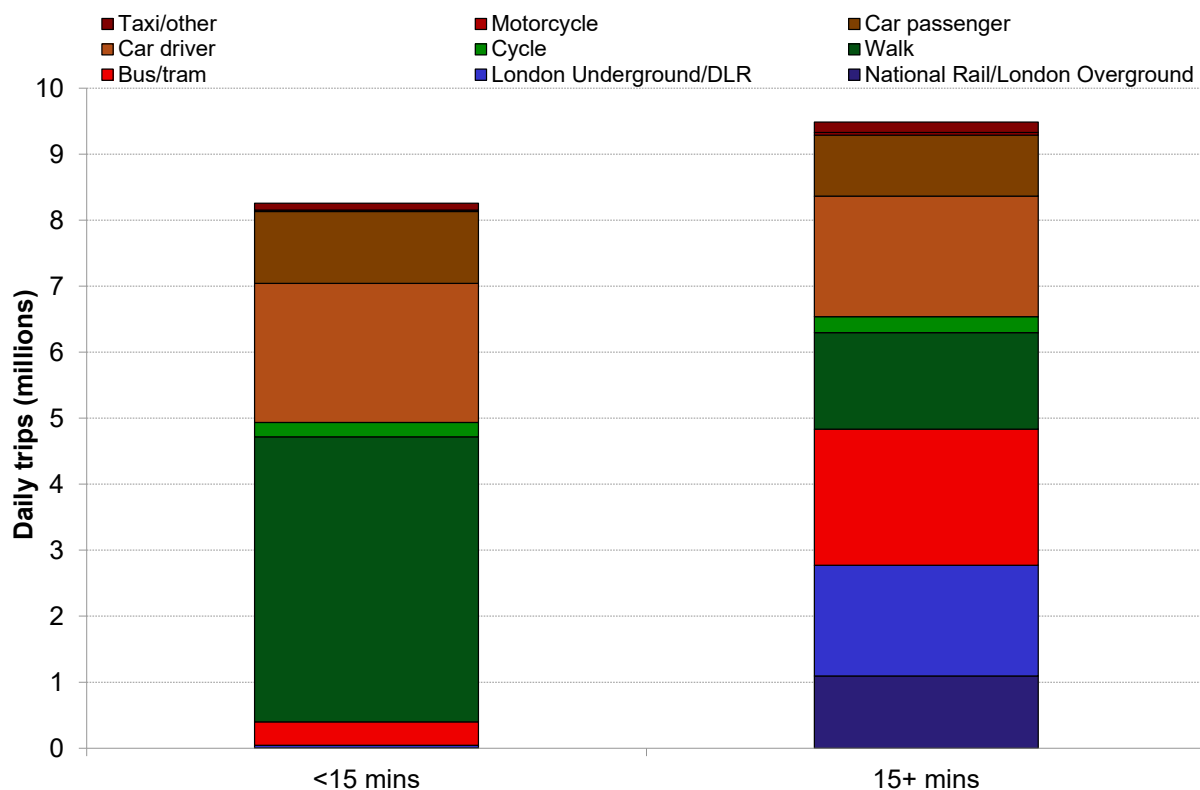
different characteristics of central, inner and outer London, or in terms of the travel needs of different socio-economic groups – or that it is wholly desirable as a basis for planning in the future.

To what extent is London a 15-minute city?

On an average pre-pandemic day, London Travel Demand Survey data (3-year average, 2017/18-2019/20) shows that 25 per cent of Londoners do not make any trips, and of the 75 per cent of Londoners who do make a trip, 28 per cent make all their trips in 15 minutes or less. Compared to London's population as a whole, those making all their trips within 15 minutes tend to comprise a higher proportion of the youngest (5-16 years) or oldest (65+) age groups. There are slightly more females (51 per cent vs 50 per cent of total population) and a slightly higher proportion of White Londoners (63 per cent vs 61 per cent). A number of factors such as trip purpose, mode choice and location all have an impact on this.

Figure 10.14 shows that just less than half (47 per cent) of trips made by Londoners are 15 minutes or less. Of those trips, over half are made by active modes (55 per cent), although more than a third are made by car (39 per cent). Few such trips (5 per cent) are made by public transport, reflecting the short distance of trips that can be completed in 15 minutes or less, with the majority made by bus rather than rail. Trips of more than 15 minutes are made by a much wider variety of modes, with half made by public transport (29 per cent by rail and 22 per cent by bus). Active modes comprise 18 per cent of trips over 15 minutes, and the share of trips made by car is lower (compared to trips of 15 minutes or less) at 29 per cent.

Figure 10.14 Trips by Londoners by duration and mode, LTDS, 2017/18-2019/20.



Source: TfL City Planning.

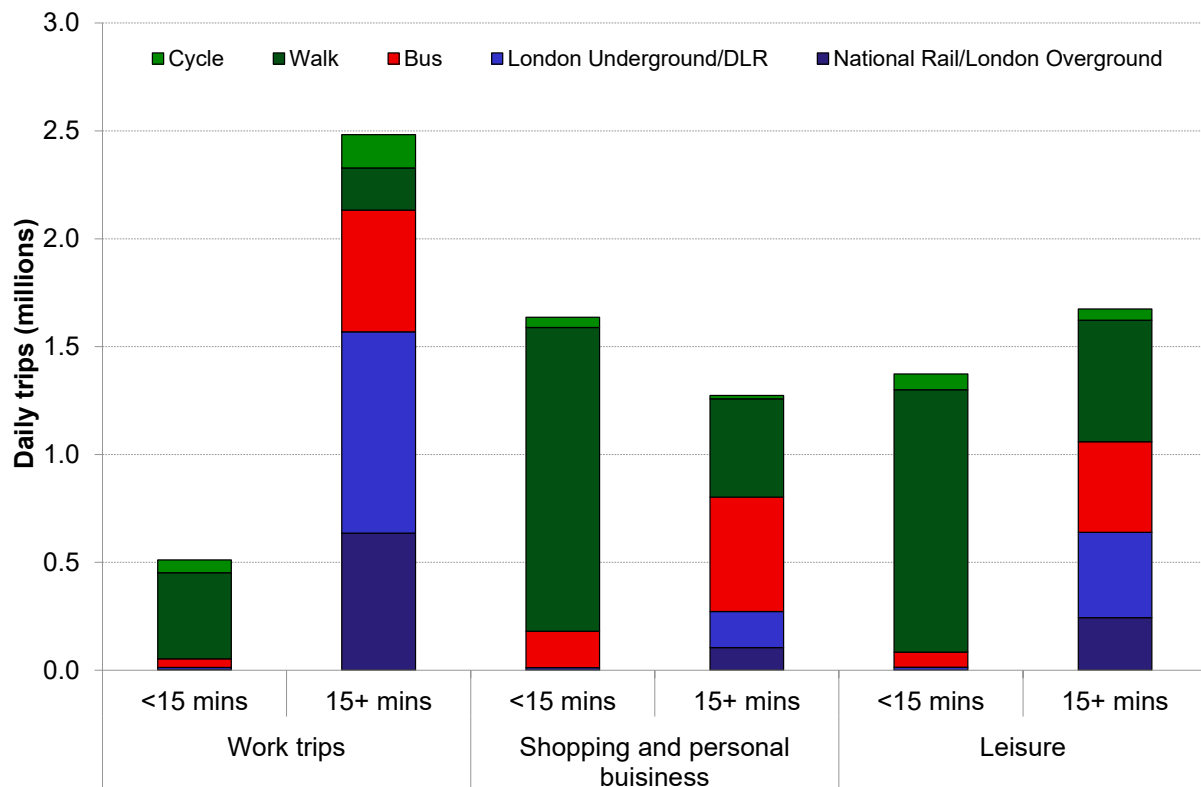
The 15-minute city concept focuses on facilitating access to amenities and services locally by sustainable modes – walking, cycling or public transport. To understand the extent to which this occurred in London prior to the pandemic, figure 10.15 shows trips made by Londoners by active, efficient and sustainable modes and their duration, for work-related trips, shopping trips and leisure trips.

Considering trip purposes, for many people it is reasonable to assume that some activities, such as work, are less likely to be available locally than trips for other purposes, such as shopping. The LTDS data shows that prior to the pandemic 17 per cent of work-related trips made by walking, cycling or public transport were undertaken in 15 minutes or less. This compares to 56 per cent of shopping trips, and 45 per cent of leisure trips.

The majority of work-related trips made by sustainable modes are made by public transport, particularly rail modes, and hence most trips are longer than 15 minutes. This is unsurprising in a highly agglomerated city, with jobs clustered in the central area, reinforced by decades of investment in radial mass transit. However, as outlined in section 10.3, a higher proportion of jobs in central London are able to be undertaken from home, and therefore if these trends persist following the pandemic this could lead to fewer work-related trips over 15 minutes.

Walking comprises the majority of trips made within the 15-minute threshold for discretionary purposes. Overall, 64 per cent of all trips made by active, efficient and sustainable modes for shopping and personal business are made on foot, and walking trips comprise 86 per cent of all trips made for this purpose within 15 minutes. In comparison, trips for leisure purposes tend to be less localised, and therefore a wider range of sustainable modes are used.

Figure 10.15 Trips by Londoners by active, efficient and sustainable mode, duration and journey purpose, LTDS, 2017/18-2019/20.



Source: TfL City Planning.

10. Behavioural adaptations to the pandemic

Socio-economic aspects of a 15-minute city

A number of factors influence trip duration, such as mode, trip length and destination choice. Therefore, analysing trip patterns based on duration assumes that the 'preferred' types of travel would be generally suitable for all people. However, previous work examining the potential for shifting existing trips to active, efficient and sustainable modes identified some circumstances where this might not reasonably be possible, eg for disabled people, those carrying heavy loads or travelling with children or older people. Trip chaining – making more than one trip in the same 'outing' – is another, where the mode chosen reflects the overall requirements of the trips involved. A third example relates to how London's different social groups organise themselves spatially across the city with respect to local amenities and transport connections. For example, urban structure and local transport provision may or may not lend themselves to short-distance local travel, and different social groups may have different travel requirements or choices that could 'advantage' or 'disadvantage' them in certain policy contexts. Looking at how trip duration varies by ethnicity can demonstrate these differences.

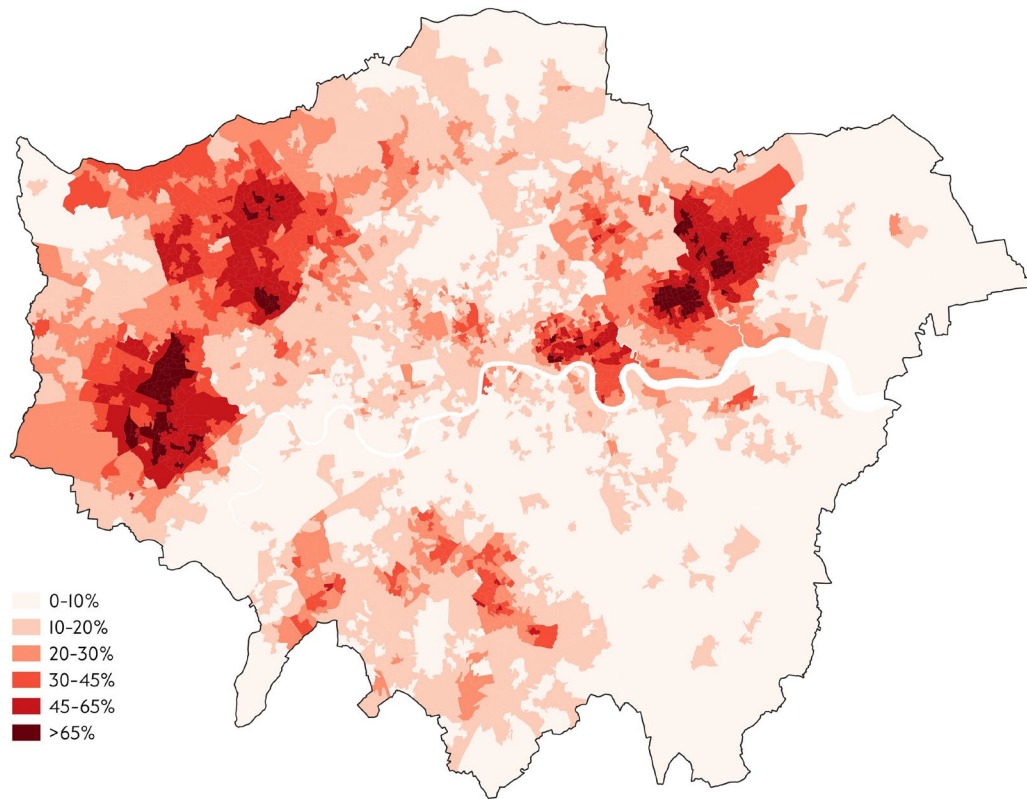
Ethnicity and travel

London's different communities tend to be clustered spatially in specific areas of the city. Figure 10.16 shows, for example, the distribution of Asian Londoners, with clusters across northwest and inner east London. This has implications because the characteristics of trip making by residents of these areas will to some degree be influenced by the transport and local facilities that are available. Inner areas of London, for example, have generally better connectivity by public transport and denser coverage by essential services, such as local shops.

Looking at trip duration data by ethnic group shows that overall a slightly lower proportion of trips made by Black, Asian and minority ethnic (BAME) Londoners are undertaken in 15 minutes or less, compared to White Londoners (44 per cent compared to 48 per cent). This disparity is the greatest for trips for shopping and personal business, for which 53 per cent of trips made by BAME Londoners are 15 minutes or less, compared to 62 per cent of White Londoners.

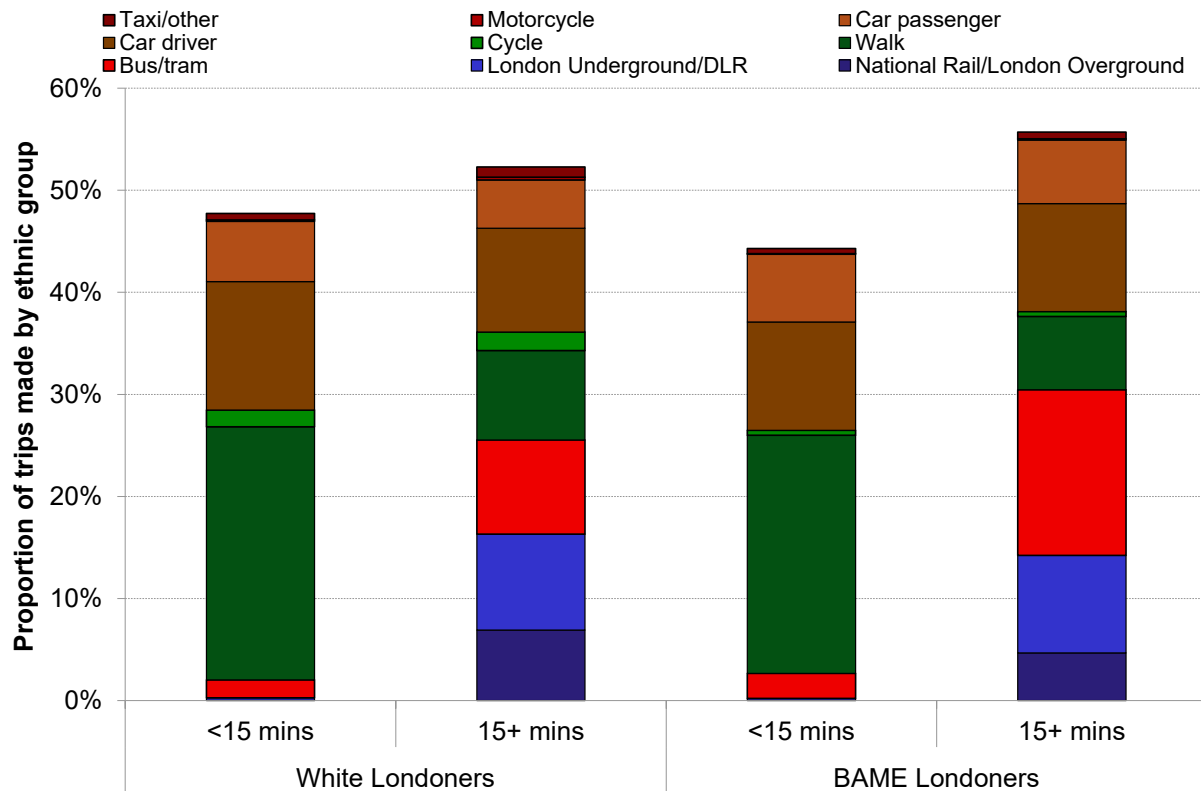
Figure 10.17 shows shopping and personal business trips made by White and BAME Londoners, split by mode and duration. The mode share of shopping trips less than 15 minutes is similar for both White and BAME Londoners, however when looking at the mode share for all shopping and personal business trips there are some modal differences. A third of trips made for this purpose by BAME Londoners living in inner London are made by public transport. This compares to 23 per cent of trips made by White Londoners. The difference is slightly smaller for outer London residents, with a quarter of trips made by White Londoners undertaken on public transport, compared to 30 per cent of trips made by BAME residents. Furthermore, White Londoners living in inner London make a higher proportion of shopping trips on foot than BAME Londoners, 54 per cent compared to 44 per cent. Only 8 per cent of all public transport trips made by Londoners are 15 minutes or less. This compares to 75 per cent of walking trips. Considering length of trips for shopping and personal business shows that distances are broadly similar across the ethnic groups; 60 per cent of trips made by BAME Londoners and 64 per cent of trips made by White Londoners are less than 2km, and 84 per cent of trips for both groups are less than 5 km.

