



Travel in London

Report 13

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Overview

Travel in London report 13

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.

Ordinarily, the focus of this report would have been exclusively on trends up to the end of 2019, or the 2019/20 financial year. However, **the global coronavirus pandemic** in 2020 has led to widespread disruption and change to travel in London (and to the aspects of people's daily lives that underlie travel demand) of a scale unprecedented in modern times.

The report this year is therefore presented in two parts. The **first part** of the report reviews trends and developments in the pre-pandemic period up to the end of 2019 or the 2019/20 financial year, primarily in terms of the aims of the Mayor's Transport Strategy. Although many of these trends were radically affected by the pandemic in 2020, it is nevertheless these trends and conditions – the pre-pandemic baseline – by which London's transport recovery from the pandemic will be conditioned and against which recovery will take place. They remain, therefore, central to contemporary concerns.

The **second part** of the report considers developments related to the pandemic in 2020, in so far as available data allow, and recognising that at the time of writing the pandemic is still playing out. The aim is to assemble and interpret an emerging evidence base that can be used to guide the recovery and inform our longer-term plans for supporting growth, prosperity and daily life in London over the next decade or so.

Part 1: Travel trends before the pandemic

Slowing growth in travel demand and progress towards the active, efficient and sustainable mode share aim over the last few years

Population, economic and societal change led to slowing growth of travel demand in London in the four years up to 2019, and slower than expected progress towards the Mayor's aim of an 80 per cent mode share for active, efficient and sustainable modes.

London's population had previously increased rapidly – by over 1.3 million people in the two decades up to 2011. More recently, the rate of growth in London's population slowed, with particularly slow growth since 2016. London's population increased by just 0.6 per cent in 2019, the slowest rate of growth since 2004; this compares to typical increases greater than 1 per cent per year in the earlier part of the decade.

Economic trends reducing personal disposable incomes, particularly affecting discretionary leisure trips (often made by public transport) were also an important factor, although there were signs in the economic and travel data for 2019 that some of these pressures were beginning to ease. For example, per person trip rates in London increased for the second year running, to an average of 2.21 trips per person per day, following a prolonged period of slow decline.

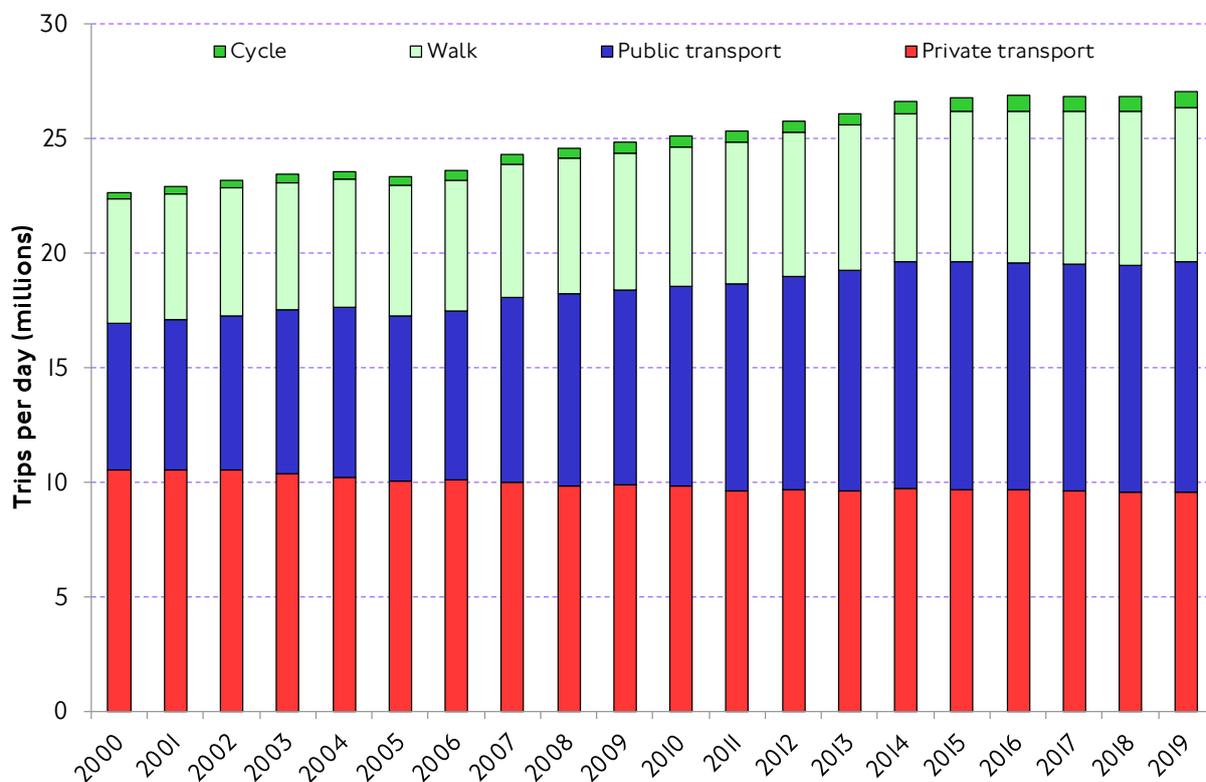
A third group of contributing factors under the broad heading of **technology-enabled and wider lifestyle changes**, such as increased working from home and online shopping, were also thought to have influenced trends over the last five years, although the evidence base for these (before the pandemic) was not conclusive.

Overall travel demand and mode shares in 2019

Data for 2019 continued these broad trends of recent years. **In 2019, an average of 27.0 million trips per day were made to, from or within London.** This was an increase of 0.7 per cent compared to 2018 and of 7.6 per cent compared to 2010. Figure I summarises these changes as they affected the core modes, from which the overall trend of slowing recent growth is evident.

On this basis, the **active, efficient and sustainable mode share** for 2019 was estimated to be 63.2 per cent, a 0.2 percentage point increase over 2018, and 3.6 percentage points higher than 2010.

Figure I Estimated average daily trips by main mode, 7-day week, 2000-2019.



Source: TfL City Planning.

Healthy Streets and healthy people

The Healthy Streets Approach is central to the Mayor’s vision to create a better city for all Londoners. It is an overarching framework for the design and management of London’s streets, incorporating measures to encourage walking, cycling and use of public transport, to reduce road danger, tackle poor air quality, reduce car dependency, improve the environment and deliver an accessible and inclusive transport system. Key indicators relating to these aims are reviewed below.

Active travel

In 2019/20, 42 per cent of Londoners achieved 20 minutes of active travel per day, an increase of 3 percentage points on 2018/19. Although the proportion of London residents who have achieved 20 minutes of active travel increased in the last two years, there is still considerable effort required to achieve the aim of all Londoners walking or cycling for at least 20 minutes per day by 2041.

Cycling

Recent years have seen a substantial increase in cycling in London, reflecting investment and other measures to encourage active travel. The 2019 calendar year saw a small year-on-year decline of 2.7 per cent in cycling volumes (mainly driven by trends in outer London, and reflecting unusually poor weather during the counting periods). Since 2015, however, cycling volumes have seen a net increase of almost 5 per cent, which represents an estimated 9 per cent more cycling trips than in 2015.

In 2019, 11.5 per cent of Londoners lived within 400 metres of the London-wide cycle network, compared to the Mayor's aim of 28 per cent by 2024, a 30.6 per cent increase on 2018. At October 2020, 26 per cent of the strategic cycle network has been delivered (362km out of approx. 1,400km). This has led to an increase in the proportion of Londoners living within 400 metres of the cycle network to 17.9 per cent, including all the routes completed so far as part of the Streetspace for London programme.

Where investment has been made, we have seen large increases in cycling locally, such as on Cycleway 24 (Forest Road in the Waltham Forest Mini-Holland) where since construction began in 2015 flows have increased in some places by more than 50 per cent (which equates to an annual 13 per cent growth) or on Cycleway 22 (Newham Greenway), where cycle flows have increased by more than 35 per cent since 2017 (an annual equivalent of 18 per cent per year). However, cycling remains relatively uneven socio-demographically, with a preponderance of higher-income white males.

Reducing road danger

The Mayor's Vision Zero Action Plan sets targets of a 65 per cent reduction in all KSI casualties (people killed or seriously injured) 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.

There were 25,341 reported personal injury collisions in London in 2019, resulting in 125 people regrettably being killed, 3,780 being seriously injured and 26,102 being slightly injured. Overall, 2019 showed a continuing decline in the number of people killed or seriously injured on London's roads compared to the 2005-09 baseline, with a four per cent decrease in persons killed or sustaining serious injury compared to 2018. This was a **39 per cent reduction towards the overall target of 65 per cent by 2022**. Although a positive trajectory overall, the rate of progress towards Vision Zero targets has slowed in recent years, as further gains become progressively more challenging.

The number of cyclists regrettably killed in collisions in 2019 was **down by 70 per cent on the 2005-09 baseline**, from 17 to five; whereas nationally there has been just a six per cent decrease since 2008. The number of children tragically killed or seriously injured in 2019 was 65 per cent lower than the 2005-09 baseline. There

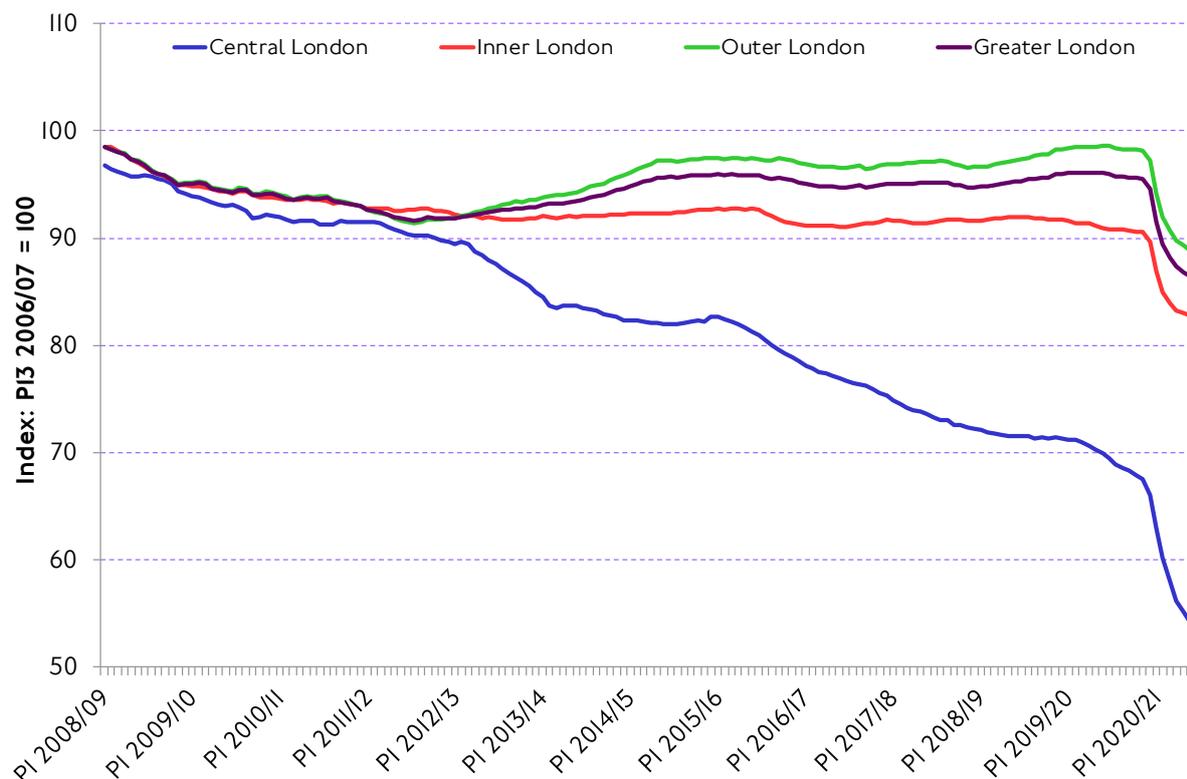
was a 12 per cent decrease in ‘bus-involved’ casualties from 2018, down from 238 to 209. This amounts to a **64 per cent reduction towards the overall target of 70 per cent by 2022.**

General road traffic trends in London

Recent years have been characterised by relatively stable overall road traffic levels in London, **with a net decrease of 0.5 per cent in overall vehicle kilometres over the period 2010-2018**, according to Department for Transport statistics. To put this in context, given London’s growth in the interim and the sustained mode shift towards active, efficient and sustainable modes, we estimated that, in 2018 and comparing the period since 2000, there were **2.9 million fewer car trips per day** than there would otherwise have been had the mode shares stayed the same.

The picture for 2019 is, however, complicated by a change in methodology for the DfT surveys and we are working through what this could mean for London datasets. Data from TfL’s traffic counts (figure 2) provides an historic picture very similar to the previous DfT estimates – of broad stability in traffic levels, with an estimated 1.7 per cent net increase in traffic flows between 2009 and 2018. **In the latest year, according to this indicator, traffic flows remained the same.** The chart also shows the immediate impact of the coronavirus pandemic, with flows down across all areas of London in early 2020 (see also Part 2 of this report).

Figure 2 All motor vehicle traffic flows by area, 13-period rolling average, 2008/09-2020/21.

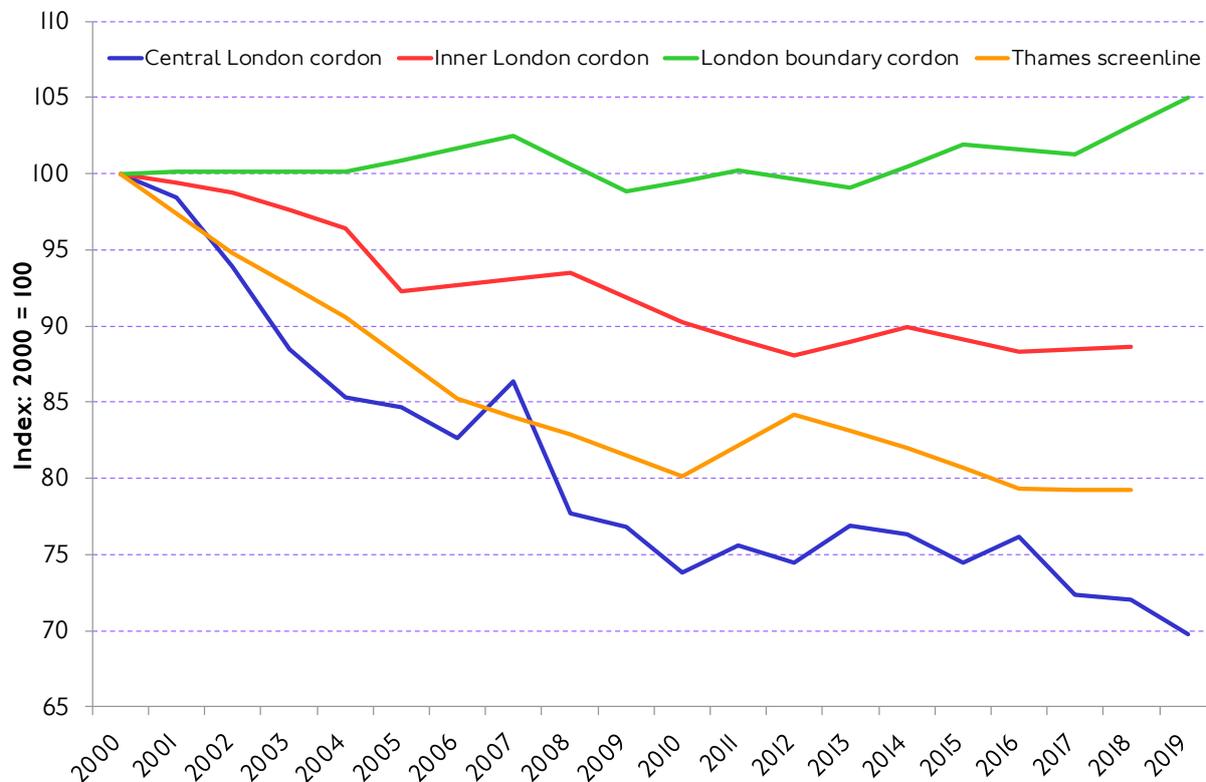


Source: TfL Surface Transport.

Within this broadly stable overall picture there have nevertheless been important and significant trends affecting individual vehicle types. We estimate that, over the period between 2010 and 2018, the number of vans crossing TfL’s strategic counting

cordons in London increased by 10 per cent and HGV flows increased by two per cent. Car traffic crossing these cordons increased by one per cent. Between 2010 and 2019 traffic crossing the London boundary cordon increased by 5.5 per cent (figure 3).

Figure 3 Daily number of motor vehicles across strategic cordons, 2000-2019.



Source: TfL Surface Transport.

An important growth area in recent years has been **private hire vehicle (PHV)** traffic. The number of licensed PHV drivers has increased by 100 per cent since 2008/09. Although it is not straightforward to identify these vehicles in traffic counts, and therefore historic data is 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.

A good public transport experience: service provision

Key operational metrics for public transport were impacted by the emergence of the coronavirus pandemic – affecting the very end of the 2019/20 financial year.

Reflecting this, London’s public transport networks operated services equivalent to 111 billion place-kilometres (vehicle kilometres multiplied by the capacity of the vehicle) in total, down by 2.4 per cent from 2018/19. Over a longer time period, overall capacity has increased by 28 per cent since 2009/10 and is 2.3 per cent higher than in 2015/16.

In 2019/20, **bus** kilometres operated were 4.3 per cent lower than in 2016/17, reflecting some network restructuring in recent years as well as initial pandemic impacts. Some 97.8 per cent of the schedule was operated, similar to recent years, and average bus speeds were 9.3 miles per hour for the third successive year.

On **London Underground**, train kilometres in 2019/20 (both scheduled, at 87.7 million, and proportion operated, at 94 per cent) decreased slightly, and other performance metrics also saw small falls, largely reflecting the early stages of the pandemic.

In 2019/20, **London Overground** did not see a change in operated train-kilometres while **TfL Rail** operated the highest ever levels of service following commencement of services between Reading and Paddington, preparatory to the forthcoming Elizabeth line, and the rolling out of new trains on more sections of the network.

A good public transport experience: the wider customer experience

During 2019/20, 19 customers tragically lost their lives across our public transport networks. The total number of customers injured in absolute terms fell to 9,729, compared with 10,058 in 2018/19 – a 3 per cent reduction. Slips, trips and falls accounted for 76 per cent of London Underground injuries and 51 per cent across all surface transport modes, including buses – an average of 2.03 incidents per million customer journeys.

The **Bus Safety Standard** is our most important measure in helping reduce both the severity and number of casualties from incidents involving buses. We have 241 buses in the fleet that meet the requirements of the new standard. These vehicles have better mirrors, enhanced anti-slip floors, early warnings of unintended acceleration and an acoustic warning for quiet running vehicles. We have ambitious plans to roll out the standard across London's bus fleet. The Bus Safety Standard will help us reach our target of nobody being killed on, or by, a bus by 2030, and nobody being killed or seriously injured on our roads by 2041.

Public transport in London continues to be a **low crime environment** and a safe way to travel. However, there has been an upturn in reported crime on most modes in 2019/20, largely driven by increases in theft offences and reflecting initiatives to encourage reporting of crime.

'**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. Recent measurements show a slowly increasing trend with typically around 50-55 per cent of people agreeing with the statement on a quarterly basis. Around 55 per cent of customers agree that 'TfL is making it easier for disabled people to get around', a similar level to recent years.

Some Londoners require **more time to complete journeys by public transport if they can only use the step-free network**. In some cases, their journeys may not be possible. In 2019/20, an average journey using only bus and step-free stations was estimated to take eight minutes longer than the average by the fastest available route. This is **an improvement of one minute over the position in 2018/19**, and a three-minute improvement over the 2015 baseline, and in the latest year reflects improvements to step-free access facilities at 24 stations across London, including those on the western extension of the forthcoming Elizabeth line.

The **average fare yield** per passenger journey for all modes was £1.22 in 2019/20, an increase of 2.4 per cent compared with 2018/19 and of 6.7 per cent compared with 2015/16. London Underground has the highest yield, at just over £2 per journey. This

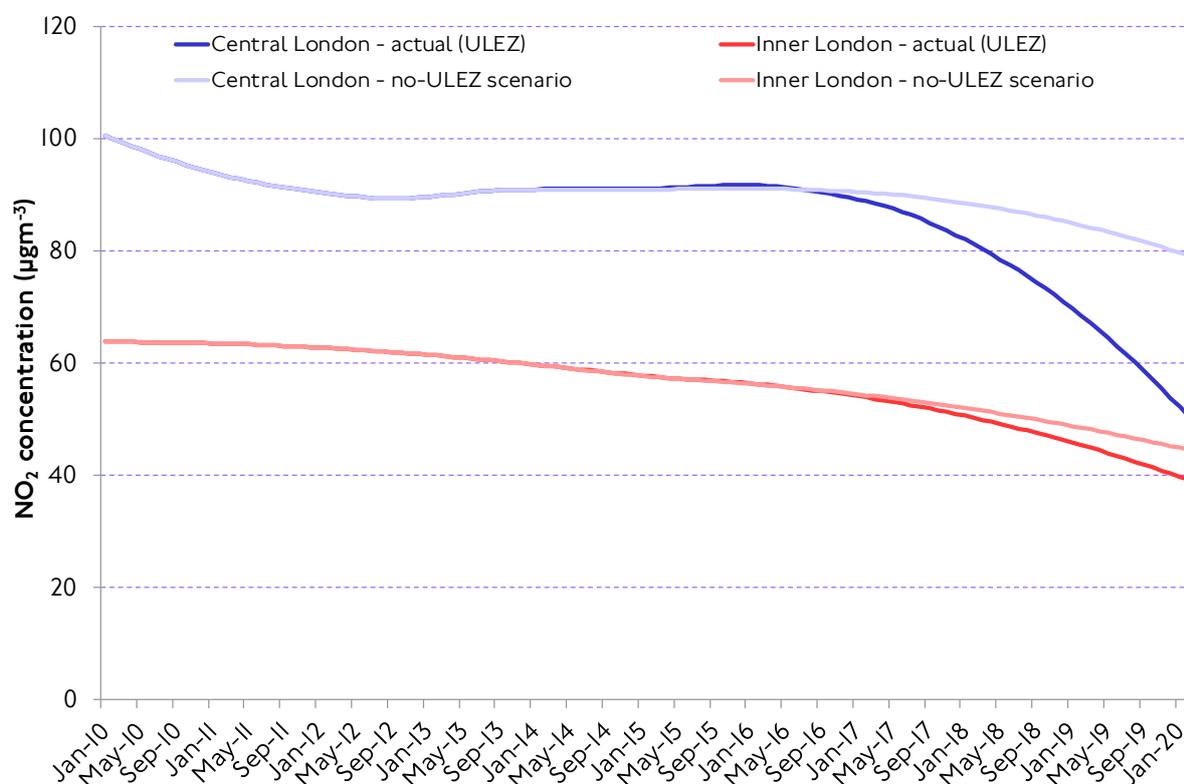
has increased by 6.9 per cent since 2015/16. In contrast, the lowest yield is on the bus, at 68 pence per passenger journey. This has risen by just 2.4 per cent since 2015/16.

Improving London’s air quality

In October 2020, the Mayor released a report which assessed the changes to London’s air quality between 2016 and 2020. The report reveals both **dramatic and widespread improvement to air quality in London**, particularly for nitrogen dioxide (NO₂) as well as the key role of transport policies such as the Ultra Low Emission Zone (ULEZ) in central London and the introduction of Low Emission Bus Zones in improving air quality.

In London in 2016 two million Londoners, including 400,000 children, lived in areas that exceeded legal limits for NO₂, with thousands of Londoners dying prematurely every year due to exposure to air pollution. By 2019, this had reduced to 119,000 people, **a reduction of 94 per cent**. Between 2016 and 2019 the reduction in annual average NO₂ at roadside sites in central London was five times the national average reduction, reflecting the impact of policies specific to London. 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**. In 2016 monitoring sites in London recorded over 4,000 hours above the short-term legal limit for NO₂. In 2019 this reduced to around 100, **a 97 per cent reduction**.

Figure 4 Average monthly NO₂ concentration at available roadside monitoring sites with/without ULEZ, central and inner London, 2010-2020.



Source: TfL City Planning, based on London Air Quality Network.

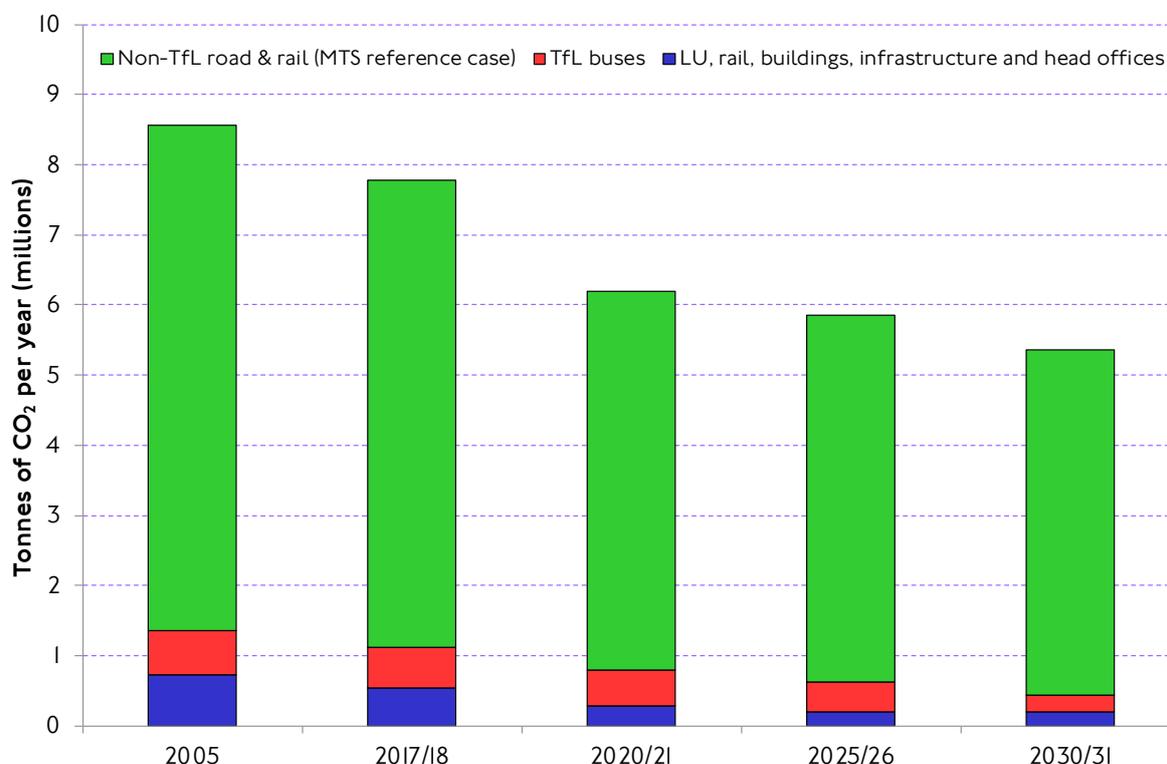
The evidence suggests that the most significant improvements in London have been **driven by local, as opposed to national, policy**. Dramatic improvements for

NO₂ in central London, reflecting the introduction of the ULEZ, and more locally for Low Emission Bus Zones, are demonstrated in this report. Figure 4 shows the trend in NO₂ at roadside sites in central and inner London. The figure shows actual averaged measurements for NO₂ (darker lines) as well as the long-term or 'background' trend, projected as if there was no ULEZ. The gap between the dark and light blue lines is the estimated specific impact of ULEZ in central London.

Reducing CO₂ emissions

The Mayor's Transport Strategy sets a target for London to be a zero-carbon city by 2050, and the Mayor has recently announced his ambition to bring this date forward to 2030. Transport contributes 26 per cent of the Capital's greenhouse gas emissions. Many of the Mayor's core transport aims will contribute to reducing CO₂ emissions – for example the aim for an 80 per cent active, efficient and sustainable mode share. Figure 5 shows the expected trajectory, given our current plan, for reducing CO₂ emissions related to transport in London.

Figure 5 Baseline and forecast CO₂ emissions from transport in London.



Source: TfL Safety, Health and Environment.

Note: Forecasts use grid average emissions. Future attributable emissions will reflect TfL's ongoing energy procurement.

Supporting electric vehicles for London

In May 2018, the Mayor established the Electric Vehicle Infrastructure Taskforce. The Taskforce published the London Electric Vehicle Infrastructure Delivery Plan in June 2019. Key findings showed that by 2020, the Capital would need 200 to 400 rapid charging points and 3,400 to 4,700 slow or fast charging points. By 2025, this could rise to between 2,300 to 4,100 rapid charging points and 33,700 to 47,500 slow or fast charging points. TfL committed to installing 300 rapid charging points by the end of 2020, using funding from the Office for Low Emission Vehicles (OLEV). The first annual monitoring report was published in October and indicates

that London has already exceeded the levels of infrastructure that the delivery plan projected would be needed by the end of 2020, with over 5,500 charging points installed in total, including 450 rapid charging points. Initial data, reviewed later in this report, is providing important feedback about how this infrastructure is being used, helping to guide future infrastructure delivery priorities.

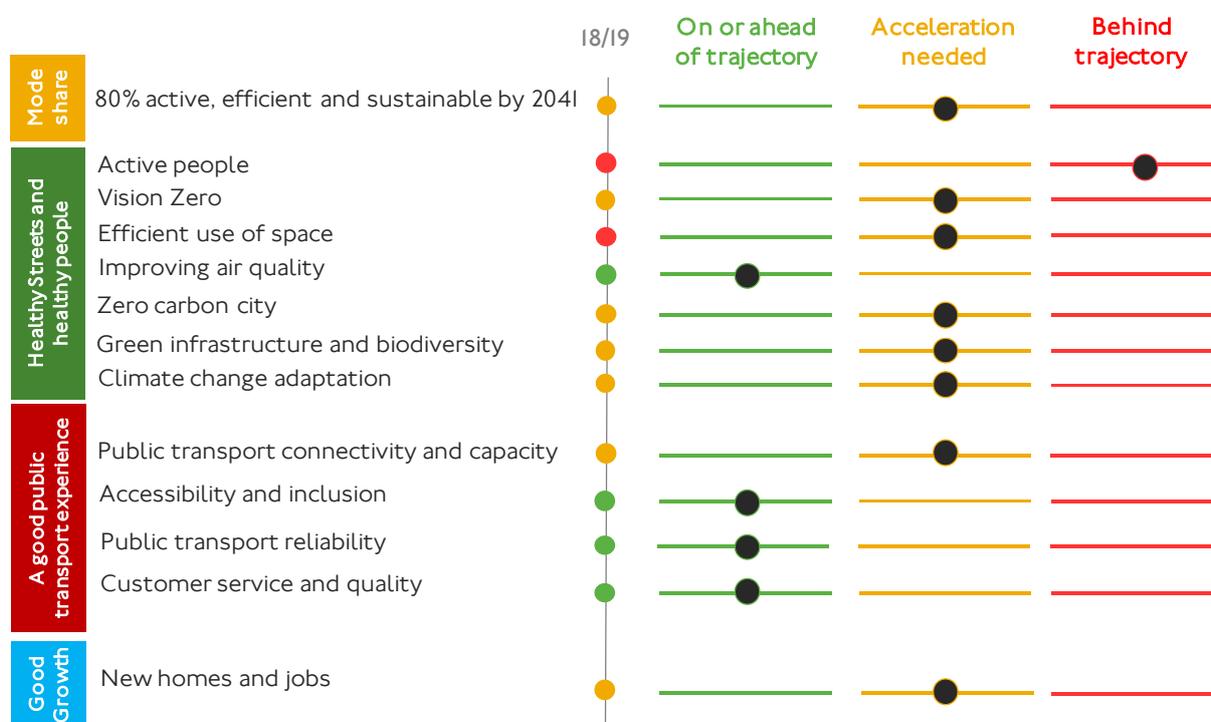
New homes and jobs for London

Between 1997 and 2019 the number of jobs in London grew by 46 per cent and the number of people by 28 per cent, but the number of homes grew by only 19 per cent. This means that new housing supply has failed to keep up with demand. The GLA sets housing delivery targets for London and the boroughs. Across London there were more than 36,000 housing completions in 2018/19. Of these, 6,500 were affordable homes. This is below the adopted London Plan target of 42,000 but is an increase in housing delivery from the previous year. The 2018/19 figure is a 16 per cent increase on 2017/18 and is the second highest figure recorded in this series, behind the peak of 40,600 net completions recorded in 2016/17.

Summary of progress towards the Mayor’s Transport Strategy aims

Figure 6 is a visualisation of the state of play in relation to the key outcomes sought by the strategy based on the data and trends described in this report up to a point just before the coronavirus pandemic. The categorisation should be interpreted as a periodic and indicative ‘health check’ on the progress of our journey from a retrospective viewpoint. As would be expected, the visualisation highlights several key achievements – for example the dramatic improvements to air quality referred to above – as well as areas where further attention is required.

Figure 6 Progress towards Mayor’s Transport Strategy aims to end of 2019.



Source: TfL City Planning.

The **coronavirus pandemic** has, however, sharply interrupted the picture of incremental progress of the past few years – bringing a host of short and longer-term challenges to these aims, as well as some opportunities, for example around embedding active travel. The second part of this report reviews and assembles emerging evidence about the impacts of the coronavirus pandemic on travel in London so far, focusing on those topics which will be of relevance to progressing London's transport recovery in the context of the Mayor's transport aims.

Part 2: Impact of coronavirus on travel in London during 2020

Coronavirus: high-level impacts

The coronavirus pandemic has disrupted normal daily life in London to an extent that is unprecedented in modern times. These impacts are shared – to differing degrees – in cities across the globe, although ultimately they are expected to be temporary, albeit with the possibility of some lasting changes. The remainder of this Overview includes a review of **top-level trends and developments** across the range of travel-related indicators of interest, which give a sense of scale to these events and inform and underlie thinking about our future transport recovery.

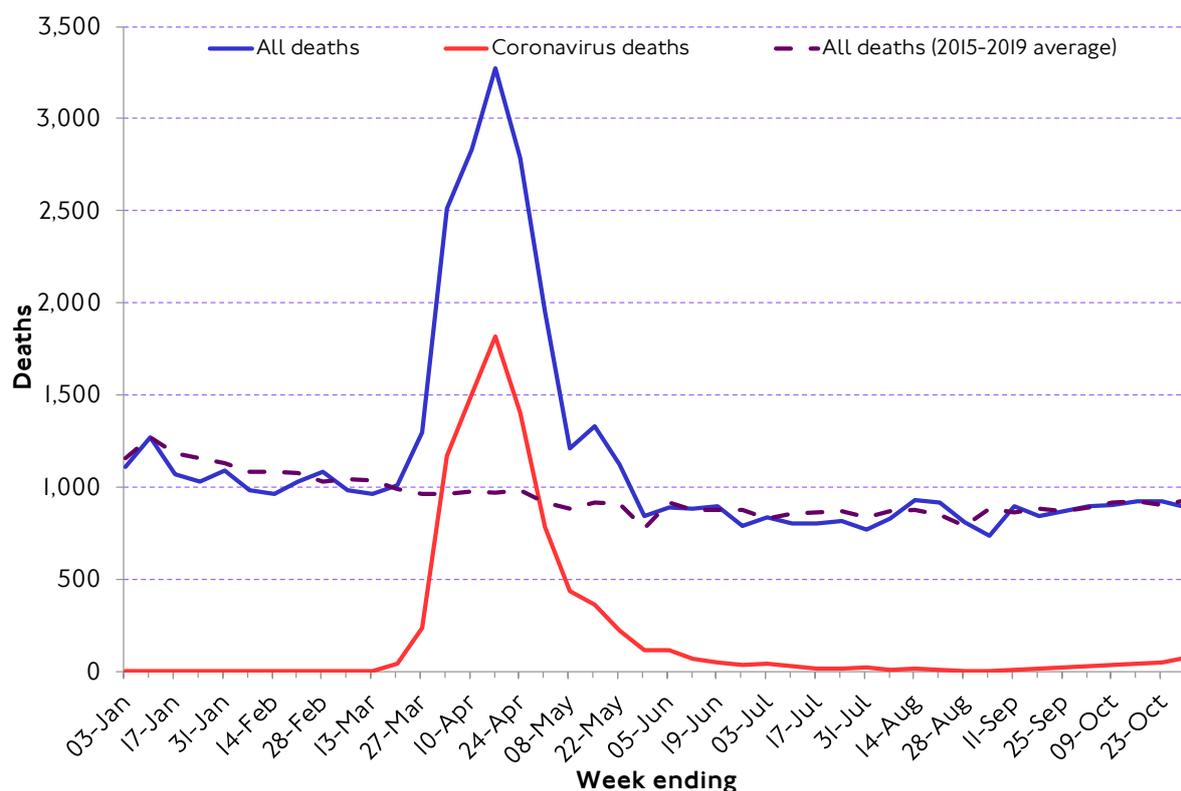
Coronavirus: morbidity, mortality and inequality

The first UK deaths from coronavirus were reported at the beginning of March 2020 and rose rapidly to a peak of 1,074 deaths in the UK on 8 April and in London a peak of 225 deaths on 4 April. The number of deaths then began to decline as the impacts of strict lockdown measures helped to slow the spread of the virus. At the time of writing England is entering a second lockdown period, following a sharp rise in new cases and hospitalisations from the virus, and there is the potential for significant continuing disruption over the winter of 2020/21. Figure 7 shows pandemic-related deaths in London in the context of all deaths and the five-year running average for all deaths.

The region with the highest proportion of deaths involving coronavirus has been London, with 8,536 deaths, making up 30.6 per cent of all deaths. London had the highest age-standardised mortality rate of deaths involving coronavirus between March and July 2020. Across all age groups in England, males had a higher rate of coronavirus-related deaths than females. The age-specific mortality rate increased consistently with age, with those aged 90 years and over making up the largest proportion of coronavirus-related deaths.

Data from the ONS shows that the **virus does not have the same impact on all demographic groups**. In England, all ethnic groups other than Chinese females were at higher risk of coronavirus-related mortality than the White ethnic population, with Black African men and Black Caribbean women having the highest risk. Although some existing health problems put people at greater risk of being seriously ill and dying from coronavirus, that could not explain differences in death rates among ethnic groups. Instead, the differences are more likely to be explained by demographic and socio-economic factors, such as where people live and the kind of jobs they do. In turn, this offers important lessons for the recovery and equality in London more generally, and the role of transport in facilitating it.

Figure 7 Weekly deaths in London, Jan 2020–Oct 2020.



Source: Office for National Statistics.

The pandemic and the economy

The **UK's economy contracted by 20 per cent in the quarter from April to June 2020**, making it the hardest hit of all 37 OECD nations, and two consecutive quarters of economic decline resulted in the first recession since 2008/09.

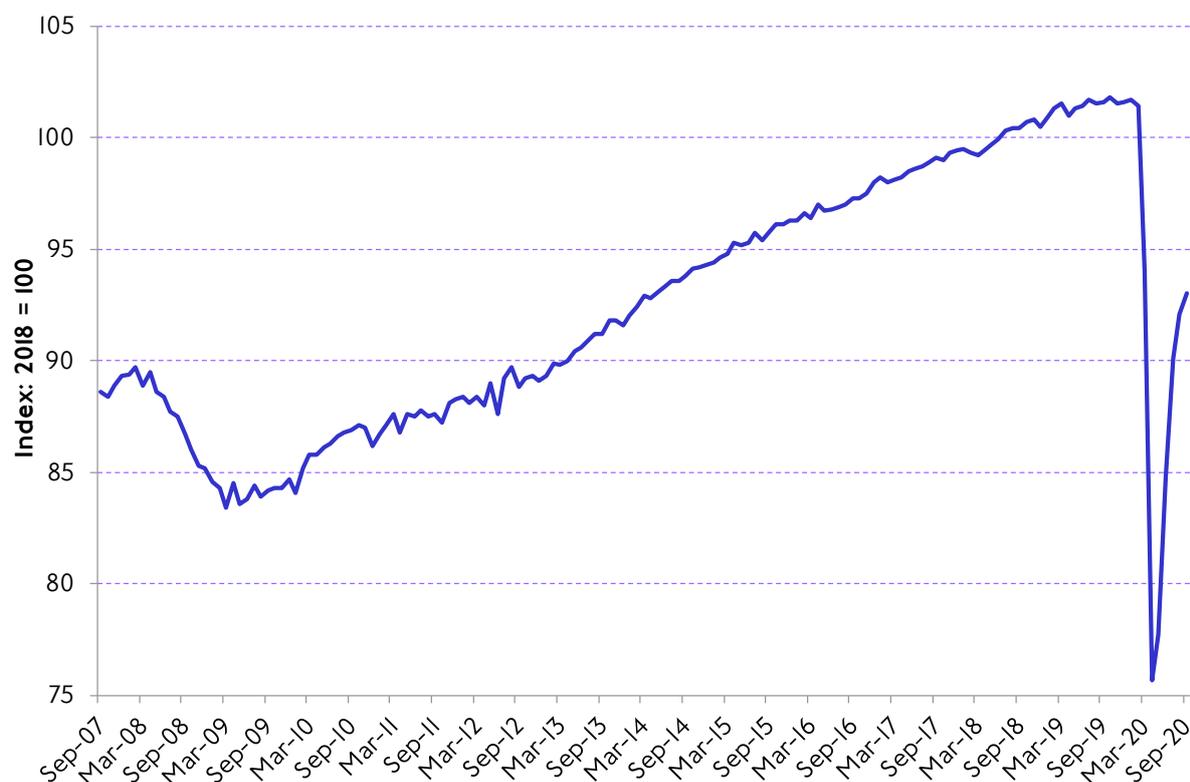
The monthly decline in GDP in April 2020 was **three times greater than the fall experienced during the 2008/09 recession** (figure 8). However, the fall in GDP was largely concentrated in April, during the peak of lockdown, and GDP has since grown month on month. In September, GDP was 22.9 per cent higher than in April, although it remains 8.3 per cent below February 2020 levels. Recovery of GDP is, however, slowing. The impacts of the 2008/09 recession which, it is believed, were still affecting travel demand in London in 2019, show that **economic shocks of this scale can take many years to work through**, although the 2008/09 recession had very different causes.

In other indicators of economic impact:

- **Unemployment** impacts continue to emerge as the economic outlook remains uncertain. Lags in reporting, the eventual end of the furlough scheme and new coronavirus measures affecting businesses mean that significant further reductions in employment are expected in the coming months.
- **Retail spending**, however, largely returned to pre-pandemic levels in late summer. Recovery of retail spending has not been directly comparable to the return to retail footfall, as the **proportion spent online continues to be around 10 percentage points higher than in 2019**, and there may also be an element of lagged purchases following the spring lockdown.

- The **financial impact of the pandemic has not been equal across income groups**. Lower income groups are more likely to have had to use savings or take out loans during the lockdown period. Additionally, the expected rise in unemployment is likely to disproportionately impact those on lower incomes, all of which may compound existing pressures on discretionary activities and trips.

Figure 8 UK's Gross Domestic Product (GDP) monthly index, 2007-2020.



Source: Office for National Statistics.

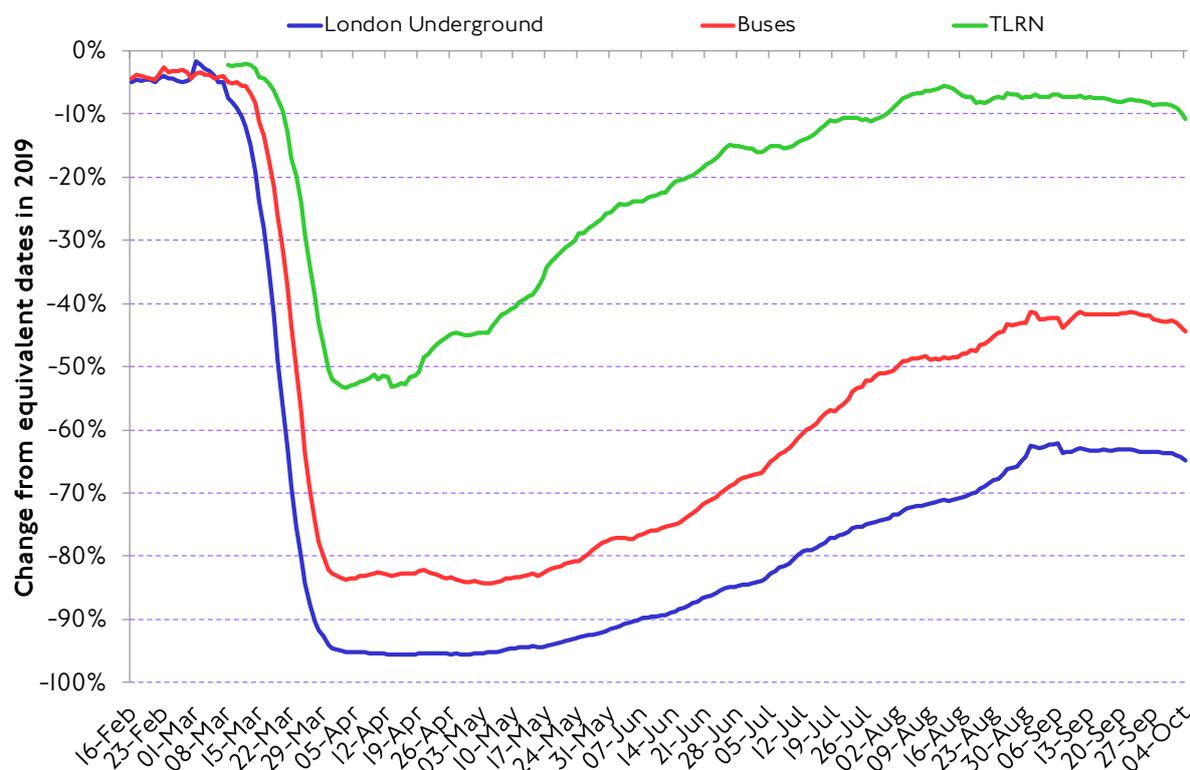
The pandemic and travel demand

The pandemic has had large-scale effects on travel demand in London. These large-scale reductions have, however, played through differently on different networks, different modes and in different parts of London.

It is important to recognise at the outset that pandemic-related changes to travel largely reflect **factors extrinsic to the transport networks themselves**. A combination of government regulation and economic impacts – and business and individual responses to these – have been the primary drivers of travel change. However, it is also the case that each of the networks and travel modes have unique characteristics that have shaped travel trends within this overall context, for example the obvious attraction of active travel as a permitted activity during the spring lockdown and during the favourable summer months of 2020, as well as differing perceptions of the virus transmission risk.

Figure 9 shows actual travel demand on the principal modes, arising from public transport ticketing and automated road traffic counts.

Figure 9 Change in demand on the main transport networks, 7-day moving average, 2020 vs 2019.



Source: TfL Data and Analytics.

Note: No bus data available 20 April – 28 June due to middle door-boarding. The values provided are estimates.

In the week of the lockdown announcement in mid-March 2020, demand on all networks fell rapidly, but the scale and timing of the reduction was different for each mode.

- **London Underground** saw the biggest and quickest drop in demand, which at the lowest point, in the days following the lockdown announcement, reached a maximum of 97 per cent (ie only 3 per cent of normal patronage remained).
- **Bus** demand also fell sharply, with up to an 86 per cent drop at the lowest point.
- The fall was smallest and latest for motorised road traffic on the **TLRN strategic road network**, which at the lowest point only saw a maximum 65 per cent reduction with respect to 2019 at the London-wide level.

While the overall scale of reduction relates to the general factors restricting mobility, the difference between the modes reflects a range of second-order factors; for example the widespread closure of many workplaces in central London –particularly affecting rail demand– or the greater utility of buses for local travel and for non-office-based workers who could not always work from home. A further factor for road traffic was the relative resilience of freight and servicing traffic, especially in terms of supporting essential activities and increased e-commerce.

The networks also showed different recovery profiles over the summer. **Road traffic** began to recover relatively quickly from mid-April. The pace of recovery then slowed down through July and August, flattening at just above 90 per cent of

normal. **Bus and London Underground** demand, however, remained very subdued through April and only began to recover slowly from late May with the tentative lifting of some lockdown restrictions. At the end of August, bus demand had reached almost 60 per cent of its pre-pandemic baseline but London Underground patronage remained under 40 per cent. The development of a second wave of the pandemic over the autumn is reflected in a general flattening of the trajectory for all three modes.

Key developments relating to travel demand during the pandemic

Within these overall travel demand trends there are several clear features which reflect aspects of London's geography, the emerging economic impacts of the pandemic, and features intrinsic to individual modes. Some of the more significant in terms of our recovery thinking are that:

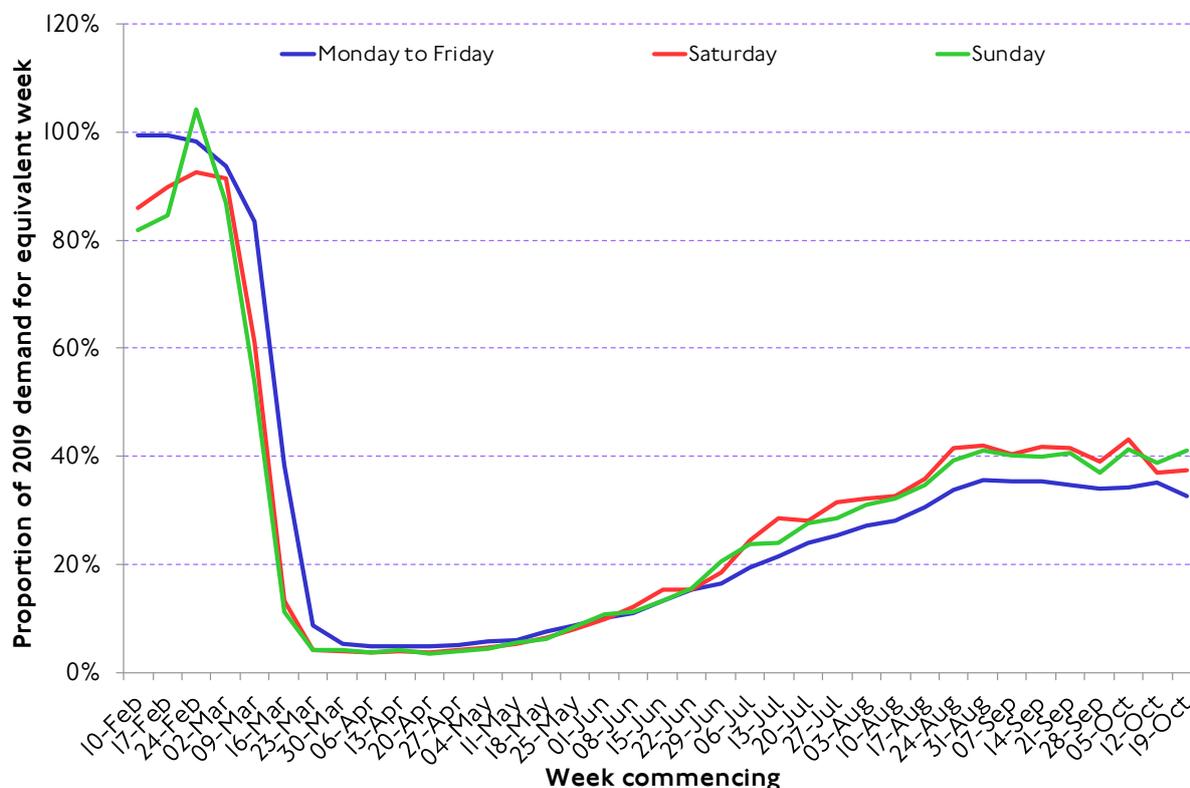
- Travel to and within **central London** reduced to very low levels and remains such – reflecting an ‘agglomerative’ economy based on office employment and discretionary leisure activities. This has led to comparatively low travel demand on radially-orientated rail networks while both office and leisure activities remain suppressed.
- On the other hand, with enforced stays close to home for many, the value of local town centres and services has been rediscovered. With this comes opportunities for active travel, but in the context of many other challenges.
- **Car travel** has been more resilient in terms of the smaller initial comparative reduction in traffic, and faster and more complete recovery to normal levels over the summer, than public transport. The potential risk of a car-led recovery, with weekday traffic during autumn at near normal levels in inner and outer London, raises concerns about the ability of London's limited road capacity to cope as activity returns, as well as the negative externalities (congestion, pollution, road danger) that would be contrary to the aims of the Mayor's Transport Strategy.
- Pandemic conditions have, however, **brought active travel to the fore** and have created opportunities to further embed walking and cycling into the daily fabric of London. The opportunity has been taken to support this transition through the **Streetspace for London programme** (see further below).
- **Societal trends such as working from home and e-commerce and e-leisure** that were evident before the pandemic, may have become further embedded. Many people and businesses have adapted successfully to the new conditions – although such opportunities are only available to some workers, and it is important to recognise that current conditions are far from ideal for many. Nevertheless, with what will ultimately be more than a year of disruption, it seems increasingly likely that there will be longer-term effects arising from these developments affecting travel demand.

The pandemic and London Underground

The general trend in **London Underground** demand since the beginning of the pandemic was one of a dramatic fall in demand from mid-March 2020 to a low point of 3 per cent of normal, followed by a recovery at a slower pace than other modes, reaching typically 35 per cent of normal during October, prior to the emergence of a second wave of coronavirus.

Within this overall trend one feature has been the **re-balancing of demand across the days of the week** (figure 10), with weekend travel being more resilient than weekdays – a reflection of the faster return of discretionary travel over the summer compared to the continuing large-scale absence of weekday office-based commuter traffic.

Figure 10 London Underground recovery by day of week, 2020 vs 2019.

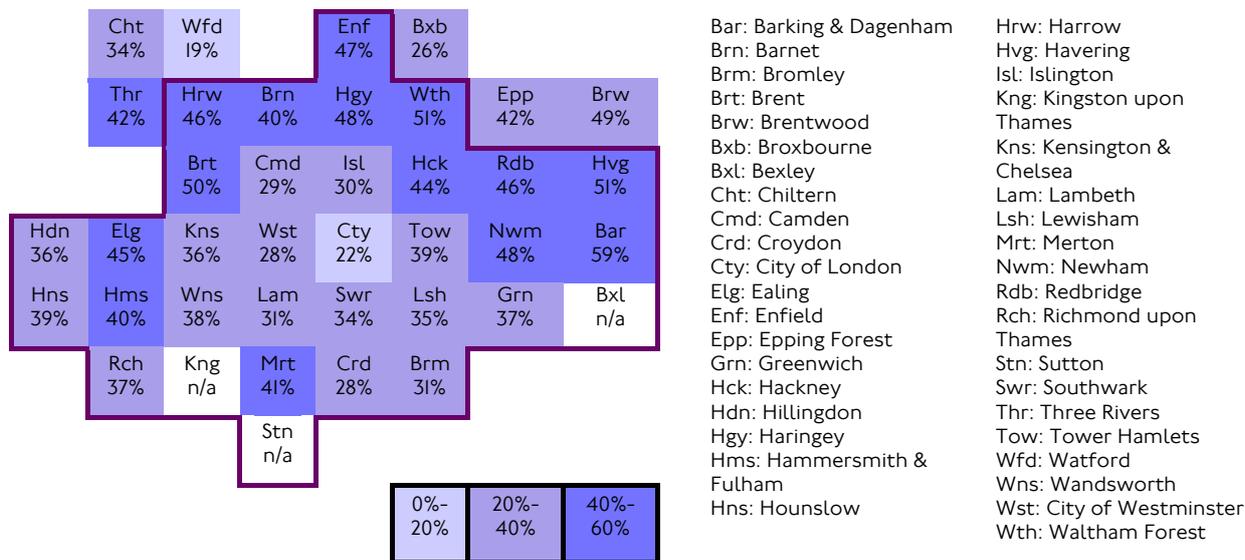


Source: TfL Data and Analytics.

Another feature is the changed balance of London Underground travel across the hours of the day, again reflecting changed demand patterns. For example, in mid-October the morning peak happened around 15 minutes earlier and was only about 30 per cent as busy as before the pandemic (and quieter than the evening peak, which was not the case before). This reflected the spreading of demand more evenly throughout the day, reflecting advice to travel at quieter times, and assisted the management of crowding under social distancing protocols.

Spatially, in terms of all TfL rail networks, the height of the spring lockdown period saw demand in central areas fall to between just 2 and 4 per cent of normal, while outer London saw demand fall to typically between 5 and 10 per cent of normal. During October 2020, activity started to recover but this spatial disparity remained. Within the overall context of about 35 per cent of rail demand having returned, central and inner London station entries were typically around 30 per cent of normal, rising to around 50 per cent in outer areas (figure 11).

Figure II Change in London Underground, London Overground and DLR weekday entries by local authority, week commencing 12 Oct 2020 vs autumn 2019 baseline.



Source: TfL Public Transport Service Planning.
 Note: Boroughs in the Greater London Authority (GLA) are enclosed within purple borders. Please note that some do not have any London Underground, London Overground or DLR stations and therefore there is no data available for them.

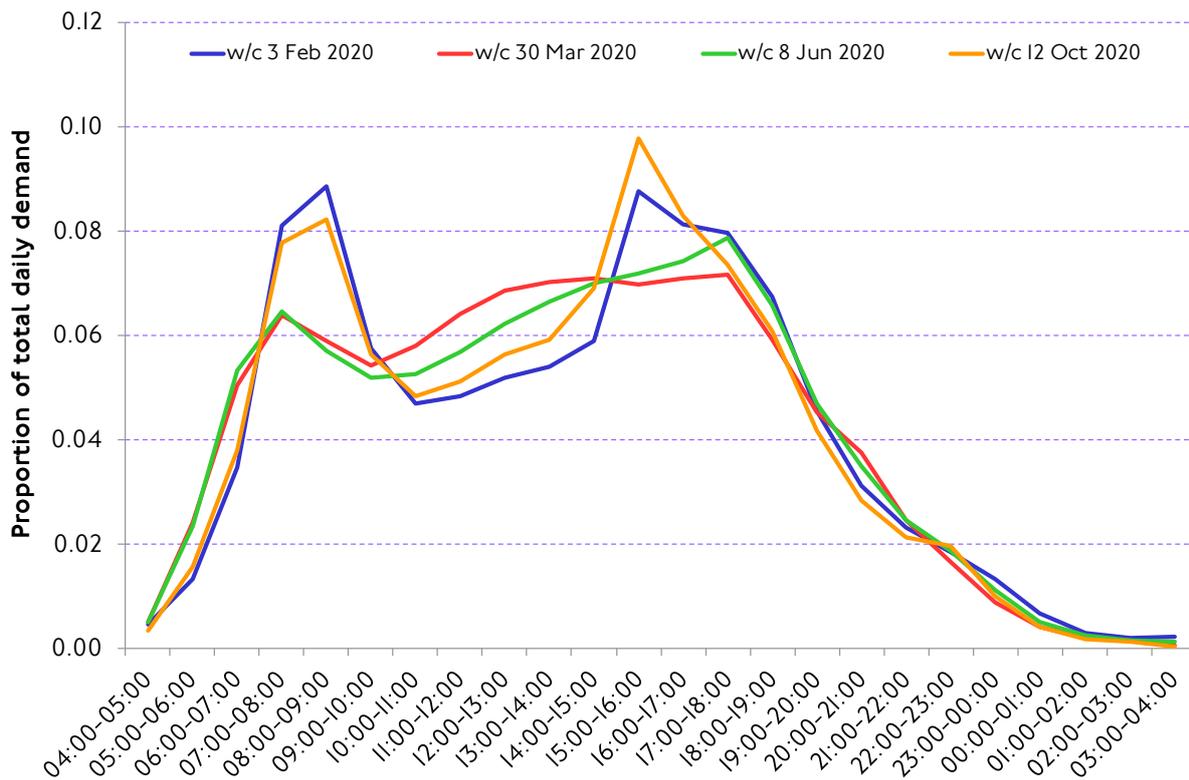
In terms of **London Underground service provision**, trains operated were over 90 per cent of normal by late spring and throughout the summer, with demand during late summer being typically around 35 per cent of normal, albeit under social distancing protocols.

The pandemic and London’s buses

The general trend in **bus demand** since the beginning of the pandemic was of a sudden drop after lockdown, to a minimum of 14 per cent of normal, followed by a slow recovery, to approximately 55 per cent of normal by early October.

In terms of the **demand profile across the day**, figure 12 shows that, at the height of the spring lockdown, the relative demand in the traditional morning and evening peaks was substantially reduced in relative terms. There was also a shift to an earlier morning peak, and a relative increase in demand during the middle part of the day.

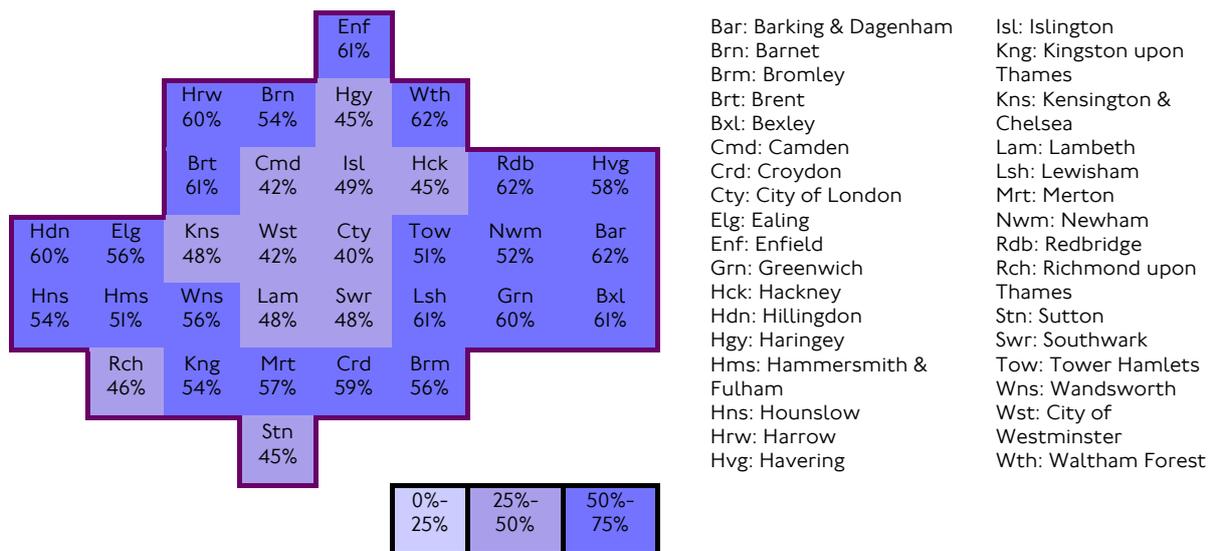
Figure 12 Relative daily bus demand profile, representative weeks in 2020.



Source: TfL Data and Analytics.

In terms of the **spatial pattern** of bus demand, figure 13 shows the proportion of bus demand in each borough for a representative week in late September (ie following the easing of lockdown restrictions and the return of some activity, but before the development of a second wave), compared to a 2019 autumn baseline.

Figure 13 Change in bus demand by borough, week commencing 28 Sep 2020 vs autumn 2019 baseline.



Source: TfL Public Transport Service Planning.

At that point in the pandemic the overall spatial pattern of bus use was similar to London Underground, with again a relatively greater shortfall in central and inner

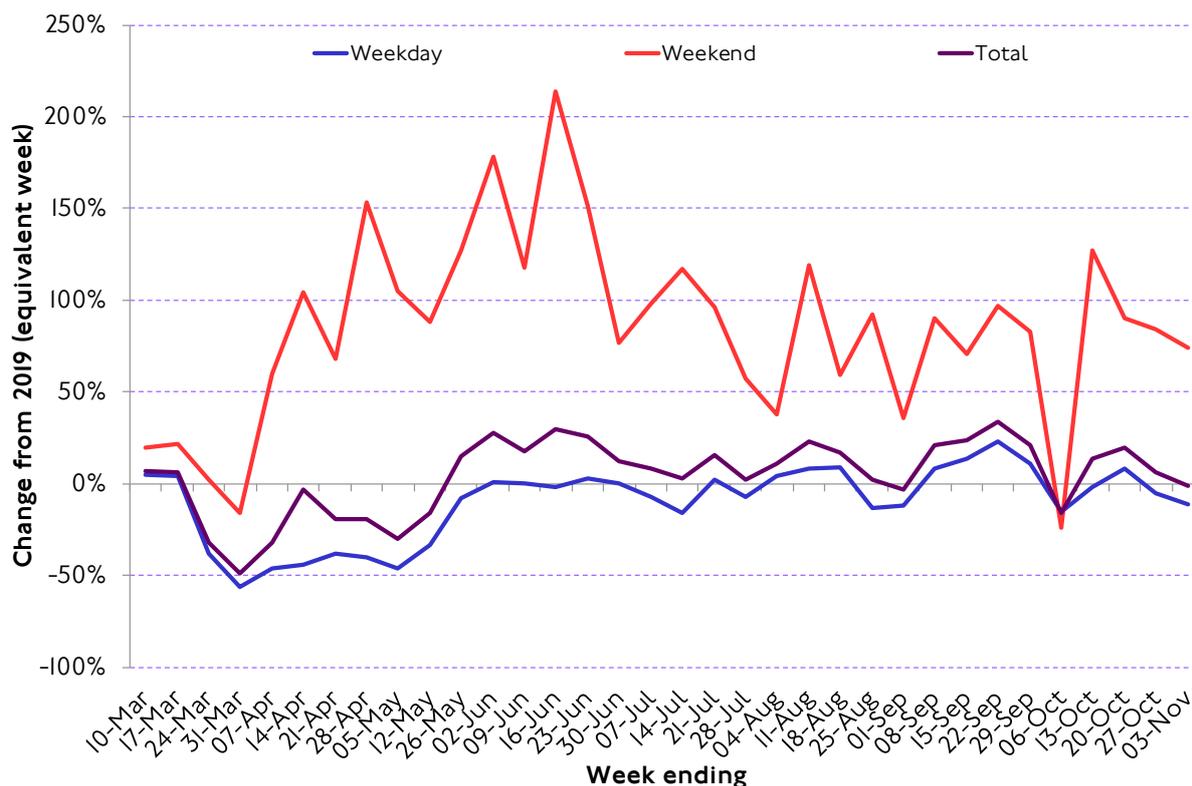
London boroughs. Overall, however, bus demand was around half of normal, and all central/inner boroughs saw bus demand at 40 per cent or higher compared to normal levels. Around this same time in September, bus travel to school by pupils was only 70 per cent of pre-pandemic levels.

In terms of **bus service provision**, following reductions of up to 15 per cent during the spring lockdown, the pattern since late June has been for a full, and in some cases, enhanced, service to operate.

Cycling and the pandemic

During the pandemic, commuter cycling during the weekday peaks, previously the dominant trip type, drastically reduced as many employees started to work from home. On the other hand, leisure cycling increased, particularly on weekends, as cycling was one of the few permitted exercise activities during lockdown, and this continued in the context of generally favourable weather over the summer. Despite lower cycling in the initial lockdown period, reflecting dramatically lower overall mobility, the weekday and weekend trends broadly balanced each other, and from early summer total cycling, as recorded by a (non-representative) sample of permanent counters in central and inner London, was comfortably above the pre-pandemic baseline (figure 14).

Figure 14 Change in cycle flow on the automatic cycle counters, 2020 vs 2019.



Source: TfL Traffic Data.

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

Walking and the pandemic

Walking in 2019 was estimated to account for 25 per cent of all travel in London, on a trip basis. The impacts of the pandemic on walking in London will have varied. However, few datasets are available currently to allow this to be quantified. Our

central London pedestrian survey provides one source, although it is certainly not to be regarded as representative of London as a whole, since central London was uniquely affected by the pandemic. This survey did, however, graphically capture the **dramatic effect of reduced activity in central London** over the summer of 2020. Daytime pedestrians were down overall by 72 per cent compared to the equivalent quarter in 2019, with the beginnings of a pandemic effect also seen in quarter 4 2019/20. Initial data from the 2020/21 LTDS suggests an increase in walk mode shares by London residents over the August to October 2020 period.

Streetspace for London: the programme

TfL has developed the Streetspace for London programme to **urgently reconsider the use of street space in the light of the challenges and opportunities presented by the pandemic**. The programme will provide safe and appealing spaces to walk and cycle as an alternative to car use in the context of reduced capacity on the public transport network, as London recovers from the impacts of the pandemic. The aims of the programme are to enable Londoners to travel safely and to support economic recovery by:

- Making it easier and safer for people to maintain social distancing
- Helping people walk and cycle safely and more often
- Avoiding a sharp increase in car use
- Keep London's air as clean as possible

TfL is introducing Streetspace for London schemes on London's red routes as well as providing funding to boroughs to make walking and cycling safer and easier on their roads. Interventions include temporary cycle routes to extend the strategic cycle network and footway widening to make additional space for people walking in town centres and at transport hubs. TfL is also working with boroughs to support the delivery of **Low Traffic Neighbourhoods** and **School Streets** in order to reduce traffic on residential streets and outside schools, enabling more people to walk and cycle safely as part of their daily routine.

The Streetspace for London programme focuses on rapidly rolling out cycling infrastructure, bus priority, neighbourhood improvements and lower traffic speeds, using an accelerated approach and temporary materials. Streetspace for London locations have been targeted using an evidence-led approach to ensure the greatest benefits for mode shift and safety, and currently include:

- **Strategic movement schemes**, including 89km of new or upgraded cycling infrastructure (66km of which was delivered by boroughs) and 86km of bus lanes upgraded to 24/7 lanes.
- **Social distancing schemes**, with 22,516m² of TLRN highway reallocated to pedestrians, in addition to 181 borough-led schemes.
- 88 funded **Low Traffic Neighbourhoods** (delivered by boroughs) focusing on reducing road danger, addressing health inequality and encouraging active travel.
- 322 borough-led **School Streets** schemes to reduce road danger, promote active travel and reduce pollution exposure.
- 6 new Cycle Hire stations.

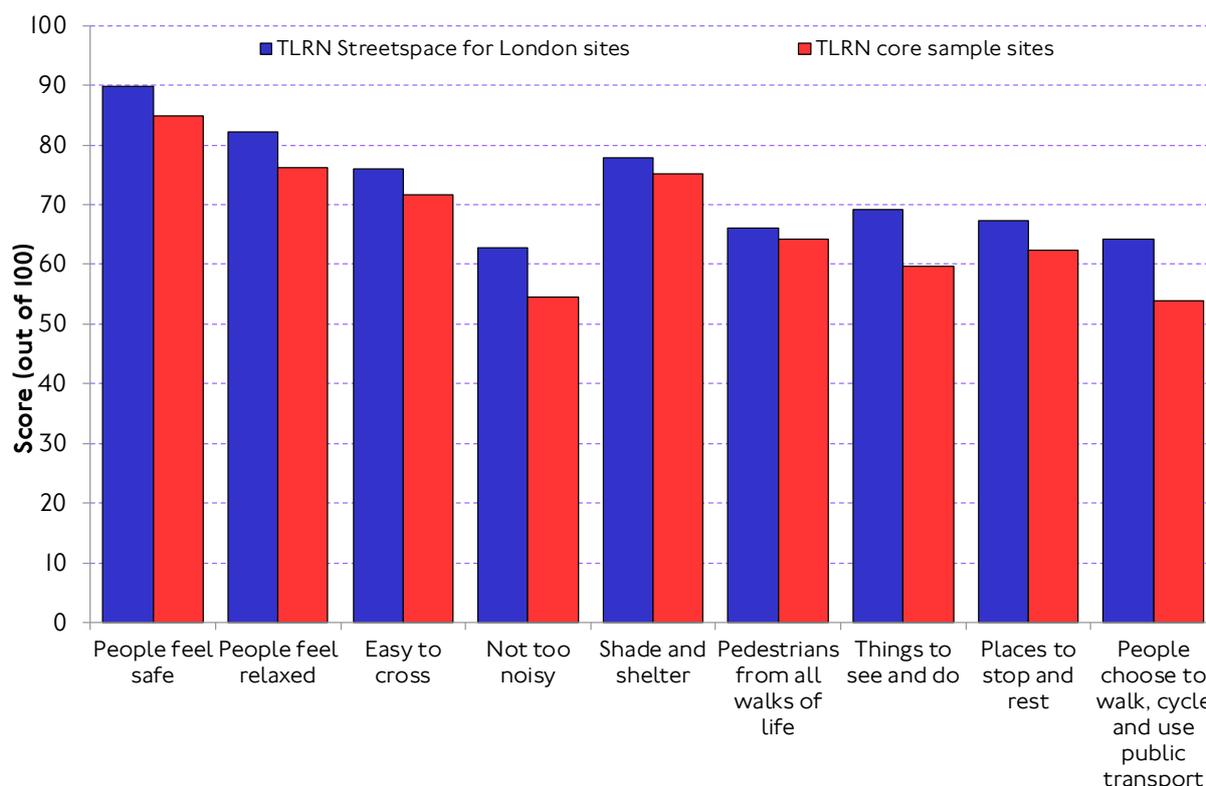
The Streetspace for London programme targets a range of benefits, including:

- **Restored confidence in public transport**, by providing sufficient space for social distancing for those who need to travel most, such as key workers and those who are unable to travel by alternative modes, for example those with reduced mobility.
- **Economic benefits from reduced congestion** as well as supporting recovery of local high streets and town centres by enabling Londoners to access local shops safely by walking and cycling.
- **Improved health and wellbeing**, by enabling all Londoners to achieve the 20 minutes of walking or cycling each day recommended for good health and wellbeing as well as reducing exposure to air pollution and road danger.

Streetspace for London: initial impacts

The programme has been developed and deployed rapidly, but there are positive indications of initial impacts. We have used TfL’s Heathy Streets Mystery Shopper survey, described in previous Travel in London reports, to objectively assess the performance of treated streets. The results (figure I5), **show consistent improvements across the range of healthy streets indicators** that have been formulated to underpin the Mayor’s street improvement plans.

Figure I5 Healthy Streets Mystery Shopper survey indicator scores, Streetspace for London sites completed to date (Aug-Oct 2020) vs sites in core TLRN sample (Jun-Sep 2020).



Source: TfL City Planning.

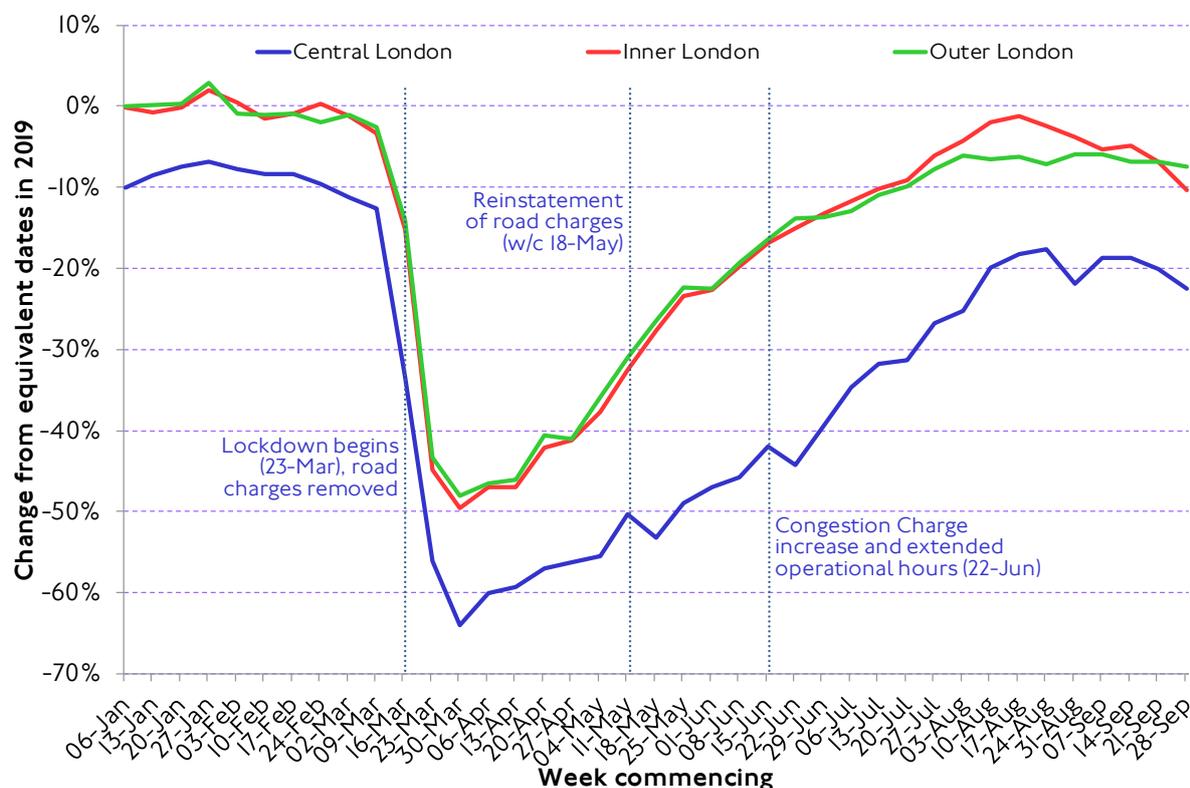
Results from a pilot survey, conducted in the **Railton Road Low Traffic Neighbourhood** in Lambeth, implemented in July 2020, suggest encouraging changes in the travel behaviour of residents, compared to the wider population.

TfL is undertaking further comprehensive monitoring of the impacts of the Streetspace for London changes across London, to be reported in due course.

The pandemic and road traffic

Motorised road traffic fell rapidly from mid-March 2020, as businesses and individuals adapted to the pandemic. At the lowest levels, in the week following the lockdown announcement, TLRN road traffic vehicle kilometres fell to around 50 per cent of pre-pandemic levels on weekdays and 35 per cent on weekends. From mid-April traffic began to recover at a rate of around 5 percentage points per week until June, when recovery began to level off at around 90 per cent of pre-pandemic levels on weekdays and 85 per cent on weekends. However, as figure 16 shows, recovery has not been the same across London. At the end of September, weekly traffic volumes in central London were 78 per cent of pre-pandemic levels, compared to 90 per cent in inner London and 92 per cent in outer London. Note in the figure that traffic had already fallen in central London relative to early 2019 prior to the pandemic as an impact of the introduction of the ULEZ in spring 2019.

Figure 16 Change in weekly motorised traffic volumes by area, 2020 vs 2019.



Source: TfL Surface Transport.

Weekly **goods vehicle volumes** fell the least compared to all motorised modes, with volumes compared to 2019 falling 51 per cent for LGVs and 47 per cent for HGVs in the week following the lockdown announcement. From mid-April goods vehicle activity recovered relatively quickly, with LGV traffic recovering more quickly than HGVs, likely due to a growth in online shopping while construction activity remained subdued. Recovery began to level off at the end of June at around 18 per cent below pre-pandemic levels for LGVs and 27 per cent below pre-pandemic levels for HGVs. In mid-August volumes for both HGVs and LGVs began

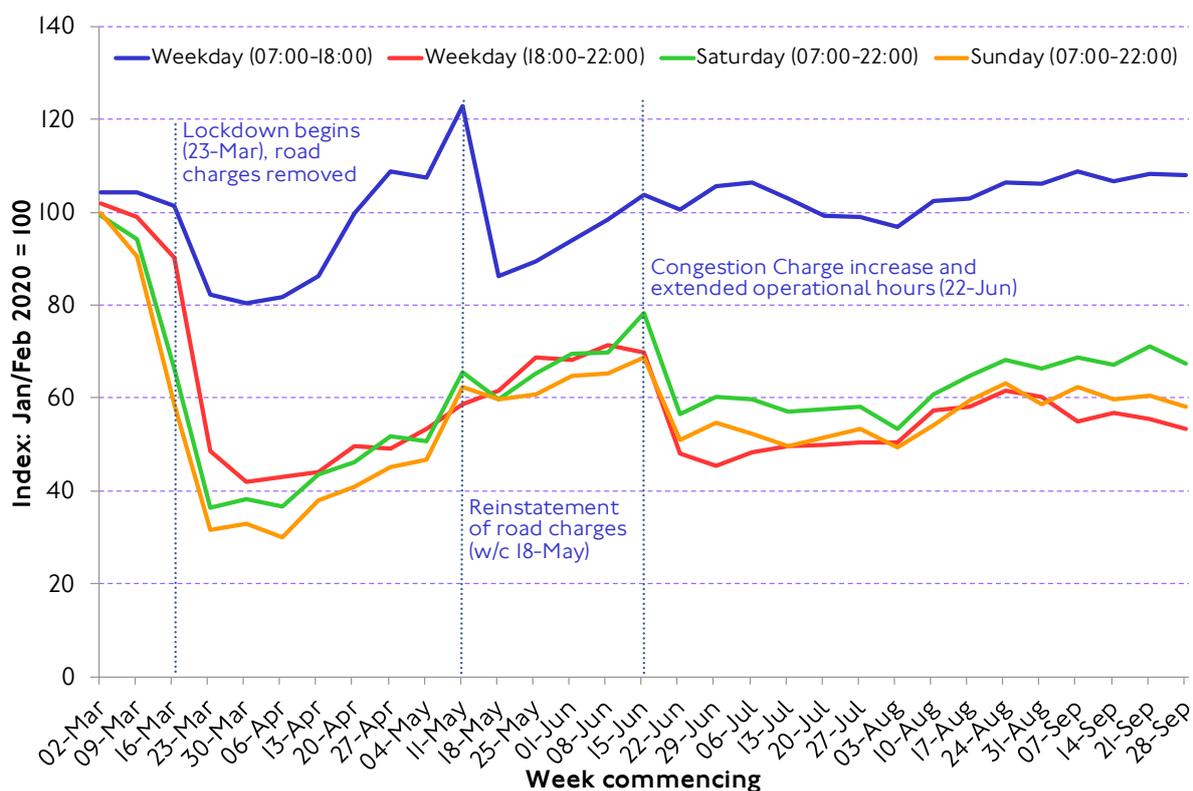
to decline. At the end of September HGV and LGV volumes were, respectively, 23 and 20 per cent below pre-pandemic levels.

Across London, the **falls in road traffic seen in early spring were comparatively less than for public transport, and the rate of recovery subsequently has been much faster** – weekday volumes returning to near normal in inner and outer London. While explicable in terms of the changes to people’s daily activities and relative risk perception, this relatively rapid recovery, given the restrictions still in place in autumn 2020, raises concerns about the ability of London’s roads, and wider urban environment, to accommodate any overall increases in road traffic that may arise as activity returns.

Temporary changes to the Congestion Charge scheme

Recovery of traffic in **central London** has been slower than in other areas, in part reflecting changes to activity patterns, but also influenced by the reinstatement of the Congestion Charge on 18 May 2020, following temporary suspension, and the temporary increase in charge level and extension of charging hours on 22 June.

Figure 17 Daily unique CCZ car entries by day of the week and extended charging hours, Mar-Sep 2020 vs Jan-Feb 2020.



Source: TfL Surface Transport.

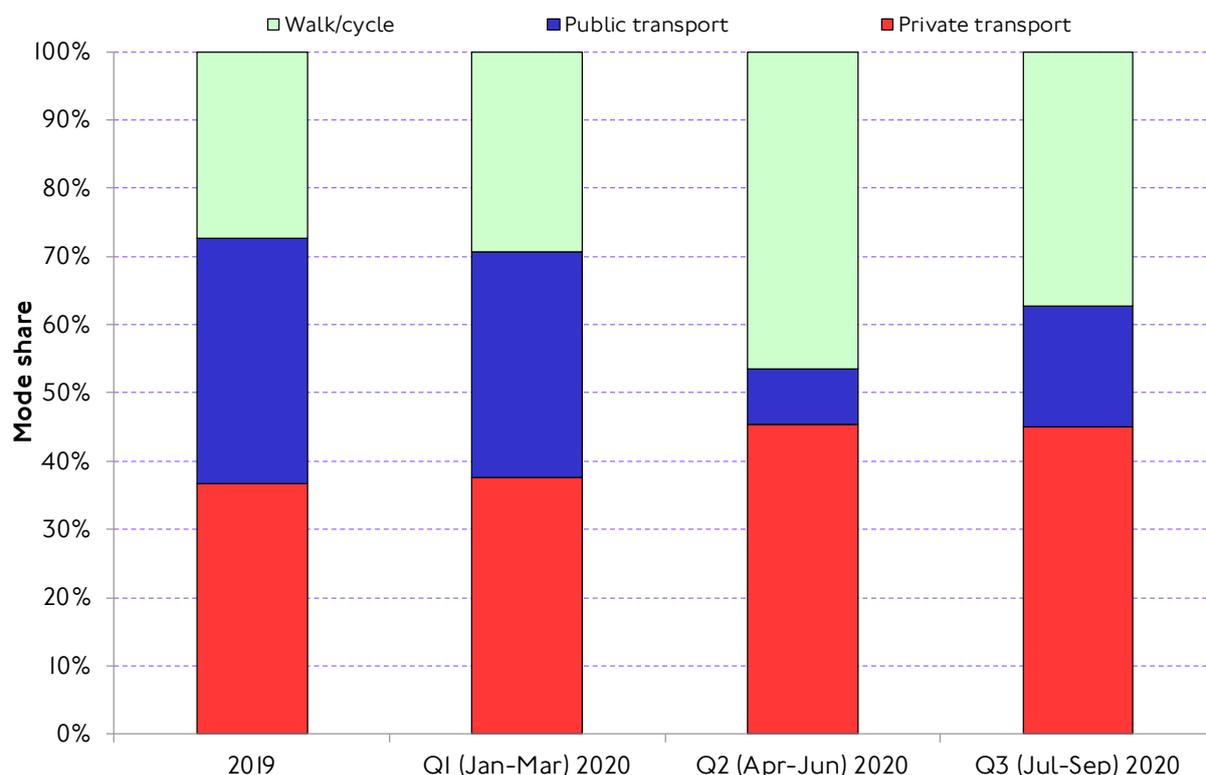
The recovery of traffic in central London should be viewed in the context of wider travel behaviour patterns as a result of the coronavirus pandemic. However, the data suggests that **the temporary charge increase and extension is having the expected effects on demand**. Overall, weekly traffic volumes (all motorised modes) fell by around 6 per cent following the reinstatement of the charge and also fell by 3 per cent following the temporary changes on 22 June. In line with expectations, weekly car entries to the Congestion Charge zone (CCZ) fell by 11 per

cent following the temporary changes introduced on the 22 June. As shown in figure 17, traffic during pre-pandemic charging hours reduced by about 5 per cent. Car entries fell by 30 per cent during weekday evenings, and 27 per cent during the newly charged hours at the weekend. Following the easing of restrictions over summer, traffic has steadily increased. However, without the temporary changes in place it is likely that this increase would have been greater. Traffic in the evenings and weekends, not previously liable for the charge, remains noticeably lower than typical 2019 values.

The pandemic and mode shares

Unsurprisingly, estimates of **mode shares during the pandemic** reflect the short-term changes to travel demand across the modes. During lockdown in spring, we estimate the active, efficient and sustainable mode share in quarter I to have been 54.6 per cent. Over summer, as activity started to return, this increased slightly to 54.9 per cent (figure 18). All of these, importantly, in the context of a smaller overall 'travel demand pie' and seasonal variations, but nevertheless consistently short of the 63.2 per cent which was seen during 2019.

Figure 18 Estimated mode shares, 2020 vs 2019.



Source: TfL City Planning.

Note: The total amount of travel in London to which these shares apply varies between periods in 2020 but is always substantially smaller than in 2019.

The pandemic and air quality

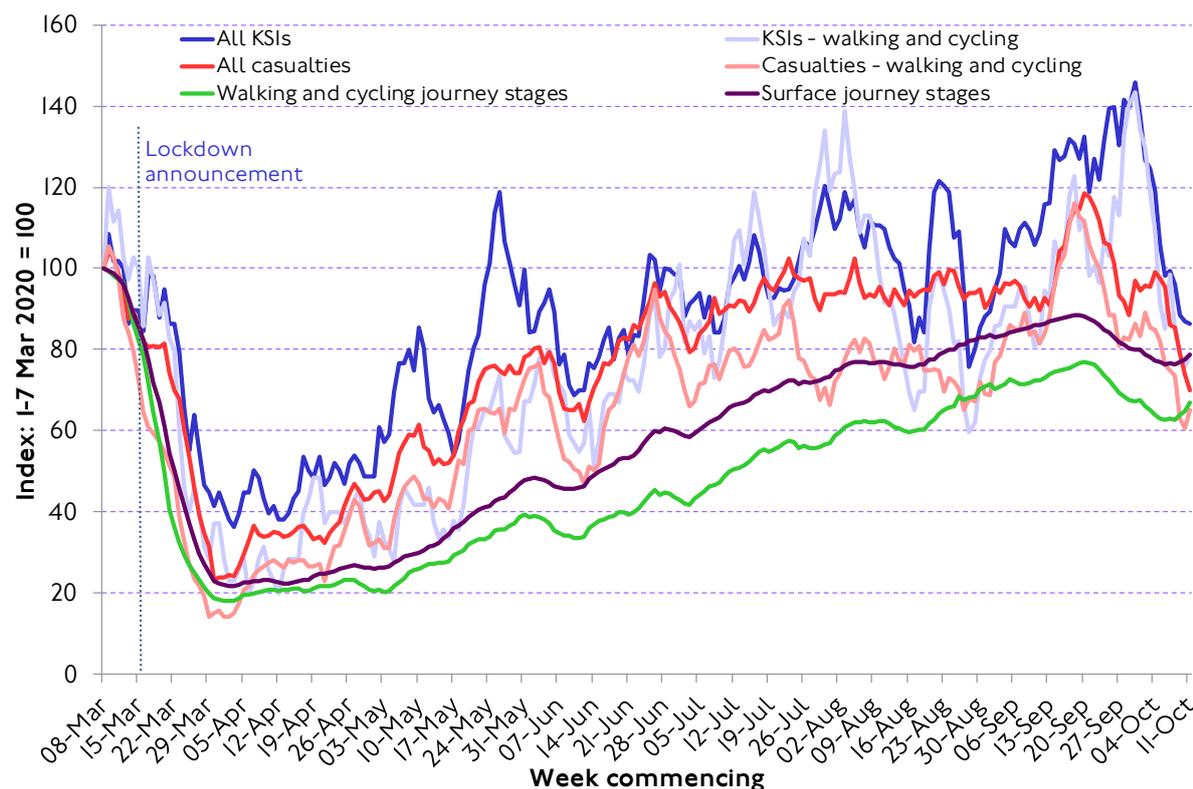
The pandemic saw changes to travel and other polluting activity across London, and this in turn reduced emissions and improved air quality, on top of the benefits delivered by ULEZ (above). Nitrogen dioxide (NO₂) concentrations at some of London's busiest roads **reduced by around a half** during March and April 2020 when lockdown measures were in full effect. However, this was a temporary

effect and, as road traffic has returned (estimated at above 90 per cent of normal levels in late summer), NO₂ concentrations are returning towards levels that might otherwise be expected. However, it should be recognised that NO₂ concentrations were on a steep downwards trajectory irrespective of the pandemic, reflecting the initiatives described earlier in this report, and this is seen most clearly in central London, where concentrations remained about 40 per cent lower at roadside sites than in early autumn 2019. The pattern for other pollutants was, however, complicated by seasonal and other factors this year, which is to be expected, leading to several episodes of elevated particulate matter (PM₁₀) and ozone (O₃) over summer, despite reduced activity. This highlights that poor air quality is not just the result of traffic pollution and further action is required on other sources.