Figure 10.16 Spatial distribution of London's Asian population, Census 2011.



Source: Office for National Statistics.

Figure 10.17 Shopping and personal business trips by Londoners by duration and ethnic group, LTDS, 2017/18-2019/20.



Source: TfL City Planning.

10. Behavioural adaptations to the pandemic

These patterns reflect a complex interplay of personal travel needs, preferences, the local provision of transport and other facilities such as shops and services. It is not possible at this stage, without understanding these factors further, to draw conclusions or make prescriptions based upon them. The patterns shown, however, do suggest that different groups have different 'needs' and 'preferences', and that any policy that seeks to change or otherwise restrict these needs and preferences should be carefully thought through from an inclusion perspective so as not to unduly disadvantage any particular group in transport terms – for example relating to the relative costs of the modes.

London's structure and connectivity

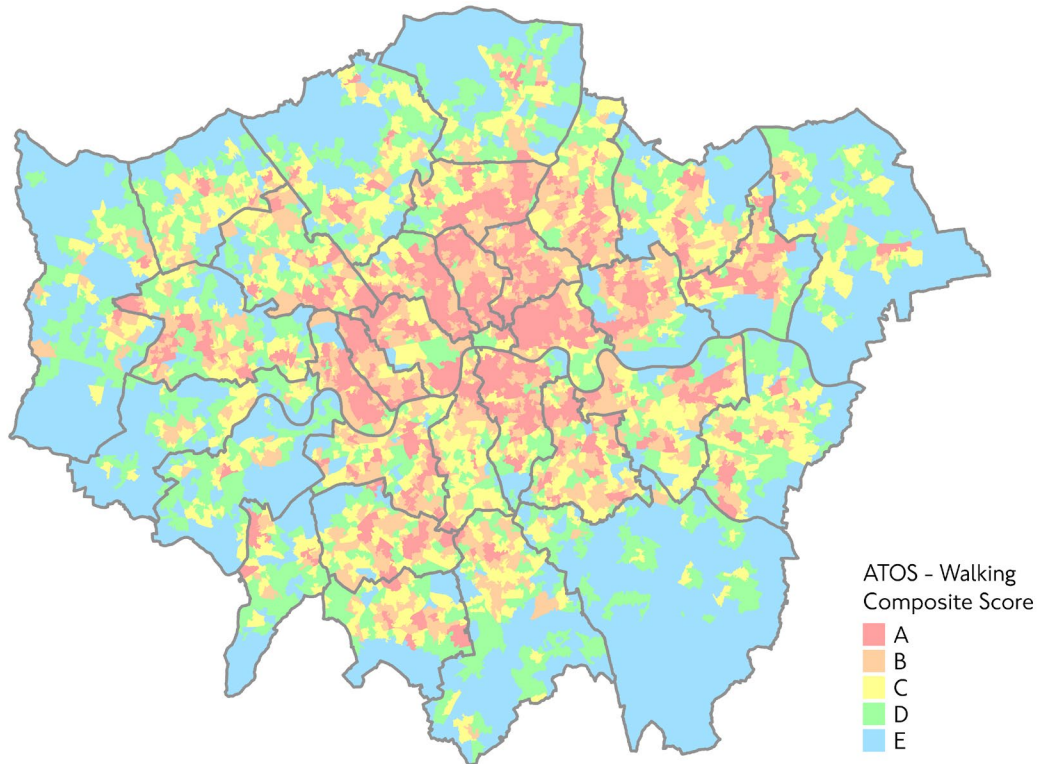
London is often described as a 'city of villages', reflecting a pattern of historic expansion. The GLA's London Plan Town Centre network recognises almost 200 distinct centres classified as International, Metropolitan, Major and District. These act as important local or sub-regional centres for a range of daily activities. We have developed tools and indicators for assessing local connectivity which can be used to shed light on the extent to which London is already a 15-minute city.

One such tool is ATOS (Access to Opportunities and Services), which looks at walking times from all locations to reach essential services such as schools, healthcare, food shopping and open spaces. Figure 10.18 shows the pattern across London, with locations in categories A to C providing walking access within 15 minutes to these services. The pattern is relatively intuitive, focused on inner London, and recognising, in central London, the presence of large parks and 'specialised' areas of the City, although there are large areas of outer London which do not meet this criterion ie walking access to essential services is greater than 15 minutes.

This data can be combined with Public Transport Accessibility Level (PTAL) scores for each local area, which rank public transport access, resulting in the pattern shown by figure 10.19 (for access to food shopping). Again, good access to public transport and services is more characteristic of inner London, although more closely focused around local town centres. The pattern is broadly similar to ATOS, since the public transport networks, and services to support daily activities, have developed to focus on locations to which people want to travel.

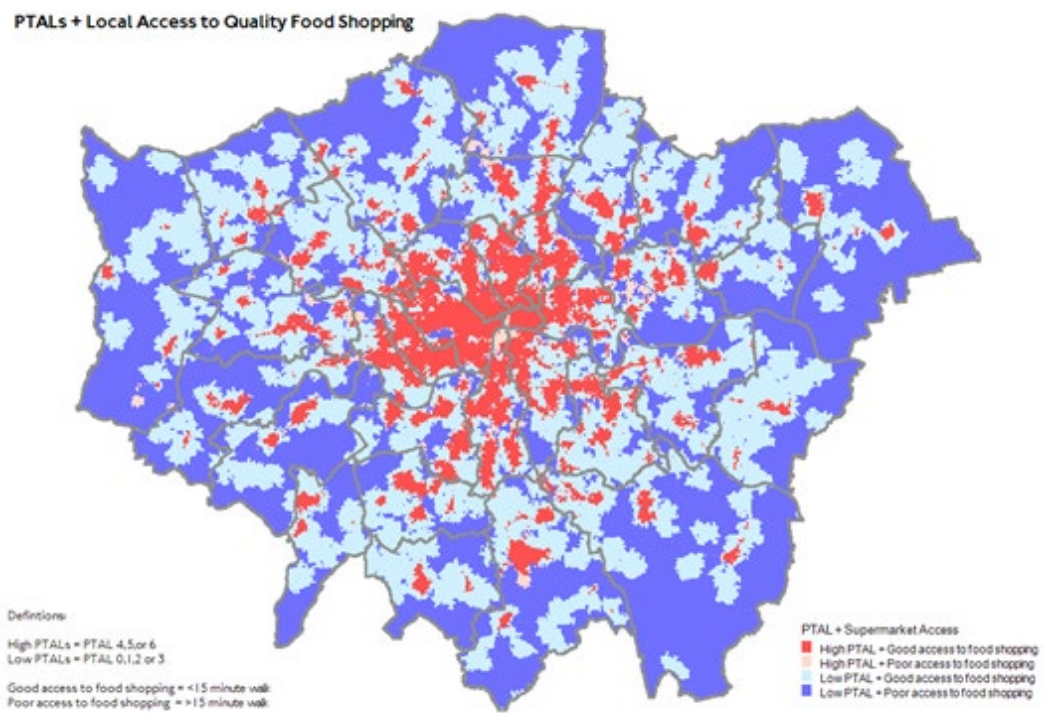
As with actual travel data, these patterns show London 'as is'. Overall, it is notable that inner London (including central) is relatively well adapted in spatial terms to the 'ideal' of a 15-minute city, but this is not the case for large parts of outer London. To an extent this is reflected in the real travel data, where a large proportion of trips that 'could' be made within 15 minutes require much longer trips – either due to a lack of the relevant facilities or personal reasons, or preferences, which mean that local services are not appropriate.

Figure 10.18 Access to Opportunities and Services (ATOS) composite score showing relative accessibility on foot within 15 minutes.



Source: TfL City Planning.
Note: A=High, E=Low, A to C within 15 minutes.

Figure 10.19 Combined scores for PTAL and access to food shopping services within 15 minutes.



Source: TfL City Planning.

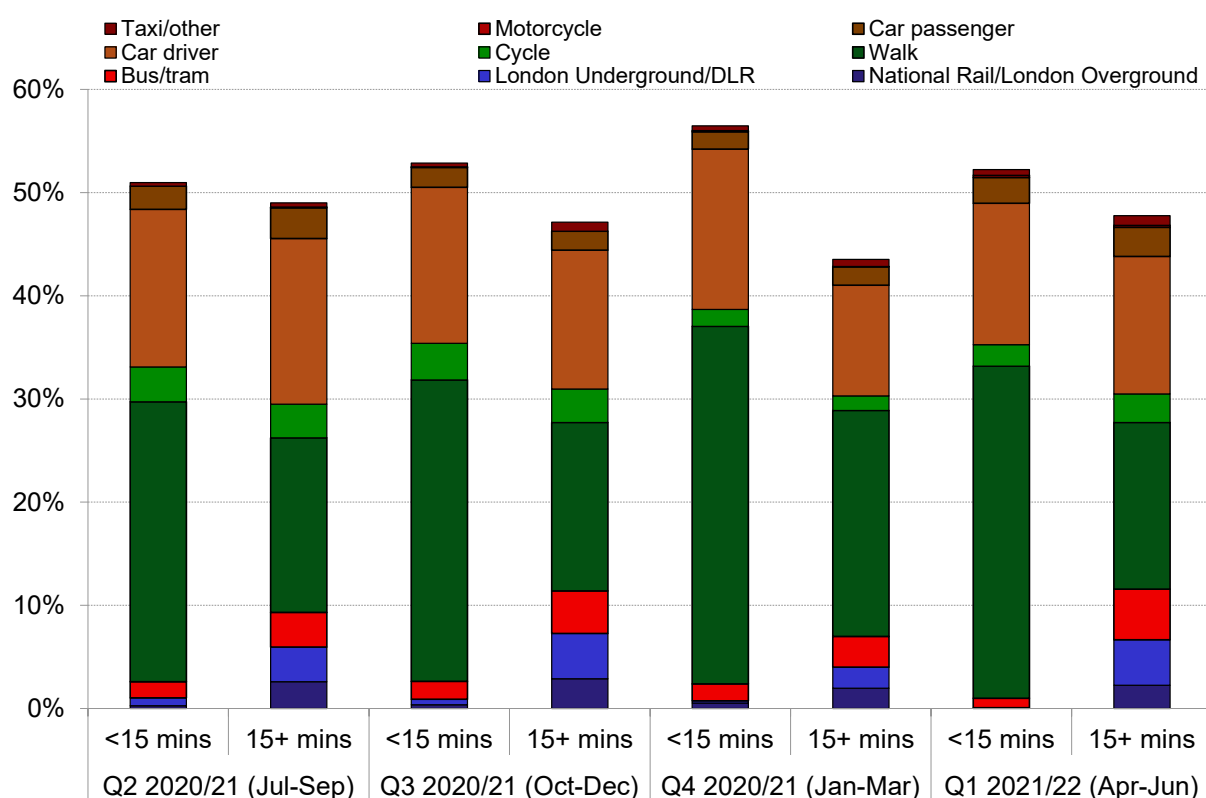
10. Behavioural adaptations to the pandemic

How has this changed during the pandemic?

Over the last year TfL has collected data on travel demand during the pandemic through an adapted version of the London Travel Demand Survey (LTDS), although due to sampling differences the data is not directly comparable to pre-pandemic LTDS data. However, the data can be used to ascertain whether travel became more localised through different stages of the pandemic, and how this varies spatially and by journey purpose.

Figure 10.20 shows the proportion of trips made by Londoners by duration and mode, split by quarter. This shows that in Q2 2020/21 (Jul-Sep), when restrictions were limited, just over half of trips (51 per cent) made by Londoners were 15 minutes or less. This increased through the pandemic as the tier system and a second lockdown was introduced in Q3, and a third lockdown through Q4. In Q3, 53 per cent of trips were less than 15 minutes, rising to 56 per cent in Q4, and in Q1 2021/22, as restrictions began to ease, the figure was 52 per cent. However, total trip numbers vary between quarters and therefore overall a higher number of trips within 15 minutes were undertaken in Q3. Throughout the pandemic trips made in 15 minutes or less comprised a higher proportion of all trips compared to pre-pandemic levels, when the figure was 47 per cent.

Figure 10.20 Proportion of daily trips made by Londoners by duration and mode, LTDS, Q2 2020/21–Q1 2021/22.



Source: TfL City Planning.

Note: Total number of trips varies in each quarter.

The mode share of trips made by Londoners also varied through 2020, as coronavirus measures restricted travel, and led to many Londoners working from home. As detailed in section 4.3 the pandemic led to a large increase in the proportion of trips made on foot, but the duration of walk trips also varied. In Q2,

walking trips comprised 44 per cent of all trips, of which 51 per cent were 15 minutes or less. This compares to walking comprising 57 per cent of trips in Q4, of which 56 per cent were 15 minutes or less. Although not directly comparable, pre-pandemic LTDS data shows that more than three-quarters of pre-pandemic walk trips were 15 minutes or less, indicating that walk trips during the pandemic were longer. This could be as a result of changing work patterns, as well as people walking further as part of daily exercise.

The journey purposes of trips for both trip duration categories has remained similar throughout the pandemic. For trips under 15 minutes, 80 per cent of trips were for discretionary purposes in Q2, this increased to 83 per cent in Q3 and fell to 78 per cent in Q4 as lockdown restrictions limited travel to essential purposes only. Trips over 15 minutes for discretionary purposes remained around 70 per cent throughout the four quarters. The decrease in commute trips as a result of increased working from home is likely to have had an influence on the increase in the proportion of trips made within 15 minutes, as the majority of work-related trips are over 15 minutes.

Summary

These patterns act as a starting point for consideration of the extent to which London could be considered a 15-minute city. They reflect long-standing geographic, transport network and travel behaviour factors, and reveal expected spatial differences. Travel during the pandemic, particularly during periods of lockdown, was more localised as restrictions on travel, and closure of shops and hospitality businesses, limited travel demand. It remains to be seen whether, as we recover from the pandemic, these trends will persist. In particular, a return to the commute – for which 79 per cent of trips were over 15 minutes before the pandemic – is likely, albeit at a lower level than previously.

10. Behavioural adaptations to the pandemic

11. Facilitating London's growth and recovery

11.1 Supporting Good Growth

Introduction

The transport network has a crucial role to play in supporting people to live and work in London sustainably. New public transport connections can make parts of London viable places to build homes and create jobs for the first time. Using the Healthy Streets Approach to plan new developments around walking and cycling for local trips, and public transport where walking and cycling takes too long or is impractical enables people to live active and healthy lives and the city to function effectively as it recovers and grows. Achieving Good Growth is essential for enabling car-free and car-lite development and decarbonising London's transport. This approach will also contribute to the London Plan's aims for Good Growth, which are to build strong and inclusive communities, make the best use of land, create a healthy city, deliver the homes Londoners need, grow a good economy and increase efficiency and resilience. This chapter will look at several aspects of Good Growth, including policy work, proactive work to shape the future of London, improving our monitoring and a case study of the Northern line extension which has unlocked the Vauxhall Nine Elms Battersea (VNEB) Opportunity Area.

The London Plan

After several years in development and consultation, the new [London Plan](#) was published on 2 March 2021. The London Plan sets out how the Mayor and London's boroughs will help to improve quality of life for Londoners and sustainably accommodate the growth forecast for London. The 2021 London Plan aims to deliver far more new homes, with a target of 52,000 a year including 12,000 a year from small sites.

Transport priorities, including mode shift, Vision Zero and the Healthy Streets Approach, are fully reflected in the London Plan's policies. This means that new homes in well-connected locations should be car free, the area around development sites should be designed to prioritise walking and cycling and land for public transport should be protected. The London Plan also allows for financial contributions to be secured from developers to support the walking, cycling and public transport improvements needed to enable growth.

Unlocking growth

Alongside wider business plan investments, the TfL Growth Fund is designed to unlock homes and regenerate areas of London where transport acts as a constraint. Over the past year, despite a pause on several projects due to the pandemic and funding uncertainty, progress has been made to deliver schemes funded by the programme which support Good Growth.

- Tottenham Hale station upgrade is currently in construction and is now set to open late 2021. The station is supporting the delivery of 5,000 new homes and 4,000 new jobs in the Tottenham area.

11. Facilitating London's growth and recovery

- The new step-free Barking Riverside London Overground station will support the delivery of 10,800 new homes, schools, and community space. Construction of the station and 1.5km viaduct is nearing completion and the new line is due to open in 2022.
- Construction work on the new southern entrance at Ilford station for TfL Rail was completed successfully in January 2021. This will support the development of 2,000 new homes, accommodating the new demand and benefiting bus passengers alighting at stops along Ilford Hill.

In 2018 and 2019, government approved two Housing Infrastructure Fund (HIF) bids to improve frequency and capacity of the DLR and London Overground Dalston/Highbury & Islington – West Croydon/Crystal Palace/New Cross. We are continuing to work with partners to deliver these schemes. We are also engaged with government on other initiatives to support housing and wider regeneration.

Housing on TfL land

TfL has a legacy of city building. For more than 150 years, London's transport network has shaped how the city has grown and evolved, becoming an iconic part of the Capital's identity. TfL and its predecessors have enabled the sensitive transformation of historic neighbourhoods and the creation of entirely new communities. More recently, we have embarked on a programme to deliver the homes that the Capital urgently needs, while championing good design, making London's neighbourhoods healthier and greener, more liveable and prosperous, more resilient and better connected – in other words, more sustainable.

Since 2016, TfL has been working to deliver homes at pace on sites it owns across London that are surplus to its operating requirements. Prior to the pandemic, TfL had a target to start on site for 10,000 homes across the Capital by March 2021, including 50 per cent affordable housing on average across its sites brought to the market since May 2016. This was always a challenging target and the pandemic and multiple lengthy lockdowns has had a significant impact on our ability to build more homes, as it has for housebuilders across the country.

Construction work has already either started or completed on more than 1,500 homes and we have planning approval for a further 6,500 homes across 21 sites. We have schemes submitted for planning approval, pending decisions, that should be capable of delivering 1,300 more new homes, and up to a further 4,000 homes are due to be submitted for planning approval.

Recent approvals at planning committee have included:

- 139 homes (40 per cent affordable) at Montford Place (Lambeth) including 29,000 sq. ft of 'makers space' for small local businesses.
- 454 homes (40 per cent affordable) at Wembley Park (Brent).
- 852 homes (50 per cent affordable) at Bollo Lane (Ealing).
- 479 homes (40 per cent affordable) at Nine Elms.

During the pandemic, we had to work with the GLA, London boroughs and our development partners to fully understand the effect of the outbreak on our housing programme and review the timescales for it accordingly. It was vital that we continued to ensure that there was and is transparent and robust public consultation on all of our proposals and planning applications, as the public must have a full

opportunity to scrutinise plans and make representations, so that we can deliver homes and schemes that work for and benefit each local community. Critically, because of the wider impact of the pandemic on TfL's funding, all new expenditure on property development in TfL has been effectively paused since March 2020, with the only exceptions being expenditure that was contractually committed or required for health and safety reasons. For this reason, TfL is now working with both government and banks to allow TfL to access commercial funding to accelerate the development programme to allow 20,000 homes to be built on TfL land over the next ten years.

We will work closely with the boroughs to pool our land and unlock larger town centre regeneration schemes, ensuring we can deliver homes, generate revenue and create great places where people want to live and work. When our development programme is at its peak, we will need around 7,000 workers, in construction and other industries, so ensuring we have the right people with the right skills is important. TfL has trained almost 2,500 people, 78 per cent of whom had previously been unemployed. In the last year alone, our construction skills training programme has helped more than 400 people into long-term employment, giving opportunities to people and helping to address the acute skills shortage in the construction industry.

11.2 Opportunity Area monitoring

Introduction

Opportunity Areas are designated through the London Plan as areas with particular development potential. They have an important role in delivering the 66,000 additional homes per year that London needs. This tends to be through the delivery of larger sites; Opportunity Areas typically contain capacity for at least 2,500 net additional homes or at least 5,000 net additional jobs. There are 48 Opportunity Areas identified in the London Plan and some have much greater capacity than others. For example, the Old Oak and Park Royal area has indicative capacity to provide 25,500 homes and 65,000 jobs.

Dedicated public transport and walking and cycling provision should be central to Opportunity Area development. TfL works closely with the GLA, London boroughs and other key stakeholders to ensure that Opportunity Areas are delivered in line with the transport principles of Good Growth.

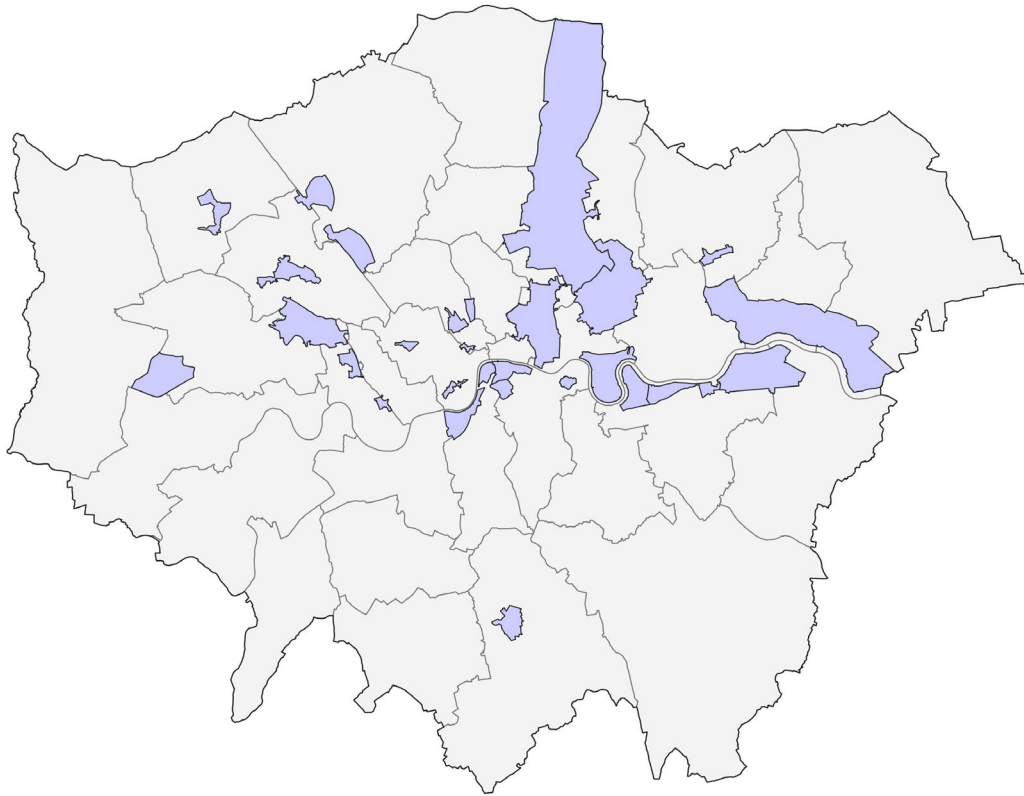
Opportunity Area Planning Frameworks (OAPFs) are strategic spatial plans that are used to realise the growth potential of Opportunity Areas. They represent a plan-led approach for embedding the transport principles of Good Growth in Opportunity Area development. Some of the Opportunity Areas have boundaries that are still emerging or undefined, so cannot be mapped. Figure 11.1 shows only those Opportunity Areas with defined and adopted boundaries.

A list of Mayoral commitments for ensuring that Opportunity Areas fully realise their growth and regeneration potential is set out under London Plan policy SD1. This policy sets out the role of TfL in promoting and championing Opportunity Areas as well as in identifying where public investment and intervention is required to achieve growth potential. Opportunity Areas are also required to facilitate ambitious transport mode share targets, with the aim of supporting sustainable travel and avoiding car-

11. Facilitating London's growth and recovery

dependent development. For example, the Isle of Dogs and South Poplar OAPF has the target of achieving 90 per cent or higher travel by sustainable modes, including walking, cycling and public transport to, from and within the Opportunity Area. Delivery of homes, jobs and infrastructure in Opportunity Areas should be monitored and action should be taken where necessary to overcome any barriers to delivery. Historically Opportunity Areas have been located in brownfield locations where lack of transport infrastructure has held back opportunities for development.

Figure 11.1 Opportunity Areas with adopted boundaries in London.



Source: Greater London Authority.

Note: This map shows the 29 Opportunity Areas with adopted boundaries. A further 19 Opportunity Areas with emerging or undefined boundaries are not shown here as it is not possible to include them in the Opportunity Area monitoring analysis.

Monitoring of Opportunity Areas

TfL will monitor the extent to which the Mayor's Transport Strategy principles of Good Growth are being realised across the Opportunity Areas.

We will be monitoring Opportunity Area data against two baselines: the London Plan designation year of the respective Opportunity Area, and the 2018 transport strategy publication year. We monitor against the London Plan designation year because this is when the Opportunity Area came into being and so this is the logical start date from which to monitor the Opportunity Area through its lifespan.

London's Opportunity Areas with adopted boundaries were designated in the following London Plan publications: 2004, 2008, 2011 and 2016. As there are four different designation years, it is not possible to get an aggregated picture across all Opportunity Areas when baselining against designation year. We therefore aggregate the Opportunity Areas by designation year cohorts, as set out in

table 11.1. Only the 29 Opportunity Areas with adopted boundaries are included in the monitoring to date, as it is based on spatial analysis that is not possible for undefined geographical areas.

Table 11.1 London's Opportunity Areas with adopted boundaries by London Plan designation year cohort.

Opportunity Areas	
2004	Bankside, Borough and London Bridge, City Fringe/Tech City, Cricklewood/Brent Cross, Croydon, Elephant & Castle, Greenwich Peninsular, Ilford, King's Cross, London Riverside, Old Oak/Park Royal, Olympic Legacy, Paddington, Upper Lee Valley, Vauxhall Nine Elms Battersea, Waterloo, Wembley, White City and Woolwich.
2008	Charlton Riverside, Colindale/Burnt Oak, Euston, Thamesmead and Abbey Wood, Tottenham Court Road and Victoria.
2011	Earl's Court/West Kensington and Southall.
2016	Canada Water and Harrow & Wealdstone.

Source: Greater London Authority.

Note: the full list of Opportunity Areas (including those without defined boundaries) is available at <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/opportunity-areas/londons-opportunity-areas>.

We monitor against the 2018 Mayor's Transport Strategy publication year because this is when the principles of Good Growth – against which we are monitoring performance – were published.

This report establishes a metric for the 'good access to public transport' principle. We will use future Travel in London reports to monitor progress against this metric and at least one metric for each of the six other transport principles of Good Growth.

Monitoring 'good access to public transport' Good Growth principle in Opportunity Areas

We will monitor the 'good access to public transport' Good Growth principle using a combination of PTAL (Public Transport Accessibility Level) and population data. PTAL provides a measure of proximity to the public transport network. It combines walk time to network access points (bus stops, stations etc) with transport service wait time at those points. PTAL in an Opportunity Area can be measured in terms of space (ie the proportion of the Opportunity Area's space that falls under various PTALs) or by population (ie the proportion of the Opportunity Area's population that falls under various PTALs). We consider that the latter is a better measurement of Good Growth because we are interested in how well the Opportunity Area's population are connected to public transport.

To simplify the analysis, we have grouped the PTALs into three PTAL categorisations: high - PTAL 4 to 6; medium - PTAL 2 to 3; and low - PTAL 0 to 1. Therefore, we are monitoring access to public transport in Opportunity Areas using the metric 'percentage of population by PTAL categorisation'.

An increase in the percentage of the population living in the high PTAL categorisation is a good indicator of Good Growth because this means more people have good access to London's public transport network for their work and leisure journeys, making them less likely to need a car. This therefore supports the Mayor's aim for 80 per cent of all trips in London to be made on foot, by cycle or using public transport by 2041.

11. Facilitating London's growth and recovery

The 'good access to public transport' Good Growth principle can be improved by increasing the public transport provision in the Opportunity Area, improving the walking and cycling links to public transport in the Opportunity Area or by building new homes in high PTAL areas (eg around a London Underground station).

Monitoring PTAL in Opportunity Areas

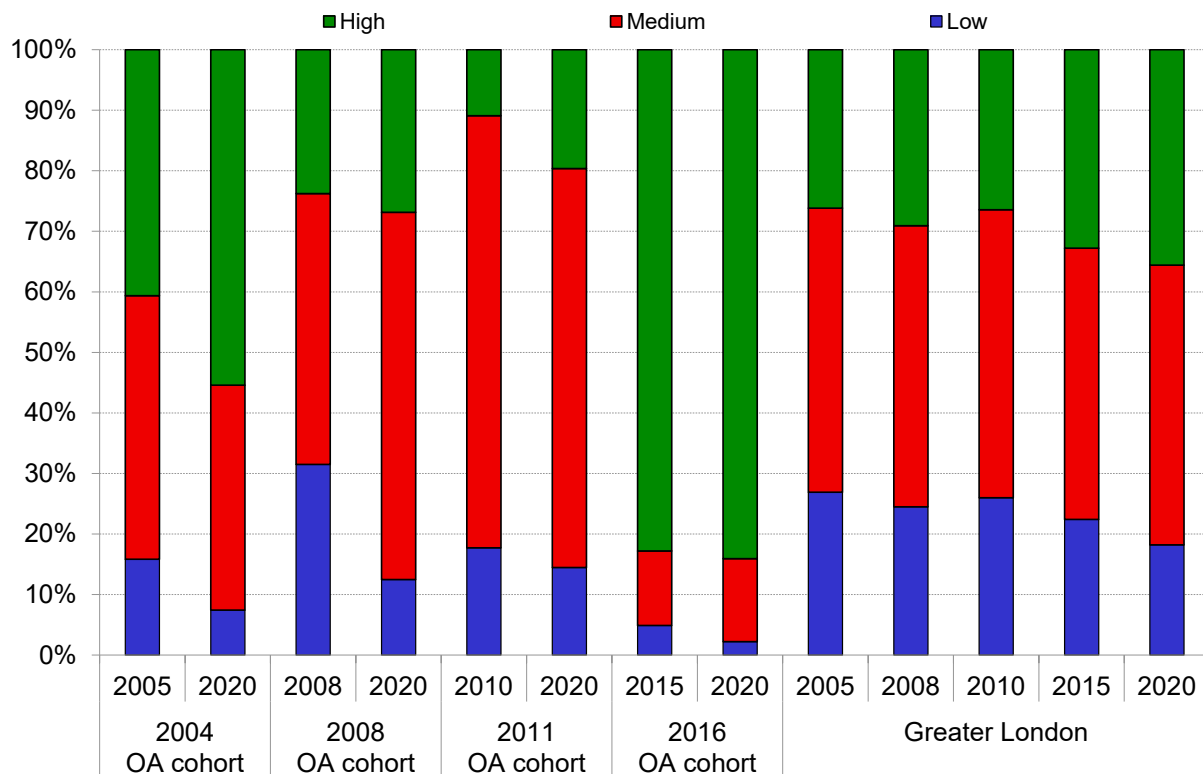
Figure 11.2 shows the percentage of population by PTAL categorisation aggregated across Opportunity Area cohort at Opportunity Area designation year against 2020 (the most recent year for which data is available). Only Opportunity Areas with adopted boundaries are included in this analysis. The respective figures for Greater London are also shown to give a perspective against London as a whole.