Road danger and the pandemic

The pandemic has seen changes to the use and configuration of London’s streets, and these changes have affected – and continue to affect – both the absolute number of casualties from road traffic collisions and the **relative risk profile of road users**. The short-term picture over spring/summer 2020 was that, while the absolute number of casualties reduced, following reduced overall travel demand, travel on streets in London in practice became riskier.

Figure I9 Relationship between casualties and journeys in London over the pandemic period. Mar-Oct 2020.



Source: TfL Safety, Health and Environment.
 Note: These data are provisional. Collision records subject to change and are amended based on revised collision details and further investigation. This review currently occurs circa 4 months in arrears and typically ~25% of serious collisions are 'downgraded' to slight through this process. Consequently, KSI data in the graphic after June 2020 in particular are subject to significant revision and therefore should be regarded as indicative only. The journey stages in the graph are estimated from proxy data and may not correspond with other data in this report.

Figure I9 shows trends in terms of the absolute number of recorded casualties. The impact of the marked reduction in travel over spring/summer is clear, as is the

more recent trend for casualties to return towards pre-pandemic levels, as traffic has returned. Relative risk, however, shows the opposite pattern, with a **substantial increase in risk per journey over spring/summer** – casualty indices being higher than the traffic index.

The figure also shows a higher relative risk for those casualties killed or seriously injured, as distinct from all injuries (blue/red lines). The **average severity of casualties from collisions also therefore increased** over the spring/summer. Contributory factors to this are thought to be an increase in average traffic speeds, as traffic levels and congestion fell, as well as changes to the road user population, including an increase in non-regular drivers.

Coronavirus: behavioural perspectives on activity and travel

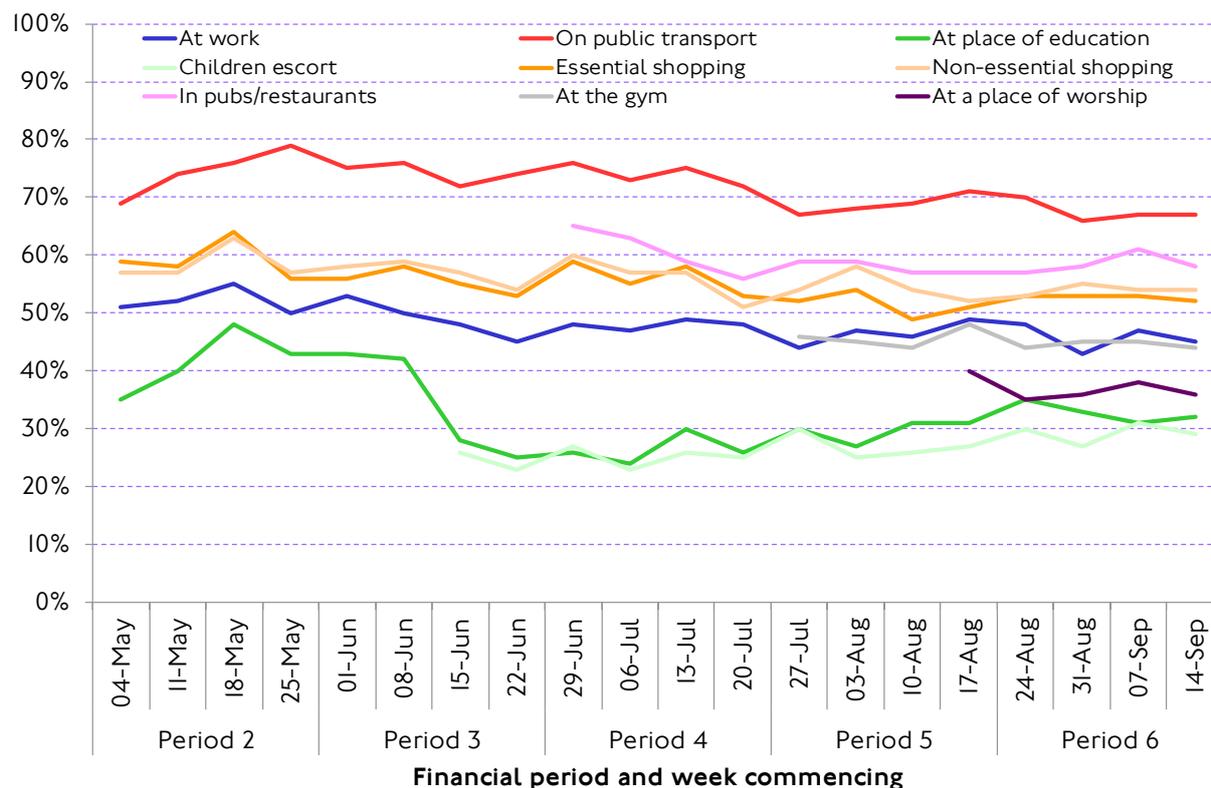
An immediate challenge in terms of planning for our contribution to London's recovery is to understand the extent to which the impacts and exigencies of the pandemic are likely to have changed what individuals will need and choose to do. This includes changes in activities such as employment and travel, in the medium-term future, and how their own personal evaluation of the pandemic and post-pandemic world, including those of businesses, is likely to affect the travel choices they make in the future.

Perceptions of virus transmission risk and personal safety

Although public transport demand in London has been dramatically reduced by the pandemic, to a much greater degree than observed on London's roads, this primarily reflects the fact that there has simply been less need to travel, particularly for those trips more usually made by public transport, rather than factors intrinsic to the transport networks themselves.

Results from TfL's Customer Pulse survey (run weekly between May and September) show that Londoners' level of concern about catching coronavirus varies considerably for different activities, with the greatest concern when travelling on public transport, despite stringent efforts to sanitise the networks and manage social distancing (figure 20). However, between 40 and 60 per cent of Londoners report similar concerns around the risk associated with a range of daily activities, these collectively having a compounding effect in terms of individual risk assessment of making a trip.

Figure 20 Concern about catching coronavirus by activity, Customer Pulse, May-Sep 2020.



Source: TfL Customer Insight, Strategy & Experience.
 Note: Sample size is 500 respondents per week.

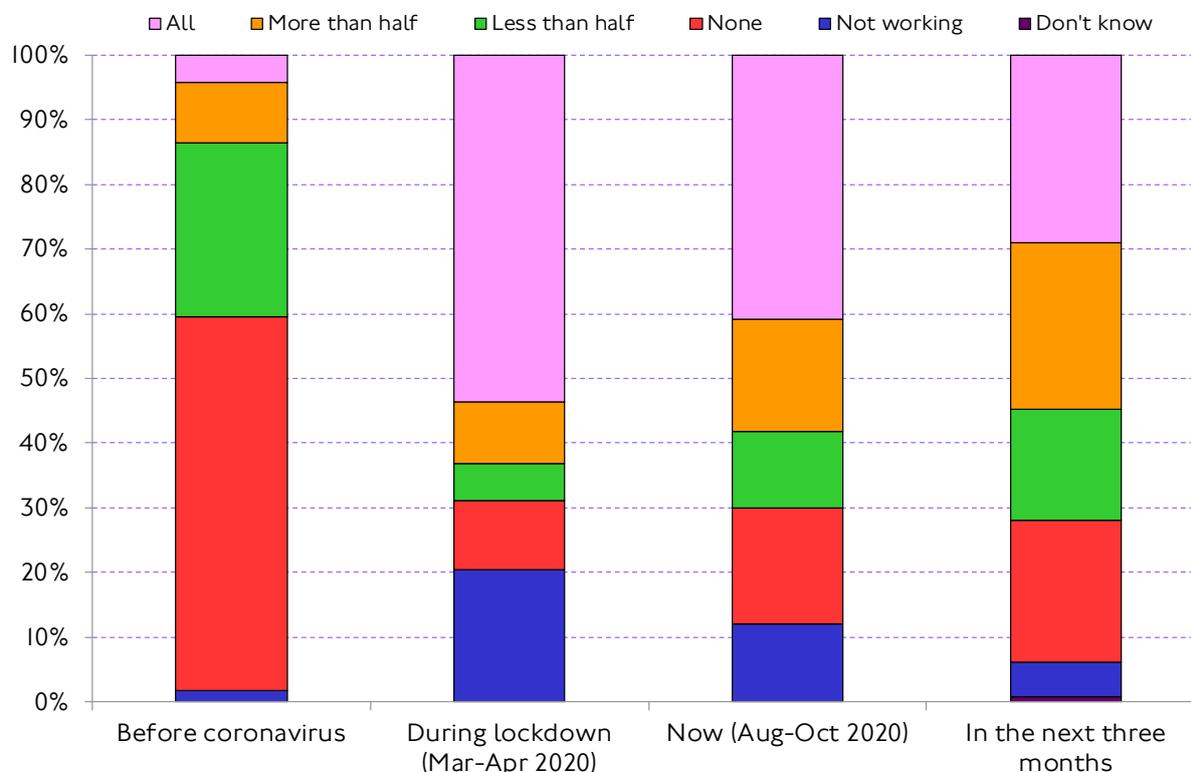
Survey results also show that agreement with the statement ‘TfL is communicating well with Londoners during the coronavirus crisis’ increased from 64 per cent to 66 per cent between July and September and agreement with the statement ‘TfL provides a reliable service everyday’ increased from 63 per cent to 66 per cent over the same time period. However, we can maximise our potential role in the recovery by **understanding our customer priorities** and making public transport as ‘fit as possible’ in the circumstances. Three clear themes emerge from research undertaken in September 2020 with customers: face coverings and enforcement, cleanliness and cleaning, and capacity control and social distancing. All three have been prioritised so far, and there is a need to continue to visibly deliver across each of these three themes to help improve the trust of customers during the remainder of the pandemic.

Travel for work

The national lockdown and advice to **work from home** had an immediate impact on travel to work. By May, **1.07 million jobs had been furloughed** (around 18 per cent of jobs in London) and **79 per cent of businesses stated that almost all employees were working from home**, compared to 3 per cent of businesses before the pandemic. Reductions have been most apparent in central London where commuter demand fell earlier and faster than the rest of London and the GLA has estimated that the ongoing absence of office-based workers has led to a **£1.9bn loss in expenditure** from commuters to central London in 2020.

Figure 2I shows results from our adapted LTDS this year relating to the impact of coronavirus and travel restrictions on commuting.

Figure 2I Proportion of work done or expected to be done from home, LTDS unweighted results, Aug-Oct 2020.



Source: TfL City Planning.

Note: The 'next three months' is relative to when each respondent completed the survey between August and October.

Before the pandemic, almost 60 per cent of London workers did not work from home at all and few (4 per cent) worked from home full-time. The picture changed entirely during the national lockdown in March and April 2020, where 20 per cent of workers stopped working altogether and the proportion who travelled to work dropped to just 11 per cent. Some 54 per cent of workers began to work from home full-time and a further 15 per cent worked from home part-time.

Businesses are expecting a great deal of **change to working practices** in the future as a result of the pandemic, particularly around working from home, flexible working and ongoing social distancing. A GLA survey in September found that almost three-quarters (72 per cent) of the workforce in central London office-based businesses are predicted to work from home for the next two years, compared to 50 per cent of workforce across all London businesses, and 40 per cent of central London office-based businesses think they will downsize their office accommodation in the next six months, although most plan to stay in central London. Many employees have a **desire to work remotely in the long term**, at least part-time, although it must be recognised that this is not possible or ideal for some; results from LTDS show that almost three-quarters (72 per cent) of London workers expect to do some work from home in the next three months and 29 per cent of workers expect to work from home full-time.

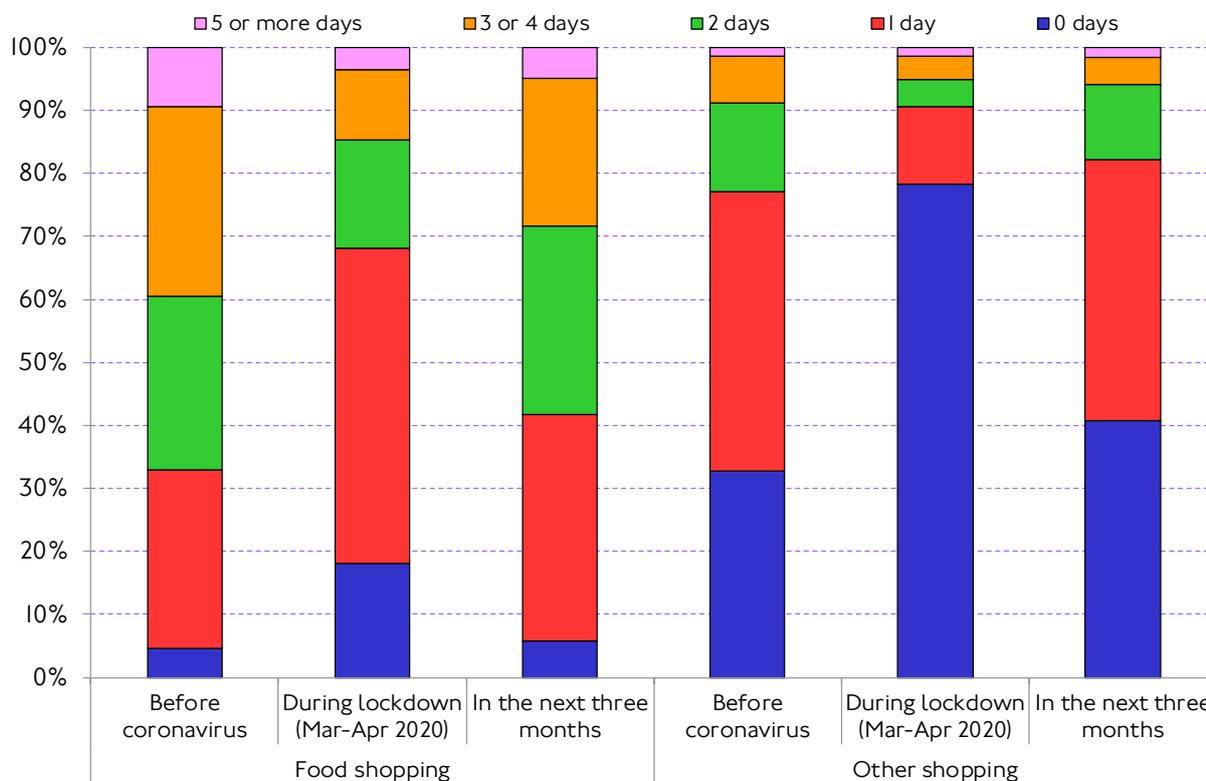
The potential longer-term persistence of remote working, social distancing on public transport and more general economic damage from coronavirus could have

significant impacts on the spatial distribution and overall demand for commuting trips in the future. The number of Londoners looking for work outside London was up 27 per cent on last year and those looking to buy properties outside of London was up by 42 per cent. The **balance of residents and workers inside and outside London** could therefore be quite different as a result of the pandemic, with implications for demand at terminal stations and the mode share of travel to work, with the possibility of a higher proportion of long-distance commuters and a shift in demand away from central London destinations.

Travel for shopping and leisure

The closure of non-essential shops and leisure venues in March and advice to limit the frequency of shopping for essential items led to a significant fall in travel demand for discretionary activities. Figure 22 shows findings from LTDS on the impact of the pandemic on Londoners’ **shopping habits**, showing how many days on an average week Londoners made, or anticipate making, a shopping trip. Some 68 per cent of Londoners shopped for food once a week or less during the lockdown in spring – this compares to a third of people who shopped at this frequency before the pandemic. For non-food shopping, around three-quarters of Londoners shopped once a week or less before lockdown; during lockdown this rose to 91 per cent, likely due to the closure of non-essential retailers. Londoners anticipate continuing to shop less frequently than they did before the pandemic over the coming three months.

Figure 22 Weekly shopping frequency at representative periods, LTDS unweighted results, Aug-Oct 2020.



Source: TfL City Planning.

Note: The 'next three months' is relative to when each respondent completed the survey between August and October.

During the lockdown in spring, **online shopping** rose as non-essential shops closed and people avoided spending time in public places to limit their exposure to the virus. In May, online shopping comprised a third of all retail sales, compared to 20 per cent in 2019. Even as shops reopened over summer, home delivery volumes remained high; figures from Metapack show that in August home delivery volumes were 30 per cent higher than in 2019. A survey undertaken by the University of Leeds shows demand for online shopping is likely to continue, as around a third of Londoners said they would continue to do more shopping online following the lockdown in spring. Initial findings from our adapted LTDS survey showed that over half of Londoners received more **deliveries** than usual on a typical week since August, in comparison to before the pandemic.

The government's **Eat Out To Help Out** scheme provided a welcomed boost in seated diners to some struggling businesses. However, continuing concern about virus transmission risk, a significant reduction in tourism and changing travel patterns due to greater working from home has led to a slow recovery of **evening travel demand**, even before the introduction of the 22:00 curfew in September. This has also been impacted by **social distancing** rules, meaning it remains unviable for many leisure venues, such as theatres and clubs, to re-open.

Active travel

During the spring lockdown, as people were permitted to leave the house for **daily exercise**, many took the opportunity to walk, cycle or run for leisure more frequently. Research undertaken by the University of Leeds showed that Londoners increased how often they walked for pleasure or exercise by 33 per cent and the amount they cycled for leisure by 25 per cent. However, much of the increase in exercise could have been undertaken by Londoners who were already active. Results from LTDS showed that although the proportion of Londoners exercising on five or more days a week increased during lockdown, the proportion who did not exercise at all on an average week also increased.

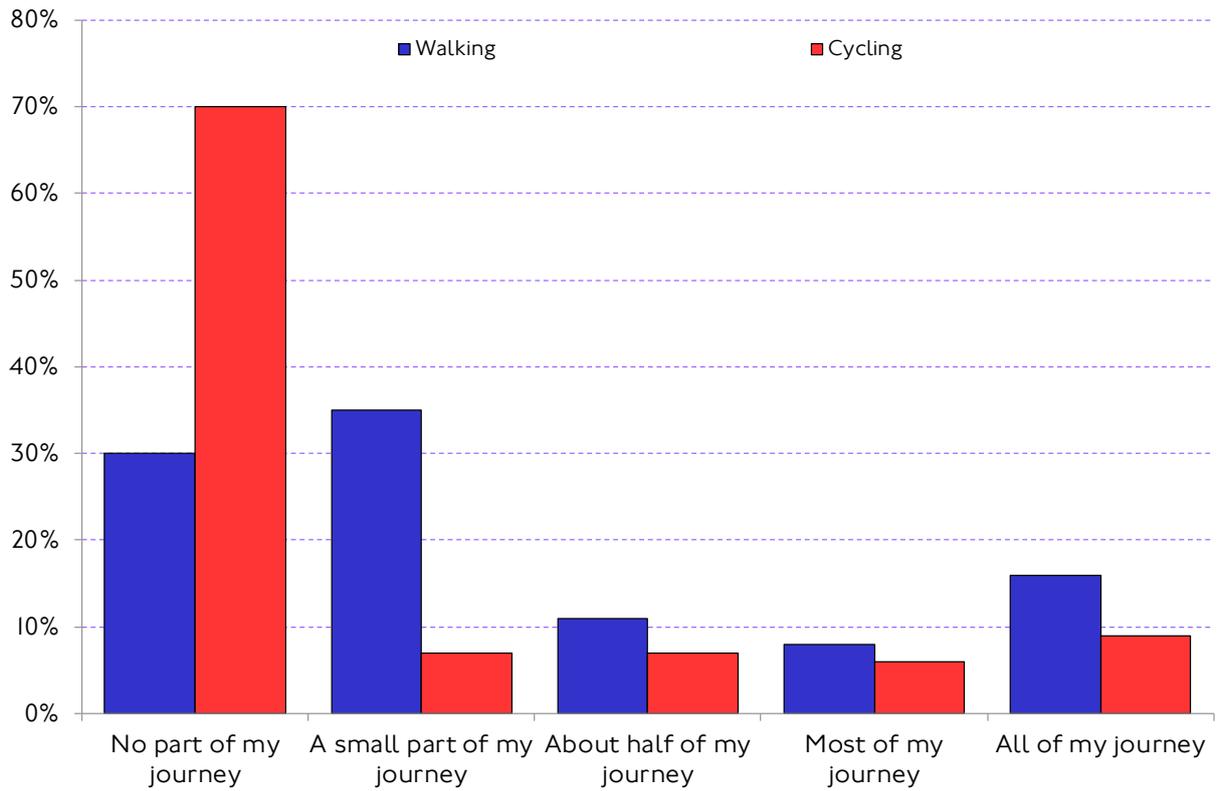
TfL's cycle counts showed that **weekend cycle flows were significantly higher** in lockdown compared to the 2019 baseline, although weekday flows were lower. This reflects an increase in leisure cycling, which was one of the few permitted outdoor activities during lockdown. Results from LTDS also show that a greater proportion of London residents are **cycling more frequently** since lockdown. Despite a decline in walking associated with commuting trips, 31 per cent of Londoners say they are walking to places where they used to travel by a different mode and 57 per cent say they now go on **more walks for exercise or walk for longer than they did before**.

For the journey to work, figure 23 shows results from TfL's Customer Pulse survey, revealing that **30 per cent of respondents would consider cycling to work**, and, of those, **1 in 3 would consider cycling all the way**. For walking, although 30 per cent would not consider walking any part of their journey, around half (54 per cent) would consider walking some of their journey and 15 per cent of respondents would consider walking all the way.

Travel distance and mode choice

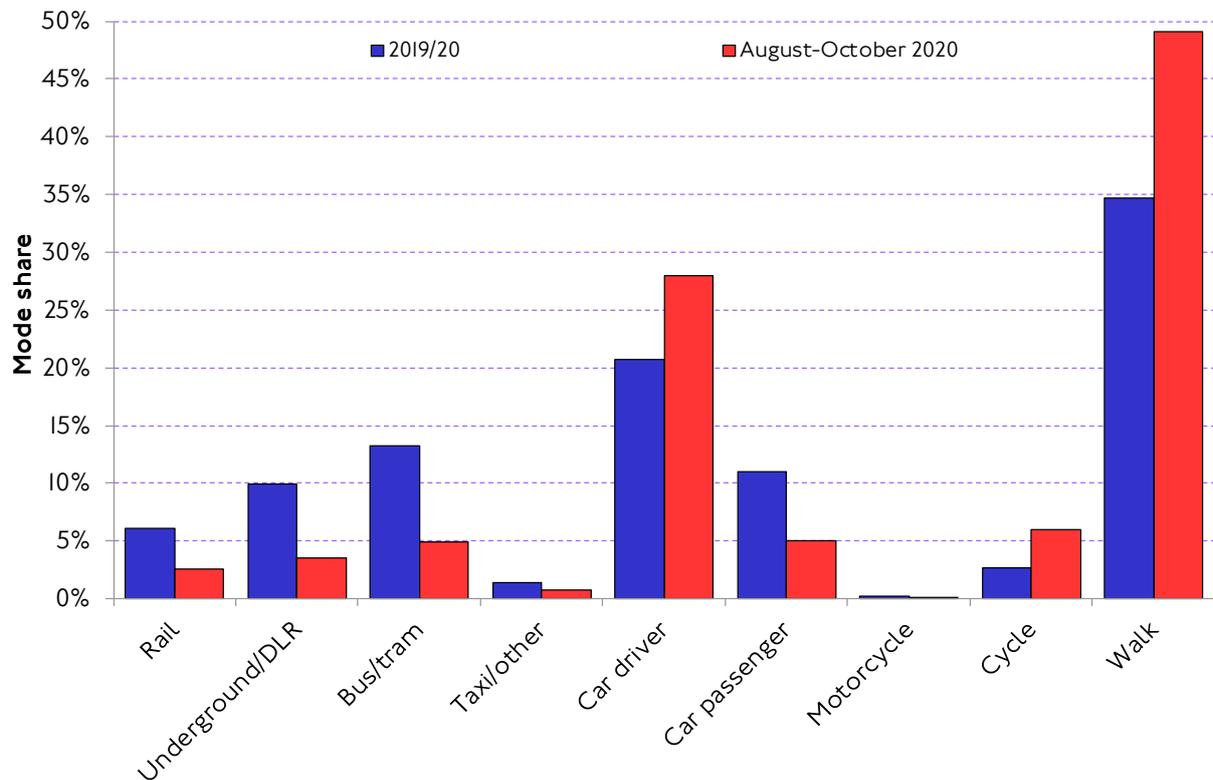
The modes used by London residents during 2020 primarily reflect changes to activity patterns, A second factor relates to changes to travel distance, with mode shares reflecting a preponderance of more local trips (figure 24).

Figure 23 Respondents who would consider walking or cycling as part of their journey to work when they return, n=498, Customer Pulse, Jun 2020.



Source: TfL Customer Insight, Strategy & Experience.

Figure 24 Trip-based mode share, LTDS unweighted results, Aug-Oct 2020 vs 2019/20 financial year average.



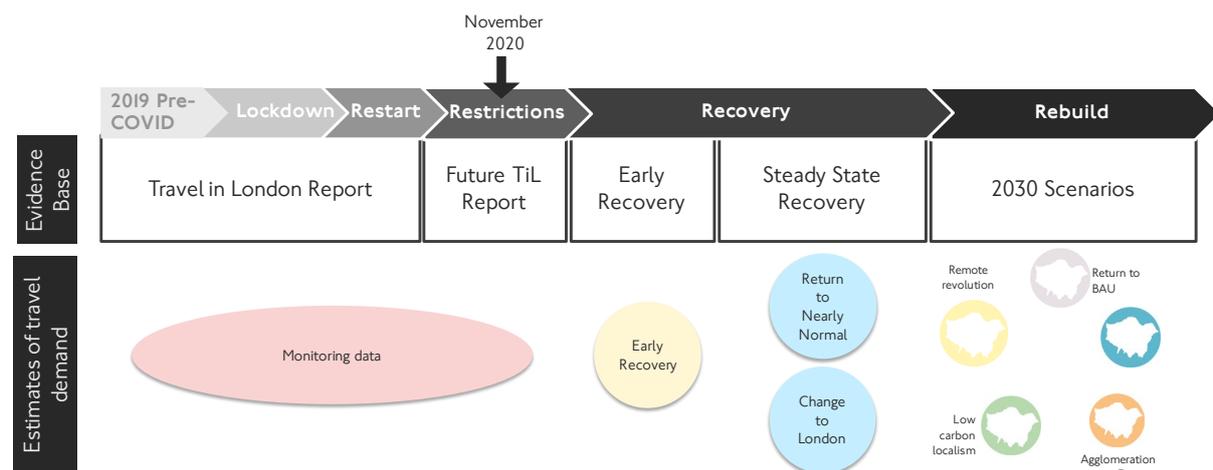
Source: TfL City Planning.

Coronavirus recovery: an analytical framework for recovery planning

There could be significant changes in travel behaviour in London going forward, and we have developed an **analytical framework** to support TfL’s recovery planning. The framework is structured around the different phases of London’s recovery from the pandemic and provides an analytical and interpretative evidence base to understand the main challenges and develop plans that are robust in the face of ongoing uncertainty. The analytical framework is based around the following phases, shown by figure 25:

- A review of current evidence to understand **lockdown** and **restart**, and the current period of **restrictions**.
- A forecast to represent the **Early Recovery** – a time when the virus is controlled sufficiently to allow restrictions to be relaxed enough for offices to function in a ‘near-normal’ state.
- A pair of forecasts to reflect the uncertainty of how a **Steady State Recovery** may develop once restrictions are fully lifted and all parts of the economy are open to full capacity.
- A set of five longer term scenarios for London’s future as we **rebuild**.

Figure 25 Indicative phases and timelines of the analytical framework.



Source: TfL City Planning.

To understand the resulting travel impacts of these changes we have used TfL’s strategic travel demand model, MoTiON, and supporting tools, to estimate how travel demand might change across the city – for different purposes and for different demographic groups.

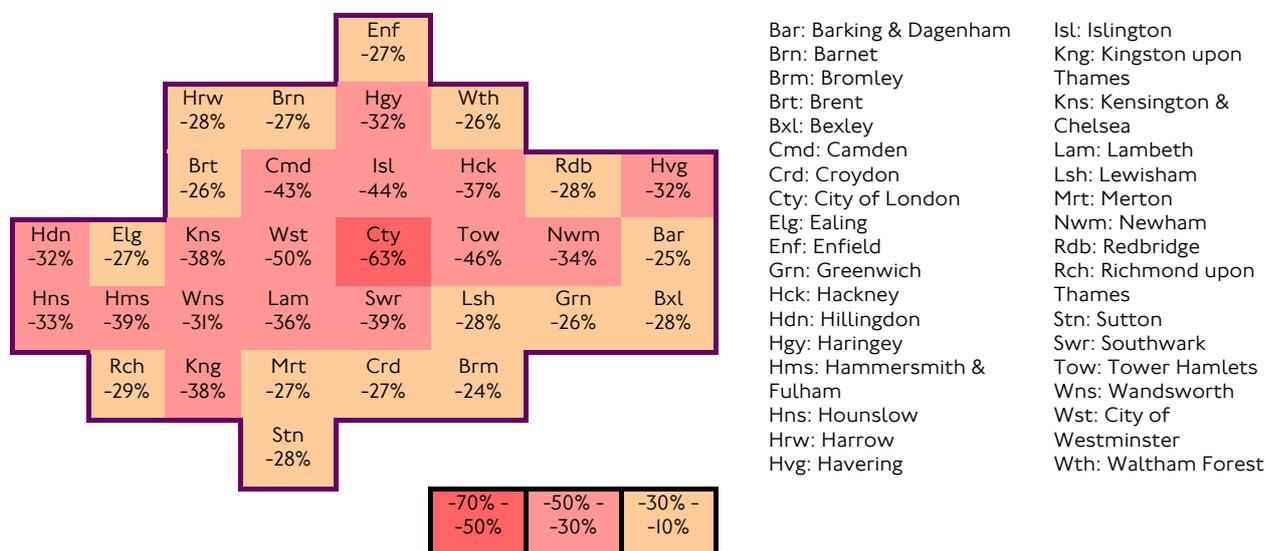
Coronavirus recovery: the Early Recovery phase

Within the broad envelope of uncertainty, the Early Recovery phase is characterised by a return of commuting and leisure activities, although the risk of contracting coronavirus remains. During this time, it is likely that public transport demand will return to around 50-60 per cent of pre-lockdown levels, although this figure drops to 40-50 per cent for trips to central London. It will be essential to build peoples’ trust in returning to the public transport system and support active travel to avoid embedding a car-led recovery during this phase.

Overview

During the Early Recovery phase there would be a rebalancing of activity towards suburban areas and smaller centres; a continuation of trends seen during lockdown and subsequent easing. This means that travel demand recovery would be greater in outer London boroughs, and remains low in central London (figure 26).

Figure 26 Change in travel demand by borough, Early Recovery phase vs 2016.



Source: TfL City Planning.

Generally, the return of travel during the Early Recovery phase will be higher for those with access to cars, as some Londoners remain cautious about using public transport. While total trip making remains below pre-lockdown levels this may not lead to higher car use than before lockdown, but it does foreshadow a potential car-led recovery as overall mobility increases.

Coronavirus recovery: the Steady State Recovery phase

The Steady State Recovery phase represents a period where the threat of the virus diminishes, either due to the availability of a vaccine or a sustained reduction in cases, but travel behaviour adaptations made during the pandemic continue to significantly affect people's travel choices.

Trips to central London have still to return to pre-pandemic levels, with fewer weekday workers continuing to negatively affect central London's leisure and hospitality industry. People may still have a sense of needing enhanced personal space but this is now a preference rather than a requirement for health. While productivity in the economy is returning, employment levels are lagging and are still not back to pre-lockdown levels, disproportionately affecting already disadvantaged groups: part-time workers, low-income and younger-age groups.

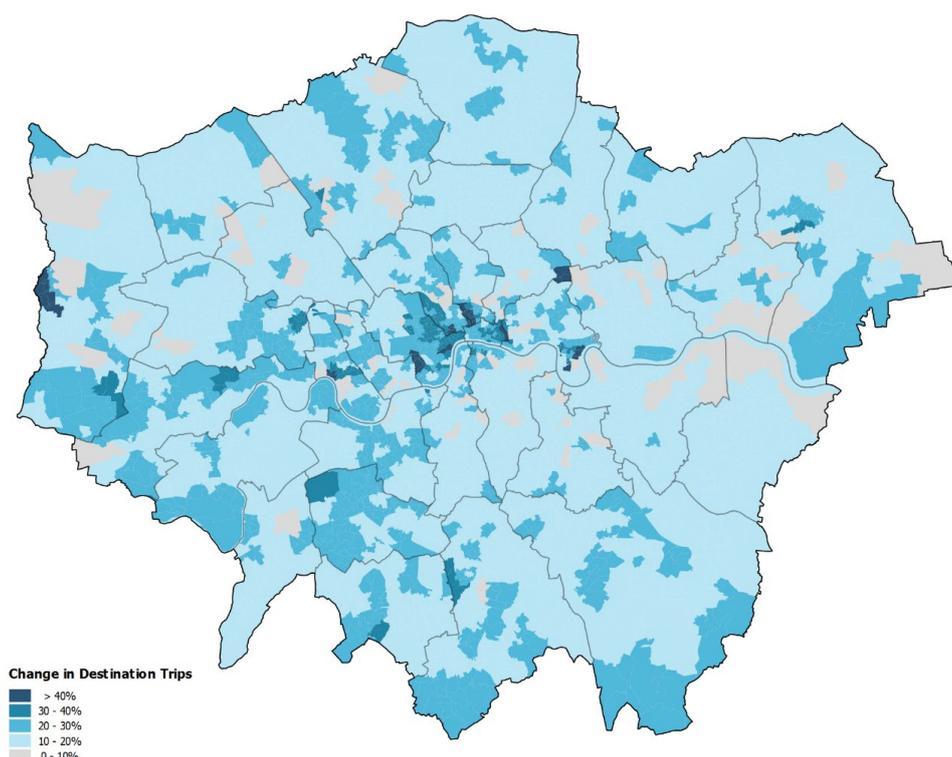
There remains uncertainty in how Londoners will choose to travel after the actual public health risk posed by coronavirus has diminished. To reflect this uncertainty two forecasts have been produced for the Steady State Recovery phase:

- In the first **Return to Nearly Normal** scenario there has been a gradual return of employment activity in central London but still not at the same levels as experienced before lockdown. Things are slowly returning to business as usual

but people are still spending more time in their local areas than they did before the pandemic. Tourism is also likely to remain below pre-pandemic levels.

- In the second **Change to London** scenario the return to central London has not materialised due to continued and extensive working from home and a shift in attitudes to public transport. People are spending more time in their local areas and buses, pedestrians and cyclists compete for space alongside an increased number of car users in inner and outer London. Figure 27 illustrates the potential scale of these residual impacts on travel demand.

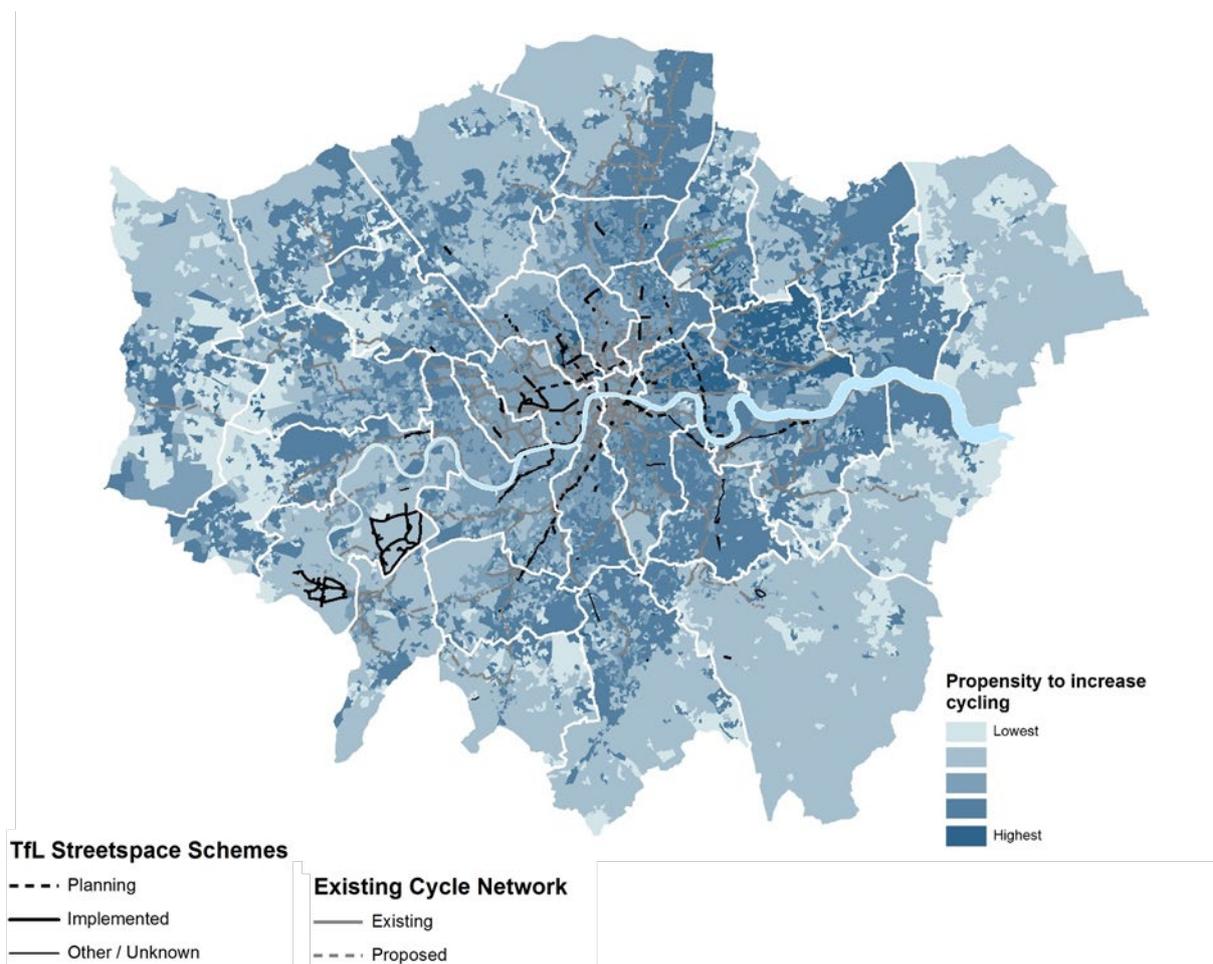
Figure 27 Change to London scenario: morning peak public transport trip destinations change vs 2021 base.



Source: TfL City Planning.

However, alongside the need to support recovery in central London, there are significant opportunities to increase active travel, given the potential for increased home working longer-term and local service use. This is particularly the case in inner London, where our Streetspace for London schemes are being progressively delivered (see above). However, much potential also exists in outer London, as shown by figure 28.

Figure 28 Propensity to increase cycling, existing cycle network and TfL Streetspace for London schemes.



Source: TfL City Planning.

Coronavirus recovery: our longer-term scenarios for London

Travel in London report 12 described how, before the pandemic, TfL was using scenario planning as a way of ensuring that our plans were robust in the face of what – in 2019 – was perceived to be a climate of growing uncertainty. We have recently developed **five scenarios** for the future of travel in London following the pandemic, with a nominal time horizon of 2030. These five scenarios are now being used to inform our medium- and longer-term plans, by reviewing emerging evidence as the pandemic progresses that might identify possible ‘directions of travel’ more clearly as time progresses. Figure 29 summarises the five scenarios. While they represent a range of potential futures, all five could currently be considered to be plausible – given the extent of present uncertainty about the longer-term implications of the pandemic – and in this way they bound the envelope of uncertainty within which our planning must take place.

Figure 29 Five post-coronavirus scenarios for London.

The scenarios represent a 2030 horizon and account for the different ways the current situation might play out over the medium and long-term



Source: TfL City Planning.

Against this backdrop, we continue to provide high levels of service and reliability to support London’s key workers and to facilitate a full resumption of normal activity in due course. Our networks are being made as safe as possible in terms of the virus transmission risk. Large-scale investment is being made, with more planned, in London’s streets to make them more attractive for walking and cycling over the long term, and the Elizabeth line will soon provide a step change in public transport connectivity to, from and within London.

I. Introduction

I.1 TfL's Travel in London reports

Travel in London is TfL's annual publication that examines and summarises trends and developments relating to travel and transport in London. It provides an authoritative source of transport statistics as well as topical evidence-based analysis, and tracks trends and progress in relation to the transport and other related strategies of the Mayor. It also provides an interpretative commentary that looks across the immediate impacts of TfL, its delivery partners, and external influences and trends in shaping the contribution of transport to the daily lives of Londoners and the economic and social vitality of the Capital. As such, it serves as a general resource for those planning and operating transport in London, as well as a more specific evidence base in relation to policy themes and challenges.

I.2 Travel in London report 13

This thirteenth edition of Travel in London provides a comprehensive and updated overview of key travel and related trends and their causes. It focuses on the technical aspects of travel, and complements other reports produced by TfL, for example our Annual Report, as well as reports on specific topics, such as Safety, Health and Environment. These can all be found on TfL's website^[01].

The report this year is presented in two parts. **Part 1** provides a summary of trends up to the end of 2019 or the end of the 2019/20 financial year. These are framed in terms of the aims of the Mayor's Transport Strategy, which was published in March 2018^[02]. The strategy drew on a wide range of evidential material, summarised in accompanying documents and in previous Travel in London reports. It has a central aim of an 80 per cent mode share for active, efficient and sustainable modes by 2041, and three themes:

- Healthy Streets and healthy people
- A good public transport experience
- New homes and jobs

Part 2 looks at trends and developments during 2020 – this year of course having been dramatically affected by the global coronavirus pandemic, which at the time of writing is still ongoing. The aim of this part of the report is to collate and summarise the main developments relating to travel in London over this period, so far as the available data allow, and to distil and interpret key evidence that will assist with longer-term recovery planning for London.

The transport recovery from the pandemic will take place in the context of the prevailing background trends and the pandemic itself has posed a series of entirely new challenges and opportunities to the achievement of transport strategy goals. The first section of this report should therefore be read as essential background to the second.

I.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. We are

I. Introduction

committed to creating a fairer, greener, healthier and more prosperous city. The Mayor's Transport Strategy sets an aim for 80 per cent of all trips to be made on foot, by cycle or using public transport by 2041. To make this a reality, we prioritise health, safety and the quality of people's experience in everything we do.

We manage the city's red route strategic roads and, through collaboration with the London boroughs, can help 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 and improve air quality, revitalise town centres, boost business and connect communities.

We run most of London's public transport services, including the London Underground, London Buses, the Docklands Light Railway, 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, we can make people's lives easier and increase the appeal of sustainable travel over private car use.

We are moving ahead with many of London's most significant infrastructure projects, using transport to unlock growth. We are working with partners on major projects and are in the final phases of completing the Elizabeth line which, when it opens, will add 10 per cent to 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 be 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 freezing TfL fares so everyone can afford to use public transport, 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. We all need to pull together to deliver the Mayor's Transport Strategy; by doing so we can create a better city as London grows.

I.4 Further information

For queries on the contents of this report, please contact TILEnquiries@tfl.gov.uk.

Part 1: Travel in London until the end of 2019/20

2. Overall travel demand and mode shares

2.1 Introduction

This chapter sets out the main trends in travel demand in London covering the period up to the end of the 2019 calendar year; or the 2019/20 financial year. For the purpose of the data in this chapter this was before the widespread disruption to travel and life in London more generally arising from the coronavirus pandemic. Developments in travel demand during the pandemic of 2020 are described in Part 2 of this report.

The topics covered in this chapter are:

- Trends in London's population, in terms of both residents and visitors
- Trends in the total amount of travel undertaken in London
- Top-level mode shares for travel in London
- Trends in travel among London residents

2.2 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. Projected future trends in London's population also underlie business cases for major schemes, usually predicated on future population growth. Previous Travel in London reports have explored the role of population change, alongside economic and behavioural change, in determining overall travel demand trends in London over recent years.

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 just 0.6 per cent in the latest year, the slowest rate of growth since 2004 (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 2.2 per cent in total. This slowing growth trend is thought to be the principal factor underlying the general slowing of the rate of travel demand growth that has been seen in London over the past five years.

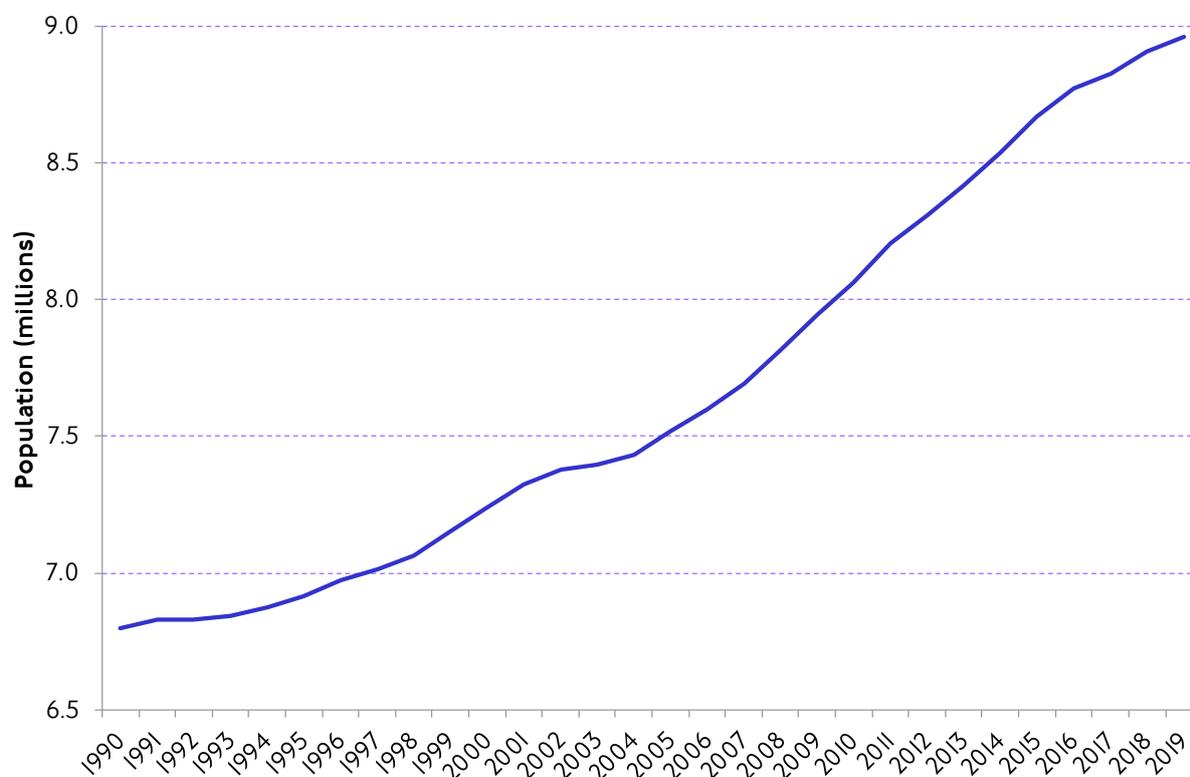
Short-term trend in London's resident population

In 2019, London's population grew by 0.6 per cent to 8.96 million. Between 2011 and 2015, London's population is estimated to have increased by around 1.4 per cent per year, with growth in net international migration particularly driving the increase in population between 2013 and 2015 (table 2.1). Between mid-2015 and mid-2016, however, the increase in population is estimated to have been slightly less, at around 1.2 per cent, corresponding to a decline in net international migration. Growth in 2017 was estimated at just 0.6 per cent, a markedly slower rate than typical of previous years. In 2018, growth increased to 0.9 per cent,

2. Overall travel demand and mode shares

although this was still below the longer-term trend. Growth in 2019 fell back to slightly below that seen in 2017, mostly driven by a decline in international net migration to London, which was at its lowest level since 2012. Despite the slowing growth in population it is worth noting that London remains the fastest-growing region in the UK.

Figure 2.1 Long-term trend in London's resident population, 1990-2019.



Source: Office for National Statistics.

Table 2.1 Components of change in London's resident population, 2013-2019.

Year	2013	2014	2015	2016	2017	2018	2019
Population (millions)	8.42	8.54	8.67	8.77	8.83	8.91	8.96
Natural change (thousands)	82.9	82.4	78.4	81.3	78.5	73.1	70.5
Internal net migration (thousands)	-51.5	-64.4	-72.8	-88.2	-101.6	-99.2	-89.5
International net migration (thousands)	79.8	107.4	126.4	114.2	83.5	112.8	77.4

Source: Office for National Statistics.

Components of population change

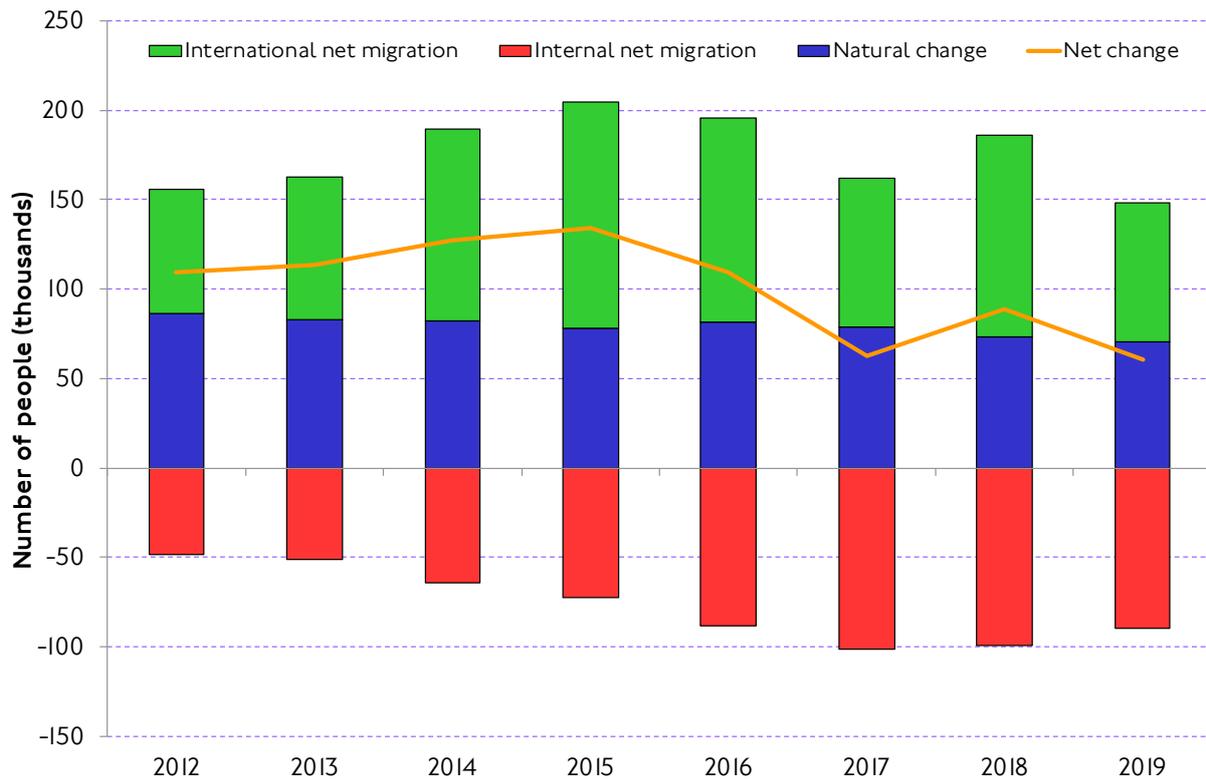
Figure 2.2 shows the trend in the components affecting London's population over the last few years. Between 2015 and 2017, the factors driving the slower growth in London's population were the increases in domestic and international emigration, coupled with a decline in international immigration, with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

In 2019, international net migration was the lowest since 2012, with an increase of 77,000. This is a decline of over 30 per cent compared with the 2018 figure of 113,000. London typically has a high international inflow and lower international outflow. This is partly because a significant number of the people that come to

London as international migrants leave London for elsewhere in the UK, making them domestic out-migrants. However, the impacts of the UK leaving the European Union may have led to a greater flow of international migrants out of the country than in previous years.

In recent years the level of net domestic migration has been at relatively high levels. However, in 2019 domestic net migration was 10 per cent lower than in the previous year at -89,000. As total migration levels almost balance each other out (the net flow of domestic and international migration was -12,000 in 2019), the main driver of population growth in London in 2019 was therefore natural change, with 70,000 more births than deaths.

Figure 2.2 Natural and migratory change in London population, 2012-2019.



Source: Office for National Statistics.

Leisure visitors: domestic day visitors to London

In 2019 there were an estimated 281 million domestic day visitors to London, a large decline of 12 per cent on the previous year (table 2.2). This is the third successive year that the number of domestic visits has declined, and is thought to reflect a combination of factors, primarily the high costs associated with leisure visits in the context of recent pressures on disposable incomes. Significant disruption to the rail network is also thought to have contributed to the decline. Despite this, London had the greatest share of day visits for tourism and leisure among the English regions in 2019.

2. Overall travel demand and mode shares

Table 2.2 Leisure domestic visitors to London, 2011-2019.

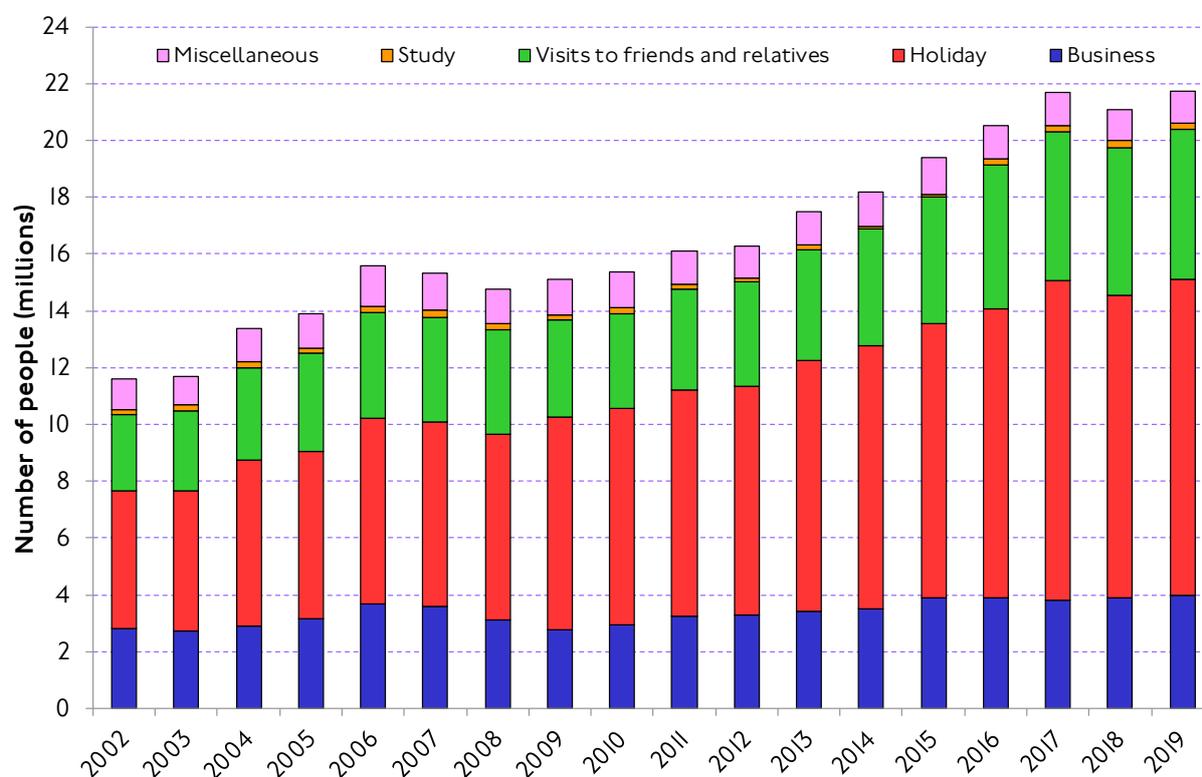
Year	Number of day visitors (millions)	Change from previous year
2011	314	-
2012	362	15%
2013	301	-17%
2014	315	5%
2015	322	2%
2016	337	5%
2017	327	-3%
2018	319	-2%
2019	281	-12%

Source: Great Britain Day Visits Survey.

International visitors to London

The number of international visitors to London had increased each year since 2009, with an aggregate increase of 44 per cent over the period (figure 2.3). Following a decline in international visitor numbers in 2018, visitor numbers increased again in 2019, up by 3.0 per cent. More than half of all international visits to London were for holidays.

Figure 2.3 International visitors to London, 2002-2019.



Source: International Passenger Survey.

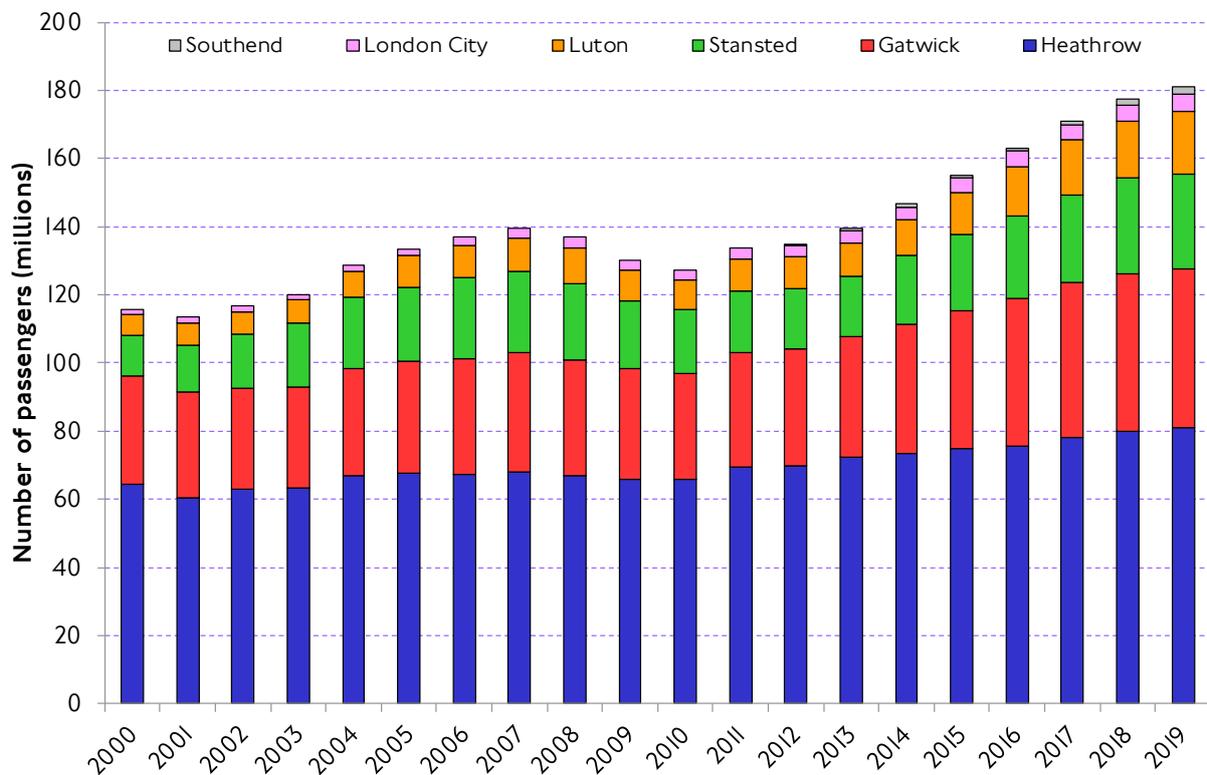
The number of visits to London for business and study remained similar to 2017. The uncertainty over the UK's departure from the European Union had previously led to a decline in the number of business visits, and may also have affected

international students' decisions about whether to study in London. However, the latest data suggests that in 2019 this decline may have stabilised, with holiday visits still higher than in any other year except 2017, and the value of Sterling remaining comparatively weak.

International air travel

Demand for air travel through London’s airports has increased steadily since 2012, reflecting recovery from the recession in the latter part of the last decade. A total of 181 million terminal passengers passed through London’s six main airports in 2019 – up by almost 6 per cent on 2018. Heathrow airport accounted for 45 per cent of the total, with Gatwick accounting for 26 per cent. Luton and Southend saw the highest proportional increases in passengers (figure 2.4).

Figure 2.4 Terminal passengers by London airport, 2000-2019.



Source: Civil Aviation Authority.

2.3 Total travel in London

The total amount of travel in London in 2019 increased by 0.7 per cent over 2018. The active, efficient and sustainable mode share increased by 0.2 percentage points to 63.2 per cent.

- Some 27.0 million trips were made on an average day (7-day week) in London in 2019, a 0.7 per cent increase on 2018. This is the highest level of growth since 2014, but lower than typical of the previous decade.
- The average number of trips in 2019 was 19.3 per cent higher than in 2000, an average growth rate of 0.9 per cent per year. Over this period, London’s population grew by 23.8 per cent, an average growth of 1.1 per cent per year.

2. Overall travel demand and mode shares

- As in more recent years, and alongside relatively subdued growth in overall demand, there was relatively little change in mode share, with public transport mode share in 2019 remaining at 36 per cent, the same as in 2013.
- On an average day (7-day week) in 2019, the share for active, efficient and sustainable modes (walking, cycling and public transport) was 63.2 per cent, an increase of 0.2 percentage points on 2018.

2.4 Trips in London

Essential background and terminology

This section updates consolidated estimates of total travel in London on an average day. A **trip** is defined as a one-way movement from an origin to a destination to achieve a specific purpose, for example, to go from home to work. The component parts of trips are referred to as **journey stages**. Each trip may involve travel by one or more individual modes of transport, with the 'main mode' of a trip being defined as the stage on which the longest distance is travelled. The Mayor's Transport Strategy aim of an increase in active, efficient and sustainable mode share to 80 per cent by 2041 is based on **trips**, which are explored in detail in this section, with trip-based mode shares discussed in sections 2.6 and 2.7.

Total number of trips

Since 2000, total trips in London have increased by 19.3 per cent overall, 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 137.4 per cent.

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 2.3). Although the highest annual rate of growth since 2014, it occurs 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.

This comparison illustrates an important trend – observed across several different indicators and indeed in other cities elsewhere – of a slowing in the rate of demand for travel (in terms of the trip rate for both residents and visitors); an important factor bearing on recent demand trends for many individual modes.

The London resident population in 2019 was 8.96 million, estimated to be 0.6 per cent higher than in 2018 and 23.8 per cent higher than in 2000. The larger 'daytime population' of Greater London, including non-resident visitors, was estimated at 10.2 million in 2019, 0.7 per cent higher than the previous year.

In 2019 there was a notable increase in National Rail trips of 3.2 per cent, with London Underground trips increasing by 2.6 per cent – also a notably higher rate than in recent years. There was a decline of 0.6 per cent in bus trips, which were down by 10.8 per cent from the high in 2014. Car driver trips increased by just 0.1 per cent.

2. Overall travel demand and mode shares

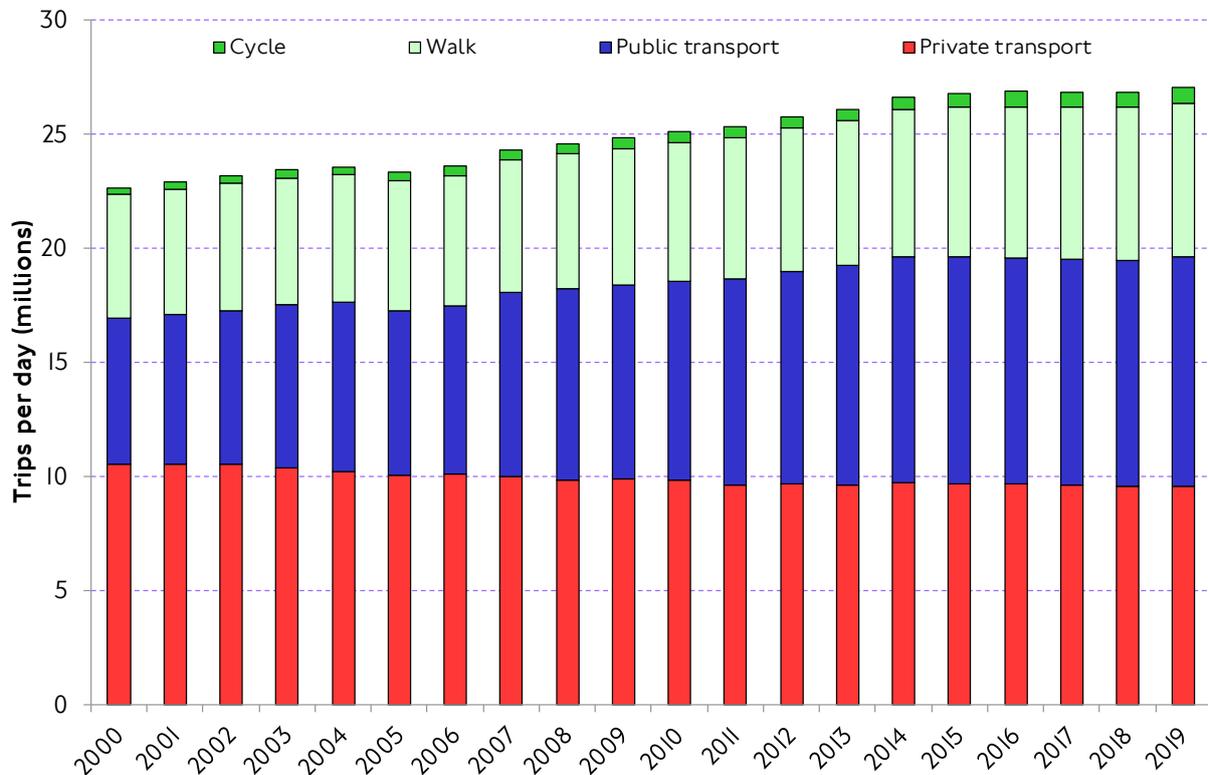
Table 2.3 Estimated daily average number of trips (millions) in Greater London by main mode of travel, 7-day week, 2000-2019.

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)
2010	2.3	2.1	4.0	0.3	6.1	3.6	0.2	0.5	6.1	25.1
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
Percentage change up to 2019 from...										
2000	83.6	47.6	53.1	19.9	-15.3	1.4	7.9	137.4	23.8	19.3
2010	36.3	38.4	-8.6	16.0	-5.7	2.0	11.3	33.0	11.2	7.6
2018	3.2	2.6	-0.6	-2.9	0.1	0.3	7.8	-2.9	0.6	0.7

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 2.5 Estimated daily average trips by main mode, 7-day week, 2000-2019.



Source: TfL City Planning.

2. Overall travel demand and mode shares

2.5 Journey stages in London

Total number of journey stages

Daily journey stages in London in 2019 were 31.6 million, up from 31.4 million in 2018 but remaining 0.3 per cent lower than the recent high reached in 2015.

Table 2.4 shows the trend for total travel volumes and mode shares at the journey stage level. Notable from the table is the 19-year trend, showing a 24.6 per cent increase in total journey stages from 2000, with National Rail stages up by 91.0 per cent over the same period. Also notable is the net 64.0 per cent increase in bus stages since 2000, despite a fall in bus patronage in more recent years.

Annual average journey stages increased on rail-based modes, with increases in 2019 of 1.9 per cent on London Underground and 2.9 per cent on National Rail compared with the previous year. Bus journey stages decreased by 1.6 per cent and are now 9.5 per cent below the 2014 high.

Car driver stages increased slightly in 2019, with a higher increase in car passenger stages. Walk stages increased in 2019 by 0.6 per cent, while cycle stages decreased by 3.0 per cent, in line with the decline observed in terms of cycling volume (cycle-kilometres) described in more detail in section 3.3 of this report.

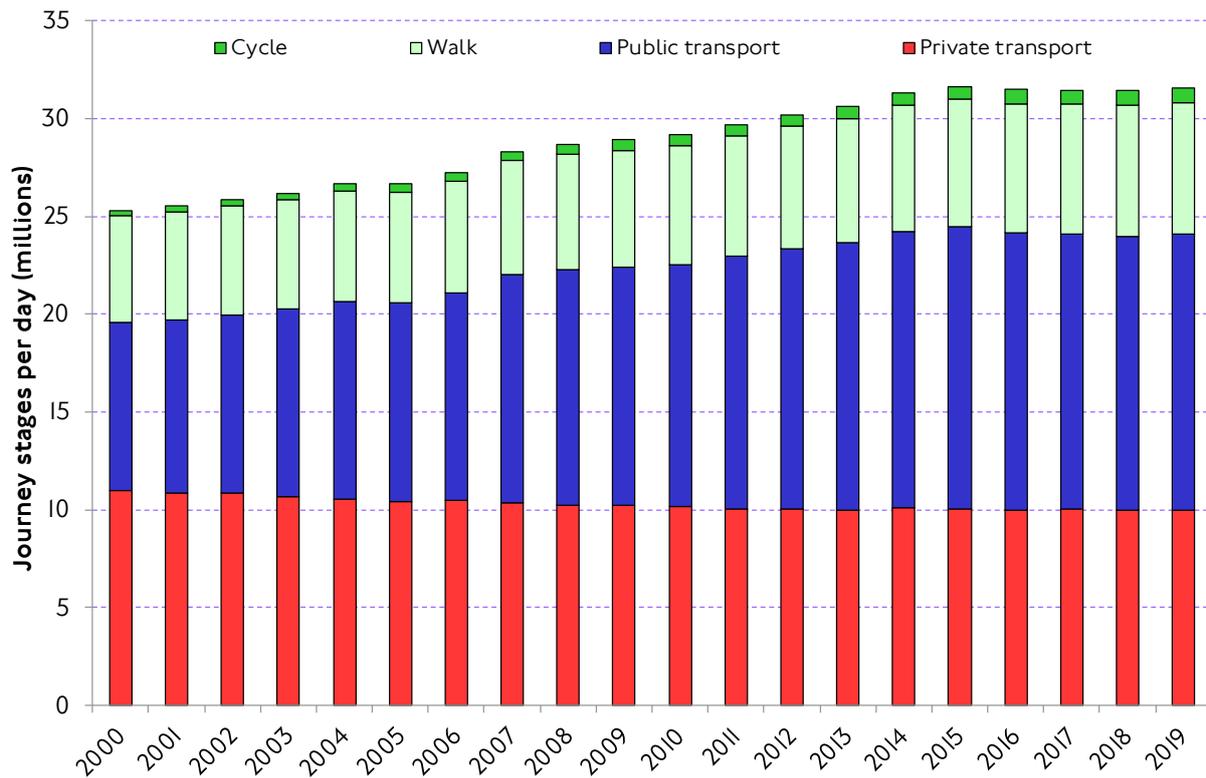
Table 2.4 Estimated daily average number of journey stages (millions) in Greater London by mode, 7-day week, 2000-2019.

Year	Rail /LO	LU	DLR	Bus/ tram	Taxi/ PHV	Car driver	Car passenger	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)
2010	2.5	3.0	0.2	6.3	0.3	6.3	3.7	0.2	0.5	6.1	29.2
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
Percentage change up to 2019 from...											
2000	91.0	44.5	231.5	64.0	13.9	-14.7	1.0	7.4	152.1	23.8	24.6
2010	37.5	26.5	60.7	-4.1	20.6	-4.5	2.9	10.9	32.8	11.2	8.2
2018	2.9	1.9	1.1	-1.6	-2.0	0.1	0.6	7.8	-3.0	0.6	0.4

Source: TfL City Planning.

Note: A journey stage is a part of a trip made by a single mode of transport. Each rail interchange between train operating companies is a new journey stage. Bus journey stages are counted by starting a new stage each time a new bus is boarded. London Underground journey stages are counted by station entries; interchanges within stations are ignored. Walks are counted only when they form complete trips (ie walking all the way), not when they are part of trips using other modes of transport.

Figure 2.6 Estimated daily average stages by mode, 7-day week, 2000-2019.



Source: TfL City Planning.

2.6 Mode shares in London

Introduction

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. Section 2.7 focuses specifically on active, efficient and sustainable modes.

Trip-based mode shares

Public transport accounted for 35.8 per cent of trips in 2019, up from 26.8 per cent in 2000. Over the most recent year, the private transport mode share decreased by 0.2 percentage points compared with 2018. Cycle mode share decreased slightly in 2019, to 2.4 per cent, while walk mode share remained at 25.0 per cent.

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 2018, this was equivalent to 2.9 million fewer car trips per day in London compared to 2000, if the mode shares had stayed the same.

2. Overall travel demand and mode shares

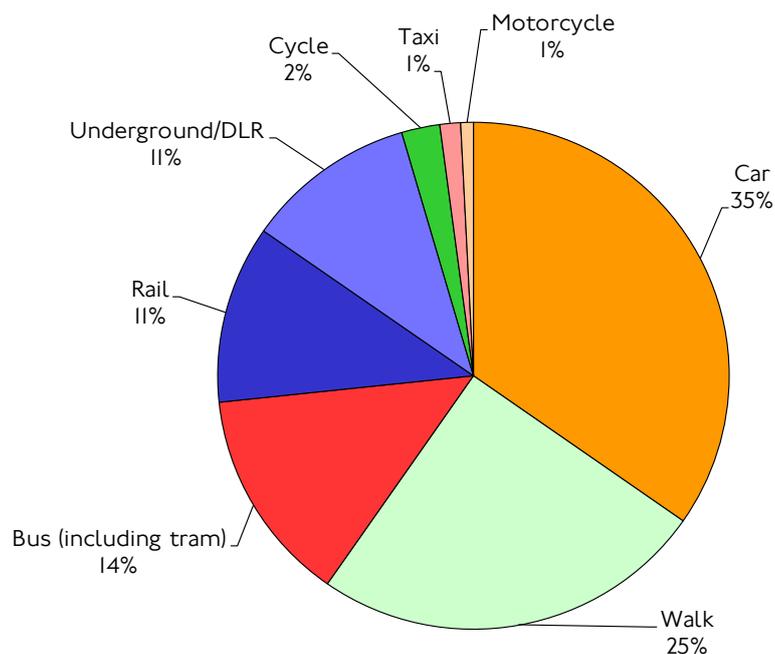
Table 2.5 Trip-based mode shares by type of transport, 2000-2019.

Year	Public transport	Private transport	Cycle	Walk
(2000)	(27%)	(48%)	(1.2%)	(24%)
2010	33%	40%	2.0%	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%

Source: TfL City Planning.

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

Figure 2.7 Mode shares of daily trips in London, 2019.



Source: TfL City Planning.

Journey stage-based mode shares

In 2019, 43.3 per cent of journey stages in London were made by public transport, compared with 33.0 per cent by private transport. This reflects the historic position of a well-established trend of a net shift away from private motorised transport to the public transport modes in London. Since 2000 the public transport mode share has increased by 10.8 percentage points. In the latest year, the public transport mode share increased by a further 0.1 percentage point while

2. Overall travel demand and mode shares

the private transport mode share remained the same. Cycle mode share at the journey stage level decreased slightly, with walk mode share unchanged.

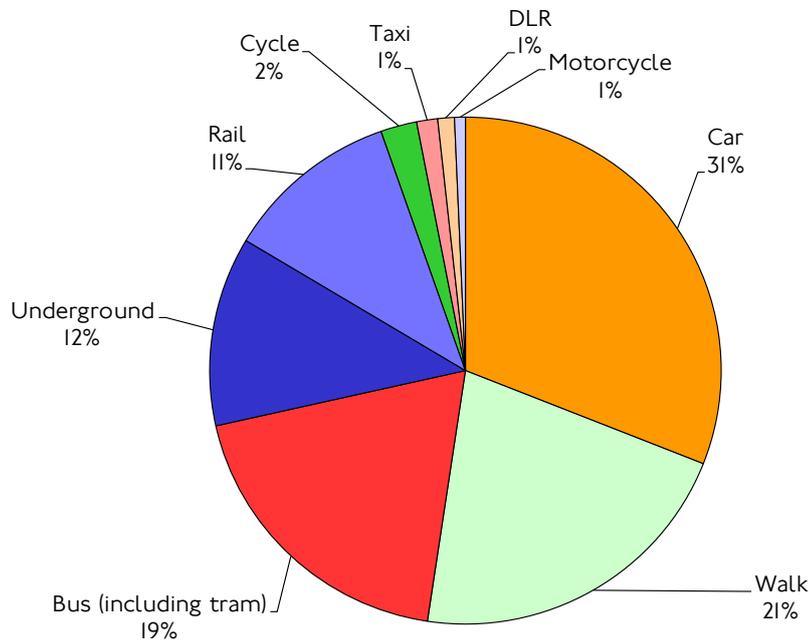
Table 2.6 Journey stage-based mode shares by type of transport, 2000-2019.

Year	Public transport	Private transport	Cycle	Walk
(2000)	(33%)	(45%)	(1.1%)	(22%)
2010	41%	36%	1.9%	21%
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%

Source: TfL City Planning.

Note: Mode shares are calculated from the consistent series for journey stages given in table 2.4. Totals may not add up to 100 per cent due to rounding. Walks are counted only when they form complete trips (ie walking all the way), not when they are part of trips using other modes of transport.

Figure 2.8 Mode shares of daily journey stages in London, 2019.



Source: TfL City Planning.

Note: Walks are counted only when they form complete trips (ie walking all the way), not when they are part of trips using other modes of transport.

Trends in journey stages by mode

Figure 2.9 shows trends in demand on selected travel modes since 2000. Public transport use has grown strongly over this period, with demand for all the public

2. Overall travel demand and mode shares

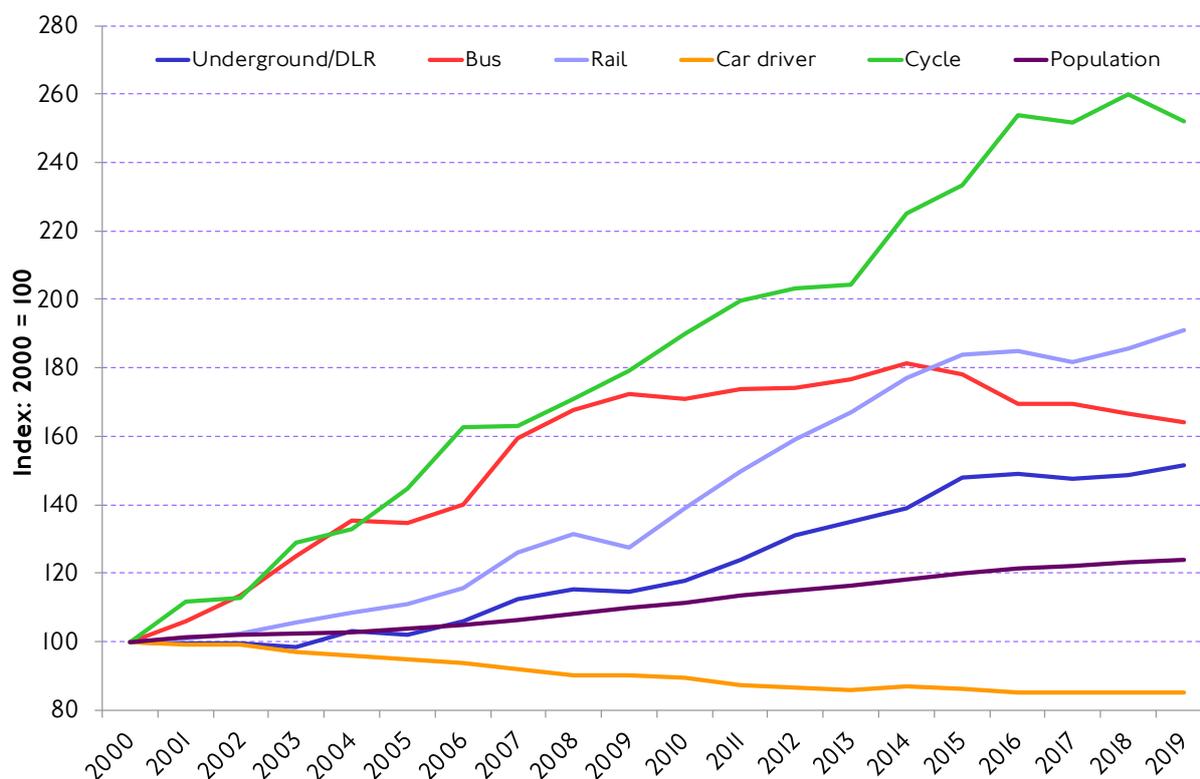
transport modes growing faster than population, reflecting changing mode shares, and accompanied by substantial investment in improved public transport. Initially, growth was strongest on the bus network, with a 35.4 per cent increase in bus journey stages between 2001 and 2004. Following slower growth of 8.1 per cent between 2008 and 2014, bus stages have decreased over the last four years, although they remain 64 per cent higher than in 2000.

Growth in National Rail use (including London Overground) was initially slower than bus use until 2009. Since 2009, National Rail journey stages have increased by 49.9 per cent, partly helped by the opening of TfL's London Overground network, with National Rail stages now 91.0 per cent higher than in 2000. Following a decline in 2017, National Rail stages have grown by 5.2 per cent in the following two years.

In contrast, London Underground passenger growth closely followed population growth between 2000 and 2006, although use 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. Again, however, the rate of growth has slowed since 2015, with net growth of just 2.3 per cent over the last four years.

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. Growth in cycling appears to have stalled in more recent years.

Figure 2.9 Growth in journey stages on selected modes, 2000-2019.



Source: TfL City Planning.

2.7 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. For this purpose, public transport

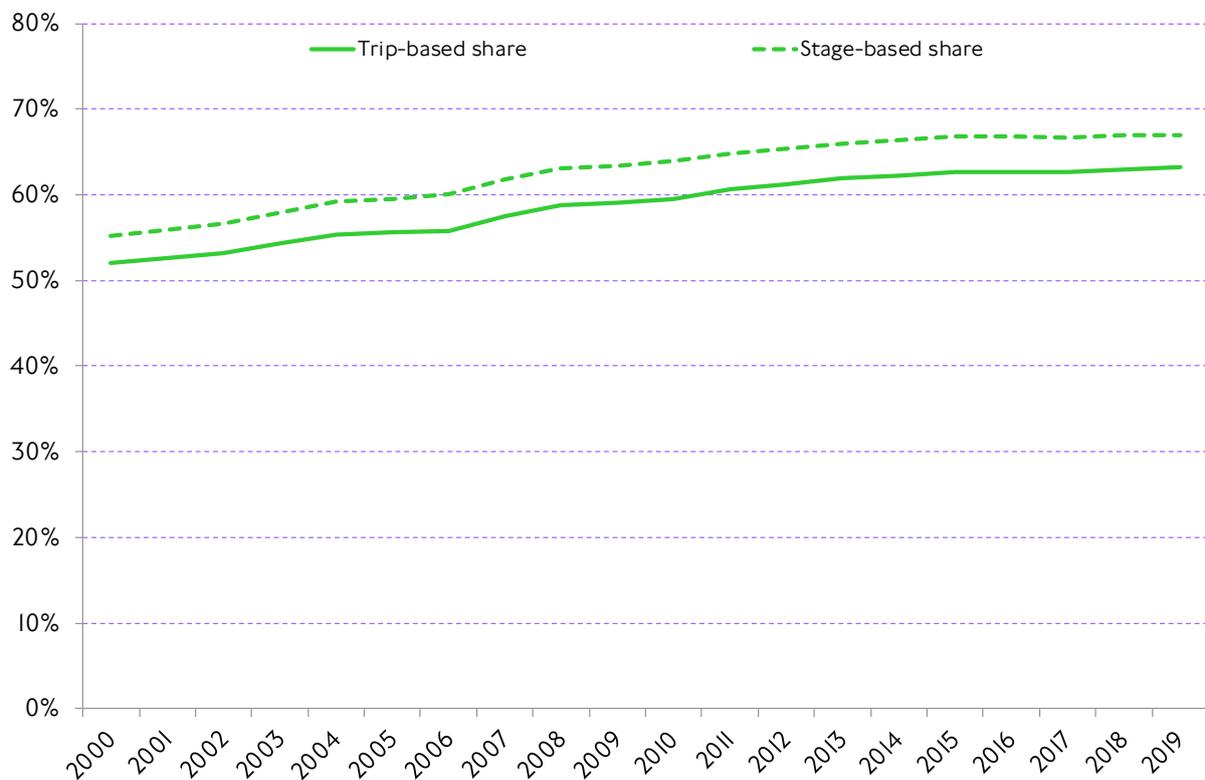
2. Overall travel demand and mode shares

does not include trips by licensed taxi and private hire. 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. To be included, trips must have at least one end in the Greater London area. Trips are assigned to a main mode according to the stage of the trip on which the longest distance was undertaken (an established convention).

Figure 2.10 shows the historic trend, with data up to 2019. There has been a continuous year-on-year increase in the active, efficient and sustainable mode share since 2000, averaging 0.6 percentage points per year. **In 2018**, the active, efficient and sustainable mode share increased by 0.3 percentage points to 63.0 per cent. Growth was similar **in 2019**, with an increase of 0.2 percentage points to 63.2 per cent.

Although progress over recent years has therefore been at a slower rate than previously, positive progress towards the Mayor's aim continues to be made.

Figure 2.10 Share of trips and journey stages made in London by active, efficient and sustainable modes, 2000-2019.



Source: TfL City Planning.

Table 2.7 Share of trips and journey stages made in London by active, efficient and sustainable modes, 2010-2019.

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Trips	59.6%	60.7%	61.2%	61.9%	62.2%	62.6%	62.6%	62.7%	63.0%	63.2%
Journey stages	64.0%	64.9%	65.4%	66.0%	66.4%	66.8%	66.8%	66.6%	67.0%	67.0%

Source: TfL City Planning.

2. Overall travel demand and mode shares

Long-term trend: journey stage-based mode share

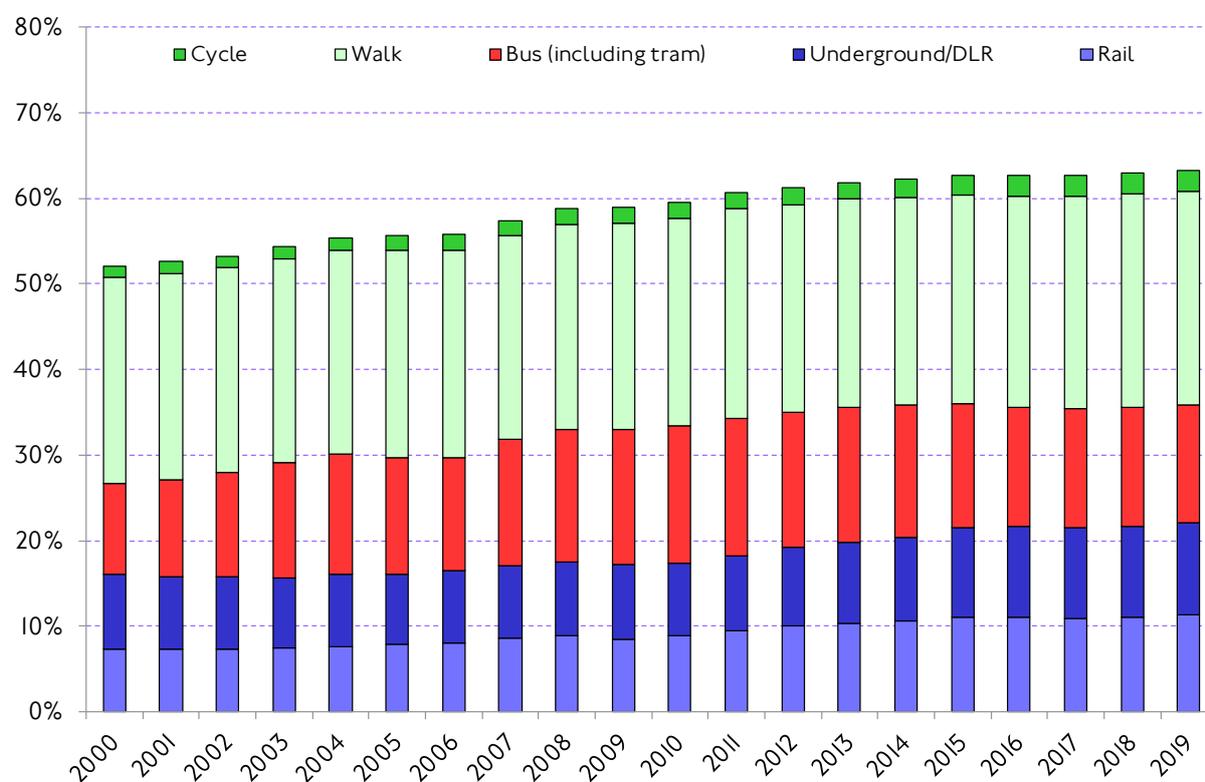
The trend in the active, efficient and sustainable mode share of journey stages has broadly reflected that for trips, with a continuous year-on-year increase up to 2015, followed by a decline of 0.2 percentage points in 2017. In 2018, the active, efficient and sustainable mode share of journey stages increased by 0.4 percentage points to 67.0 per cent, with no change in 2019. The stage-based measure of active, efficient and sustainable mode share is higher than the trip-based measure, as public transport trips are more likely to be made up of multiple journey stages.

Components of active, efficient and sustainable mode share

Figure 2.II 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) has increased over the period, from 27 per cent in 2000 to 36 per cent in 2019. The cycle mode share has doubled over the period, albeit from a much smaller base, from 1.2 per cent in 2000 to 2.4 per cent in 2019. The mode share of walking trips has remained relatively stable, this reflecting a growth broadly in line with increasing population, although this increased to 25 per cent in 2019.

Overall, the active, efficient and sustainable mode share at the trip level has increased from 52.0 per cent in 2000 to 63.2 per cent in 2019.

Figure 2.II Trip-based mode shares for active, efficient and sustainable modes, 2000-2019.



Source: TfL City Planning.

Updating the mode share statistic

The estimate of mode share described above is based on a consistent methodology that dates back to year 2000. Consistency in such estimates is vital so that trends over time can be quantified on a like-for-like basis. However, measurement technologies continue to develop, and we are now in a position where we have what are believed to be more accurate measurements for some of London's travel modes. These new estimates produce different numbers to those used in the above estimates.

One example is PHV journeys – which have grown significantly in recent years – and are now known to be under-represented in our current mode share estimates. We also have new and more representative data for cycling and walking – reflecting the recent expansion of monitoring for these modes to reflect policy interest. There are also opportunities to make better use of technology-derived data such as that arising from mobile telephones.

We are therefore undertaking work to develop a revised mode share statistic for use in Travel in London report 14 onwards. Our initial simulations suggest that the changes to the absolute mode share estimates that are likely to result would be relatively small overall – but probably not insignificant in terms of the quantification of the Mayor's aims. The revised estimates will, however, provide a more accurate and granular basis for tracking this key statistic into the 2020s, and future calculations according to the older method will still of course be possible for comparability.

2.8 Travel by London residents: introduction

Introduction

This section looks at the travel demand and travel behaviour trends of London residents specifically, using data from the London Travel Demand Survey (LTDS). LTDS is a continuous household survey of the London area and has been running since 2005/06 with an annual sample size of around 8,000 households. 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.