It is evident that in all cohorts, public transport accessibility has improved over time from Opportunity Area inception to 2020. Each of the four cohorts have experienced an increase in the proportion of their respective populations that live in high PTAL areas, and a decrease in the proportion of their respective populations that live in low PTAL areas.

The improvements in Opportunity Area accessibility may be due to improvements to public transport, to walking and cycling links to the public transport or movement of people to higher PTAL areas (eg occupation of new development near a London Underground station), or a combination of these factors.

There are two reasons why the results of the London Plan 2004 cohort are of particular interest in terms of monitoring the changes in Opportunity Area PTALs. Firstly, with 18 Opportunity Areas, this is by far the largest cohort in terms of number of Opportunity Areas (the second largest is the London Plan 2008 cohort with 6 Opportunity Areas). Secondly, being the first Opportunity Area cohort, this cohort has had the longest time since inception for PTAL changes to take effect. The London Plan 2004 cohort has experienced a rise in the percentage of its population living in high PTAL areas from 41 per cent to 55 per cent. The respective figures for London as a whole are a rise from 26 per cent to 36 per cent. Conversely, the cohort has experienced a decrease in the percentage of its population living in low PTAL areas from 16 per cent to 7 per cent. The respective figures for London as a whole are a decrease from 27 per cent to 18 per cent. It is evident, therefore, that the rise in the percentage of population living in high PTAL areas between 2005 and 2020 was greater for the Opportunity Area cohort than it was for London as a whole. However, the decrease in the percentage of population living in low PTAL areas was similar for both the Opportunity Area cohort and London as a whole.

Figure 11.2 Percentage of population by PTAL categorisation, Opportunity Area cohort, designation year and 2020 with Greater London comparison.



Source: TfL City Planning.

Note: PTAL categories are high PTAL 4-6, medium PTAL 2-3, and low PTAL 0-1.

These results indicate that our Opportunity Area planning work is achieving good progress in terms of the Good Growth principle of 'good access to public transport' in Opportunity Areas.

11.3 New homes and jobs: the Northern line extension

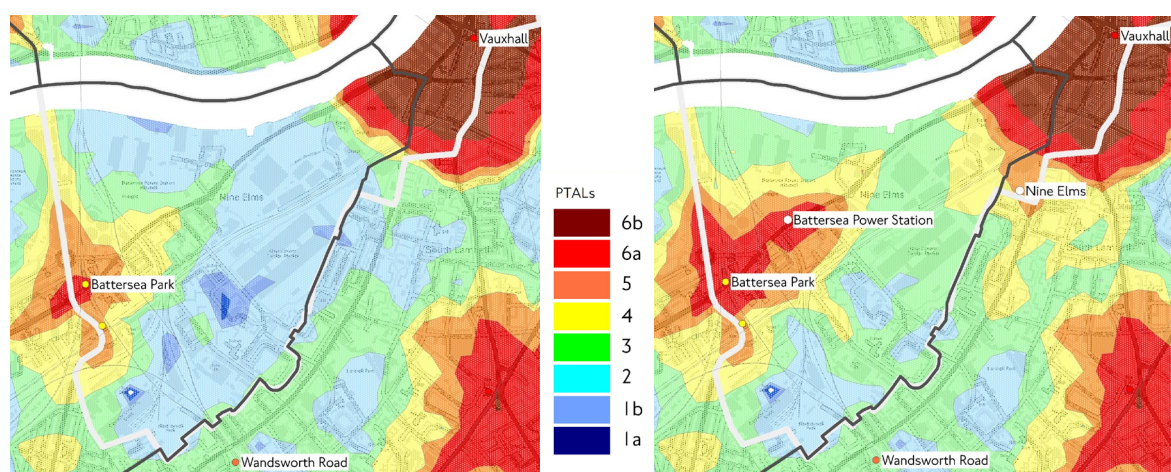
Introduction

This case study introduces the recently opened Northern line extension (NLE) as an example of Good Growth and the role of transport infrastructure in enabling development of new homes and jobs in the Vauxhall Nine Elms Battersea (VNEB) area. It highlights some key elements in the scheme's delivery such as the importance of partnership working, the role of a coherent planning process through the Opportunity Area Planning Framework, and the novel funding mechanism which means it was entirely funded by London. It introduces the early impacts of the scheme in terms of initial passenger numbers, and the number of homes and jobs being delivered in the area.

Figure 11.3 shows the VNEB PTAL before and after the implementation of the package of transport measures that have come forward with the Opportunity Area development, including the Northern line extension. Cooler colours on the pre-development map, representing the lower PTAL values, are replaced by warmer colours, representing higher PTAL values.

11. Facilitating London's growth and recovery

Figure 11.3 PTAL in the VNEB area before (left) and after (right) the opening of the Northern line extension and new walking and cycling routes.



Source: TfL City Planning.

The scheme

The Northern line extension is a 3km twin tunnel rail extension from Kennington to Battersea. Along its route two new step-free Zone 1 stations have been delivered in an area of central London which was previously poorly served by public transport. Construction started in 2015 and the extension was successfully opened to the public on 20 September 2021, representing the first major expansion of the London Underground since the Jubilee line was extended in the late 1990s.

Figure 11.4 Extract from the London Underground map showing the two new stations on the Northern Line.



Source: TfL.

The opening of the NLE represents a culmination of fourteen years of planning and construction since the extension was first envisioned in 2007, with planning powers granted by the Secretary of State for Transport in 2014. The quick progression of the scheme from inception to delivery is testament to collaboration between central government, GLA, TfL, the London Boroughs of Lambeth and Wandsworth and

private sector landowners and developers, with all parties buying into the benefits the NLE is forecast to deliver to the local area.

An example of integrated land use and transport planning

The NLE is a catalyst for regeneration in Nine Elms and Battersea, and more widely in southwest London. With this connection, the area is now within 15 minutes of the West End and the City, bringing greater access to jobs as well as facilitating the delivery of much needed new homes and jobs in the local area. By successfully integrating land use and transport planning, the NLE is enabling significant land use change and supporting Good Growth. The planned number of jobs, and the level of retail and leisure on offer could not be supported without the NLE.

Given the high level of connectivity to the London Underground and bus networks, and the increase in Public Transport Accessibility Levels (PTAL) resulting from the new extension, new homes in the area have been able to develop at higher density. The NLE seeks to reduce carbon emissions and improve air quality by providing more sustainable transport options. More than half of residential units are car-free, and the office space has very little car parking, which will minimise car trips in the area. The Old Paradise Street development in Lambeth is a net zero carbon development and aims to promote awareness around the carbon impact of buildings. There are also initiatives to support sustainable travel among existing residents and visitors. For example, the new Arch 42 link under the railway line from Nine Elms station to the river encourages people to explore the area on foot or by bicycle. There have also been improvements to Vauxhall and Battersea Park stations, a new river pier at Battersea Power Station, and new cycle hire docking stations. A high-quality urban realm and walking and cycling infrastructure in the area support the Mayor's Healthy Streets agenda and helps to decarbonise travel in London.

Figure 11.5 Battersea Power Station (left) and Nine Elms station (right).



Source: TfL City Planning.

The Vauxhall Nine Elms Battersea Opportunity Area Planning Framework (OAPF), published in 2012 and supported by a robust evidence base, sets out a clear plan for the area with an ambition to deliver at least 16,000 new homes and up to 25,000 new jobs as part of a vibrant new quarter of central London. It was developed by the GLA in partnership with TfL, the London Boroughs of Lambeth and Wandsworth, and major landowners in the area, who not only supported the plan and endorsed its outcomes, but also contributed funding towards its development.

11. Facilitating London's growth and recovery

However, the OAPF vision could only be realised if suitable and sustainable transport links were provided. The NLE was identified as the only viable scheme to deliver the necessary step-change in accessibility. Therefore, unlike previous transport investments, the case for the NLE was not primarily based around solving existing transport problems such as slow journey times or overcrowded services, but instead focussed on enabling land use change and driving sustainable growth through increasing accessibility to a poorly connected area of central London. Existing communities also benefit from enhanced rail access and quicker journey times to central London providing access to more employment opportunities.

A new way of funding transport investment

An innovative approach to funding the NLE was crucial to delivering the vision for the Opportunity Area. To enable delivery of the NLE the Mayor of London has borrowed £1bn which will be repaid via a combination of business and developer contributions over the coming decades.

As the scheme effectively expands the boundary of London's Central Activity Zone, it will deliver significant economic benefits for central London and the wider UK economy. Capturing these benefits through establishing an Enterprise Zone allows for retention of commercial property tax (business rates) generated in the area over a 30-year period. Therefore, the NLE is the UK's largest example of Tax Increment Finance (TIF) for a transport project.

There were also significant contributions from developers in the area with Battersea Power Station contributing approximately £200m (2012/13 prices) and £66m being provided from other new developments collected through LB Lambeth and LB Wandsworth Community Infrastructure Levy receipts and Section 106 payments.

Initial scheme impacts

The NLE will play an important role as we recover from the impact of the pandemic both in the short term by providing confidence in infrastructure delivery and job creation, and over the long term through wider regeneration and the associated economic benefits this brings. The scheme is also already having a positive impact in addressing inequalities and in delivering a greener future by bringing greatly improved, accessible and sustainable transport to the area.

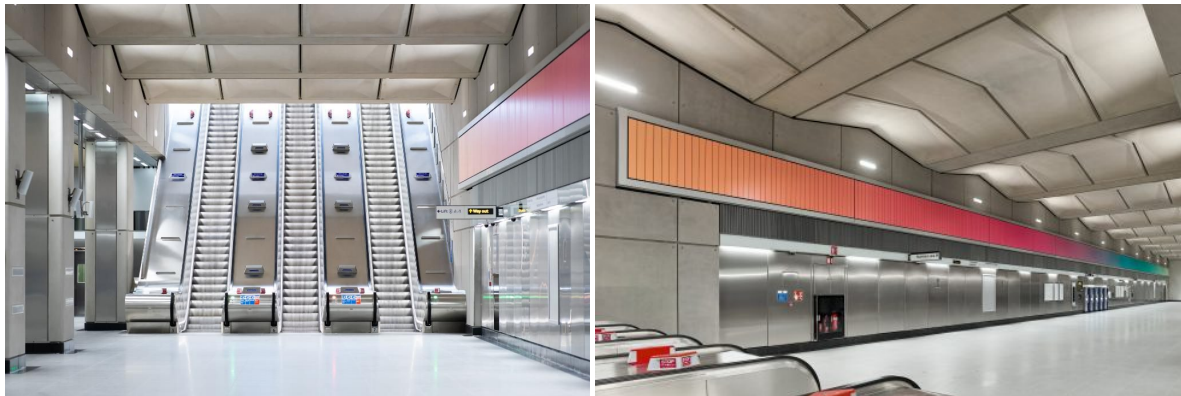
The NLE is key to regeneration of the local area and delivering much needed new homes and jobs. Building on original projections set out in the OAPF it is now forecast that approximately 20,000 new homes (including 4,500 affordable) can be delivered in the Opportunity Area. The construction of the NLE has been a significant factor in providing the necessary infrastructure to enable the scale of residential development and establish a new vibrant commercial and residential quarter on London's South Bank. As of March 2021, planning consent has been granted for over 18,550 homes with 8,100 already completed. Of the units consented, over 3,250 were affordable, with nearly 1,400 units completed. These are provisional figures subject to publication of the 2020/21 Housing Authority Monitoring Report.

In terms of new employment in the Opportunity Area, the target of 25,000 new jobs remains on track to be delivered. High profile organisations such as the US Embassy and Penguin Random House have already made their home in the area. A major milestone is expected to be met in 2022 when Apple move into their new campus in

Battersea Power Station, which can accommodate up to 3,000 staff. When Battersea Power Station opens in 2022 it will house over 100 shops, bars and restaurants. The construction of the NLE itself has supported around 1,000 jobs, including 79 apprenticeships and 159 previously unemployed people. The team also engaged with local communities and schools, reaching over 3,000 young people, and providing 1,629 days of work experience.

At the new Underground station at Battersea Power Station, a large piece of public art by Brazilian artist Alexandre da Cunha was commissioned by Art on the Underground. Named 'Sunset, Sunrise, Sunset', it is inspired by the control room of the former power station, and the rhythms of daily urban life.

Figure 11.6 Escalators (left) and artwork (right) at Battersea Power Station.



Source: <https://art.tfl.gov.uk/projects/sunset-sunrise-sunset/>.

Passenger numbers during first few weeks of operation

Passenger numbers for the first few weeks of operation show the new stations serving over 100,000 passengers per week (see figure 11.7). Battersea Power Station is the busier of the two new stations, with around 10,000 daily entries and exits midweek, compared to approximately 5,000 at Nine Elms. These are encouraging results, given that the full commercial/residential development of the area is yet to come, and it is forecast that usage of the NLE will increase and patterns change over time as the regeneration of the area continues and the mix of users (residents, workers, visitors) changes in future years.

Lessons for the future

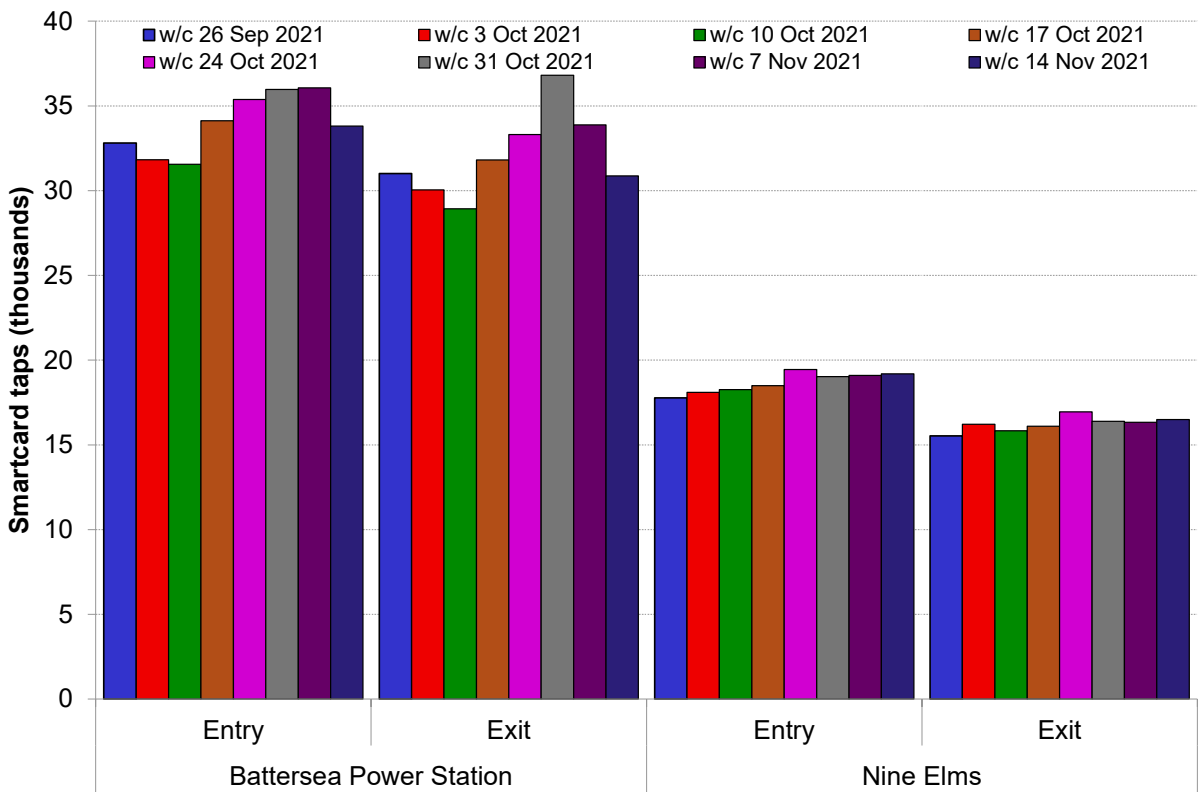
There are many lessons that can be applied when considering and planning future transport investment both in London and beyond. In particular, the NLE provides a strong example of how transport schemes can be a direct enabler of land use change, urban regeneration and Good Growth. It shows what can be achieved with an integrated approach to land use and transport planning and of the benefits of true collaborative work across different levels of government and between the public and private sectors. It is also an example of a novel funding arrangement; a scheme funded by London from local contributions, to pay back a government loan.