Although residents account for most travel in London, the travel patterns of non-residents are different from those of residents. Consequently, estimates of total travel and mode shares from this source will differ from those described (for all travellers) above. Nevertheless, LTDS provides a unique window onto the travel trends of Londoners and, through capturing a wealth of associated socio-demographic and travel behavioural data, allows connections to be made between overall travel trends and the factors that are affecting them.

2.9 Travel by London residents: trip rates

Overall per-person trip rates by London residents

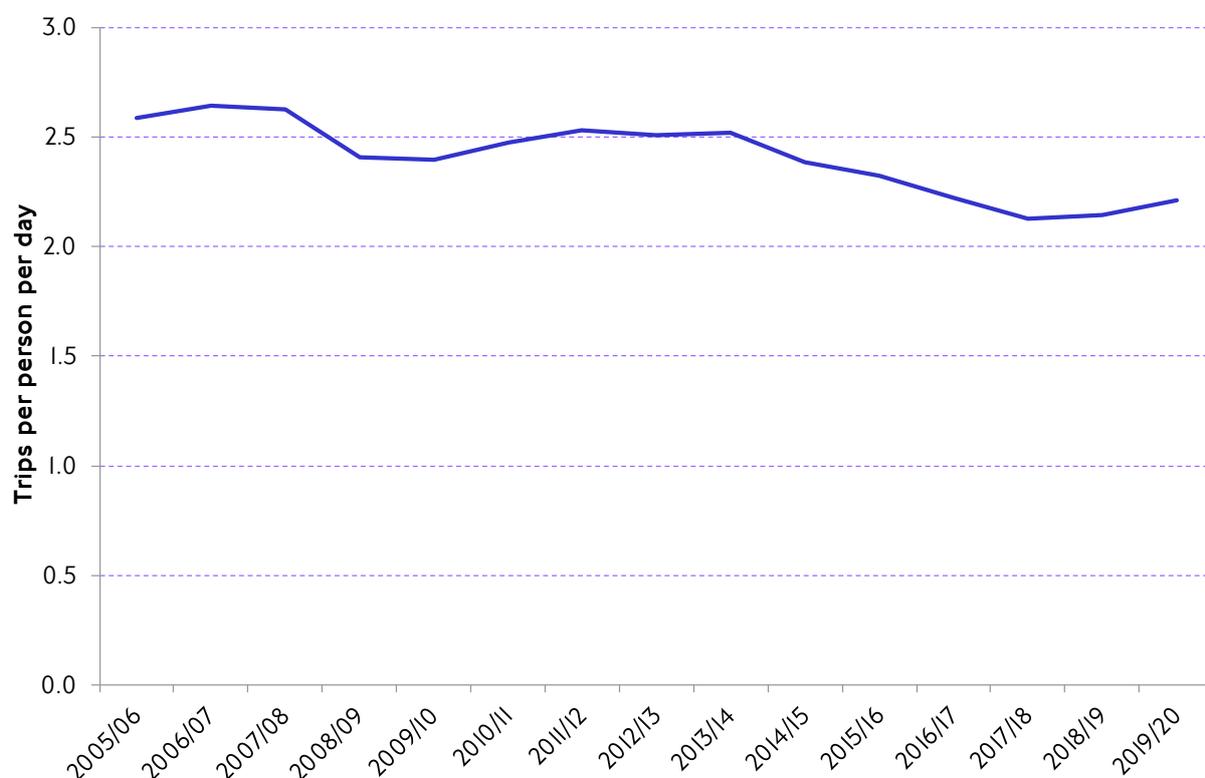
Trip rates are a basic indicator of travel – relating to the number of trips undertaken on an average day – by Londoners in general or by more specific groups of people. LTDS has tracked a pattern of generally falling trip rates over the lifetime of the survey, this trend appearing to accelerate between 2013/14 and

2. Overall travel demand and mode shares

2017/18. This was thought to be driven primarily by slow wage growth and high housing costs following the 2008/09 recession, which contributed to a prolonged squeeze on Londoners' incomes. These trends had a knock-on effect on consumer spending, particularly on discretionary activities including travel for shopping and leisure.

However, in the last two years, the number of trips per day made by the average London resident has increased slightly, from 2.13 to 2.14 in 2018/19, and by a further 3.2 per cent in the latest year to 2.21 trips per person per day (figure 2.12). This could be the result of improving economic conditions for Londoners, due to slower growth in house prices in London since 2017 combined with an increase in real disposable income in 2017/18 and 2018/19. Therefore, prior to the coronavirus pandemic, trip rates were beginning to stabilise following four successive years of decline.

Figure 2.12 Per-person trip rate per day, LTDS annual average, 2005/06–2019/20.

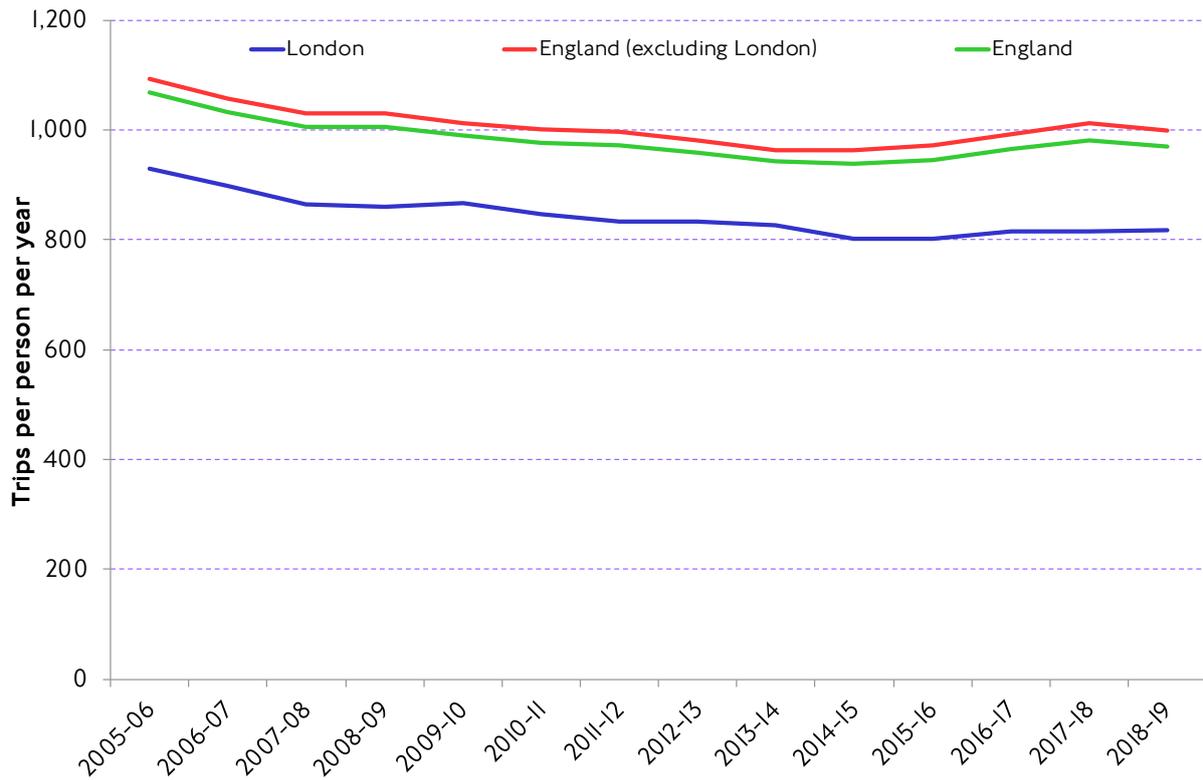


Source: TfL City Planning.

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 these trends to have been well established and tracks broadly falling trip rates over the period since 2005/06. Like the trend in London, NTS shows that national trip rates have recovered slightly in more recent years, despite a decrease of 1 per cent in the latest year. The NTS reports trip rates in London as virtually flat since 2014–2015, although with a very small increase between 2015–2016 and 2016–2017 (figure 2.13).

Figure 2.13 Trip rates, National Travel Survey two-year averages, 2005-2019.



Source: National Travel Survey.

Trip rates by mode

Over the long-term period of the LTDS survey, the most notable trends are the decline in car driver trip rates and the fluctuations in walking trip rates since 2005/06. Car driver trip rates have declined by almost 40 per cent since the start of the survey while walk trip rates have broadly mirrored the trend in the overall trip rate over the period.

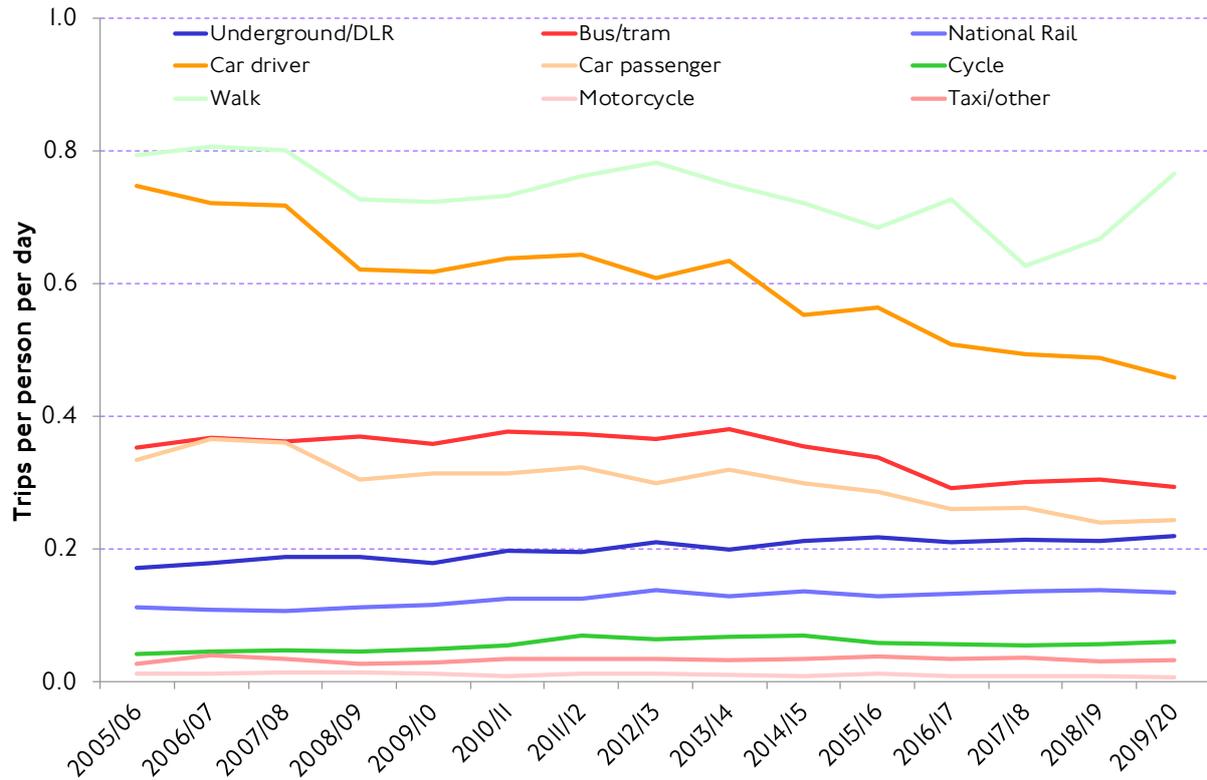
In the most recent year, there were decreases in National Rail and bus trip rates (falling by 2 per cent and 4 per cent respectively). However, London Underground trip rates saw an increase by 3 per cent on 2018/19. Despite a fall in the car driver trip rate, the car passenger trip rate increased, although only slightly, by 1 per cent. Walking and cycling trip rates both increased in the last year (figure 2.14).

Trip rates by journey purpose

By journey purpose, the average number of trips London residents make per day for education and travel in the course of work (not commuting) has changed very little over the last 15 years. In contrast, the number of shopping and leisure trips made per person per day have fluctuated considerably. Following declines in shopping trip rates between 2011/12 and 2016/17 and leisure trip rates between 2013/14 and 2018/19, both increased in the latest year. This is likely to be driven by the slightly more favourable economic conditions for Londoners in the latest year, due to slower growth in housing costs combined with an increase in real disposable incomes. This may have fed through to slightly increased consumer spending on discretionary activities such as travel for shopping and leisure. Commuting trip rates have shown a slow but steady decline over the period, down by 20 per cent since 2005/06 (figure 2.15).

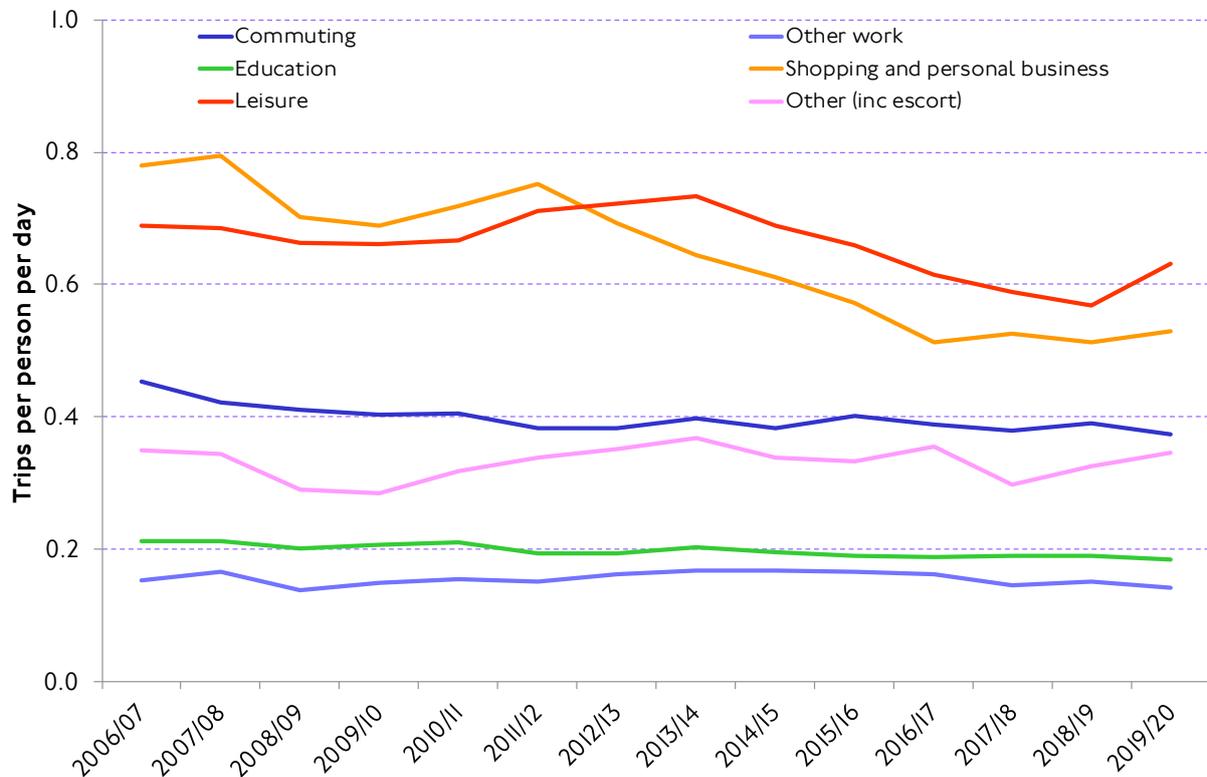
2. Overall travel demand and mode shares

Figure 2.14 Per-person trip rate per day by mode, LTDS annual average, 2005/06-2019/20.



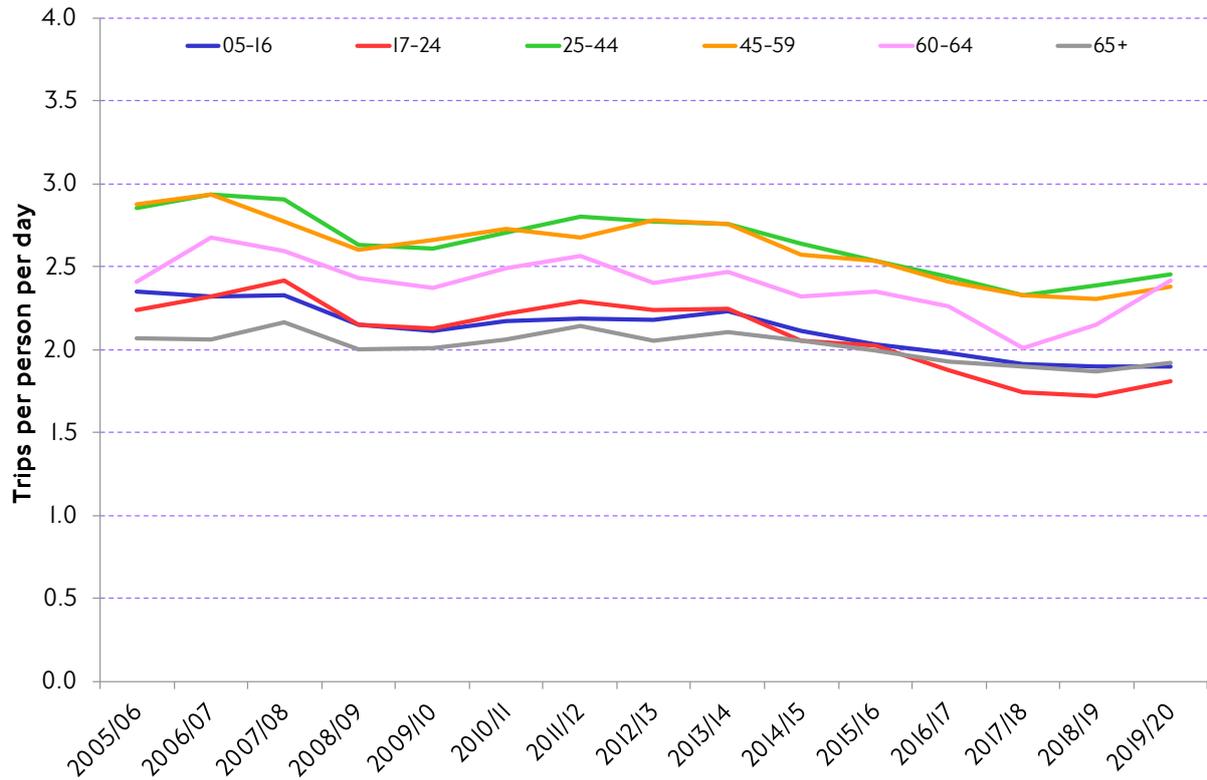
Source: TfL City Planning.

Figure 2.15 Per-person trip rate per day by journey purpose, LTDS annual average, 2005/06-2019/20.



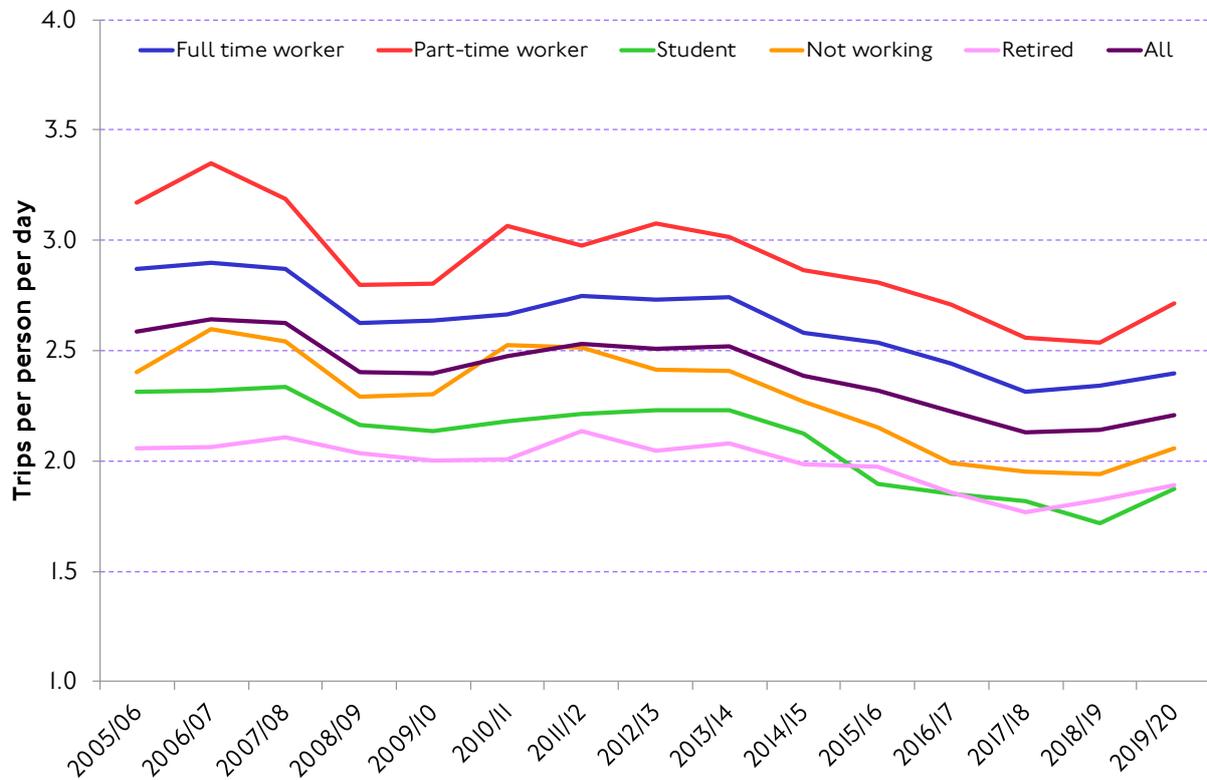
Source: TfL City Planning.

Figure 2.16 Per-person trip rate per day by age, LTDS annual average, 2005/06-2019/20.



Source: TfL City Planning.

Figure 2.17 Per-person trip rate per day by working status, LTDS annual average, 2005/06-2019/20.



Source: TfL City Planning.

2. Overall travel demand and mode shares

Trip rates by age

London residents aged 25-44 and 45-59 make the highest number of trips per day. Following declines in trip rates among all age groups between 2013/14 and 2017/18, trip rates have increased for all groups except 5-16-year-olds over the last two years. Notably, the trip rate among 17-24-year-olds has been the lowest of all age groups since 2016/17, when it fell below the trip rate of those aged 65 or more (figure 2.16).

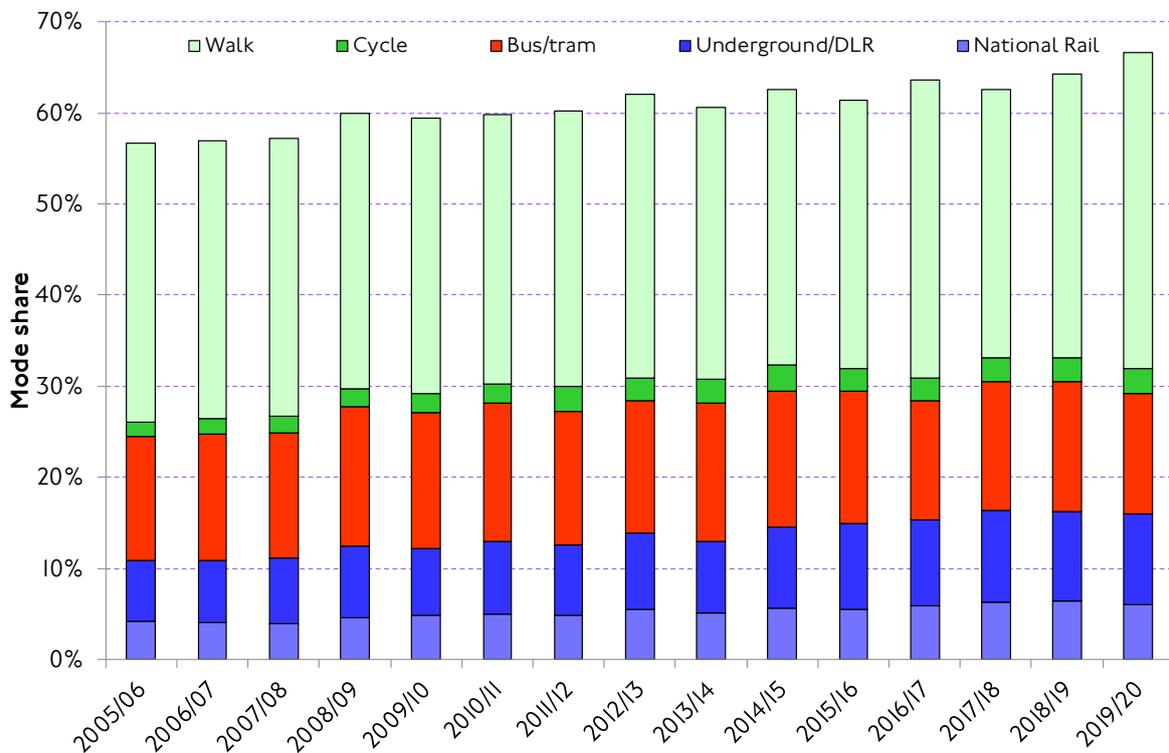
Trip rates by working status

London residents who are in employment make the highest number of trips per day, while those who are in education, retired or not working make fewer trips on average. The decline in trip rates that has occurred between 2013/14 and 2017/18 is again evident across all working status groups, but all groups have shown an increase in trip rates since 2017/18 (figure 2.17).

2.10 Travel by London residents: active, efficient and sustainable mode shares

LTDS shows the mode share of London residents only, which is not the same as the Mayor's aim, which relates to all travel in London. The way in which the two indicators are measured also differs and so while trends shown by LTDS are useful for assessing general progress, and reflect the majority of people travelling in London, the specific numbers and proportion will not relate directly to those used specifically to assess progress towards the Mayor's aim.

Figure 2.18 Trip-based active, efficient and sustainable mode share, LTDS 2005/06-2019/20.



Source: TfL City Planning.

2. Overall travel demand and mode shares

This proportion has fluctuated over the last few years at around 60 per cent (figure 2.18). In the last year, there has been an increase in the active, efficient and sustainable mode share to 66.6 per cent, (up by 2.3 percentage points on the previous year), driven by an increase in the walk mode share and a very small increase in the cycling mode share (despite declines in the National Rail and bus mode share and no change in the London Underground mode share since 2018/19).

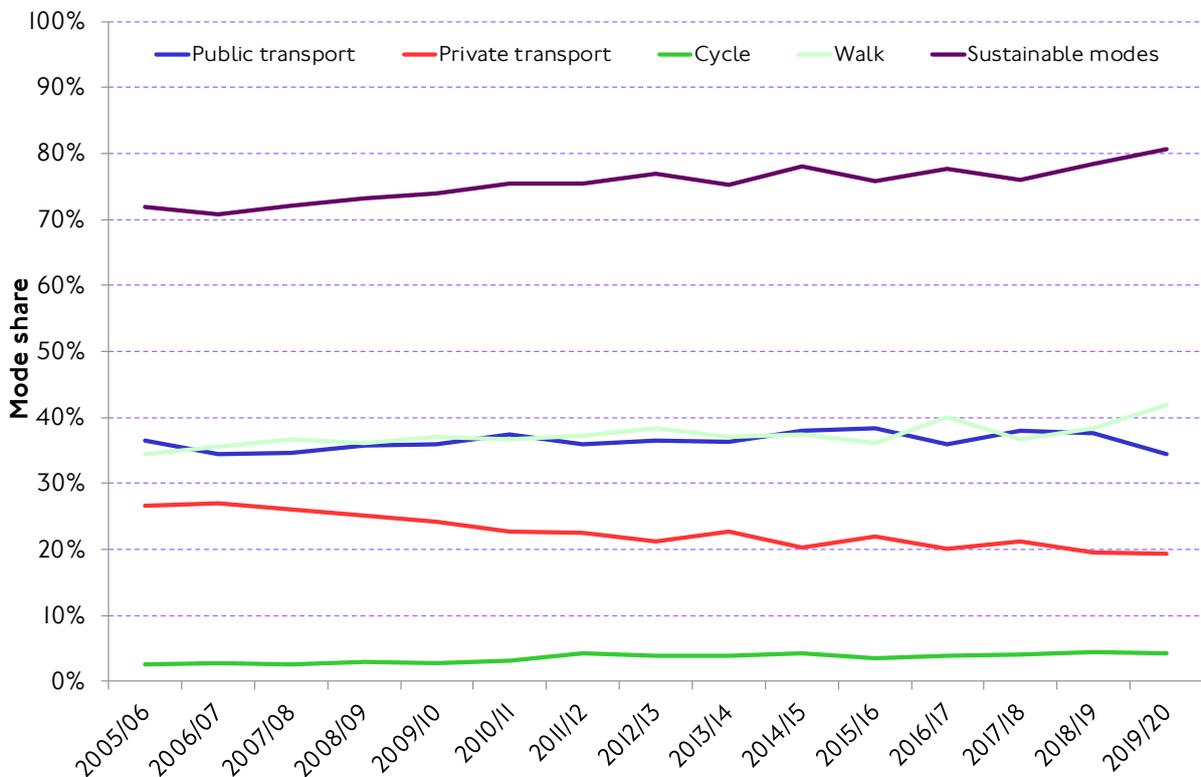
Spatial variation in active, efficient and sustainable mode share

Mode shares vary geographically. Typically, the highest active, efficient and sustainable mode shares characterise trips involving central and inner London. This analysis is based on area of residence, although trips may be made in other areas, so long as one end of the trip is within the GLA area.

Inner London (including central London)

Among inner and central London residents, public transport mode shares have remained broadly constant at between 35 and 38 per cent, with a small decrease in the latest year. Despite small fluctuations in recent years, there has been a sustained decline in the private transport mode share over the period, falling from 27 per cent in 2005/06 to 19 per cent in 2019/20 (a fall of 0.3 percentage points in the latest year). Although the cycle mode share declined fractionally in 2019/20, the walk mode share increased, leading to an overall increase in the active, efficient and sustainable mode share among inner London residents (increasing from 78 per cent to 81 per cent) (figure 2.19).

Figure 2.19 Trip-based mode share by inner London residents, 2005/06-2019/20.



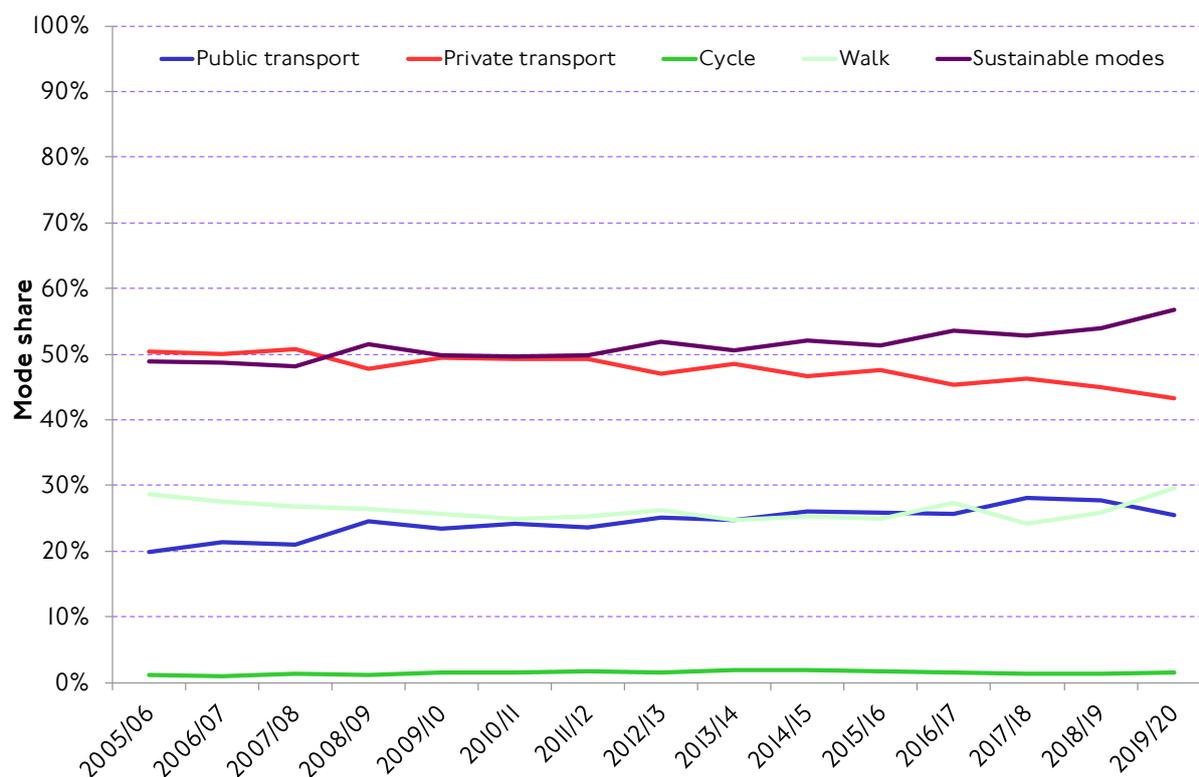
Source: TfL City Planning.

2. Overall travel demand and mode shares

Outer London

In outer London, where public transport coverage is less comprehensive, the trends have been different, with private transport mode share falling at a slower rate compared to inner London, although still declining from 50 per cent in 2005/06 to 43 per cent in 2019/20. Public transport mode share has gradually increased over the period. However, there have been small declines in each of the last two years. The cycling mode share among outer London residents is much lower than among inner London residents. However, it increased from 1.4 per cent to 1.6 per cent in the latest year. The walk mode share also increased, again contributing to an overall increase in the active, efficient and sustainable mode share, from 54 to 57 per cent in 2019/20 (figure 2.20).

Figure 2.20 Trip-based mode share by outer London residents, 2005/06-2019/20.



Source: TfL City Planning.

Borough-level patterns

Figure 2.21 shows the trip-based active, efficient and sustainable mode share by borough of residence. This figure includes all trips undertaken by residents of each borough, irrespective of where the trips take place (although one end of the trip must be in the GLA area to be included). There are many reasons underlying these patterns but the considerable variation highlights both challenges and opportunities in respect of achieving the active, efficient and sustainable mode share aim across the whole of London.

In general, inner London residents have a higher share of trips made by active, efficient and sustainable modes, and this is to be expected given the denser land use and more comprehensive public transport network. Residents of the City of London have the highest overall active, efficient and sustainable mode share (93

2. Overall travel demand and mode shares

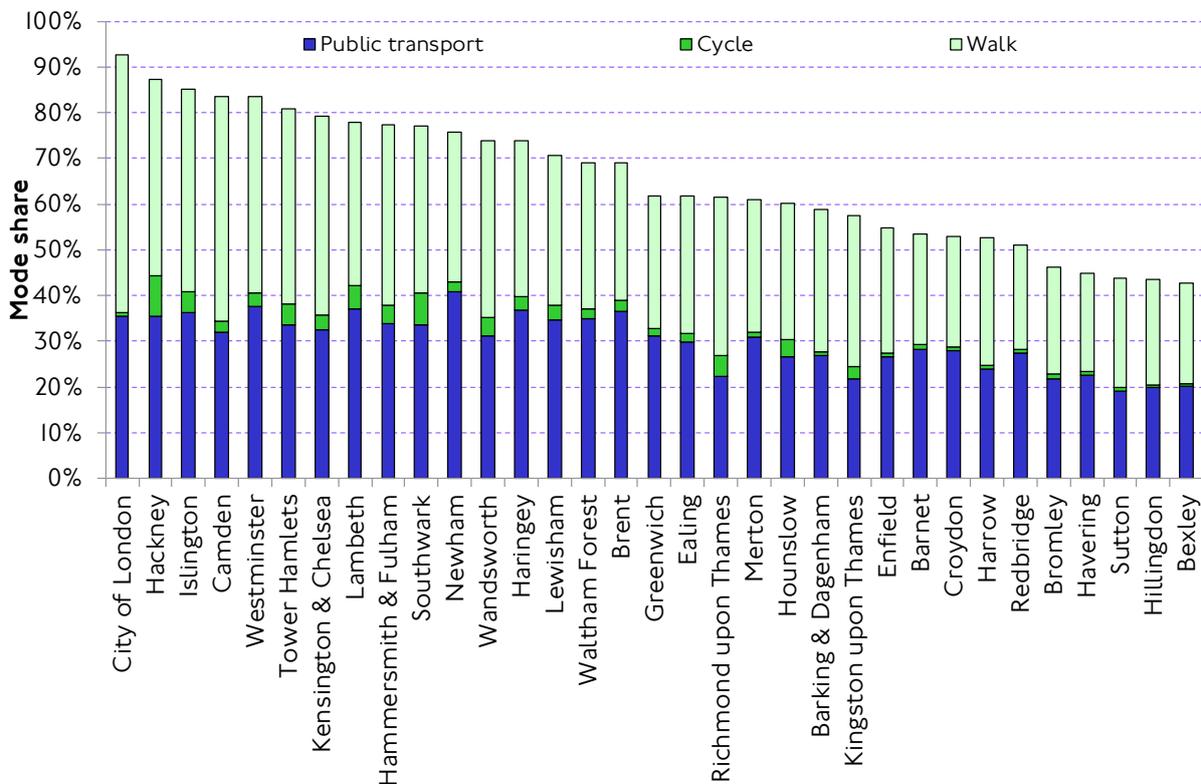
per cent), but the smaller number of households in the City of London compared to other London boroughs should be recognised.

Hackney has the second highest active, efficient and sustainable mode share (87 per cent), in part due to the very high cycle mode share of 9 per cent. Lambeth, Islington, Southwark and Tower Hamlets all have higher than average cycle mode shares for inner London, whereas Westminster, Islington, Tower Hamlets, Kensington & Chelsea and Camden have higher than average walk mode shares. Newham has the highest public transport mode share at almost 41 per cent, almost 6 percentage points higher than the inner London average.

Outer London residents have lower overall active, efficient and sustainable mode shares. Residents of Waltham Forest and Brent have the highest active, efficient and sustainable mode share of all the outer London boroughs (at 69 per cent). Richmond upon Thames and Hounslow have particularly high cycle mode shares compared to the other outer London boroughs, at 4.5 per cent and 3.7 per cent respectively. Richmond upon Thames also has a higher than average walk mode share, along with Kingston upon Thames and Barking & Dagenham.

Residents of Hillingdon and Bexley have the lowest overall active, efficient and sustainable mode shares, at 43 per cent. Particularly notable from the figure is the variation in the proportion of the mode share accounted for by cycling and walking. Public transport mode shares are relatively more consistent between boroughs, despite coverage of public transport varying across London.

Figure 2.21 Trip-based active, efficient and sustainable mode share by borough of residence, LTDS 3-year average, 2017/18-2019/20.



Source: TfL City Planning.

2. Overall travel demand and mode shares

3. Healthy Streets and active travel

3.1 Introduction

This chapter sets out the main trends in indicators relating to the Mayor's Healthy Streets and active travel aims, covering the period up to the end of the 2019 calendar year – or the 2019/20 financial year – just prior to the widespread disruption arising from the coronavirus pandemic. Developments during the 2020 pandemic in relation to these aims are described in part 2 of this report.

The Healthy Streets Approach is central to the Mayor's vision to create a better city for all Londoners. It is an overarching framework for the design and management of London's streets, incorporating measures to encourage walking, cycling and use of public transport, to reduce road danger, tackle poor air quality, reduce car dependency, improve the environment and deliver an accessible and inclusive transport system. The Healthy Streets Approach is intended to improve Londoners' experiences of the Capital's streets, helping everyone to be more active and to enjoy the health benefits that this brings. 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 website^[03].

The topics covered in this chapter are:

- Travel-related physical activity by Londoners
- Trends in cycling in London
- Participation in, and attitudes towards, cycling
- Pedestrian activity in central London
- Assessing the healthiness of London's streets
- Reducing road danger
- Trends in motorised road traffic in London

3.2 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 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 survey. 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

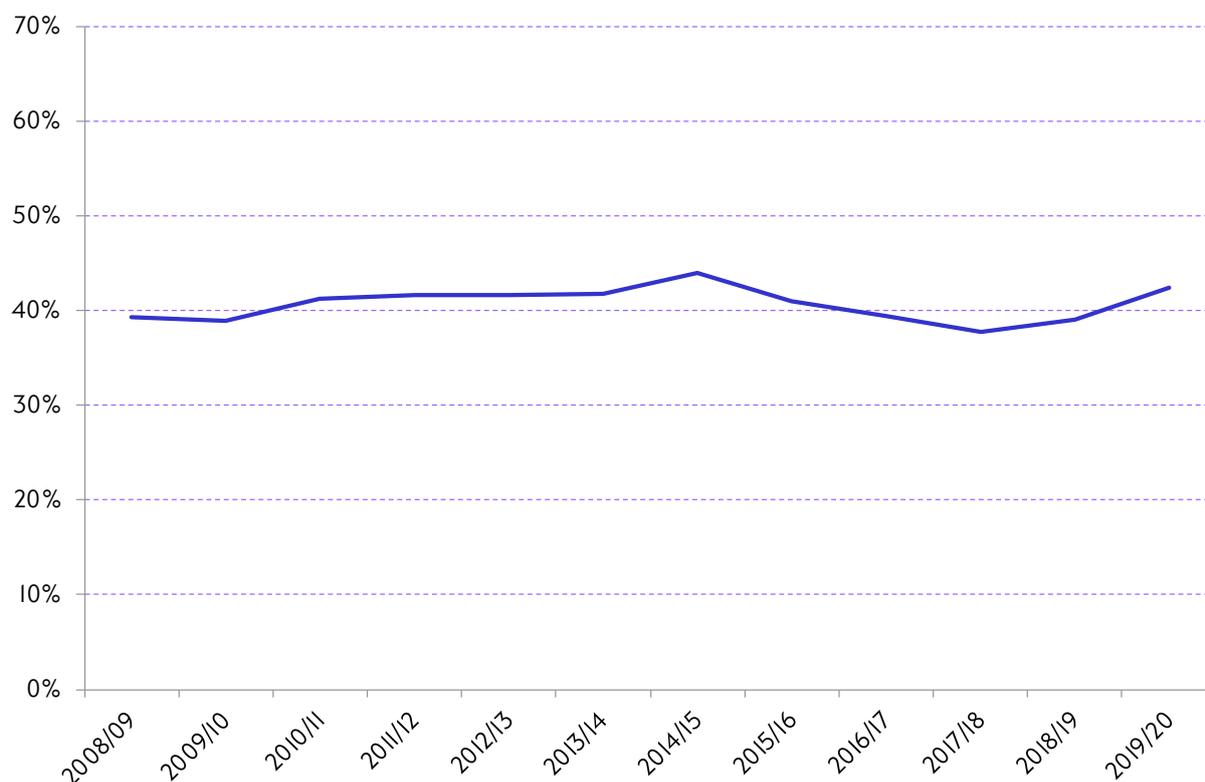
3. Healthy Streets and active travel

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.

Trend in achievement of recommended daily active travel

LTDS offers the best available data source on active travel in London, giving a daily snapshot of travel behaviour by London residents. From this source, we see that approximately 40 per cent of adult Londoners have reported achieving 20 minutes of active travel per day over recent years. In 2019/20, 42 per cent of Londoners achieved 20 minutes of active travel, an increase of 3.4 percentage points on 2018/19. This is likely the result of an increase in walking and cycling mode shares – in terms of the LTDS survey – and trip rates in the latest year. Although the proportion of London residents who have achieved 20 minutes of active travel has increased in the last two years, there is still considerable effort required to achieve our aim of all Londoners (in terms of our proxy value of 70 per cent) walking or cycling for at least 20 minutes per day.

Figure 3.1 Proportion of Londoners aged 20 and over who achieve 20 minutes of active travel per day, LTDS, 2008/09-2019/20.



Source: TfL City Planning.

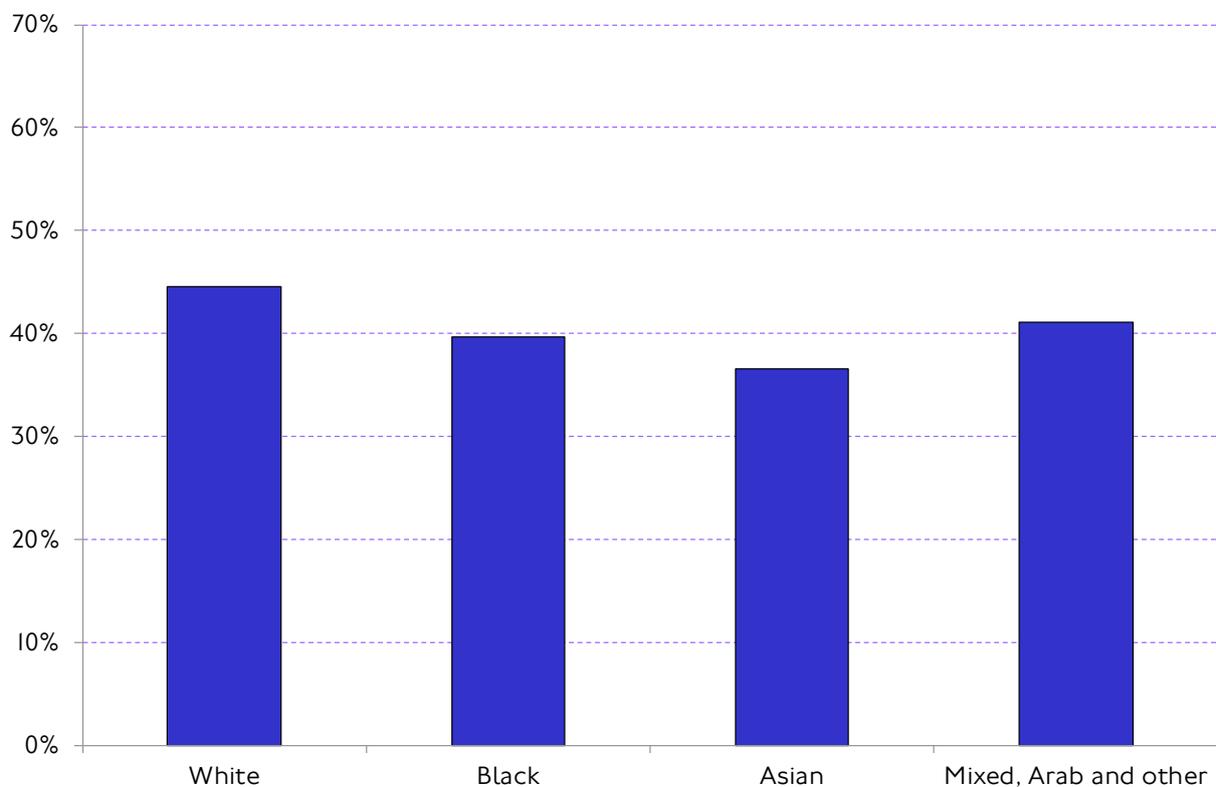
Relative participation in active travel

The health benefits from regular physical activity are substantial and active travel is the easiest type of physical activity for people to engage in. Participation in active travel is far more equitable across a range of demographic groups than participation in sport. The rationale for the Active People target to be included within the transport strategy is twofold. Firstly, the Mayor has an ambition to create a healthier, fairer city, and one of the key ambitions within his Health Inequalities Strategy^[04] is for all Londoners to be doing the physical activity they

need to stay healthy. Secondly, in order to achieve our overall active, efficient and sustainable modes aim, it is necessary to support Londoners to remain healthy throughout their lives so they can continue to travel by sustainable modes (as data shows that people with disabilities are less likely to walk, cycle or use public transport).

Figure 3.2 shows how the proportion of Londoners achieving 20 minutes varies by ethnic group. White Londoners are more likely than average to achieve 20 minutes of active travel (45 per cent compared to an average of 42 per cent across all Londoners), probably reflecting their higher trip rates overall. Black Londoners and those from Mixed, Arab and other groups are slightly less likely than average to achieve 20 minutes (40 and 41 respectively). Asian Londoners are currently least likely to achieve 20 minutes of active travel (37 per cent).

Figure 3.2 Proportion of Londoners aged 20 and over who achieve 20 minutes of active travel per day by ethnicity, LTDS 2019/20.

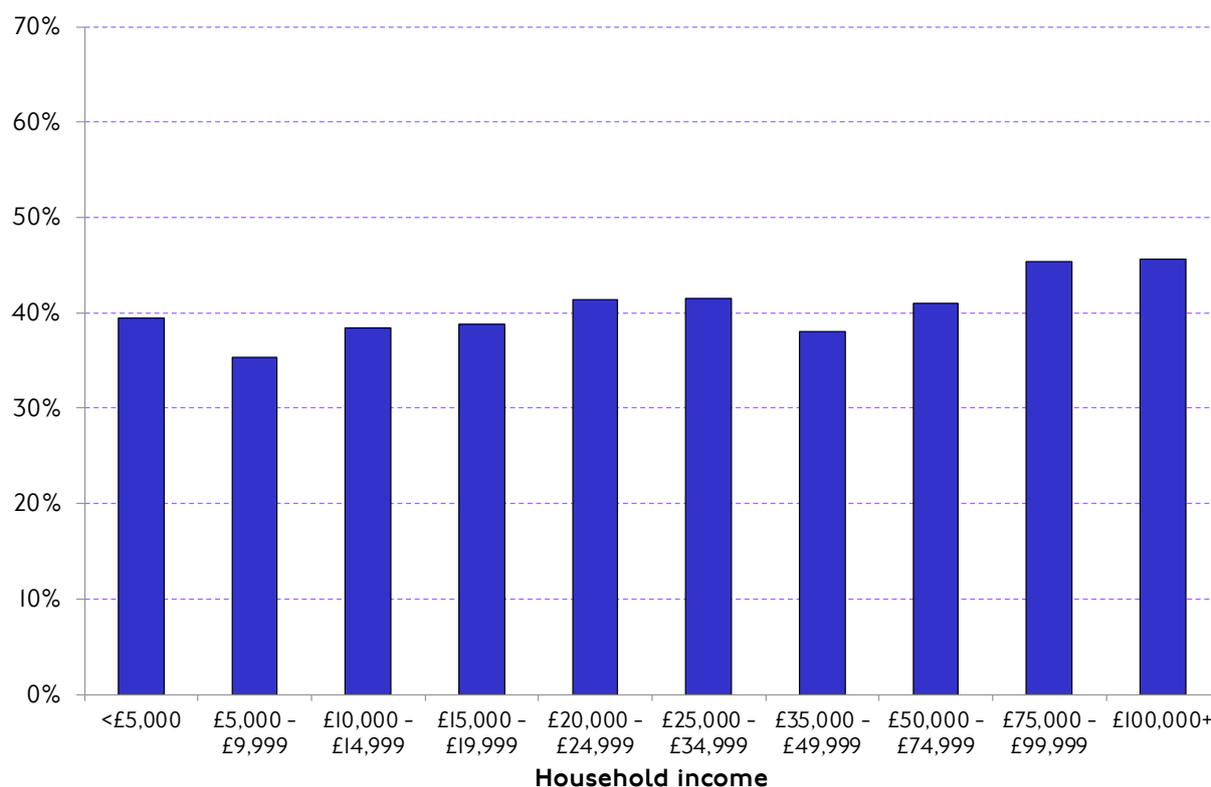


Source: TfL City Planning.

Figure 3.3 shows how achievement of 20 minutes of active travel varies by household income. Residents living in households with an annual income of more than £75,000 have the highest proportion of those achieving 20 minutes of active travel. This is likely to be due to the higher overall rates of travel among those with high incomes. Conversely, those with a household income of less than £5,000 per year have a higher rate of achievement than other groups with higher incomes. Residents in the lowest income groups tend to have higher walking trip rates, contributing to their active travel. Overall, however, the proportion of those achieving 20 minutes does not vary greatly across different income groups.

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Figure 3.3 Proportion of Londoners aged 20 and over who achieve 20 minutes of active travel per day by household income, LTDS 2019/20.



Source: TfL City Planning.

3.3 Cycling in London

Cycling volumes in central, inner, and outer London

TfL's best cycling volume estimates stem from area-based cycle counts that represent each of central, inner and outer London. Table 3.1 summarises the latest update of these, which includes a revision of the historic series following recent changes in methodology.

Table 3.1 Estimates of cycling volume in London, 2015-2019.

Average daily cycles (cycle-km per km of network)	2015	2016	2017	2018	2019
Central London	1,291	1,287	1,298	1,405	1,382
Inner London	634	610	654	668	671
Outer London	129	125	132	142	132
GLA total	262	254	269	282	274
Average daily kilometres cycled (thousands)	2015	2016	2017	2018	2019
Central London	527	525	530	573	564
Inner London	2,115	2,036	2,183	2,228	2,238
Outer London	1,614	1,558	1,648	1,772	1,646
GLA total	4,256	4,120	4,361	4,573	4,448

Source: TfL Traffic Data.

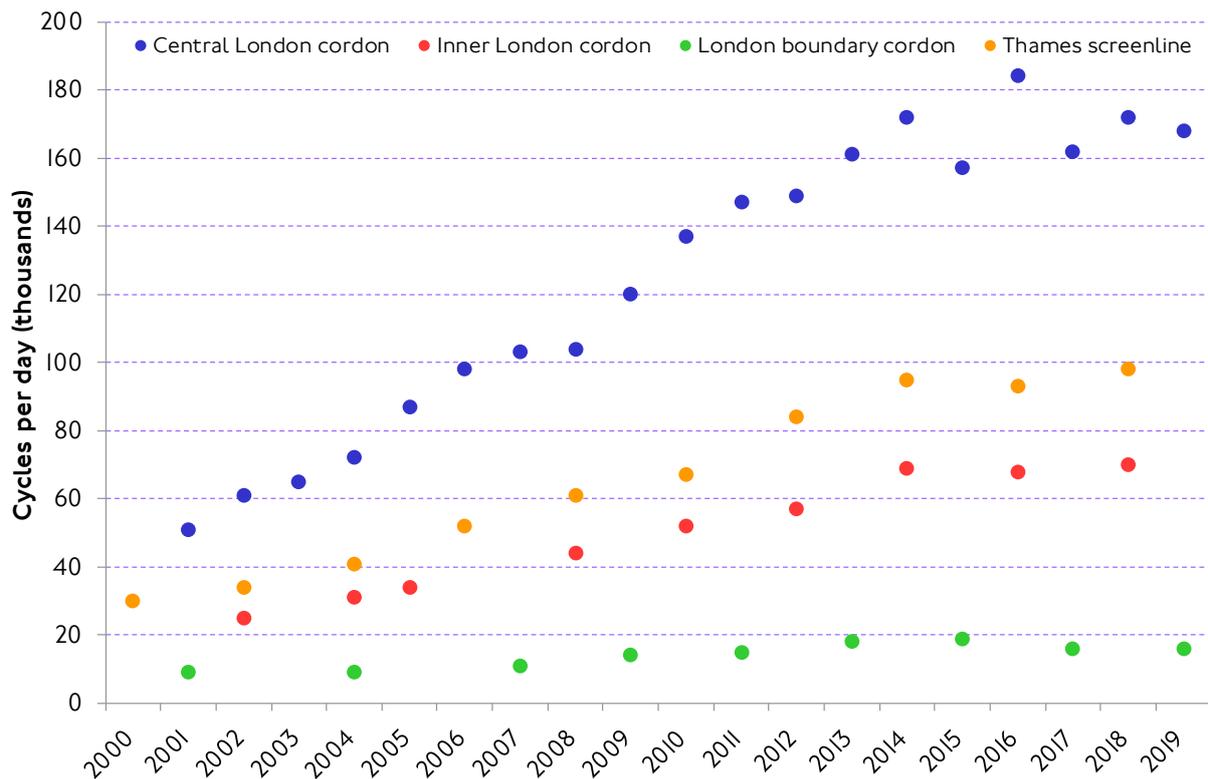
Since these counts were established in 2015, cycling volumes across London (in terms of kilometres cycled) have increased by approximately 5 per cent, despite a small 2.7 per cent decline in the last year. This is equivalent to a 9 per cent growth in terms of trips over the same period.

While cycled kilometres in 2019 remained relatively constant in inner London and decreased only slightly in central London, outer London saw the highest year-on-year decline. This, however, is partly explained by a similar above-average growth the previous year, and in absolute terms the demand observed in 2019 is approximately level with 2017, but higher than years before that. Cycling volumes are also particularly affected by the weather which, at the time of the counts in spring 2019, was relatively poor compared to the previous year.

Cycling volumes across strategic cordons and screenlines

TfL collects annual or bi-annual data about cycle journeys across the central London, inner London and GLA boundary cordons as well as across the Thames screenline. Figure 3.4 shows the latest update of these counts, where all the available information has been included for reference although the inner London cordon and the Thames screenline were not due for a refresh in 2019.

Figure 3.4 Cycle flows across strategic cordons, 2000-2019.



Source: TfL Traffic Data.

- In 2019, the number of cycles crossing the **central London cordon** was 2.3 per cent lower than in 2018. However, over the last few years since 2014 this number has been mostly fluctuating at around 170,000 cycles per day, partly owing to the variability in measurement expected from these one-day counts. Following a dramatic increase of 229 per cent since the beginning of the

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decade, however, the trend for more recent years at this cordon has been relatively flat.

- Broadly similar patterns of slowing recent growth are seen at the inner London cordon and the Thames Screenline, with a flatter overall picture in terms of cycles crossing the GLA boundary cordon.

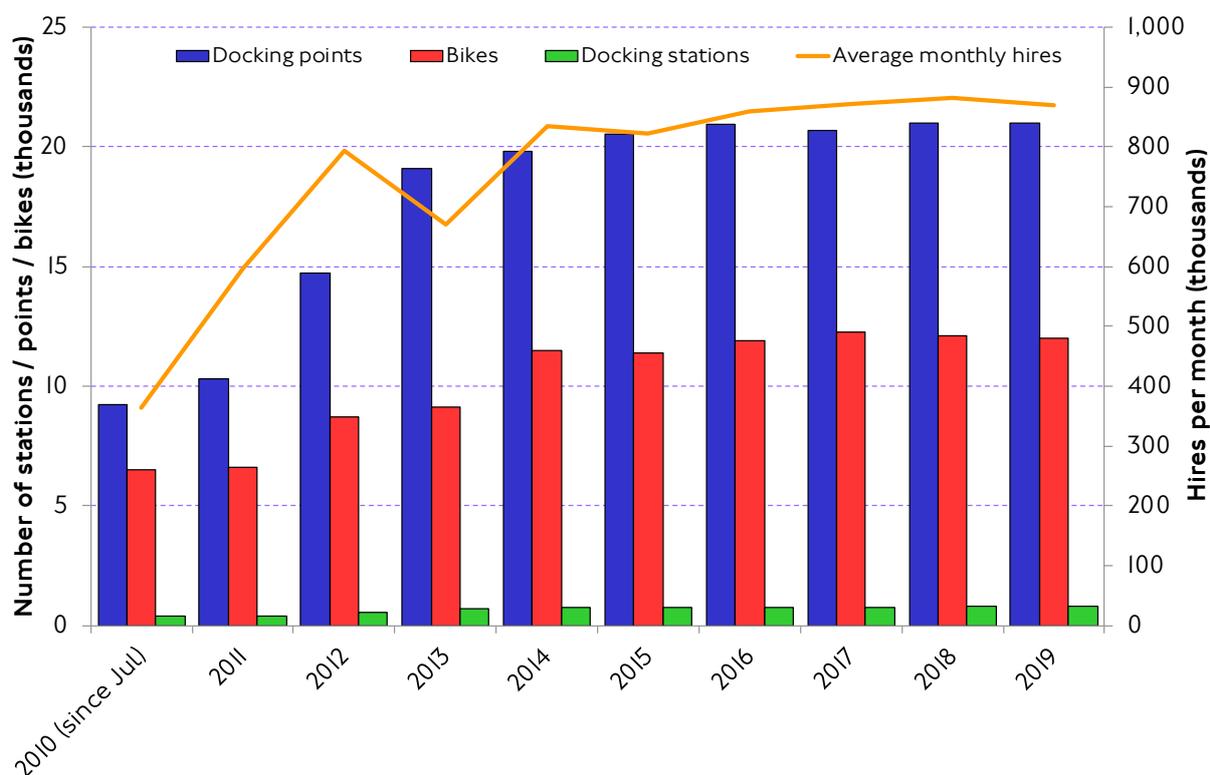
Santander Cycles

Demand on Santander Cycles (TfL’s cycle hire scheme) saw a slight drop of around 1 per cent in 2019 compared to the previous year, both in terms of the total number of hires in the year and the monthly average. This took place in the context of a similar drop in the number of available bikes within an otherwise static network of docking points and stations (all of these measured in December of each year), as shown in figure 3.5.

Over the same period, there has not been any substantial change in the distribution of demand throughout the day or the year, although summer 2019 saw a relatively lower proportion of casual users than previous years, albeit not materially affecting the total number of hires.

An overview of trends in Santander Cycles demand in 2020 during the pandemic is given in section 7.6 of this report.

Figure 3.5 Average monthly hires and infrastructure provision on Santander Cycles, 2010-2019.



Source: TfL Cycle Hire.

3.4 Participation in, and attitudes towards, cycling in London

Table 3.2 provides an update of the high-level demographic profile of London's cycling population, based on results from the LTDS survey, which is representative of London residents aged 5 and over.

Table 3.2 Demographic profile of people who cycled at least once in the last year, 2010/11, 2018/19 and 2019/20.

	Proportion of the total who state having cycled at least once in the last year			LTDS whole sample
	2010/11	2018/19	2019/20	2019/20
Gender				
Male	64%	62%	62%	50%
Female	36%	38%	38%	50%
Age				
5-24	37%	33%	31%	26%
25-34	20%	20%	19%	18%
35-44	21%	21%	21%	19%
45+	22%	27%	29%	37%
Ethnicity				
White	78%	78%	77%	61%
Non-white	22%	22%	23%	39%
Employment status				
Not in employment	46%	36%	37%	47%
In employment	54%	64%	63%	53%
Household income				
< £20,000	27%	13%	11%	21%
£20,000-£75,000	53%	48%	51%	52%
£75,000+	19%	39%	38%	27%
Length of time being a regular cyclist				
Less than a year	11%	11%	12%	n/a
Between 1 and 5 years	36%	29%	32%	n/a
More than 5 years	53%	60%	56%	n/a
Change in frequency of cycling since the previous year				
More cycling	16%	7%	6%	n/a
About the same	72%	89%	91%	n/a
Less cycling	13%	4%	3%	n/a

Source: TfL City Planning.

The main findings are:

- In 2019/20, around 21 per cent of Londoners reported having cycled at least once in the last year, which is the same as the previous year but remains the lowest proportion since 2010/11.

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- The demographic profile of Londoners who have cycled at least once in the year before the survey remained largely unchanged since the previous year, although with some slight increases to the representation of certain groups. Table 3.2 shows these results in detail for the most recent two years, as well as for a year at the beginning of the decade for comparison, and puts them in the context of the current population composition.
- Women, people of non-white backgrounds, older people, and those not in employment and on low incomes continue to be underrepresented among those who cycle in comparison to their relative presence in the general population.
- Most respondents reported not having changed their cycling frequency, although there was a slight gain in those who reported cycling more frequently.

3.5 London's developing cycle network

TfL is working with the London boroughs and other partners to improve London's cycle facilities and create a connected, high quality and easily accessible network of cycle routes for all Londoners. TfL's Cycling Action Plan has an ambition to increase the proportion of Londoners living within 400 metres of a high-quality cycle route to 28 per cent by 2024. In 2019, 11.5 per cent of Londoners lived within 400 metres of a cycle route, compared to the Mayor's aim of 28 per cent by 2024, a 30.6 per cent increase on 2018. At October 2020, 26 per cent of the strategic cycle network has been delivered (362km out of approximately 1,400km); much of the recent increase has been delivered through the Streetspace for London programme introduced in response to the pandemic.

Where investment has been made, we have seen large increases in cycling locally, such as on Cycleway 24 (Forest Road in the Waltham Forest Mini-Holland) where since construction began in 2015 flows have increased in some places by more than 50 per cent (which equates to an annual 13 per cent growth) or on Cycleway 22 (Newham Greenway), where cycle flows have increased by more than 35 per cent since 2017 (an annual equivalent of 18 per cent per year).

3.6 Pedestrian activity in central London

Introduction

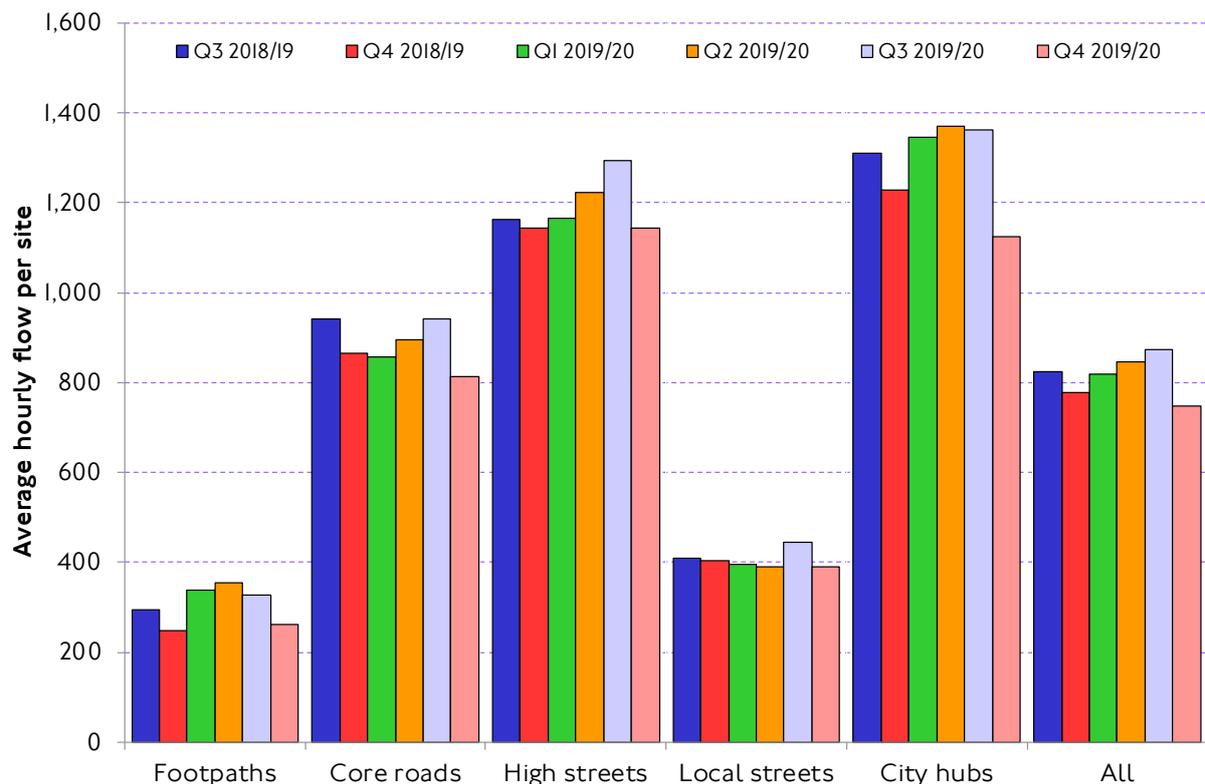
Travel in London report 12 described the first year of results of TfL's survey of pedestrian populations in central London, which acts as a proxy indicator for walking. This section provides an update of the 2019 results. Section 7.7 of this report looks at data from more recent surveys in summer 2020 in the context of the pandemic. This survey is designed to measure changes in walking in central London on a quarterly basis and uses a sample of 600 sites stratified by geographical location and street type which are surveyed between 06:00 and 20:00. Further details about the methodology can be found in Travel in London report 12.

Relative pedestrian populations and seasonal variation

Figure 3.6 shows the results by street type. Pedestrian flows are higher on high streets and city hubs. Flows tend to be lower on local streets and footpaths.

Seasonally, there is a gradual increase in overall flows from the start of the year to the summer period, with flows highest in quarter 3 2019/20 (October-December), 17.0 per cent higher than in quarter 4 2019/20 (January-March). This appears to reflect an increase in pedestrian activity for shopping and leisure related to Christmas, with flows on high streets particularly higher than average. Overall, however, the seasonal variation is relatively modest, and it is likely that results in quarter 4 2019/20 had started to be affected by the coronavirus pandemic, with people adjusting their behaviour from mid-March. Flows were 4 per cent lower in quarter 4 2019/20 than in the previous year. In contrast, flows in quarter 3 2019/20 had been the highest since the survey started in 2018/19, and were 6.1 per cent higher than the previous year.

Figure 3.6 Pedestrian flows in central London by street type, 2018/19-2019/20.



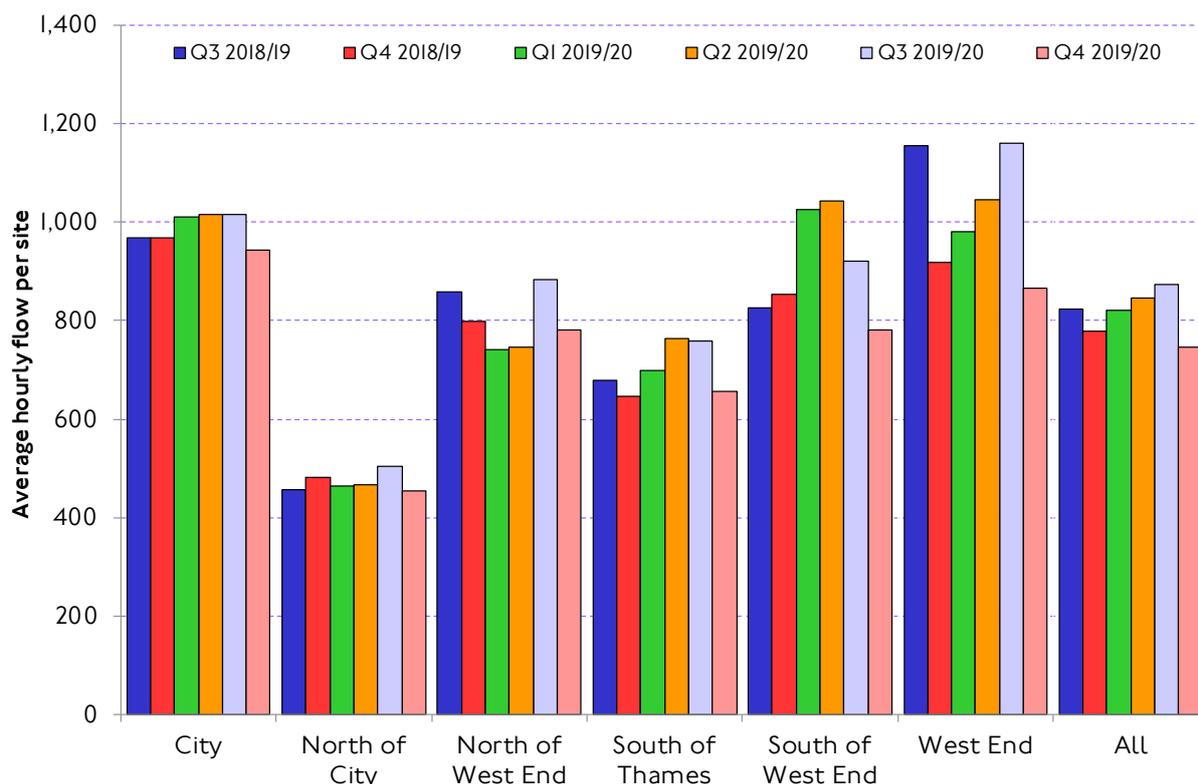
Source: TfL City Planning.

Pedestrian populations by area

Looking at pedestrian flows by area (figure 3.7), flows are highest in the West End and the City. Areas of central London that are more residential tend to have lower pedestrian densities, such as south of the Thames and particularly north of the City. Some noticeable features include high pedestrian flows in the West End in quarter 3 each year, reflecting an increase in shopping and leisure activity in the pre-Christmas period. The biggest seasonal change occurred to the south of the West End, perhaps due to the number of parks in this area, as well as the number of warmer weather events that take place in this part of central London. In contrast, flows in the City of London tend to remain relatively similar throughout the year.

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Figure 3.7 Pedestrian flows in central London by area, 2018/19–2019/20.



Source: TfL City Planning.

3.7 Assessing the healthiness of London's streets

Introduction

TfL's Healthy Streets Mystery Shopper Survey launched in October 2018 and provides strategic insight about the experience of being on London's streets, allowing us to track changes over time. The core survey assesses a changing sample of 1,520 sites annually which are assessed on a continuous (quarterly) basis throughout the year to minimise seasonal bias. Streets are randomly selected, but sampled by geographical area, street type and time of day. Further details about the methodology of this survey can be found in Travel in London report 12.

Following the outbreak of coronavirus in March 2020, fieldwork was stopped before all quarter 4 2019/20 assessments had been completed, reaching a total of 351 assessments in quarter 4 (slightly short of the intended sample of 380 sites per quarter). This means that some regions and areas have not reached their full sample and these lower samples should be considered when comparing quarter 4 2019/20 data against previous quarters.

Benchmarking the performance of London's streets

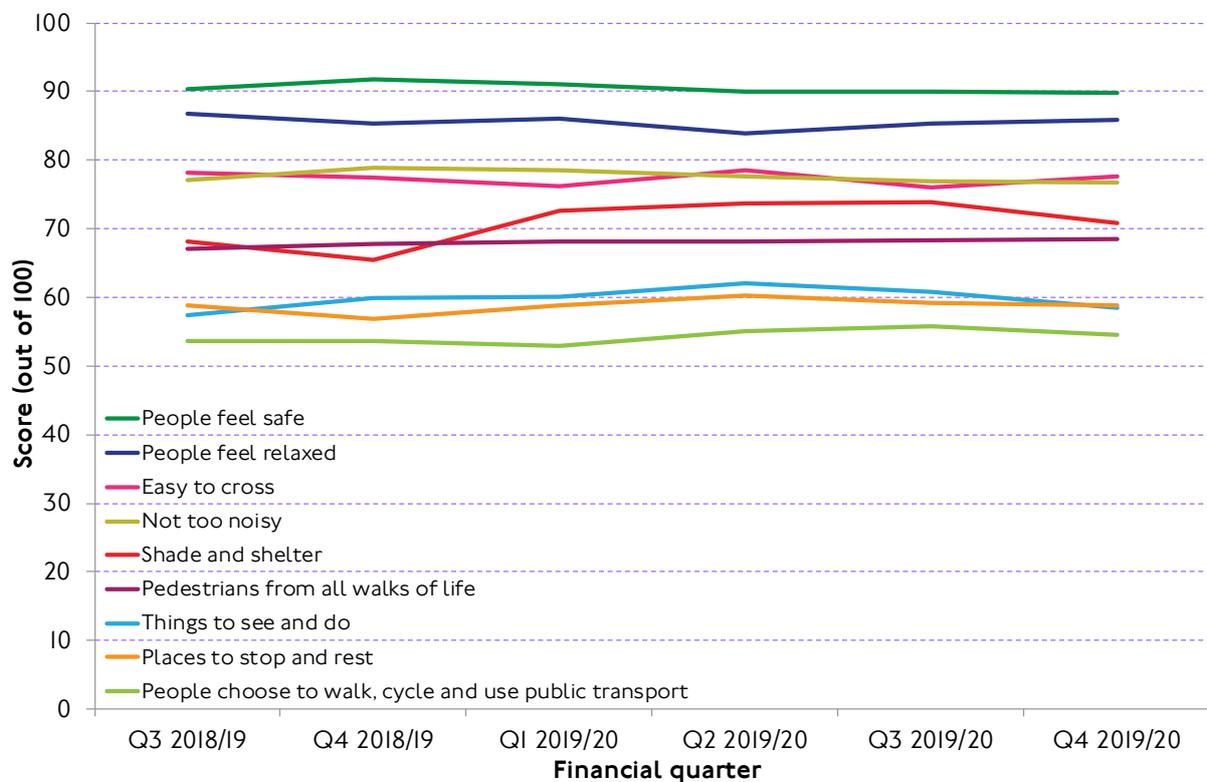
This survey provides what might be regarded as benchmark scores for the healthiness of London's streets. The scope and expectation for recording dramatic changes in performance between surveys is limited, although over the longer term progressive improvement would be expected, given streetscape improvement initiatives, particularly in 2020 in relation to the coronavirus pandemic (see section 8.5 of this report). The other core use of this survey is the ability to compare the

performance of individual sites against the benchmark both to diagnose improvements required and assess the outcome of improvement schemes.

Benchmark scores and overall trend

Figure 3.8 shows the trend in Healthy Streets Indicator scores over time. Generally, scores have been relatively flat, as would be expected. However, some indicators have seen a downward trend in quarter 4 2019/20. The assessed factors contributing to this decline are: fewer things to see and do, less shade and shelter available on the street and fewer people spending time on street. The downward turn across several indicators is likely to be seasonal, as it also occurred between quarter 3 and quarter 4 2018/19. We expect this trend to be a recurring theme year on year, given the impact that colder weather has on the utilisation of seating, greenery and activities taking place on street.

Figure 3.8 Healthy Streets Indicator scores by financial quarter, 2018/19–2019/20.



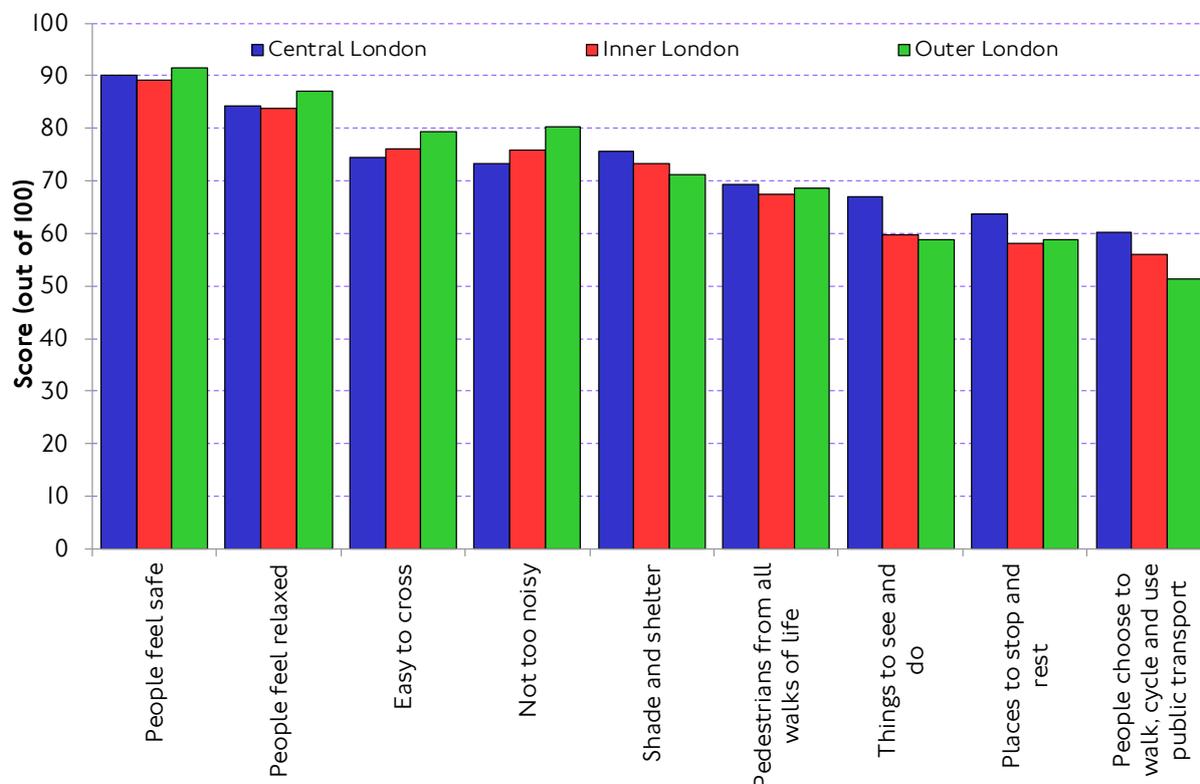
Source: TfL City Planning.

Figure 3.9 shows how scores vary across London. Central London (the Congestion Charge zone) streets have the highest scores overall, with the best provision of places to stop and rest, shade and shelter and things to see and do. Central London streets also score highest for pedestrians from all walks of life and people choose to walk, cycle and use public transport. However, they are harder to cross and noisier than inner or outer London streets. By contrast, outer London streets tend to be easier to cross and feel safer, less noisy and more relaxing. However, they tend to have lower scores for provision of shade, shelter and things to see and do. They also have the lowest score for people choose to walk, cycle and use public transport. Inner London streets tend to score in between central and outer London streets. However, they receive the lowest scores for the indicators people feel safe, people feel relaxed and places to stop and rest, as well as for

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pedestrians from all walks of life. Although these differences are relatively intuitive, for benchmarking purposes, it is the ability to quantify them and to specify evidence-based improvement schemes, based on comparative scores, that is the primary utility of this survey.

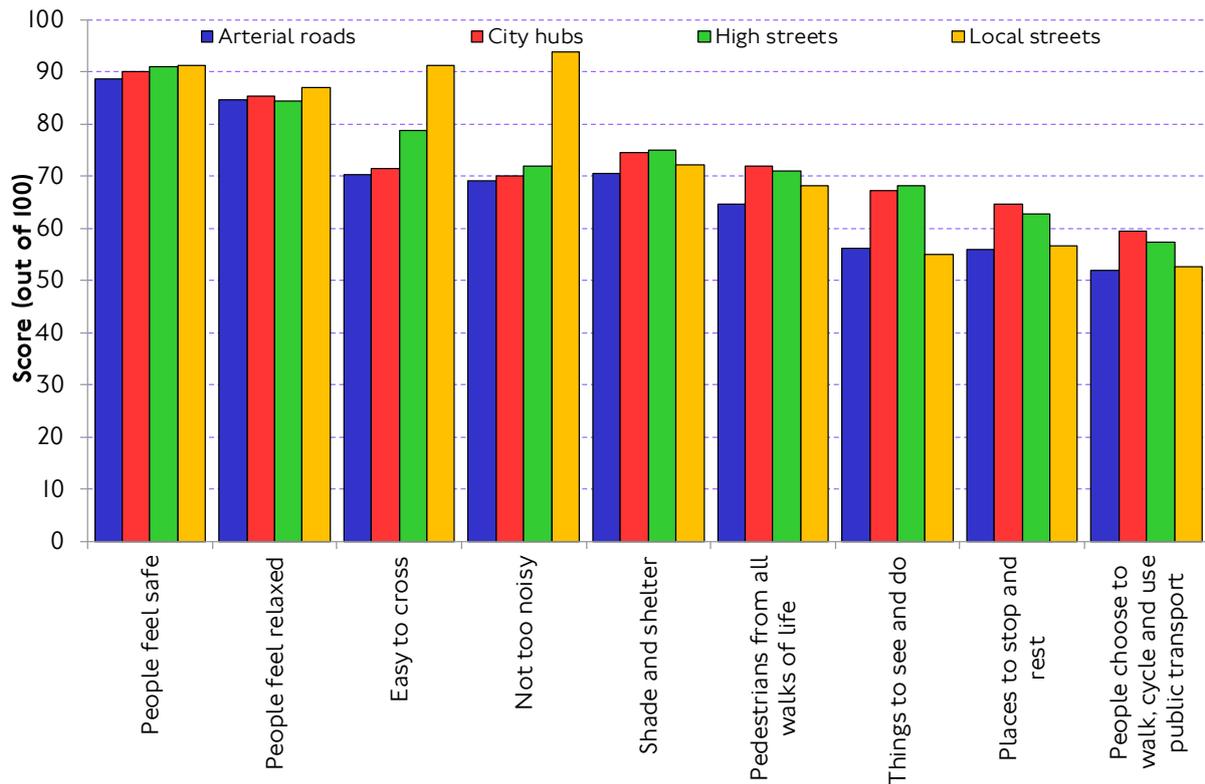
Figure 3.9 Healthy Streets cumulative indicator scores by region, 2019/20.



Source: TfL City Planning.

Figure 3.10 shows how the difference in indicator scores varies by street type. For some indicators, there is relatively little difference between street types, for example people feel relaxed and people feel safe. However, for other indicators, there are bigger differences between street types, for example local streets are much easier to cross and much less noisy. However, local streets score less well for places to stop and rest and things to see and do. High streets score relatively well across some indicators, most likely due to the higher number of amenities and provision of seating in these locations. They have the highest scores for people feel safe, shade and shelter and things to see and do. City hubs score the highest for pedestrians from all walks of life, people choose to walk, cycle and use public transport and places to stop and rest. Arterial roads have the lowest scores across most indicators, such as noise, ease of crossing, places to stop and rest and shade and shelter. Arterial roads also feel less safe and less relaxing than all other street types.

Figure 3.10 Healthy Streets cumulative Indicator scores by street type, 2019/20.



Source: TfL City Planning.

3.8 Reducing road danger

This section provides a summary of personal injury road traffic collisions and casualties, as reported to the police, in Greater London in 2019. There were 25,341 reported collisions in London in 2019, resulting in 125 people regrettably being killed, 3,780 being seriously injured and 26,102 being slightly injured.

Vision Zero and Mayoral targets for road danger reduction

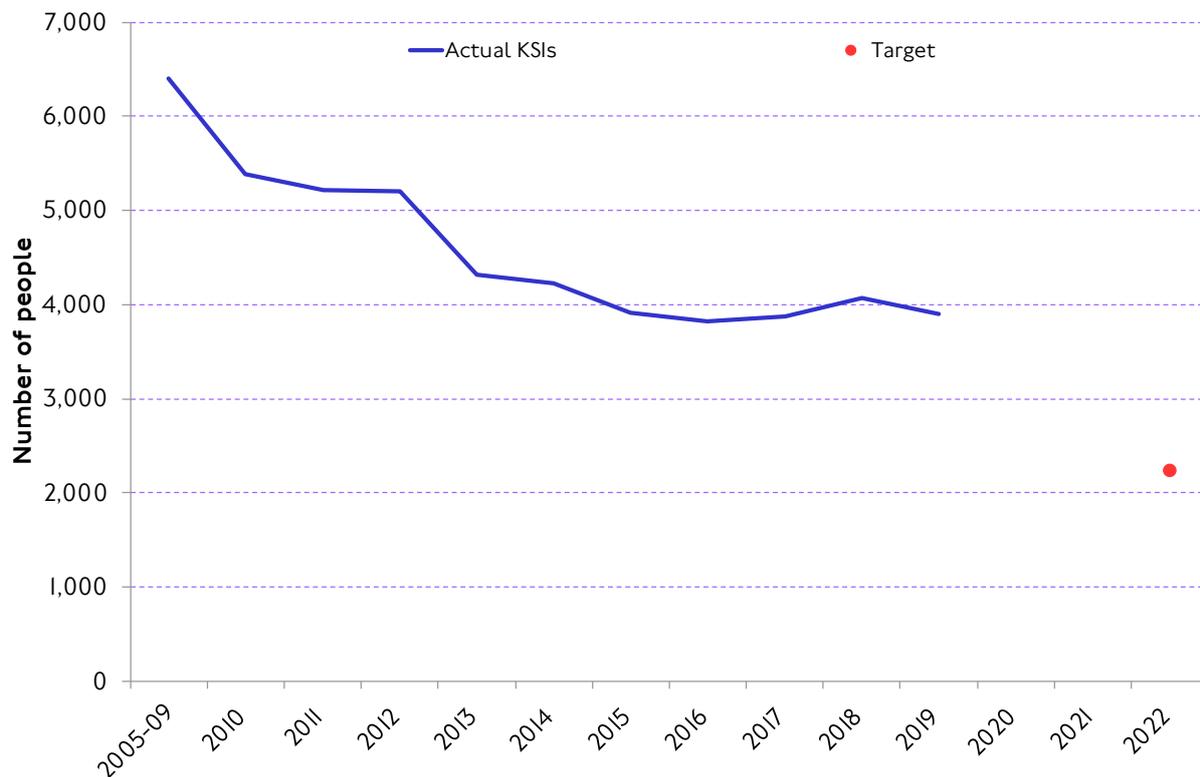
The Mayor’s Vision Zero Action Plan^[05] sets targets of a 65 per cent reduction in all persons killed or seriously injured (KSI) on London’s roads by 2022 and a 70 per cent reduction in people killed or seriously injured in or by a bus by 2022. To assess performance 2019 figures are compared with 2018 casualties and with the back-estimated average for 2005-2009. This is the baseline against which we measure progress towards the Mayor’s targets.

Overall progress against Mayoral targets

Overall, 2019 showed a continuing decline in the number of people killed or seriously injured on London’s roads compared to the 2005-09 baseline. The rate of the decline has slowed since 2014, but there was nevertheless a four per cent decrease compared to 2018. This amounts to a 39 per cent reduction towards the overall target of 65 per cent by 2022 (figure 3.11). This trend of slowing progress to reducing deaths and serious injuries has been seen more widely in other cities across Europe, as further gains become progressively more challenging. However, it is regarded here as an impetus to redouble our efforts.

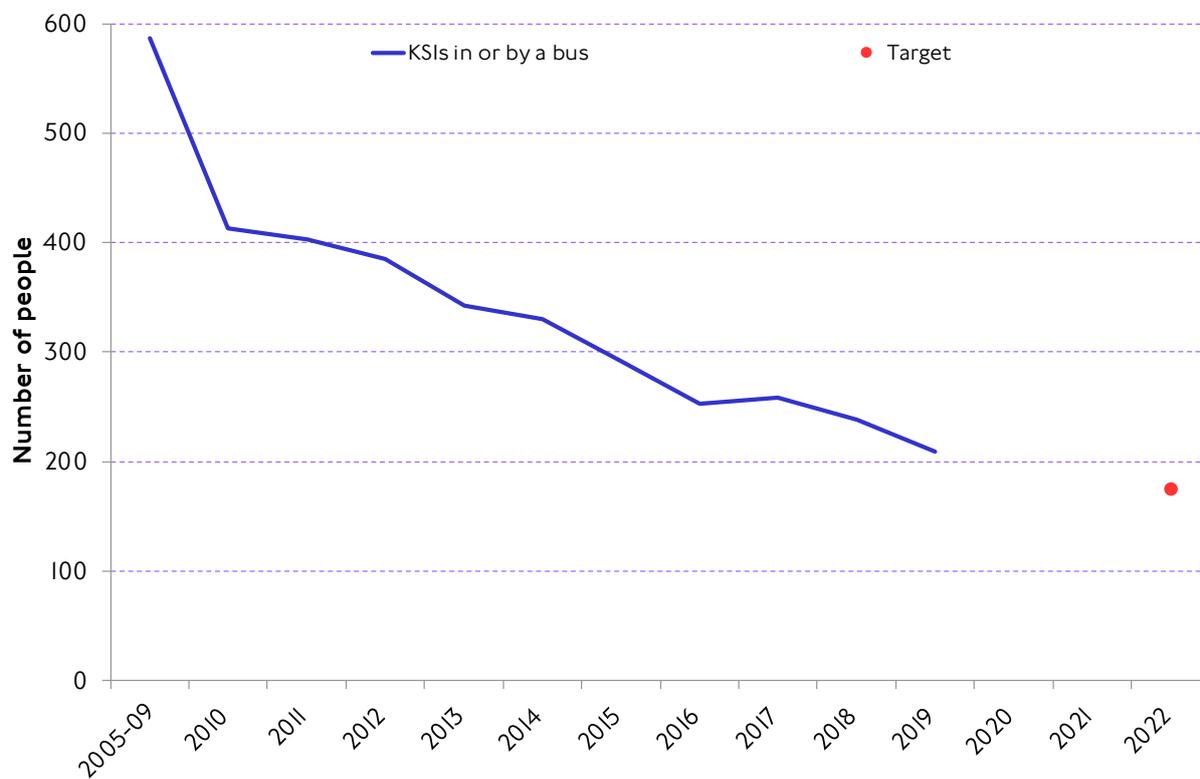
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Figure 3.11 Progress towards Mayor’s Vision Zero target for killed or seriously injured casualties in road traffic collisions, 2005-09 baseline to 2022.



Source: TfL Safety, Health and Environment. Based on STATS 19.

Figure 3.12 Progress towards Mayor’s Vision Zero target for killed or serious injured casualties involving London buses, 2005-09 baseline to 2022.



Source: TfL Safety, Health and Environment. Based on STATS 19.

The year 2019 also showed a continuing decline in killed or seriously casualties while travelling in a bus or with bus involvement. There was a 12 per cent decrease in bus-involved casualties from 2018, down from 238 to 209. This amounts to a 64 per cent reduction towards the overall target of 70 per cent by 2022 (figure 3.12).

Trends in the number of people being killed or seriously injured in London

A total of 30,007 people were reported to the police as being injured in London during 2019 following road traffic collisions. Within this overall total, 125 people were regrettably killed, 3,780 were seriously injured, and 26,102 slightly injured.

- In 2019, the number of people killed or seriously injured was 39 per cent lower than the 2005-09 baseline and the number of children killed or seriously injured was 65 per cent lower than the baseline. The reductions achieved vary from mode to mode (between 27 and 68 per cent reductions). However, people killed or seriously injured while cycling were up 6 per cent against the baseline.
- The number of cyclists killed in collisions in 2019 was down by 70 per cent on the 2005-09 baseline, from 17 to 5; whereas nationally there has been just a 6 per cent decrease since 2008.
- 2019 saw a reduction in people killed or seriously injured for all modes compared to 2018 (table 3.3). The number of motorcyclists killed or seriously injured declined by 6 per cent and has continued to decline year on year, despite motorcyclist fatalities increasing in 2019.
- People walking, cycling and motorcycling (vulnerable road users) made up 83 per cent of all people killed or seriously injured.
- The number of children seriously injured in collisions also fell, with the greatest percentage reduction among those travelling by bus or coach. However, the number of children seriously injured as pedal cyclists increased.

Table 3.3 Killed or seriously injured casualties, 2005-09 baseline, 2018 and 2019.

User group	Casualty numbers			Change in 2019 from...	
	2005-09	2018	2019	2018	2005-09
Bus or coach occupants	277	112	91	-19%	-67%*
Car occupants	1,773	623	574	-8%	-68%*
Motorcyclists	1,397	1,080	1,019	-6%	-27%*
Pedal cyclists	737	782	778	-1%	6%
Pedestrians	2,021	1,366	1,350	-1%	-33%*
Other vehicle occupants	197	102	93	-9%	-53%*
Total	6,403	4,065	3,905	-4%	-39%*
Child bus or coach occupants	23	9	5	-44%	-79%*
Child car passengers	82	19	16	-16%	-80%*
Child pedal cyclists	63	17	22	29%	-65%*
Child pedestrians	423	176	157	-11%	-63%*
Other child casualties	18	20	11	-45%	-39%
Total child casualties	608	241	211	-12%	-65%*

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. The number and severity of child casualties are a subset of the total reported casualties in London.

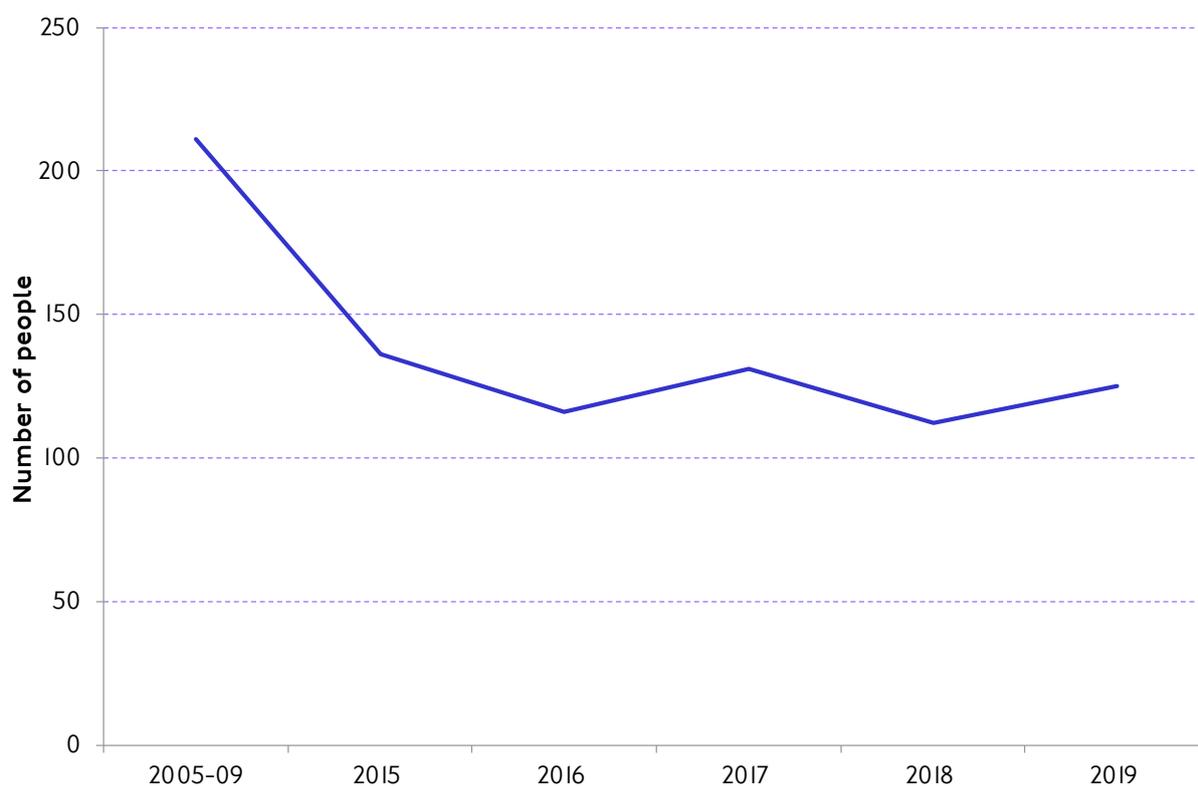
3. Healthy Streets and active travel

Trends by injury severity: fatalities

The number of people regrettably killed in collisions while travelling on London's roads increased by 12 per cent in 2019 compared to 2018 (albeit that 2018 was the lowest on record). People killed while walking (54 per cent) and motorcycling (25 per cent) accounted for 79 per cent of all fatalities, and increased by 19 and 41 per cent respectively over the previous year.

Against the 2005-09 baseline the number of people killed was down by 41 per cent. In line with national figures, the trend in the number of fatalities has been broadly flat over the last four years (figure 3.13).

Figure 3.13 Fatalities in road traffic collisions in London, 2005-2019.



Source: TFL Safety, Health and Environment. Based on STATS 19.

- Of 68 pedestrians killed, 44 were as a result of a collision with a car.
- Motorcyclists account for one per cent of journeys but 25 per cent of fatalities.
- There were at least eight fatalities that are believed to be the result of deliberate acts of violence involving vehicles.
- In 2019 there was the first reported fatality of a person riding an electric scooter (or e-scooter), involved in a collision with a heavy goods vehicle (HGV).
- In 2019 there were 17 fatalities where the vehicle involved failed to stop at the scene of the collision. This is an increase on 2018 where there were 14.
- 2019 also saw an increase in collisions involving emergency vehicles (police vehicles, ambulances and fire engines). In 2019 there were three fatalities related to police pursuits.

Table 3.4 shows fatalities by mode for 2019 compared to the 2005-09 baseline and 2018.

Table 3.4 Fatalities, 2005-09 baseline, 2018 and 2019.

User group	Casualty numbers			Change in 2019 from ...	
	2005-09	2018	2019	2018	2005-09
Bus or coach occupants	2	1	2	100%	-17%
Car occupants	49	16	17	6%	-66%*
Motorcyclists	43	22	31	41%	-29%
Pedestrians	96	57	68	19%	-29%*
Pedal cyclists	17	12	5	-58%	-70%*
Other vehicle occupants	3	4	2	-50%	-38%
Total	211	112	125	12%	-41%*
Children (under 16)	12	0	5	-	-57%*

Source: TfL Safety, Health and Environment, based on STATS 19.

Note: Asterisks (*) and the number and severity of child casualties have the same meaning as in table 3.3.

Trends by injury severity: people seriously injured

In 2019, 3,780 people were seriously injured while travelling on London's roads. This was a decrease of four per cent on 2018 and was 39 per cent lower than the 2005-09 baseline. Significant reductions are seen across all modes against the baseline except serious injuries to pedal cyclists, which increased by 11 per cent (table 3.5).

Table 3.5 Serious injuries, 2005-09 baseline, 2018 and 2019.

User group	Casualty numbers			Change in 2019 from...	
	2005-09	2018	2019	2018	2005-09
Bus or coach occupants	275	111	89	-20%	-68%*
Car occupants	1,724	607	557	-8%	-68%*
Motorcyclists	1,353	1,058	988	-7%	-27%*
Pedal cyclists	641	725	710	-2%	11%
Pedestrians	2,004	1,354	1,345	-1%	-33%*
Other vehicle occupants	194	98	91	-7%	-53%*
Total	6,192	3,953	3,780	-4%	-39%*
Children (under 16)	608	241	211	-12%	-65%*

Source: TfL Safety, Health and Environment, based on STATS 19.

Note: Asterisks (*) and the number and severity of child casualties have the same meaning as in table 3.3.

Trends by injury severity: slight injuries

In 2019, 26,102 people were slightly injured while travelling on London's roads. This was a two per cent reduction on 2018, with the greatest difference being a 19 per cent reduction among bus and coach passengers (table 3.6).

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Table 3.6 Slight injuries, 2005–09 baseline, 2018 and 2019.

User group	Casualty numbers			Change in 2019 from ...	
	2005-09	2018	2019	2018	2005-09
Bus or coach occupants	1,434	1,339	1,083	-19%*	-24%*
Car occupants	12,844	11,181	10,883	-3%	-15%*
Motorcyclists	3,592	4,042	4,372	8%	22%*
Pedal cyclists	2,673	3,973	3,856	-3%	44%*
Pedestrians	3,856	4,396	4,312	-2%	12%*
Other vehicle occupants	1,017	1,595	1,596	0%	57%*
Total	25,416	26,526	26,102	-2%	3%*
Children (under 16)	1,805	1,720	1,630	-5%	-10%*

Source: TfL Safety, Health and Environment, based on STATS 19.

Note: Asterisks (*) and the number and severity of child casualties have the same meaning as in table 3.3.

Trends by injury severity: all casualties

There was a total of 30,007 casualties of all severities on London's roads in 2019. This is two per cent lower than in 2018 and six per cent lower than the 2005–09 baseline (table 3.7).

Table 3.7 All casualties, 2005–09 baseline, 2018 and 2019.

User group	Casualty numbers			Change in 2019 from ...	
	2005-09	2018	2019	2018	2005-09
Bus or coach occupants	1,711	1,451	1,174	-19%*	-31%*
Car occupants	14,617	11,804	11,457	-3%	-22%*
Motorcyclists	4,989	5,122	5,491	5%	8%*
Pedal cyclists	3,410	4,755	4,634	-3%	36%*
Pedestrians	5,877	5,762	5,662	-2%	-4%*
Other vehicle occupants	1,215	1,697	1,689	0%	39%*
Total	31,819	30,591	30,007	-2%	-6%*
Children (under 16)	2,413	1,961	1,841	-6%	-24%*

Source: TfL Safety, Health and Environment, based on STATS 19.

Note: Asterisks (*) and the number and severity of child casualties have the same meaning as in table 3.3.

In terms of absolute numbers (table 3.8), car occupants (including car drivers and car passengers) are the road user group with the greatest number of casualties each year (38 per cent of total casualties in 2019).

Table 3.8 Casualties by mode of travel and severity, 2019.

	Fatal	Serious	Slight	Total	Share of total
Bus or coach	2 (100%)	89 (-20%)	1,083* (-19%)	1,174* (-19%)	4%
Car	17 (6%)	557 (-8%)	10,883* (-3%)	11,457 (-3%)	38%
Goods vehicle	0 (0%)	44 (10%)	550* (-7%)	594 (-6%)	2%
Motorcycle	31 (41%)	988 (-7%)	4,372 (8%)	5,391 (5%)	18%
Pedal cycle	5 (-58%)	773 (1%)	3,856 (-3%)	4,634 (-3%)	15%
Pedestrian	68 (19%)	1,282 (-2%)	4,312 (-2%)	5,662 (-2%)	19%
Taxi or private hire	0 (-)	30 (-32%)	916 (1%)	946 (-1%)	3%
Other vehicle	2 (-50%)	17 (21%)	130* (44%)	149 (41%)	0%
Total	125 (12%)	3,780 (-4%)	26,105 (-2%)	30,007 (-2%)	100%
Share of total	0%	13%	87%	100%	

Source: TfL Safety, Health and Environment, based on STATS 19.

Note: Asterisks (*) have the same meaning as in table 3.3. Values in brackets show change from 2018.

Casualties by vehicle involved

Table 3.9 sets out the recorded vehicles that were involved in the collisions that resulted in casualties. It should be noted that some collisions involve multiple other vehicles, some involve no other vehicles and some are unknown. In addition, a lot more effort has been spent this year in reviewing the 'other vehicle' category than for previous years, affecting the comparability of the statistics.

In 2019 cars continue to dominate as the other vehicle involved, with a particular increase in fatal collisions compared to 2018. Further analysis over the last three years shows that overall the share of vehicles involved in collisions has remained broadly constant in terms of modal split.

Table 3.9 Casualties by vehicle involved and severity, 2019.

	Fatal	Serious	Slight	Total	Share of total
Bus or coach	12 (-9%)	133 (-1%)	608 (-6%)	753 (-5%)	4%
Car	64 (31%)	1,985 (0%)	9,862 (4%)	11,911 (4%)	62%
Goods vehicle	21 (-32%)	445 (6%)	2,848 (2%)	3,314 (2%)	17%
Motorcycle	5 (150%)	200 (-12%)	934 (6%)	1,139 (3%)	6%
Pedal cycle	2 (100%)	84 (4%)	241 (-6%)	327 (-4%)	2%
Pedestrian	-	-	-	-	-
Taxi or private hire	2 (-50%)	235 (-12%)	1,319 (-9%)	1,556 (-10%)	8%
Other vehicle	1 (-50%)	41 (-40%)	165 (-69%)	207 (-66%)	1%
Total¹	107 (7%)	3,123 (-2%)	15,977 (0%)	19,207 (0%)	100%
Share of total	1%	16%	83%	100%	

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

Note: Values in brackets show change from 2018.

1: Totals do not match table 3.8 because some collisions involve multiple vehicles and others involve no other vehicles.

3. Healthy Streets and active travel

Collisions with bus or coach involvement

Collisions with bus or coach involvement are now reported separately by the police. Table 3.10 compares persons killed or seriously injured in collisions involving buses or coaches for 2019 and 2018. Unfortunately in 2019 one bus passenger was fatally injured while attempting to board a bus and one bus driver was killed in a road collision.

Table 3.10 Casualties involving buses by severity, 2018-2019.

Mode	Fatal	Serious	Slight	Total
Bus/coach driver/passenger	2 (100%)	86 (-17%)	1,004 (-21%)	1,092 (-21%)
Car	- (-100%)	11 (-27%)	172 (-9%)	183 (-10%)
Goods vehicle	- (-)	- (-)	11 (-31%)	11 (-31%)
Motorcycle	3 (-)	9 (-10%)	40 (3%)	52 (6%)
Pedal cycle	- (-100%)	13 (8%)	49 (-23%)	62 (-19%)
Pedestrian	6 (-25%)	79 (-6%)	189 (-3%)	274 (-4%)
Taxi or private hire	- (-)	- (-)	10 (-58%)	10 (-58%)
Other vehicle	- (-)	- (-100%)	2 (100%)	2 (-33%)
Total	11 (0%)	198 (-13%)	1,477 (-18%)	1,686 (-17%)

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

Note: Values in brackets show change from 2018.

The number of people killed or seriously injured in or by a bus fell by 12 per cent between 2018 and 2019, to 209 people, which is the lowest number on record. This is 64 per cent down on the 2005-09 baseline.

Borough statistics

Table 3.11 is a reference table summarising the changes at borough level over the most recent year in terms of total casualties in recorded road traffic collisions, and also in terms of those killed, seriously injured or slightly injured, according to STATS19 definitions.

Encouraging safer behaviours

This year, we have been encouraging safer driver behaviours through targeted measures. In October 2019, we launched the Watch Your Speed campaign, which was aimed at encouraging drivers to slow down and recognise the effects of their behaviour on others. This campaign was designed to change social attitudes towards driving at inappropriate speeds. It was delivered through a range of channels including posters, press releases, radio and television, as well as social media and on-demand video services.

We ran a new targeted enforcement initiative with the Metropolitan Police Service in high-risk locations. This involved increased enforcement, communications and community engagement to reduce road danger risk. We also continued with our training programme to support users of powered two-wheelers.

Table 3.II Casualties by borough and severity, 2018-2019.

Borough	Fatal ¹	Serious	KSIs	Slight	Total
Camden	4 (-1)	137 (-7%)	141 (-7%)	865 (-1%)	1,006 (-2%)
City of London	1 (0)	75 (-7%)	76 (-7%)	267 (16%)	343 (10%)
Greenwich	5 (-3)	86 (-15%)	91 (-17%)	805 (3%)	896 (1%)
Hackney	4 (2)	145 (-8%)	149 (-7%)	853 (3%)	1,002 (2%)
Hammersmith & Fulham	4 (3)	95 (-14%)	99 (-12%)	684 (1%)	783 (-1%)
Islington	2 (0)	109 (-22%)*	111 (-21%)*	680 (-4%)	791 (-7%)
Kensington & Chelsea	2 (-1)	111 (-10%)	113 (-10%)	668 (7%)	781 (4%)
Lambeth	3 (2)	197 (-2%)	200 (-1%)	1,157 (-8%)*	1,357 (-7%)*
Lewisham	3 (-3)	116 (15%)	119 (11%)	828 (-8%)*	947 (-6%)
Southwark	1 (-1)	163 (-13%)	164 (-13%)	1,109 (1%)	1,273 (-1%)
Tower Hamlets	3 (1)	157 (-2%)	160 (-2%)	1,175 (0%)	1,335 (0%)
Wandsworth	8 (2)	160 (-2%)	168 (-1%)	902 (-4%)	1,070 (-3%)
Westminster	4 (1)	243 (-10%)	247 (-9%)	1,463 (2%)	1,710 (0%)
Inner London total	44 (5)	1,794 (-8%)*	1,838 (-7%)*	11,456 (-1%)	13,294 (-2%)
Barking & Dagenham	4 (2)	85 (-13%)	89 (-11%)	706 (2%)	795 (0%)
Barnet	4 (0)	141 (8%)	145 (7%)	1,012 (-6%)	1,157 (-5%)
Bexley	3 (0)	74 (-5%)	77 (-5%)	518 (-7%)	595 (-6%)
Brent	6 (1)	113 (-25%)*	119 (-23%)*	893 (-6%)	1,012 (-8%)*
Bromley	7 (4)	99 (-8%)	106 (-5%)	777 (-1%)	883 (-1%)
Croydon	8 (4)	156 (46%)*	164 (48%)*	963 (3%)	1,127 (7%)
Ealing	4 (-1)	137 (-1%)	141 (-2%)	1,056 (4%)	1,197 (3%)
Enfield	5 (-3)	116 (-2%)	121 (-4%)	1,045 (4%)	1,166 (3%)
Haringey	3 (1)	107 (-8%)	110 (-7%)	910 (1%)	1,020 (0%)
Harrow	2 (2)	54 (-24%)	56 (-21%)	443 (1%)	499 (-2%)
Havering	3 (0)	88 (14%)	91 (14%)	670 (-5%)	761 (-3%)
Hillingdon	5 (-1)	104 (-13%)	109 (-13%)	750 (-5%)	859 (-6%)
Hounslow	6 (4)	111 (-8%)	117 (-4%)	777 (-7%)	894 (-7%)
Kingston upon Thames	1 (-1)	59 (11%)	60 (9%)	346 (4%)	406 (4%)
Merton	8 (5)	85 (15%)	93 (21%)	469 (-10%)	562 (-6%)
Newham	2 (-3)	133 (29%)*	135 (25%)*	967 (-1%)	1,102 (1%)
Redbridge	2 (1)	98 (-5%)	100 (-4%)	785 (-11%)*	885 (-10%)*
Richmond upon Thames	2 (0)	70 (-16%)	72 (-15%)	403 (-3%)	475 (-5%)
Sutton	3 (0)	65 (-3%)	68 (-3%)	462 (5%)	530 (4%)
Waltham Forest	3 (-4)	91 (-5%)	94 (-9%)	694 (-6%)	788 (-7%)
Outer London total	81 (16)	1,986 (-1%)	2,067 (-1%)	14,646 (-2%)*	16,713 (-2%)*
Greater London total	125 (12)	3,780 (-4%)*	3,905 (-4%)*	26,102 (-2%)*	30,007 (-2%)*

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

Note: Asterisks (*) have the same meaning as in table 3.3. Values in brackets show change from 2018.

1: The change in fatalities is given in absolute values because the numbers are too small to be meaningful as percentages.

3.9 Overall trends for motorised road traffic in London

Overall motorised vehicle kilometres: changes to DfT estimates

The Department for Transport (DfT) produces annual estimates of vehicle kilometres in London. This is part of a wider national survey but it provides a good long-term indicator of trends in London. The DfT carries out a minor road traffic benchmarking exercise approximately every 10 years, with the aim to improve the accuracy of traffic estimates for minor roads. The result of this exercise includes revisions to the minor road traffic estimates covering 2010 to 2018.

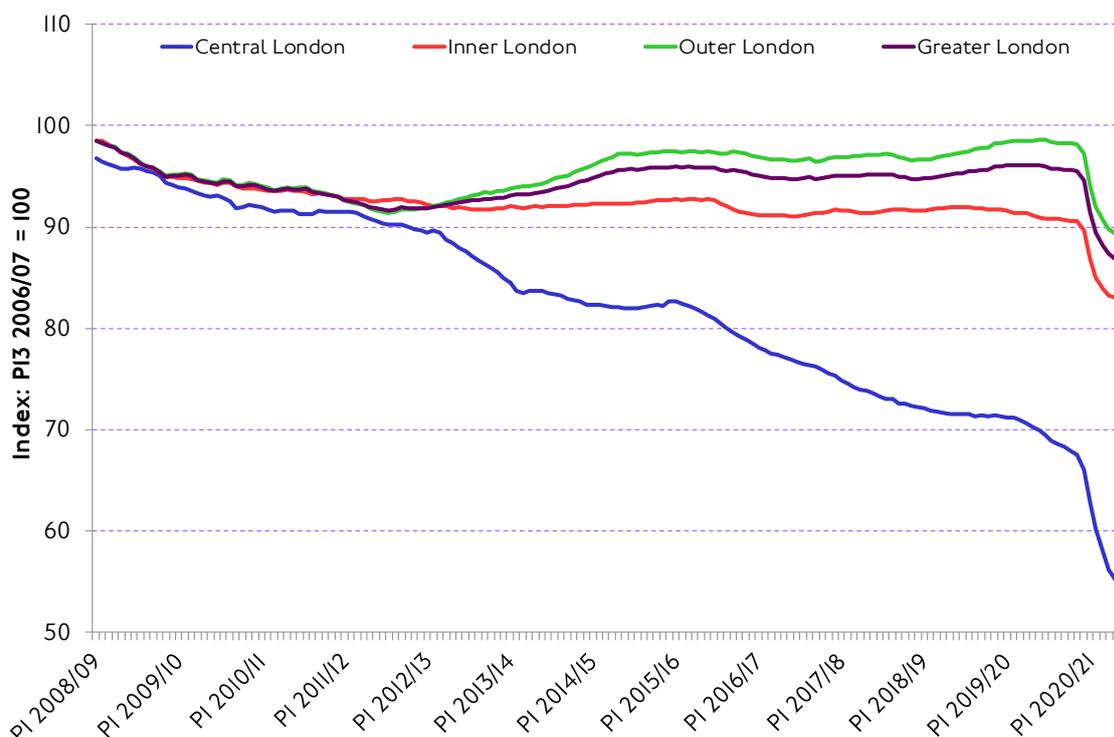
The revisions mean that, for 2018, the DfT estimated vehicle kilometres were 20 per cent higher than previously reported last year (and included in Travel in London report 12). The previous estimates suggested a fall of 1.8 per cent in vehicle kilometres in London between 2009 and 2018, whereas the revised series now suggests an increase of 17.9 per cent over the same time period, this suggested change wholly arising from revisions to the minor road estimates. We are currently working through how the DfT have made this assessment, and what this could mean for London datasets.

For this report therefore, and pending further investigation of this revision with the DfT, we consider it reasonable to base our assessment of changes between 2018 and 2019 on TfL’s own traffic monitoring data – applied to the historic DfT series – which had previously shown trends broadly in accord with the DfT data.

Trend shown by TfL’s volumetric data

TfL’s traffic counts measure different indices to the DfT counts, although they have shown broadly similar long-term trends (figure 3.14).

Figure 3.14 All motor vehicle traffic flows by area, 13-period rolling average, 2008/09-2020/21.



Source: TfL Surface Transport.

They show an estimated 1.7 per cent net increase in traffic flows between 2009 and 2018. In the latest year, traffic flows remained the same. The chart also shows the early impact of the coronavirus pandemic, with flows down across all areas of London from March 2020 (see also section 7.5 of this report).

Trend shown by TfL's cordon count data

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

Since 2001, 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 (from 2002), 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 Thames throughout Greater London has also declined, with 20.8 per cent fewer vehicles observed doing so in 2018 compared with 2000. In considering these 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.

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 TfL data and, prior to the 2019 revisions, by the DfT data.

Since 2010, flows across the London boundary cordon have increased by 5.5 per cent. While 78 per cent of vehicles crossing the cordon in 2019 were cars, growth has been strongest in light goods vehicles. Since 2010, the number of cars crossing the boundary cordon increased by 5.3 per cent, while the number of light goods vehicles increased by 13.0 per cent over the same period.

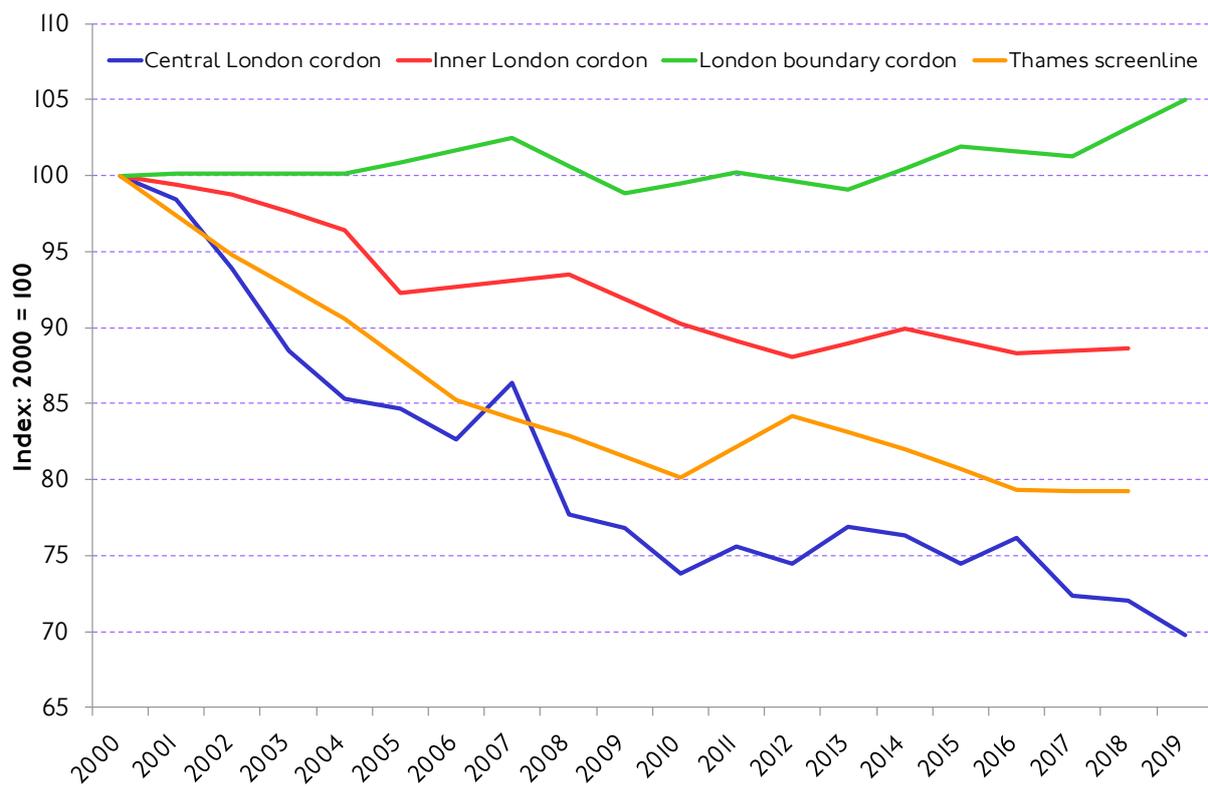
Trend for cars

The overall picture of declining car volumes over recent years has not affected all parts of London in the same way. Figure 3.16 shows the time series of crossings of the TfL cordons by cars. Note that this includes licensed private hire vehicles (PHVs), which cannot be distinguished in this type of traffic count, but not licensed taxis.

The decline has been greatest across the central cordon, with 38.3 per cent fewer cars crossing the cordon in 2019 compared with 2001. There has been a 14.9 per cent decline in cars crossing the inner cordon between 2002 and 2018, whereas at the boundary cordon, flows in 2019 were 2.8 per cent higher than in 2001. There was evidence of a recent increase in car flows across the central cordon, which had seen an increase of 7 per cent between 2012 and 2016. However, car flows have subsequently decreased by 9.2 per cent between 2016 and 2019.

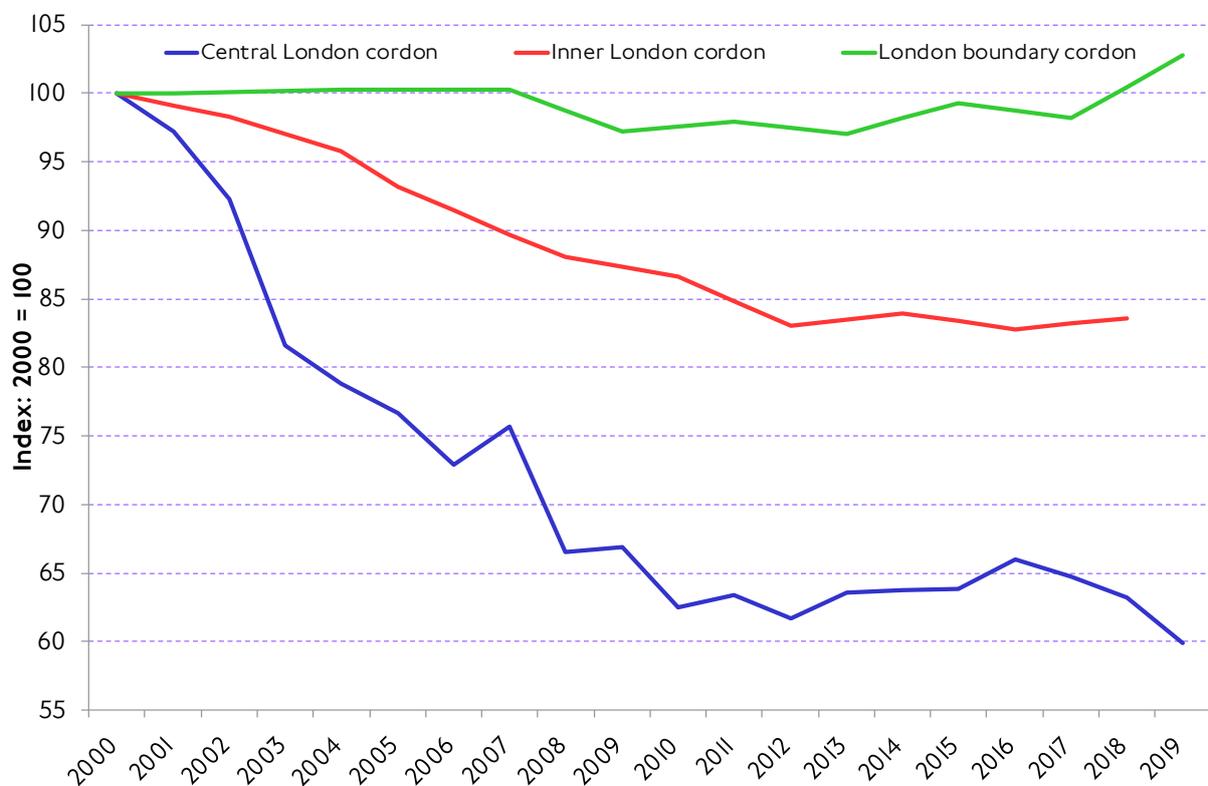
3. Healthy Streets and active travel

Figure 3.15 Daily number of motor vehicles across strategic cordons, 2000-2019.



Source: TfL Surface Transport.

Figure 3.16 Daily number of cars (incl. PHVs) across strategic cordons, 2000-2019.



Source: TfL Surface Transport.

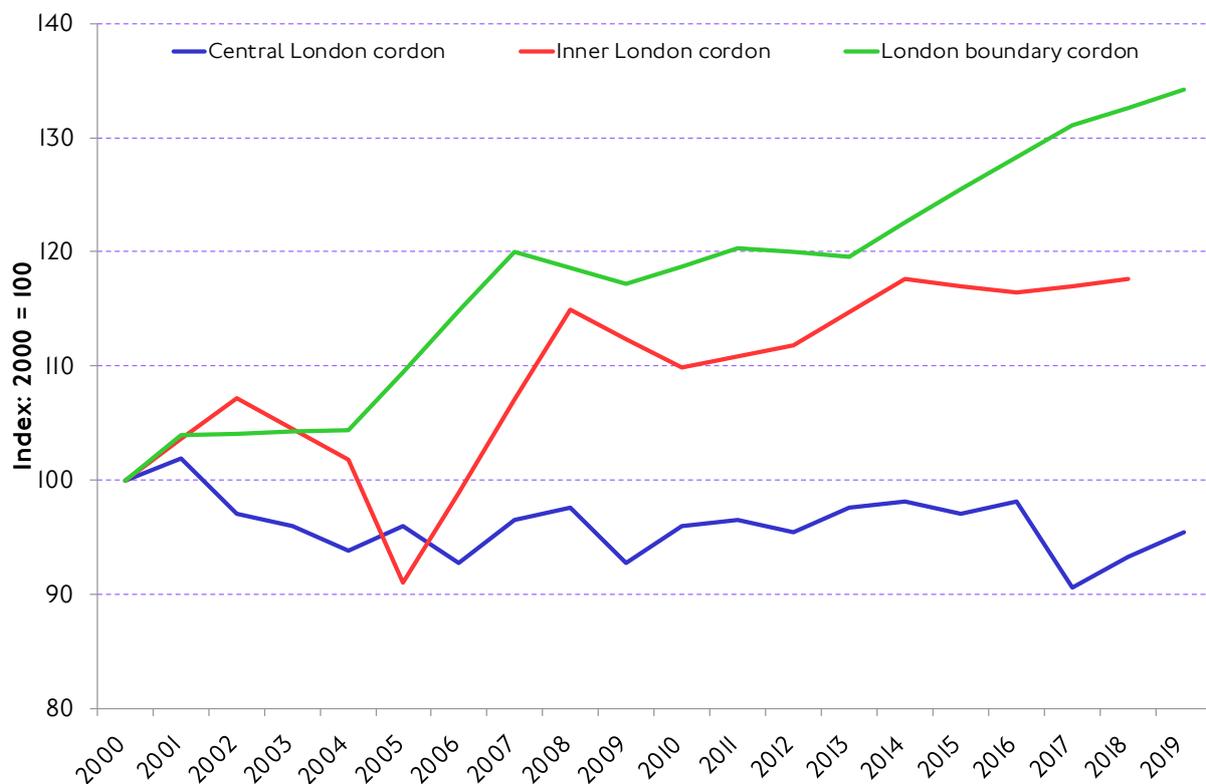
3.10 Trends in freight traffic

Trend in the volume of vans

Cordon-based data shows an increase in van traffic in most parts of London (figure 3.17), of 9.7 per cent at the inner cordon (between 2002 and 2018), and an increase of 29.0 per cent at the London boundary cordon (between 2001 and 2019).

Also notable is that the rate of growth in central London has been relatively muted, with an overall decrease of 6.3 per cent at the central London cordon since 2001, despite a 5 per cent increase over the last two years. This may be considered surprising, given the acknowledged servicing needs of the growing central London economy, but it is not out of line with the equivalent trend for general traffic at this cordon, which fell by 29.1 per cent between 2001 and 2019.

Figure 3.17 Daily number of LGVs across strategic cordons, 2000-2019.



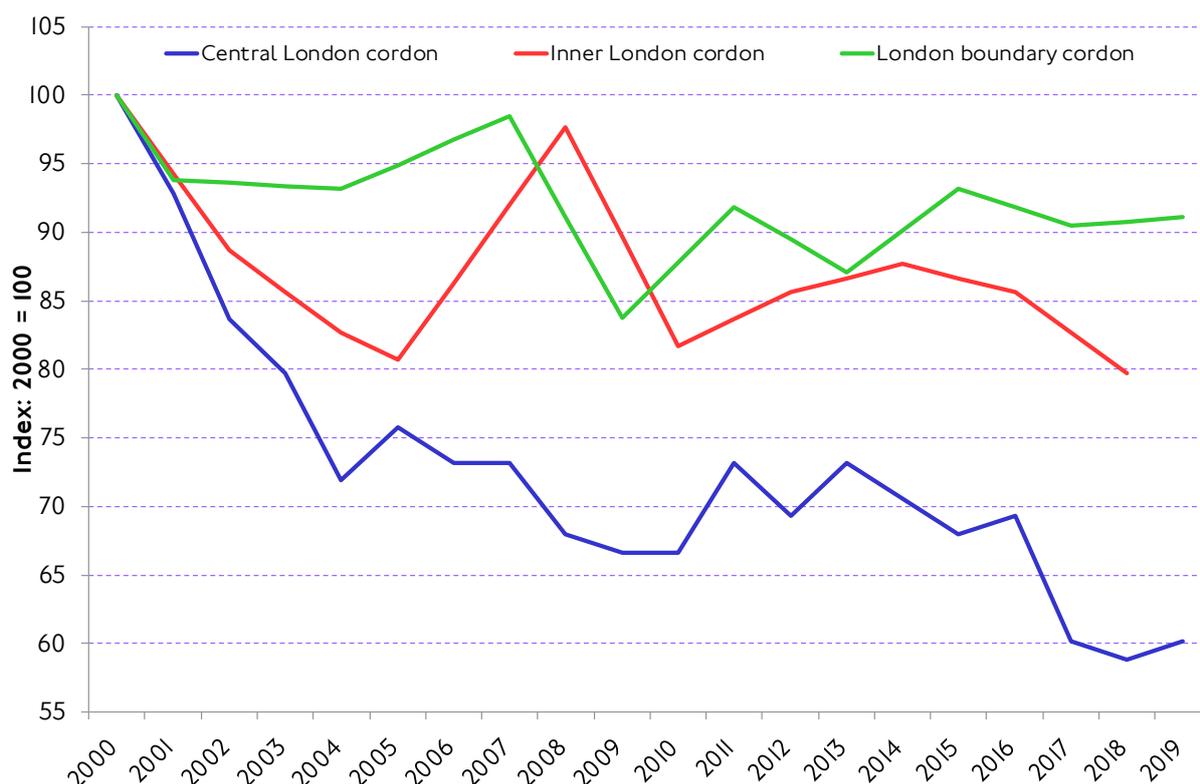
Source: TfL Surface Transport.

Trends in the volume of heavy goods vehicles

Figure 3.18 shows the trend in the volume of HGVs crossing the central, inner and boundary cordons, corresponding to central London, inner London and the GLA boundary respectively. This shows a long-term trend of decline in HGV volumes across all parts of London. The number of HGVs crossing the central cordon in 2019 was 35.2 per cent lower than in 2001, with equivalent reductions of 10.1 per cent for the inner cordon (from 2002 to 2018), and 2.9 per cent at the London boundary cordon.

3. Healthy Streets and active travel

Figure 3.18 Daily number of HGVs across strategic cordons, 2000-2019.



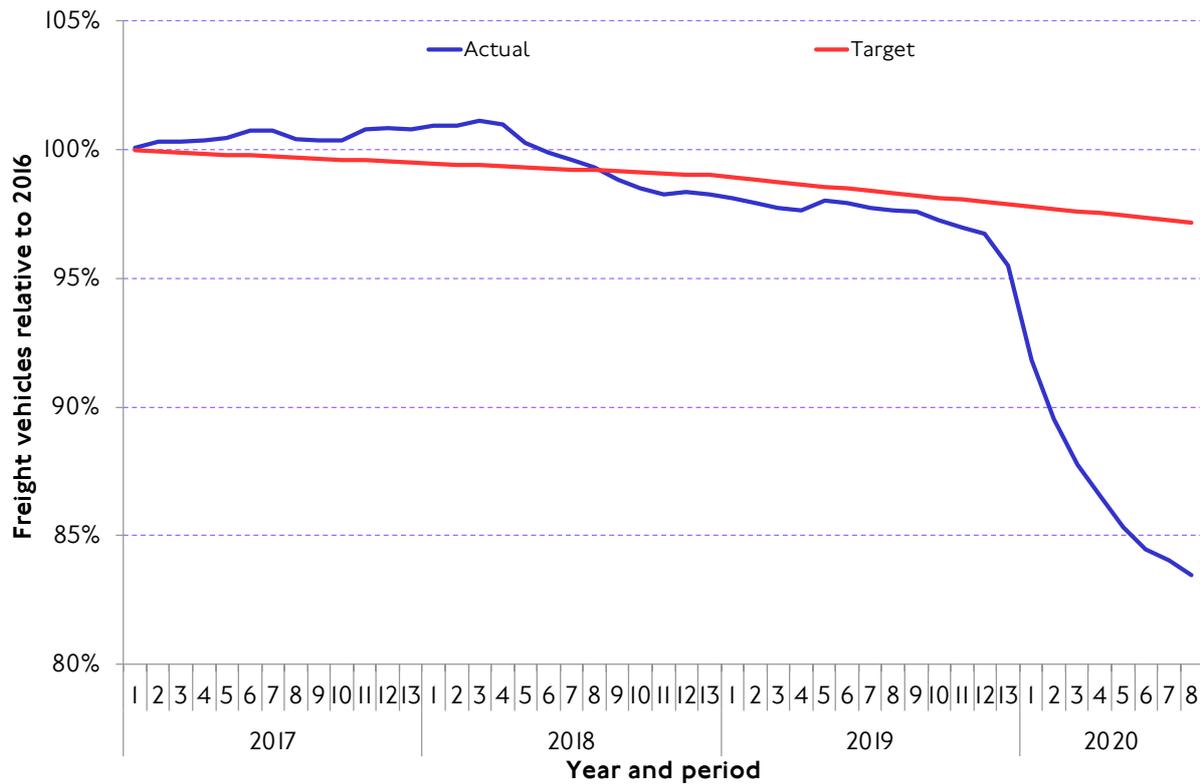
Source: TfL Surface Transport.

Goods vehicles entering the central London Congestion Charge zone

A specific aim of the transport strategy is to reduce the number of heavy goods vehicles circulating in the central London Congestion Charge zone during the weekday morning peak by 10 per cent by 2026, from 2016 levels. This reflects particular pressures on the road network at this time, and would help to reduce road danger.

Figure 3.19 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 more than 15 per cent reduction in freight vehicles entering the Congestion Charge zone by autumn 2020.

Figure 3.19 Number of freight vehicles entering the Congestion Charge zone relative to 2016, 13-period moving average.



Source: TfL Surface Transport.

3.11 Trends in licensed taxis and private hire vehicles traffic

Licensed taxis

Figure 3.20 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. The total number of licensed taxi drivers declined by 4 per cent to 22,337 in 2019/20, 13 per cent below the high in 2013/14.

Licensed private hire

The number of licensed PHVs in London has increased by 92 per cent since 2008/09, up to 94,712 in 2019/20. The number of licensed PHV drivers increased by 5 per cent in 2019/20, following two years of decline, and has increased by 100 per cent since 2008/09.

Despite the increase in the number of licensed PHVs and drivers in recent years, the number of private hire operators in London is declining. In 2019/20, there were 2,113 operators in London, a decline of 4 per cent on the previous year and a decrease of 33 per cent since 2012/13, indicating consolidation in the industry.

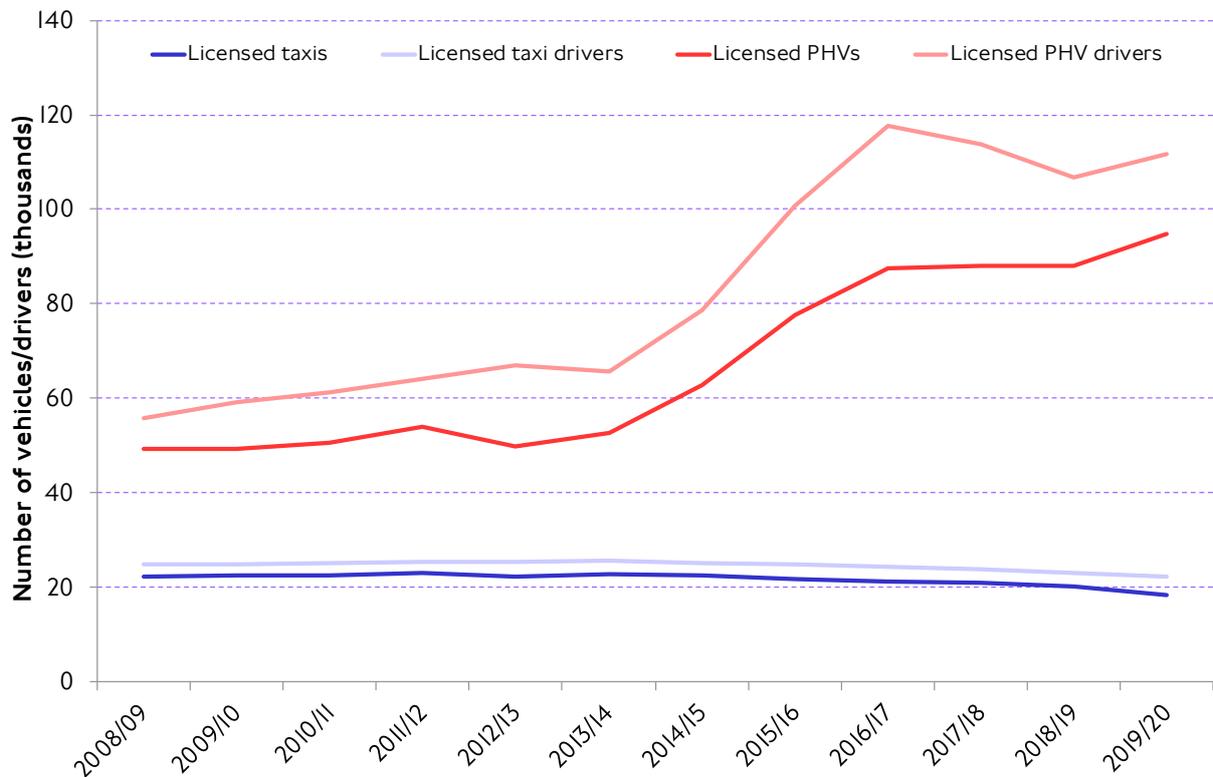
Licensed private hire and traffic flows

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

3. Healthy Streets and active travel

central London, 19 per cent in inner London, and 8 per cent in outer London on an average day.

Figure 3.20 Licensed taxis, private hire vehicles and drivers, 2008/09-2019/20.



Source: TfL Surface Transport.

4. A good public transport experience

4.1 Introduction

The Mayor's aim of providing a good public transport experience includes a variety of aspects such as the extent and quality of the services provided and their safety, accessibility and cost. This chapter reviews selected indicators contributing to this aim. It also includes a review of travel demand trends on the public transport networks until the end of the 2019/20 financial year (March 2020).

The impacts of the coronavirus pandemic on aspects of public transport operations and demand are considered further in chapter 7 of this report, although the early stages of the pandemic during March 2020 are visible in some of the financial year-based indicators in this chapter. This is an important consideration when making comparisons, for example of service supply, with previous years.

4.2 Recent trends in public transport demand

Introduction

Aggregate public transport demand and mode share trends are discussed in chapter 2 of this report. This chapter explores each individual mode in more detail.

Notwithstanding the severe impact of coronavirus on public transport patronage in 2020, the overall picture of public transport demand in recent years was one of a slowing of the rapid growth in demand that had been seen for much of the preceding decade. Public transport patronage in London reached a peak around 2015/16, after which demand growth at best flattened on some rail-based modes and reversed on others, particularly on buses. The reasons for this change of trend are complex and have been explored in previous Travel in London reports.

The earlier part of 2019/20 appeared to show signs of a stabilisation in terms of London Underground and National Rail, with growth rates higher than typical of recent years. The numbers given in chapter 2 of this report reflect trends until the end of the 2019 calendar year, which were unaffected by coronavirus. However, the coronavirus pandemic began to affect demand in the final financial quarter of 2019/20 (especially in March) and this is reflected in most of the figures for the whole of the 2019/20 financial year reported in this section.

Overall trends in public transport demand

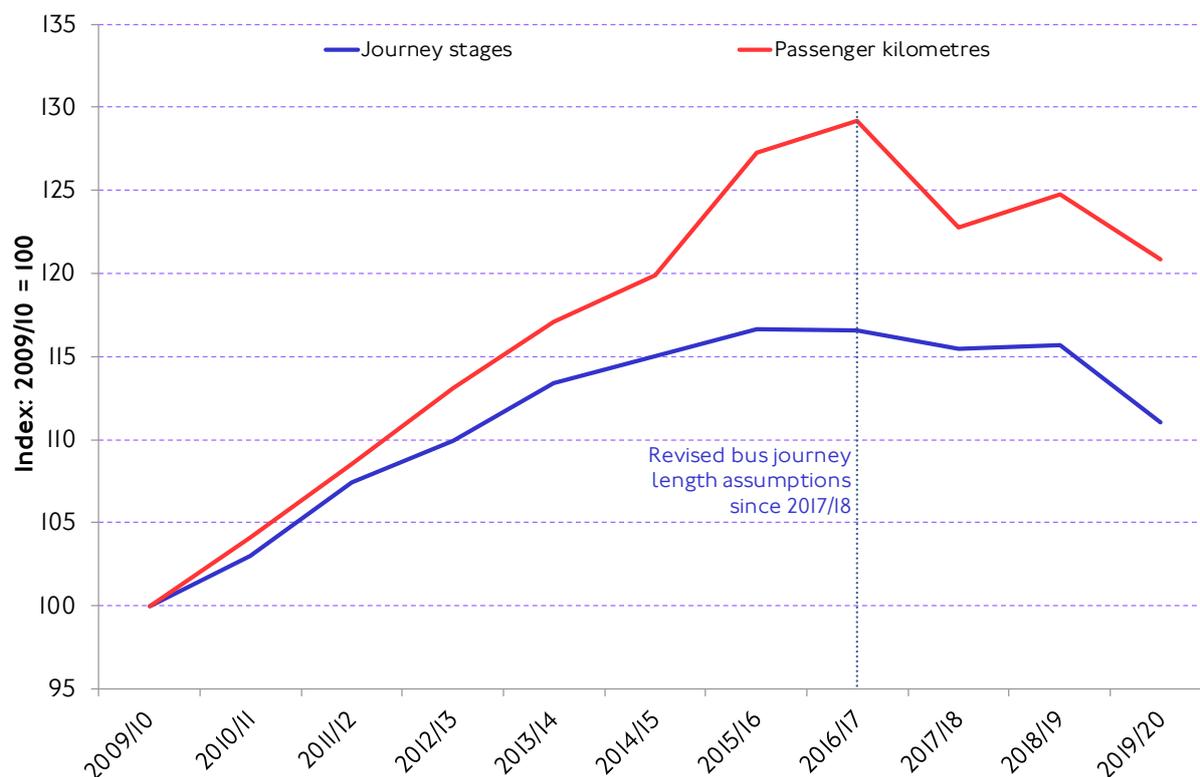
Figure 4.1 shows the relative change in the number of journeys and passenger kilometres on the main TfL public transport modes over the last 10 years, which illustrates some of the trends discussed above.

After a stabilisation in 2018/19, the most recent year (2019/20) saw a fall in demand of around 4 per cent in terms of journey stages and 3.2 per cent in passenger kilometres. While some of this reflects the early impacts of coronavirus, this trend also reflects a continuing decline in bus patronage.

The slight divergence in the relative change of each of these two metrics over recent years (ie passenger kilometres growing faster and declining more slowly than passenger journeys) suggests a small increase in the average length of public transport journeys.

4. A good public transport experience

Figure 4.1 Journeys and passenger kilometres on TfL public transport (excl. National Rail, Emirates Air Line and River Services), 2009/10-2019/20.



Source: TfL Service Performance data.

4.3 Recent trends in public transport service provision and operational performance

The overall picture over the last two decades in terms of **service provision** is one of sustained growth in capacity on all modes, with step changes on some networks as major extensions and upgrades were completed. Only buses and trams have seen slight decreases in the total capacity offered in recent years. In the case of buses, this has happened in the context of a rationalisation of the network to reduce overlaps in service and to redistribute capacity to different areas of London, particularly from central to outer London.

In terms of **operational performance**, all TfL networks have shown excellent reliability for more than a decade and the relevant indicators have largely continued to improve in this period, to the point that further improvements are increasingly difficult due to diminishing returns.

As was the case with the demand trends, the supply-based indicators in this chapter mostly relate to the 2019/20 financial year and are therefore likely to have been impacted by the early stages of the coronavirus pandemic.

4.4 Overall public transport capacity in relation to demand

This section describes the trends in operated capacity on each of the main TfL public transport networks and how these relate to the trends in demand.

Table 4.1 shows that for most of the last decade, all modes saw increases in capacity, expressed in place-kilometres (the number of vehicle kilometres travelled multiplied by the capacity of the vehicles). Only in the last couple of

4. A good public transport experience

years have buses and trams seen a small reduction. The 2.4 per cent reduction in capacity in 2019/20 is largely explained by the suspension of many services during the March lockdown in the early stages of the coronavirus pandemic.

Table 4.1 Capacity (million place-kilometres) provided by the main public transport modes, 2009/10-2019/20.

Year	Bus	London Underground	London Overground	DLR	London Trams	Total
2009/10	29,311	54,921	31	1,824	515	86,602
2010/11	29,175	54,567	1,788	2,104	534	88,168
2011/12	29,804	57,694	3,317	2,371	536	93,722
2012/13	29,626	60,572	3,686	2,980	574	97,439
2013/14	29,605	61,461	4,106	3,061	599	98,832
2014/15	30,057	65,010	4,153	3,083	596	102,899
2015/16	30,386	66,880	7,654	3,029	601	108,550
2016/17	30,903	68,224	7,885	3,065	634	110,711
2017/18	33,602 ¹	68,844	7,906	3,060	653	114,066
2018/19	32,360 ¹	69,310	8,312	3,096	640	113,718
2019/20	31,529 ^{1,2}	67,171	8,587	3,081	632	111,000

Source: TfL Service Performance data.

Note: Values for all rail modes consistently represent capacity using a uniform standing density assumption of 4 people per square metre. They differ from equivalent values published in reports prior to *Travel in London* report II.

1: Since 2017/18 a new methodology to calculate bus capacity has been in use, therefore values are not directly comparable across this break in the series.

2: This value is subject to minor issues with the definition of some bus route capacities but is broadly accurate.

Table 4.2 compares the relative change in aggregate public transport supply with the relative change in demand (in passenger kilometres).

Table 4.2 Demand and supply changes on public transport (excl. TfL Rail, National Rail, Emirates Air Line, and River Services), 2009/10-2019/20.

Year	Index (2009/10 = 100)		Index (2017/18 = 100)	
	Demand	Supply	Demand	Supply
2009/10	100	100	-	-
2010/11	104	102	-	-
2011/12	108	108	-	-
2012/13	113	113	-	-
2013/14	117	114	-	-
2014/15	120	119	-	-
2015/16	124	125	-	-
2016/17	126	128	-	-
2017/18	-	-	100.0	100.0
2018/19	-	-	101.2	99.7
2019/20	-	-	97.6	97.3

Source: TfL Service Performance data.

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Up until 2014/15, public transport demand grew faster than supply. For the next couple of years this trend reversed and supply started growing faster than demand. And while a change in methodology prevents comparisons either side of 2017/18, the most recent data seems to suggest a return to a trend of patronage growth being ahead of service provision. The early impact of the coronavirus pandemic can also be seen in the declines in both supply and demand in 2019/20.

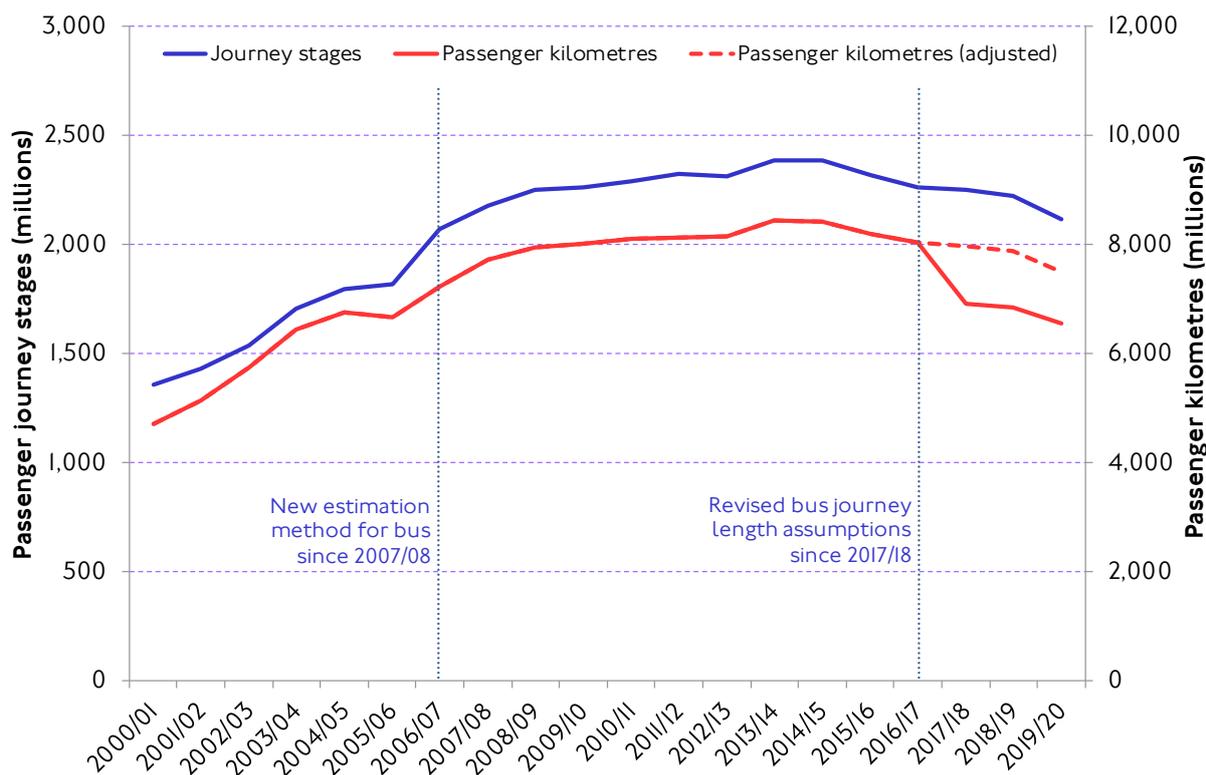
4.5 Buses

Travel demand trends

Figure 4.2 shows the long-term trend in bus patronage over the last two decades. While most of the 2000s were years of significant growth in bus demand, only interrupted by the 2008/09 recession, the early 2010s saw the growth rate slowing down until 2015, when bus patronage started a slow but so far continuous trend of decline. In 2019/20, bus journey stages decreased by almost 5 per cent from the previous year, while passenger kilometres decreased by 4.3 per cent.

Note that the large reduction indicated between 2017/18 and 2018/19 reflects a method change and the dashed line on the graph gives a comparable trend. The coronavirus pandemic was also a factor adversely affecting demand in March 2020.

Figure 4.2 Passenger kilometres and journey stages by bus, 2000/01-2019/20.



Source: TfL Service Performance data.

Note: Methodological changes created a break in the time series for passenger kilometres after 2017/18. To enable like-for-like comparisons across this threshold, an adjusted series (dashed) has been added which uses the old assumptions.

Service provision and operational performance

Table 4.3 shows some key indicators of bus service provision and reliability. In general, 2019/20 showed few changes with respect to the previous year. Scheduled capacity was slightly lower (by 0.6 per cent) and so was the proportion of operated

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capacity, although these metrics may have been affected by the coronavirus pandemic. And while the proportion of scheduled kilometres lost due to operational faults increased slightly (by 0.2 percentage points), those lost to traffic congestion decreased by the same amount. Average speeds remained constant.

Table 4.3 Overall bus service provision and reliability, 2009/10-2019/20.

Year	Scheduled kilometres...				Speed (mph)
	Scheduled kilometres (millions)	...operated	...lost due to congestion ¹	...lost due to other causes ²	
2009/10	497	97.1%	2.3%	0.6%	
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	489	98.1%	1.3%	0.5%	9.3
2019/20	486	97.8%	1.1%	0.7%	9.3

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.

Table 4.4 Bus punctuality and reliability by service type, 2009/10-2019/20.

Year	High-frequency services ¹		Customer journey time (min)	Low-frequency services ¹
	Average wait time (min)	Excess		Timetabled services on time ²
	Actual			
2009/10	5.5	1.1		80.5%
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%

Source: London Buses.

Note: In 2012/13 (high frequency) and 2013/14 (low frequency) there was a methodology change and thus a break in the series.

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.

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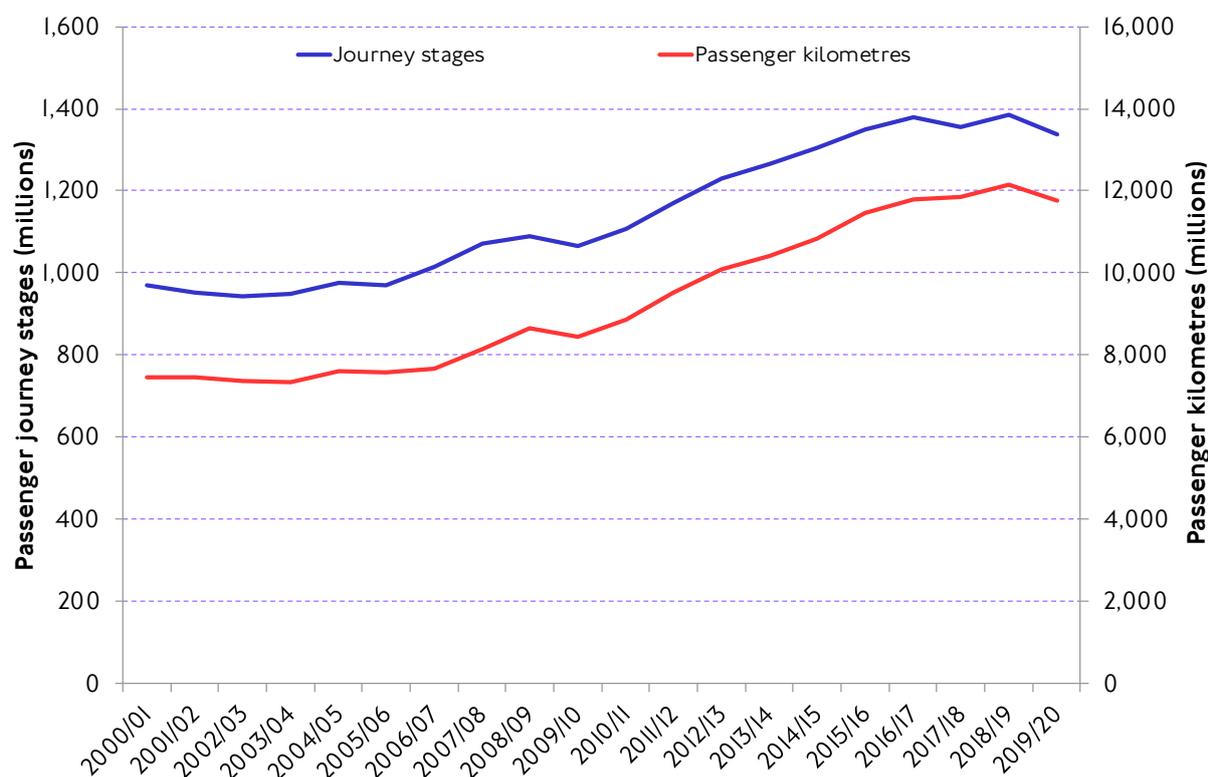
Table 4.4 shows some further reliability indicators for high- and low-frequency bus services specifically. Within a largely static picture, the trend over the last year seems to show a slight improvement in reliability on low-frequency services and a small deterioration on high-frequency routes.

4.6 London Underground

Travel demand trends

Figure 4.3 shows the long-term trend in London Underground patronage over the last two decades. Contrary to the trend for buses, the early 2000s were years of relatively stable demand on London Underground, which were however followed by strong and steady growth in the 10 years between 2005 and 2015, save for the 2008/09 recession. In the years since then, growth of London Underground journeys flattened, although passenger kilometres kept growing (perhaps suggesting a shift to longer journeys). In 2019/20 journey stages decreased by 3.5 per cent from the previous year and passenger kilometres by 3.3 per cent, partly affected by the coronavirus pandemic.

Figure 4.3 Passenger kilometres and journey stages by London Underground, 2000/01-2019/20.



Source: TfL Service Performance data.

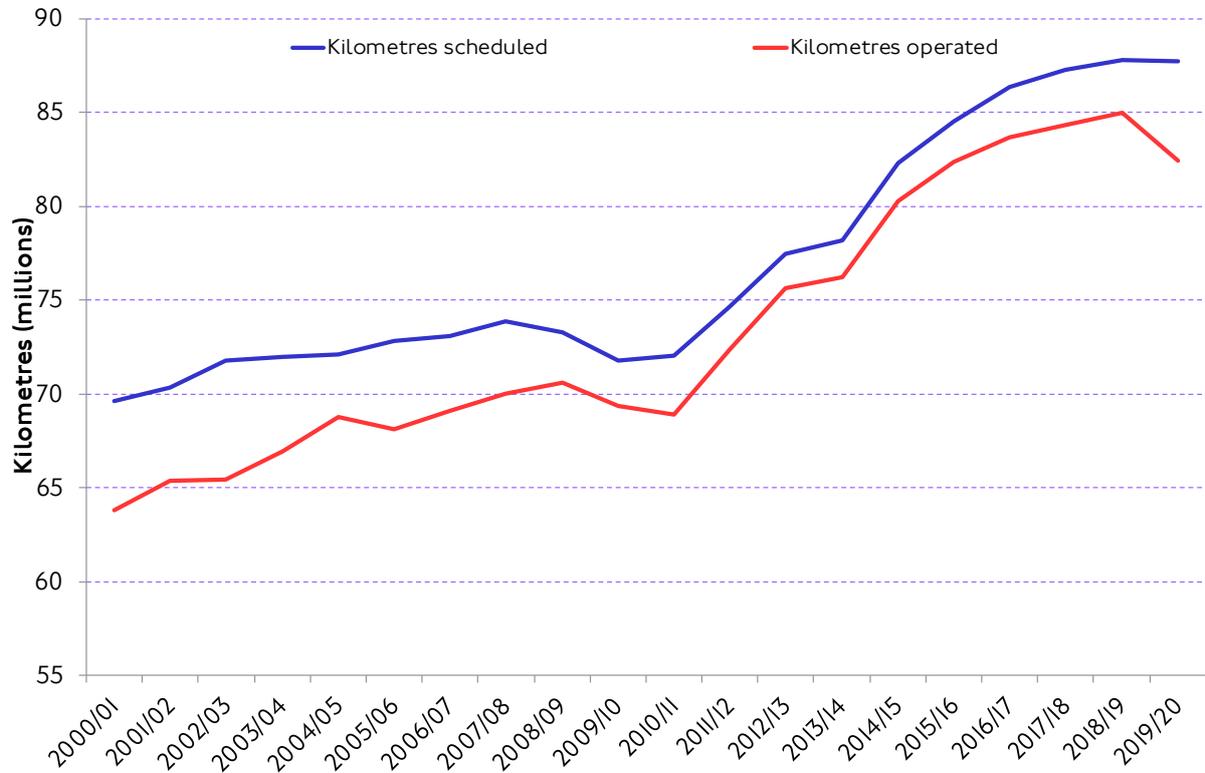
Service provision and operational performance

The trend in capacity on the London Underground since the beginning of the millennium is characterised by two distinct phases, as shown in figure 4.4.

Between 2000 and 2010 capacity increased only modestly, and this growth was briefly interrupted in the years following the 2008/09 recession. However, throughout the 2010s the kilometres scheduled on the London Underground

increased rapidly, reflecting important capacity upgrades in this period. In the last couple of years, however, this growth has plateaued.

Figure 4.4 London Underground train kilometres scheduled and operated, 2000/01-2019/20.



Source: London Underground.

Table 4.5 London Underground service performance, 2009/10-2019/20.

Year	Scheduled kilometres (millions)	Scheduled kilometres operated	Average generalised journey time (min)	Excess journey time ¹ (min)	Share of excess in generalised journey time
2009/10	71.8	96.6%	44.1	6.4	14.5%
2010/11	72.1	95.6%	44.6	6.5	14.6%
2011/12	74.6	97.0%	45.1	5.8	12.9%
2012/13	77.5	97.6%	43.6	5.3	12.1%
2013/14	78.2	97.5%	43.4	5.2	12.0%
2014/15	82.3	97.6%	42.3	4.6	11.0%
2015/16	85.0	97.1%	41.7	4.6	11.0%
2016/17	86.3	96.9%	41.7	4.7	11.0%
2017/18	87.2	96.7%	41.6	4.6	11.2%
2018/19	88.7	95.8%	41.6	4.6	11.0%
2019/20	87.7	94.0%	41.9 ²	5.0 ²	11.8% ²

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.

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These same phases are mirrored in the trend of scheduled kilometres which were actually operated. In the 2000s, the gap between scheduled and operated kilometres narrowed. Over the last few years, however, this gap has widened again. The figure also shows the impact of the coronavirus pandemic on the train kilometres operated in 2019/20, with widespread disruption from mid-March.

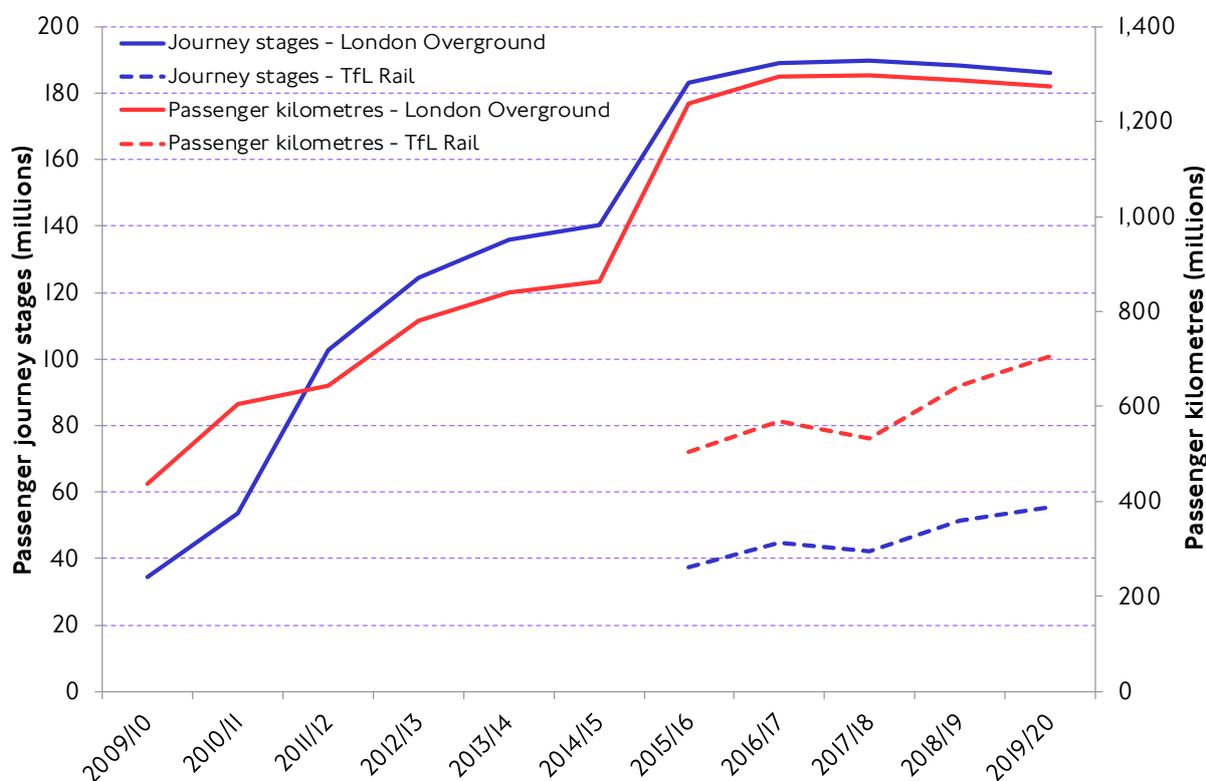
Table 4.5 shows a range of other London Underground performance metrics. In general, in 2019/20 all performance metrics have fallen back slightly, with fewer kilometres scheduled and operated and slightly longer journey times, again probably partly reflecting the disruption from the early stages of the pandemic.

4.7 London Overground and TfL Rail

Travel demand trends: London Overground

Figure 4.5 shows the trends on London Overground and TfL Rail patronage since they started operations. In the first half of the 2010s, London Overground saw rapid growth in patronage, largely in line with the continuous expansion and upgrade of the network as new sections were opening. However, since 2015, demand on this network has stabilised and even shown a slight decline since the high point. In 2019/20, both journeys and passenger kilometres were 1.1 per cent lower than the previous year, which is 2 per cent lower than the high point, although the impact of the early stage of the coronavirus pandemic should be recognised.

Figure 4.5 Passenger kilometres and journey stages by London Overground and TfL Rail, 2009/10–2019/20.



Source: TfL Service Performance data.

Travel demand trends: TfL Rail

On the other hand, TfL Rail has seen almost uninterrupted growth since it began operations in 2015, also mostly due to the expansion of the network. In fact, given the continuous and progressive changes to the extent of this network (the latest being the inclusion of services between Reading and Paddington and the new rolling stock being introduced) it is not possible to establish equivalent year-on-year comparisons.

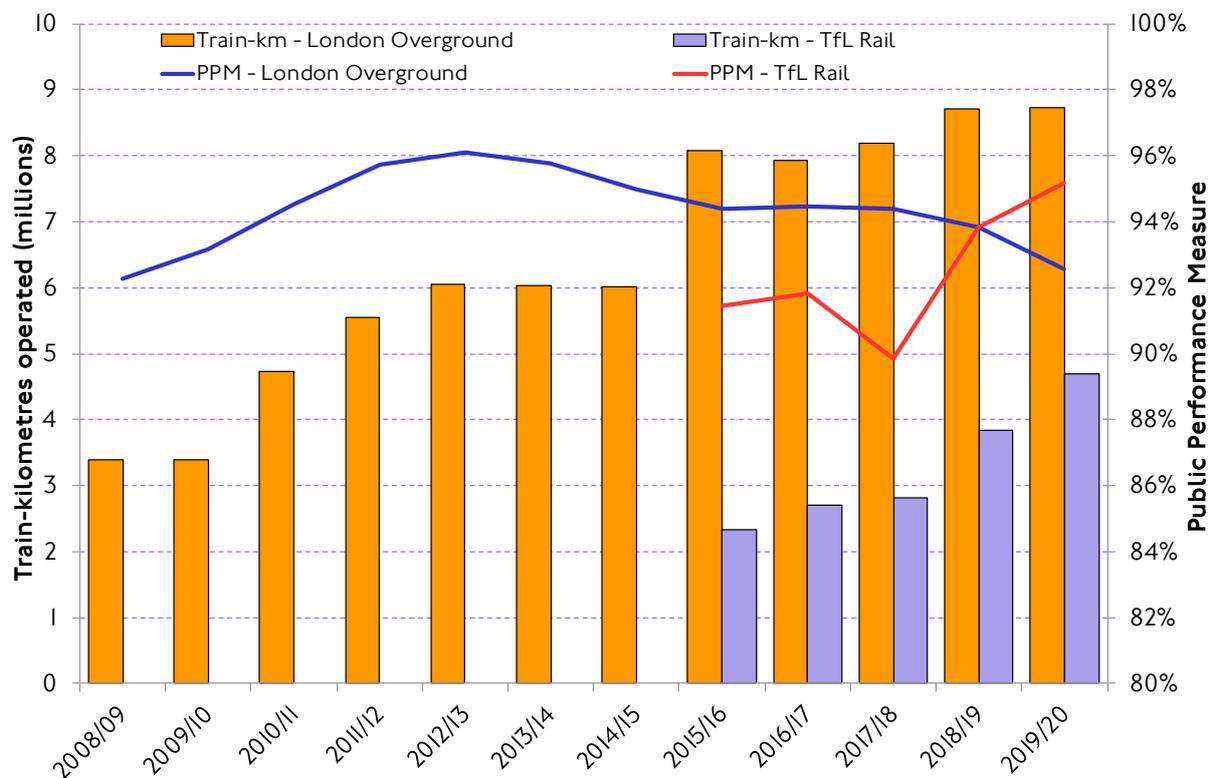
Service provision and operational performance

Figure 4.6 shows service provision (in train kilometres operated) and performance (in terms of the Office of Rail and Road’s Public Performance Measure – PPM) for London Overground and TfL Rail.

While the operated capacity on London Overground in 2019/20 remained unchanged with respect to the previous year, performance in terms of PPM dropped by 1.2 percentage points, which again could be reflective of the early impacts of the coronavirus pandemic in late March 2020.

On the other hand, operated kilometres on TfL Rail in 2019/20 increased with respect to the previous year following a further expansion of the network; and performance went up to more than 95 per cent on the ORR’s PPM measure, surpassing London Overground for the first time.

Figure 4.6 London Overground and TfL Rail service provision and reliability (annual average of the Public Performance Measure), 2008/09-2019/20.



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.

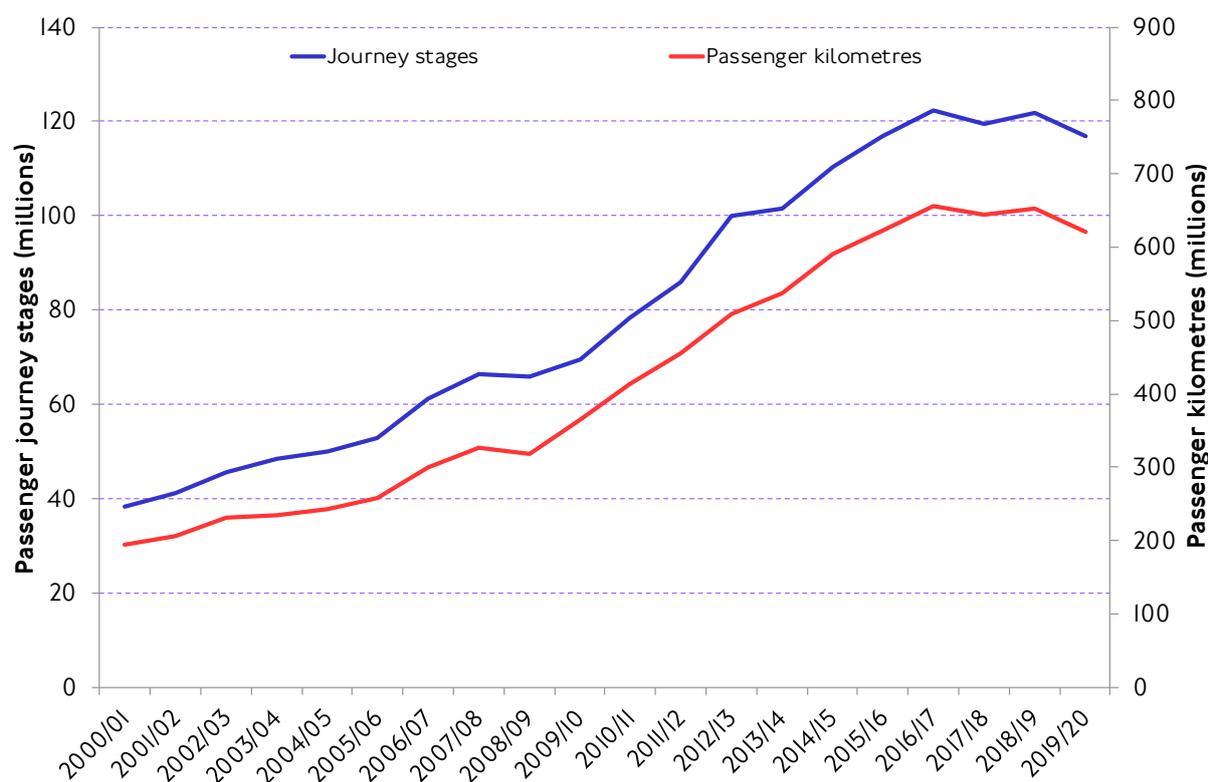
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4.8 Docklands Light Railway (DLR)

Travel demand trends

Figure 4.7 shows the long-term trend in DLR patronage over the last two decades. Since its origins, the trend for demand on the DLR network is one of continuous growth, only interrupted by the 2008/09 recession. Most of this growth was linked to progressive extensions and upgrades to the network, reaching a peak in 2016 and stabilising since, coupled with development in the area served. In 2019/20, however, and probably reflecting the early stage of the coronavirus pandemic, DLR journeys were down by 4.2 per cent with respect to the previous year, while passenger kilometres were 5 per cent lower.

Figure 4.7 Passenger kilometres and journey stages by DLR, 2000/01-2019/20.



Source: TfL Service Performance data.

Service provision and operational performance

Service provision and performance on the DLR network in 2019/20 remained largely unchanged from the previous year, as shown in table 4.6, save for a small increase in excess waiting time, which nonetheless remains under one minute.

The small drop in operated kilometres (by 0.5 per cent) reflects some planned closures requested by third parties for engineering works, some train faults during the winter months and, to a small extent, the impact of coronavirus in the last few days in March.

For the first time in these reports, table 4.6 features the network availability measure, a metric developed to account for planned closures (ie 100 per cent represents the whole DLR network open for the whole of the service hours). 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. The table below shows how in recent years almost the entirety of the network has been open to customers for almost all of the time.

Table 4.6 DLR service provision and reliability, 2009/10-2019/20.

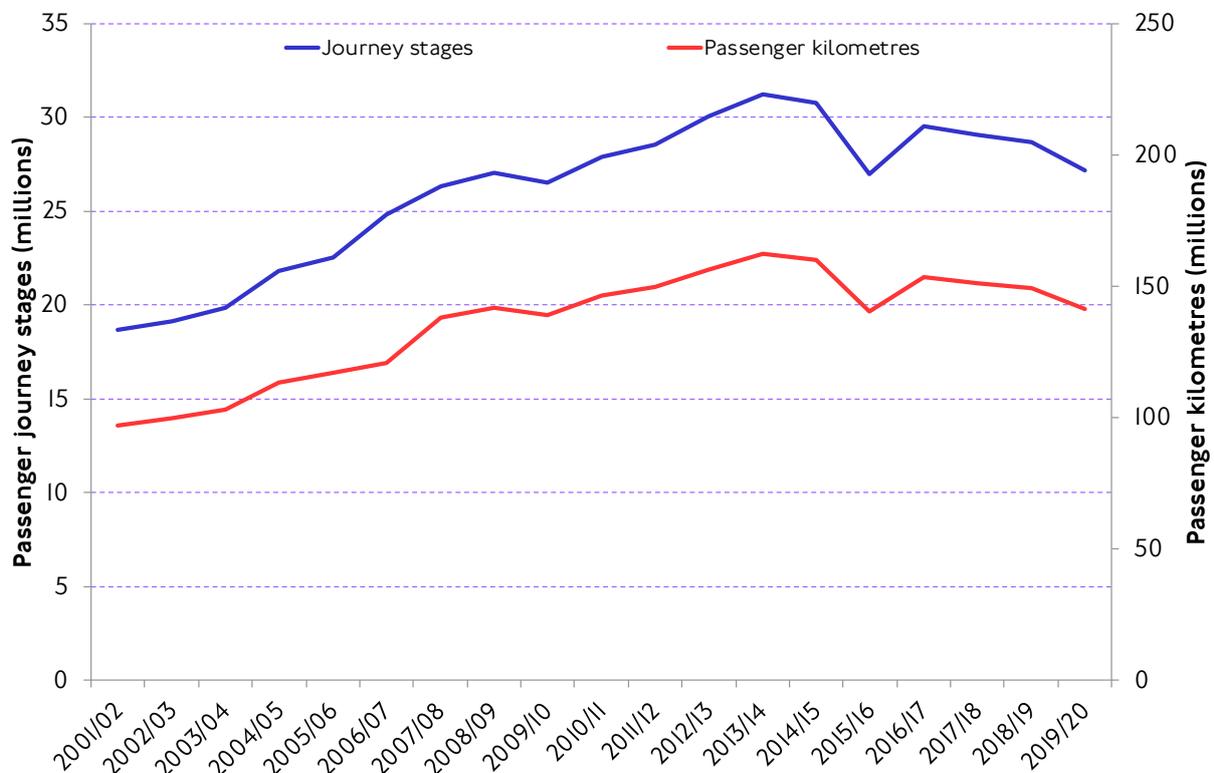
Year	Operated kilometres (millions)	Scheduled services operated	Excess wait time (min)	Network availability measure
2009/10	4.6	97.2%	n/a	n/a
2010/11	4.7	97.5%	n/a	n/a
2011/12	4.9	97.7%	0.23	94.7%
2012/13	5.7	98.5%	0.14	97.8%
2013/14	5.8	99.2%	0.08	98.6%
2014/15	5.8	99.3%	0.07	99.1%
2015/16	5.9	98.5%	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%

Source: Docklands Light Railway.

4.9 London Trams

Travel demand trends

Figure 4.8 Passenger kilometres and journey stages by London Trams, 2001/02-2019/20.



Source: TfL Service Performance data.

Note: Values for 2016/17 were affected by the tragic Sandilands incident.

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For its first 15 years of operation, London Trams saw patronage grow steadily, as shown in figure 4.8, but this has since declined by about 13 per cent since its high point. In 2019/20, demand was down by 5.3 per cent both in terms of journeys and passenger kilometres against the previous year.

Service provision and operational performance

Tram kilometres scheduled on London Trams in 2019/20 were 1 per cent lower than the previous year (table 4.7). Performance remained relatively high with more than 98 per cent of scheduled services operated, but slightly lower than in 2018/19.

Table 4.7 London Trams service provision and reliability, 2009/10-2019/20.

Year	Scheduled kilometres (millions)	Operated kilometres (millions) ¹	Scheduled services operated
2009/10	2.62	2.60	99.2%
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%

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.

4.10 National Rail in London

Travel demand trends

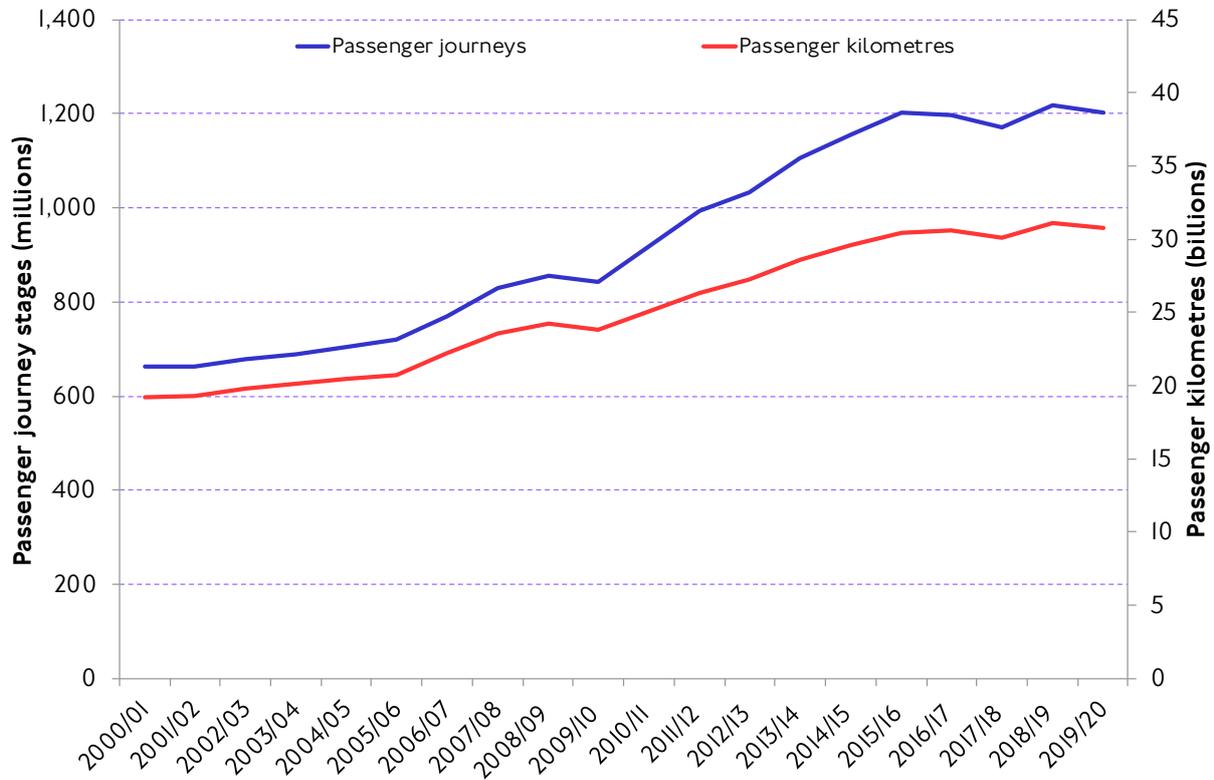
Figure 4.9 shows the trend in National Rail demand in London over the last two decades. This data comes from the Office of Rail and Road (ORR) and represents aggregate demand on operators which ORR classifies as ‘franchised in London and the South East’, and as such includes a certain amount of travel that does not happen within London. This, however, is a good proxy for National Rail demand in the London area, which is critical for a full understanding of travel in London as it acts as a feeder mode onto London’s roads and TfL-operated transport services.