The model used to develop the NLE was instrumental in informing the development of the London Overground extension to Barking Riverside which is due to be delivered in 2022 when it will unlock 10,000 new homes. It also forms the basis for developing area visions and planning future schemes including the DLR extension to

11. Facilitating London’s growth and recovery

Thamesmead which is expected to support the delivery of more than 15,000 new homes and 8,000 jobs in the area south of the river (as set out in the OAPF vision for Thamesmead and Abbey Wood).

Figure 11.7 Total weekly entries and exits at the NLE stations, Sep-Nov 2021.



Source: TfL Technology & Data.

Figure 11.8 Vision of the area in 2030.



Source: Nine Elms London 2017 at <https://nineelmslondon.com/the-area/our-vision/>.

12. Tracking progress towards the Mayor's aims during the pandemic recovery

12.1 Introduction

Effective monitoring and interpretation of data and trends is crucial to ensure that policy is firmly grounded in evidence, and that the impacts of public investment and related initiatives are thoroughly understood and properly evaluated. The material presented in these reports forms part of this developing evidence base, which is fed back to policymakers to support policy, and is available more generally. As well as being a key 'stage' in the policy development cycle, monitoring and interpretation is also unique in that it simultaneously acts as an essential input to all other stages of this cycle (eg problem definition, project appraisal).

This process takes place in the context of evolving trends. This means that it is essential to continually update both our data, including our measurement techniques, to take account of new measurement technologies, and their policy focus to reflect emerging priorities. The disruption caused by the coronavirus pandemic in London, and the need to better inform the priorities that are being identified to help support London's recovery, are timely examples.

This chapter looks at some contemporary strands of this process, describing a new way of consolidating our measurements around a structured periodic assessment of progress towards Mayoral transport strategy aims, looking at some of the challenges to conventional travel statistics presented by the pandemic, and considering our longer-term travel demand forecasts in the context of the pandemic.

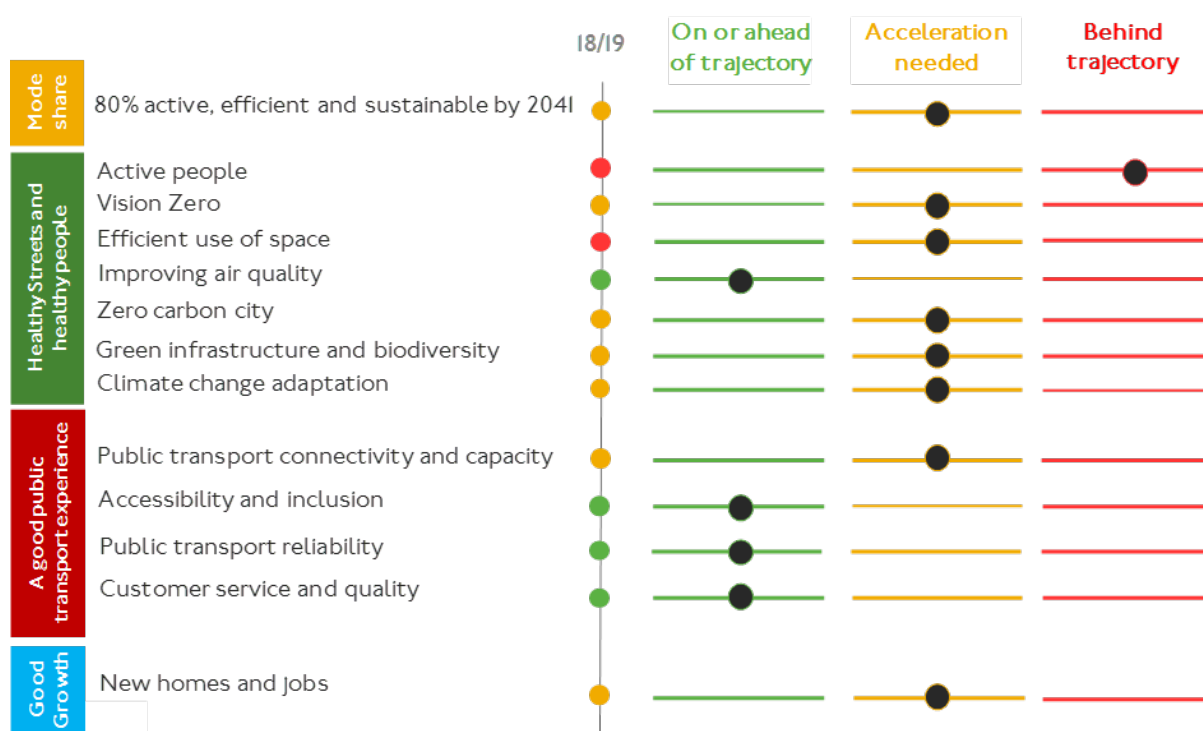
12.2 Tracking progress towards MTS aims: The 'MTS Tracker'

The need for change

Previous Travel in London reports have presented a consolidated view of progress towards Mayoral transport aims using a broad qualitative categorisation, as shown by figure 12.1, this relating to 2019 and as previously published in [Travel in London report 13](#). While useful in terms of providing an 'at a glance' appreciation of progress at a very high level, this form of presentation (inevitably) has limitations. The pandemic has revealed a particular limitation, in that many of the otherwise positive trends in London have been set back, hopefully temporarily but in many cases materially, by force majeure. This has created a need to 'take stock' of where we are with each of the aims, perhaps in terms of a new post-pandemic 'baseline', to clearly guide priorities for post-pandemic policy. The current financial limitations on TfL, arising largely from the pandemic, give extra impetus to help ensure that limited funds are directed to the best effect in terms of the Mayor's vision.

12. Tracking progress towards the Mayor's aims during the pandemic recovery

Figure 12.1 Progress towards Mayor's Transport Strategy aims to end of 2019.



Source: TfL City Planning.

Note: This graph is as previously presented in Travel in London report 13.

A new framework for assessing progress towards the Mayor's transport vision

We have therefore identified a need for a more informative presentation that places contemporary developments in the context of the longer-term trends and sets out a clear trajectory of what progress is required to achieve the Mayor's vision. Importantly, the new presentation will have a direct quantitative link to the historic trends published in previous Travel in London reports, as well as direct quantification of the overall progress and intermediate milestones required in the future to achieve the Mayor's aims.

The general form of the new assessment framework is shown by table 12.1, where each of the Mayor's aims are grouped under the three priorities, with the overarching aim of an 80 per cent share for active, efficient and sustainable modes for all travel in London by 2041. One or more quantified indicators are given for each of the aims, and information relating to each indicator will be published in Travel in London reports, which will also provide a range of additional indicators and commentary relating to each of the aims.

12. Tracking progress towards the Mayor's aims during the pandemic recovery

Table 12.1 General framework for tracking progress against Mayoral transport strategy aims.

Outcome	Proposed measure	MTS 2041 aim
Mode share	Proportion of trips undertaken by active, efficient and sustainable modes	80 per cent of trips
Active	Proportion of Londoners doing 20 minutes of active travel per day	70 per cent of Londoners
Safe	Number of people killed or seriously injured on London's roads	Zero
	Number of people killed on or by a bus	Zero by 2030
Efficient	Number of car trips in central, inner and outer London	3 million fewer daily trips overall
Green	All CO ₂ emissions from London's transport network	72 per cent reduction from 2015 ¹
	Average roadside concentration of NO ₂ at key locations	In development
	Average roadside concentration of PM ₁₀ and PM _{2.5} at key locations	In development
Connected	Proportion of Londoners living within 400 metres of a bus route (or specifically those served by high frequency routes)	Not in the MTS, but assumes it is maintained at very high level
Accessible	Additional journey time by step-free routes	50 per cent reduction from 2015
Quality	Proportion of kilometres travelled by rail in crowding conditions with density above 2/3/4 people per square metre (threshold to be confirmed)	10-20 per cent reduction from 2015
	Average bus speed (within safety and speed limits)	Increase by 5-15 per cent from 2015
Sustainable growth / unlocking	Proportion of new homes that do not have access to a parking space ²	Not available

Source: TfL City Planning.

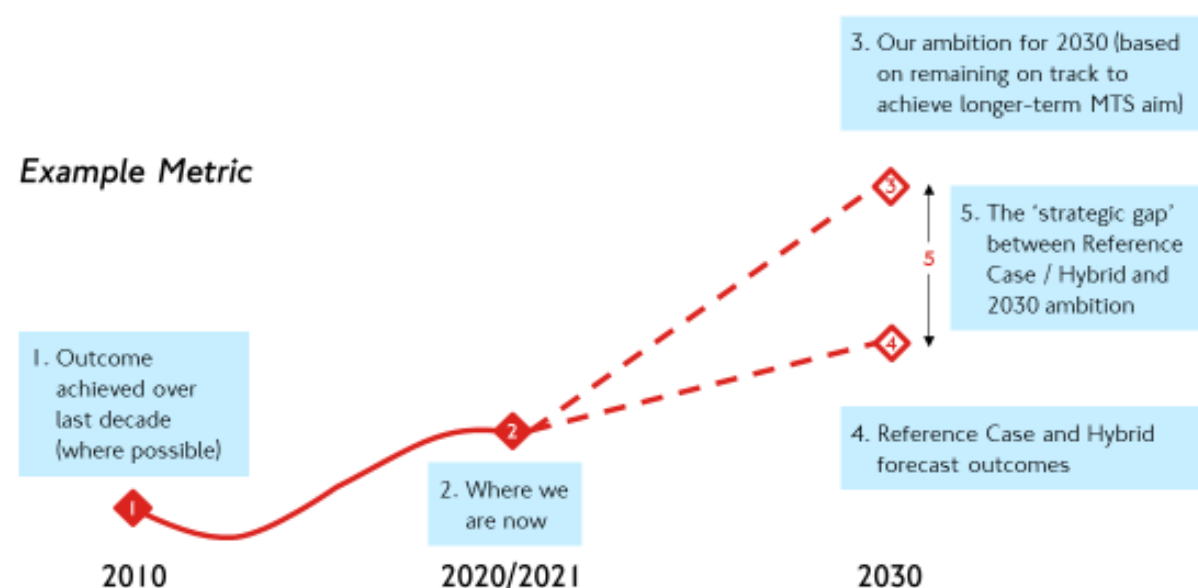
1: This target is likely to be revised soon and replaced by a more ambitious one.

2: Other alternative measures for this outcome are still being explored, including some based on connectivity for new developments.

Each indicator will be assessed according to a common structure, the general form of which is shown by figure 12.2. Here, current quantified status is shown as (conceptually) a mid-point on a timeline that extends back several years, and forwards to an interim 2030 planning horizon. The historic context would, ideally, be 10 years; however, this is not always supported by the available data, particularly for relatively newer policy priorities, in which case the maximum extent of the available historic data is used. In projecting forwards to 2030, as an intermediate milestone to 2041, data from our forecasting models is used to quantify: (a) the general level of progress required (b) likely 'milestones' along the way, for example the expected introduction of transformative projects and policies (c) to provide periodic updates and adjustments to the 'required trajectory', to reflect changing circumstances.

12. Tracking progress towards the Mayor's aims during the pandemic recovery

Figure 12.2 Illustration of assessment of progress and improvement required to achieve the Mayoral vision for each indicator on the MTS Tracker.



Source: TfL City Planning.

This framework will be used to summarise overall progress towards the Mayor's transport vision in future Travel in London reports. It will also underpin our own business planning, helping identify and prioritise needs, ensure best value for investment, and to provide a consolidated evidence base for policy discussion.

As a preliminary to this, a 'worked example' of the new framework is described below, showing how it is expected to work in practice.

An illustrated example: progress towards the Mayor's aim of an 80 per cent share for active, efficient and sustainable modes for all travel in London by 2041.

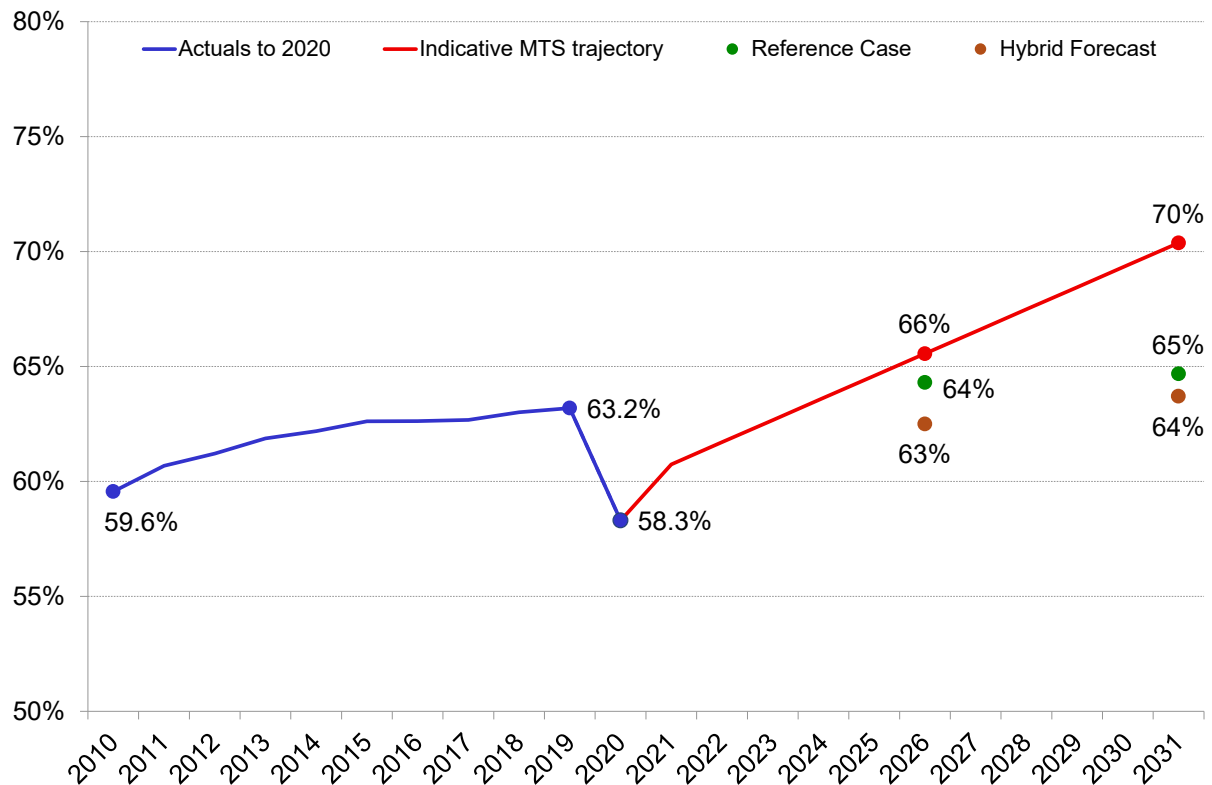
Figure 12.3 shows the past and projected future trajectory for active, efficient and sustainable mode share, in respect of the Mayor's aim of achieving an 80 per cent share by 2041. The projections relate to our Reference Case and Hybrid forecasts, as explained below in section 12.4 of this report.

Over the period between 2010 and 2020 there was incremental and generally positive progress towards the goal, albeit that the rate of progress slowed in the later part of the period. The impact of the pandemic in 2020 is clearly visible as a dip in the trend, hopefully temporary in the longer-term context. Projecting forwards, we forecast a recovery from the lower starting point, relatively rapidly at first as London recovers to something like 'business as usual', then regaining, albeit from a lower base, the previously-forecast trajectory, reflecting the full range of initiatives in the Mayor's Transport Strategy.

As time progresses, the 'actual' mode share revealed by our monitoring would replace the forecast trend, giving a clear indicator of actual progress. This will, in turn, be a central focus for our business planning, and lead to revised forecasts of the 'expected' future trajectory based on contemporary plans.

12. Tracking progress towards the Mayor's aims during the pandemic recovery

Figure 12.3 Illustrative example of MTS Tracker framework: active, efficient and sustainable mode share.



Source: TfL City Planning.

12.3 Adapting our measurements and focus to reflect changing circumstances: active, efficient and sustainable mode share

The importance of the mode share measure

Achieving an 80 per cent share for active, efficient and sustainable modes for all travel (in terms of trips) in London is the overarching aim of the Mayor's Transport Strategy. It is an outcome to which all other aims will contribute, and, in turn, its achievement will of itself facilitate many of the improvements to transport and life in London more generally that are sought by the Mayor.

The need for a wider statistical perspective

The 'headline' mode share statistic is a composite 'outcome' measure that is built up from individual statistics relating to each travel mode in London. It is a trip-based measure, enumerated on the basis that the 'main (ie assigned) mode' for a trip is that on which the greatest distance is travelled (either the sole mode used or the longest distance of a multi-stage journey). These input statistics arise from different legacy arrangements and some are necessarily provided by third parties, over which TfL has no control. Each of them therefore has features and limitations, which are in turn reflected in the composite statistic, albeit tending to be consistent across the years and largely invisible to the user.

12. Tracking progress towards the Mayor's aims during the pandemic recovery

Periodically, however, measurement technologies and practices change, this usually affecting one of the contributing statistics at a time. These improvements commonly result in estimates that are materially different to those in the historical record, having the character of a (statistical) series break. While it might be thought to be best practice to revise the composite statistic to reflect these revised input statistics immediately, in practice this can, unhelpfully, unbalance the time series. It is usually the case that a step change in a data series reflects a changed method rather than a 'real' change in the quantity being measured. Although such revisions are commonly regarded as providing better (ie more accurate) estimates, their incorporation into a composite statistic such as the mode share indicator on an ad hoc, uncontrolled basis, could lead to frequent fluctuations in trend that can distract from the overall story, particularly where, as in the mode share indicator, relatively small incremental changes are the expectation.

It is therefore preferred practice to consolidate these changes together on a periodic basis, informed by developments to the data, ensuring that a revised data series is provided which takes account of all known changes in a single step. Work is currently underway to update this statistic to reflect several recent developments in measurement techniques. These include: the advent of more comprehensive data on cycling in London through improved TfL monitoring; the growth of private hire vehicle traffic and an ability to measure it using cameras; greater interest in walking and various new technologies that could allow a more comprehensive estimate of walking in London. The revisions to the Department for Transport's road traffic statistics, described in section 7.2 of this report, is another development requiring a revision to the methodologies. We expect to be able to give an update on this work in Travel in London report 15.

New priorities emerging from the coronavirus pandemic

As well as the need to respond to changes in monitoring technologies, the pandemic has also exposed a particular limitation of the mode share statistic. Specifically, the pandemic caused many changes to the character of travel in London. For example, for periods when government restrictions on travel were in force, there was a marked reduction in longer distance 'commuting' type travel, and a relative increase in shorter distance local travel, this often by active, efficient and sustainable modes such as walking and cycling. Likewise, during the early period of recovery into late 2021, car travel in London recovered quickly to near-normal levels, while public transport patronage lagged in comparison.

The overall picture presented by the aggregate mode share statistic during the pandemic (see chapter 3 of this report) is of perhaps relatively modest change, in the face of the scale of the pandemic disruption to travel, in particular the large-scale changes to overall travel demand and journey purposes. However, this has concealed some developments that are very important in terms of achieving the Mayor's vision for transport. For example, did the pandemic lead to 'more' active travel in absolute terms, or just 'relatively more, in the context'? And more importantly, how do we better track trends in active travel as London recovers, so that we can identify and embed favourable trends in travel behaviour?

Much of this reflects the trip-based nature of the headline statistic. A trip will always have a sole or longest mode, irrespective of its length. Trips of widely varying lengths will therefore be enumerated on the same basis. However, trips of different lengths

12. Tracking progress towards the Mayor's aims during the pandemic recovery

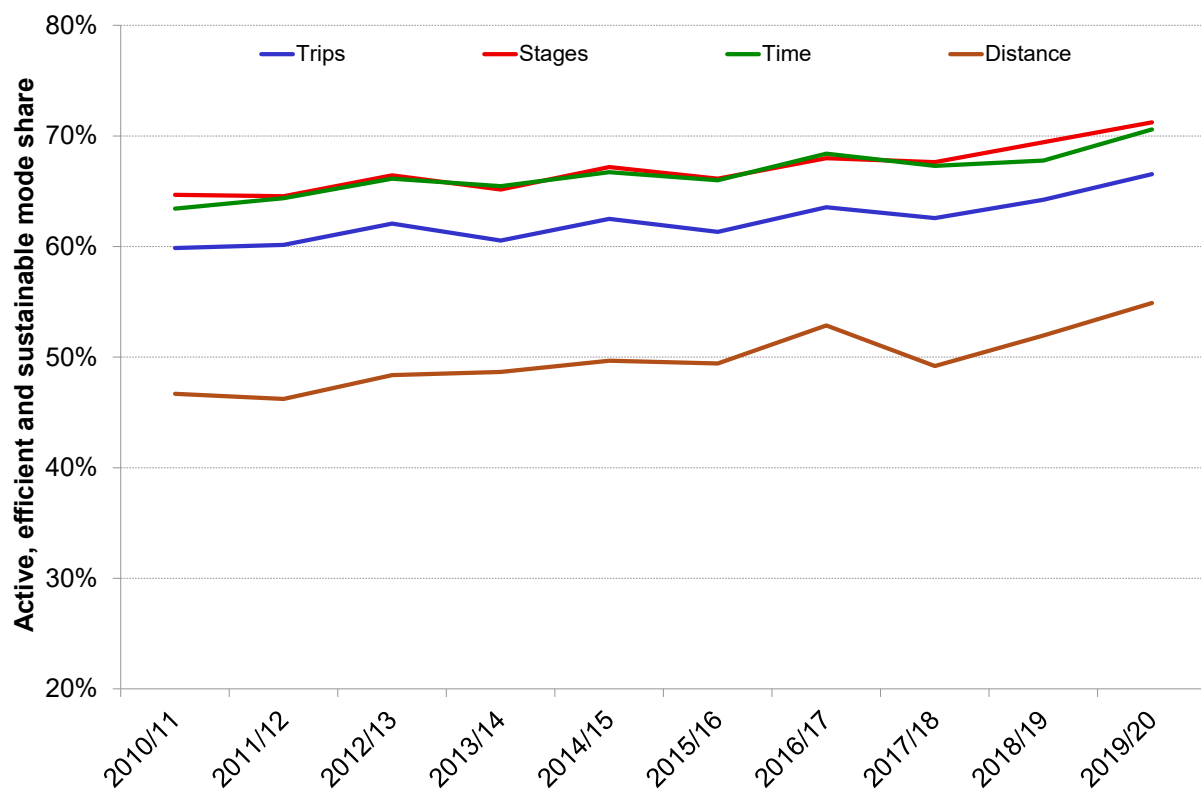
predispose towards different modes – with active, efficient and sustainable modes being particularly appropriate for short trips, of the kind particularly seen during the pandemic. Likewise, for longer-distance trips, for example with an assigned 'main mode' of public transport (eg the rail-based commute trip into town), the (typical) walk to and from the station will not be reflected. During the pandemic, when many commute trips of this kind were not made due to people working from home, this resulted in an appreciable loss of active travel that could not be adequately reflected in the trip-based statistic.

Different ways of enumerating mode share

As previewed in [Travel in London report 11](#), there are several different ways of expressing mode share (figure 12.4).

Measuring on the basis of trips, the active, efficient and sustainable mode share for 2019/20 (for London residents only – before the pandemic) was 66.6 per cent. The equivalent stage-based mode share was higher at 71.2 per cent, as trips made on public transport are more likely to be comprised of multiple journey stages. The time-based mode share was also higher, at 70.6 per cent. However, measured by distance travelled, the active, efficient and sustainable mode share is lower, at 54.9 per cent.

Figure 12.4 Active, efficient and sustainable mode share for trips, journey stages, distance and time, 2010/11-2019/20.



Source: TfL City Planning.

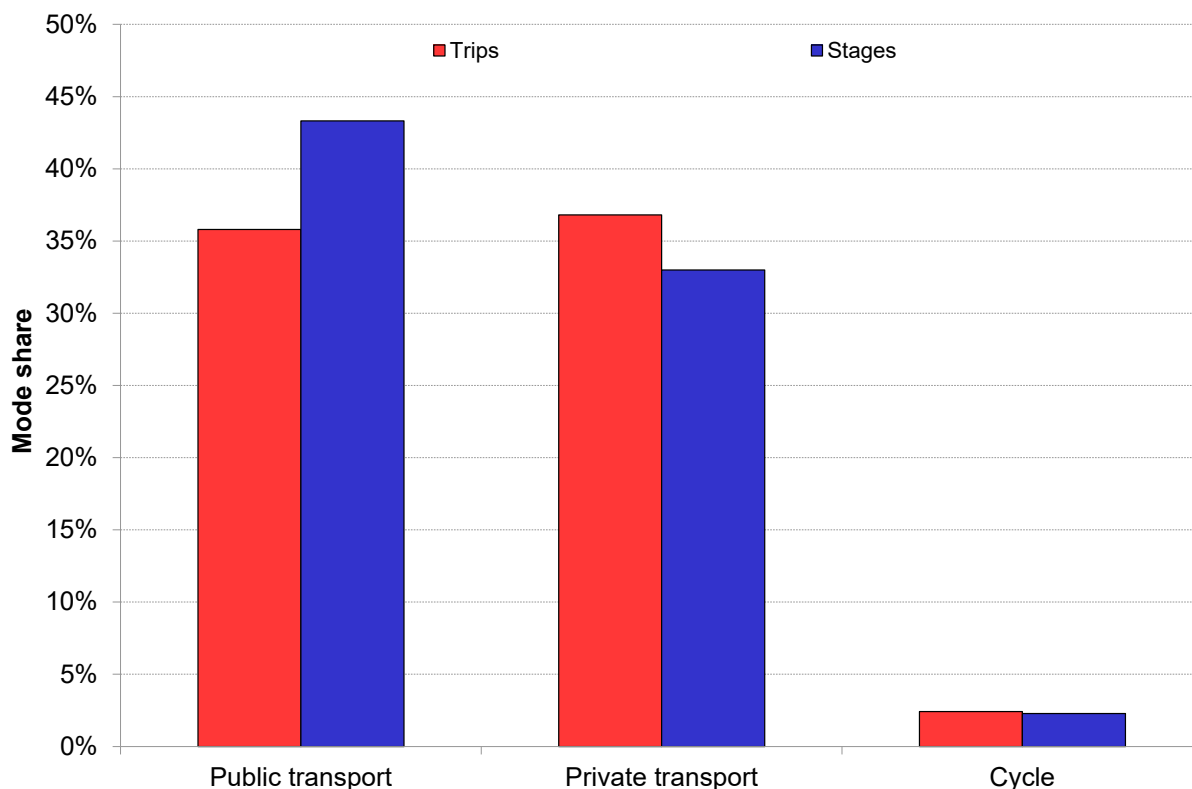
Mode shares based on journey stages

Figure 12.5 shows how the different components of the active, efficient and sustainable mode share measure change depending on whether a trip or stage-

12. Tracking progress towards the Mayor's aims during the pandemic recovery

based measure is used. Using a trip-based measure leads to a lower public transport mode share than using a stage-based measure. This is because trips made on public transport are more likely to be made of multiple journey stages. The stage-based mode share measure for public transport is 43 per cent, dropping to 36 per cent for trips. The cycle mode share remains broadly the same for both stages and trips, as most cycle trips are made up of a single journey stage.

Figure 12.5 Public transport, private transport and cycling mode share for trips and journey stages, 2019.

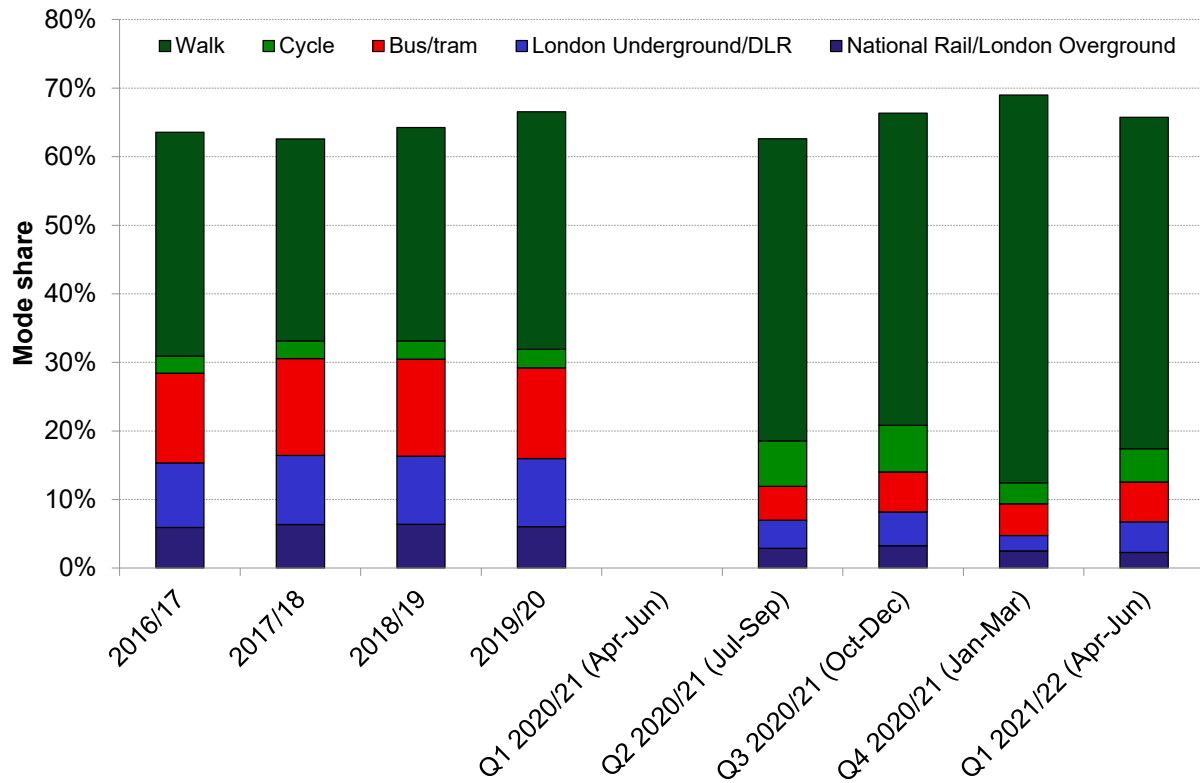


Source: TfL City Planning.

These different methods of measuring mode share can be useful in illustrating some of the changes that have occurred during the pandemic and will be useful in tracking whether these trends continue, or whether travel patterns return to pre-pandemic behaviours. For example, the relative stability in the active, efficient and sustainable mode share measure during the pandemic was largely due to the increase in mode share for the active modes, as London residents made shorter, more local trips, which counterbalanced the large decline in public transport trips (figure 12.6).