The story of National Rail patronage in London and the South East since the beginning of the millennium is one of almost continuous growth: modest at first in the 2000s, significantly faster over the next 5 years up to 2015, and then entering a period of stagnation over the last 5 years, similar to that seen on other public transport modes, with a further small decline of about 1.3 per cent in journeys and 1.2 per cent in passenger kilometres in the year up to 2019/20.

Figure 4.9 further shows a divergence in the passenger journeys and kilometres trends over the last 10 years, which at an aggregate level can be interpreted as a reduction on the average trip length. This is contrary to the trend observed on

other TfL public transport modes as shown in figure 4.1 above. A possible explanation of this is the devolution of former National Rail services to TfL over this period, notably for new London Overground services which operate more similarly to metros (with mostly all-station services at near turn-up-and-go frequencies) than to suburban rail like other London and South East operators.

Figure 4.9 Passenger kilometres and journeys on National Rail London and South East franchised operators (as defined by ORR), 2000/01-2019/20.



Source: Office of Rail and Road.

Service provision and operational performance

Figure 4.10 shows service provision on National Rail in London. Bearing in mind the difficulty of comparing across years due to changes to the individual franchises, the general trend over the last decade is relatively static but for a few exceptions:

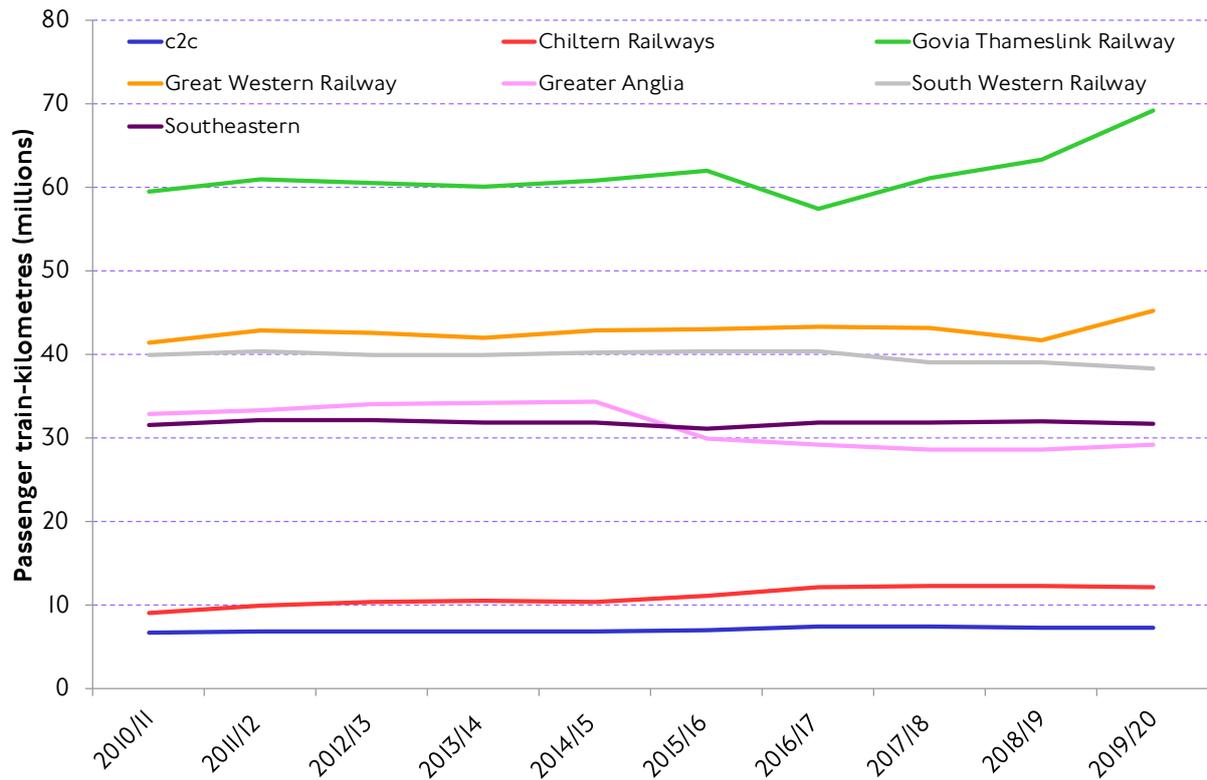
- The capacity increase on Govia Thameslink Railway in recent years (20 per cent since 2016/17), reflecting the progressive delivery of the Thameslink Programme.
- The capacity increase in 2019/20 on Great Western Railway following the introduction of new trains and a new timetable.
- The step reduction in capacity on Greater Anglia in 2015, a consequence of the transfer of some services from Liverpool Street to London Overground.

For those same operators, figure 4.11 shows the trend in performance measured by the Office of Rail and Road's PPM metric.

While the trajectory is different for each operator, the long-term trend is one of general deterioration in service performance. Performance on Govia Thameslink Railway and South Western Railway particularly deteriorated due to problems with the introduction of a new timetable on the former and industrial action and engineering works on the latter.

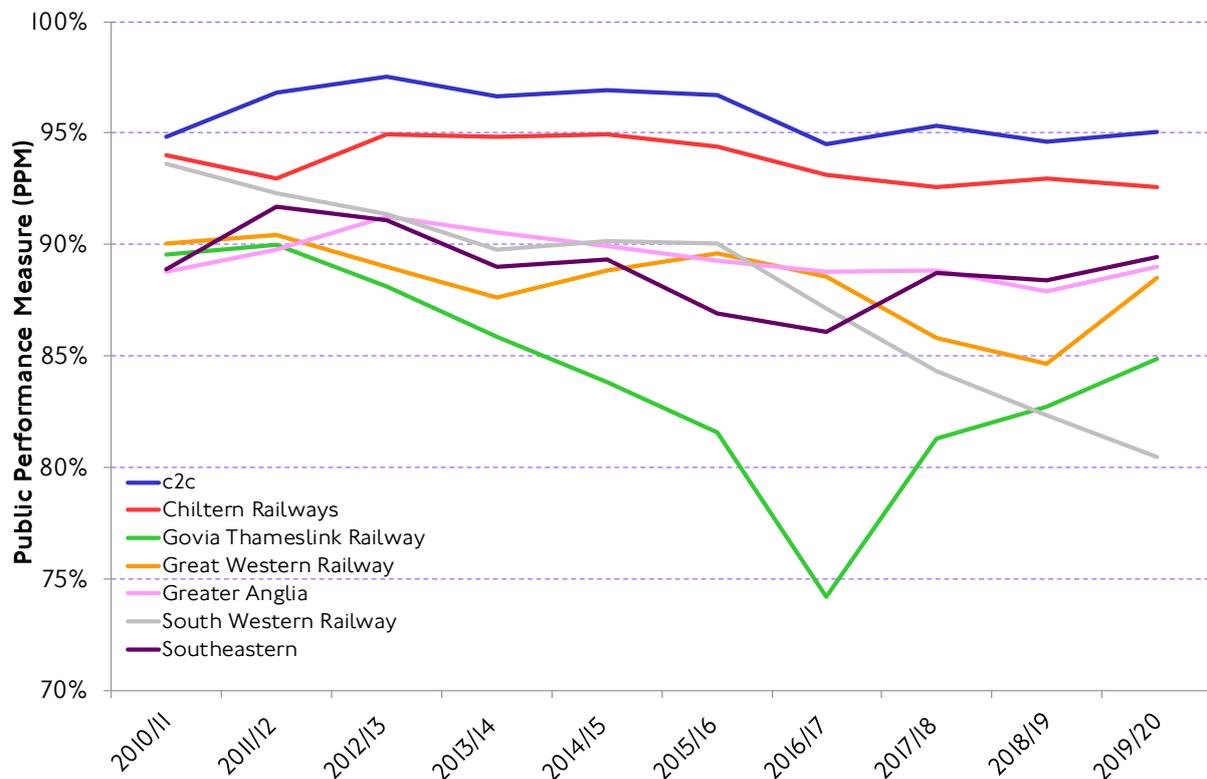
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Figure 4.10 Service provision on franchised London and South East operators, 2010/11-2019/20.



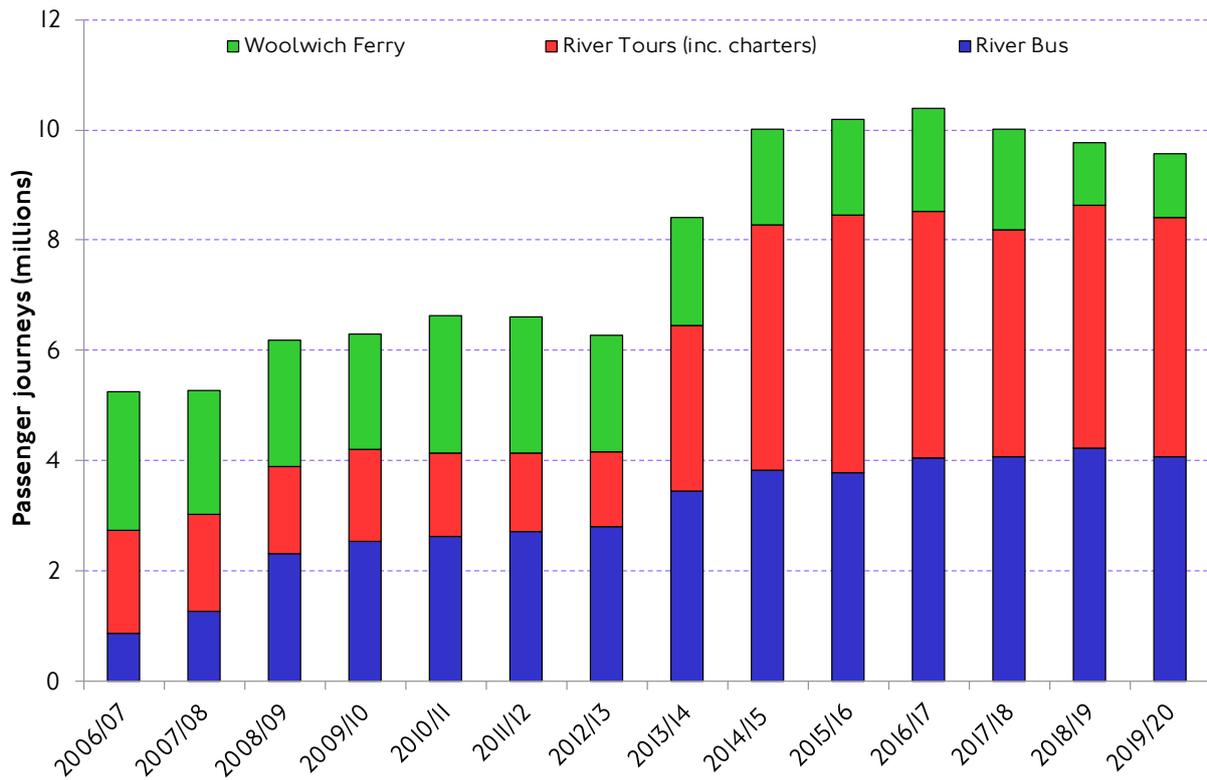
Source: Office of Rail and Road.

Figure 4.11 Performance (annual average of the Public Performance Measure) on franchised London and South East operators, 2010/11-2019/20.



Source: Office of Rail and Road.

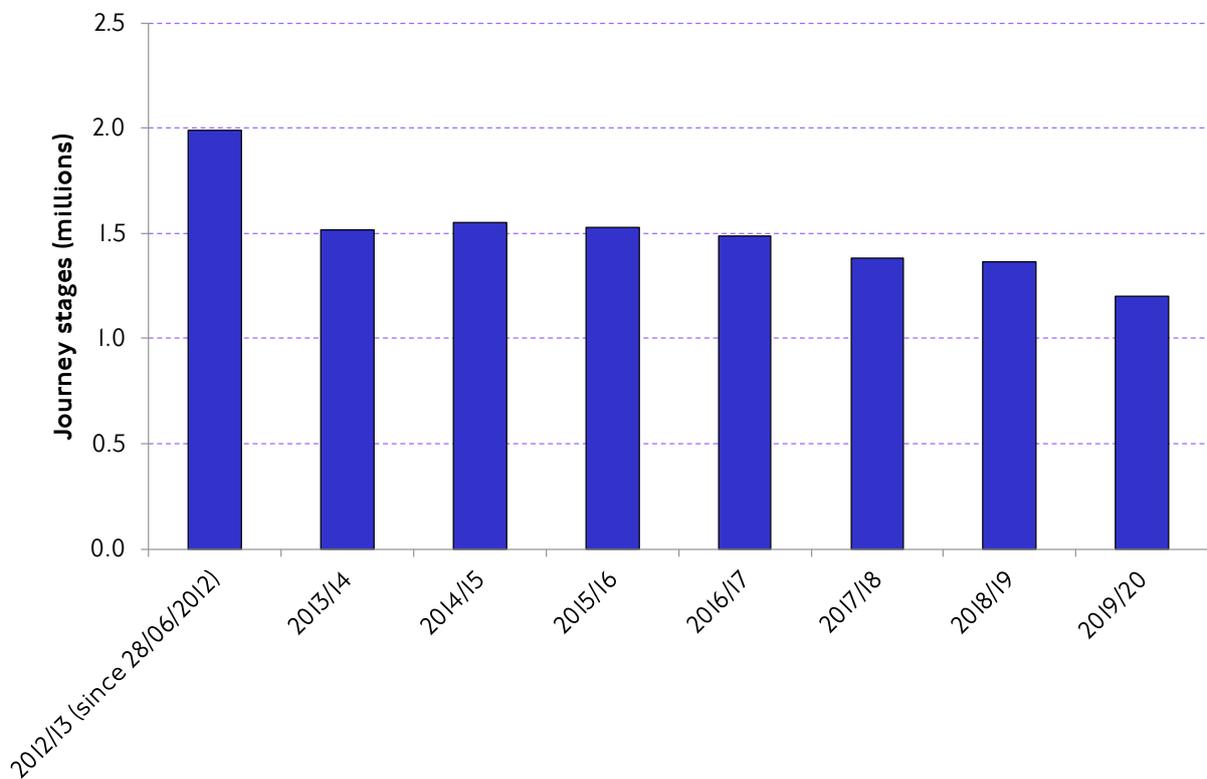
Figure 4.12 Passengers using TfL’s River Services, 2006/07-2019/20.



Source: TfL River Services.

Note: Some River Bus and River Tours figures have been revised and do not match previous Travel in London reports.

Figure 4.13 Annual journey stages on the Emirates Air Line, 2012/13-2019/20.



Source: TfL Service Performance data.

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4.11 London River Services

Figure 4.12 shows annual passenger journeys on London River Services. Over the last few years since 2016/17 total demand has been declining steadily (by 2 per cent in the latest year), with fluctuations on each of the individual types of service. Since 2018/19, however, demand has fallen by 4 per cent on River Bus, by 1 per cent on River Tours, and increased by 2 per cent on the Woolwich Ferry, although again the early stages of the coronavirus pandemic may be a factor in these trends.

4.12 Emirates Air Line

Figure 4.13 shows the annual demand in journey stages on the Emirates Air Line. In the last year, demand on London's only cable car has dropped by 12 per cent to around 1.2 million, continuing the steady decline since its high point in 2012/13, albeit at a faster rate than over the last few years.

4.13 Public transport: customer safety

During 2019/20, 19 customers tragically lost their lives across our public transport networks. There were 9,729 injuries of all severities across our network, which is a decrease of three per cent compared to 2018/19 (table 4.8). This decrease was driven predominantly by a 9.4 per cent decline in bus customer injuries. To an extent, the reduction in passenger journeys caused by the coronavirus lockdown may have contributed to this performance, with 11.4 per cent fewer bus passenger journeys in quarter 4 compared to the same quarter in 2018/19. There was a slight increase in customer injuries on other modes, with the greatest increase on rail modes. However, this is partly associated with measures to increase reporting rates, including a new reporting app and an increased staff presence.

Table 4.8 Customers injured on London's public transport networks.

Year	Number of injuries
2016/17	9,786
2017/18	10,144
2018/19	10,058
2019/20	9,729

Source: TfL Safety, Health and Environment.

Slips, trips and falls

Across all our services, slips, trips and falls are routinely among the top five causes of injury. In 2019/20, they accounted for 76 per cent of London Underground injuries and 51 per cent across all surface transport modes, including buses. The average number of slips, trips and falls was 2.03 per million passenger journeys. London Underground and buses account for most passenger journeys and report between 0.55 and 1.89 slips, trips or falls per million passenger journeys. Some 51 per cent of all injuries on our surface transport modes were a result of slips, trips and falls, with 76 per cent of injuries on London Underground from this cause. The most common reasons for slipping, tripping and falling are intoxication, rushing and carrying luggage. Older customers are also particularly vulnerable to these injuries.

In 2019/20, eight per cent of all slips, trips and falls on buses were attributed to speed or braking. As part of our wider approach to speed management, bus

operators can monitor bus speeds through onboard technology. This is helping to reinforce speed compliance while buses adopt Intelligent Speed Assistance (ISA) technology. Around 16 per cent of the bus fleet has ISA installed, with more units being installed as new buses replace older buses in the fleet.

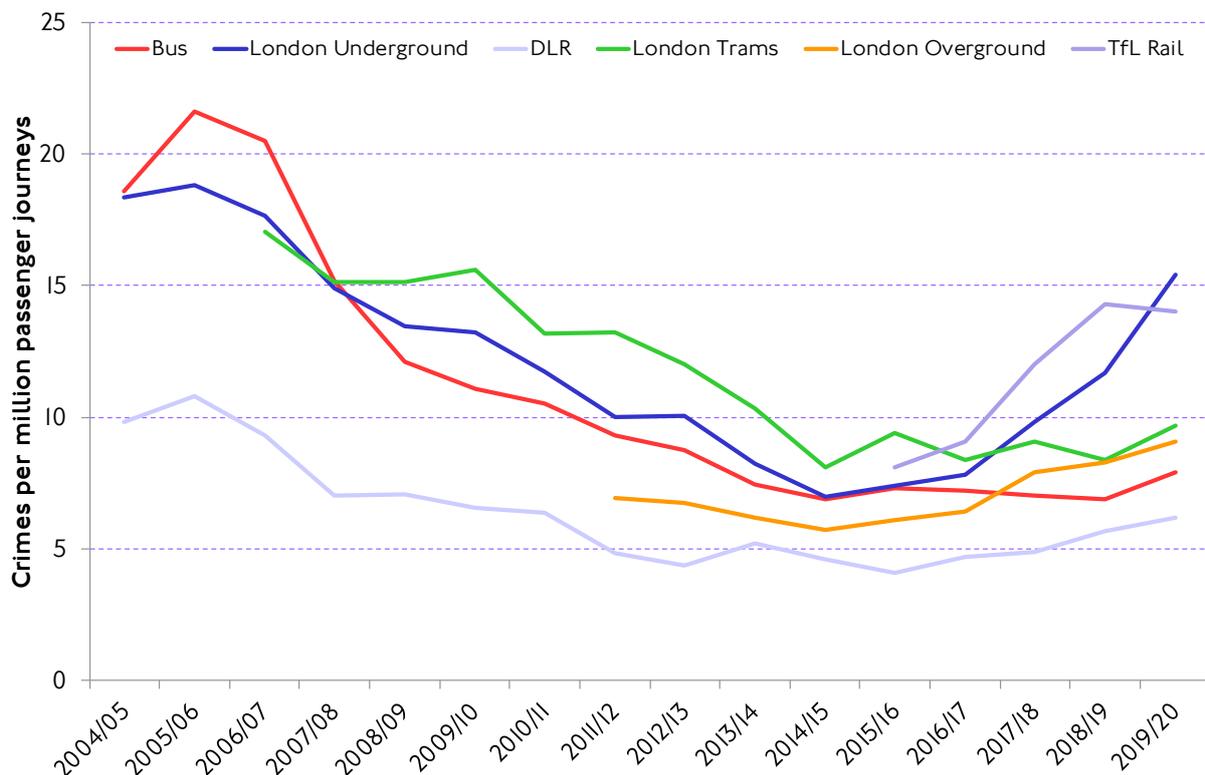
Bus Safety Standard

The Bus Safety Standard is our most important measure in helping reduce both the severity and number of casualties from incidents involving buses. We have 241 buses in the fleet that meet the requirements of the new standard. These vehicles have better mirrors, enhanced anti-slip floors, early warnings of unintended acceleration and an acoustic warning for quiet running vehicles. We have ambitious plans to roll out the standard across London’s bus fleet. The Bus Safety Standard will help us reach our target of nobody being killed on, or by, a bus by 2030, and nobody being killed or seriously injured on our roads by 2041.

4.14 Public transport: 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 in London. However, there has been an upturn in reported crime levels in recent years and reported crimes increased on most modes in 2019/20 (figure 4.14).

Figure 4.14 Reported crime on TfL’s public transport networks, 2004/05-2019/20.



Source: TfL Enforcement and on-street operations.

The increases in crime have largely been driven by increases in theft offences. This rise in reported theft can be in part be explained by the British Transport Police launching online crime reporting in October 2018, which means that crimes that may previously have gone unreported are now being recorded. However, we know

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that our public transport networks are being targeted by thieves and the police are using a range of tactics to deter, detect and disrupt their criminal activity. This includes using plain-clothed and uniformed officer patrols, large-scale operations and investigations as well as promoting crime prevention advice to our customers. The expansion of the TfL Rail network in December 2019 to include services between Paddington and Reading (formerly Great Western Railway) has also contributed to the increase in crime reported. We are committed to reversing the upward trend in crime on our networks and are working closely with the police to ensure that our public transport networks are a safe place to travel and work.

4.15 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 during every interaction with us (eg all journeys, interactions with the Contact Centre, communications such as email updates), not just the last journey.

TfL tracks Care through an online survey, which asks a sample of Londoners every quarter about their opinions of TfL. An ongoing focus on Care will help 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 overall customer experience. These are:

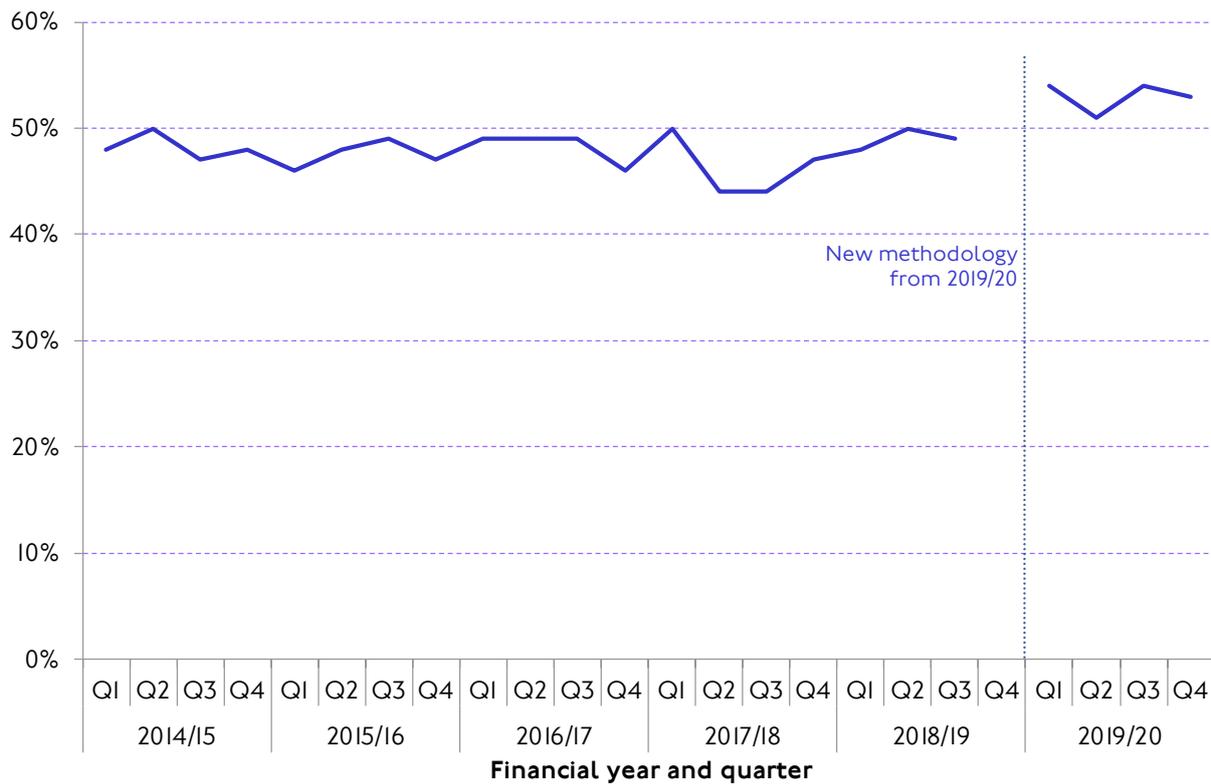
- Supporting customers when things go wrong
- Communicating openly and honestly
- Providing good value for money for fare payers
- Having friendly and helpful staff
- Investing to improve journeys

Supporting customers when things go wrong is the greatest driver of 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 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

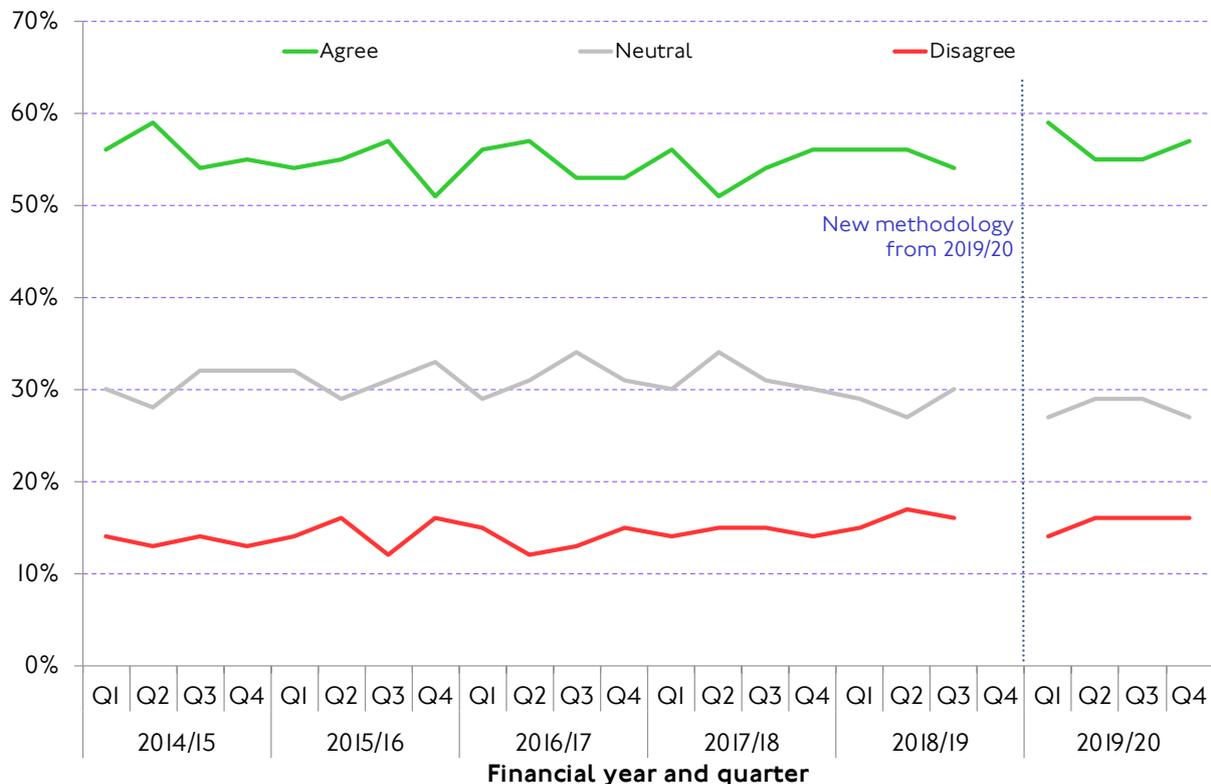
Figure 4.15 shows the recent trend for the Care measure, in terms of the percentage of customers who agree that 'TfL cares about its customers'.

Figure 4.15 Agreement with 'TfL cares about its customers', 2014/15-2019/20.



Source: TfL Customer Insight, Strategy & Experience.
 Note: Q4 2018/19 data not available due to data validity issues.

Figure 4.16 Agreement with 'TfL is making it easier for disabled people to get around', 2014/15-2019/20.



Source: TfL Customer Insight, Strategy & Experience.
 Note: Q4 2018/19 data not available due to data validity issues.

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Historically, the trend showed strong improvement between 2012 and 2014, which is thought to reflect a focus on customer service improvements during the early period (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 generally increased since quarter 2 2017/18. Throughout 2019/20, between 50 and 55 per cent of Londoners agreed that TfL cares about its customers. Following a dip in quarter 2, influenced by service disruption and high temperatures during July, scores increased towards the second half of the year, with annual highs for open and honest communication, value for money and helpful, friendly staff.

Customers with accessibility requirements

Figure 4.16 shows the trend in the percentage of customers who agree that 'TfL is making it easier for disabled people to get around'. The trend has been relatively stable over the last few years, with around 55 per cent agreeing, around 30 per cent who are neutral and around 15 per cent who disagree.

4.16 Impact of physical accessibility on journey times

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. It will also improve the quality of public transport for all travellers.

People with physical mobility needs can be disadvantaged in terms of trip making since not all of the public transport network is fully accessible. Using the more limited step-free network can often result in longer, more time-consuming journeys that in some cases may not be possible on public transport. This can contribute to social and economic disadvantage. 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 so that journey times on the step-free network are closer to those using the whole public transport network (figure 4.17).

In 2019/20, an average journey using only bus and step-free stations was estimated to take 8 minutes longer than the average by the fastest available route, as shown in table 4.9. This is an improvement of 1 minute over the position in 2018/19, and an improvement of 3 minutes over the 2015 baseline value, and in 2019 reflected improvements to step-free access facilities at 24 stations across London, including those on the western extension of the Elizabeth line.

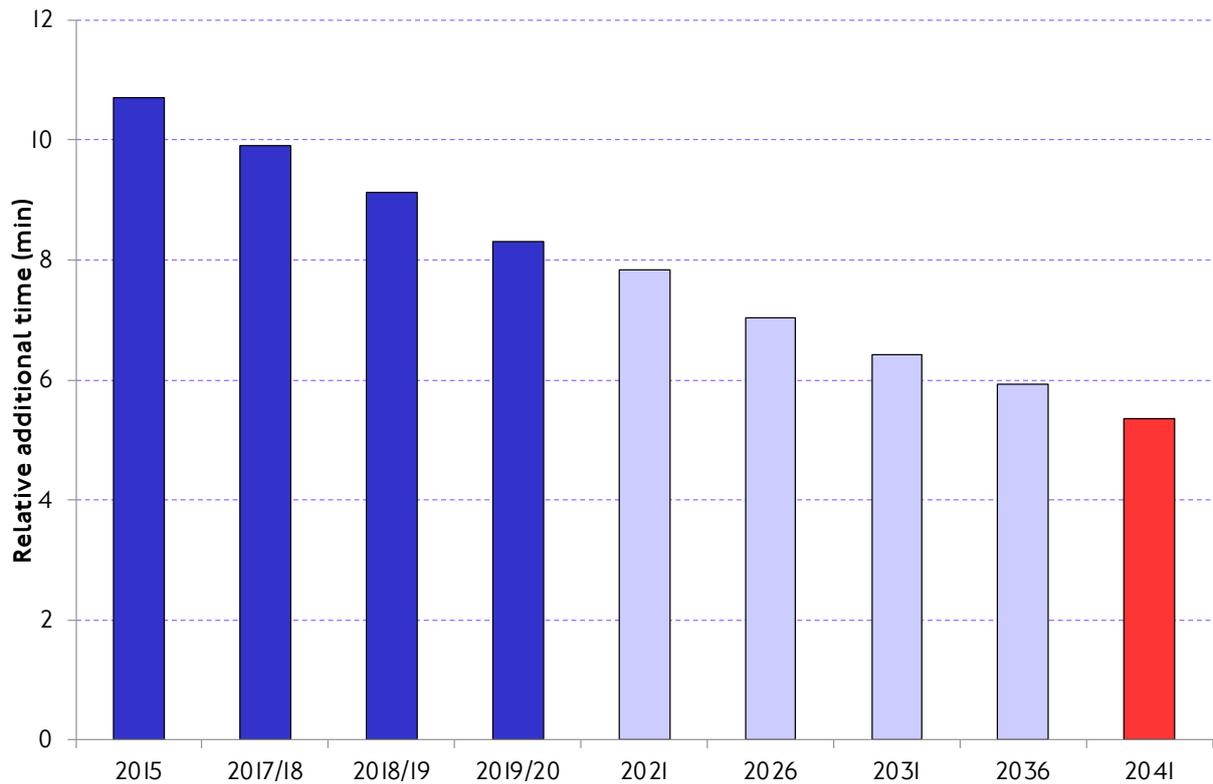
Table 4.9 Average journey time by fastest available route and step-free network only, 2015 and 2019/20.

	2015 (baseline)	2019/20
Average journey time by quickest route (minutes)	77	77
Average journey time using bus and step-free stations only	86	85
Relative additional journey time (minutes)	11	8
Relative additional journey time	14%	11%

Source: TfL City Planning.

Note: Journey times are modelled averages and do not reflect observed or frequently made journeys.

Figure 4.17 Relative additional journey time using the step-free network, 2015 baseline to 2041 MTS target.



Source: TfL City Planning.

4.17 Public transport: fares and affordability

The average fare paid on public transport differs across all modes. Table 4.10 shows the average yield per passenger journey each year, adjusted for inflation. London Underground has the highest yield, at just over £2 per journey. This has increased by 6.9 per cent since 2015/16. In contrast, the lowest yield is on the bus, at 68 pence per passenger journey. This has risen by just 2.4 per cent since 2015/16.

The average yield per passenger journey for all modes was £1.22 in 2019/20, an increase of 2.4 per cent compared with 2018/19 and 6.7 per cent compared with 2015/16.

Table 4.10 Average yield per journey adjusted for inflation, 2015/16-2019/20.

Year	London Underground	Bus	London Overground	TfL Rail	DLR	Tram	Total
2015/16	£1.91	£0.66	£1.15	£1.80	£1.41	£0.84	£1.15
2016/17	£1.93	£0.66	£1.17	£1.74	£1.36	£0.82	£1.15
2017/18	£1.98	£0.65	£1.18	£1.79	£1.41	£0.83	£1.16
2018/19	£2.01	£0.66	£1.23	£1.78	£1.41	£0.82	£1.19
2019/20	£2.04	£0.68	£1.22	£1.95	£1.44	£0.84	£1.22

Source: TfL Finance.

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5. Improving the environment and supporting London's growth

5.1 Improving air quality in London

Introduction

In October 2020 the Mayor released a report, the London Environment Strategy: Air Quality Impact Evaluation^[06], which assessed the changes to London's air quality between 2016 and 2020. It also evaluated the actions taken by the Mayor and TfL which have contributed to these changes. The report reveals widespread improvement to air quality in London and the key role of transport policies, such as the Ultra Low Emission Zone in central London and the introduction of Low Emission Bus Zones, in reducing emissions from transport and improving air quality.

Improving air quality in London: summary of progress since 2016

Since 2016, there have been dramatic improvements in London's air quality, especially for nitrogen dioxide (NO₂). However, parts of the city still exceed legal limits for NO₂ and the majority of the city still exceeds the World Health Organization (WHO) guideline limit for fine particulate matter (PM_{2.5}). These pollutants have documented long-term health as well as economic impacts which fall unequally on those least likely to contribute to the problem.

- In London in 2016 two million Londoners, including 400,000 children, lived in areas that exceeded legal limits of air pollution, with thousands of Londoners dying prematurely because of exposure to air pollution every year. In 2019, this had reduced to 119,000 people – **a reduction of 94 per cent**.
- Between 2016 and 2019 the reduction in annual average nitrogen dioxide at roadside sites in central London was **five times the national average** reduction. This suggests that the most significant improvements in London have been driven by local, as opposed to national, policy.
- 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**.
- In 2016 monitoring sites in London recorded over 4,000 hours above the short-term legal limit for NO₂. In 2019 this reduced to just over 100, **a reduction of 97 per cent**.
- In 2016 the whole of London exceeded the World Health Organization (WHO) guideline limit for PM_{2.5}. In 2019, for the first time, areas in outer London were within the limit. However, there is work still to be done. Some 99 per cent of Londoners still live in areas exceeding the WHO PM_{2.5} limit.

The following sections review the latest assessment of some of the key transport-related air quality policies in London, considering the period up to the winter of 2019/20. Short-term trends in air quality during the 2020 pandemic, which occurred in the context of these changes, are considered in section 8.2 of this report.

Impact of the Ultra Low Emission Zone in central London

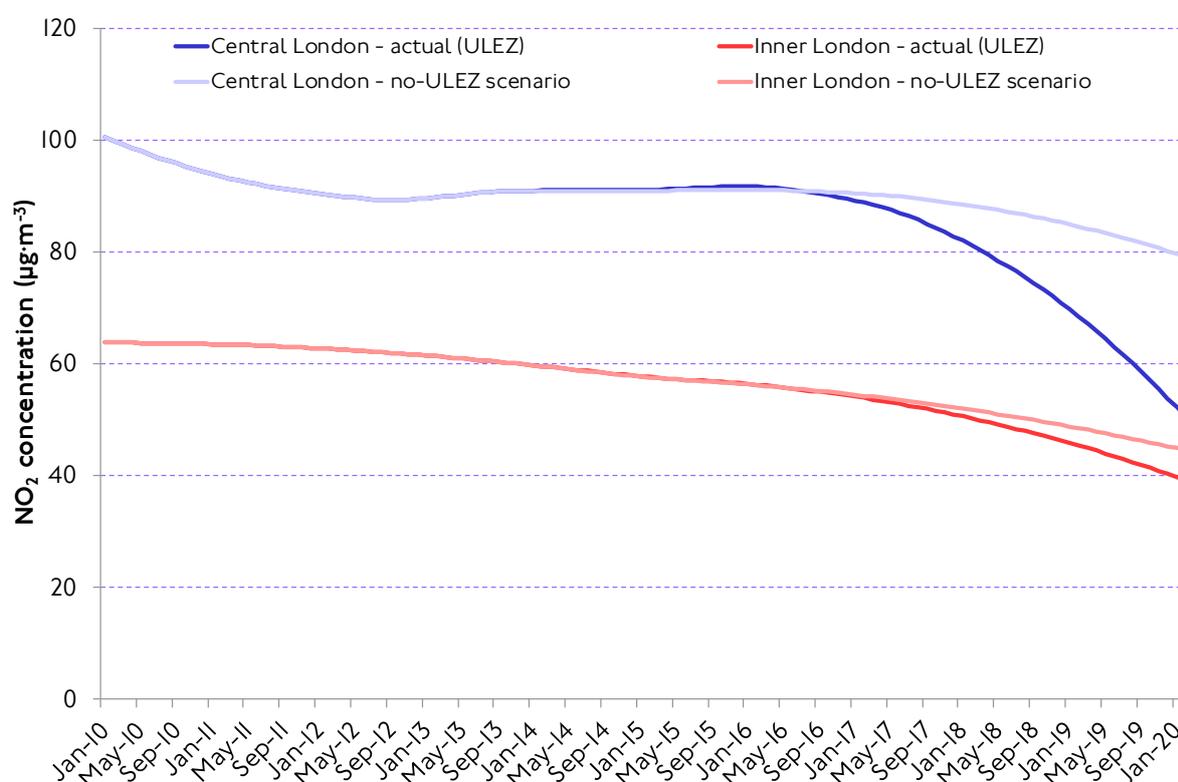
On 8 April 2019 the Mayor of London launched the world's first Ultra Low Emission Zone (ULEZ) in central London. Initial findings about the impacts of this scheme were reported in Travel in London report I2. This section summarises and updates impacts after ten months of operation – to January/February 2020.

In February 2017 the Mayor confirmed the introduction of the T-Charge as a stepping stone for the ULEZ, and this can be seen as the start of the accelerated change in the vehicle fleet as Londoners and businesses prepared for the new schemes and buses on routes in central London began to be upgraded to become ULEZ compliant.

Figure 5.1 shows the trend in nitrogen dioxide (NO₂) at roadside sites in central and inner London. The graph shows actual averaged measurements (red and blue lines) as well as the long-term or 'background' trend, projected as if there was no ULEZ (lighter lines).

Trend analysis shows that in February 2020 concentrations of NO₂ at roadside sites in the central zone were on average 39µgm⁻³ less than in February 2017, a reduction of 44 per cent. Analysis to determine the directly attributable impact of the ULEZ shows that in the first two months of 2020 NO₂ concentrations at roadside locations in central London were on average 29µgm⁻³ lower than they would have been without the scheme, equating to a reduction of 37 per cent.

Figure 5.1 Average monthly NO₂ concentration at available roadside monitoring sites with/without ULEZ, central and inner London, 2010-2020.



Source: TfL City Planning, based on London Air Quality Network.

Preliminary estimates indicate that by the end of 2019 the ULEZ had reduced NO_x emissions from road transport in the central zone by 230 tonnes, a reduction of 35 per cent.

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After the first ten months of operation the average compliance rate with the ULEZ standards was 79 per cent in a 24-hour period. This compares to just 39 per cent in February 2017 and 61 per cent in March 2019, the month before the ULEZ was introduced.

The ULEZ is also helping to tackle the climate emergency. Preliminary estimates indicate that by the end of 2019 the ULEZ had reduced CO₂ emissions from road transport in the central zone by 12,300 tonnes, a reduction of 6 per cent.

London's Low Emission Bus Zones

In August 2016 the Mayor of London announced London's first Low Emission Bus Zone (LEBZ) programme. A total of twelve Low Emission Bus Zones are now in operation across London. LEBZs are bus corridors that are only used by buses with top-of-the-range engines and exhaust systems that meet or exceed the highest Euro VI emission standards. The zones have been prioritised in the worst air quality hotspots outside central London where buses contribute significantly to road transport emissions.

Since April 2019 all TfL buses operating in the central London ULEZ meet or exceed the Euro VI standard. In October 2020, all of London's buses will either meet or exceed the Euro VI standard, meaning the whole of London will be a Low Emission Bus Zone.

Between 2016 and 2019, every air quality monitoring site located on a LEBZ road recorded a reduction in annual average NO₂. The largest reduction (56µgm⁻³) was recorded at Putney High Street. On average, annual mean NO₂ concentrations reduced by 23µgm⁻³, a reduction of 28 per cent in four years (table 5.1).

Table 5.1 Reductions in annual average NO₂ concentrations at air quality monitoring sites located in Low Emission Bus Zones, 2016-2019.

Route	Monitoring site	2016 (µgm ⁻³)	2019 (µgm ⁻³)	Reduction (µgm ⁻³)	Reduction (share)
Putney High Street	Putney High Street	125	69	56	45%
Putney High Street	Putney High Street (façade)	98	49	49	50%
Brixton to Streatham	Lambeth Brixton Road	118	651	53	45%
Camberwell to New Cross	Lewisham New Cross	46	38	8	17%
Wandsworth to St. John's Hill	Wandsworth Lavender Hill	432	373	6	14%
Lewisham to Catford	Lewisham Catford	432	37	6	14%
Edmonton to Seven Sisters	Haringey Town Hall	43	37	6	14%
Stratford	Newham Cam Road	42	27	15	36%
Chiswick High Road to Kensington	Hounslow Chiswick	50	42	8	16%
Uxbridge Road to Shepherds Bush	Hammersmith & Fulham Shepherd's Bush	79	58	21	27%

Source: TfL City Planning, based on London Air Quality Network.

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Buses are only one part of the traffic and other activities contributing to local pollution concentrations. Therefore, the proportionate reductions in pollution concentrations as a result of the introduction of a LEBZ will vary by location. The reductions reported may also capture the benefits of other air quality policies, such as the ULEZ in central London itself. Nevertheless, these are substantial reductions that occurred in direct conjunction with the introduction of Low Emission Bus Zones.

All monitoring sites located on a LEBZ met the legal hourly limit for NO₂ in 2019. The largest reduction was again at Putney High Street, where the number of exceedances reduced from 1,272 in 2016 to 11 in 2019, a reduction of 99 per cent. On average there was a 97 per cent reduction in the number of hourly exceedances at monitoring sites in LEBZ from 2016 to 2019.

While there were improvements at every site, there is still more action required to reduce concentrations at some locations. Five of these sites still exceeded the annual mean limit for NO₂ in 2019.

5.2 Reducing the impact of transport on the environment

Our plans to reduce our carbon dioxide (CO₂) emissions include bus electrification, energy efficiency measures (such as LED lighting), and generating our own renewable energy (such as introducing solar panels). The planned further expansion of the ULEZ scheme to the North and South Circular by October 2021 will help reduce London-wide CO₂ emissions, as will further investment in intensifying and extending public transport capacity and connectivity.

Zero-carbon city

The Mayor's Transport Strategy sets a target for London to be a zero-carbon city by 2050 and the Mayor has recently announced his ambition to bring this date forward to 2030. Transport contributes to 26 per cent of the Capital's greenhouse gas emissions.

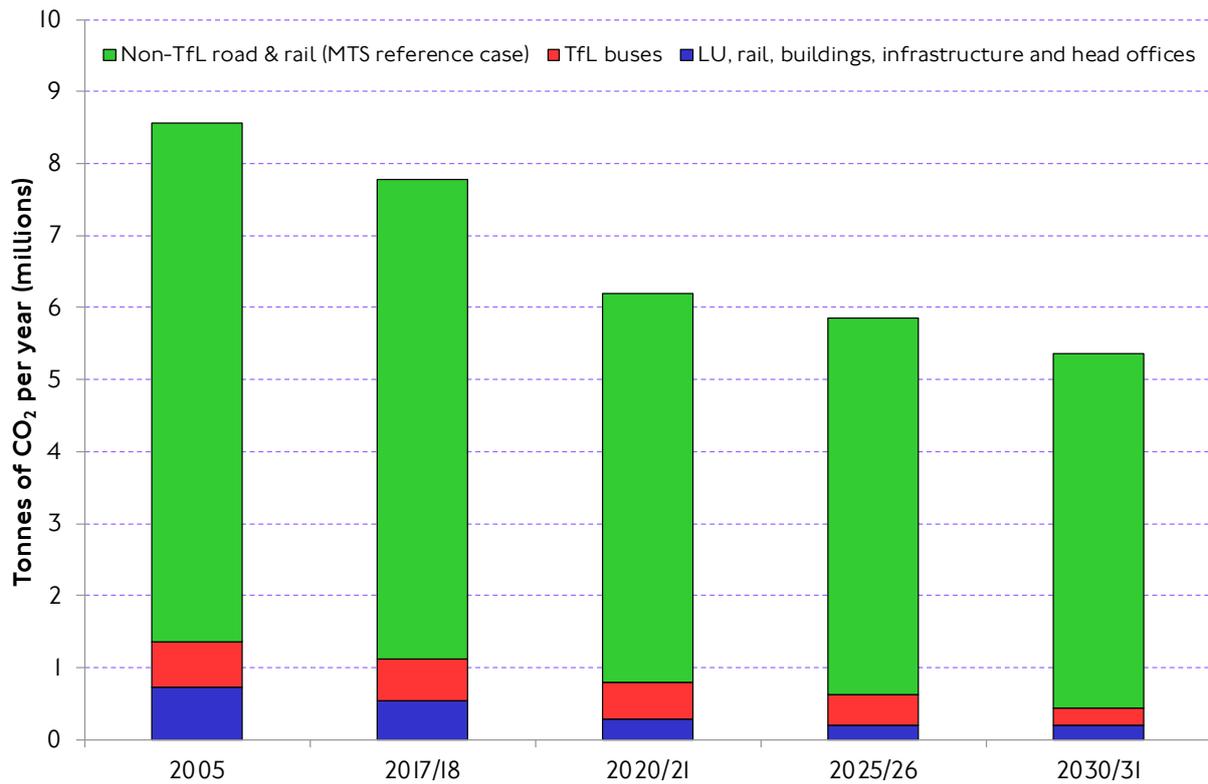
Of primary importance to achieving this reduction is a reduction in the need to travel and a shift to low- and zero-emission transport (walking, cycling and public transport) for a significant additional proportion of journeys. This will also continue to improve air quality. Land-use and transport planning policy will enable denser, good-quality mixed-use development with more compact catchments conducive to shorter trip lengths, and travel by active, sustainable and efficient modes. Walking, cycling and public transport will need to become the preferred and primary choice for more journeys.

Other important components of this strategy include:

- Creating the conditions and incentives to switch the private and commercial vehicle fleets to zero tailpipe emissions (electric and hydrogen power) powered from renewable energy sources. This includes the vehicle charging infrastructure and overcoming the barriers to greater and accelerated uptake.
- Cleaning up TfL's own operations – rail, bus, operational fleet and buildings – leading by example, sharing expertise, and encouraging nascent markets and technologies.

Figure 5.2 shows the expected trajectory – given our current plan – for CO₂ emissions related to transport in London.

Figure 5.2 CO₂ emissions from transport in London, 2005 baseline to 2030/31.



Source: TfL Safety, Health and Environment.

Note: Forecasts use grid averages. Future actual attributable emissions will reflect TfL's ongoing energy procurement.

Low- and zero-emission vehicles

- Zero-emission vehicles:** Over 38,600 ultra low-emission vehicles (ULEVs) were licensed within London in 2019. This is a 266 per cent increase since 2016, and reflects growing consumer confidence, greater choice of vehicles and improving technology. Currently over 70 per cent of all licensed ULEVs within London are privately registered, compared to company-registered, which is far higher than the national average of 50 per cent.
- Zero-emission taxis and PHVs:** From 1 January 2018, all newly licensed taxis had to be Zero Emission Capable (ZEC), which has resulted in higher numbers of ZEC taxis in the fleet, further supported by an enhanced taxi delicensing scheme and ZEC taxi grants. As of the end of March 2020, 3,320 ZEC taxis were licenced in London. However, uptake of ZEC taxis did not increase as initially expected and, as a result, NO_x reduction targets for taxis were not expected to be met. We have therefore taken further steps to reduce air pollution emissions from London's taxis. Following consultation in 2019 we agreed a phased reduction in taxi age limits – mandating the maximum taxi age limit and a phased reduction of the taxi age limit to 12 years. The maximum age limit for Euro VI diesel taxis and ZEC taxis, as well as those newly converted to LPG, remains at 15 years.
- Zero-emission buses:** The transport strategy envisaged that a fully zero-emission bus fleet should be in place by 2037, to help further improve air quality and tackle climate change. We have developed a strategy that considers our commercial model alongside the economics of bus operations and electric buses. This has supported plans to upgrade the power infrastructure across

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76 garages, new contractual mechanisms to manage limited battery range and for electric route tendering to 'flex' while we have a limited supply of electric ready garages. Further work is needed to develop an opportunity charging network at bus stands and stations during the day to provide additional battery range. These contingencies will be critical if we are required to deliver a faster expansion of the operational zero-emission bus fleet.

- **Zero-carbon rail services:** We are developing the ambition for TfL's rail services to be zero carbon by 2030, both through energy efficiency, on-site generation and procurement of renewable energy. We have mapped the potential for solar generation on our rooftops and undertaken assessments of potential land holdings for generation. We have also conducted early market engagement to better understand potential opportunities for connecting TfL's assets to local sources of low carbon electricity. We are working with the GLA to explore opportunities for procurement of low carbon energy through Power Purchase Agreements (PPAs) and aim to launch a tender for up to 10 per cent of our energy use through a PPA in early 2021.

Infrastructure to support the switch to electric vehicles

A key aspect of the transition to zero emissions is to ensure there is enough charging infrastructure for private vehicles. The Mayor's Electric Vehicle Infrastructure Taskforce investigated the scale of infrastructure required to accommodate the switch to electric vehicles in London up to 2025, and how to tackle the barriers to implementing it. In June 2019, the Mayor launched the London Electric Vehicle Infrastructure Delivery Plan^[07], setting out the Capital's infrastructure needs and methods to unlock barriers to expanding charging infrastructure. This will support zero emission-capable taxis and the wider take-up of electric vehicles.

In June 2020, London had 28 per cent of total charging devices in the UK and 14 per cent of the rapid charging devices in the UK. In June 2020 there were over 5,114 public charging point devices in London, of which over 442 are rapid charging points (defined at 43kW or above). Some 249 of those were delivered with support from TfL, and this number will increase to 300 by the end of 2020.

5.3 Electrifying London's vehicle fleet: focus on rapid chargers

This section explores emerging data relating to aspects of the usage of rapid charging points in London, to help inform future infrastructure delivery.

Electric Vehicle Infrastructure Delivery Plan

The delivery plan included modelled projections for the infrastructure that would be needed in London to 2025, from both the public and private sector, considering the following types of charging points:

- **Rapid chargers** (power output of at least 43kW AC / 50kW DC), typically able to fully recharge a vehicle within 30 minutes to 1 hour;
- **Fast chargers** (7kW to 22kW), typically recharging within 2 to 6 hours; and
- **Slow chargers** (3kW to 6kW), typically recharging within 6 to 12 hours.

Key findings showed that by 2020, the Capital would need 200 to 400 rapid charging points and 3,400 to 4,700 slow or fast charging points. By 2025, this could rise to between 2,300 to 4,100 rapid charging points and 33,700 to 47,500 slow or

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fast charging points. TfL committed to installing 300 rapid charging points by the end of 2020, using funding from the Office for Low Emission Vehicles (OLEV).

Another OLEV-funded programme, the Go Ultra Low City Scheme (GULCS) managed by TfL, the GLA and London Councils has provided funding to deliver a mix of rapid, fast and slow on-street residential charging points.

The latest data shows that London has already exceeded the levels of infrastructure that the delivery plan projected would be needed by the end of 2020, with over 5,500 charging points installed, including 450 rapid charging points.

These figures include those rapid charging points delivered by TfL and the London boroughs through GULCS, including (as of September 2020):

- 260 rapid charging points delivered by TfL, of which 73 are dedicated to taxi-only use. Despite the disruption to works caused by the pandemic, TfL is still on track to deliver 300 rapid charging points by the end of the year;
- 1,888 on-street residential charging points delivered across 23 boroughs by GULCS. The scheme aims to deliver more than 1,000 additional on-street residential charging points, two community charging hubs and 13 rapid charging points through the London boroughs by April 2021.

The following graphs illustrate aspects of charging utilisation data between January and September 2020, collated from ChargeMaster and ESB, who operate most of the rapid charging points delivered by TfL so far. Although not the primary focus of this section, the analysis period includes the impacts of the coronavirus pandemic during 2020.

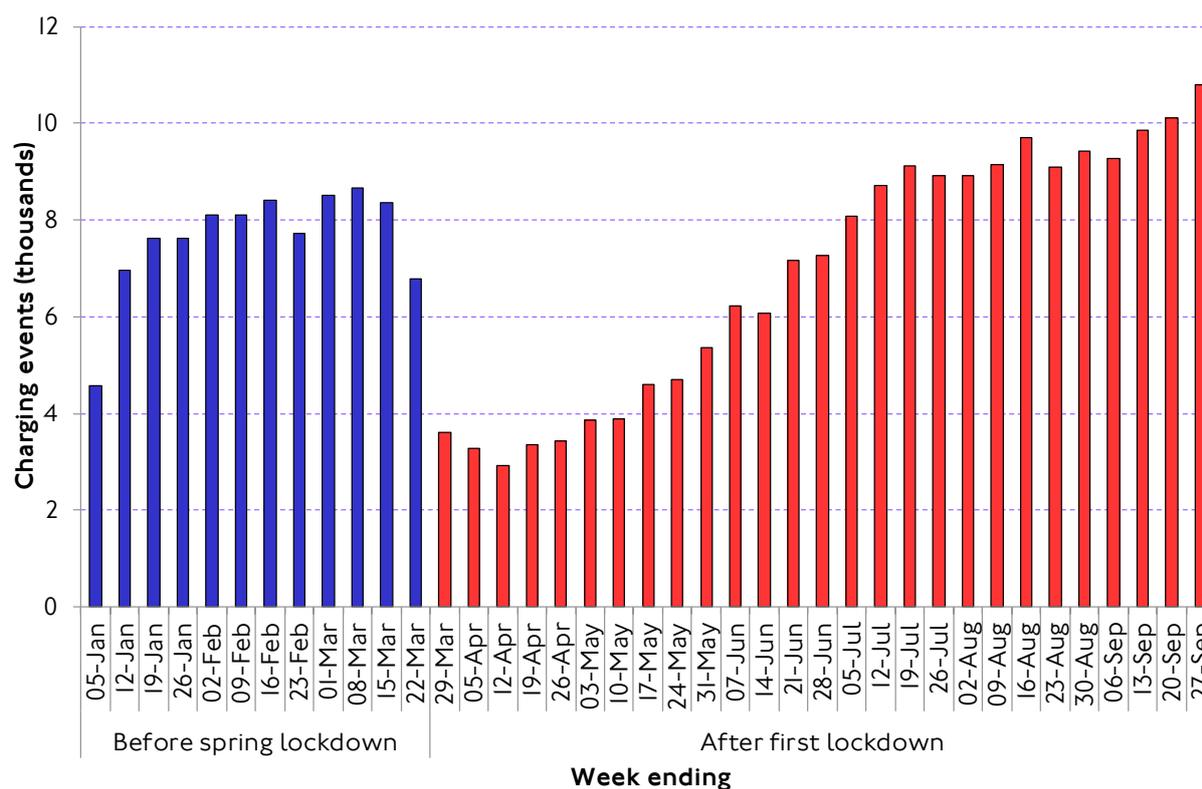
Number of charging events

Figure 5.3 shows the total number of charging events by week across all available sites. The impact of the coronavirus pandemic is clearly visible, with the number of weekly charges dropping dramatically from more than 8,000 in February and March, down to 3,000-4,000 shortly after the lockdown announcement (week ending 12 April recorded a low of 2,900 charges across the network), a reduction of more than 50 per cent.

A sharp increase followed in May and June, with total charges back up to pre-lockdown levels in early July. Weekly charges then plateaued during the summer holiday, before increasing again in early September, to reach the highest level observed so far in 2020 at the end of September with a total of nearly 11,000 charges across the sites per week.

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Figure 5.3 Weekly charging events on the rapid charging network, 2020.



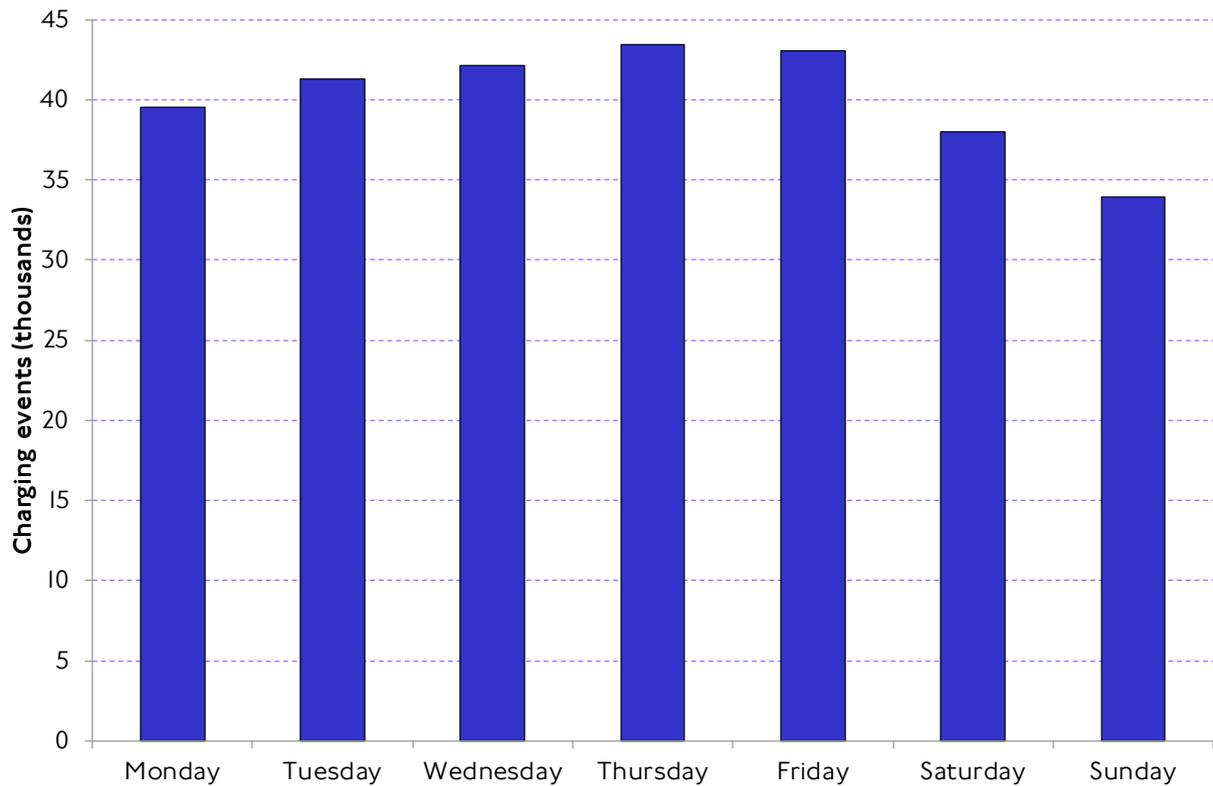
Source: TfL City Planning.

As shown in figure 5.4, charges were relatively evenly spread across days of the week, with an average of 40,000 charges per day from Monday to Friday, slightly reducing on Saturdays, while a more pronounced reduction is visible on Sundays with about 34,000 charges overall.

Data has also been disaggregated by hour to better understand patterns during a typical day. Figure 5.5 shows the distribution of charging events by hour of day between January and September 2020. It shows that most charging events take place between 09:00 and 21:00, with the busiest time for charges being from 10:00 to 15:00. A relatively low usage is observed between 01:00 and 07:00.

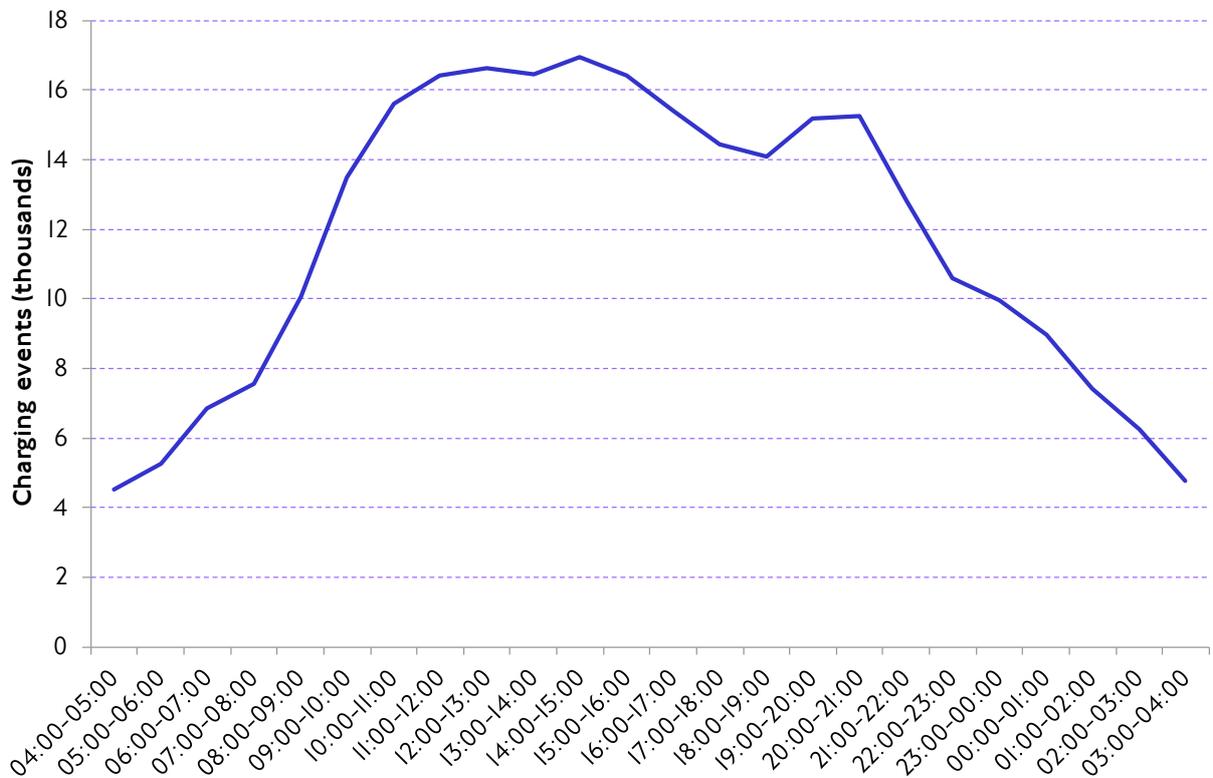
5. Improving the environment and supporting London's growth

Figure 5.4 Charging events by day of the week, Jan-Sep 2020.



Source: TfL City Planning.

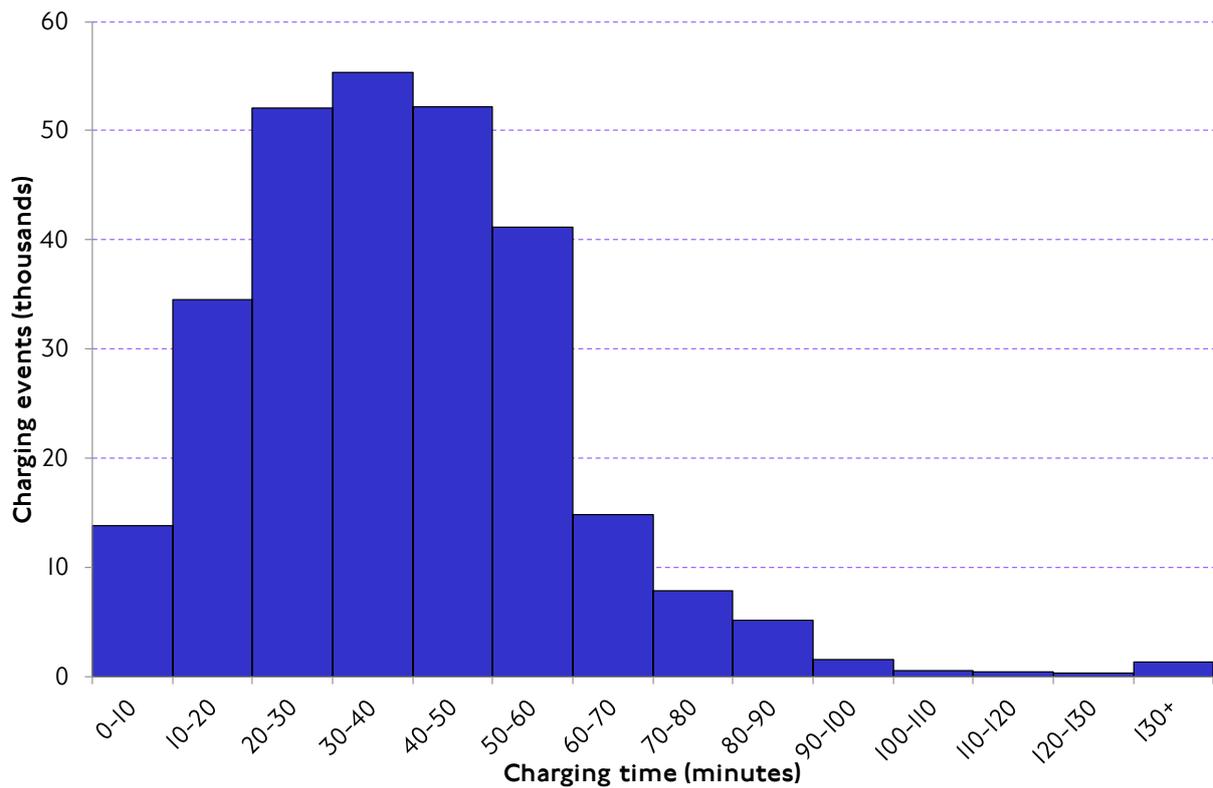
Figure 5.5 Charging events by time of day, Jan-Sep 2020.



Source: TfL City Planning.

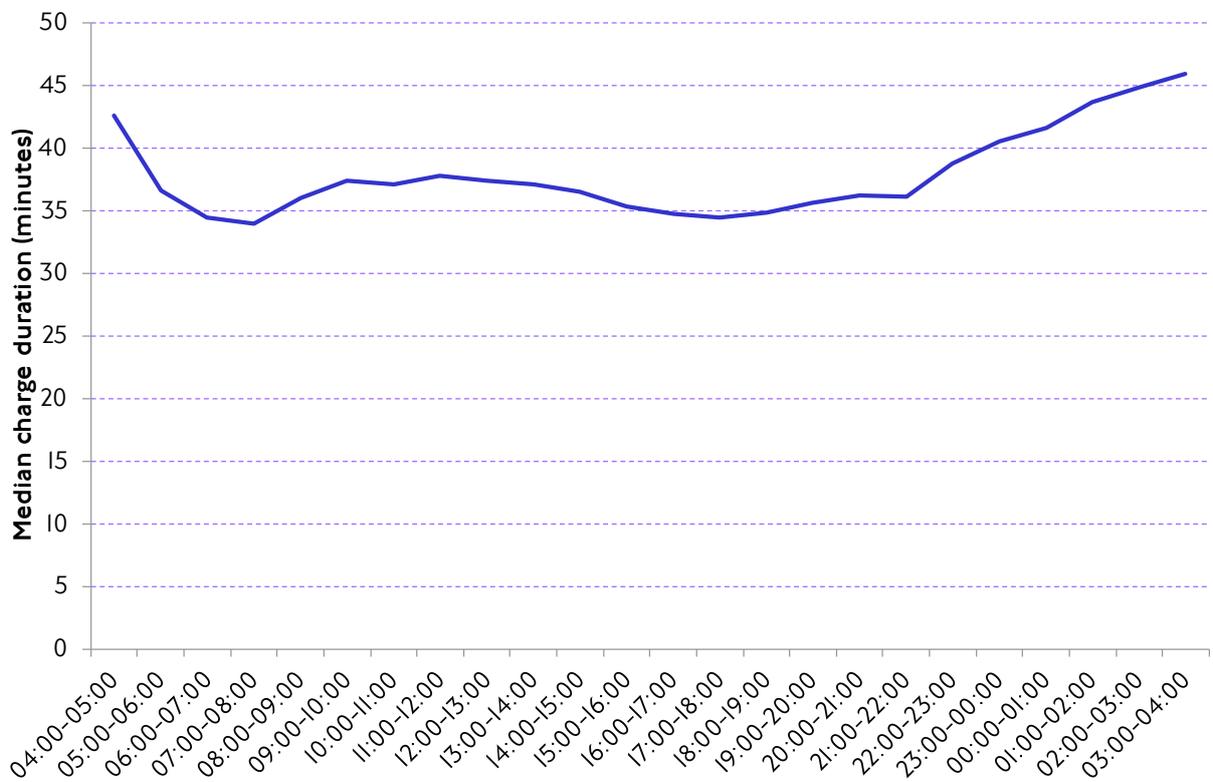
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Figure 5.6 Charging event distribution by duration, Jan-Sep 2020.



Source: TfL City Planning.

Figure 5.7 Median charge duration by time of day, Jan-Sep 2020.



Source: TfL City Planning.

Duration of charging events

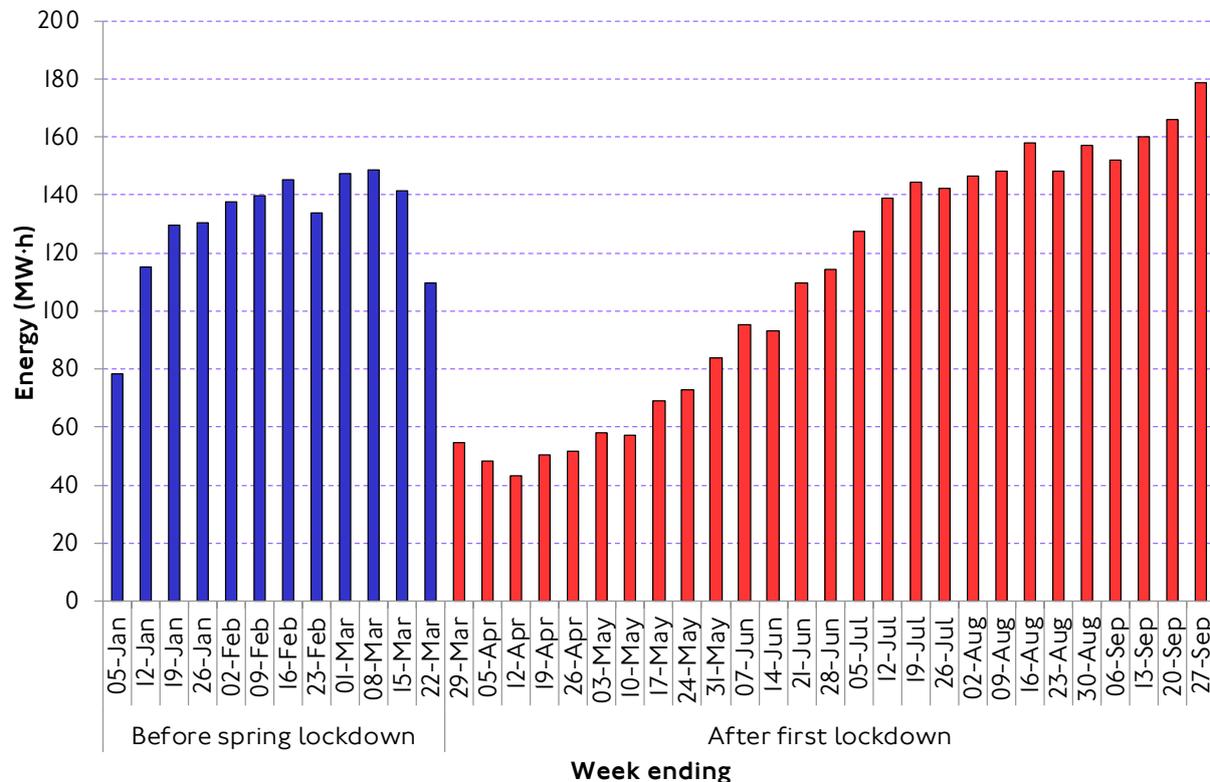
Figure 5.6 shows the distribution of all charging events recorded from ChargeMaster and ESB rapid chargers between January and September 2020. Charging time has been divided into 10-minute intervals. Most charges recorded over the period lasted between 20 and 60 minutes, with a peak around 30 to 40 minutes. The number of charges reduces sharply with durations beyond 1 hour, with relatively few charges lasting more than 2 hours. This is in line with expected average charging times for rapid chargers.

Figure 5.7 shows the median duration of charging events by hour of day between January and September 2020. Results show very similar durations across the day, with median charging time usually between 35 and 45 minutes.

Energy supplied

Figure 5.8 shows the total energy supplied by week, split by pre- and post-lockdown period. The pattern closely mirrors that observed for the total number of charges over the period (figure 5.3), with the impact of the spring coronavirus lockdown again clearly visible. The data shows that the energy supplied across the rapid charging point network was broadly constant in January and February, then collapsed dramatically following the lockdown and remained low in April, before a sharp recovery in June back to pre-lockdown levels. The energy supplied then stabilised in July and August before starting to increase again in September.

Figure 5.8 Weekly energy supplied on the rapid charging network, 2020.



Source: TfL City Planning.

Utilisation rate

Although not directly provided by the data, utilisation rates have been calculated based on total charging time at the most used rapid charging points across London

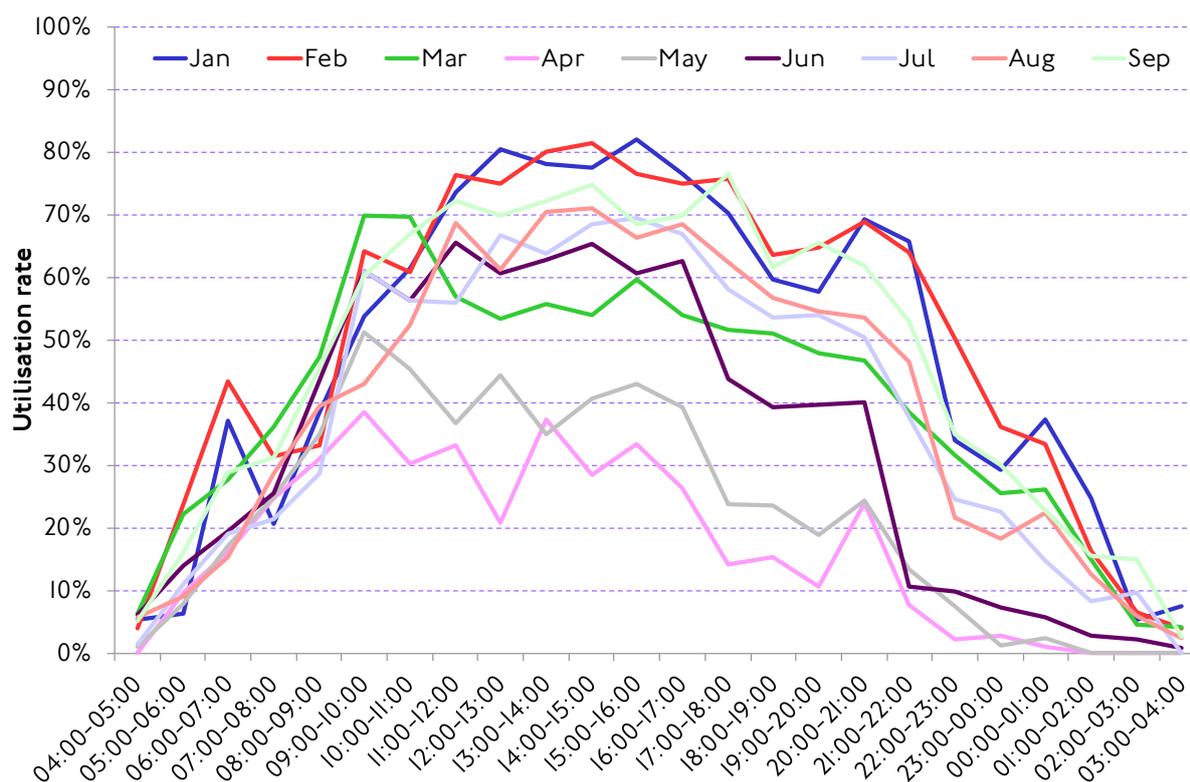
5. Improving the environment and supporting London's growth

in 2020. Figure 5.9 shows the average utilisation rate by hour of the day at one of the top 5 most frequently used sites in London. As such, it represents the typical maximum usage observed at any charging point between January and September. The data has also been split by month, to show the impact of the lockdown at the end of March.

It is important to note that the data includes potential 'downtime' at rapid charging points, which may have occurred for various reasons across the period. The data shows that, excluding the impact of lockdown, the maximum utilisation rate at the most popular sites tended to be around 80 per cent between 12:00 and 16:00, reducing to about 60 per cent utilisation between 17:00 and 20:00.

The impact of the lockdown starts to be visible in March, with the average utilisation rate reducing significantly. The full impact of the lockdown is clearly seen in April and May, where utilisation fell dramatically, with a maximum of 40 per cent usage during the day for these months. Usage started to increase again during the summer months, and by September, utilisation rate was back to pre-lockdown levels, with maximum rates between 70-80 per cent during the busiest hours of the day.

Figure 5.9 Average utilisation rate by month and time of day at a representative busy rapid charging point, Jan-Sep 2020.



Source: TfL City Planning.

5.4 Supporting new homes for London

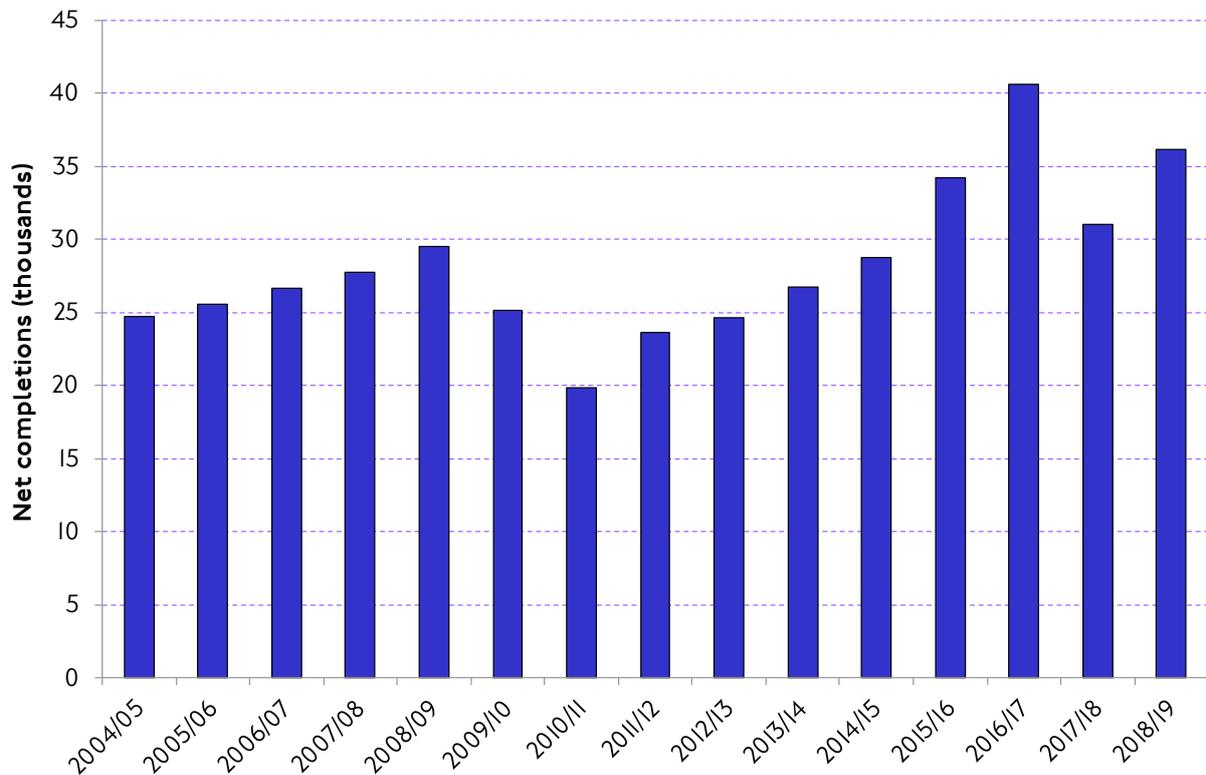
Between 1997 and 2019 the number of jobs in London grew by 46 per cent and the number of people by 28 per cent, but the number of homes grew by only 19 per cent. This means that new housing supply has failed to keep up with demand. The GLA sets housing delivery targets for London and the boroughs. Across London there were more than 36,000 housing completions in 2018/19. Of these, 6,500 were

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affordable homes. This is below the adopted London Plan target of 42,000, but is an increase in housing delivery from the previous year.

Figure 5.10 shows the net conventional housing completions since 2004/05. The 2018/19 figure is a 16 per cent increase on 2017/18, and is the second highest figure recorded in this series, behind the peak of 40,600 net completions recorded in 2016/17.

Figure 5.10 New housing completions, 2004/05-2018/19.



Source: Greater London Authority.

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Part 2: Impact of coronavirus on travel in London during 2020

6 The coronavirus pandemic and travel in London

6.1 Introduction

This part of the report provides a summary of the main impacts of the coronavirus pandemic on travel in London. It assembles and interprets available evidence from a variety of sources on aspects that are key to the Mayor's Transport Strategy and to the recovery of London more generally. The section therefore provides an evidential resource for current recovery planning, recognising that, at the time of writing, the pandemic is still developing and future developments remain very uncertain.

This part of the report is structured around four broad topics:

- Essential background about the pandemic and the nature of its key impacts on travel and on life in London more generally.
- An examination of the impacts of the pandemic on travel demand for the main travel modes in London, including a consideration of the factors – regulatory, consequential and behavioural – underlying these trends.
- A look at selected transport outcomes, and policy and operational management responses to the pandemic.
- Drawing it all together – what does what we are seeing now say about the likely future direction for travel in London over the medium term, and for London's recovery more generally?

The coverage does not try to be exhaustive. A great deal has been written elsewhere about the nature and likely implications of the pandemic and there are also a range of practical limitations on the available data, which currently limit our view of some important travel trends. The focus is on the more strategic trends and developments, rather than shorter-term or localised events and operational adaptations, such as those experienced during the height of lockdown in the spring of 2020.

Part I of this report sets out the conditions that determined transport policy thinking in London up to the end of 2019 or the 2019/20 financial year, which was largely unaffected by the pandemic. These conditions and prevailing trends and the overarching framework provided by the Mayor's Transport Strategy also form the most obvious starting point for recovery planning, given the aims of the strategy and the broad aspiration of society to get back to normal as soon as possible.

It is also clear, however, that the pandemic is now presenting some fundamental challenges to life in London as we have known it more generally, as well as new challenges and opportunities specific to the achievement of the Mayor's transport aims. It is also necessary therefore to begin to consider what a 'new normal' might look like, in terms of the emerging evidence, and how this might influence travel demand and transport policy thinking in London over the next decade or so.

6.2 Context to travel and the coronavirus pandemic

The global coronavirus pandemic started in China in late 2019. By the middle of March 2020, the virus had spread rapidly to many parts of the world, including Europe and the UK, and governments started to take action to control its spread.

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Subsequent events have had a major impact on people's lives – including how they organise their daily activities and how they travel – and this in turn has had a major impact on patterns of travel in London. It is important to recognise at the outset that the observed travel responses reflect a combination of government regulation in response to the virus (eg lockdown regulations), individual concerns and adaptations affecting travel behaviour, as well as business responses and adaptations to the pandemic itself and to the wider economic fallout. Travel, after all, is a facilitator for people to go about their daily lives. The drastic changes to travel that we have seen, therefore, reflect equally drastic changes to people's lives.

At the time of writing (early November 2020) the impacts of an autumn second wave have made themselves felt, following the unprecedented lockdown of spring and the tentative steps towards recovery of summer. While hopes are now rising for an effective vaccine control in the first half of 2021, it is likely that there will be continued large-scale disruption over the winter period. Furthermore, after what may then have been a year or more of disruption, dislocation and adaptation, it seems unlikely that conditions – and people's travel behaviour – will either rapidly or completely return to their pre-pandemic state.

Indeed, while the impacts of the pandemic and the costs to society have undoubtedly been extremely severe, some of the adaptations that have developed have been both relatively successful and positive in terms of the Mayor's transport outcomes. Restrictions to travel have re-emphasised the importance of local centres and active travel. There have been notable short-term environmental gains. Technology has been relied upon as never before, and has generally been equal to the task, demonstrating the viability of new ways of working, doing business and participating in leisure. Talk of a 'new normal' is replacing talk of 'returning to normal', and capturing these benefits is now seen as an essential priority for recovery.

However, there are already very substantial costs to society in addition to the direct tragedy of mortality and morbidity – arising from the consequences of isolation and confinement, and from economic hardship – which is tending to fall hardest on those most vulnerable in society. Large sectors of the economy have suffered very substantial damage, and what works for some industries and people does not work for others – for example those businesses dependent on the daily flow and ebb of commuters in central London. For many businesses and individuals, the current situation is very far from being desirable, and the economic damage caused by the pandemic may continue to have negative implications for a decade or more. Tackling these negative impacts must also therefore be central to our recovery.

This is the backdrop against which the trends and developments in travel described in this section need to be interpreted.

6.3 Development of the pandemic

Timeline

Cases of coronavirus were first recorded in the UK in late January 2020 but were initially closely contained. By early March, however, it had become clear that the UK was facing widespread uncontrolled and exponential infection of the kind seen in the rest of Europe just a few weeks previously. It was also clear, based initially

6. The coronavirus pandemic and travel in London

on European experience, that the disease was responsible for severe morbidity and mortality in a significant proportion of those infected, and that a wave of such cases was likely based on infections already initiated in the population. On 16 March the government requested that employees work from home if they could. On 20 March, the government announced that all cafes, pubs, restaurants, gyms, leisure centres, nightclubs, theatres and cinemas must close as soon as possible. Following this, on 23 March, the government announced a national lockdown designed to slow down transmission of the virus and manage the capacity of the NHS to treat coronavirus patients, although in the days immediately preceding individuals and businesses had already started to take mitigating action, such as instructing staff to work from home where possible.

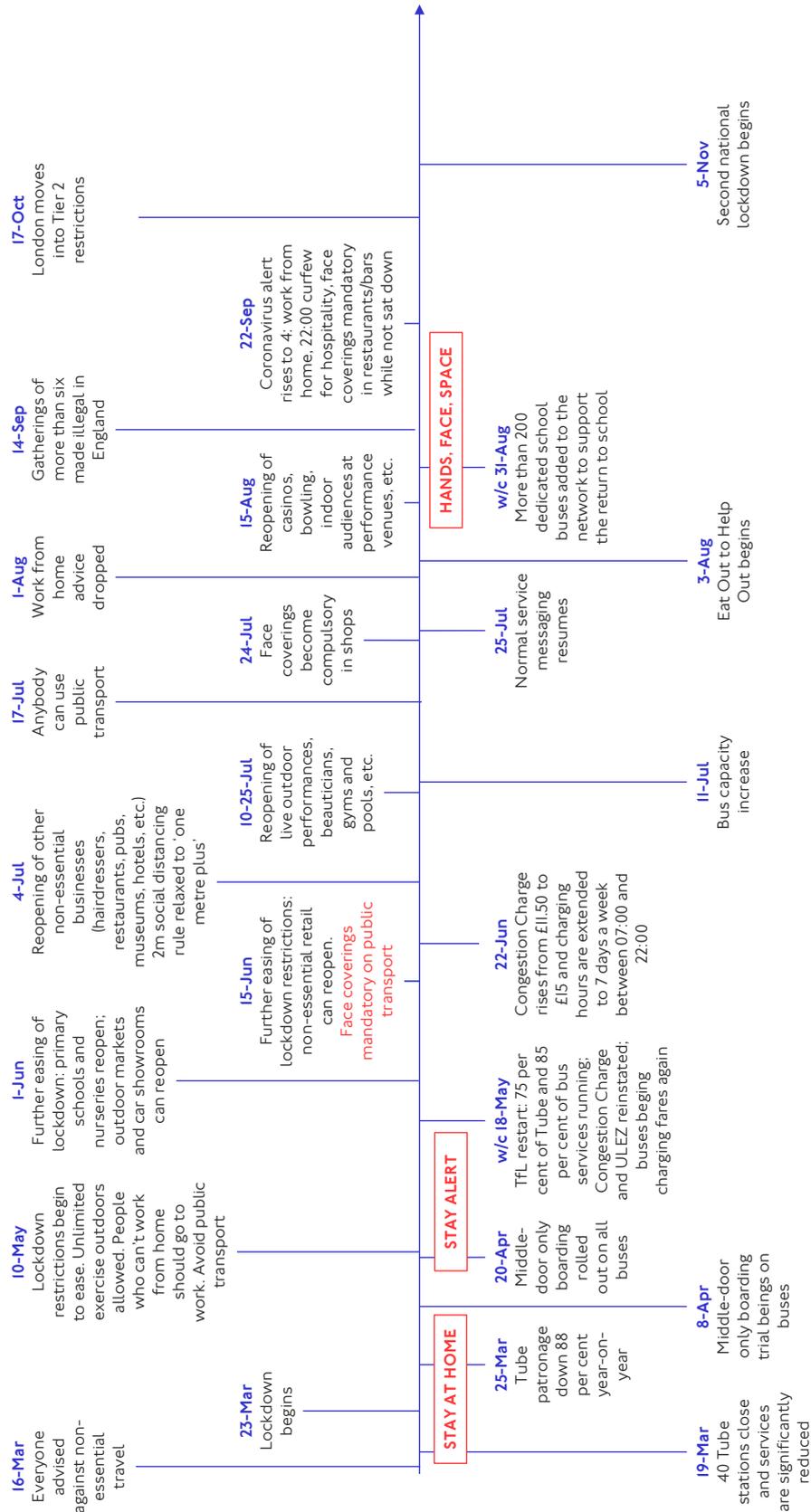
Lockdown measures imposed from the 23 March led to a large reduction in travel across London. Citizens were asked to avoid public transport, limit time outside the house and work from home if possible, and travel demand was greatly suppressed. As lockdown gradually eased throughout the summer, recovery of demand varied both spatially and modally, with rail demand and travel to central London notably lagging.

As lockdown was progressively eased, some key events had an impact on mobility and trip attractors (figure 6.1):

- On 10 May, those who could not work from home, such as construction workers and those in manufacturing, were able to return to work, although they were advised to avoid public transport if possible. People were able to meet one other person outside while maintaining social distancing and the restriction to only one form of outdoor exercise per day was lifted.
- On 1 June, primary schools and nurseries reopened to some children.
- On 15 June, non-essential retailers were allowed to reopen, although with exceptions for some such as bars, pubs, nightclubs and theatres. Face masks were made compulsory on public transport as well as in shops, stations, banks and takeaways from 24 July.
- On 4 July, cinemas, museums, galleries and hairdressers could reopen. Social distancing reduced to 'one-metre plus' allowing many pubs, restaurants, hotels and B&Bs to open.
- On 1 August, employees were encouraged to return to work, provided it was safe to do so and social distancing measures were in place.
- On Monday to Wednesday through August the government's Eat Out to Help Out scheme gave diners 50 per cent off their meals up to a maximum of £10.
- On 14 September, as infections started to rise again, gatherings of more than six people were made illegal in England.
- On 22 September, following a sustained rise in infections, people were again encouraged to work from home if possible and from 24 September pubs, bars, restaurants and other hospitality venues in England were instructed to close at 22:00. The Coronavirus alert level was raised to 4.
- Into October, a second wave of the virus took hold. Initially, a regional tiered system of partial lockdowns was put in place, followed by a full national lockdown in England, similar to spring, to be effective from early November.

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Figure 6.1 Timeline of key events in the coronavirus pandemic, Mar-Nov 2020.



Source: TfL Customer Insight, Strategy & Experience.

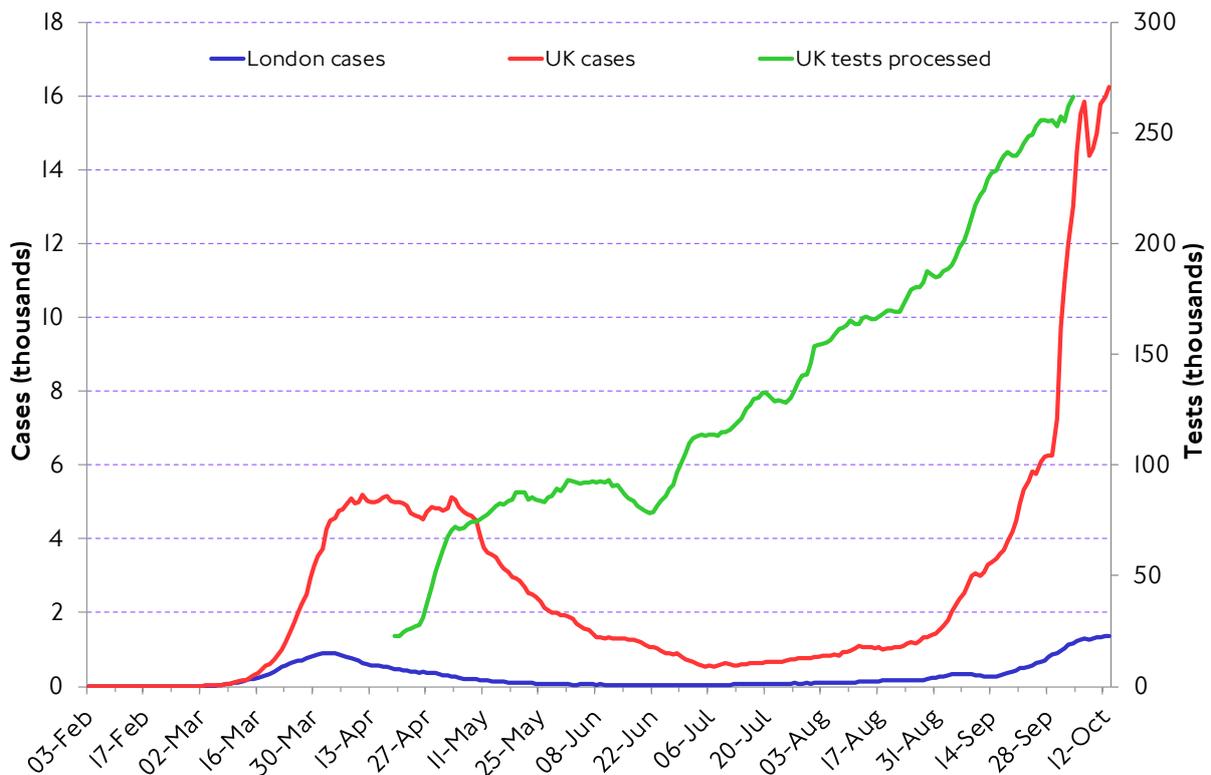
Figure 6.1 also shows key developments in terms of the operation of transport services in London during the pandemic. The vital role in supporting essential activities and travel played by London’s public transport networks has been recognised throughout, and most services on bus, rail, and London Underground, have kept operating. However, service provision was adapted and streamlined in places to recognise operational and safety priorities, for example the need to provide for social distancing during times of peak demand and, more recently, to safely accommodate school travel by reconfiguring parts of the bus network.

Infections, morbidity and mortality from the coronavirus pandemic

The first two cases of coronavirus in the UK were confirmed at the end of January 2020. Cases began to rise very slowly in February. However, by March the number of cases started to increase rapidly (from 58 at the end of February to 25,521 by the end of March). Daily diagnosed cases remained high throughout April, peaking at 6,201 on 1 May, after which they began to decline, reaching around 600 per day by early July. However, by the end of August, cases started to rise again rapidly amid fears of a second wave, reaching more than 6,000 per day by 23 September and increasing further to around 15,000 cases per day in October, although numbers during this second wave reflected a much greater testing effort.

The first case in London was reported on 11 February, and in line with the UK trend, cases began to increase in March. The number of daily diagnosed cases in London peaked on 2 April, where 1,068 cases were reported, after which they started to decline, with fewer than 100 cases per day by mid-May. Towards the end of August, cases began to rise again, reaching around 1,200 cases per day by the beginning of October (figure 6.2).

Figure 6.2 Coronavirus cases and tests, 7-day rolling average, Feb-Oct 2020.

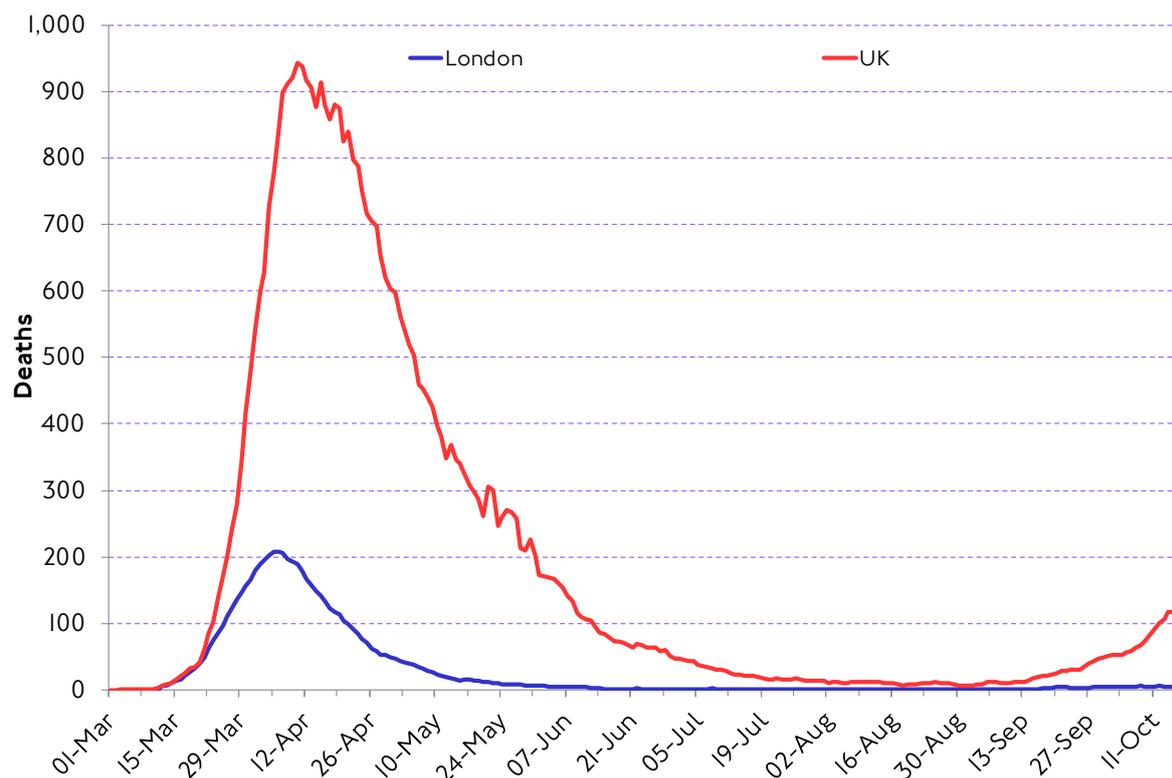


Source: UK Government, Public Health England and NHSX.

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The first deaths involving coronavirus were reported at the beginning of March and rose rapidly in the UK and London to a peak of 1,074 deaths in the UK on 8 April and in London a peak of 225 deaths on 4 April. The number of deaths then began to decline as the impacts of strict lockdown measures helped to slow the spread of the virus. Since the second wave of new cases in autumn, there has been a corresponding upturn in the number of deaths, particularly in the north of England, although at the time of writing there are fears of a second wave of deaths in London (figure 6.3).

Figure 6.3 Coronavirus deaths (within 28 days of a positive test), Mar-Oct 2020.

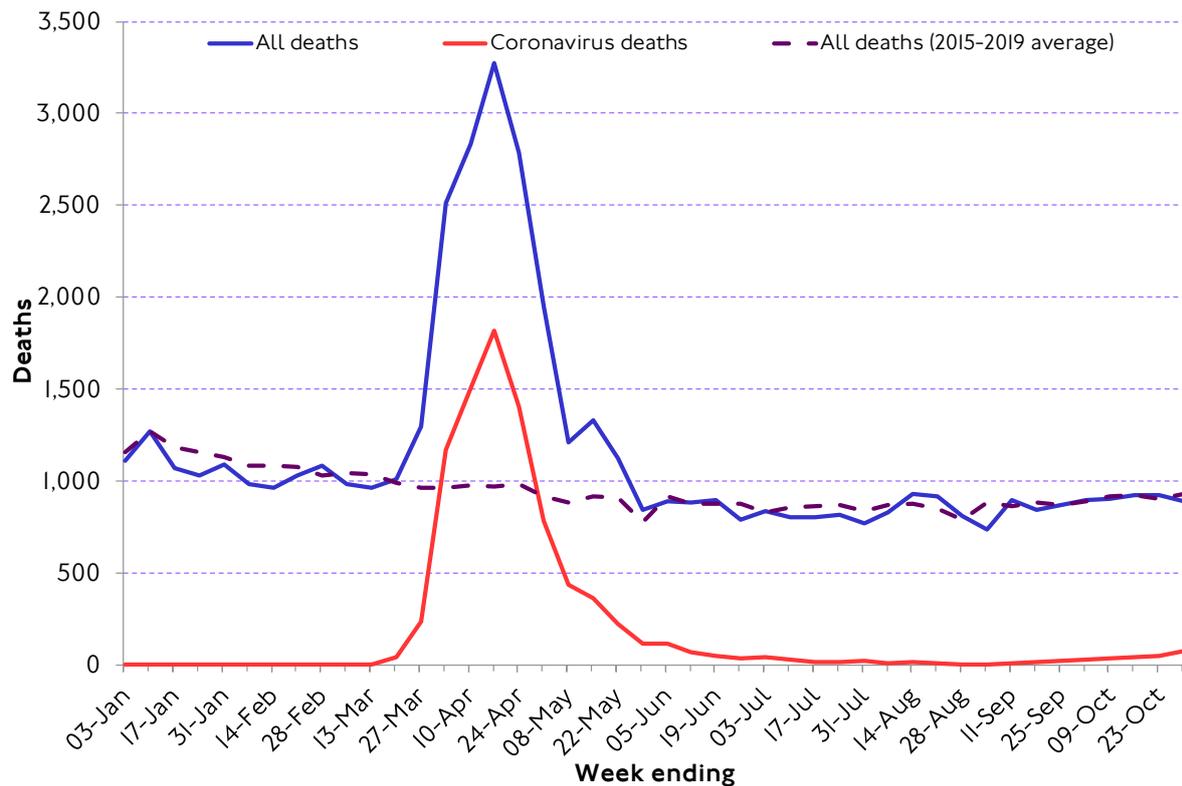


Source: UK Government, Public Health England and NHSX.

Excess mortality from the pandemic in London

During the early part of 2020, deaths from all causes in London were lower than normal, with 670 fewer deaths than would be expected over the first 11 weeks of the year. From the middle of March, deaths involving coronavirus in London started to increase rapidly, pushing the number of weekly deaths above the five-year average for the following 11 weeks. By the end of May, there had been 9,241 deaths above the five-year average. However, since then deaths in London have followed the normal trend for the year, with 396 fewer deaths by the end of October than would have been expected since the start of June (figure 6.4).

Figure 6.4 Number of deaths in London, Dec 2019–Oct 2020.



Source: Office for National Statistics.

Differences in morbidity and mortality related to coronavirus

Data from the Office for National Statistics shows that the virus does not have the same impact on all demographic groups. The UK region with the highest proportion of deaths involving coronavirus was London with 8,536, making up 30.6 per cent of all deaths. London had the highest age-standardised mortality rate of deaths involving coronavirus between March and July 2020.

Across all age groups in England, males had a higher rate of coronavirus-related deaths than females. The age-specific mortality rate increased consistently with age, with those aged 90 years and over making up the largest proportion of coronavirus-related deaths.

In England, ONS analysis shows that all ethnic groups other than Chinese females were at higher risk of coronavirus-related mortality than the White ethnic population, with Black African men and Black Caribbean women having the highest risk. Although some existing health problems put people at greater risk of being seriously ill and dying from coronavirus, that alone could not explain differences in death rates among ethnic minorities. Instead, the differences were more likely to be related to demographic and socio-economic factors, such as where people live and the kind of jobs they do.

Impacts of coronavirus on London's population

The pandemic has had short-term and potential longer-term impacts on London's population. London's slowing rate of population growth was one of the defining pre-pandemic trends – leading to lower than forecast growth in travel demand in recent years (see section 2.2 of this report). London's population grew by just

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0.6 per cent in 2019 to 8.96 million. This was the lowest annual growth in population since 2004, with the slowdown in growth mainly driven by high levels of migration from London to the rest of the UK, and lower levels of international migration to London.

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. This shows net migration was around 313,000 over the year, 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, these figures do not cover the significant impact the pandemic has had on international migration since then, with a virtual collapse in migrant visa approvals since March. In April, air arrivals to the UK were 99 per cent lower than in the same month in the previous year. Even by July, passenger arrivals were 89 per cent lower than in 2019, suggesting little evidence of a recovery in people coming to the UK. Grants of Sponsored study (Tier 4) visas had previously been at the highest level since 2011. However, the effects of the pandemic meant that this was no longer the case in the year ending June 2020. Previous increases were counteracted by a 99 per cent fall in Tier 4 grants in the second quarter of 2020 (April to June), leading to an overall stable number for the year (to June 2020) as a whole. Alongside a virtual collapse in longer-distance commuting and business travel to London, 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 in the first half of 2020 could also be expected to have an impact on the population estimates for 2020. This will be coupled with a decrease in international migration to London given the difficulties associated with travelling internationally in 2020 and into 2021. 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. House sales have started to recover in recent months, suggesting a resumption in flows of people out of London. There will also be 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 overseas students typically study in London each year. All these factors ultimately mean fewer people travelling in London over the medium term.

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 the reduced attractiveness of large cities or a more permanent 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.

6.4 Impact of coronavirus on the UK and London economy

Introduction

The pandemic has so far had dramatic impacts on London's economy – as well as that of the wider UK and world. As well as short-term impacts, for example affecting economic growth and personal disposable incomes, these impacts are likely to play an ever more important role in determining future travel demand trends as they work through over perhaps the next decade. This section reviews the immediate impact of the pandemic on selected economic indicators, and places these in the context of longer-term economic trends. In this context, the actual impacts of the 2008/09 recession are particularly instructive – both in terms of the relative scale of the pandemic impacts, and in terms of the time taken for these impacts to work through the system in terms of returning to prevailing trends.

Pre-pandemic trends

Before the pandemic, it was thought that the observed background trend towards fewer trips per capita in London (the per person trip rate) partly reflected a combination of economic trends, particularly increasing pressures on personal disposable incomes affecting the number of discretionary trips that people made. This had already contributed to lower than forecast growth in travel on London's key public transport modes in recent years.

The economic data for 2019, however, began to show an easing of some of these pressures, reflected also in a stabilisation in both trip rates and ridership immediately before the pandemic.

The impact of the pandemic itself was, however, immediate and very dramatic; and the longer-term economic impacts continue to emerge. Reduced growth, the exacerbation of existing income inequalities, and the prospect of more structural challenges to the nature of London's economy, reflecting pandemic adaptations by people and businesses, seem likely medium-term outcomes that could have significant long-term implications for travel demand.

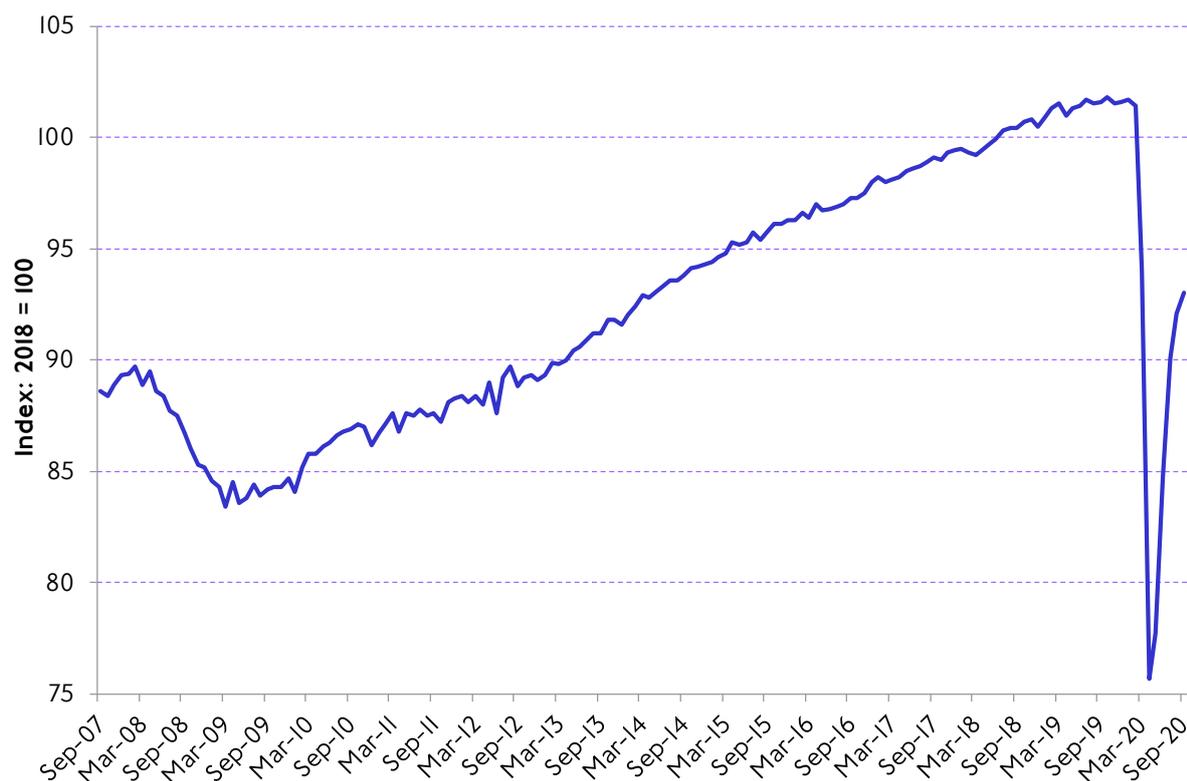
Gross domestic product (GDP) and public debt

The UK's economy contracted 20 per cent in the quarter from April to June 2020, making it the hardest hit of all 37 OECD nations, and two consecutive quarters of economic decline resulted in the first recession since 2008/09. The monthly decline in GDP in April 2020 was three times greater than the fall experienced during the 2008/09 recession. However, the fall in GDP was largely concentrated in April, during the peak of lockdown, and GDP has since grown month on month.

In September, GDP was 22.9 per cent higher than in April, although it remained 8.3 per cent below February 2020 levels. Recovery of GDP is slowing, growing 2.2 per cent in August; this was lower than forecast, despite the government's Eat Out to Help Out scheme and further easing of lockdown restrictions. GDP grew by a further 1.0 per cent in September. Although the 2008 fall in GDP was as a result of different economic circumstances, figure 6.5 shows that the economy can take years to recover following a significant decline. The fall in GDP in 2008/09 was a lot less than the drop in April, yet it took almost five years to recover.

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Figure 6.5 UK's Gross Domestic Product (GDP) monthly index, 2007–2020.



Source: Office for National Statistics.

Provisional estimates from the ONS indicate that £208.5 billion was borrowed by the public sector in the first six months of the financial year (April to September 2020); this is nearly four times the amount borrowed in the whole of the 2019/20 financial year and the highest since records began in 1993. This is alongside a drop in National Insurance and tax contributions of 11.6 per cent. Public debt at the end of September was around 103.5 per cent of GDP, levels not seen since the early 1960s. The Office for Budget Responsibility anticipates that borrowing could increase to £372.2 billion for the 2020/21 financial year.

The economic outlook continues to be highly uncertain, depending on the evolution of the pandemic and the measures taken to protect public health. Most economic forecasts developed over the summer assumed a gradual reduction in uncertainty and the development of health interventions to reduce the health and economic risks facing households and businesses. These forecasts largely expect a net fall in GDP in 2020, with a recovery by the end of 2021. However, the emergence of a second wave, and the reinstatement of lockdown restrictions, poses further economic risks, and revised Bank of England projections now do not expect a recovery in GDP until 2022.

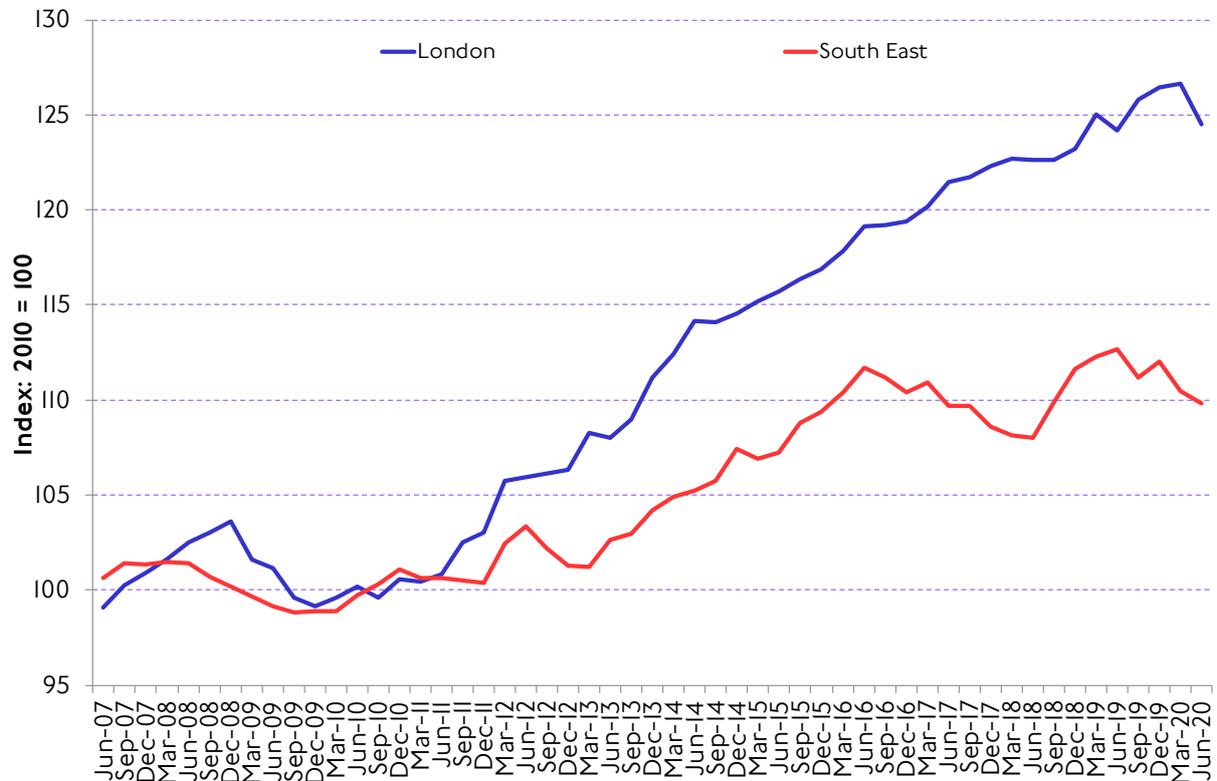
Employment trends

Between March 2016 and March 2020, the number of workforce jobs in London steadily increased (figure 6.6). This compares to jobs in the South East which, in March 2020, remained at a similar level to 2016 following a dip in 2017/18. In March 2020, immediately before the pandemic, jobs in London were 27 per cent higher than in 2010. However, figures show that in the quarter to June 2020 jobs fell

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almost two per cent compared to the previous quarter, likely due to the immediate employment impacts resulting from lockdown.

Figure 6.6 Total workforce jobs in London and the South East, 2010-2020.



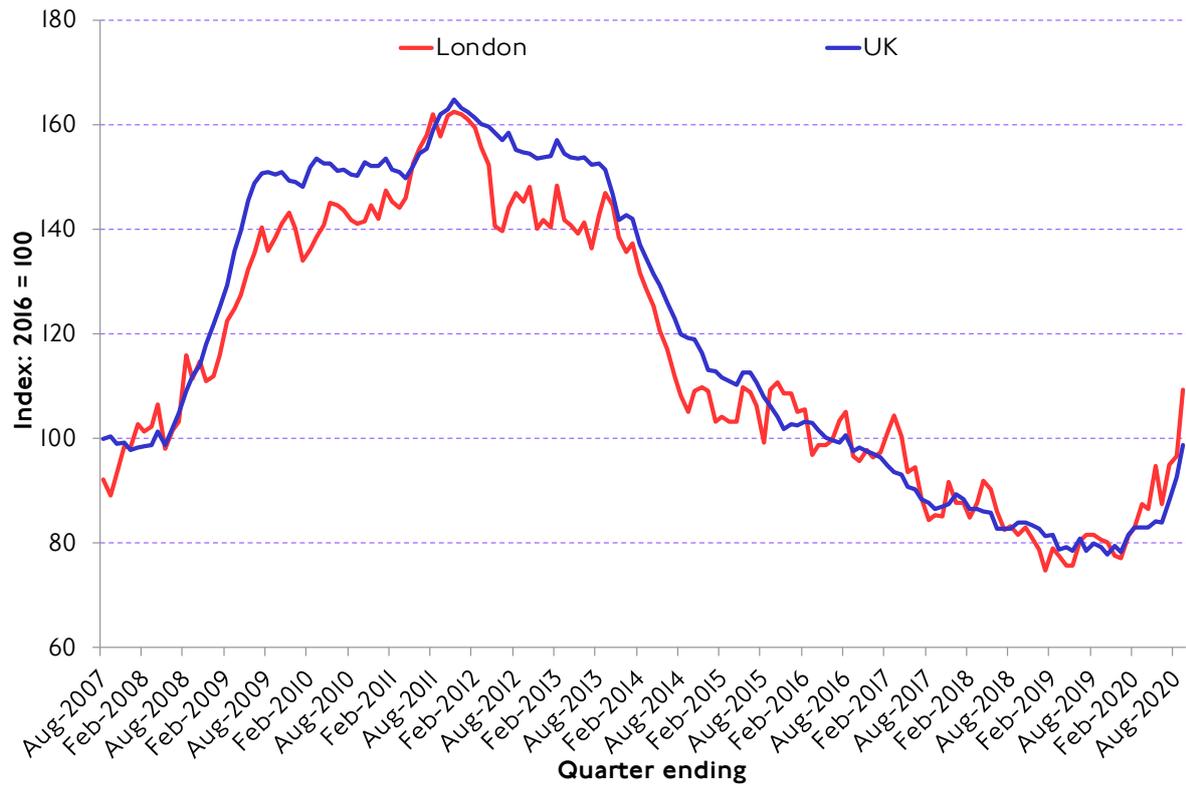
Source: Office for National Statistics.

Employment impacts as a result of the pandemic will continue to emerge, but some of these impacts may have been forestalled, perhaps only temporarily, by government support schemes such as the Coronavirus Job Retention Scheme (furlough). Comparatively, the 2008/09 recession led to a 4.5 per cent fall in workforce jobs in London, taking around three years to recover to pre-recession levels. Prior to the pandemic, change in workforce jobs was a good indicator of travel demand, with commuting driving public transport demand. However, with many Londoners in employment continuing to work from home, and the possibility of this persisting for some time, this relationship is now more uncertain.

Figure 6.7 shows that total **unemployment** in the UK and London had been steadily declining since 2013, although since 2019 this trend began to flatten. However, total UK unemployment in the quarter from July to September 2020 was 19 per cent higher compared to the first three months of the year, in London the difference was 25 per cent. London's unemployment rate rose to 6 per cent between July and September, compared to a rate of 4.7 per cent at the start of the year. It is estimated that during this period 1.62 million people in the UK were unemployed, 318,000 more than a year earlier and 243,000 more than the previous quarter. Figure 6.7 shows that the rise in unemployment as a result of the 2008/09 recession took around eight years to return to pre-crisis figures.

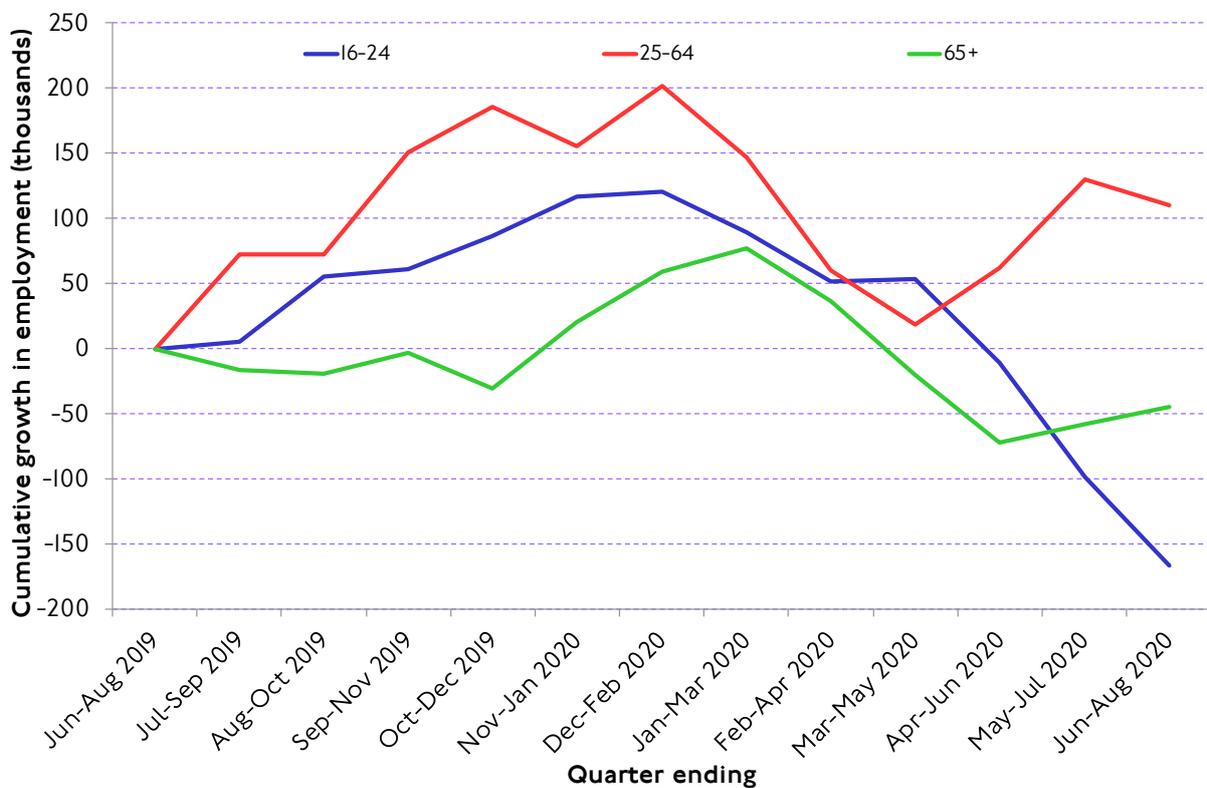
6. The coronavirus pandemic and travel in London

Figure 6.7 Total unemployment quarterly rolling average, Labour Force Survey, 2007-2020.



Source: Office for National Statistics.

Figure 6.8 UK employment cumulative growth by age, 2019-2020.



Source: Office for National Statistics.

In terms of **age group**, figure 6.8 shows that younger workers have experienced the largest decreases in employment since March; they were also more likely to be furloughed. This is likely due to younger workers' tendency to work in industries that were worst affected by the pandemic: accommodation and food service sectors and arts, entertainment and recreation.

Future employment prospects

The most recent ONS Labour Force Survey data shows that redundancies increased in July to September by 195,000 compared to 2019, the largest annual increase since February to April 2009. Redundancies during this quarter totalled 314,000 – a record high.

In the three months to July **planned redundancies** increased by 45 per cent compared to the previous quarter and stood at the highest level since 2012, although remained below figures seen during the 2008/09 recession. In August planned redundancies fell by 60 per cent compared to July 2020 to around 60,000 but remained 150 per cent higher compared to 2019 figures. Planned redundancies increased slightly in September, although remain well below the peaks seen in June and July this year. The peak in planned redundancies over summer could be due to employers preparing for the end of the government furlough scheme at the end of October.

It is likely that continuing **economic uncertainty** and the (eventual) end of the government's furlough scheme will mean the **largest employment impacts are yet to come**. Early estimates from HMRC data for October show that the number of employees in the UK on company payrolls fell by 782,000 compared with March 2020. These figures are slowly beginning to work through to the unemployment statistics. The end of the furlough scheme, and the return to lockdown restrictions will continue to have a negative impact on employment.

Household finances

Earnings have also been impacted by the pandemic. ONS data shows that there was a large decrease in **total weekly earnings**, both nominally and in real terms (adjusted for inflation), in the three months following the lockdown announcement. Quarterly growth in employee total pay was estimated to be negative at -1.2 per cent, the largest fall since 2009; this translates to a fall of 2 per cent in real terms. Additionally, regular nominal pay (unadjusted for inflation) fell by 0.1 per cent during this period, the first negative pay growth in regular nominal earnings since records began in 2001, probably reflecting lower pay for furloughed employees. Annual pay growth from July to September was positive, although growth is likely to remain subdued as economic uncertainty persists.

Analysis from the Resolution Foundation shows that the greatest falls in pay were in the lowest income percentiles. There have been stark differences in the impact of lockdown by **household income**. A report^[08] by the Resolution Foundation shows that one-third of higher-income households increased their savings in lockdown, while lower-income households were more likely to have had to use savings or take out loans.

This inequality could be further exacerbated as **unemployment** is likely to disproportionately impact low-income groups. Research into the impacts of previous recessions shows that the long-term impacts tend to disproportionately

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affect already disadvantaged groups^[09], such as those in lower-income jobs and younger people. Analysis undertaken by McKinsey^[10] shows that in the UK, 47 per cent of jobs at risk are in the £0-10 hourly pay band and the UK's median pay is £13.30/hour.

Retail activity

The latest analysis from YouGov and the Centre for Economics and Business Research shows that in October **consumer confidence** fell, following five months of growth. 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. Concerns around household finances and property values have driven down previous optimism seen over the summer. In October, scores for household finances over the last 30 days and next 12 months fell and remain firmly in negative territory.

Retail footfall data shows how recovery in consumer confidence over the summer was reflected, alongside changes to government guidance, on the high street. Footfall data from Springboard, reporting year-on-year percentage change, shows that following the lockdown announcement total footfall fell to around 20 per cent of pre-pandemic levels. Following the reopening of non-essential shops in mid-June there was a significant increase in retail park footfall, to around 70 per cent of 2019 levels, and high street and shopping centre footfall, which increased to levels around 40 and 50 per cent respectively. By the start of October, overall footfall was about 70 per cent of pre-pandemic levels; 90 per cent for retail parks, and around 60-70 per cent for high streets and shopping centres.

ONS **retail sales** data shows that sales volumes have recovered, although this could be driven by the delaying of purchases during the lockdown period. In September retail sales volumes were 4.7 per cent higher than last year, and 5.5 per cent higher than in February 2020. The amount spent in September was 3.4 per cent higher than last year, and 3.9 per cent higher than immediately before the pandemic (February 2020). The recovery of retail sales without a corresponding return to high street footfall shows that online shopping and perceived coronavirus risk continues to have an influence on the way people shop.

Key prevailing economic trends potentially affecting travel demand

- The UK's economy was significantly impacted following the lockdown measures imposed in early spring. This has since started to recover, although growth has slowed in recent months. Evidence from the 2008/09 recession shows that following a fall in GDP, it can take several years to recover to pre-crisis levels, with unemployment levels taking even longer.
- Retail spending has largely returned to pre-pandemic levels. Recovery of retail spending has not been directly comparable to the return to retail footfall, as the proportion spent online continues to be around 10 percentage points higher than in 2019.
- Unemployment impacts continue to emerge as the economic outlook remains uncertain. Lags in reporting, the (eventual) end of the furlough scheme, and new coronavirus measures affecting businesses mean that significant further reductions in employment are expected in the coming months.
- The financial impact of the pandemic has not been equal across income groups; lower-income groups are more likely to have had to use savings or take

6. The coronavirus pandemic and travel in London

out loans during the lockdown period. Additionally, expected unemployment impacts are likely to disproportionately impact those on lower incomes.

- The emergence of a second wave, and introduction of a second lockdown from early November 2020 will have a continuing impact. It is uncertain how great the impact will be, although the length of time these measures are imposed for, and the financial support provided by the government to people and businesses in the interim, will have a significant bearing on this.

6.5 Typology of the impacts of coronavirus on travel

Table 6.1 is a formulation of the key impacts of coronavirus on travel in London. The pandemic has had both direct and indirect impacts on people's daily activities that have affected travel demand. The impacts are arranged into four main categories, including:

- Regulatory restrictions on travel
- Changes to travel as a result of the economic impacts of the pandemic
- Changes to the location and frequency of activities, such as work, shopping and leisure
- Individuals' circumstances and perception of virus transmission risk

The factors largely relate to those affecting the basic demand for travel in London. Only the latter category partly reflects factors that are intrinsic to the transport networks themselves.

The colour coding of the columns shows that, overall, the changes have led to a decrease in the overall demand for travel, and generally make a neutral or negative contribution to the Mayor's active, efficient and sustainable mode share aim. This presents TfL with an even more challenging environment in which to achieve our strategic goals.

6. The coronavirus pandemic and travel in London

Table 6.1 Illustration of key impacts of the coronavirus pandemic on travel.

		Volume/frequency of travel	Mode of travel	Travel time and location
Regulation	Mobility/activity restrictions (area-based) eg lockdowns	Travel partially or severely curtailed - widespread effect	Proportionate loss across modes, but boost for active modes	Reduced travel time and emphasis on local trips. Some restrictions on travel in effect from mid-March to early July.
	Shielding/self-isolation (individual restriction)	Travel severely curtailed for affected individuals	Proportionate loss across modes	Negligible activity
	Key workers	Similar or increased travel for affected sectors/individuals	Safeguarding PT services but also switch to car/active modes	Prioritisation and anti-social hours coverage on public transport
	Social distancing/capacity restrictions	Severely curtailed white-collar commuter, shopping and leisure trips and trip consolidation	Disproportionate loss on public transport, gains for car/active	Journey time staggering, loss of longer-distance and evening trips, focus on local shops/amenities
	Restrictions on households mixing	Curtailed leisure trips	Proportionate loss across modes	Loss of longer-distance and evening trips, change of leisure trip destination
	Global travel restrictions	Loss of tourism and business trips, including UK day visitors	Disproportionate loss on public transport	Central London and night-time economy particularly affected
Economic	Unemployment	Loss of work-related travel as well as discretionary trips made as part of working day	General effect across modes	General effect but emphasis on peak travel – this may be a significant longer-term effect
	Furlough	Loss of work-related travel but possible increased travel for other purposes	Loss of public transport but increase in active modes	General effect but particular loss of radial peak travel – temporary effects
	Decrease in disposable income	Reduced discretionary travel	Mostly affecting public transport and car travel	Variable, with potential exacerbation of existing inequalities
	Redistribution of activity away from central London	Loss of work-related travel as well as discretionary trips made as part of working day, particularly in central London	Disproportionate loss on public transport	Major loss of daytime population, loss of peak work-related travel, inter-peak discretionary trips and evening leisure trips
	Economic stimulus from government	Gain in discretionary/leisure trips (eg Eat Out to Help Out scheme)	Proportionate gain across all modes	Gain in off-peak leisure trips - locally, in town centres and central London
	Freight	Increased freight travel demand	HGV, LGV, car and cargo bikes	Locally increased travel demand due to higher number of home deliveries
Daily activity	Change in workplace eg working from home	Loss of work-related travel and associated discretionary travel	Loss of public transport but increase in active travel	Increase in local travel but particular loss of radial peak travel, which may be significant in the longer term
	Home relocation	Trip consolidation, loss of travel in London	Loss of rail travel in particular	Loss of local travel, replaced with fewer, longer-distance trips, with potential long-term effects on attractiveness of London
	Changes to education	Short-/medium-term decrease in travel to school and university	Loss of active, bus and car trips	Loss of local, short trips and affecting school opening/closing times
	Changes to discretionary trips	Substitution of real for virtual trips	Central London travel by public transport particularly affected	Off-peak and evening trips particularly affected - potential for long-term substitution effects
Individual circumstances	Perceived risk of infection: activities/interaction	Commuting and discretionary trips reduced, trip consolidation	Proportionate loss across modes	Loss of peak travel, consolidation and localism. Complementary to, but distinct from regulation.
	Perceived risk of infection: travel	Reduced and optimised to minimise risk of infection	Negative perception of public transport, switch to car and active modes	Avoiding crowded locations and busy times of day eg peak periods
	Caring for others/volunteering	Increased travel	Mostly active or car-based	Variable
	Exercise/wellbeing	Increased leisure travel for exercise or wellbeing	Mostly active	Variable
Legend		Increase in travel demand	Beneficial for sustainable mode share	
		Broadly neutral effect	Broadly neutral effect	
		Decrease in travel demand	Detrimental to sustainable mode share	
		Significant decrease in travel demand	Very detrimental to sustainable mode share	

Source: TfL City Planning.

7 Impacts of the pandemic on travel demand

7.1 Introduction

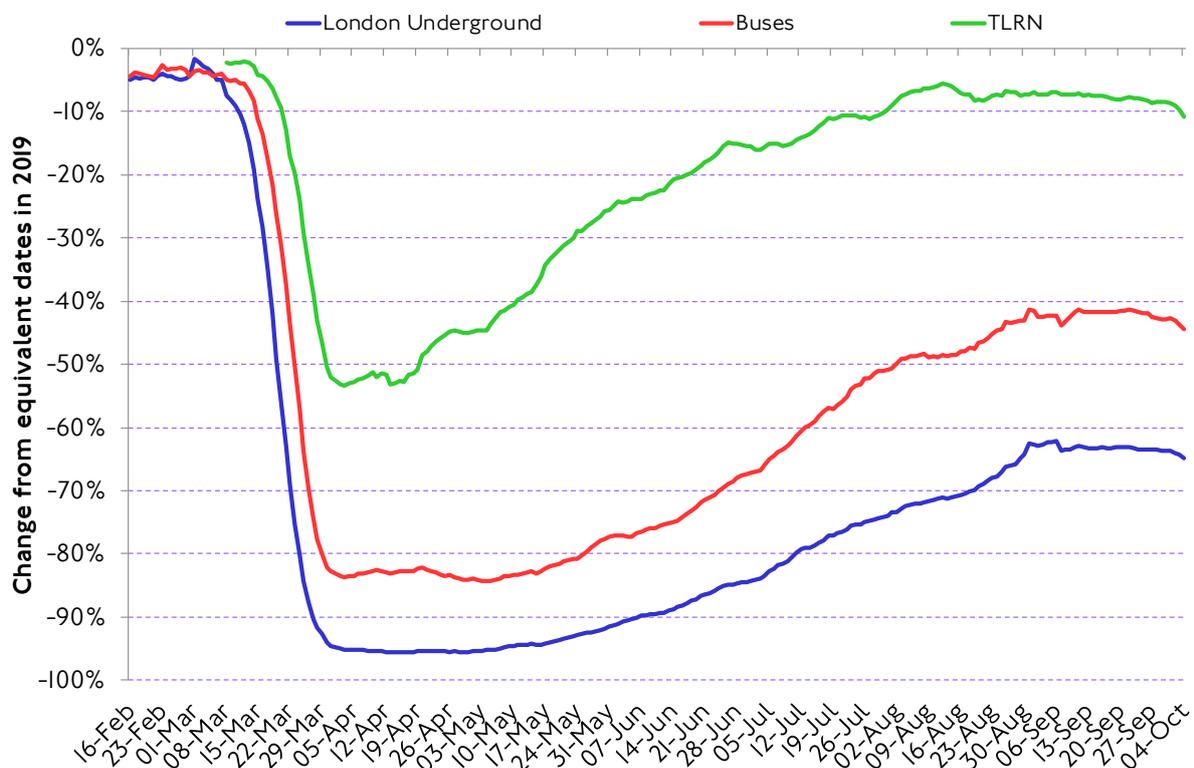
The pandemic had a sudden and dramatic impact on travel demand as a direct consequence of the shock to economic and social activity imposed by the lockdown of March 2020 and the associated social distancing requirements. The demand for travel not only fell to a fraction of its usual amount in a matter of days; it was transformed in many other ways, too. The timing of journeys changed, and so did in many cases 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. Following the easing of lockdown restrictions during the summer, some aspects of travel recovered, although the pace and nature of recovery also differed. The analysis of these changes is a useful exercise that can help better understand the motivations and constraints for travel during the pandemic and inform our plans for the transport aspects of the recovery.

Focusing on the quantitative aspects of demand, this section looks at demand impacts across London's key transport modes, making use of the best available data at the time of writing.

7.2 Overall demand trends on London's key transport networks

TfL has robust quantitative data that show the changes in **actual travel demand** on the principal modes, arising from public transport ticketing and automated road traffic counts (figure 7.1).

Figure 7.1 Demand on the main transport networks, 7-day moving average, 2020 vs 2019.



Source: TfL Technology & Data, TfL Surface Transport.

Note: No bus data available 20 Apr-28 Jun due to changes to ticket validation. The values provided are estimates.

7. Impacts of the pandemic on travel demand

The impact of the pandemic on roads and public transport has been different and so has the recovery trajectory after the initial shock.

- **London Underground** saw the biggest drop in demand, which at the lowest point in the following days reached 97 per cent (ie only 3 per cent of normal patronage remained).
- **Bus** demand also fell significantly, reaching up to an 86 per cent drop at the lowest point.
- The fall was smallest for motorised road traffic on the **TLRN strategic road network**, which at the lowest point only saw a maximum 65 per cent reduction with respect to 2019 at the London-wide level.

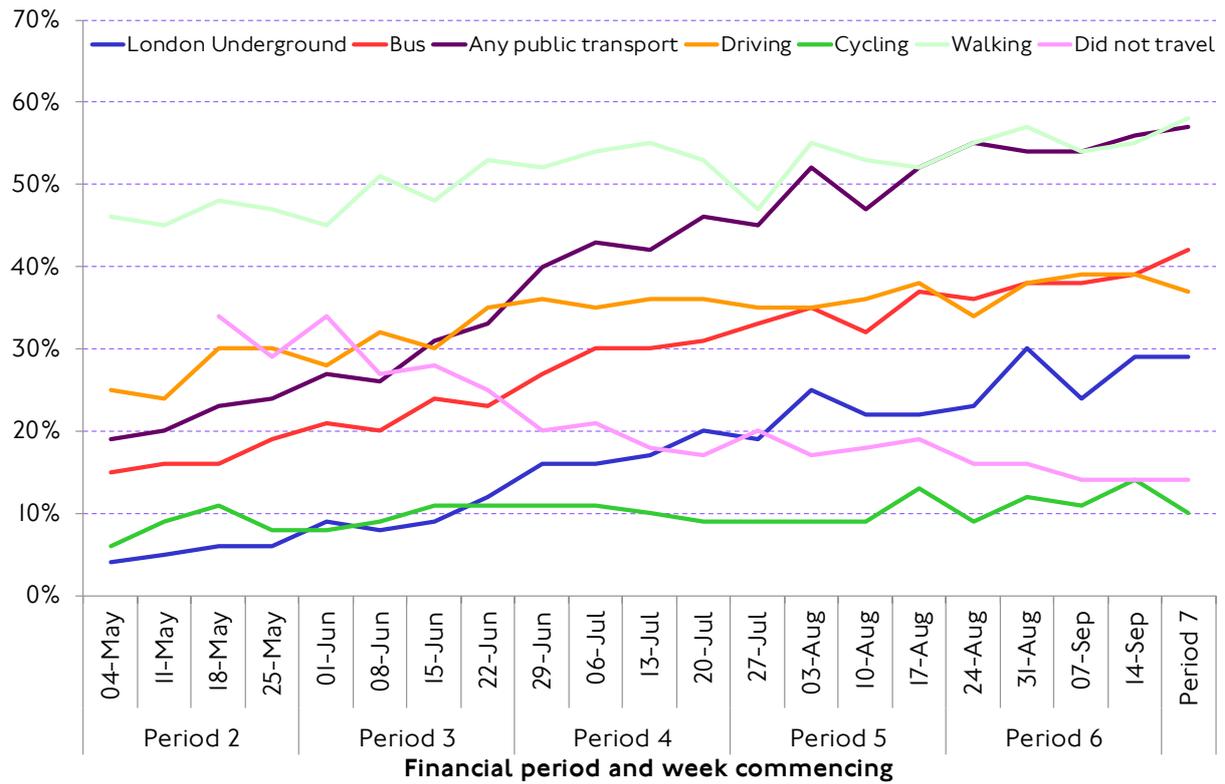
While the overall scale of reduction relates to the general factors restricting mobility, the difference between the modes reflects a range of second-order factors. For example: the widespread closure of many workplaces in central London, the relatively greater utility of buses for local travel, and the relative perception of virus transmission risk between public and private transport. A further factor for road traffic was the relative resilience of freight and servicing traffic, including buses, especially in terms of supporting essential activities and increased e-commerce.

The networks also showed different recovery profiles over the summer. **Road traffic** began to recover relatively quickly from mid-April and the pace of recovery then slowed down through July and August, flattening at just above 90 per cent of normal. **Bus and London Underground** demand, however, remained subdued through April and only began to recover slowly from late May. At the end of August, bus demand had reached almost 60 per cent of its pre-pandemic baseline but London Underground patronage remained under 40 per cent. In later weeks, the development of a second wave of the pandemic is reflected in a general flattening of the trajectory for all three modes.

Figure 7.1 shows actual recorded travel, while figure 7.2 shows trends from **TfL's Customer Pulse survey**, which reflects people's declared travel, in terms of the modes used, over the week preceding the survey. Of interest from the figure:

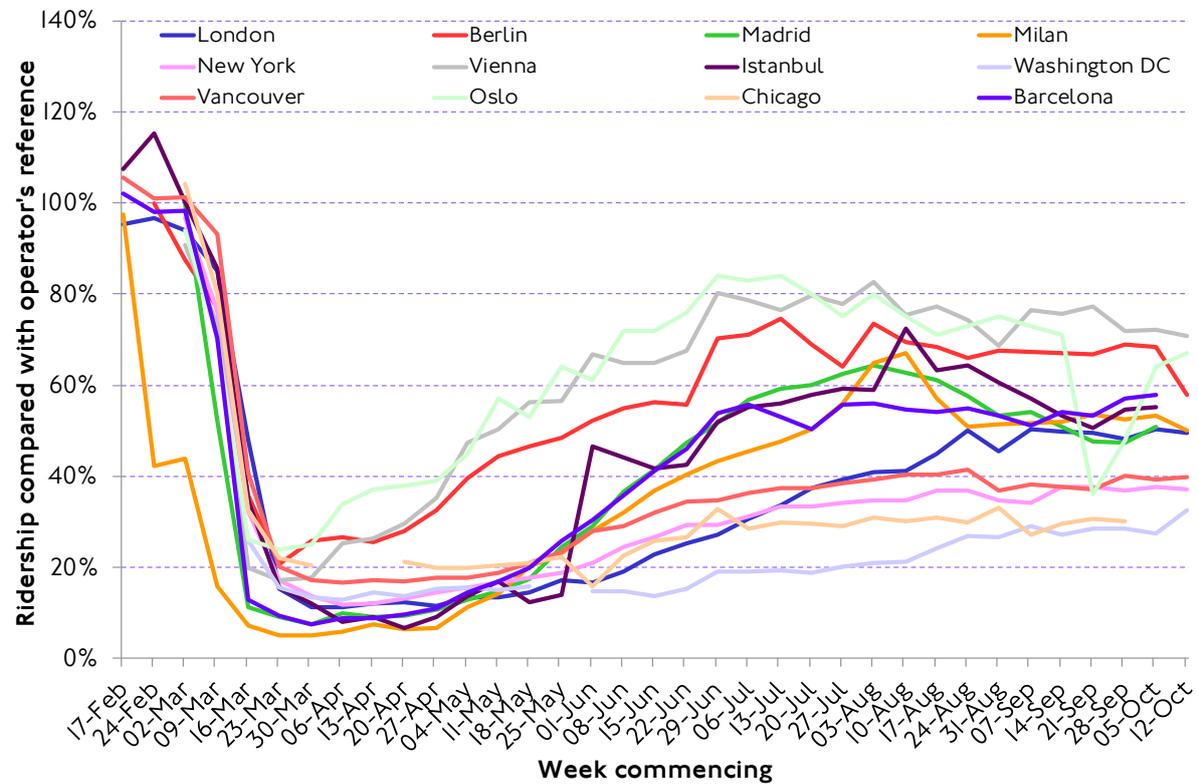
- The increase in relative bus and London Underground usage over more recent weeks mirrors that shown by figure 7.1, with around 40 per cent of respondents having used the bus, and around 30 per cent having used London Underground.
- Generally, around 10 per cent of respondents reported having cycled in the preceding week, this proportion being relatively stable over the survey period.
- The extent of 'no travel' (for the survey week) suggests that there is still a significant proportion of Londoners who are avoiding activity (15 per cent in later weeks, down from 35 per cent at the peak of lockdown).

Figure 7.2 Reported mode used in last week, Customer Pulse, May-Sep 2020.



Source: TfL Customer Insight, Strategy & Experience.
 1. From period 7 these surveys moved from weekly to periodic.
 2. Sample size is 500 respondents per week until the end of Period 6 and 1000 in Period 7.

Figure 7.3 Public transport patronage in selected cities, Mar-Oct 2020.



Source: International Association of Public Transport (UITP).

7. Impacts of the pandemic on travel demand

London in the context of other major cities

The trend for overall mobility in London during 2020 was comparable to that seen in many other European and North American cities, although perhaps reduced to a greater extent and for longer than some. Modally, however, London saw a greater proportionate initial fall in public transport demand than was typical. In turn, although patronage recovery in London over the summer was steady and at a rate comparable to other cities, London's public transport return remained at a lower level (October 2020) than for many comparable cities (figure 7.3).

Although there are reasons for these trends unique to each city, it is generally recognised that public transport patronage in London was driven down to a relatively very low level in the early stages of the pandemic, with strong official messaging to avoid it unless absolutely necessary; and that this experience has left a legacy of caution and distrust among potential users.

Other indicators of general mobility during the pandemic

The demand for travel is derived from people's needs to access places to undertake activities. These changes observed on the main transport networks occurred in the context of more general changes to mobility, which in turn reflected changes to daily activity brought about by the pandemic and the responses to it.

There are no ideal data sources to describe overall mobility, but there are several proxy datasets that can be used collectively to paint a general picture of the overall magnitude of pandemic-related changes to travel demand. These all have their own biases, and therefore are not to be taken as wholly representative. However, the trends shown by the Citymapper Mobility Index and by Google's Community Mobility Reports are informative in this context:

- **Citymapper Mobility Index**^[11] shows that mobility in London followed a similar trend to comparable cities, with a sharp decline from mid-March, mobility subdued for much of April, and then a slow but steady recovery until September, after which growth stalled amid the emergence of a second wave.
- **Google's Community Mobility Reports**^[12] are particularly useful to understand the impacts on the different types of activity/venue that people spend time in. This data shows that, immediately following the lockdown announcement, time spent in workplaces, transport and retail and recreation venues in London fell by 60 to 70 per cent. However, grocery and pharmacy activity (considered 'essential') only decreased by 30 to 40 per cent, while time spent in residential areas increased by the same amount. After about a month of stagnant activity, recovery in all sectors started from the end of April, but the pace has been uneven, with grocery and pharmacy activity recovering to 80 per cent of pre-pandemic levels by the end of May while activity in workplaces, transport and retail and recreation continued to increase fairly steadily until September to between 50 to 65 per cent of pre-pandemic levels.

7.3 Bus demand and the pandemic

Introduction

The general trend in bus demand since the beginning of the pandemic was a sudden drop right after lockdown, to a minimum of 14 per cent of normal,

followed by a slow recovery, to approximately 55 per cent of normal by early October. This initial drop took place in the context of a reduced service but also a period of middle door-boarding when passengers were not obliged to touch in and were asked not to approach the validators near the drivers. There were other operational changes which affected the customer experience and the public's idea of what it means to travel by bus. For example, since September TfL introduced dedicated priority bus services for pupils to accommodate safe travel to school.

This section explores specific features of bus patronage during the pandemic, with a focus on the spatial and temporal distribution of their impacts.

Buses: overall impact on demand

- In February and March 2020, before lockdown, bus demand was already between 3 and 5 per cent lower than 2019, with around 5.9 million journeys on an average weekday compared to 6.1 million in 2019. This partly reflects the overall trend of decline, before the pandemic, in bus use in London (see also section 4.5 of this report), although will also itself have included some pandemic-related impacts from the latter part of March.
- Following the March lockdown, bus demand dropped by up to 86 per cent at the lowest point (bearing in mind that between mid-April and the end of June there is a gap in bus data due to middle door-boarding).
- The recovery of demand started during May. Up to mid-July, bus demand recovered by around 9 per cent week-on-week. By 29 June (the first reliable data point after the changes to ticket validation and bus boarding in April and May), there were an estimated 2 million bus journeys on the network, which is about one-third of the demand at the same time in 2019.
- However, the pace of recovery slowed over summer (with average week-on-week growth between 1 and 3 per cent) and from September the recovery has flattened, with bus patronage at around 55 per cent of the level observed at this time in 2019 for the best part of September and October, which is the equivalent of 3.6 million weekday journeys compared to 6.3 million in 2019.

Buses: impact on demand by day of the week

Different days of the week have shown slightly different rates of recovery. Figure 7.4 shows that while weekend demand fell faster than weekdays, it has also been quicker to recover. This probably reflects the greater return of discretionary travel as opposed to weekday commuting demand, which remained affected by the partial closure of many workplaces.

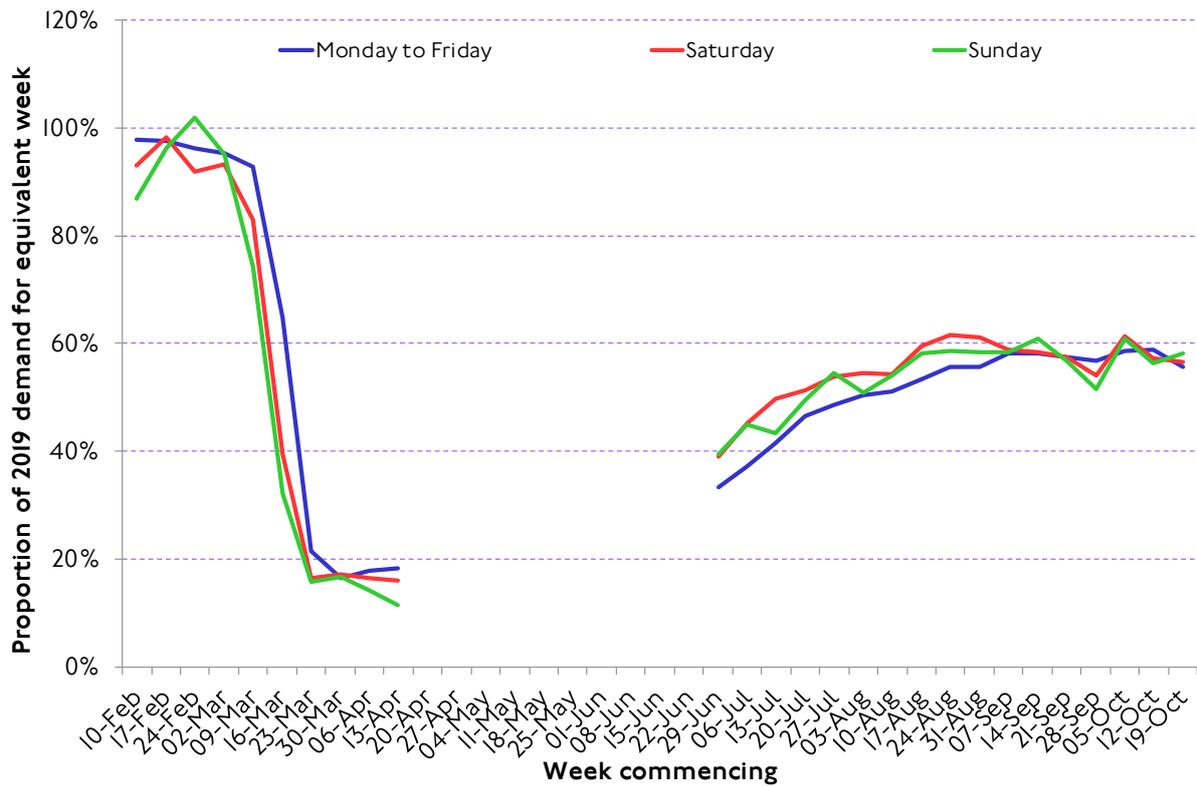
Buses: impact on demand by time of day

Other changes to bus demand observed during the pandemic relate to its distribution within the day, where there have been noticeable relative changes to the traditional peaks within the overall lower absolute patronage levels.

Figure 7.5 shows the relative demand profiles (based on boardings) on an average weekday in several representative weeks during the pandemic and compares them to the baseline profile observed in early 2020.

7. Impacts of the pandemic on travel demand

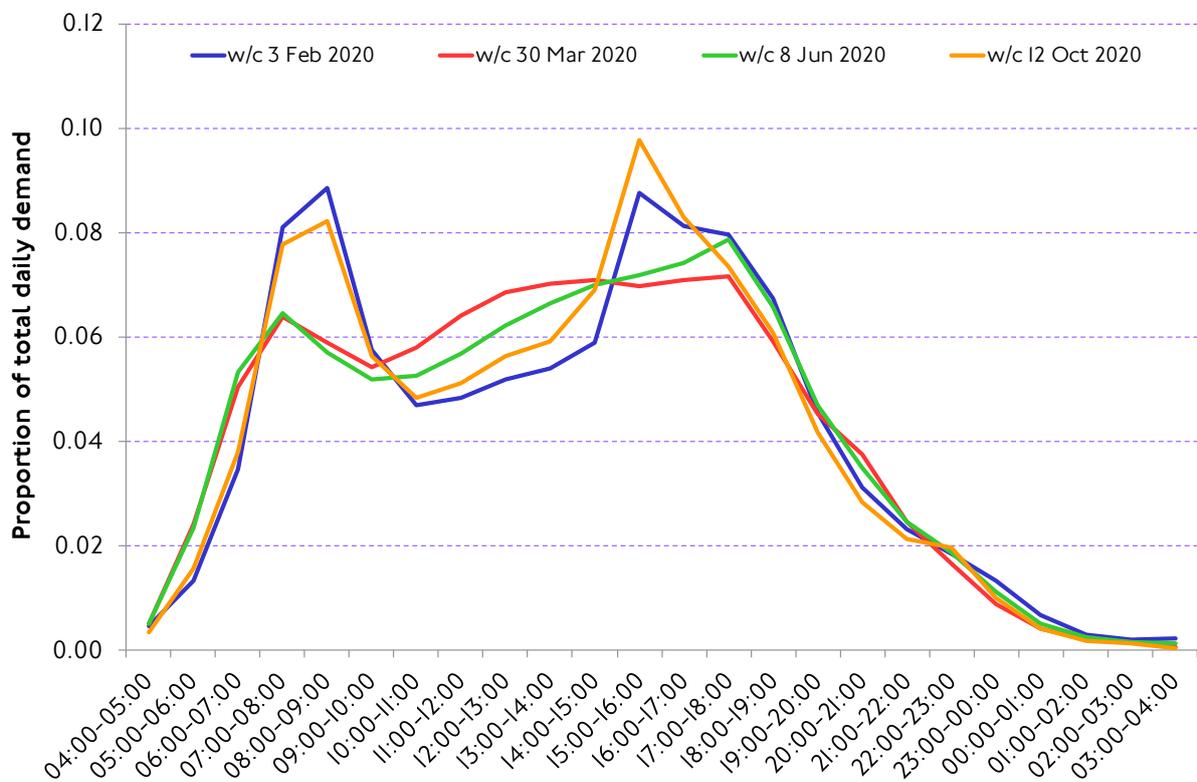
Figure 7.4 Bus demand by day of week, 2020 vs 2019.



Source: TfL Technology & Data.

Note: No bus data available 20 Apr-28 Jun due to changes to ticket validation.

Figure 7.5 Relative daily bus demand profile, representative weeks in 2020.



Source: TfL Technology & Data.

Note: The daily total represents 100 per cent of prevailing demand.

7. Impacts of the pandemic on travel demand

At the height of the spring lockdown (w/c 30 March) the relative demand in the traditional morning and evening peaks was substantially reduced (red line). The timing of the morning peak also shifted to about an hour earlier than usual (from 08:00 to 07:00) and relatively more of the daily demand was seen in the early hours of the morning. At the same time, this peak became less busy, in relative terms, than the evening peak. On the other hand, the traditional evening peak (composed of a main peak around 15:30 related to school travel and a smaller one just after 17:00 related to the end of the working day) saw the first part almost disappear and the demand spread mostly into the inter-peak period.

As the second wave of the pandemic started to develop in mid-October, however, the temporal distribution of bus demand had mostly recovered its pre-pandemic features with two clear peaks at the same times as before the pandemic, as a likely direct consequence of the reopening of schools. However, the morning peak (traditionally busier) still showed lower demand than the evening peak, which also continued to be more spread than before the pandemic.

Buses: school travel demand

Travel to school is an aspect of bus demand of particular interest given the service changes that were introduced at the beginning of term (see below for details).

An initial analysis of daily bus boardings in September by passengers using Zip cards (concessionary travel products available for pupils aged 11 to 18) shows that the number of young people using the bus was consistently around 70 per cent of the baseline at the same time in 2019.

It is thought that the remainder of this demand may have dissipated as a consequence of pupils not travelling to school at all due to local restrictions or parents'/carers' reluctance, and also of pupils travelling by different modes, eg by walking, cycling or car as passengers. Schools are to carry out annual school travel surveys at the end of October and the results of these surveys, while not available at present, will help us understand how travel patterns have changed.

This 30 per cent reduction from pre-pandemic levels has not affected all parts of London equally (figure 7.6). In fact, there is wide variation between boroughs and this reduction ranges from 20 to 50 per cent. These differences are likely related to car availability in the household, parents'/carers' flexibility to work from home or more flexibly, and relative perceptions of safety to use the bus in the context of coronavirus.

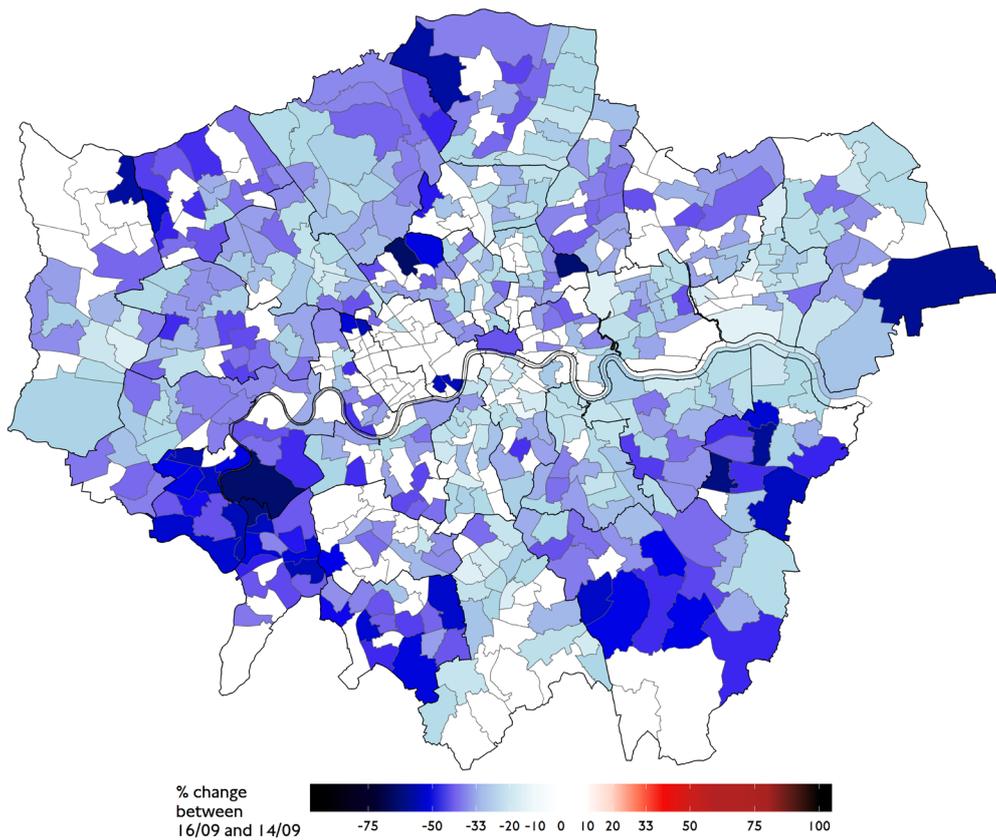
It has also been found that most of the absolute reduction in bus travel has occurred on the relatively shorter trips (under 3km of estimated crow-fly distance), although the relative distribution of trip lengths has not changed noticeably since last year.

Finally, it is interesting to evaluate the impact of the government's advice to schools to investigate staggered start and end times to spread the travel peaks and help ensure safety.

An analysis by quarter hour of the temporal distribution of Zip card bus boardings in the morning hours (figure 7.7) shows that, in relative terms, September 2020 is seeing a higher proportion of pupils travelling slightly later (particularly after 08:30) and fewer prior to this time.

7. Impacts of the pandemic on travel demand

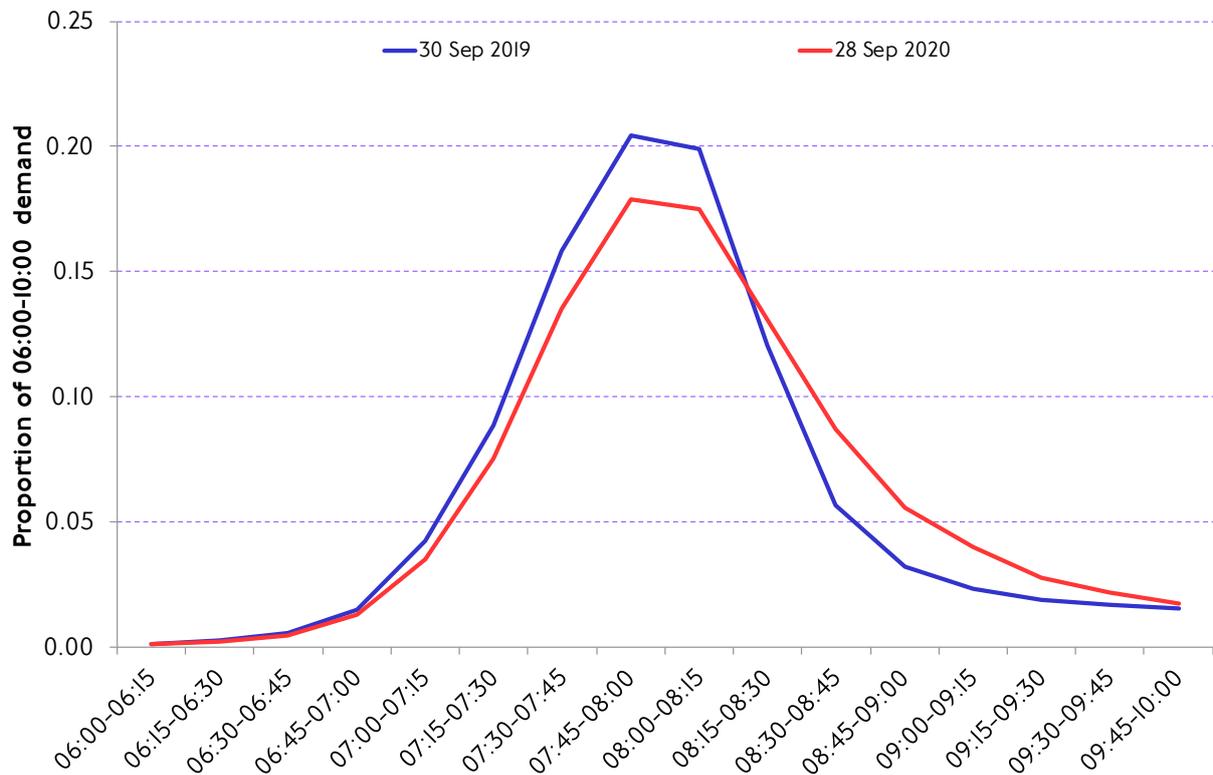
Figure 7.6 Zip card bus boardings before 10:00, 14 Sep 2020 vs 26 Sep 2019.



Source: TfL Technology & Data.

Note: Wards are highlighted only where there is an absolute change greater than 100 passengers.

Figure 7.7 Relative Zip card demand between 06:00 and 10:00, 2020 vs 2019.

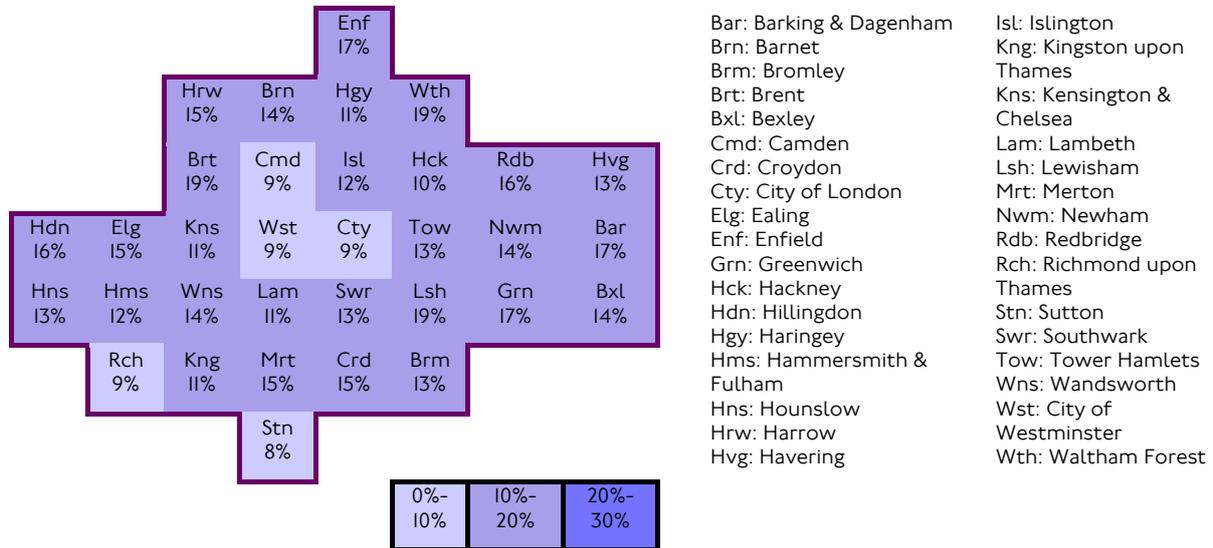


Source: TfL Technology & Data.

Buses: changes to spatial pattern of demand

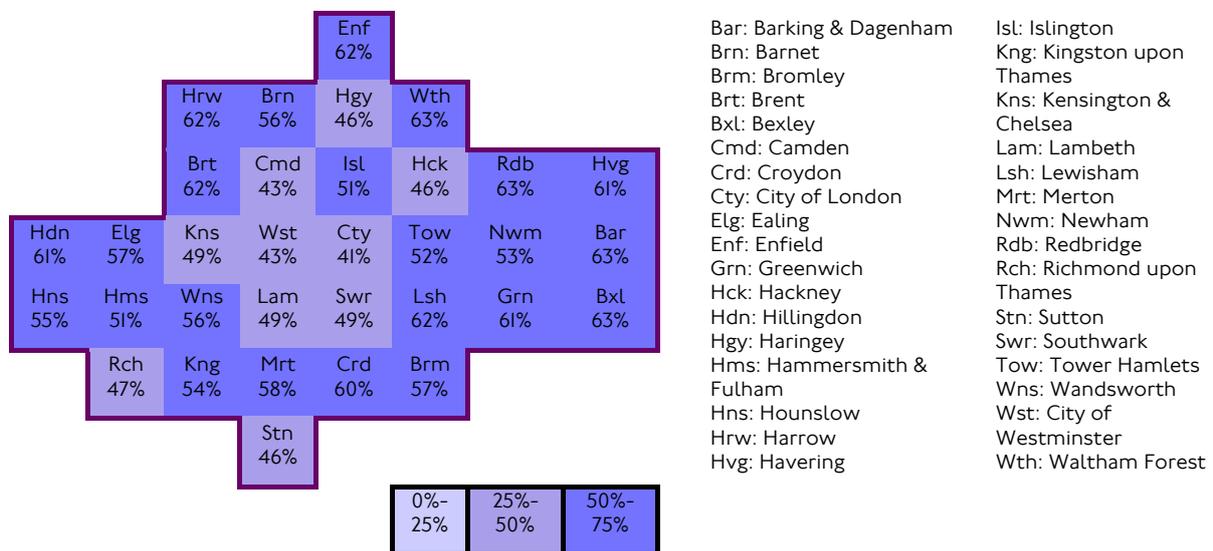
Figures 7.8 and 7.9 show the proportion of bus demand in each borough for representative weeks in late March and late September compared to a pre-pandemic autumn 2019 baseline. Note that 30 March was during the period of strict lockdown, with schools and shops closed.

Figure 7.8 Buses demand by borough, week commencing 30 Mar 2020 vs autumn 2019 baseline.



Source: TfL Public Transport Service Planning.

Figure 7.9 Buses demand by borough, week commencing 12 Oct 2020 vs autumn 2019 baseline.



Source: TfL Public Transport Service Planning.

The figures show the magnitude of the overall demand impact, but also a pattern of greater reductions towards inner and central London. Comparing September with March, the recovery has been faster in outer London boroughs, with particularly high returns towards the baseline demand in the northeast, where some boroughs show up to 63 per cent of the pre-pandemic demand, noticeably higher than the 55 per cent London average.

7. Impacts of the pandemic on travel demand

Buses: impact on service provision

The demand trends described above need to be interpreted in the context of several changes to bus service provision and the customer experience.

Table 7.1 shows the newly-defined service availability metric for buses. This indicator represents the proportion of services operated compared to the same period in 2019, adjusting by the difference in period length between years and known service changes, so that the impact of the pandemic can be isolated.

Table 7.1 Buses service availability metric, financial periods 1-7 2020/21.

	P1 (1 Apr – 2 May)	P2 (3 May – 30 May)	P3 (31 May – 27 Jun)	P4 (28 Jun – 25 Jul)	P5 (26 Jul – 22 Aug)	P6 (23 Aug – 19 Sep)	P7 (20 Sep – 17 Oct)
Service availability metric	87%	85%	91%	98%	100%	101%	102%

Source: TfL Public Transport Service Planning.

This table shows how after a couple of months of bus service reductions (of up to 15 per cent in April and May), bus services ramped back up to the pre-pandemic level of provision throughout the summer and, from September onwards, they even increased beyond the level seen in 2019, reflecting the introduction of dedicated school services.

It is also known that during the early stages of the pandemic, and mostly due to the reduction in overall levels of traffic, bus speeds increased significantly while the excess waiting time and the overall bus journey time dropped to historic lows.

Other operational changes during this period that have had an impact on the customer experience are:

- Following a trial in early April, from mid-April and until the end of May most buses introduced compulsory middle door-boarding to protect bus drivers. During this time, passengers were not required to validate their ticket and were asked not to approach the validator near the driver's cab. Since this reader is the only one available on board most buses, this meant that most of the network was effectively free to use for pay-as-you-go customers for this time.
- Capacity limitations have been introduced to maintain social distancing within the vehicles.
- Since the beginning of September many bus routes have introduced dedicated priority school services for pupils (operating at full capacity in line with government guidelines) while keeping buses with limited capacity for the general public.
- Enhanced, hospital-level cleaning and disinfecting regimes have been in place on London's buses since March.
- The use of face coverings on public transport was made compulsory from 15 June for all but those exempt for medical reasons, and enforcement of this was strengthened in September in line with the increase in the alert level.
- Various marketing and behaviour change campaigns have been rolled out over the last few months, firstly encouraging people to travel only for essential journeys and later promoting safe behaviours such as the use of face coverings, social distancing, information about the quietest times to travel, etc.

While some of these changes may work to deter people from using buses, eg by making the travel experience more cumbersome, others may be having the opposite effect and contribute to restoring confidence. In some cases, there might even be second-order benefits (eg less crowding because fewer people travel in general but a more pleasant experience for those who do travel). Achieving the right balance here will be crucial for restoring confidence in buses as a mode that is once again perceived to be safe in the context of an ultimate return of activity and diminution of the coronavirus threat.

7.4 TfL's rail services and the pandemic

Introduction

The general trend in London Underground demand since the beginning of the pandemic was one of a dramatic fall in demand from mid-March 2020, to a low point of 3 per cent of normal, followed by a recovery at a slower pace than other modes, reaching typically 35 per cent of normal during October, prior to restrictions associated with the emergence of a second wave of coronavirus.

This section looks beyond the high-level trends and explores some of the specific features of London Underground demand during the pandemic, particularly how this has affected the spatial and temporal distribution of demand.

London Underground: overall impact on demand

- In February and March, before lockdown, London Underground demand was approximately at the same level as the previous year, with around 4.0 million journeys on an average weekday compared to 4.1 million in 2019.
- Following the March lockdown, London Underground demand dropped by up to 97 per cent at its lowest point in April.
- The recovery of London Underground demand started at the beginning of May but proceeded at a relatively slow rate thereafter.
- At the time when data collection on buses resumed on 29 June and bus patronage had recovered to about a third, London Underground demand was at only 16 per cent compared with the same time in 2019, or an estimated 678,000 journeys per day.
- Since August, London Underground recovery has flattened, remaining at around 35 per cent of 2019 demand until October, which represents just 1.4 million weekday journeys compared to 4.1 million in 2019.

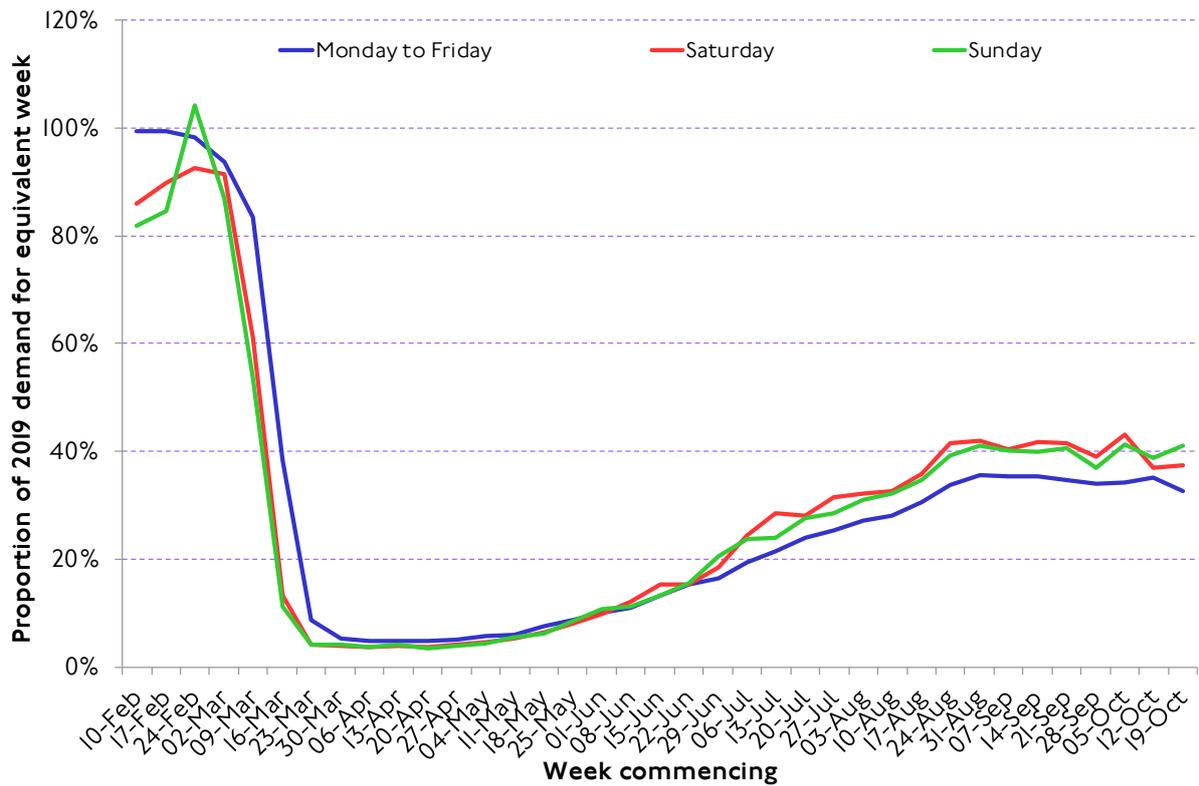
London Underground: impact on demand by day of the week

Figure 7.10 shows demand relative to 2019 for different days of the week. The initial difference shown by the graph, with weekend demand falling ahead of weekday demand, partly reflects the timing of the lockdown announcement (mid-week).

During March and into May, the extent of the reduction in demand was similar across all days of the week. Since June, however, and in the context of continuing much reduced overall demand levels, the profile for the different day types has diverged and weekends have consistently recorded higher proportions of normal demand, as with buses, reflecting a return of more discretionary trips and a continuing relative absence of baseline commuter demand.

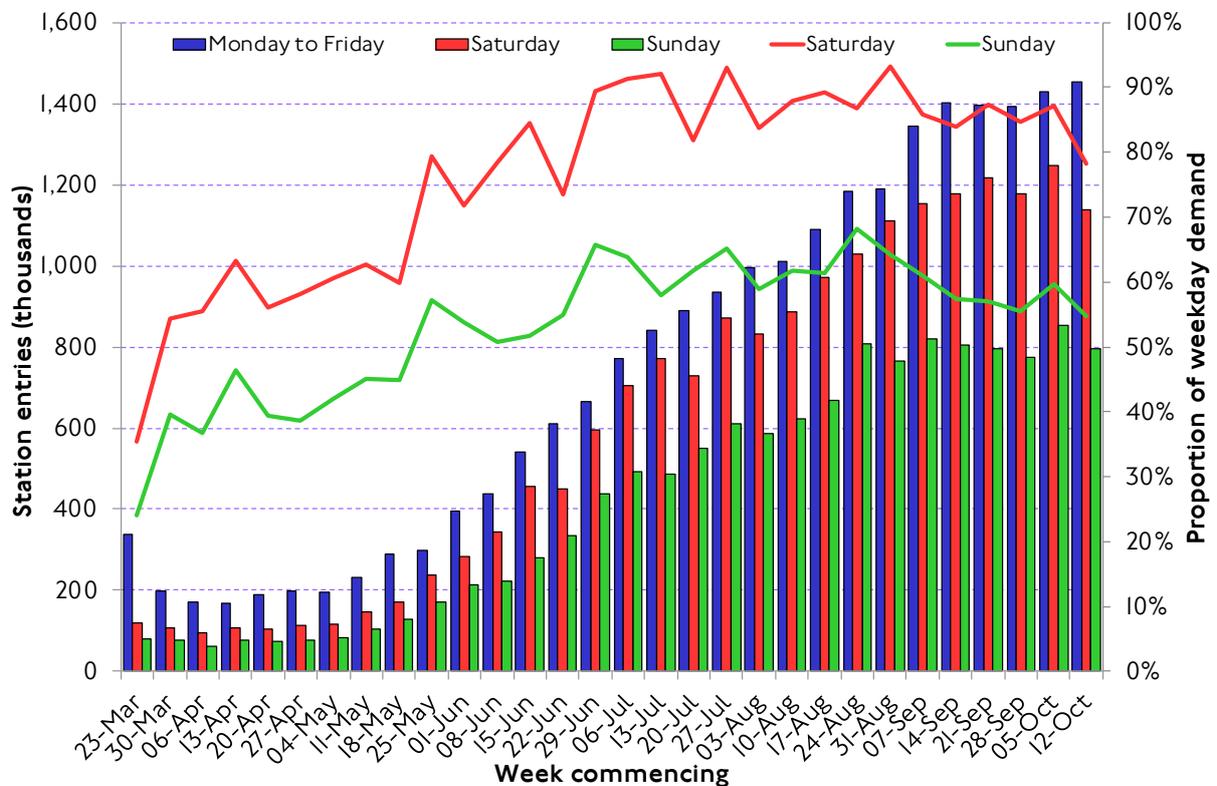
7. Impacts of the pandemic on travel demand

Figure 7.I0 London Underground recovery by day of week, 2020 vs 2019.