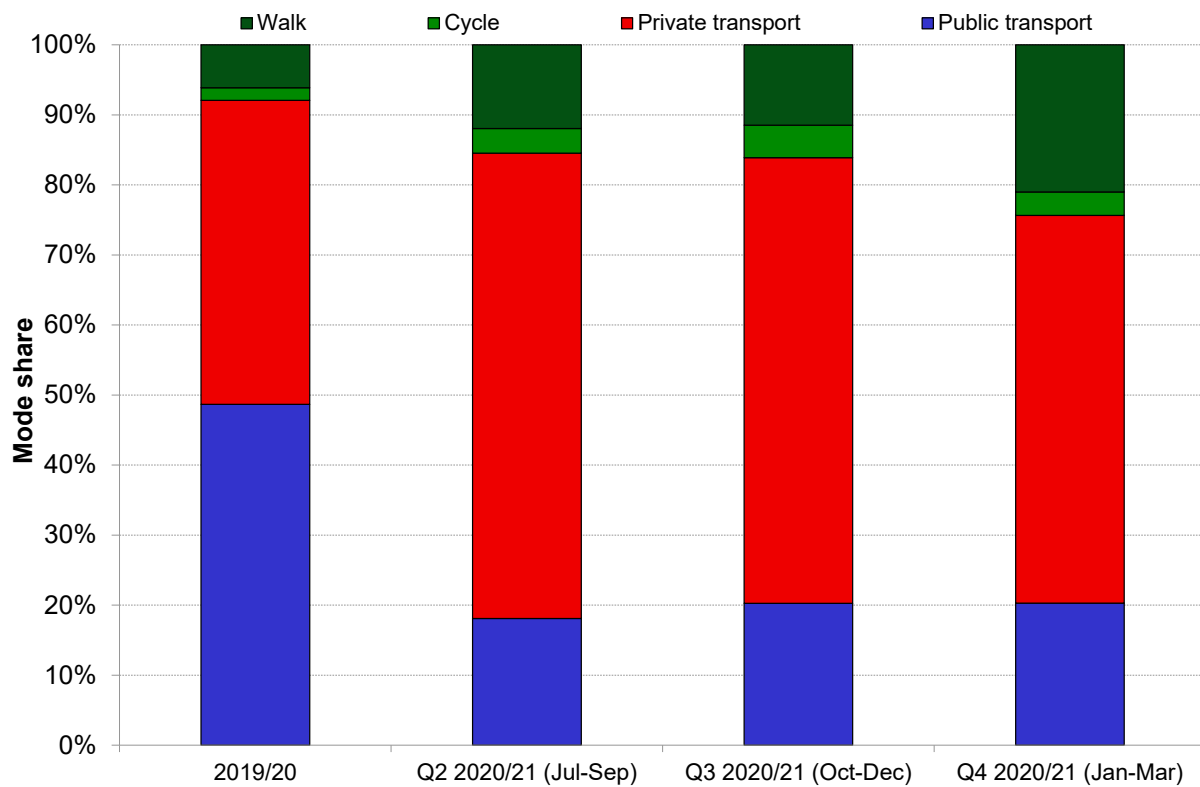
12. Tracking progress towards the Mayor's aims during the pandemic recovery

Figure 12.6 London residents' trip-based mode share before and during the pandemic, 2016/17-2021/22.



Source: TfL City Planning.

Figure 12.7 London residents' distance-based mode share, 2019/20-2020/21.



Source: TfL City Planning.

12. Tracking progress towards the Mayor's aims during the pandemic recovery

Mode share by distance travelled

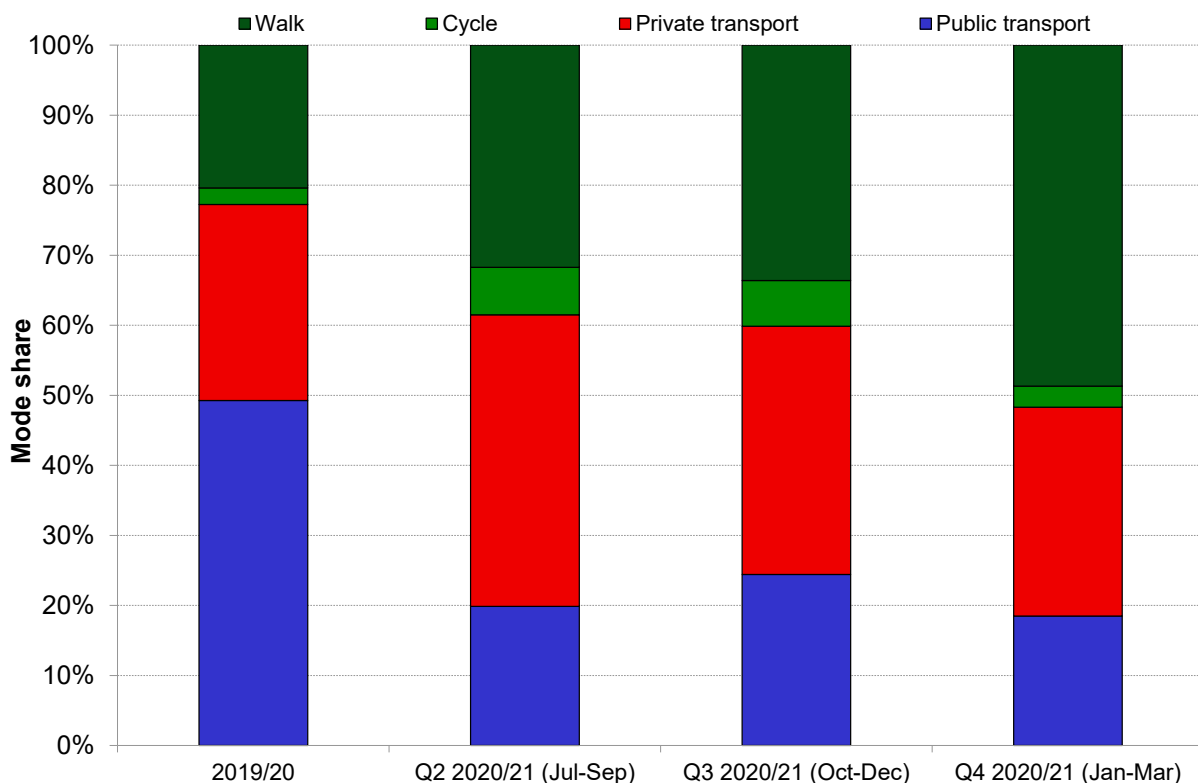
Looking at mode share on the basis of distance travelled (figure 12.7) shows a very different picture. Since the start of the pandemic, the majority of distance travelled by London residents has been by private transport. In 2019/20, around 43 per cent of the distance travelled by residents was by private transport – this increased to 66 per cent in summer 2020. This suggests that London residents chose to use active modes for short trips but were much more likely to use private transport for longer distance trips, which could have implications if this continues during the recovery phase.

Mode share by time spent travelling

In contrast, London residents spent much more time travelling by active modes than before the pandemic (figure 12.8). In 2019/20, around 22 per cent of the average time spent travelling per day was on active modes, whereas by early 2021 this increased to 52 per cent. In contrast to the trend in distance-based mode share, this is more promising for the recovery phase.

These examples illustrate the benefit of the different ways of measuring mode shares beyond the headline trip-based measure, and it will be important to continue to analyse mode shares from a variety of different perspectives as London continues to recover from the pandemic.

Figure 12.8 London residents' time-based mode share, 2019/20-2020/21.



Source: TfL City Planning.

12. Tracking progress towards the Mayor's aims during the pandemic recovery

12.4 Scenario planning and our Hybrid travel demand forecast

Forecasting London's future

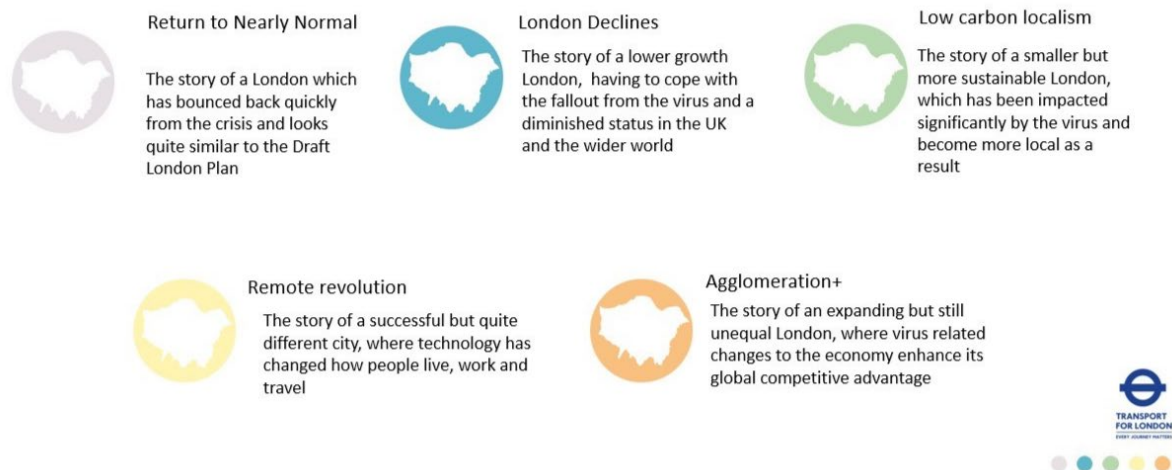
In recent years, TfL has increasingly been thinking about how we deal with uncertainty when planning for London's future.

Traditionally we have used a Reference Case, a set of demand forecasts that enable us to understand how London will change and what this means for travel demand. The Reference Case is our best estimate of 'status quo' future demand based on projections of key trends, such as expected future population growth. They are generated periodically through our strategic models and include detailed demand projections for each of the principal networks for several future time horizons.

Before the pandemic we had started to explore the concept of plausible variations to the Reference Case, reflecting what was then recognised as uncertainty in these projections. [Travel in London report 12](#) presented this work as three different narratives for London's future in the face of this seemingly growing uncertainty up to 2041.

The pandemic has amplified this uncertainty and therefore we built on the narratives to develop five scenarios reflecting the different directions that London's recovery could take up to 2031 (figure 12.9). These five scenarios were developed with insights from experts on topics such as population, economy, transport, innovation, business and equality.

Figure 12.9 TfL's five post-pandemic scenarios.



Source: TfL City Planning.

These scenarios are static and fixed, providing narratives that 'bound the envelope of uncertainty' about the future of London and are supported by high-level, multi-modal demand estimates.

As we emerge from the pandemic, new evidence is regularly being published that provides insight into the direction of London's recovery. We need to reflect this changing landscape in our strategic planning in a way that currently is not possible with the scenarios due to their static nature. We are doing this through the periodic

12. Tracking progress towards the Mayor's aims during the pandemic recovery

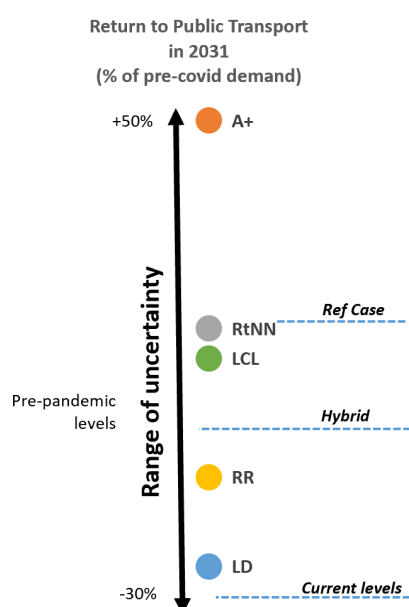
derivation of a Hybrid travel demand forecast, based on a regular review of this emerging evidence.

A Hybrid Forecast

The pandemic amplified uncertainty such that it is no longer appropriate to continue solely with a Reference Case-based approach, with DfT guidance stating that projects additionally incorporate alternative forecasts to help capture this uncertainty.

Our Hybrid Forecast sits and is to be used alongside the Reference Case. Conceptually, the Hybrid Forecast reflects the 'centre of gravity' of the envelope of uncertainty described by the five scenarios based on the latest evidence. Figure 12.10 shows where the updated forecasts lie in relation to the full range of uncertainty of the scenarios.

Figure 12.10 Relative position of current demand, Reference Case and Hybrid Forecast within the 'envelope of uncertainty' defined by our scenarios.



Source: TfL City Planning.

Note: A+: Agglomeration Plus, RtNN: Return to Nearly Normal, LCL: Low Carbon Localism, RR: Remote Revolution, LD: London Declines.

Ongoing evidence-based review

We have recently undertaken an evidence-based evaluation of the changing 'relative likelihood' of the five scenarios (as at early autumn 2021). For example, since the five scenarios were originally specified, it has become clearer that the more extreme, but (then) plausible, futures are looking less likely to come about than was thought a year ago. It is important to recognise at this point that the Hybrid Forecast reflects a re-evaluation of the relative likelihood of the scenarios, and combines appropriate elements from each, and not a change to the five scenarios themselves.

We recommend that two forecasts, rather than one, are used to provide an appropriate range for detailed modelling work given the uncertainty that exists. It is not the case that either forecast should be considered 'right'; practitioners need to appreciate the full range of uncertainty, which continues to be reflected through the

12. Tracking progress towards the Mayor's aims during the pandemic recovery

five scenarios. In the sections below we describe the definition of the both the Hybrid Forecast and Reference Case, give some high-level results and outline next steps.

We will review this work every six months with the travel demand forecasts being updated annually.

Forecast definition

We have defined the latest Reference Case in a similar way to pre-pandemic forecasts. It therefore assumes no further restrictions are brought in and people start returning to their pre-pandemic routines so that by the time we reach the first forecast horizon (2026) there is no additional working from home, online shopping remains as forecast before the pandemic and London gets back on track for achieving London Plan levels of population growth (10 million by 2030) with strong economic growth across the 2020s.

The Hybrid Forecast, however, accounts for the latest evidence on London's recovery. Our review of the emerging evidence showed that features of the more central scenarios – 'Return to Nearly Normal', 'Remote Revolution' and 'Low Carbon Localism' were more plausible whereas some of the more extreme features of the 'Agglomeration Plus' and 'London Declines' scenarios (the latter specific to our scenario planning) now seemed to be less likely to materialise in the longer term. Importantly this meant that we needed to adopt more central estimates of London's population and employment and account for a change in working habits of some office workers and the associated knock-on impacts for discretionary travel and replacement activity.

Both forecasts contain the same portfolio of investment, but this is limited to only those schemes that are funded and committed to provide an appropriate base for testing the impact of interventions and packages of expenditure.

Summary of latest evidence

Below is a summary definition of the Hybrid Forecast, informed by the emerging evidence about London's recovery.

- **Population:** While 'official' data are not yet available, it seems likely that London's population did in fact decline in 2020. Trends over the next few years are uncertain, although the GLA expects a return to previous growth trends over the long term. We have reflected different geographical and age-based patterns of migration and adopted a position between the 'low' and 'low central' GLA population forecast. This means that by 2030 London's population would be 9.5 million.
- **Employment:** The Hybrid Forecast reflects a short- to medium-term impact on jobs, particularly in industries hardest hit by pandemic restrictions, which leaves unemployment at 6.7 per cent in 2026, despite staff shortages being experienced currently in the service sectors. Overall, however, employment is thought likely to return to pre-pandemic levels by the early 2030s.
- **Inequality and disposable income:** Unemployment is likely to be higher in 'blue collar' sectors and, with the possibility of a mismatch in skills between those seeking employment and those searching for staff, the recovery from the pandemic could take longer to be felt for many. In the short term it is these groups that are likely to feel the rising costs of living and the end of the furlough

12. Tracking progress towards the Mayor's aims during the pandemic recovery

scheme most acutely. They are also less likely to be able to take advantage of the benefits of a more flexible hybrid working model. In the longer term the familiar problems of a city like London, with its high costs of housing, will remain, and this will have a further impact on some people's disposable incomes for discretionary and leisure activities.