Source: TfL Technology & Data.

Figure 7.II London Underground entries by day of week, Mar-Oct 2020.



Source: TfL Public Transport Service Planning.

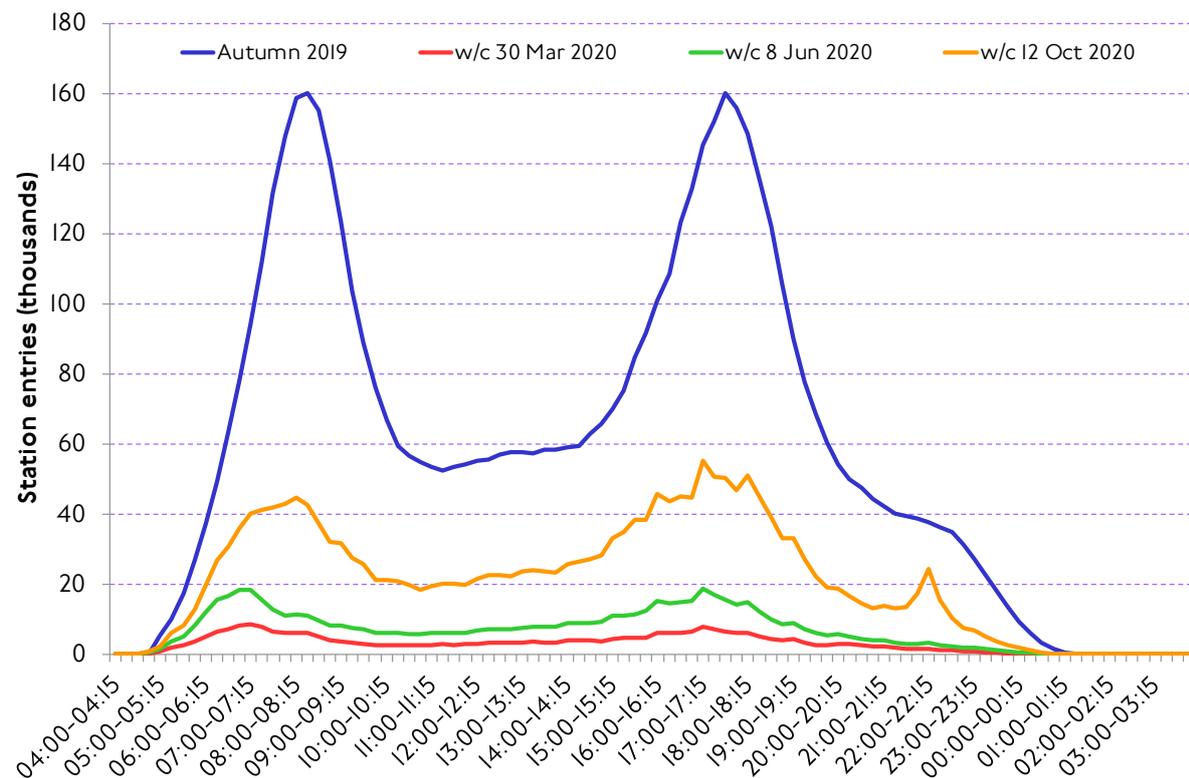
This overall rebalancing of weekly London Underground demand away from weekdays and towards weekends has become an established feature of trends over more recent months. Figure 7.11 shows the average absolute demand (bars, left hand axis) on each week since lockdown as well as the proportion of the Saturday and Sunday demand with respect to the weekdays (lines, right hand axis).

On Saturdays before the pandemic, the total daily demand used to be typically around 74 per cent of the demand on a typical weekday (red bars). Since May, however, this value has been exceeded and Saturday demand has reached up to 90 per cent of the demand on weekdays and is currently around 80 per cent (red lines). The trend is similar on Sundays, where before coronavirus demand used to be around 50 per cent of weekdays but during the recovery it has been well above that and sometimes close to 70 per cent, being circa 55 per cent in recent weeks.

London Underground: impact on demand by time of the day

Another feature of London Underground demand relates to its distribution throughout the day, with important relative changes to the traditional peak periods, albeit in the context of much lower absolute patronage. Figure 7.12 shows the demand profiles (based on station entries) at a few representative times during the pandemic and compares them to the typical profile in autumn 2019.

Figure 7.12 London Underground demand by time of day, representative weeks in 2020 vs autumn 2019 baseline.



Source: TfL Public Transport Service Planning.

In the first few weeks after lockdown there was an important shift in the timing of the peaks, particularly the morning peak. Traditionally between 07:00 and 10:00 with a high point around 08:15, in the last week of March the highest demand on the London Underground (which was, however, only around 5 per cent of normal at this time) was seen at around 07:00, which is the time when most key workers

7. Impacts of the pandemic on travel demand

were travelling to their workplaces. Similarly, the evening peak occurred a bit earlier than usual (around 17:00 instead of 17:30) and was wider, with extended 'shoulders'. At this point in the pandemic there was also, in relative terms, more demand than usual in the inter-peak and less in the evenings.

By early June, once recovery had started and demand was around 11 per cent of the 2019 baseline, this profile had not substantially changed. In mid-October, absolute demand was around 35 per cent of usual, yet the distribution of demand was still substantially different than in the baseline. There was a slightly earlier morning peak at around 08:00 and relatively more demand than usual in the early hours of the morning, the earlier part of the morning peak, the inter-peak, as well as a new late evening peak just after 22:00. This latter appears to be a consequence of the hard finish in opening hours of all pubs and restaurants imposed by the restrictions introduced in September.

Impact on spatial distribution of rail demand

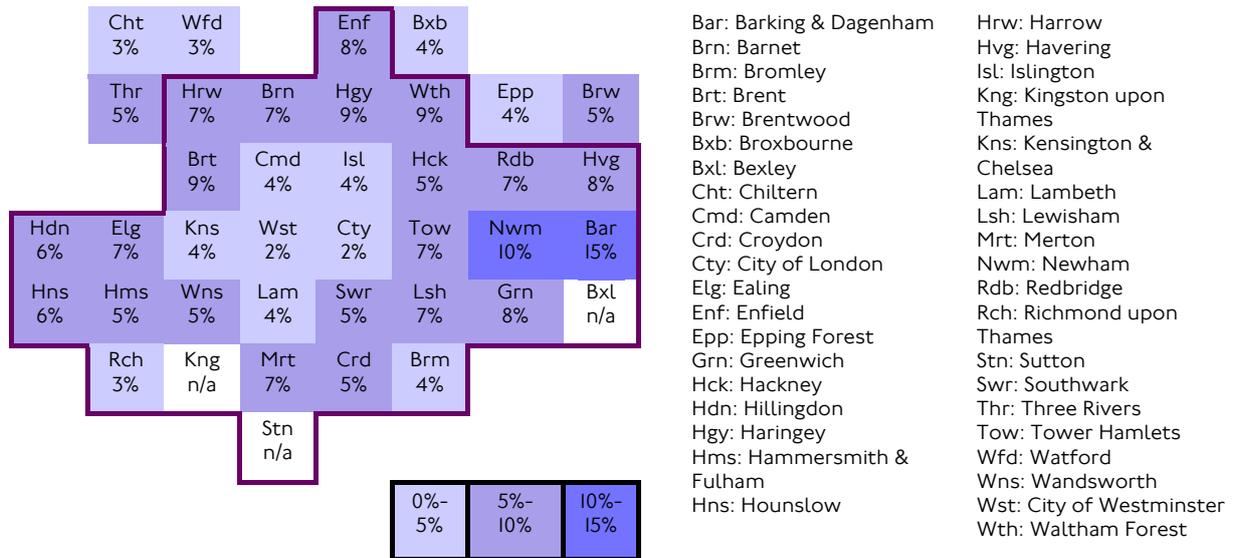
One way of looking at spatial patterns is in terms of entries to stations in each area. Figures 7.13 and 7.14 show the proportion of entries to all London Underground, London Overground and DLR stations (combined) in each borough for a representative week at the height of lockdown and a week in early autumn compared to a 2019 baseline. The graphs extend outside the GLA to reflect TfL operations in those areas, while some boroughs do not have TfL rail stations.

Figure 7.13, representing the full lockdown period, shows that the reduction in demand was more severe in central London boroughs than in inner and outer boroughs. For example, the City of London and Westminster saw just 2 per cent of normal London Underground demand. Similarly, recovery has been faster in outer London boroughs, and by the early autumn some of these boroughs were already seeing rail demand exceeding 50 per cent of the pre-pandemic baseline, which is substantially higher than the London-wide average of 35 per cent. At the same time, the City of London had only recovered around 20 per cent of the demand, with Camden and the City of Westminster also remaining below 30 per cent.

These patterns are likely to reflect the characteristics of the population living in each of these boroughs as well as the nature of economic activity within them. In general, areas with traditionally higher proportions of workers in non-office-based professions, more reliant on travel for work during the pandemic and with large public transport mode shares, are seeing higher recovery rates than areas with more office-based activity and populations, where working flexibly and from home is more prevalent.

7. Impacts of the pandemic on travel demand

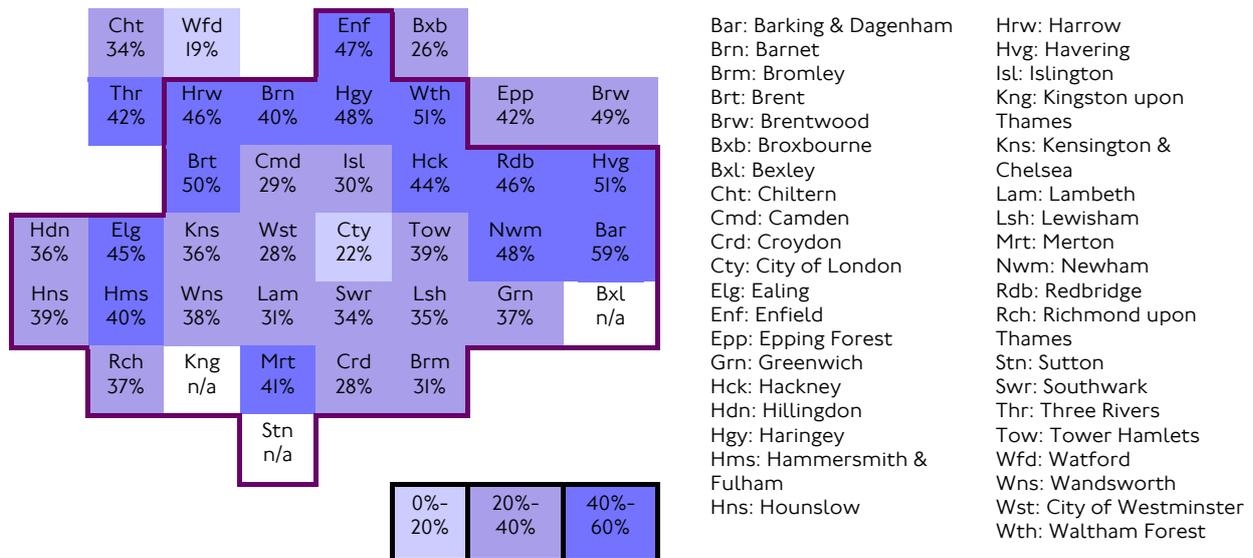
Figure 7.13 London Underground, London Overground and DLR weekday entries by borough, week commencing 30 Mar 2020 vs autumn 2019 baseline.



Source: TfL Public Transport Service Planning.

Note: Boroughs in the Greater London Authority (GLA) are enclosed within purple borders. Please note that some do not have any London Underground, London Overground or DLR stations and therefore there is no data available for them.

Figure 7.14 London Underground, London Overground and DLR weekday entries by borough, week commencing 12 Oct 2020 vs autumn 2019 baseline.



Source: TfL Public Transport Service Planning.

Note: Boroughs in the Greater London Authority (GLA) are enclosed within purple borders. Please note that some do not have any London Underground, London Overground or DLR stations and therefore there is no data available for them.

Another way to look at the spatial distribution of station entries is at the city **regions** and fare zones level, as shown in table 7.2, which largely reinforces the conclusions above.

7. Impacts of the pandemic on travel demand

Table 7.2 London Underground demand on origin-destination pairs of station types, week commencing 12 Oct 2020 vs autumn 2019 baseline.

Fare zone	Region	Proportion of baseline demand on w/c 12-Oct
1	City	22%
	City fringe	24%
	Southbank	27%
	West End	28%
2-3	Northeast	46%
	Northwest	41%
	Southeast	37%
	Southwest	40%
4+	Northeast	50%
	Northwest	43%
	Southeast	38%
	Southwest	40%
	Outside London	36%

Source: TfL Public Transport Service Planning.

Finally, it is also possible to explore these trends by broad **station categories**. Tables 7.3 and 7.4 show the proportion of London Underground demand for each category-based origin-destination pair during a representative week at the height of the spring lockdown and a week in autumn, compared to a pre-pandemic baseline in early February 2020.

During the spring lockdown (table 7.3), all trips were at a very low level compared to February, especially those with one end in the City category (which includes Canary Wharf station). Trips with an end in outer London saw the lowest decline.

By mid-October (table 7.4), some trip combinations had recovered to around 50 per cent of normal, in the context of overall demand of around 35 per cent of normal. Trips with an origin in the City remained below the London-wide average, and so did those with ends at tourist destinations or rail termini, the latter related to reduced demand on the National Rail network, which acts as a feeder to the London Underground and where demand in September was around 27 per cent of what it was in February.

7. Impacts of the pandemic on travel demand

Table 7.3 London Underground weekday demand for origin-destination pairs by station category, week commencing 30 Mar 2020 vs week commencing 3 Feb 2020.

		Destination						
		City	Inner suburb	Outer suburb	Shopping	Terminus	Tourist	
Origin	City	1%	3%	4%	1%	1%	1%	0%-4%
	Inner suburb	3%	7%	10%	3%	4%	3%	4%-8%
	Outer suburb	5%	10%	10%	5%	6%	5%	8%-12%
	Shopping	1%	3%	5%	1%	1%	1%	
	Terminus	1%	3%	6%	1%	2%	1%	
	Tourist	1%	3%	5%	1%	1%	2%	

Source: TfL Public Transport Service Planning.

Table 7.4 London Underground weekday demand for origin-destination pairs by station category, week commencing 12 Oct 2020 vs week commencing 3 Feb 2020.

		Destination						
		City	Inner suburb	Outer suburb	Shopping	Terminus	Tourist	
Origin	City	19%	28%	30%	23%	17%	19%	0%-20%
	Inner suburb	28%	48%	53%	39%	33%	33%	20%-40%
	Outer suburb	31%	53%	57%	44%	36%	37%	40%-60%
	Shopping	24%	38%	43%	28%	24%	24%	
	Terminus	17%	31%	35%	24%	18%	20%	
	Tourist	20%	33%	37%	25%	21%	20%	

Source: TfL Public Transport Service Planning.

London Underground: impact on service provision

These changes took place within the context of important changes to service provision and the customer experience as a result of the pandemic. Table 7.5 shows the service availability metric for London Underground since the beginning of the pandemic. For London Underground, this indicator represents the proportion of scheduled trains operated.

Table 7.5 London Underground service availability metric, financial periods 1-7 2020/21.

	P1 (1 Apr – 2 May)	P2 (3 May – 30 May)	P3 (31 May – 27 Jun)	P4 (28 Jun – 25 Jul)	P5 (26 Jul – 22 Aug)	P6 (23 Aug – 19 Sep)	P7 (20 Sep – 17 Oct)
Service availability metric	41% ¹	57% ¹	82%	90%	92%	92%	93%

Source: TfL Public Transport Service Planning.

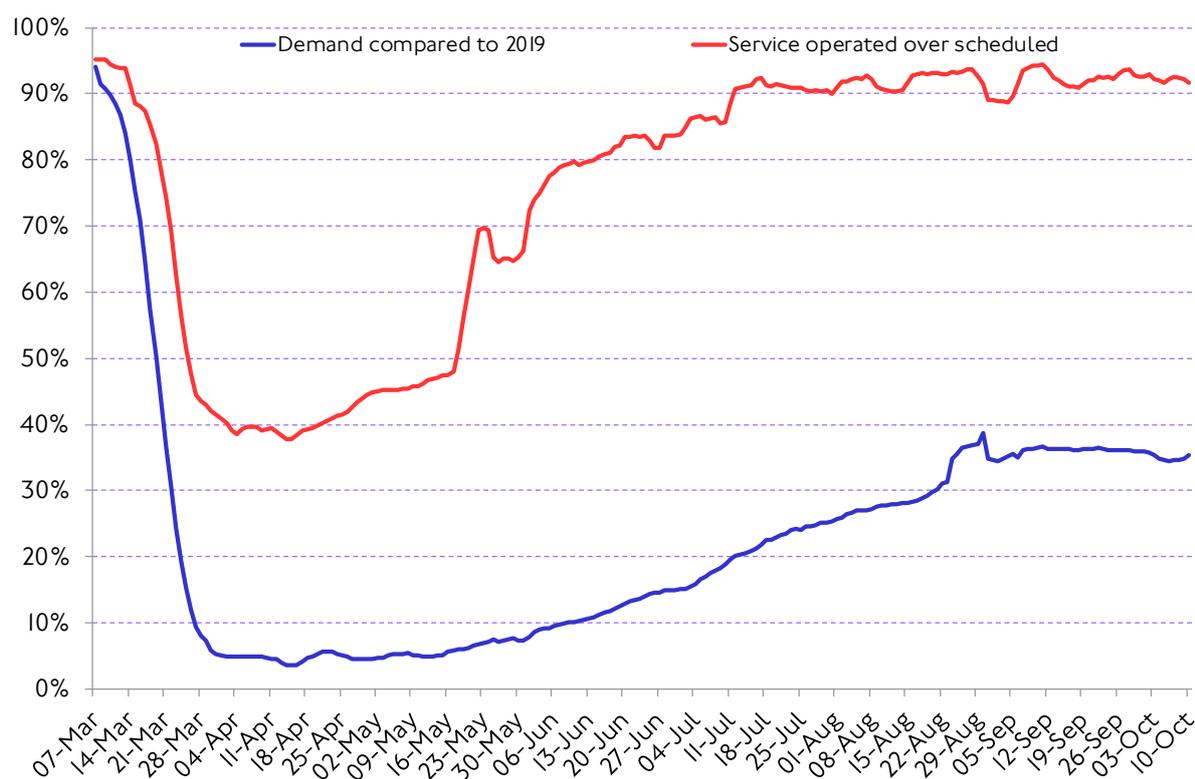
1: This metric was not reported on the TfL Scorecard until P3, and so P1 and P2 are estimated values from a different source.

7. Impacts of the pandemic on travel demand

In the first few months of the year, the trend in London Underground service provision follows a trend similar to that observed on buses, with reduced levels of service partly reflecting operational difficulties and safety restrictions at the height of the first wave of the pandemic. Latest service levels, into October, are that around 93 per cent of scheduled services are operating.

Figure 7.15 further shows how, despite very reduced service provision in the first few weeks following the March lockdown, the service resumed fairly quickly despite subdued demand in an attempt to support social distancing and maintain attractiveness by preventing crowding inside trains.

Figure 7.15 London Underground demand and supply during the coronavirus pandemic, Mar-Oct 2020.



Source: London Underground.

The customer experience on London Underground has also changed as a response to the pandemic. While some changes, such as the capacity restrictions to enforce social distancing, the need to wear a face covering unless exempt, the cleaning regimes and the marketing campaigns are common to other public transport modes, London Underground has also seen some specific changes, such as:

- Closure of some non-interchange stations and some station entrances, particularly in the early stages of the pandemic and mostly where nearby stations or entrances were easily accessible by other modes.
- Suspension of Night Tube services until further notice.
- One-way systems and social distancing floor markings at stations to keep the flow of passengers while respecting the government guidelines.
- Provision of hand sanitiser at key points throughout the network.
- Cashless-only payments at ticket machines.

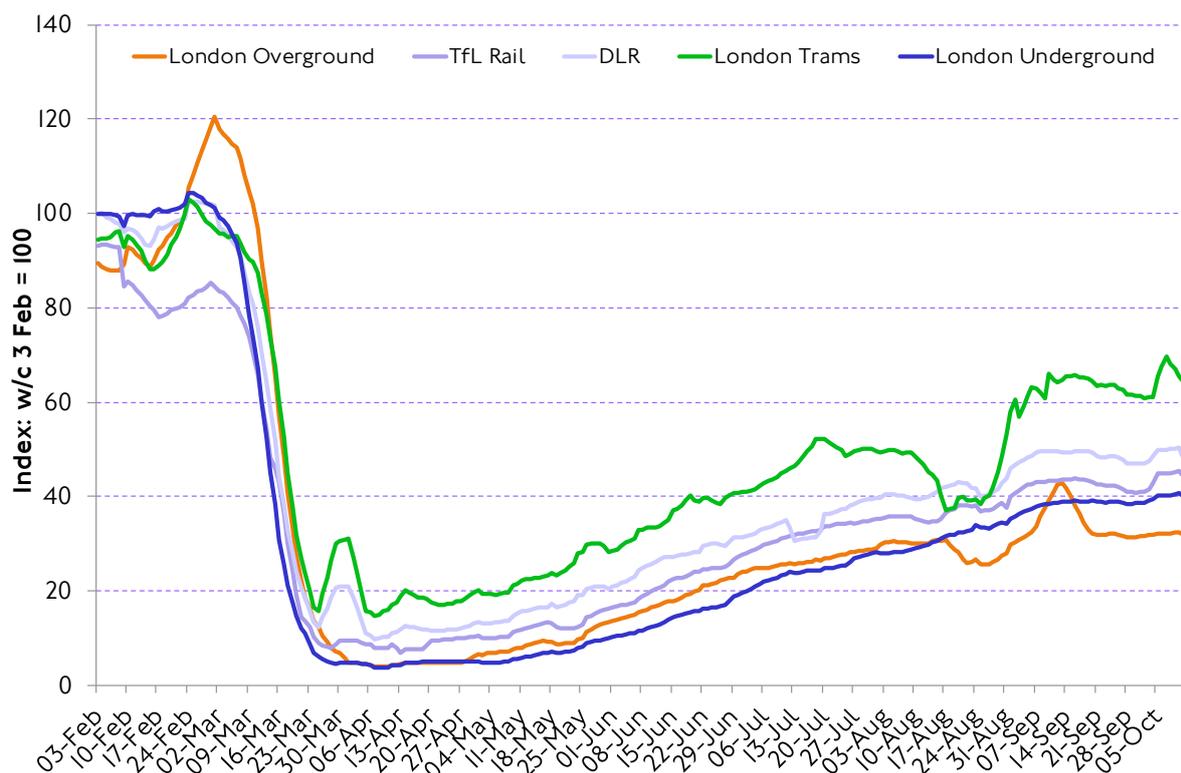
The impact of these changes on demand is difficult to assess, although there are likely to have been secondary factors within the overall context of a radically reduced need to travel. As with buses, addressing these perceptions in the context of the return of activity and travel demand will be a key priority going forward.

Other TfL rail modes: overall impact on demand

Figure 7.16 shows the recent trend in passenger journeys on other TfL rail-based modes. DLR, Tram and London Overground journeys were generally at or slightly below 2018/19 levels during most of 2019/20, although TfL Rail journeys were growing throughout most of the financial year (reflecting network changes ahead of the introduction of the Elizabeth line).

However, journeys on all modes started to decrease at the end of 2019/20 with the onset of the pandemic, with passenger journeys 78 per cent lower on London Trams in period I (April 2020) compared with the same period in 2019/20, 86 per cent down on DLR and TfL Rail, and 93 per cent down on London Overground. Passenger journeys started to recover on all modes through the rest of 2020, although by August they remained at far lower levels than normal. Data for mid-October shows that Tram journeys were 33 per cent lower than in 2019/20, TfL Rail journeys 55 per cent lower, DLR journeys were down by 50 per cent, and London Overground by 58 per cent.

Figure 7.16 Demand on TfL's rail networks, 7-day moving average, 2020 vs 2019.



Source: TfL Public Transport Service Planning.

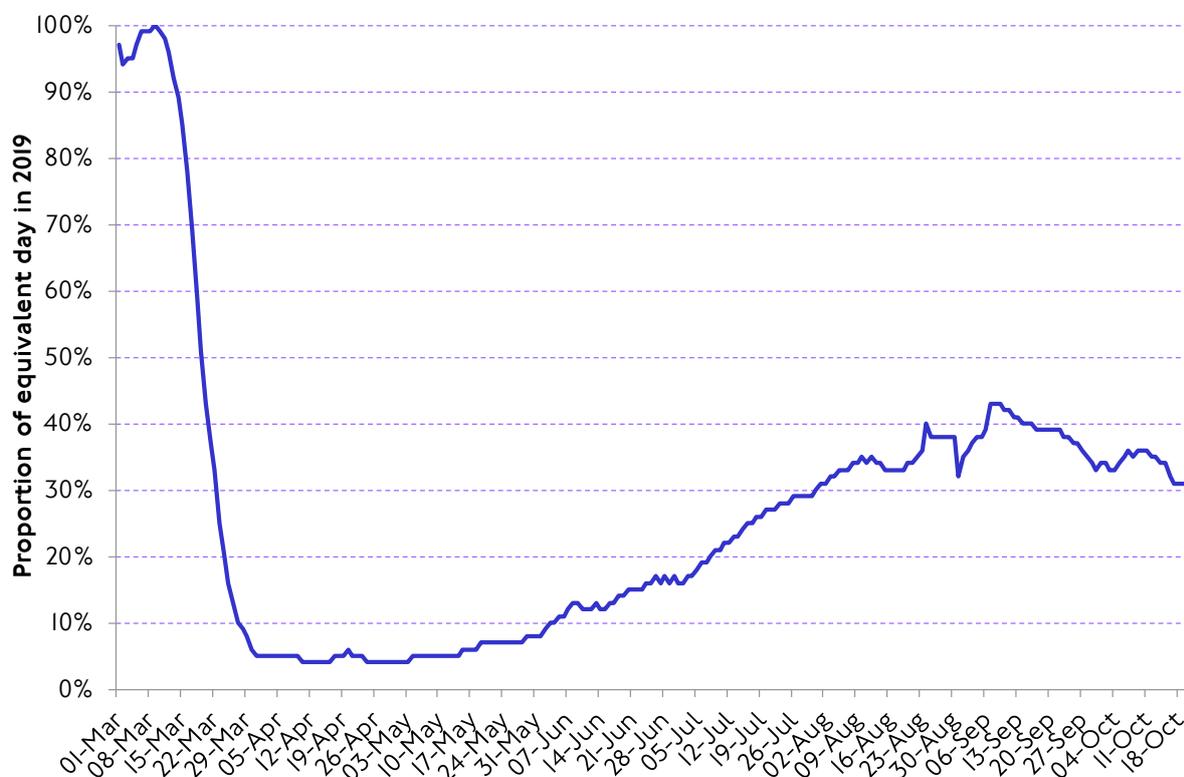
National Rail: overall impact on demand

Figure 7.17 shows the trend in National Rail journeys in 2020 across Great Britain. During early March, passenger journeys were slightly below normal usage, but began to fall in the middle of the month. By early April, passenger journeys were

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just four per cent of normal usage. Following the gradual re-opening of society over the summer, patronage rose to 43 per cent of normal levels by early September. However, since restrictions returned in some areas, journeys have declined again and were just above 30 per cent of normal at the time of writing.

Figure 7.17 Patronage on National Rail services in Great Britain, Mar-Oct 2020.



Source: Department for Transport.

The fall in passenger usage varied across the three (formerly) franchised sectors. At 9.1 per cent, the London and South East sector recorded the most journeys as a percentage of normal journeys in quarter I 2019/20. The government suspended rail franchises on 23 March as lockdown restrictions were brought in and replaced them with Emergency Measures Agreements to help ensure continued operation. Social distancing measures have meant that trains have been unable to operate at normal capacities, even if passenger demand returned, although, as with TfL services, the emphasis has been on maximising capacity for key journeys and providing a safe and secure travel experience in the light of the challenges presented by the virus.

7.5 Motorised road travel and the pandemic

Introduction

Motorised road traffic fell from mid-March 2020, as businesses and individuals began to adapt to the emergence of the pandemic. At the lowest levels, in the week following the lockdown announcement, TLRN road traffic vehicle kilometres fell to around 50 per cent of pre-pandemic levels on weekdays and 35 per cent on weekends. This is comparatively less than the falls seen on public transport modes. From mid-April traffic began to recover at a rate of around 5 percentage points a week until June, when recovery began to level off at around

90 per cent of pre-pandemic levels on weekdays and 85 per cent on weekends. In turn, this was a much higher relative recovery than on public transport. TLRN road traffic vehicle kilometres have remained at a similar level since late summer.

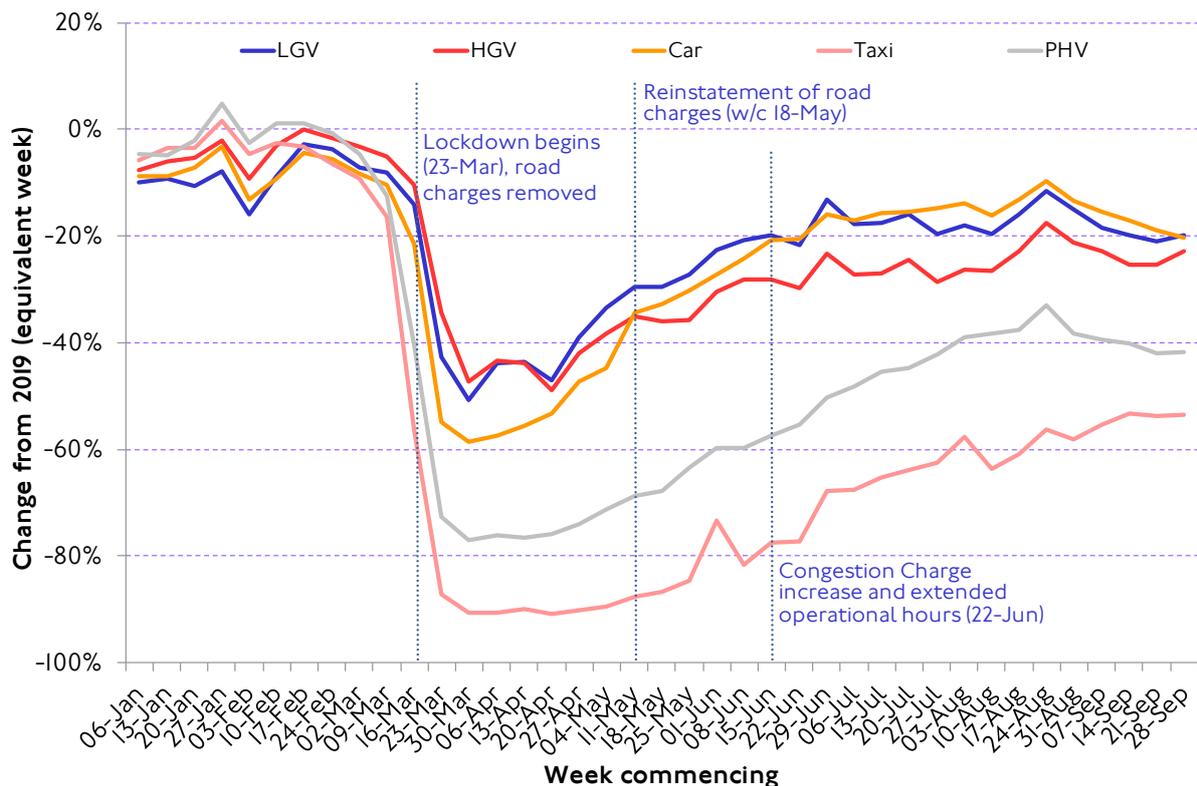
The impact of lockdown restrictions and the subsequent recovery of motorised road traffic following the easing of lockdown measures varies by mode and by area of London. It has also been influenced by travel behaviour changes, such as the rise in online shopping, as well as policy changes such as the removal, reinstatement and temporary extension of the Congestion Charge.

Motorised traffic by mode

In the week following the lockdown announcement London-wide vehicle captures (counts), monitored using automatic number plate recognition (ANPR) cameras, fell for all motorised modes (figure 7.18). Total weekly car volumes fell by around 60 per cent compared to 2019 levels, with the greatest impact on licensed taxis, these falling by around 90 per cent compared to 2019.

Total weekly car captures recovered at a rate of around 3 percentage points per week, compared to 2019 levels, through April, May and June. At the end of June recovery began to level off at around 15 per cent below 2019 levels. Car captures began to decline again at the end of August, and at the end of September were 20 per cent below pre-pandemic levels.

Figure 7.18 Weekly vehicle captures by mode, Jan-Oct 2020 vs 2019.



Source: TfL Surface Transport.

Weekly goods vehicle captures fell the least compared to all motorised modes, with total captures compared to 2019 falling 51 per cent for LGVs (vans) and 47 per cent for HGVs (lorries) in the week following the lockdown announcement. From mid-April goods vehicle activity recovered relatively quickly, with LGV captures

7. Impacts of the pandemic on travel demand

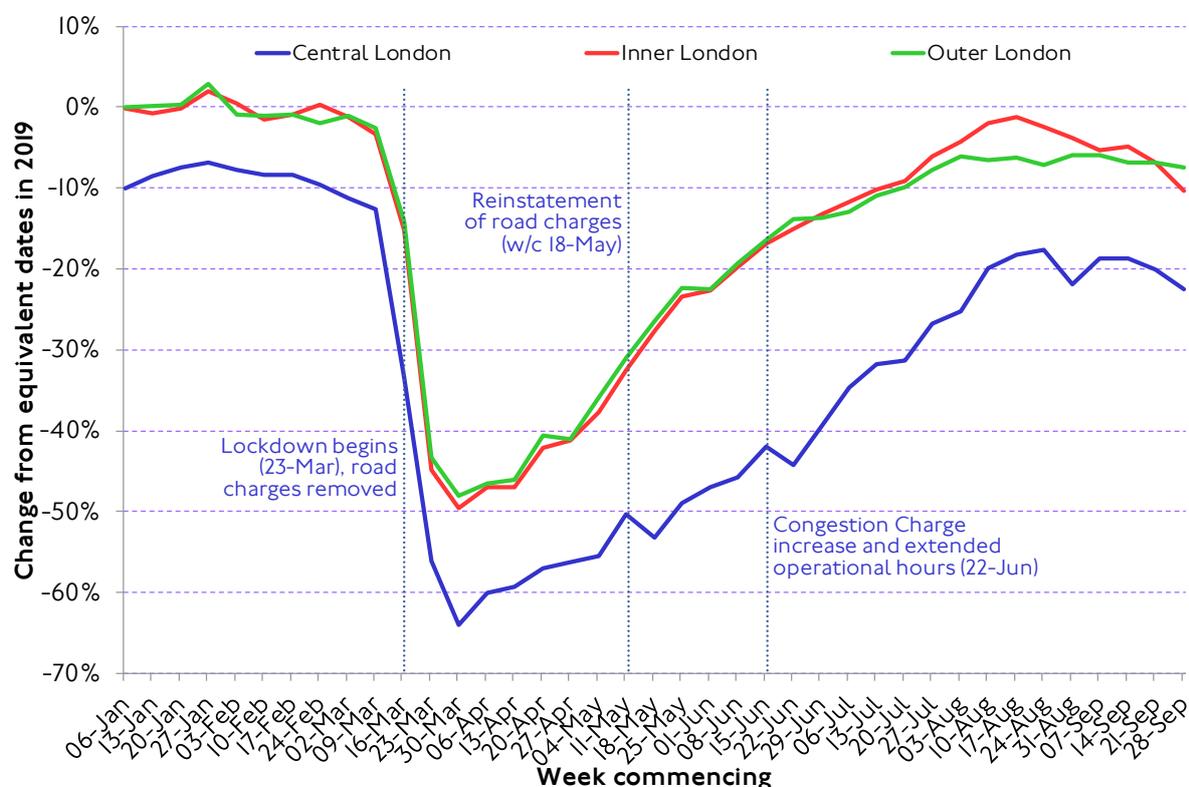
recovering more quickly than HGV captures, likely due to a growth in online shopping while construction activity remained subdued. Recovery began to level off at the end of June at around 18 per cent below pre-pandemic levels for LGVs and 27 per cent below pre-pandemic levels for HGVs. Since mid-August captures for both HGVs and LGVs began to decline. At the end of September HGV and LGV captures were respectively 23 and 20 per cent below pre-pandemic levels.

The pandemic has had differing impacts on the various drivers of freight demand. Online shopping demand remains high, but construction activity is around 10 per cent below pre-pandemic levels, and servicing and deliveries to offices and hospitality venues, particularly in central London, remains low as many office workers continue to work from home.

Traffic volumes in central, inner and outer London

Figure 7.19 shows that the recovery of motorised traffic volumes varied spatially. Following the lockdown announcement, traffic across London fell significantly, but the reduction was the greatest in central London, where traffic fell by 64 per cent compared to 2019 levels in the week following the lockdown announcement. This compares to 50 per cent in inner London, and 48 per cent in outer London. Traffic in inner and outer London recovered at a similar rate through lockdown release, recovering to around three-quarters of 2019 levels by early June, and around 90 per cent by mid-July. At the end of September, inner London traffic volumes were 10 per cent below 2019 levels, and outer London volumes were 8 per cent below.

Figure 7.19 Weekly motorised traffic by area, Jan-Sep 2020 vs 2019.



Source: TfL Surface Transport

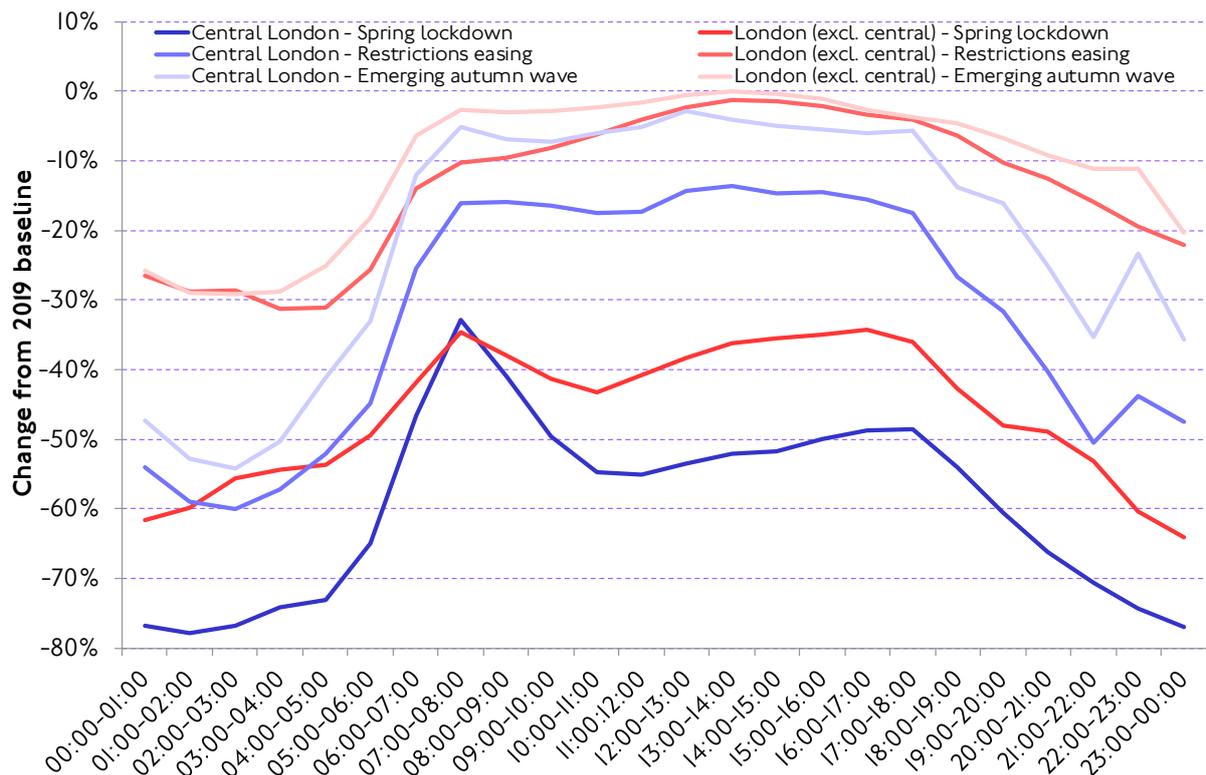
Recovery of traffic in **central London** has been slower and has also been influenced by the reinstatement of the Congestion Charge on 18 May and the

temporary increase to the charge and extension of charging hours on 22 June. Following the reinstatement of the charge, traffic fell by around 6 per cent and traffic also fell around a further 3 per cent when the charge was increased, and charging hours were extended. However, since early July traffic volumes have recovered more quickly, and at the end of August stood around 20 per cent lower than pre-pandemic levels. Further detail on the impact of coronavirus and the Congestion Charge changes on traffic in central London is given in section 8.4 of this report. Note that traffic had already fallen in central London relative to early 2019 prior to the pandemic as an impact of the introduction of the Ultra Low Emission Zone in spring 2019 (negative starting index point on the figure).

Changes in traffic volumes spatially, by time of day and over time

The recovery of motorised traffic volumes in central, inner and outer London also varied by time of day and stage of the pandemic. Figure 7.20 shows that during the spring lockdown period weekday traffic volumes were at the lowest levels, in comparison to 2019 figures, during evenings and overnight in all areas of London. This is likely due to people only making trips for essential purposes, such as key workers travelling to workplaces.

Figure 7.20 Weekday motorised traffic volumes by area and time of day at representative stages of the pandemic, 2020 vs 2019.



Source: TfL Surface Transport.

Note: Spring lockdown is 30 Mar-26 Apr; Restrictions easing is 6 Jul-2 Aug; and Emerging autumn wave is 14 Sep-11 Oct.

London-wide (excluding central London) daytime **weekday traffic volumes** in inner and outer London recovered to around 90 per cent of pre-pandemic levels as lockdown restrictions were eased in July and remained at similar levels as the second wave emerged in late September. After 20:00 on weekdays the recovery has not been as strong, with traffic volumes recovering to around 15 to 30 per cent

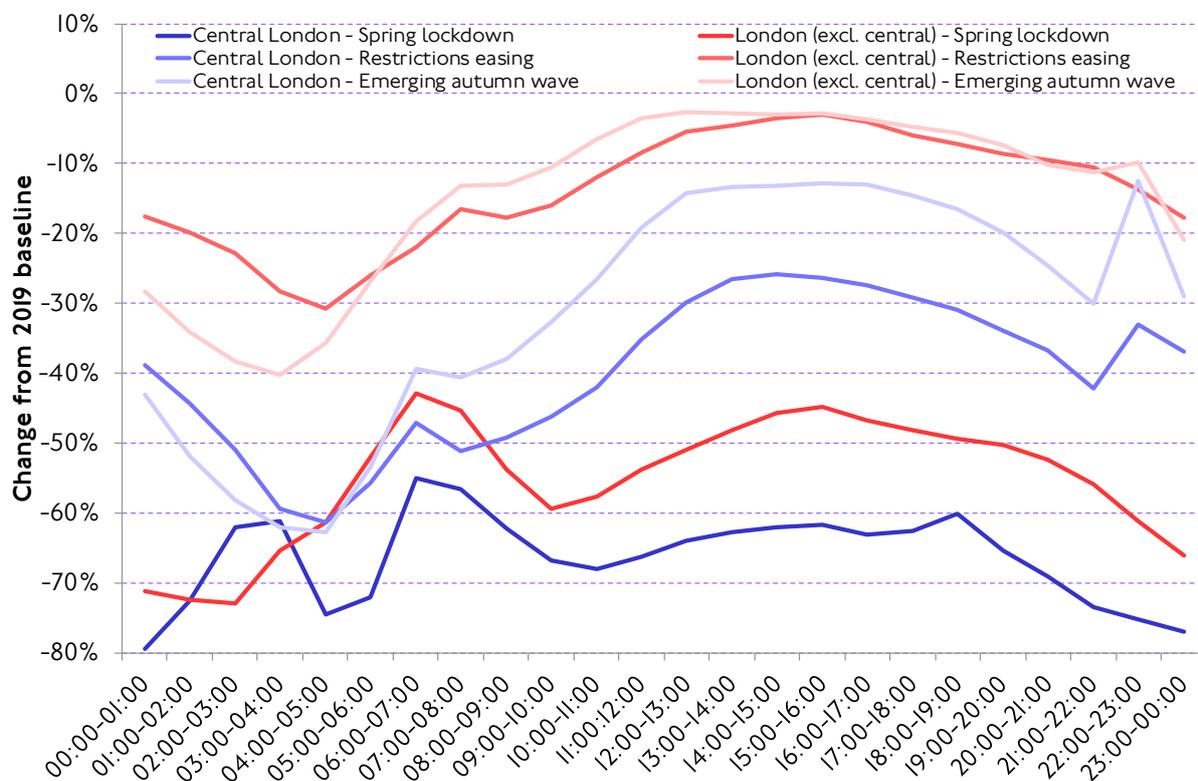
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below 2019 levels. Traffic volumes in **central London** recovered more slowly, with daytime traffic volumes returning to around 15 per cent below pre-pandemic levels as restrictions eased in July, and to around 5-10 per cent below as the second wave emerged. Evening and overnight traffic volumes in central London remain low, likely due to hospitality restrictions and changes to travel behaviour, as well as changes to the Congestion Charge hours of operation.

Figure 7.21 shows that **weekend traffic volumes** in central London fell to 34 per cent of pre-pandemic levels during lockdown; the London-wide figure, excluding central London, was 45 per cent. As restrictions eased in July, central London inter-peak traffic volumes (10:00-16:00) recovered to around 70 per cent of pre-pandemic levels, but remained lower overnight and early morning. In late September and early October traffic volumes in central London had recovered by around 10 percentage points compared to July, although the hourly recovery profile remained similar, with evening demand recovering more slowly. As the second wave emerged, inter-peak volumes had recovered to around 17 per cent below last year's levels, and daily central London weekend traffic volumes were down by 30 per cent.

The London-wide traffic volume figures (excluding central London) show that traffic fell to around 45 per cent of pre-pandemic levels on weekends during lockdown. As restrictions began to ease in June, traffic volumes largely recovered, to around 86 per cent of 2019, although remained lower overnight and during early mornings. The hourly recovery profile remained similar as the second wave began to emerge in late September and early October. Between 10:00 and 18:00 traffic volumes were only 5 per cent below pre-pandemic levels.

Figure 7.21 Weekend motorised traffic volumes by area and time of day at representative stages of the pandemic, 2020 vs 2019.



Source: TfL Surface Transport.

Note: Spring lockdown is 30 Mar-26 Apr; Restrictions easing is 6 Jul-2 Aug; and Emerging autumn wave is 14 Sep-11 Oct.

In summary:

- Licensed taxi and PHV numbers fell the most following the lockdown announcement and are therefore taking longer to recover than other motorised modes. Car and goods vehicle captures are recovering at a similar rate, and at the end of September were around 20 per cent below 2019 levels.
- Recovery of motorised traffic varied spatially. Traffic volumes in inner and outer London recovered quickly through summer and are now around 90 per cent of pre-pandemic levels. Traffic in central London fell to a greater extent and has recovered more slowly; at the end of September traffic was around 75 per cent of pre-pandemic levels, although affected also by changes to the Congestion Charge.
- Weekend traffic volumes are taking longer to recover than weekday traffic volumes. In central London weekday traffic volumes at the end of September were 20 per cent below pre-pandemic levels, compared to 30 per cent below on weekends. The figures for inner and outer London were 5-10 per cent lower on weekdays and 15 per cent lower on weekends.

7.6 Cycling and the pandemic

Summary

Trends in cycling during the pandemic present an interesting picture, given the mix of a dramatic reduction in commuter cycling – reflecting workplace restrictions –, an increase in leisure cycling (cycling was one of the very few permitted activities during lockdown, and the weather was favourable), alongside infrastructure changes related to the Streetspace for London programme and the promotion of cycling as a healthy 'socially-distanced' mode as part of a more general response to the pandemic (see also section 8.5 of this report).

Data, however, is relatively limited, as much cycle monitoring had to be suspended during the first financial quarter of 2020 (April to June) and much of the available data relates to central London only. This especially limits our understanding of cycling in outer London and on the more minor road network, which is unfortunate given that these were thought to be the focus of increased leisure cycling over the spring.

Nevertheless, the picture that emerges from the available data is that cycling has been one of the most resilient modes. Following an initial reduction during lockdown to about 40 per cent of normal demand (on the basis of available indicators), volumes rapidly bounced back, with leisure cycling broadly cancelling out the reduction in commuter cycling over the summer, and early autumn volumes have been significantly higher overall than the pre-pandemic baselines.

Indicative findings from automatic cycle counters

TfL has 27 automatic cycle counters, mostly located in central London (although some in inner London) which have been providing indicative cycling volume trends since the beginning of the pandemic. Given their low number and uneven coverage, they are not to be taken as representative of London as a whole. However, they show some useful high-level trends.

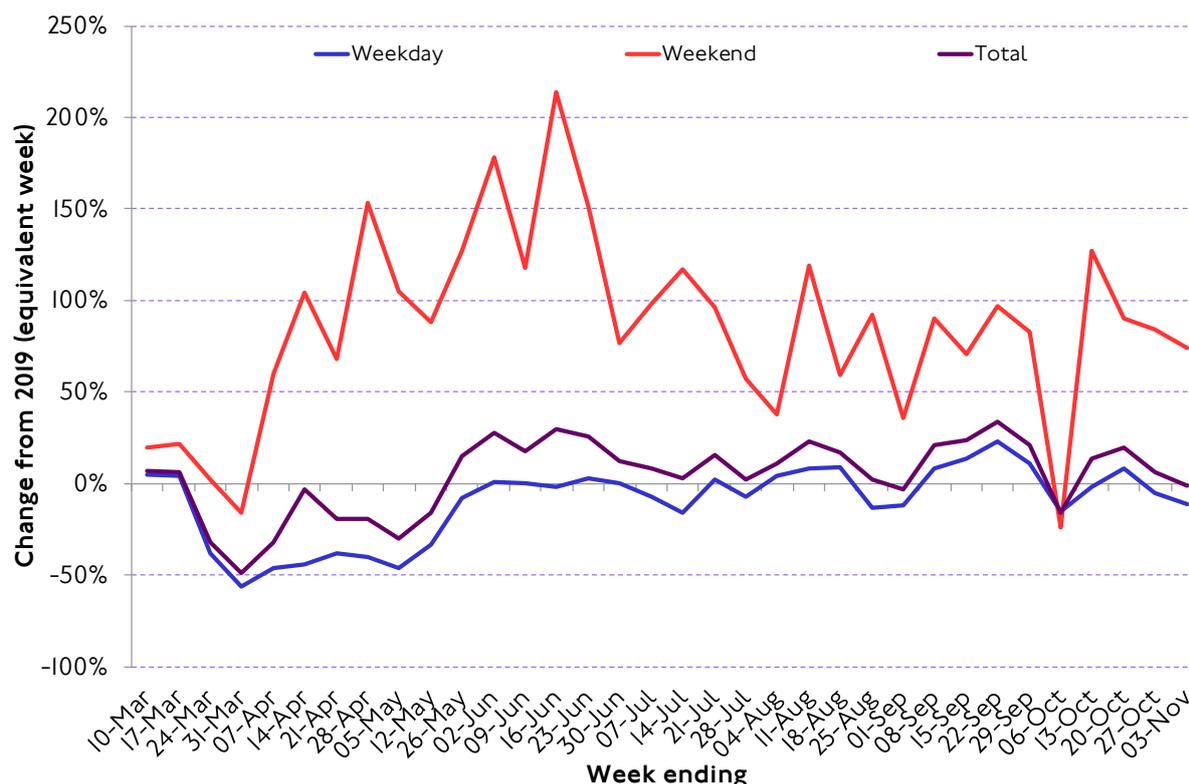
Figure 7.22 shows the aggregate change in weekly cycle flow from the equivalent week last year captured by these counters since the beginning of the pandemic.

7. Impacts of the pandemic on travel demand

The main features are:

- After a big drop in March, cycle flows started recovering in April and by mid-May had already reached 2019 levels, which have been mostly exceeded since.
- The recovery, however, has been uneven between weekdays and weekends. While demand on weekends substantially exceeded 2019 levels from as early as the beginning of April, weekday demand took until late May to recover but did not consistently exceed 2019 levels until the beginning of September.

Figure 7.22 Cycle flow on the automatic cycle counters, 2020 vs 2019.



Source: Traffic Data.

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

Temporal changes to cycling demand

There have been substantial changes to the temporal distribution of cycling demand during the pandemic. Previously, cycling was highly concentrated around the weekday peak periods and linked to work-related travel, which was much reduced during the early months of the pandemic. Although total weekday demand has subsequently recovered, the daily profile is much flatter than before the pandemic, suggesting a shift in trip purposes.

The pandemic also saw a big increase in weekend cycling (likely related to exercise, leisure, and other purposes) and this appears to be being sustained.

Data also shows evidence of a small peak just after 22:00 in recent weeks, coinciding with the time that hospitality establishments have been required to close as part of recent restrictions.

Santander Cycles

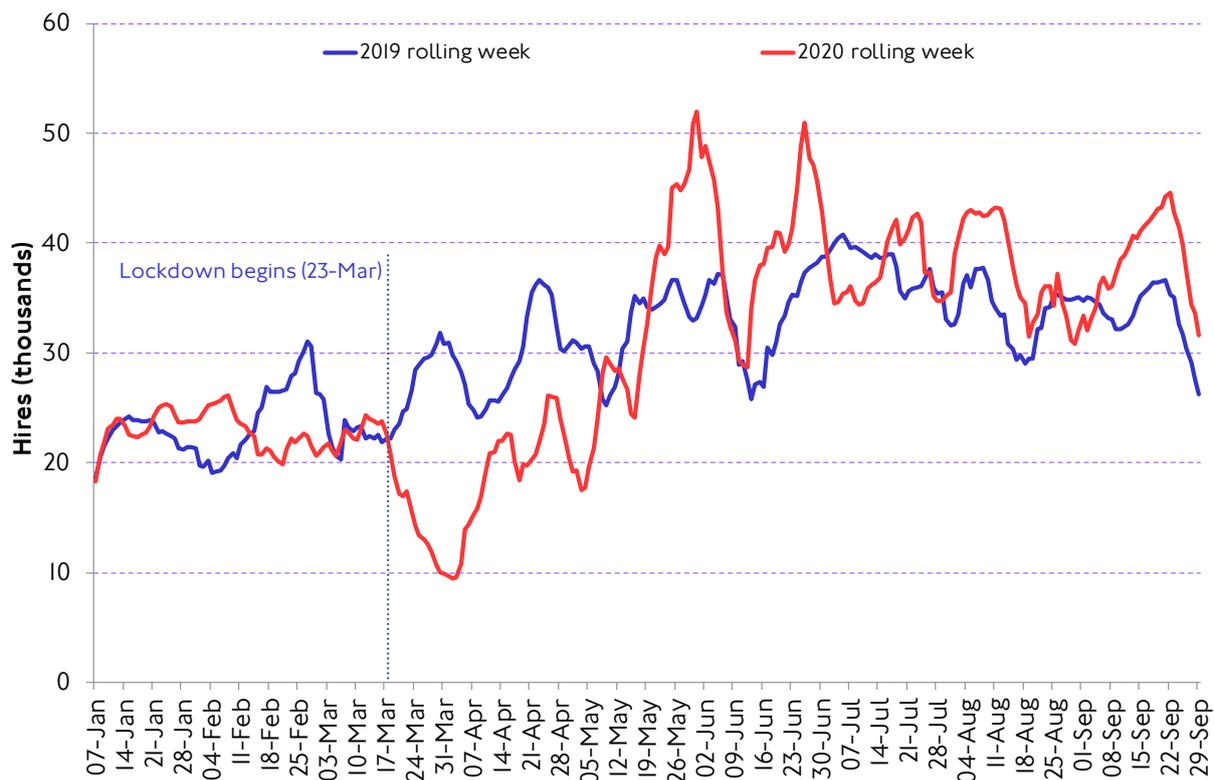
Another source of cycling demand data during the pandemic arises from Santander Cycles hires, which can be used as a proxy for overall cycling demand at least in the parts of London covered by the scheme. These include not only central London but also parts of inner London up to Hammersmith and Fulham on 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.

However, in interpreting this data it is important to acknowledge two factors:

- At the beginning of the pandemic Santander Cycles were offered for free to key workers.
- Santander Cycles tend to get many casual users in the summer, many of them tourists, but their number was probably much lower in summer 2020.

Figure 7.23 shows the trend in the rolling average of daily hires since January 2020, comparing it against the same dates in 2019.

Figure 7.23 Santander Cycles hires, 7-day rolling average, 2020 vs 2019.



Source: TFL Cycle Hire.

The graph shows that:

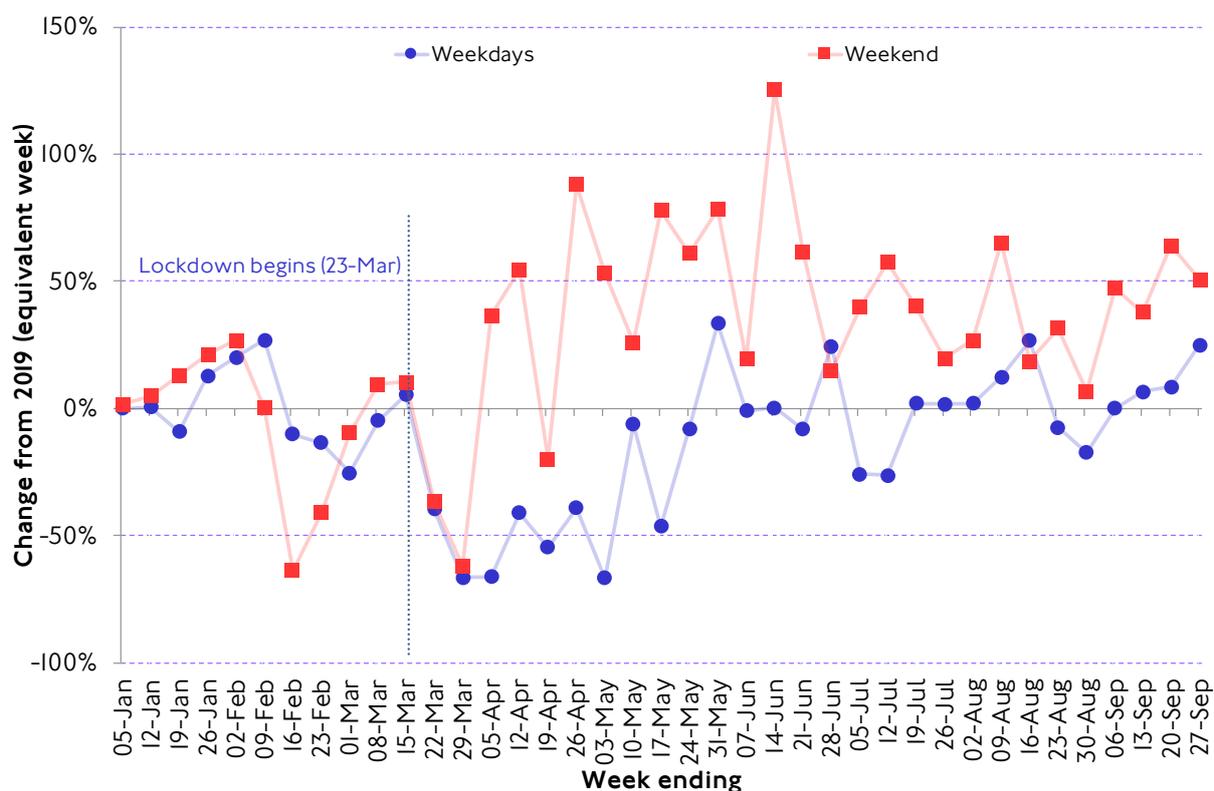
- From the high point in early March (before lockdown) to the lowest in early April, demand on Santander Cycles dropped by about 60 per cent.
- Since then, demand recovered very rapidly, reaching early March levels by mid-April and 2019 levels by mid-May.

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- New high points relative to 2019 were seen in late May and June, probably due to a combination of public holidays and very favourable weather, despite the reduced number of tourists and visitors. The last weekend of May saw record hires of around 70,000 on Saturday and 63,000 on Sunday, where the best figures prior to the pandemic were in the region of 47,000 hires.
- Since then, and with the expected seasonal fluctuations related to the various holiday periods, demand has been generally higher than the same time the previous year, despite the widespread changes to activity and travel.

It is also possible to explore the different trends on weekdays and weekends. Figure 7.24 shows the change since 2019 in the total number of hires by day type.

Figure 7.24 Santander Cycles hires by day type, 2020 vs 2019.



Source: TFL Cycle Hire.

Shortly after the initial drop in demand due to lockdown, weekend hires recovered very quickly and soon exceeded the demand levels of the previous year, a trend which remained consistent through the summer and early autumn. On the other hand, weekday hires were mostly relatively lower than the previous year for much of the spring and summer, although since the beginning of September they also have recovered to similar levels to, or slightly above, last year.

Santander Cycles data can be disaggregated by **user type** into three categories:

- Casual users, 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, who 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.

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- Annual members, who pay an annual fee for unlimited hires and can hire via a key or through the app.

In all cases there is a charge if the hire duration exceeds 30 minutes, but it is possible to swap bikes at a docking station before that time for a longer journey.

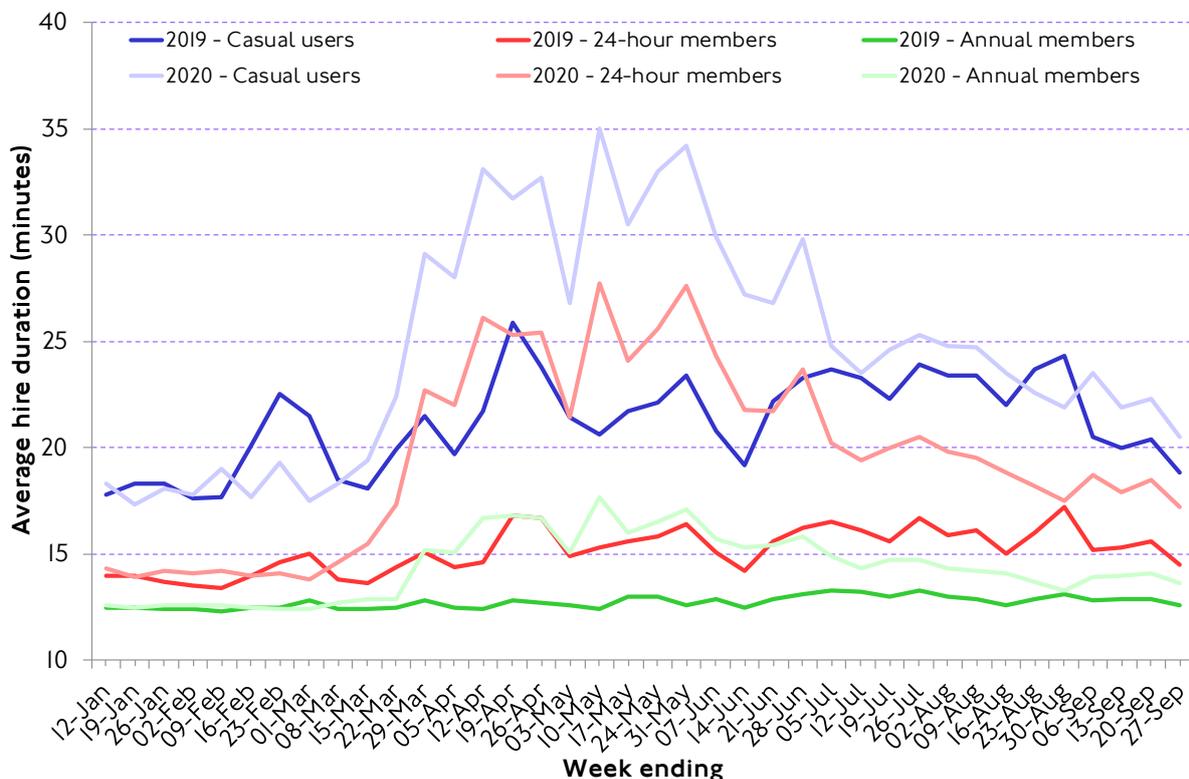
The analysis of demand by user type shows that since the spring lockdown there have been relatively more hires by 24-hour members and casual users and fewer by annual members, which suggests a decrease in regular journeys (eg commuting) and an increase in casual use of the scheme for discretionary travel.

In fact, it is estimated that by October 2020 only around 36 per cent of hires were by commuters, while this proportion was 47 per cent in 2019. On the other hand, around 40 per cent of hires from 24-hour members have been for leisure trips in 2020 compared to 25 per cent last year. These proportions were 47 per cent and 45 per cent respectively for casual users.

It has also been observed that the renewal rate of annual memberships has fallen from 67 per cent in 2019 to 47 per cent in 2020. But there has been a substantial increase in the number of new 24-hour members compared to 2019, too. This suggests that Santander Cycles has seen a fair amount of new people cycling during the pandemic. However, these new users seem to be cycling mostly for leisure and discretionary travel and it is therefore possible that a lot of this demand will dissipate as leisure travel reduces in autumn and winter due to less favourable weather and as socioeconomic activity resumes in the medium term.

Finally, the data allows exploration of the duration of cycling trips using the start and end times of the hires as a proxy. Figure 7.25 shows average hire duration on weekdays by type of user.

Figure 7.25 Average weekday hire duration by user type, 2019-2020.



Source: TfL Cycle Hire.

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Since the March lockdown and throughout the summer there was an increase in the average trip duration with respect to the equivalent weeks in 2019 for all user types, and this has been particularly high (around 30 per cent at the highest points) for non-members.

This increase in average trip duration probably reflects the increase in the number of users hiring cycles for socially-distanced leisure and exercise. It is particularly interesting to note that casual users, who like all others need to pay an extra fee if they exceed the 30-minute limit on their hire, seemed to prefer this instead of cutting their journeys short or having to swap bikes every half an hour, and thus their average trip duration ended up exceeding this threshold by a wide margin.

Central London cycling trends

TfL has a programme of quarterly cycle counts in central London which is used to track cycling demand throughout the year.

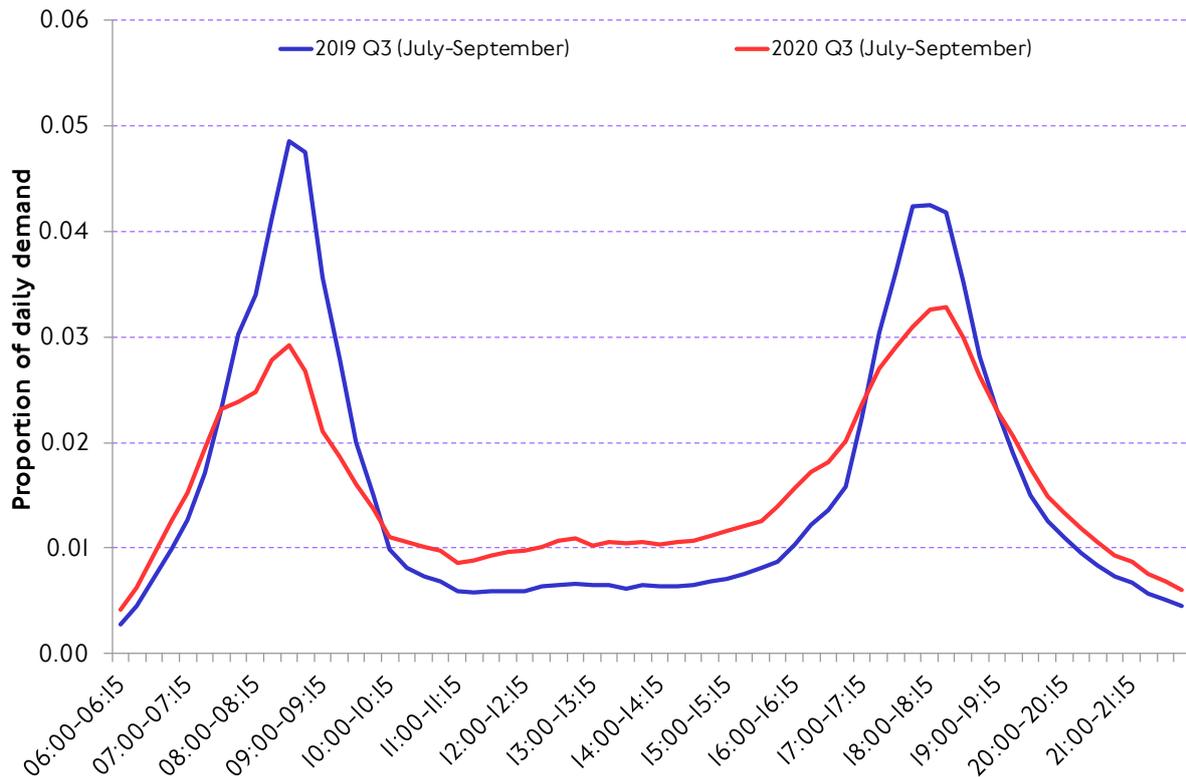
Due to lockdown, the counts in the first financial quarter (April to June) could not take place. However, counts in the second quarter (July-September) could be completed and the results are presented in this section. While of interest, this data is subject to some limitations that need to be recognised:

- These counts cover central London only and it is known that coronavirus has affected travel in this area in a unique way. Therefore, the results should not be considered representative of cycling across the whole of London.
- These counts take place on weekdays only, and thus will not have been able to pick up changes to weekend cycling, which as shown in earlier sections have been substantial during the pandemic.
- Finally, the average value for this second quarter (July-September) is likely to subsume a wide range of variability, as changing pandemic restrictions and weather will have affected the numbers of people cycling on a frequent basis.

With that in mind, the headline result from the July-September 2020 central London counts shows that cycling volume in this period was 24 per cent lower than in the same quarter in 2019. While substantial, this decline is explicable given that economic activity was still very much subdued during this period (particularly at the beginning of it) and because it is known that much cycling in central London is for work-related trips, many of which are still not taking place. In this context, a recovery to 76 per cent of pre-pandemic demand at this point could be regarded favourably, particularly in comparison to what has been observed on other modes in central London – for example, pedestrian activity was down by around 72 per cent over a similar period (see figure 7.28 below).

Other aspects that can be explored with these counts are the distribution of demand throughout the day and how this has changed since 2019, as shown in figure 7.26. This mirrors the change in temporal profile seen in other datasets whereby the weekday inter-peaks in July-September 2020 were relatively busier than at the same time in 2019 and the peaks much quieter in relative terms, likely reflecting the absence of a significant proportion of work-related peak cycling demand and a relative increase in off-peak travel.

Figure 7.26 Demand profile in central London, Jul-Sep 2020 vs Jul-Sep 2019.



Source: TfL Traffic Data.

7.7 Walking and the pandemic

Summary

There is limited data available on walking in London during the pandemic, with the traditional methods of data collection being incompatible with safety measures. In London, walking is typically associated with public transport usage, as people need to walk to access the bus, London Underground or rail networks. As explained previously, public transport usage has been a lot lower than usual during the pandemic, so this type of walking is likely to have decreased significantly.

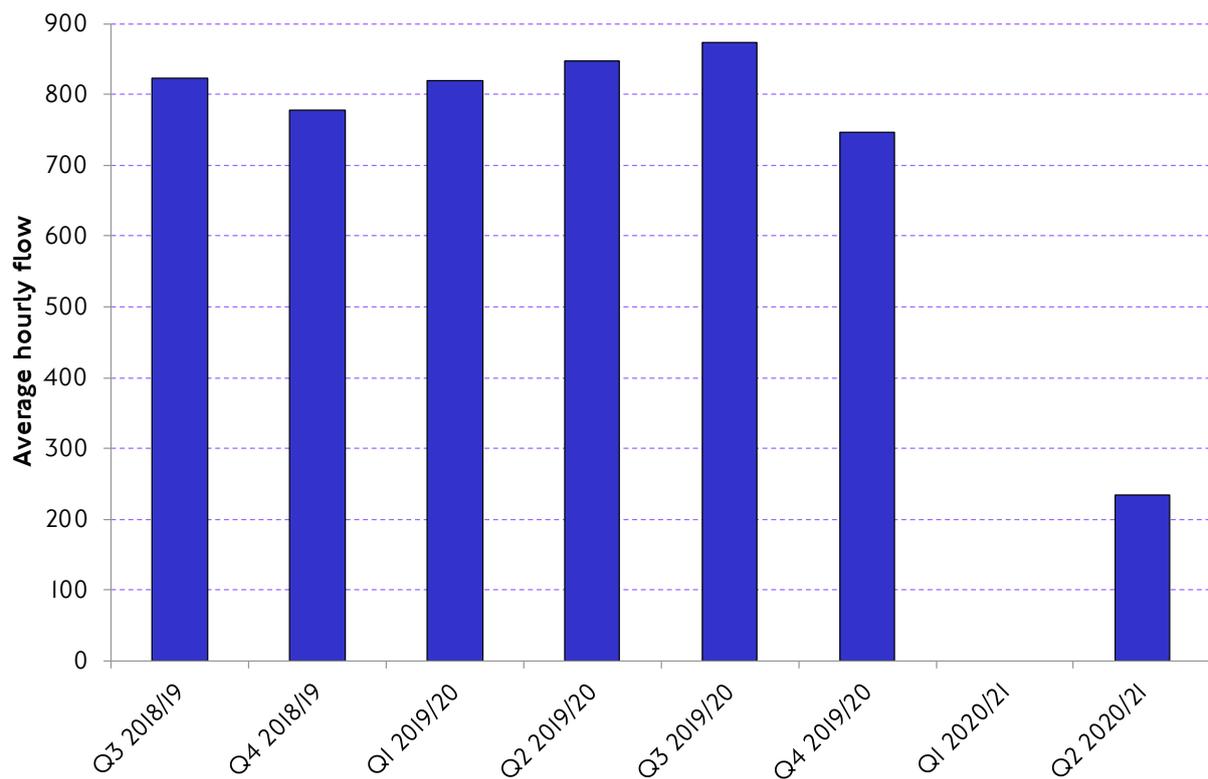
However, since during the strictest restrictions people were advised to stay local and only leave the house for limited reasons (including exercise), it could be expected that walking for leisure and essential shopping may have increased, particularly when the message was clear that public transport should be avoided if possible. Data from the Strava mobile phone app indicates a large increase in people using the app for running and walking, with a 30 per cent increase in trips so far in 2020, and the peak in walk trips being in April, May and June.

Pedestrian activity in central London during the pandemic

While Strava data suggests a possible increase in leisure walking, possibly close to where people live, data from our own survey of pedestrian flows in central London shows a very different trend in this area. Figure 7.27 shows average hourly pedestrian flows in central London for quarter 2 (July-September), which were down by 69 per cent on quarter 4 2019/20 (January-March) and 72 per cent on the same quarter in 2019/20.

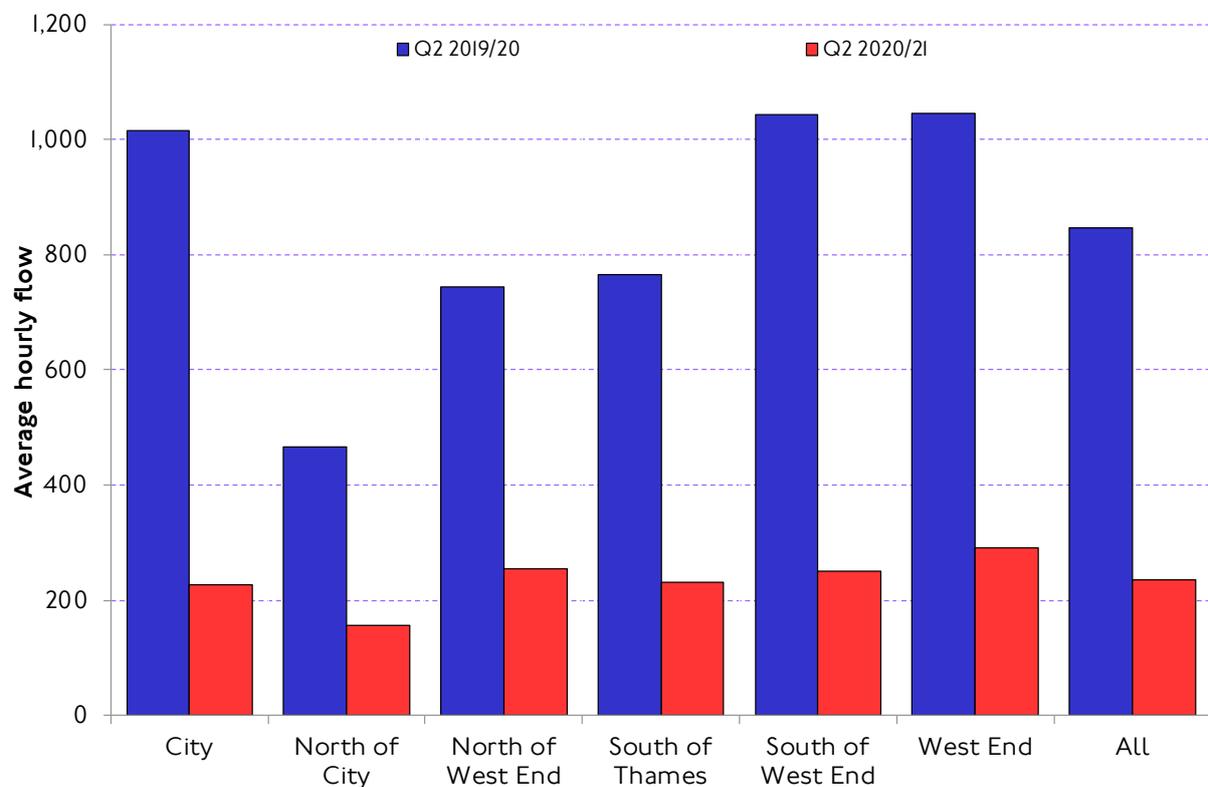
7. Impacts of the pandemic on travel demand

Figure 7.27 Average hourly pedestrian flow in central London, 2018/19–2020/21.



Source: TfL City Planning.
Note: No data collected in Q1 2020/21.

Figure 7.28 Average hourly pedestrian flow in central London by area, Jul-Sep 2020 vs Jul-Sep 2019.



Source: TfL City Planning.

While not at all representative of walking in Greater London during the pandemic, the data nevertheless graphically illustrates the dearth in activity in central London – this data relating to the late summer period when some activity had returned – that is emerging as one of the more concerning features of people’s response to the pandemic.

Looking at the data by area (figure 7.28), pedestrian flows were down significantly across the whole of central London. Despite a year-on-year fall of 72 per cent, the West End remained the area with the highest pedestrian flows in quarter 2 2020/21 (July-September). The biggest fall was in the City of London, which saw a decline of 78 per cent, reflecting the decline in commuting to this part of London. The area south of the West End also declined by 76 per cent, perhaps reflecting the decline in tourists, with this area containing Buckingham Palace and St James’s Park, as well as many offices. Flows did not decrease as much in the more residential areas of central London to the north of the City and West End.

7.8 Estimates of relative demand by mode and mode shares

Introduction

The pandemic has 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 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. A problem is that an estimate of mode share is only as good, in statistical terms, as the estimate for the statistically ‘weakest’ mode – since a full picture across all modes is necessary to establish the proportions of the ‘100 per cent pie’. A similar comment applies to the timeliness of the estimates, in that a mode share statistic can only be calculated when the data for the very last mode is in.

Estimates of mode shares during the coronavirus pandemic

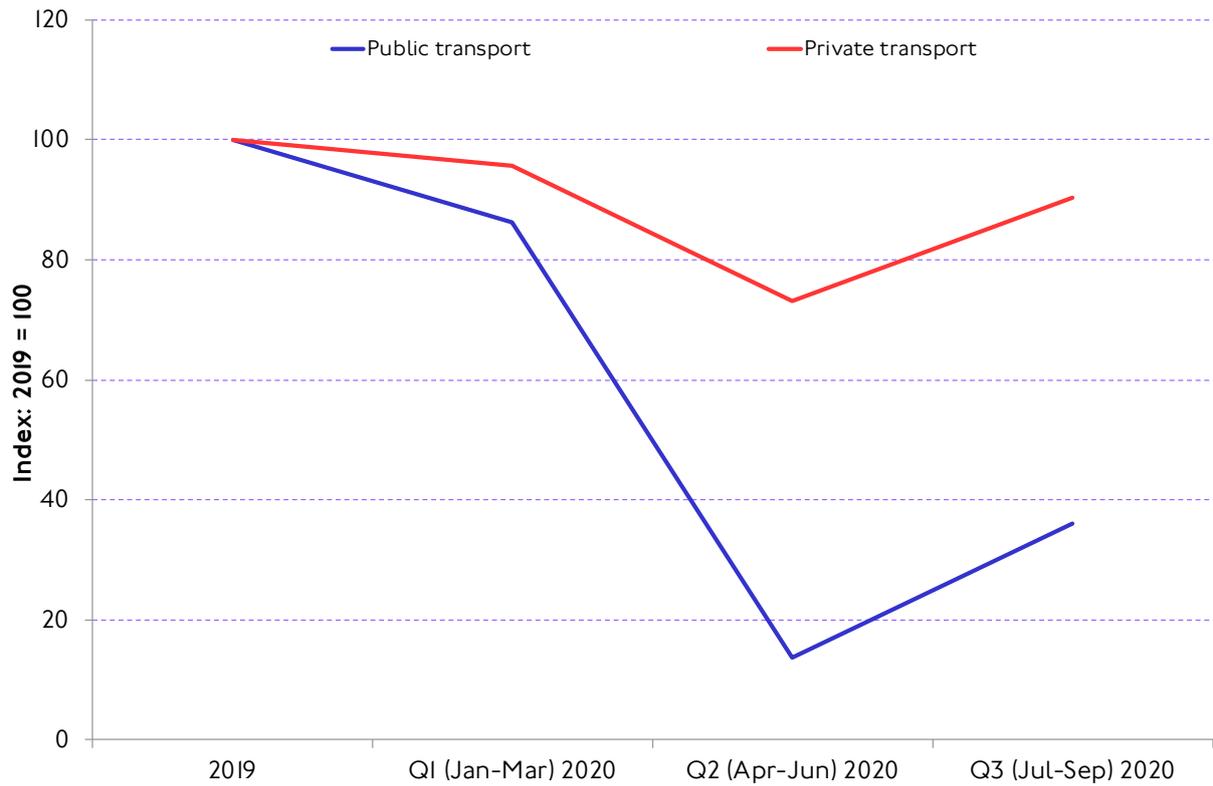
Bearing these caveats in mind, it has nevertheless been possible to derive indicative estimates of the impact of the pandemic on mode shares in London over the first three quarters of 2020. These estimates are of intrinsic and practical interest both because of the scale of the indicated changes but also because of their implications for recovery planning.

Figure 7.29 shows the scale of the overall reductions in public and private transport usage during 2020. Compared with the 2019 baseline, public transport use was down by 86 per cent in quarter 2, and despite an increase in quarter 3 it remained 64 per cent below 2019 levels, even with some lockdown measures being eased during this quarter. Private transport usage did not fall at the same rate, and was down by just 27 per cent in quarter 2. By quarter 3, private transport usage was only 10 per cent below 2019.

It is estimated that in quarter 2 there were on average 16 million trips per day, compared with 27 million on a normal day. In other words, the ‘mode share pie’ was around 60 per cent as big as before the pandemic. This increased by 24 per cent in quarter 3, to 19.9 million. However, this is still 26 per cent lower than an average day in 2019.

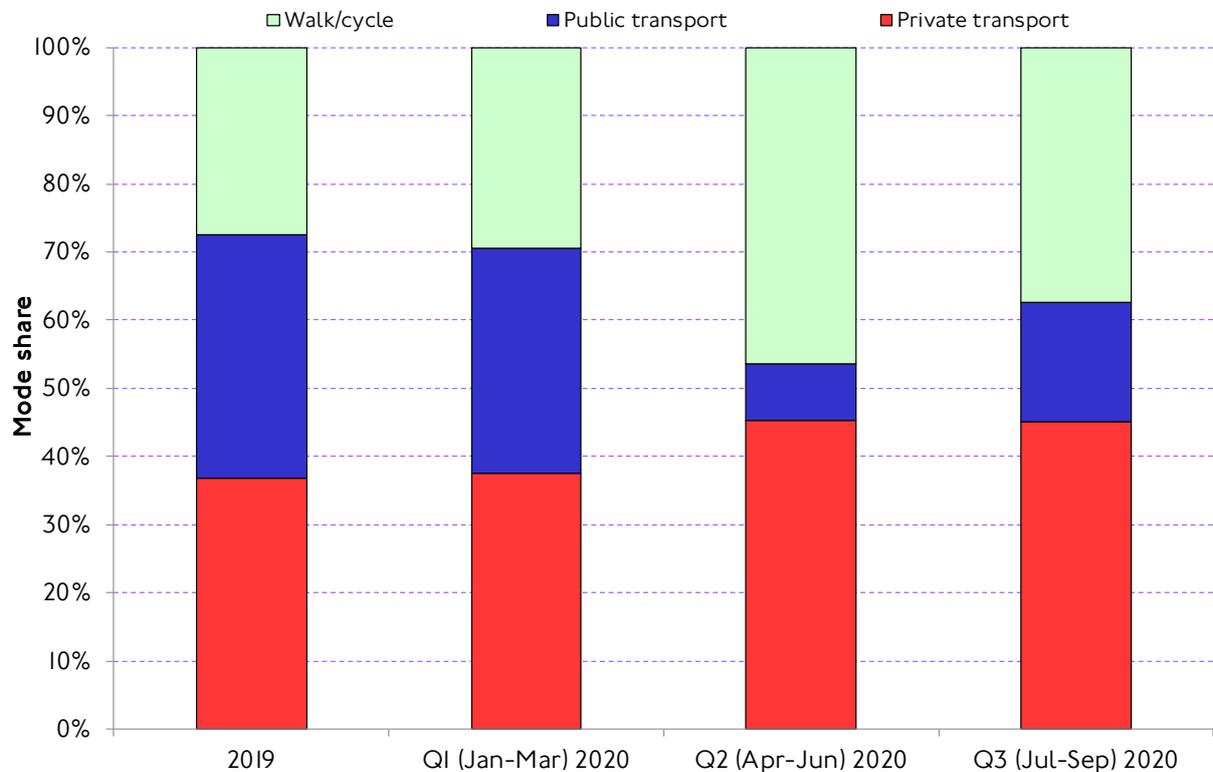
7. Impacts of the pandemic on travel demand

Figure 7.29 Public and private transport usage, 2019-2020.



Source: TfL City Planning.

Figure 7.30 Estimated mode shares, 2019-2020.



Source: TfL City Planning.

7. Impacts of the pandemic on travel demand

During relatively normal years, the overall mode share varies little by quarter. However, this is in part a function of the inability of current statistics for some modes, particularly walking, to resolve seasonal changes. However, the impact of the pandemic can be seen even from the first quarter of 2020, which was largely coronavirus-free, with the measure dropping by 0.8 percentage points (figure 7.30). The disruptions of the various lockdown measures are 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 8.5 percentage points. Despite the reduction in public transport usage, walking and cycling use remained relatively high as London residents 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, 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 low level of active, efficient and sustainable mode share, which at 54.9 per cent was 8.3 percentage points below the 2019 level. With further lockdown measures likely in the latter months of 2020, it is likely that the active, efficient and sustainable mode share for 2020 as a whole will be well below 60 per cent, and could be the lowest seen in London since the early 2000s, albeit reflecting wholly unprecedented circumstances.

As public transport trips have recovered at a slower rate than private transport trips so far, it could be expected that active, efficient and sustainable mode shares will not be back at 2019 levels until well into 2021.

Table 7.6 Estimated mode shares, 2018-2020.

	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)	17.5%	45.1%	37.3%	54.9%	19.9

Source: TfL City Planning.

Country-wide trends as measured by the DfT have been similar to those seen in London, with large decreases in public transport usage and smaller declines in private transport usage. However, car traffic fell by a larger amount in the rest of the country than in London, with a decline of 51 per cent compared to 29 per cent in quarter 2. Rail use across the country declined by a similar amount to London Underground usage in London, with the DfT data also suggesting an increase in cycling across the country during quarters 2 and 3.

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8 Developments arising from, and responses to, the pandemic

8.1 Introduction

This chapter first looks at selected developments arising from the pandemic, including changes to **air quality** and **road danger risk**. London's air quality saw notable short-term improvements as activity giving rise to emissions reduced. This took place in the context of rapid improvements, particularly for concentrations of nitrogen dioxide (NO₂), reflecting policies such as the Ultra Low Emission Zone in central London, and improvements to the emissions performance of London's bus fleet. While overall casualty numbers from road traffic collisions reduced over the spring/summer period, reflecting reduced traffic and activity levels, there was, however, a notable increase in relative risk for those who did travel. Casualty numbers reduced at a lower rate than activity and there was also a trend towards more severe injuries. It is thought that this reflected changes to traffic conditions, notably an increase in average vehicle speeds as congestion reduced.

The chapter then describes the initial impacts of two key policy adaptations to the pandemic. The first of these are the changes to the **central London Congestion Charge**, which saw the scheme firstly being suspended in the initial months of lockdown, followed by reinstatement and, subsequently, by extension of charging hours and an increase in the daily charge, on a temporary basis. The second is TfL's **Streetspace for London** programme, which has seen significant local changes to the purpose of the streetscape, designed to facilitate safe and active travel in the context of limited public transport capacity and increased car use during London's recovery from the pandemic.

8.2 The pandemic and air quality

Introduction

The pandemic has seen changes to travel and other polluting activity across London and elsewhere, and this has in turn affected emissions and air quality. For example, nitrogen dioxide (NO₂) concentrations at some of London's busiest roads reduced by around a half during March and April 2020, when lockdown measures were in full effect. However, pollution levels have more recently been returning towards the prevailing pre-pandemic trend as activity has returned.

The pattern for some pollutants was complicated by seasonal and other climatic factors this year, leading to several episodes of elevated particulate matter (PM₁₀) and ozone (O₃), despite the reduced activity. Furthermore, as is made clear in section 5.1 of this report, concentrations of nitrogen dioxide were already on a steep downwards trajectory in London, reflecting Mayoral and other initiatives to improve air quality, such as the introduction of the Ultra Low Emission Zone in central London from April 2019. The GLA have produced a summary report^[13] of air quality trends during the pandemic.