- **Home working:** An option available to only some office-based sectors, many companies are entering a trial phase of hybrid working. Within the Hybrid Forecast we assume that these prove successful for many with home working occurring mostly for those on higher incomes and with offices located in central London. Overall, this leaves commuting trip rates at 75 to 85 per cent of 2018 levels over the longer term.
- **Changes in office use:** London's commercial property market is experiencing diverging trends with demand for primary grade space as buoyant as it has ever been with a continued shortage of supply in this sector. This suggests that even if businesses reduce their footprint because of home working, vacant space will be quickly filled and rents in this sector will remain high. However, demand for secondary grade space is facing more challenges with landowners having to choose between reducing rents substantially or investing in costly refurbishment to attract new tenants. In the Hybrid Forecast we have assumed that offices in less attractive areas are left vacant or underutilised in the shorter term as businesses take time to establish a new routine and landlords of secondary grade property remain hesitant; however, by 2031 nearly all lost commuting activity has returned to central London through agglomeration of activity, with 40 per cent replacement achieved by 2026.
- **Localism:** Following pandemic experience of 'staying local' the Hybrid Forecast assumes that people are less inclined to travel long distances to shop than they were before, including to large shopping centres. This can be seen in inner and outer London where there are more short-distance trips to local high streets. However, central London retains some of its attractiveness due to specialist shops and experiences. With greater flexibility during the working day, trips from home for discretionary purposes are likely to hold up despite some activities being possible online, but there is a reduction in travel from non-home locations like offices, to reflect the changing patterns of where some people are spending time. An accelerated shift towards online shopping during the pandemic, alongside reduced disposable incomes for many, mean that overall shopping trip rates decline over the medium term.
- **Attitudes to sustainable modes:** In the first iteration of the Hybrid Forecast we were reflecting considerable contemporary uncertainty about the return to public transport with a lot of hesitancy being reported in surveys of our customers. We have however observed that once people start using the network they continue to do so and have adapted our assumptions accordingly. A small minority will remain uncomfortable, however. As for cycling we have assumed that some who enjoyed cycling during lockdown make a permanent change in the early 2020s but by the 2030s this is indistinguishable from a general increase in the propensity to cycle.
- **Car ownership and use:** Coupled with a hesitancy to use public transport there are suggestions that the car-based trips adopted during lockdown could persist into the recovery and affect longer-term trends for car ownership, with people both less willing to give up a vehicle in the future but also increasing demand from previously non-car owning households. In the past 18 months there has not

12. Tracking progress towards the Mayor's aims during the pandemic recovery

been any evidence of an increase in car sales and, while road traffic returned earlier and at a higher level than public transport, recent trends suggest a stable picture at just below pre-pandemic traffic levels. Further relevant factors are assumptions about London's population and housing stock, slower growth of which could result in higher relative car ownership. Therefore, this version of the Hybrid Forecast accounts for higher car ownership than the Reference Case (largely due to lower house building) and that some of those who have been put off public transport will switch to car.

Table 12.2 shows a summary of the key assumptions underpinning the forecasts.

Table 12.2 Summary of key assumptions underpinning the forecasts.

Input		Reference Case		Hybrid Forecast (version 2)
Population 2030		10 million, in line with London Plan projections.		Even slower growth to 9.5 million between GLA's low and central lower trend.
Employment	↑	London's economic growth continues throughout the 2020s.	□	London's economy follows a more central trend with recovery towards the end of the 2020s. However, there are higher levels of unemployment in the short term and economic scarring in some sectors.
Working from home	□	No change in the levels of home working.	↑	Even more working from home in office jobs, for those on higher incomes and for offices in central London than Hybrid v1, leaving overall commuting trip rates at 75-80 per cent of 2018 levels.
Propensity to use sustainable modes	↑	Attitudes to public transport are unaffected. There is a small increase in willingness to cycle.	↑	In the main people return to public transport quite quickly but a small minority remain uncomfortable. Some who enjoyed cycling make a permanent change in the early 2020s but by the 2030s this is indistinguishable from a general increase in propensity to cycle.
Car ownership	↓	Car ownership falls as population growth encourages use of sustainable modes, together with London Plan policy of reduced parking supply and increased parking charges.	↓	Car ownership falls as population growth encourages use of sustainable modes, together with London Plan policy of reduced parking supply and increased parking charges.
Shopping	↑	Large shopping centres remain attractive, and the proportion of retail floorspace grows. All shopping trips increase.	↓	A shift towards online shopping means that shopping trip rates decline. People are not so inclined to travel long distances to shop and large shopping centres do less well. The CAZ retains some of its attractiveness due to specialist shops.
Leisure	↑	Leisure trips increase with population growth, and spatial distribution of leisure remains consistent with pre-pandemic trends.	↑	Greater flexibility during the working day means that home-based discretionary trip rates hold up despite some activity possible online. However, there is a decrease in trips that do not start from home.

Source: TfL City Planning.

12. Tracking progress towards the Mayor's aims during the pandemic recovery

The results: overall travel demand in 2031

To appreciate the sources of uncertainty in the forecast this section compares the Hybrid Forecast to the Reference Case. Across both forecast and model years there is strong growth in travel demand by all modes from today's current levels reflecting the resilience and attractiveness of London as a place to live and do business. The Reference Case is consistently above pre-pandemic levels and the Hybrid Forecast reaches at least 96 per cent of pre-pandemic demand by the first forecast year of 2026. Table 12.3 sets out the comparison of the actual pre-pandemic demand (2019) with the equivalent change for the Reference Case and Hybrid Forecast at the 2026, 2031 and 2041 forecast horizons.

Table 12.3 Change in overall travel demand and trips by principal modes.

		Change from pre-pandemic demand					
		Reference Case			Hybrid Forecast		
		2026	2031	2041	2026	2031	2041
Before the pandemic (million trips per day)							
Walk & cycle	8.3	10%	12%	20%	-1%	-3%	-1%
Rail	4.4	14%	20%	29%	-11%	-2%	7%
Bus	4.1	7%	14%	21%	-8%	-4%	3%
Car/taxi/PHV	10.2	6%	8%	10%	-1%	-4%	-4%
Total	27.0	9%	12%	18%	-4%	-3%	0%

Source: TfL City Planning.

Note: these totals reflect model-based forecasts.

The lower relative growth in demand in the Hybrid Forecast compared to the Reference Case is felt more by sustainable modes than car trips, with those used more heavily for commuting, such as rail and cycling, seeing a reduction of 18 and 17 per cent respectively against the Reference Case in 2031. At this point the Reference Case estimates a 20 per cent increase on pre-pandemic levels by 2031.

When looking at change from pre-pandemic levels it is not surprising that with assumed higher population growth and little change in behavioural trends the Reference Case shows continuous growth across all modes, with 16 per cent more trips in 2041 than 2019. However, in the Hybrid Forecast total trips remain close to pre-pandemic levels from 2026, increasing gradually up to this level by 2041. Despite the current difference in actual recovery rates, by 2026 both bus and rail trips are around 90 per cent of 2019 levels in the Hybrid Forecast, but from this point rail accelerates to just below pre-pandemic levels by 2031 with bus not achieving this until later in the 2030s. In comparison, by 2041, in the Reference Case, bus and rail trips are 21 per cent and 29 per cent higher than 2019 respectively, reflecting growth in population and travel for all purposes across London.

The results: mode shares in 2031

The difference between the Reference Case and Hybrid Forecast is not sufficient to materially affect the top-line sustainable mode shares of the two forecasts, with both within one percentage point of each other in 2031 (65 per cent active, efficient and sustainable mode share for the Reference Case, 64 per cent for the Hybrid Forecast, compared to 63 per cent for 2019 before the pandemic and 57 per cent during the

12. Tracking progress towards the Mayor's aims during the pandemic recovery

pandemic in 2020). This needs to be seen in the context that even in the London Plan-aligned Reference Case we only gain about one percentage point sustainable mode share every decade, primarily from population growth in dense, well-connected developments. Without additional intervention to manage demand for private travel or further development of our sustainable travel networks this difference could be hard to regain under Hybrid Forecast conditions.

Car growth from pre-pandemic levels in both the Reference Case and Hybrid Forecast is relatively subdued, with growth of up to 10 per cent by 2041 in the Reference Case. This narrower range between the Reference Case and Hybrid Forecasts for car reflects the strength of the recovery in car trips that we have observed recently, with the differences in growth at a London-wide level being driven mostly by population assumptions.

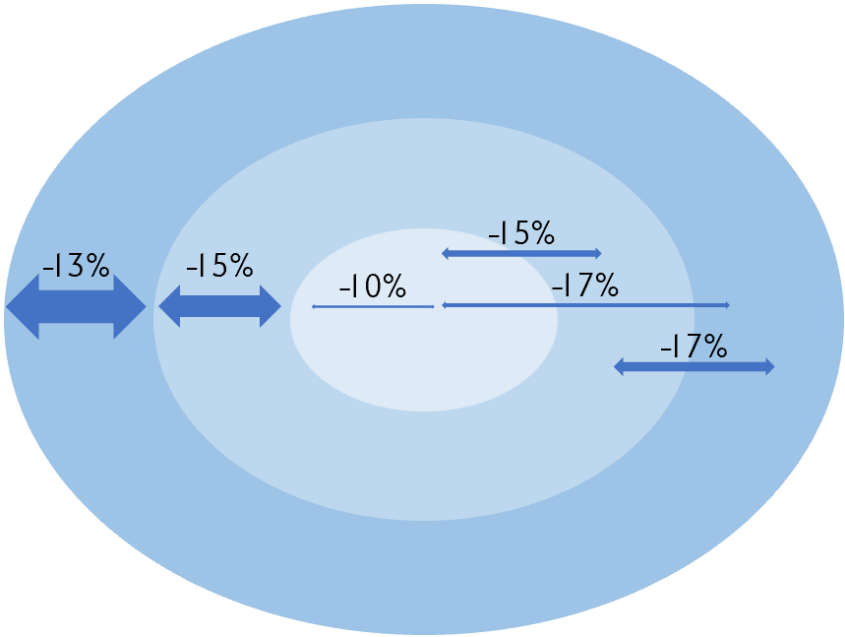
The results: spatial differences

These high-level statistics, however, mask spatial differences between the two forecasts. Overall, trips entirely within central and outer London reduce the least in the 2031 Hybrid Forecast compared to the Reference Case, suggesting that schemes that look to improve 'local' trips within these areas could be more resilient to the uncertainty of London's future (figure 12.11 below). Note that in both figure 12.11 and figure 12.12, the width of the arrows reflects the scale of uncertainty in each of the elements of the forecast.

When considering where to target action to improve sustainable mode share, we see that trips between inner and outer London are more likely to switch to private modes in the Hybrid Forecast. This is driven specifically by a reduction in rail mode share for trips between these areas. Trips between inner and outer London account for over 10 per cent of all trips in London. Under both forecasts it is equally important to increase sustainable mode share across London, particularly in outer London, which accounts for more than 40 per cent of trips within London. However, the greatest threat of a switch to private modes is from trips between inner and outer London where trips formerly made to central London on good quality rail links could become more local and complex in nature and importantly are too lengthy to be done by active modes.

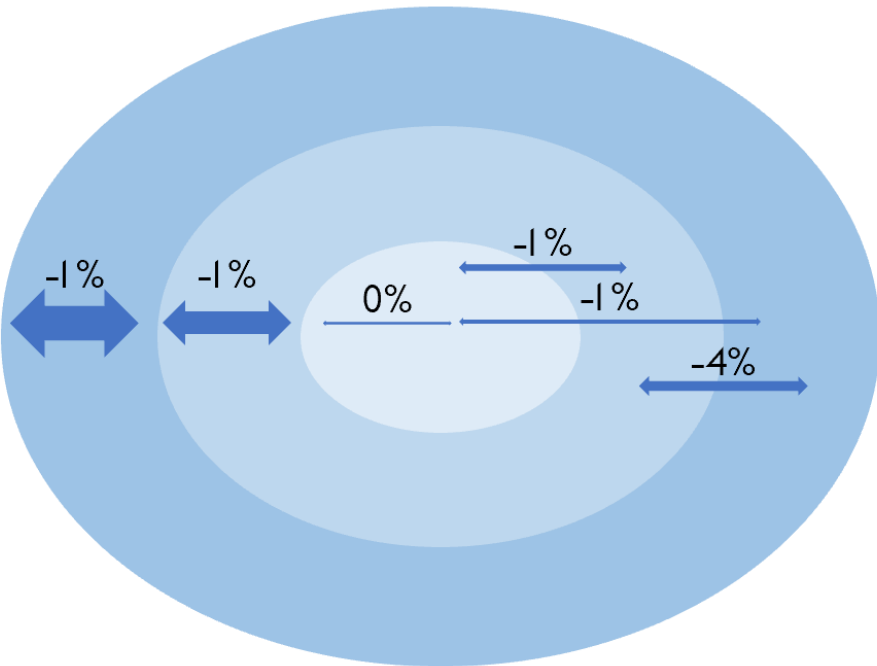
12. Tracking progress towards the Mayor’s aims during the pandemic recovery

Figure 12.11 Reduction in total number of trips compared to the Reference Case in the Hybrid Forecast, 2031.



Source: TfL City Planning.
Note: Width of arrows indicates relative uncertainty associated with each forecast.

Figure 12.12 Reduction in sustainable mode share compared to the Reference Case in the Hybrid Forecast, 2031.



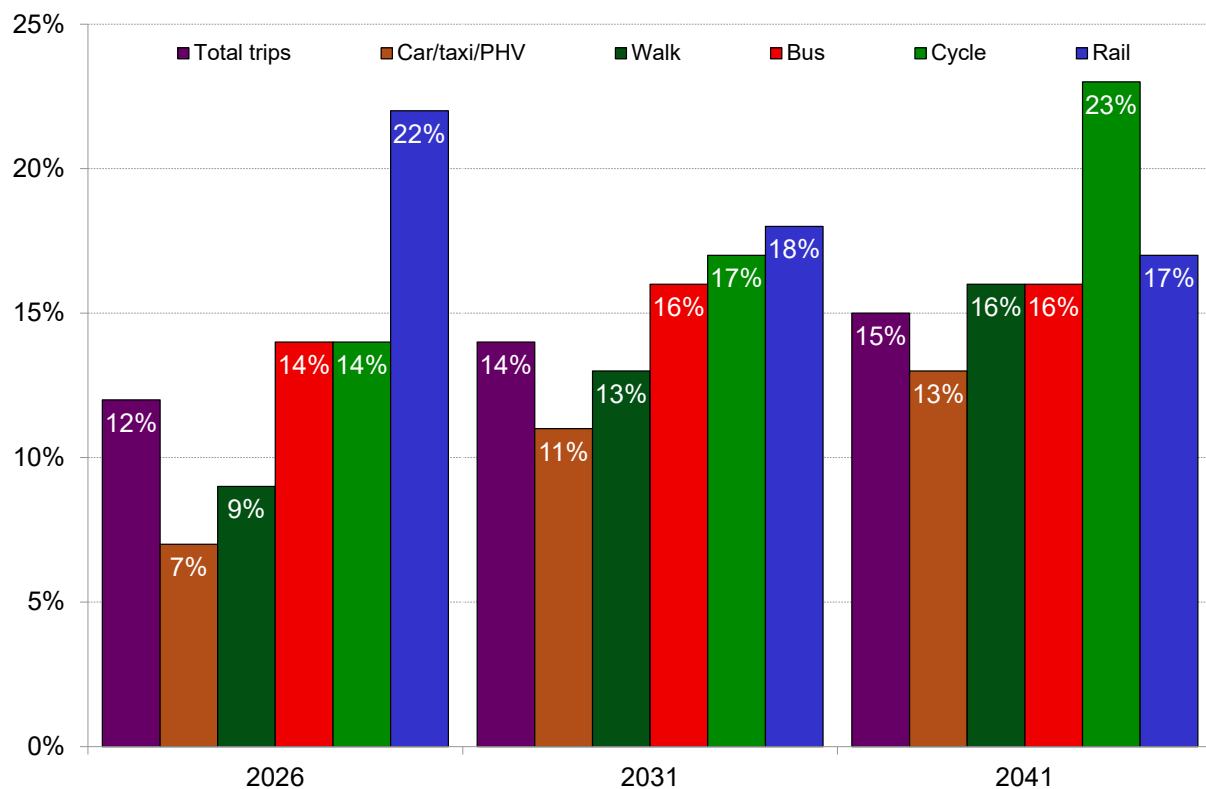
Source: TfL City Planning.
Note: Width of arrows indicates relative uncertainty associated with each forecast.

Incorporating uncertainty into the assessment of schemes and policies

The primary purpose of the two forecasts is to provide a manageable way to assess schemes and policies given the continuing uncertainty as represented by the five scenarios.

By comparing the two forecasts we can see which modes and areas of London are subject to the greatest range in demand and therefore where the greatest uncertainty exists in our assessments and decision making. Figure 12.13 shows this, expressed as the percentage difference between the Reference Case and the Hybrid Forecast. In most cases the uncertainty increases the further to the future we look, a consequence of long-term population and employment growth changes. Changes in why people travel are also influencing the ranges, with modes that historically have had a higher commuting journey purpose seeing greater uncertainty.

Figure 12.13 Range of uncertainty (percentage difference in demand between Reference Case and Hybrid Forecast) by mode, 2026, 2031 and 2041 forecasts.



Source: TfL City Planning.

These forecasts will be included in our updated strategic models which are used internally for major scheme assessment and externally under licence for use by boroughs and developers in the planning process.