Coronavirus, activity and emissions

The changes in activity resulting from the pandemic will have affected most emission sources in London, including mobile sources such as road transport and aviation, and activities such as construction, domestic and commercial heating and

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commercial cooking, reflecting changes to daily patterns of work and other economic activity. Transboundary sources (over which London has no control) appear to have been less impacted by the pandemic. For example, particulates derived from ammonia used in agriculture (largely unaffected by the pandemic) are the single largest contribution to imported background pollution in London.

Road transport accounts for around half of London's nitrogen oxide (NO_x) emissions and a third of particulate (PM) emissions. When lockdown measures were introduced in March, overall road traffic volumes in London reduced by around 50 per cent. Over more recent months, traffic has steadily increased. In both inner and outer London, traffic in early autumn returned to just below pre-pandemic levels. In central London road traffic remains around 20 per cent below pre-pandemic levels into autumn.

Changes in pollutant concentrations

When evaluating the impact of the pandemic on London's air quality it is important to recognise the usual air pollution seasonal variation. Air pollution is affected by several complex factors, which means pollutant concentrations can fluctuate from month to month, even in the context of broadly stable emissions. However, pollutants generally follow the same seasonal trends every year.

To reflect this, we have taken the approach of comparing monthly average pollutant concentrations in 2020 to the same month in 2019. However, it is important to note that the reduction in pollution from 2019 to 2020 cannot be wholly attributed to the pandemic, as it has coincided with the continued rollout of interventions to improve London's air quality. This includes improvements to TfL's bus fleet and an increasing compliance with the central London ULEZ standards. This is particularly the case for NO₂ and NO_x.

This analysis groups air quality monitoring sites of the same type together for central, inner and outer London. This shows the general trends across the Capital. Trends at individual monitoring sites may vary.

Trends in nitrogen dioxide (NO₂)

NO₂ concentrations are usually lowest in the summer months, increasing through the autumn, highest in the winter and decreasing again in the spring.

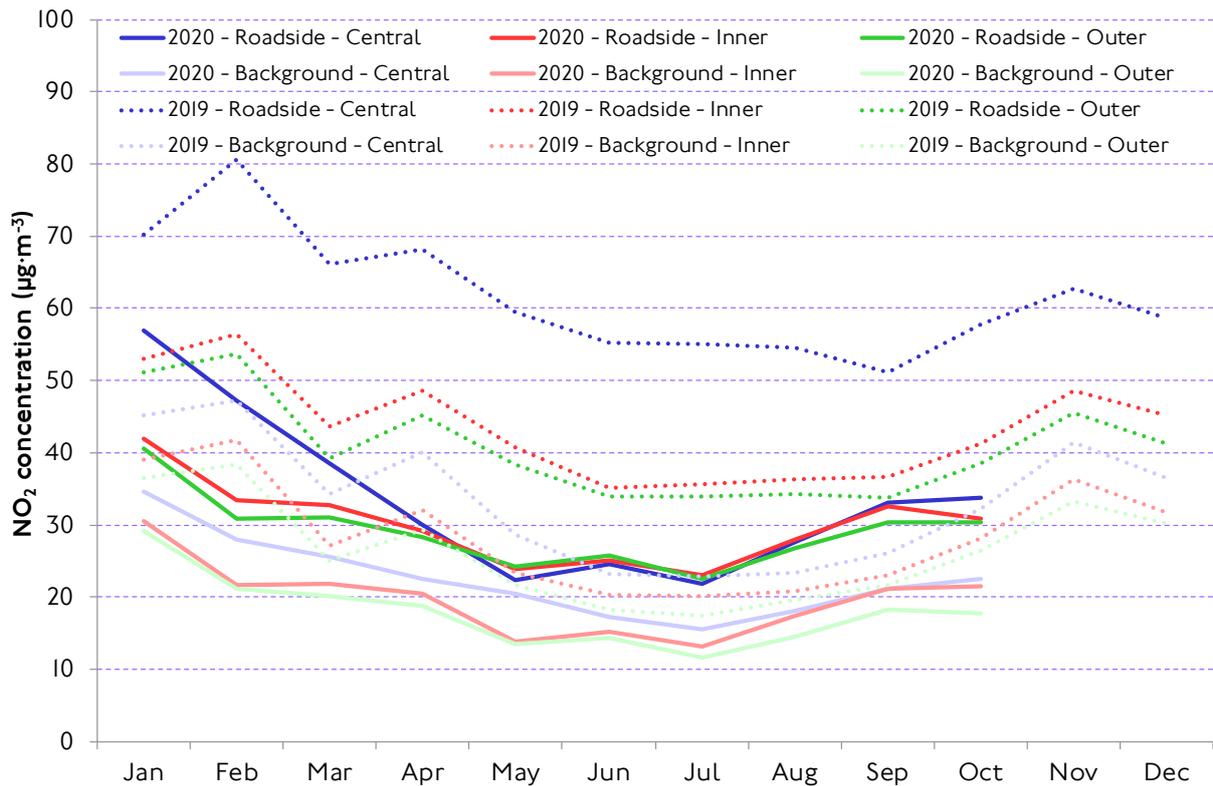
Figure 8.1 shows the monthly average NO₂ averaged by site type and location for 2019 and 2020. In January and February 2020 (before the pandemic took hold), NO₂ concentrations were already lower than in 2019, with the greatest pre-pandemic reductions in central London, thanks in part to the central London ULEZ.

Throughout the remainder of 2020, monthly average concentrations of NO₂ have been consistently lower than 2019. The latest available data shows that concentrations began to increase in August, as activity started to return, and the gap between 2020 and 2019 has narrowed. In central London, where traffic has remained relatively low, NO₂ at roadside sites in September 2020 was still, however, around 40 per cent lower than the monthly average in 2019.

In inner and outer London NO₂ returned to around pre-pandemic levels in autumn. Although concentrations remain slightly lower in absolute terms, this is thought to reflect the impact of other interventions to reduce NO₂ over the last year, giving a rough equivalence with what would be expected in the absence of the pandemic.

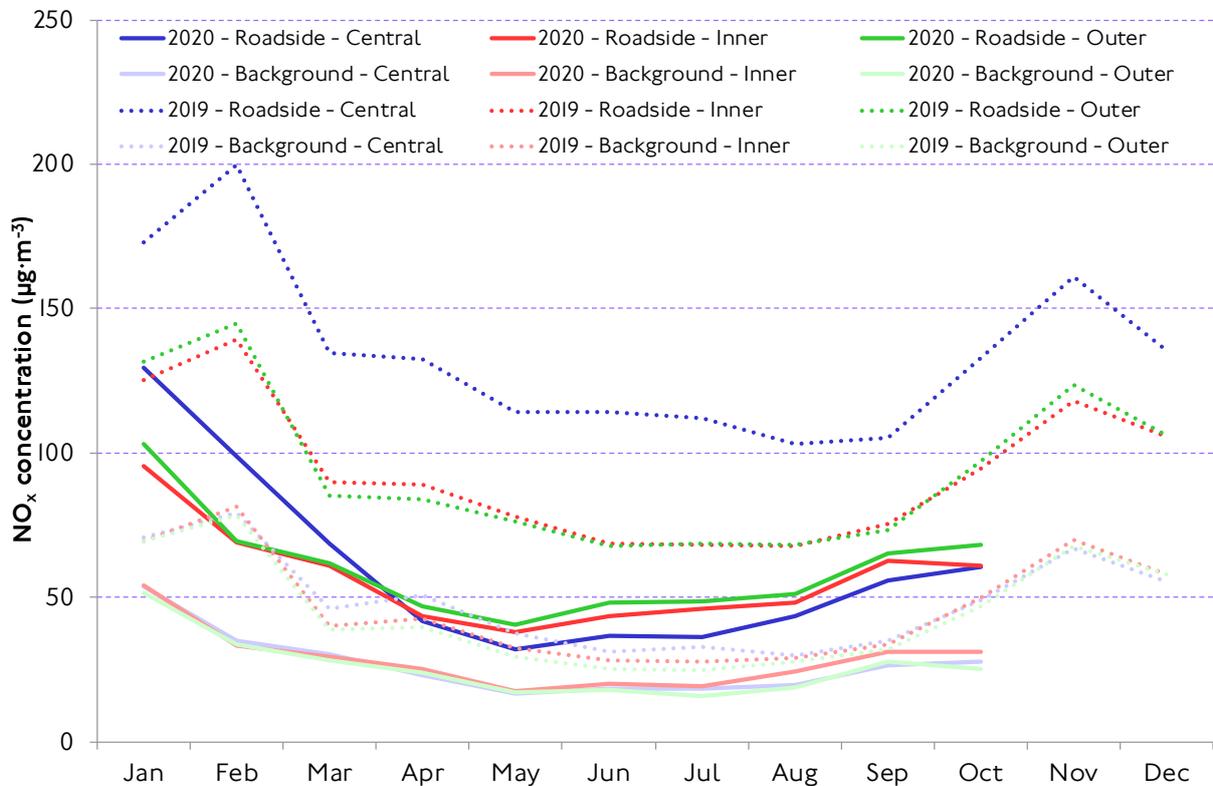
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Figure 8.1 Average NO₂ concentration by month and location, 2020 vs 2019.



Source: London Air Quality Network.

Figure 8.2 Average NO_x concentration by month and location, 2020 vs 2019.



Source: London Air Quality Network.

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Trends in oxides of nitrogen (NO_x)

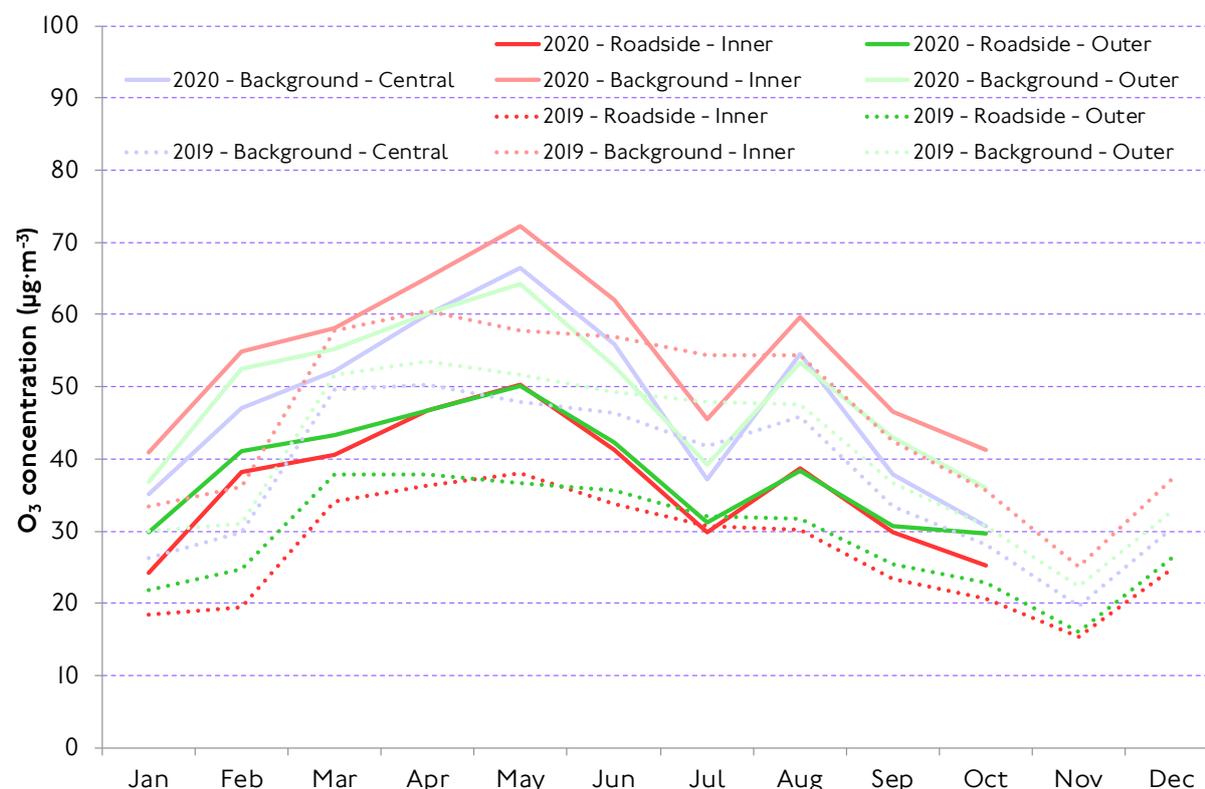
NO_x follows the same seasonal trends as NO₂, with the highest concentrations in the winter months. Figure 8.2 shows the monthly average NO_x grouped by site type and location for 2020. The picture for NO_x is similar to that for NO₂. At roadside locations the monthly average concentrations of NO_x in 2020 have been consistently lower than 2019. At background locations there has been less of a reduction.

In later months up to September 2020 there was a narrowing of the gap between 2019 and 2020. This indicates NO_x has slowly returned to pre-pandemic levels, excepting roadside sites in central London. As was the case with NO₂, other interventions had already contributed to lower NO₂ concentrations in 2020 compared to 2019. As NO_x in inner and outer London is now only slightly below the same month for 2019, this can likewise be regarded as equivalent to pre-pandemic levels.

Trends in ozone (O₃)

Ozone follows a different seasonal pattern to NO₂ and NO_x, as can be seen in figure 8.3 below. Ozone is a secondary pollutant formed when other pollutants, including NO₂, react in sunlight. As a result, ozone concentrations are closely linked to the weather patterns and are highest during the spring and summer months when there is most sunlight.

Figure 8.3 Average O₃ concentration by month and location, 2020 vs 2019.



Source: London Air Quality Network.

*There are no roadside monitoring sites for ozone in central London.

In the absence of sunlight, certain pollutants, including NO₂, chemically react with ozone and, in effect, 'mop it up'. Therefore, in central London, where there are

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higher concentrations of NO₂, there are lower concentrations of ozone. Because of the complex chemistry between NO₂ and ozone, decreases in NO₂ can lead to increases in ozone.

Figure 8.3 shows that ozone in 2020 has been higher than in 2019. This may be partly due to the decrease in NO_x emissions, although it is also likely to be a result of the above-average sunshine hours recorded in the south-east of England in summer 2020.

In July 2020 NO₂ concentrations were still far below 2019 levels. However, this is the only month that recorded average ozone concentrations below 2019. In addition, the ozone concentration in January and February 2020 also exceeded the 2019 level, before lockdown measures were introduced. This indicates the higher levels of ozone were also driven by the above-average sunshine hours, although more detailed analysis would be required to apportion the increased ozone between these two factors.

In August 2020, London experienced high levels of ozone driven by strong sunshine and unusually high temperatures. To help reduce Londoners' exposure during this period, City Hall issued a High air pollution alert. The World Health Organization guideline limit for ozone is an 8-hour mean of 100 µg m⁻³. Several monitoring sites recorded 8-hour means over this limit during this ozone episode.

Trends in fine particulate matter (PM_{2.5})

Spring is often the worst time of the year for particulate pollution in London. Spring episodes are generally associated with agricultural emissions, which can travel long distances.

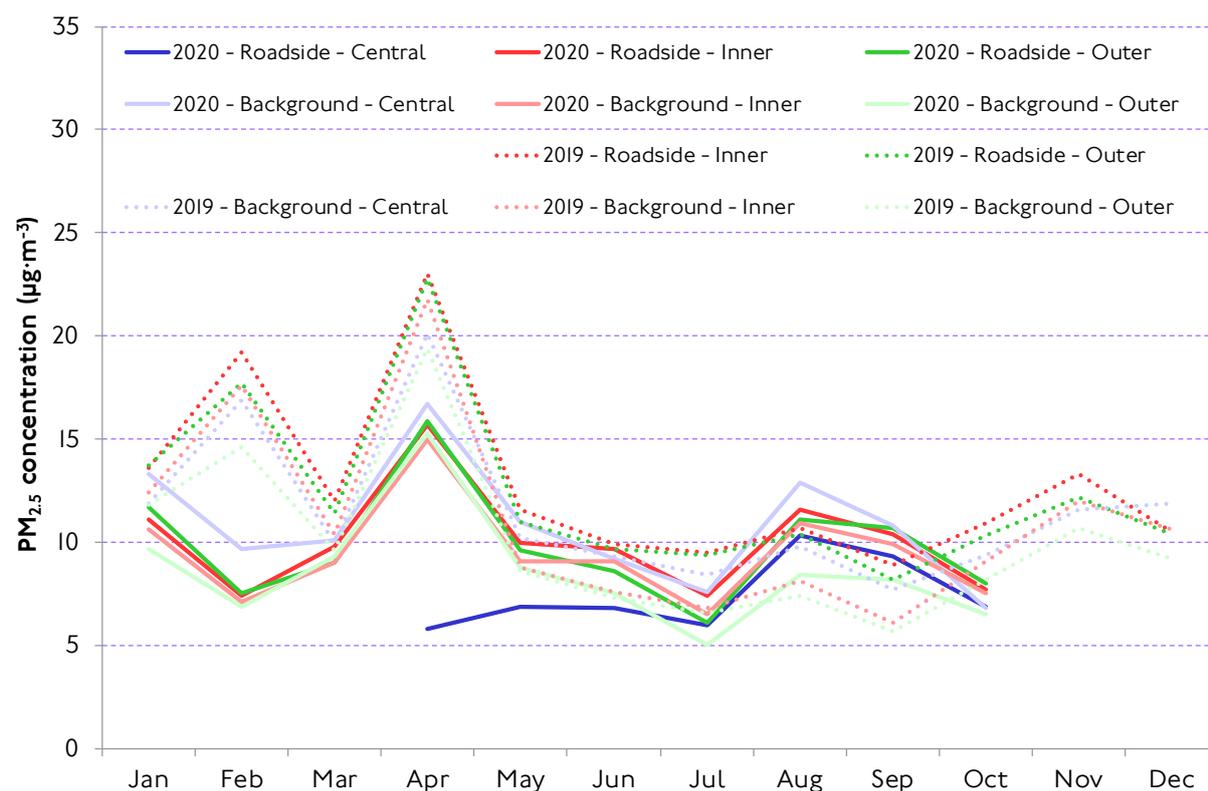
Figure 8.4 shows monthly average PM_{2.5} averaged by site type and location for 2019 and 2020. Despite the introduction of lockdown measures in March, 2020 experienced the usual springtime episodes of PM_{2.5}, although overall 2020 levels during the peak PM_{2.5} period were slightly lower than the 2019 peak levels. As around half of London's PM_{2.5} concentrations come from sources outside of London, local lockdown measures would be expected to have less of an impact on PM_{2.5} than other pollutants.

Trends in particulate matter (PM₁₀)

Particulate matter (PM₁₀) follows the same seasonal trends as PM_{2.5}. Figure 8.5 shows the monthly average PM₁₀ averaged by site type and location for 2019 and 2020. Despite the introduction of lockdown measures in March, 2020 experienced the usual springtime episodes of PM₁₀. Monthly average PM₁₀ concentrations in 2020 were very similar to 2019, except at roadside sites in central London, which recorded a significant decrease compared to 2019 up to August. This may be because traffic is the dominant source of PM₁₀ at these sites, so they are most affected by the reduction in traffic. Since August PM₁₀ at roadside sites has been comparable to pre-lockdown levels.

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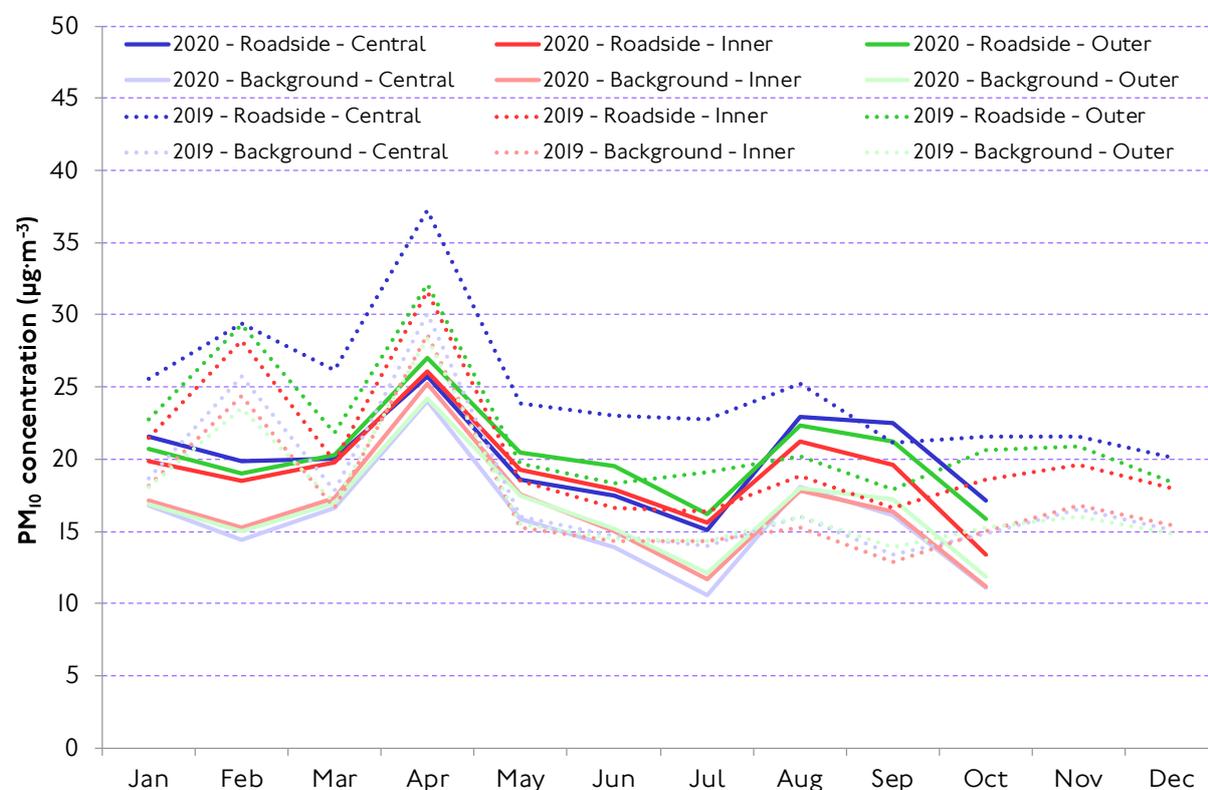
Figure 8.4 Average PM_{2.5} concentration by month and location, 2020 vs 2019.



Source: London Air Quality Network.

*Westminster, Elizabeth Bridge roadside monitoring site opened in April 2020, data not available for 2019.

Figure 8.5 Average PM₁₀ concentration by month and location, 2020 vs 2019.



Source: London Air Quality Network.

8.3 The pandemic and road danger

Introduction

The pandemic has seen changes to the use and configuration of London's streets. These changes have affected and continue to affect both the absolute number of casualties from road traffic collisions and the relative risk profile of road users. The short-term picture over spring/summer 2020 was that, while the absolute number of casualties reduced following reduced overall travel demand and motorised traffic, travel on the streets in London in practice became riskier. As we move towards recovery there are lessons to be learned to assist with progress towards our Vision Zero goals.

Overall trends during pandemic

Casualty statistics for 2019 (see section 3.8) suggest that, on average, an individual was injured in a road collision approximately once every 320,000 trips in London. This might be regarded as the average risk under normal circumstances. It follows that substantial reductions in trips should, all other things being equal, lead to reductions in injuries.

The pandemic indeed saw substantial reductions in motorised road travel, particularly during the spring lockdown. Travel by other modes, for example on foot or cycle, also reduced in the short term, although not uniformly in space and time, reducing absolute exposure (relative activity levels have been estimated using proxy data). The impact of this was to reduce the absolute number of casualties, as fewer people were travelling. However, relatively low casualty figures overall masked the fact that the risk of being injured when travelling in London increased for some road users, and at some locations and times of day. More recently, as motorised traffic and travel demand more generally have returned, both indicators are returning towards pre-pandemic levels. However, at the time of writing, settled patterns are not yet established.

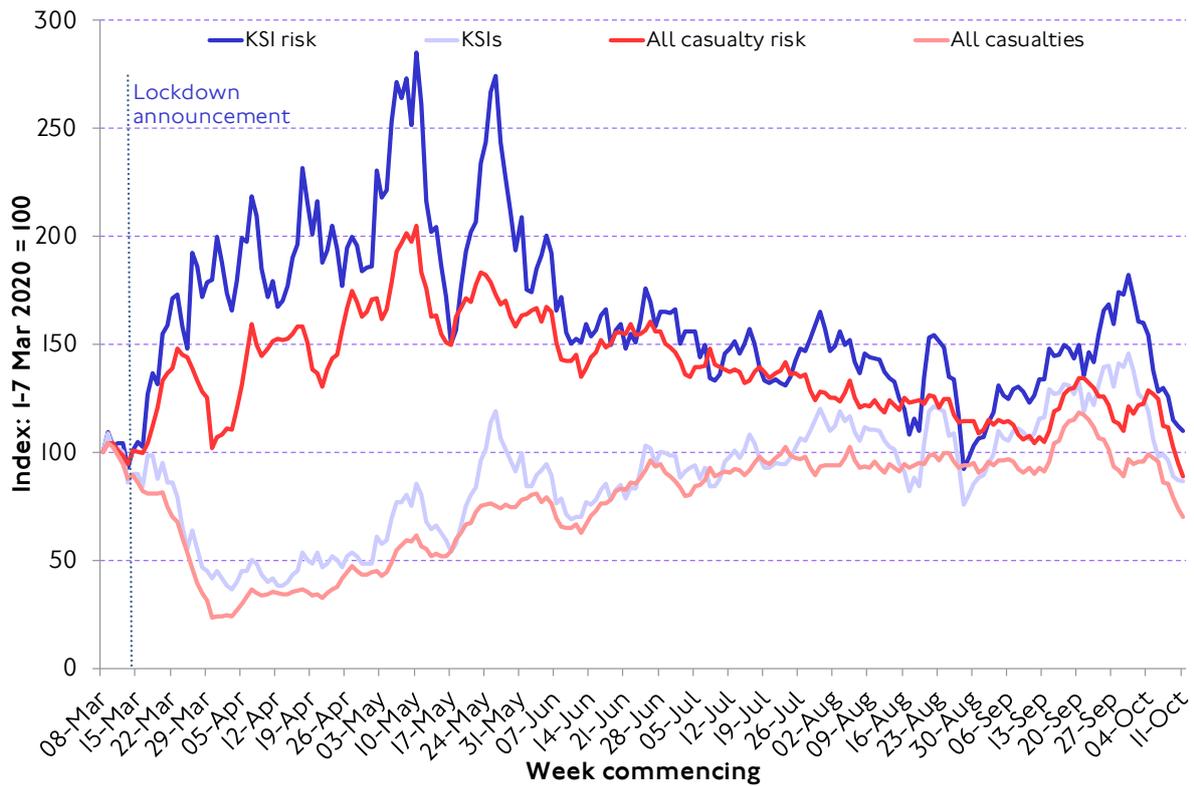
Relative risk

Figure 8.6 shows trends in absolute number of recorded casualties. The impact of the marked reduction in travel over spring/summer is clear, as is the more recent trend for casualties to return towards pre-pandemic levels. Relative risk, however, shows the opposite pattern, with a substantial increase in risk per journey over spring/summer, this tending back towards pre-pandemic levels in more recent months. The figure, based on provisional data from the Metropolitan Police Service and excluding the City of London Police, also shows a higher relative risk for those casualties killed or seriously injured, as distinct from all injuries. The average severity of casualties from collisions also therefore increased over the spring/summer.

It should however be noted that collision records are subject to change and are amended based on revised collision details and further investigation. Serious collisions undergo a quality assurance process to align definitions to the STATS20 DfT guidance. This review takes place about four months in arrears and, typically, about 25 per cent of serious injury collisions are 'downgraded' to slight through this process. Data for the later summer/autumn period of 2020 must therefore be interpreted in this context.

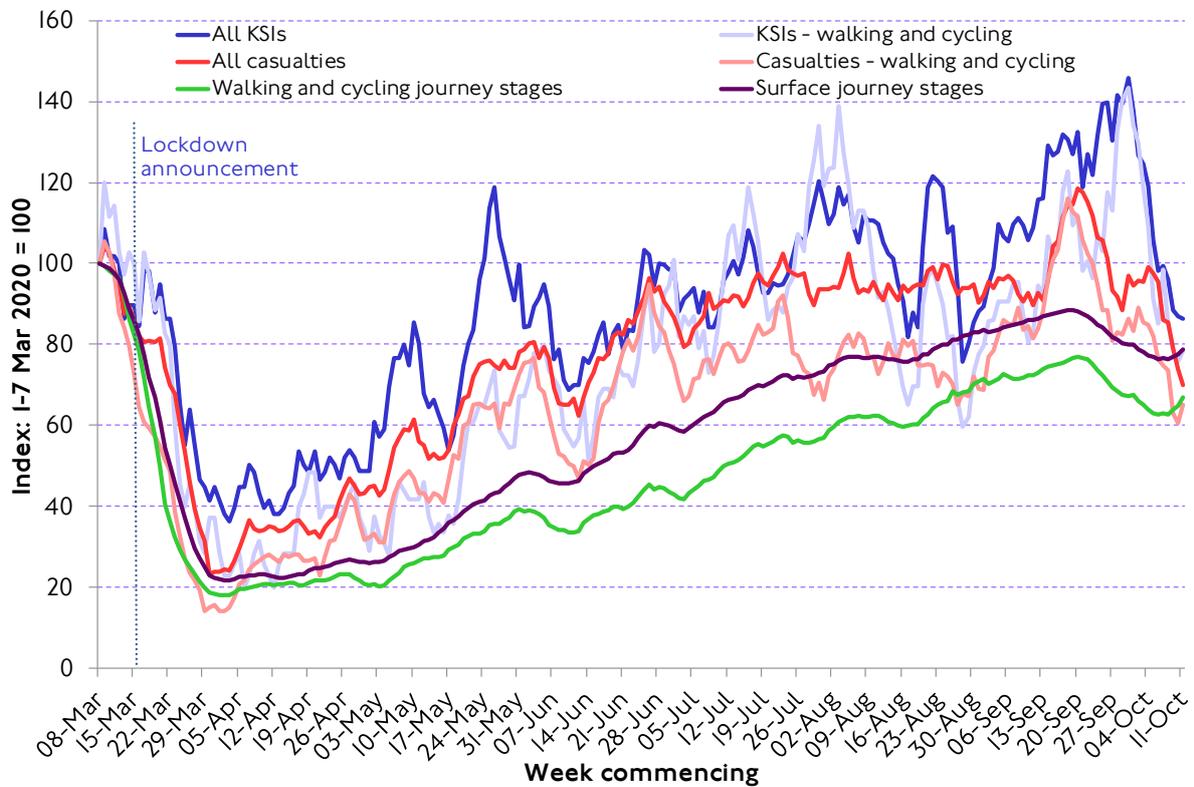
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Figure 8.6 Casualties in London and risk of injury by severity, Mar–Oct 2020.



Source: TfL Safety, Health and Environment.

Figure 8.7 Selected casualty statistics and journeys, Mar–Oct 2020.



Source: TfL Safety, Health and Environment.

Note: These data are provisional. Collision records are subject to change and are amended based on revised collision details and further investigation. KSI data after June 2020 are subject to significant revision and should be regarded as indicative. 1. The journey stages in the graph are estimated from proxy data and may not correspond with other data in this report.

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Figure 8.7 sets this in terms of activity (estimated journey stages). The overall pattern is clear, with large-scale reductions in activity and casualties during the lockdown over spring/summer, both recovering steadily since. It also shows that generally, the absolute reduction in casualties is lower than the reduction in activity (red vs purple/green lines), signifying an increase in relative risk. However, the casualty profile varies between selected classes of casualty (red lines). And although at the time of writing activity had not yet returned to pre-pandemic levels, casualty numbers for some classes were above what might be expected, suggesting that an element of increased relative risk remains, subject to the important caveat about severity revision above.

Vulnerable road users

In 2019, vulnerable road users (pedestrians, cyclists and motorcyclists) comprised 81 per cent of all people killed or seriously injured. The pandemic saw widespread changes to travel patterns for pedestrians and cyclists, reflecting both lockdown restrictions and the more general changes to personal activity. It is therefore of interest to examine casualty patterns for these road users during the pandemic.

Between 20 March and 15 July there was a 47 per cent decrease in people being killed or seriously injured compared to the same period in 2019. There were 27 people killed on London's roads between 20 March and 15 July this year, compared to 42 over the same period in 2019. However, this reduction in people killed was driven almost entirely by reductions in people killed as pedestrians, with other vulnerable road user groups – cyclists and motorcyclists, recording similar level of fatalities to 2019, despite changes to travel patterns.

Figure 8.8 shows the trend in the rate of people killed or seriously injured as pedestrians or cyclists compared to the equivalent trend for all road user modes. It is seen that both solid lines (people killed and people seriously injured) are consistently and significantly above the dotted lines (all road users). A higher relative risk for these vulnerable road users was also a feature of pre-pandemic travel, but the data suggest a widening of the differential over summer.

Changes to casualty severity

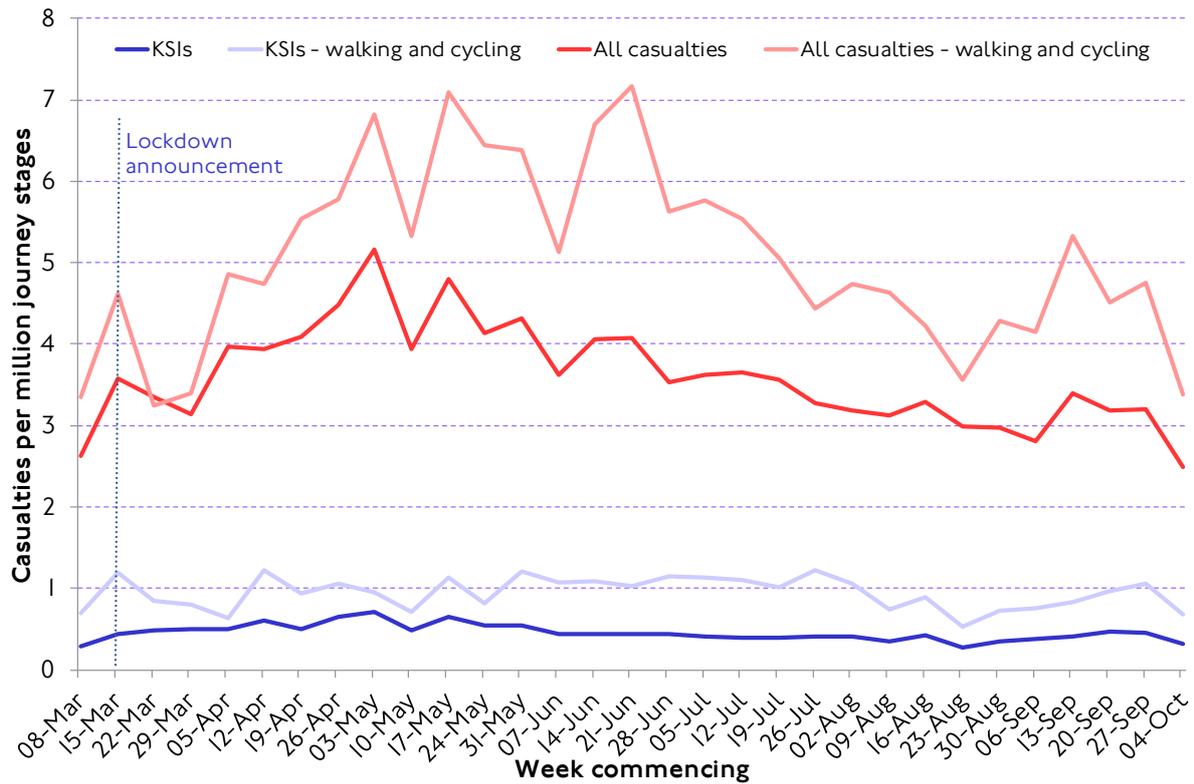
The proportion of all collisions that resulted in fatal or serious injuries rose during lockdown. This is at least partly linked to increased vehicle speeds over the lockdown period as reduced congestion gave an opportunity for increases in average speeds on all classes of road and more instances of extreme speeding. The Metropolitan Police Service enforced more than 4,600 speeding offences in May 2020, over four times as many as in May 2019. Since the easing of lockdown and with rising traffic levels, average vehicle speeds have fallen back towards pre-lockdown levels, although they remain higher in free-flow conditions. We are working with our colleagues in the Metropolitan Police Service to identify highest risk locations to target enforcement activity.

Changes to the riskiest times

The distribution of casualties by time of day also changed. This has been particularly notable with respect to the morning peak, where casualties have declined more significantly (ca 70 per cent reduction) compared to the inter-peak (ca 35 per cent) and evening peak (ca 50 per cent reduction), reflecting changes in journey purpose and time of travel.

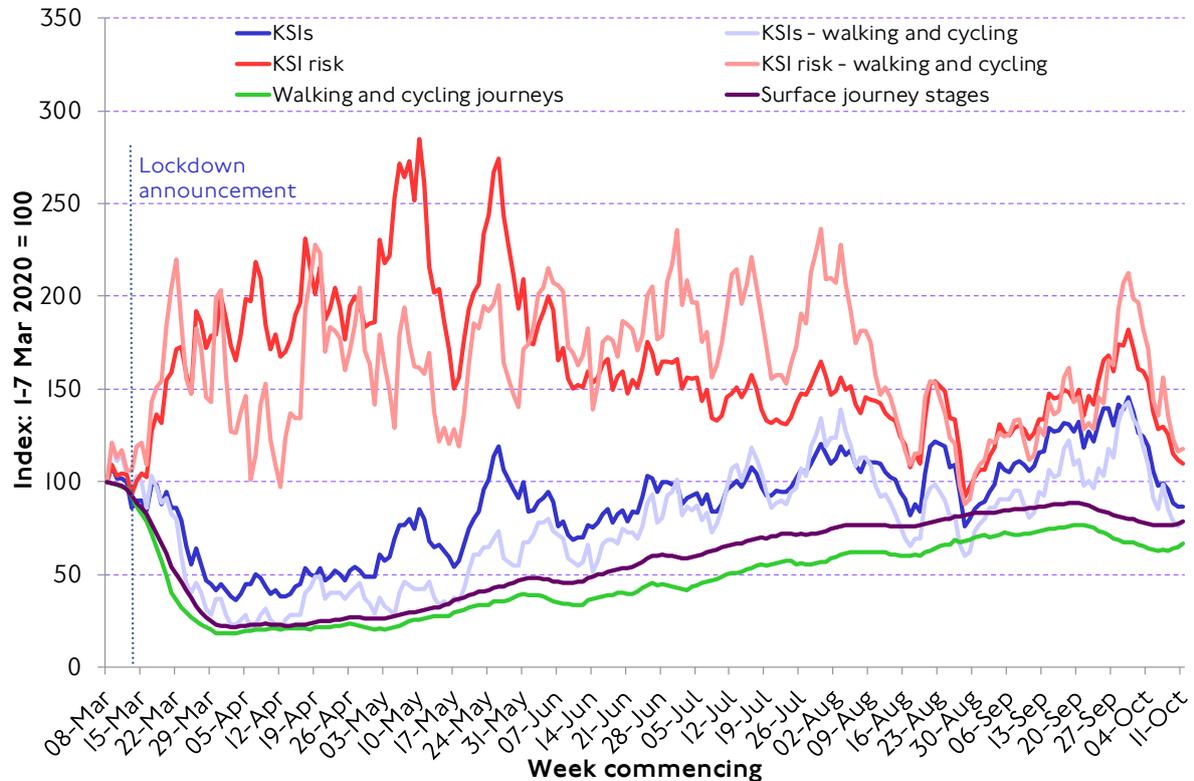
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Figure 8.8 Casualty risk by severity and mode, Mar–Oct 2020.



Source: TfL Safety, Health and Environment.

Figure 8.9 Killed or seriously injured casualties and risk by mode, Mar–Oct 2020.



Source: TfL Safety, Health and Environment.

Note: These data are provisional. Collision records are subject to change and are amended based on revised collision details and further investigation. KSI data after June 2020 are subject to significant revision and should be regarded as indicative. 1. The journey stages in the graph are estimated from proxy data and may not correspond with other data in this report.

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Risk and geography

The greatest reduction in casualties has been within central London, linked to the larger-scale reduction in activity there. Other parts of London saw smaller reductions in casualties. There is variability by road user type with absolute casualties for cyclists having increased during the lockdown in zones 3 and 5 while falling in other zones. The inner London ‘doughnut’ around the zone 1 core is the riskiest for cyclists, probably as a result of relatively constrained street layouts, the mix of users and more complex frontages and street activities.

We have been working to introduce increased street space and infrastructure to better accommodate active travel modes and protect vulnerable road users in high demand locations, while maintaining social distancing measures on public transport. This is accompanied by safety messaging to raise awareness of changes to travel patterns and street layouts.

Changes to vehicle speeds

Lower volumes of traffic have freed up road space and reduced congestion – meaning that, relatively unusually for London, drivers have been presented with free-flow conditions – with progress limited only by prevailing speed restrictions and traffic signals. It would be expected that, under these circumstances, average traffic speeds would increase – and during the lockdown period this was indeed observed to be the case (table 8.1). All other things equal, higher vehicle speeds would tend to increase the relative severity of casualties.

Table 8.1 Measured average traffic speeds in London, Jul 2020.

Speed limit (mph)	Average speed – baseline (mph)	Average speed – current (mph)	Change from baseline	Change from speed limit
20	19.1	20.0	+4.4%	-0.1%
30	23.1	24.8	+7.5%	-17.4%
40	35.3	38.9	+10.4%	-2.7%
50	45.7	47.2	+3.5%	-5.5%
60	51.2	58.4	+14.1%	-2.6%
70	58.1	64.4	+10.9%	-8%

Source: TfL Safety, Health and Environment.

A more disturbing feature, however, was the tendency on some classes of roads for average vehicle speeds to approach or exceed the posted speed limit, at least over the short term early in the lockdown period. In some cases, the average concealed particularly extreme violations.

Mitigation and next steps

While pandemic conditions are exceptional, the lagged overall reduction in casualties and the higher relative risk for vulnerable road users in the context of substantially lower overall motorised traffic are important observations. In terms of mitigation, over the medium term, we are continuing with our programme in partnership with the Metropolitan Police Service to enforce against unsafe behaviours among all road users, including speeding, and deploying officers in high risk locations to educate and enforce against running red lights or cycling on the

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pavement. New infrastructure solutions are being developed to accommodate and protect vulnerable road users as part of our Streetspace for London programme and we are adapting and prioritising our safety messaging and communications in response to emerging issues on the network. We are continuing to develop behaviour change campaigns, training and materials aimed at targeting unsafe behaviours including speeding among road users.

8.4 Temporary changes to the Congestion Charge scheme

Prior to the pandemic London's Congestion Charge operated 07:00 to 18:00 Monday to Friday, with an £11.50 daily charge. Changes were made to the Congestion Charge during the pandemic to support key workers and, following lockdown release, to help avoid a car-led recovery:

- **23 March:** All road user charging schemes were suspended temporarily
- **18 May:** Charging schemes reinstated, with reimbursement schemes for some key workers
- **22 June:** Congestion Charge increased to £15 a day and hours of operation extended to 07:00 to 22:00, 7 days a week
- **1 August:** Residents' discount scheme closed to new applicants

These changes took place in the context of substantial background changes to normal demand caused by the pandemic, which continue to unfold. Therefore, it is not yet possible to definitively attribute observed changes to traffic in the central London Congestion Charging Zone (CCZ) to the specific changes to the scheme itself. Nevertheless, it is possible to examine trends in traffic in central London over this period in terms of the above changes and in the context of traffic trends in the rest of London.

Summary of traffic trends

When lockdown was announced on 23 March, vehicle entries into the CCZ fell by 39 per cent compared to the previous week and by 53 per cent compared to the first two months of 2020. Entries remained low for a month, then began to slowly rise. A noticeable increase occurred in the week commencing 11 May (17 per cent compared to the previous week), following the government's (partial) return to work announcement. All road user charges were reinstated the following week.

Between the charge reinstatement on 18 May, and the temporary charge increase and extension on 22 June, average weekly vehicle entries were 39 per cent lower than during the first two months of the year; weekly car entries were 23 per cent lower. In the week that the Congestion Charge was increased and extended (w/c 22 June), weekly vehicle entries fell 8 per cent compared to the previous week and weekly car entries fell 11 per cent. Weekly vehicle entries levelled off around 33 per cent lower than the first two months of the year in the month following the charge increase and extension. These figures reflect the predicted impact of the Congestion Charge changes but are also influenced by continuing suppressed background demand in central London due to the impacts of the pandemic.

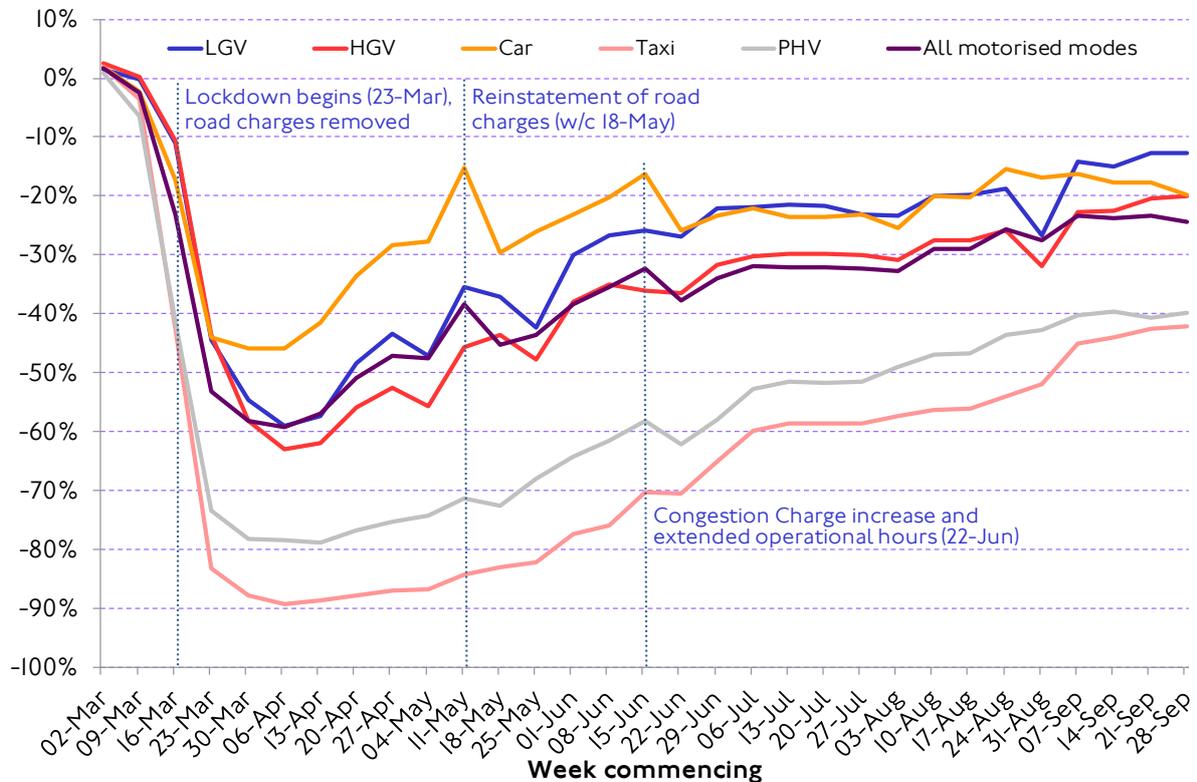
The influence of the pandemic and CCZ changes on modal traffic flows

To compare the influence of the pandemic and the changes to the Congestion Charge by vehicle mode, a weekly average of entries to the charging zone during January and February 2020 was used as a baseline. Figure 8.10 shows that,

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compared to baseline levels, the greatest reduction in entries after the lockdown announcement was for licensed taxis and PHVs, with licensed taxis having the greatest decline (83 per cent lower than the baseline during the week of the lockdown announcement, and 89 per cent at the lowest level).

Figure 8.10 Weekly unique CCZ entries by mode, Mar-Sep 2020 vs Jan-Feb 2020.



Source: TfL Surface Transport

Weekly **car entries** fell by 46 per cent compared to pre-lockdown levels following the lockdown announcement in March, and remained at a similar level until mid-April, following which they recovered quickly, to around 15 per cent below pre-lockdown levels by the week commencing 11 May. However, this recovery varied temporally and car entries during pre-pandemic charging hours were 23 per cent higher than pre-pandemic levels during the week commencing 11 May. The following week, all road charges were reinstated at the previous levels and weekly car entries fell by 17 per cent compared to the previous week. Car entries again slowly started to recover, until the Congestion Charge increase and extension on 22 June. Following this, weekly car entries fell by 11 per cent compared to the previous week and remained around 24 per cent below pre-pandemic levels until August, when they slowly started to increase. At the end of September, weekly unique car entries were around 80 per cent of baseline levels.

The lowest levels of **freight entries** occurred a fortnight following the lockdown announcement, with LGV (van) entries 59 per cent lower, and HGV (lorry) entries 63 per cent lower. LGV and HGV entries remained low for the first four weeks of lockdown, then began to increase from mid-April. There was a noticeable increase in entries at the end of May, although recovery slowed by mid-June and both LGV and HGV saw limited growth throughout summer. By the end of September, LGV entries were 13 per cent below pre-pandemic levels, and HGVs 20 per cent below.

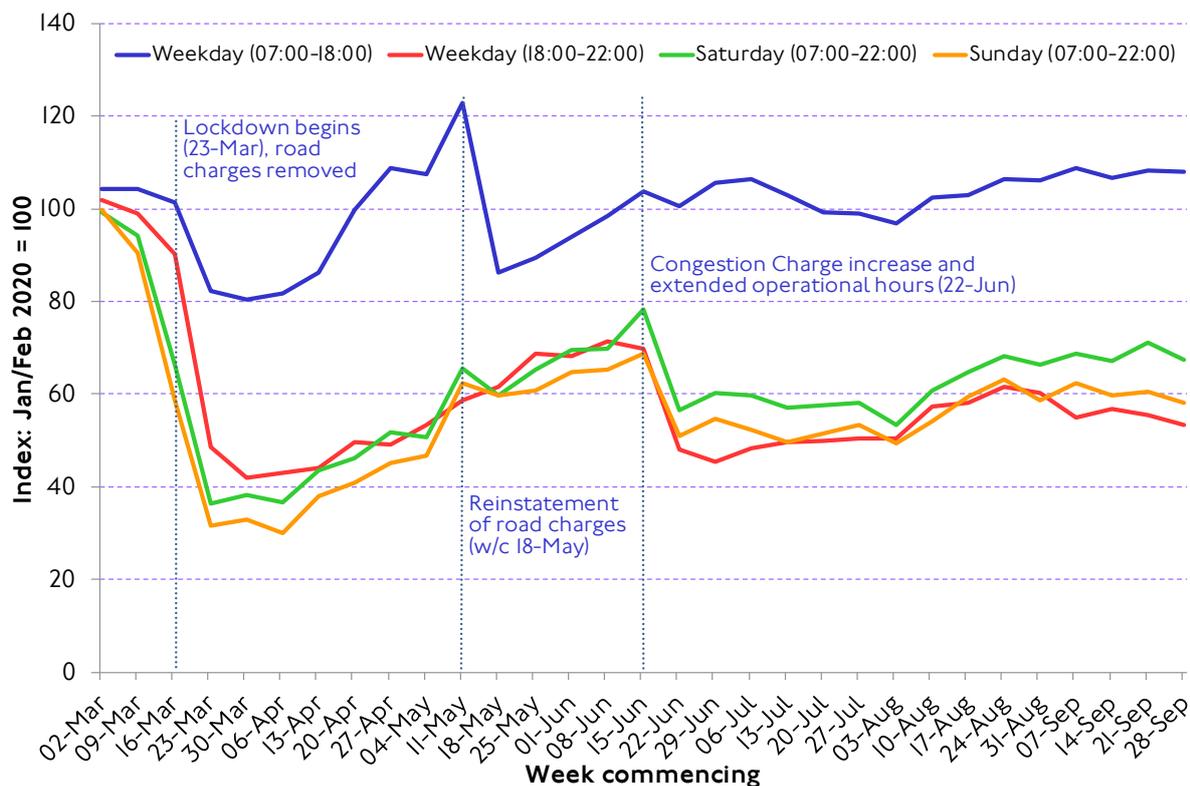
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Following large falls in unique licensed **taxi** and **PHV entries** after the lockdown announcement in March, entries remained low until early May, then saw gradual increases from mid-May. There were falls in PHV entries following the reinstatement of the Congestion Charge on 18 May and the changes to the charge on 22 June. However, entries to the zone recovered for both taxis and PHVs over the summer. At the end of September taxi entries were 42 per cent below pre-pandemic levels, and PHV entries were 40 per cent lower.

The influence of the pandemic and CCZ changes on traffic flows by time of day

Total traffic flows into the CCZ have changed throughout the lockdown period, and in response to the reinstatement and temporary changes to the Congestion Charge. However, the change in entries has not been uniform throughout the day or week. Figure 8.11 shows the change in **unique car entries** to the CCZ split by weekday, Saturday and Sunday. It also splits car entries on a weekday by previous charging hours (07:00–18:00) and extended hours (18:00–22:00) to understand the impact of both increasing the charge and extending the hours.

Figure 8.11 Daily unique CCZ car entries by day of the week and extended charging hours, Mar-Sep 2020 vs Jan-Feb 2020.



Source: TfL Surface Transport.

During the spring lockdown the Congestion Charge was removed. Cars entering the CCZ during **previous charging hours** (weekdays 07:00–18:00) initially fell in the weeks following the lockdown announcement, then increased, in the absence of the charge, to higher than pre-pandemic levels. In the week following the charge reinstatement, unique car entries fell 30 per cent compared to the prior week and 14 per cent compared to the baseline. Since the charge was increased and extended to 22:00 there has been limited change to weekday entries between the pre-pandemic charging hours of 07:00 and 18:00, as would be expected given the

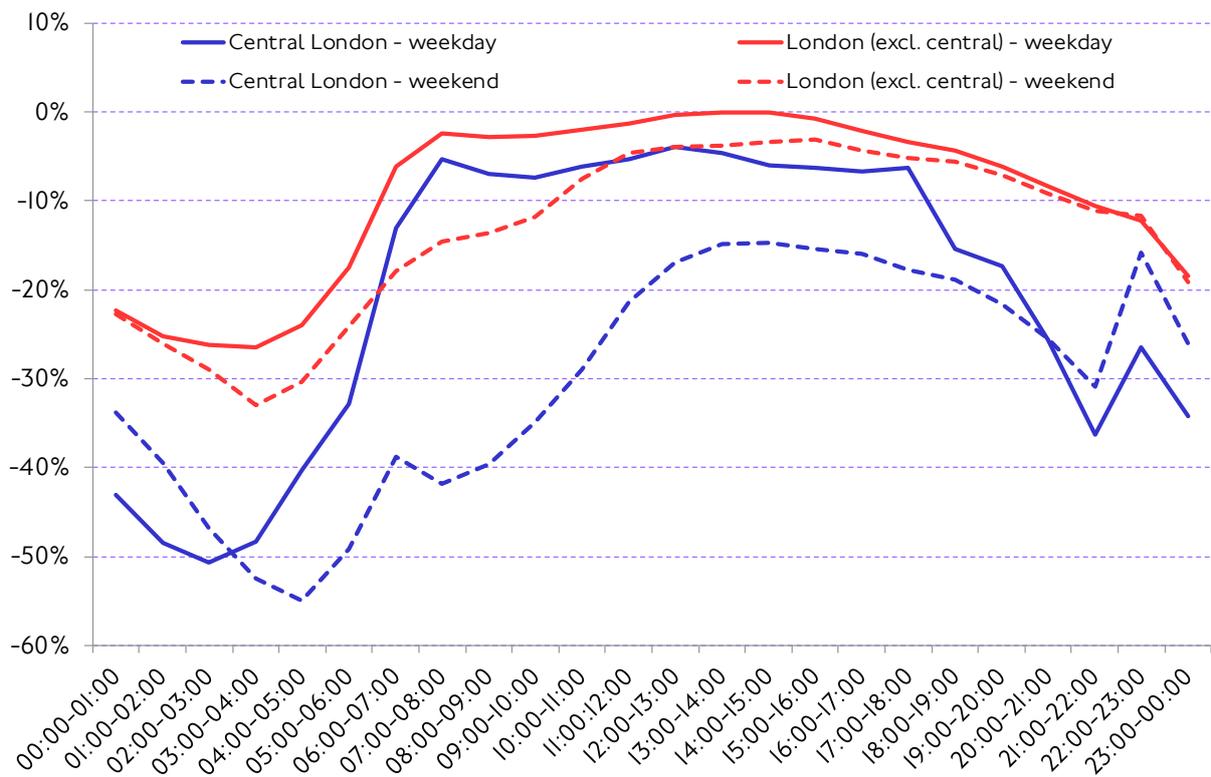
relative price inelasticity of drivers previously prepared to pay the daily charge during those hours.

Car entries into the CCZ during weekdays between 18:00 and 22:00 (formerly non-charging hours) and on Saturday and Sunday between 07:00 and 22:00 showed a similar trend throughout the lockdown and scheme changes. Entries fell by 58 per cent on weekdays, 62 per cent on Saturdays and 67 per cent on Sundays following the lockdown announcement. Entries steadily recovered until the temporary extension to the Congestion Charge hours of operation on 22 June. In the week following these changes, levels fell by 30 per cent compared to the previous week on weekday evenings, 28 per cent on Saturdays and 26 per cent on Sundays. Overall there has been a significant difference (reductions of around 50 per cent compared to the baseline) in ‘unique vehicle’ car traffic in the CCZ during the hours of the extended operation of the charge, compared to the pre-pandemic weekday charging hours, which showed limited overall change. Following the easing of restrictions in summer, car entries have steadily increased, but without the temporary changes it is likely that this increase would have been greater.

CCZ traffic changes in the context of overall traffic change in London

Figure 8.12 compares difference in **hourly motorised traffic volumes** in September with the equivalent day last year for both central London and Greater London (excluding central London).

Figure 8.12 Traffic volume by time of day and area, 7 Sep-4 Oct 2020 vs 2019.



Source: TfL Surface Transport.

This shows a clear difference between current traffic volumes and 2019 traffic volumes in central London compared to those in the rest of London. The greatest lag in recovery is during evenings and overnight on weekdays, which could be in part due to hospitality restrictions imposed due to the pandemic, and between

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07:00 and 09:00 on a weekend. Travel demand into central London has also been influenced by lifestyle changes as a result of the pandemic, such as increased working from home, therefore recovery of traffic volumes in central London is likely to be lower than the London-wide recovery. Despite this, figure 8.12 shows that in September weekday demand during pre-pandemic charging hours was similar to 2019, with volumes returning to around 95 per cent of 2019 demand.

In summary:

- Since the end of March traffic into the CCZ has been impacted by both the travel demand changes as a result of the coronavirus pandemic and lockdown restrictions, as well as the changes to the Congestion Charge scheme itself.
- Weekly car entries fell by 46 per cent in the week following the lockdown announcement, although this had recovered to around 15 per cent below pre-pandemic levels by the end of August.
- However, recovery is not uniform across the week, with car entries during pre-pandemic charging hours largely recovering, but car entries during the extended charging periods on weekdays and weekends remaining around 60 to 70 per cent of pre-pandemic levels.
- In comparison to the London-wide recovery of traffic volumes, demand in central London remains suppressed. Weekday traffic volumes during previous charging hours seem to have recovered relatively well, reflecting the relative price inelasticity of trips made during this time, although the recovery of weekend traffic volumes remains significantly lower. This is likely due to social distancing measures limiting leisure activities, but also the impact of the temporary changes to the Congestion Charge scheme.

8.5 Streetspace for London

Introduction

The emerging recovery from the spring lockdown presented a challenge for TfL as public transport was required to run at much lower levels of passenger capacity to provide space for social distancing. There were concerns that car travel may be more attractive than before the pandemic, due to temporarily lower congestion levels and public perceptions about the risk of exposure to coronavirus on public transport. However, a potential car-based recovery was recognised to have significant risks to safety, public health, economic recovery and the environment, as well as being contradictory to the aims of the Mayor's Transport Strategy.

The Streetspace for London programme

In response to this, TfL developed the Streetspace for London programme, in line with guidance from national government, to urgently reconsider the use of street space. The programme will provide safe and appealing spaces to walk and cycle as an alternative to car use in the context of continuing reduced capacity on the public transport network as London recovers from the pandemic. The aims of the programme are to enable Londoners to travel safely, support economic recovery and avoid unnecessary burden on the NHS by:

- Making it easier and safer for people to maintain social distancing
- Helping people walk and cycle safely and more often
- Avoiding a sharp increase in car use

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- Keeping London's air as clean as possible

TfL is introducing Streetspace for London schemes on London's red routes (roads we are responsible for) as well as providing funding to boroughs to make walking and cycling safer and easier on their roads. Interventions include temporary cycle routes to extend the strategic cycle network and footway widening to make additional space for people walking in town centres and at transport hubs.

TfL is also working with boroughs to support the delivery of Low Traffic Neighbourhoods (LTNs) and School Streets in order to reduce traffic on residential streets and outside schools, enabling more people to walk and cycle safely as part of their daily routine. These schemes will also help reduce road danger on minor roads, which studies suggest pose a significantly greater risk of injury for people walking than urban main roads for each mile driven (Rachel Aldred, 2019^[14]).

While the number of people killed or seriously injured on London's roads has decreased over time, there has been an increase across all walking and cycling casualties. This includes slight injuries which, while less impactful, can still discourage active travel. Over the last decade, the number of walking and cycling casualties on neighbourhood streets increased by 38 per cent, almost double the 21 per cent increase on main roads (figure 8.13). At a local level, this impact has been more severe in some areas than others. Excluding neighbourhoods that had fewer than one casualty per year in both 2007-09 and 2016-18:

- Over 300 neighbourhoods recorded at least double the number of walking and casualties in 2016-18 compared to 2007-09.
- Over 30 neighbourhoods recorded at least five times the number of walking and cycling casualties.
- Over 80 neighbourhoods recorded at least one casualty per year in 2016-18 while recording none in 2007-09 (including 11 that saw 2-3 per year).

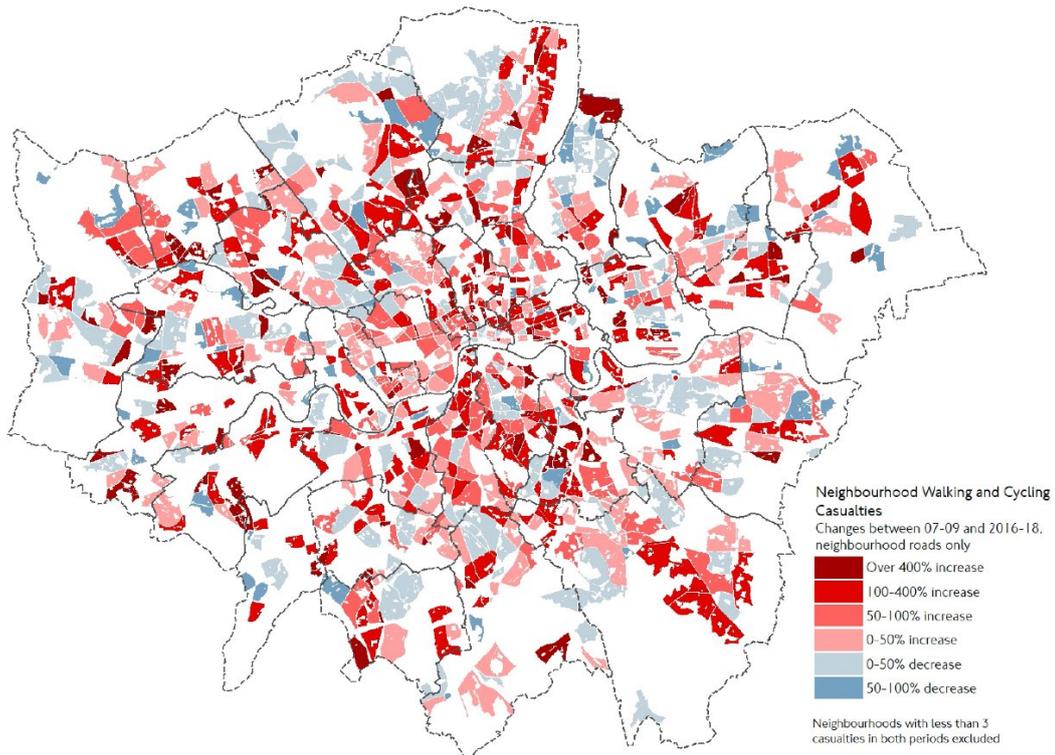
The Streetspace for London programme focuses on rapidly rolling out cycling infrastructure, bus priority, neighbourhood improvements and lower speeds, using temporary materials and an accelerated approach. Locations have been targeted using an evidence-led approach to ensure the greatest benefits for mode shift and safety. This evidence base has been used to shape TfL's Streetspace for London delivery programme, and to inform allocation of funding to boroughs, including:

- Strategic movement schemes, including 89km of new or upgraded cycling infrastructure (66km of which was delivered by boroughs) and 86km of bus lanes upgraded to 24/7 lanes.
- Social distancing schemes, with 22,516m² of TLRN highway reallocated to pedestrians, in addition to 181 borough-led schemes.
- 2,259 signal timing changes to prioritise people walking.
- 88 Low Traffic Neighbourhoods (delivered by boroughs), focusing on reducing road danger, addressing health inequality and encouraging active travel.
- 322 borough-led School Streets schemes to reduce road danger, promote active travel and reduce pollution exposure.
- 6 new Cycle Hire stations.

Figure 8.14 is a map of delivery of Streetspace for London schemes between March and September 2020 (excluding social distancing and School Street schemes).

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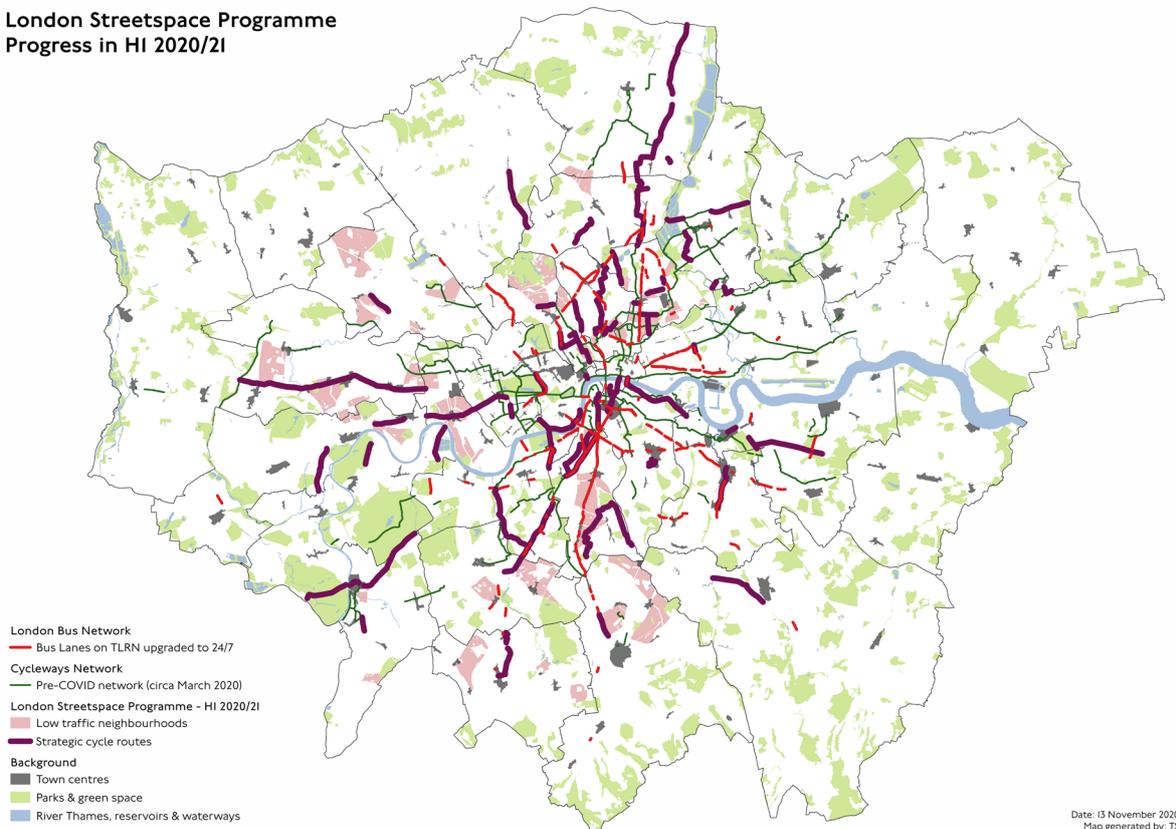
Figure 8.13 Walking and cycling casualties on neighbourhood roads, 2016-18 average vs 2007-09 baseline.



Source: TfL Safety, Health and Environment. Based on STATS 19.

Figure 8.14 Principal Streetspace for London schemes delivered, Mar-Sep 2020.

London Streetspace Programme Progress in HI 2020/21



Source: TfL City Planning.

Note: Social distancing schemes and School Street schemes are excluded from this map.

Expected benefits of the Streetspace for London programme

The Streetspace for London programme has a range of expected benefits for London and Londoners:

- Restored confidence in public transport, by providing sufficient space for social distancing for those who need to travel most, such as key workers and those who are unable to travel by alternative modes, for example those with reduced mobility.
- Economic benefits from reduced congestion as well as supporting recovery of local high streets and town centres, by enabling Londoners to access local shops safely by walking and cycling (pre-pandemic evidence showed that those who walk to a high street spend 40 per cent more than those who drive, and that high street walking, cycling and public realm improvements can increase retail sales by up to 30 per cent).^[15]
- Improved health and wellbeing, by encouraging all Londoners to achieve the 20 minutes of walking or cycling each day recommended for good health and wellbeing (which reduces the risk of diseases that are risk factors for severe coronavirus) as well as reducing air pollution and road danger.^[16]

Early impacts of the Streetspace for London programme

The Streetspace for London programme has delivered fast-paced and large-scale changes to the street network, which, as well as delivering short-term benefits as part of our emergency response to the pandemic, have also helped accelerate progress towards our long-term transport aims. Some early impacts of the Streetspace for London programme include:

- Addressing road danger by providing cycling infrastructure on 13 per cent of the most dangerous sections of the road network.
- Providing cycle routes on 26 per cent of our long-term strategic cycle network (up from 19 per cent in March).
- Early indications of an increase in cycling since lockdown, which may in part be related to the introduction of Streetspace for London schemes, although it is too early to understand the drivers of the increase in cycling yet. See section 7.6 of this report for more detail.
- Connecting one-third of town centres to the strategic cycle network.
- Supporting the economy with more space for walking on London's busiest high streets.
- Lower speed limits introduced on 20km of the TLRN, accelerating progress of the rollout of 20mph schemes.

Existing surveys and tools have been adapted and utilised to gather monitoring data for Streetspace for London schemes. The following section describes some of the early results we have received from surveys designed to monitor the impacts of Streetspace for London schemes on travel behaviour.

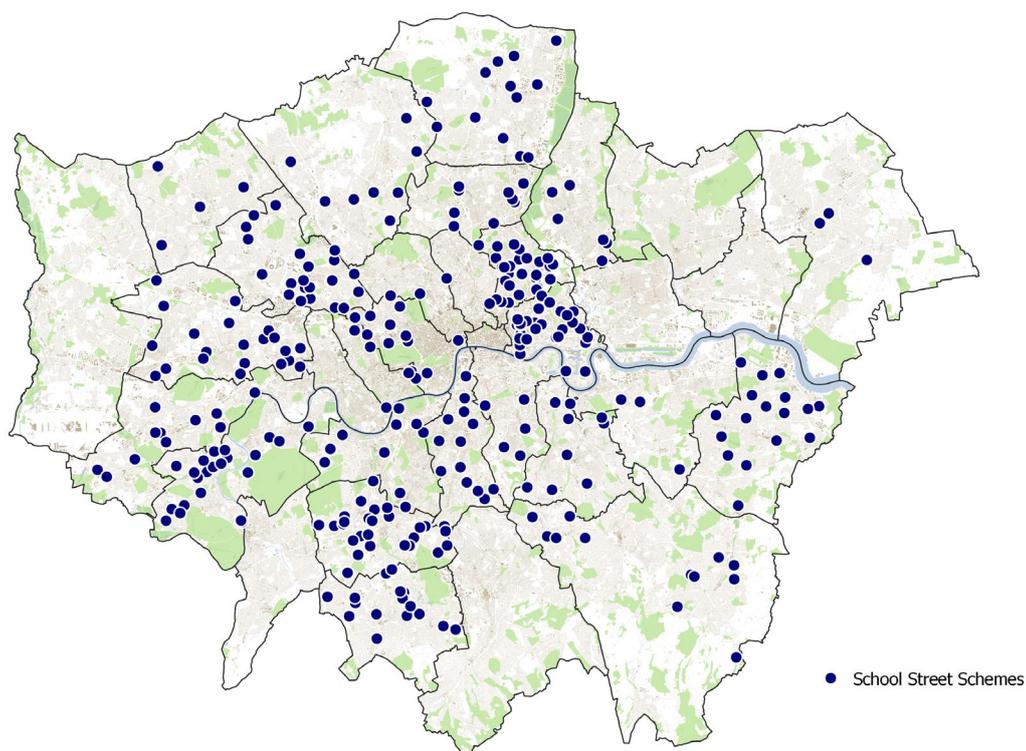
Customer Pulse survey results: awareness and attitudes to Low Traffic Neighbourhoods and School Streets

Results from our Customer Pulse survey conducted in June/July 2020 showed that 81 per cent of Londoners agree that walking and cycling are good for London. Customer Pulse survey results for period 7 (September/October 2020) included

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questions relating to the awareness and behaviour change resulting from LTN and School Streets schemes. The results show that awareness levels and agreement with schemes appears to be higher for School Streets than LTNs. While 44 per cent of respondents were aware of LTNs, a slightly higher proportion (48 per cent) were aware of School Streets. Just less than half of respondents (45 per cent) agree with the creation of LTNs, with only 19 per cent disagreeing with their creation, while the remainder had no strong view. A higher proportion of respondents agree with the creation of School Streets (59 per cent) with only 12 per cent disagreeing with their creation and the remaining respondents (29 per cent) having no strong view. See figure 8.15 for a map of School Street schemes completed under the Streetspace for London programme.

Figure 8.15 Completed School Streets schemes under the Streetspace for London programme, Oct 2020.



Source: TfL City Planning.

Note: This map does not include schemes delivered prior to the creation of the Streetspace for London programme or schemes delivered during the Streetspace for London programme period that were funded from non-Streetspace for London funding. Due to the way that proposals were submitted by boroughs and recorded by TfL, some additional School Street schemes may have been proposed and delivered as part of wider LTN or social distancing schemes and may not have been classified as School Streets schemes and therefore not included in this map.

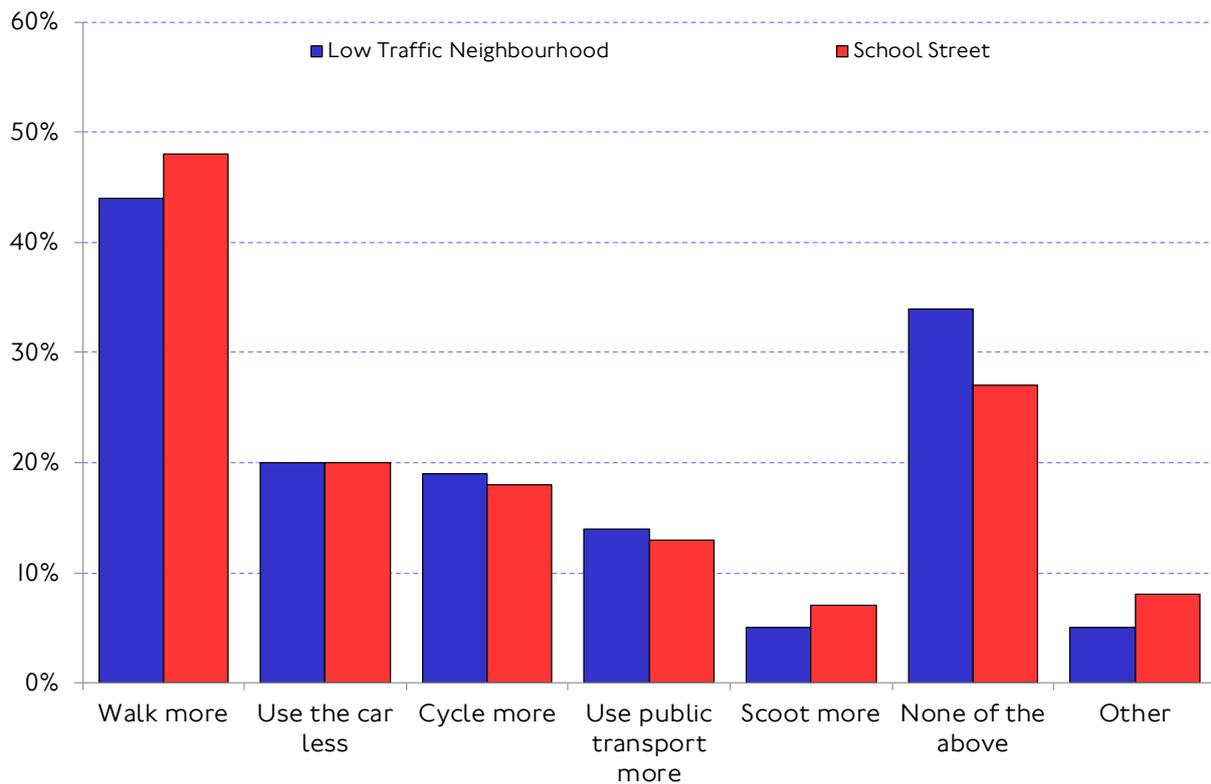
Among bus users surveyed in September/October 2020, 23 per cent of respondents were aware of the Streetspace for London programme and had noticed changes on the bus route they use over the previous few months. A further 23 per cent were aware of the Streetspace for London programme but had not noticed any changes on their bus route. Just more than half (54 per cent) were not aware of the Streetspace for London programme. When asked about specific impacts on buses, 41 per cent reported bus journeys being slower, 36 per cent reported longer wait times for buses and 32 per cent reported changes to bus stops or routes respectively. 15 per cent of respondents reported that they had not noticed any changes on their bus route.

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Out of more than 1,000 Streetspace for London schemes, around 10 per cent are expected to have a negative impact on buses. However, for the Bishopsgate scheme, where vehicular access (excluding buses) is banned between 07:00 and 19:00, bus journey times are significantly faster than before coronavirus. iBus data shows that average 07:00-19:00 journey times along Bishopsgate northbound, as of the week commencing 19 October 2020, were 3.4min/km compared to 5.7min/km before coronavirus (and 3.7min/km southbound compared to 5.8min/km). Bus journey times continue to be reviewed at key Streetspace for London schemes and will be reported in more detail as part of the monitoring programme.

Figure 8.16 shows that the creation of both LTNs and School Streets have encouraged positive behaviour change among survey respondents who live, work or go to school nearby. Just less than half of respondents have been encouraged to walk more (44 per cent near LTNs and 48 per cent near School Streets). For both types of scheme, 20 per cent of respondents have used the car less and around the same proportion have been encouraged to cycle more (19 per cent for LTNs and 18 per cent for School Streets). Some respondents have also been encouraged to use public transport more (14 per cent for LTNs and 13 per cent for School Streets). Some respondents have also been encouraged to use public transport more (14 per cent for LTNs and 13 per cent for School Streets).

Figure 8.16 Respondents who feel that the creation of LTNs/School Streets nearby have encouraged them to change their travel behaviour, financial period 7 (Sep-Oct 2020).



Source: TfL Customer Insight, Strategy & Experience.

Note: Sample size for LTNs is 203, sample size for School Streets is 249.

In addition to our Customer Pulse data, other London-wide surveys exploring public opinions of LTNs have shown support ranging from 42 per cent (GLA poll in September 2020) to 52 per cent (Redfield & Wilton Strategies survey, 2020^[17]) and opposition ranging from 30 per cent (GLA) to 19 per cent (Redfield & Wilton

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Strategies, 2020). In summary, all three of the London-wide public opinion surveys on LTNs demonstrate that support outweighs opposition.

Railton Road Low Traffic Neighbourhood (LTN) pilot attitudes and behaviour survey

While boroughs are responsible for the monitoring and evaluation of Streetspace for London schemes on borough roads, TfL is conducting some additional monitoring of a sample of LTN schemes with agreement of relevant boroughs. As part of this enhanced monitoring plan, the attitudes and travel behaviour of residents in response to the implementation of their local LTN have been explored. We commissioned a pilot survey of residents living in and around the Railton Road LTN to provide insight on the impact of this LTN as well as to help inform survey design for further monitoring surveys.

The objectives of the survey were to gather data from residents who live either in or near the LTN about:

- Awareness of and attitudes towards their local LTN
- How their travel habits have changed as a result of the LTN
- Attitudes towards LTNs in general
- Understanding what specifically contributed to the success or challenges of their local LTN

The Railton Road LTN in the London Borough of Lambeth was selected for an initial pilot survey to explore the impacts of LTNs as it was an ambitious, large-scale scheme that could be expected to have a significant impact and was implemented in July 2020, giving the scheme time to bed-in prior to the survey being conducted in September 2020. Survey respondents were recruited to take part in an online survey through a door-to-door leaflet drop at every residence inside the defined neighborhood, which included both the LTN itself, addresses located on boundary roads, and in an area that was in the same neighbourhood but was not directly impacted by road closures. The survey respondents were broadly representative of Lambeth residents in terms of gender and age. However, there was a relative overrepresentation of disabled respondents, as well as those with access to cars and/or bicycles.

Figure 8.17 shows that the LTN has encouraged more travel on foot (32 per cent), more running (19 per cent), more cycling (36 per cent) and reduced travel by car or van (24 per cent).

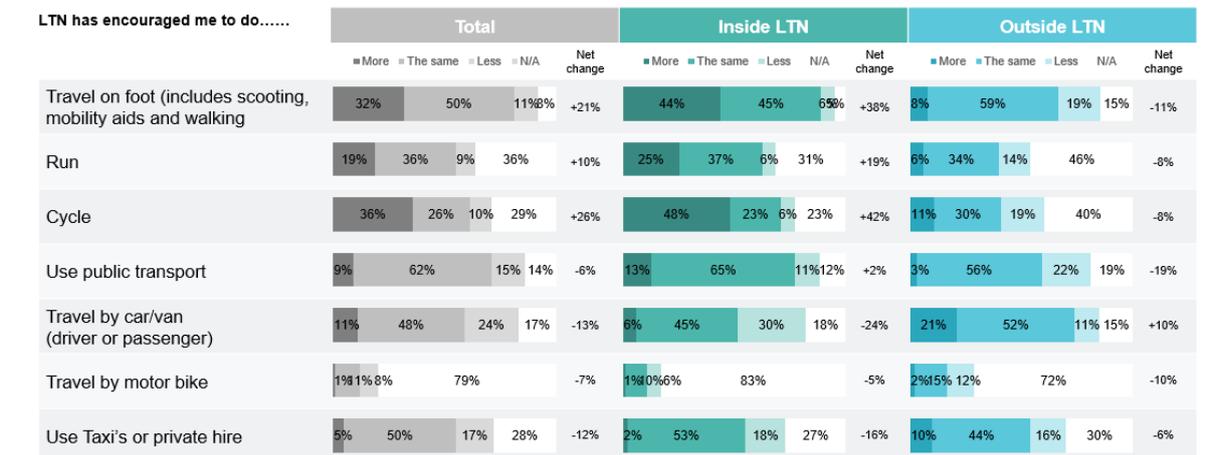
The survey of attitudes revealed that there are advocates for and against LTNs being suitable for the local area. Some 56 per cent of those living inside the LTN believe it is suitable for their area (38 per cent disagree) and 53 per cent would like to see it continue (38 per cent disagree). However, outside the LTN, only 19 per cent believe it is suitable for their area (75 per cent disagree) and only 21 per cent would like to see it continue (72 per cent disagree). These results are more polarised than the findings from our Customer Pulse survey described in the previous section. This is to be expected given this survey has targeted the opinions of those who have been directly impacted by the Railton Road LTN, rather than general opinions about the creation of LTNs in London (figure 8.18).

The attitudinal data demonstrates that there are advocates for and against this scheme, as would be expected with almost any local transport change. The

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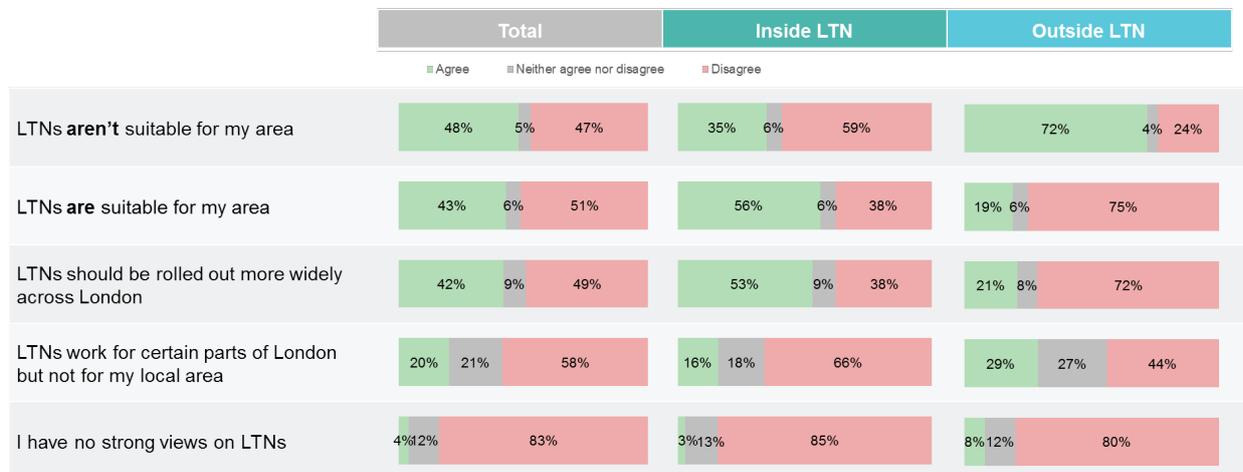
majority of those living inside the scheme area would like to see the scheme continue. However, only 21 per cent of those living on the scheme periphery would like to see it continue. This suggests that more work is needed to engage communities and use their local knowledge to help shape current and future schemes as well as mitigate impacts outside the LTN area so that the positive impacts can be better shared by all local residents.

Figure 8.17 Respondents who report that the LTN has encouraged them to change their travel behaviour, Sep 2020.



Source: TfL Customer Insight, Strategy & Experience.

Figure 8.18 Residents' views on the suitability of LTNs in London and their local area, Sep 2020.



Source: TfL Customer Insight, Strategy & Experience.

Overall, the survey suggests that the Railton Road LTN has been effective in encouraging more active travel and less car and van use. This shows that LTNs will make a positive contribution to the aims of the Streetspace for London programme as part of the emergency response to the pandemic as well as to the longer-term aims within the Mayor's transport and health inequalities strategies.

We are in the process of finalising a comprehensive LTN monitoring strategy for a selected number of sites across London as part of our strategic monitoring. This will include resident surveys and learnings from this pilot will help shape the next round of surveys. As part of our wider LTN monitoring strategy we will also

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collect data on traffic levels and explore impacts on buses, safety, air quality, physical activity levels and key stakeholder perceptions, including from the emergency services, local businesses and disability groups.

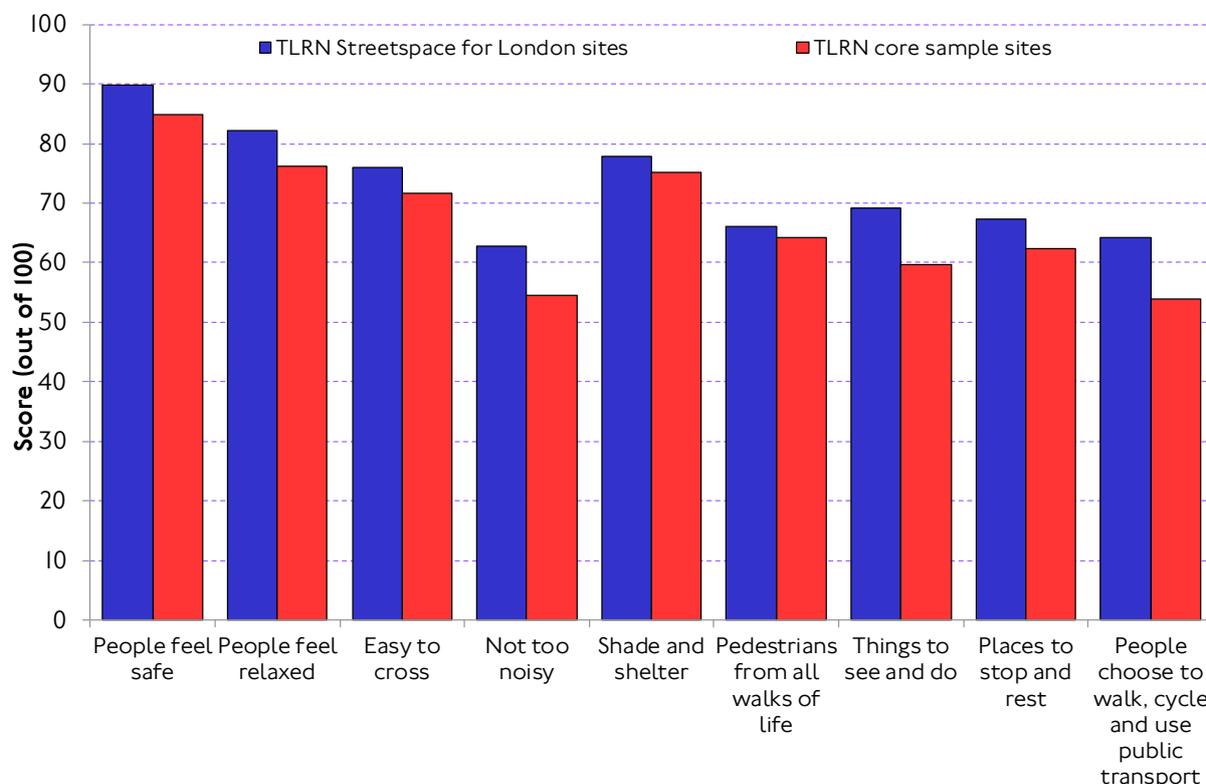
Healthy Streets Mystery Shopper survey: TLRN Streetspace for London schemes

Our established Healthy Streets Mystery Shopper survey (see also section 3.7 of this report) has been adapted to explore the impacts of Streetspace for London schemes in terms of the ten indicators of a healthy street. In this way, results from surveys conducted on streets subject to the schemes can be compared with 'baseline' contemporary values for streets in London more generally.

The following findings are based on 65 site visits, covering 27 sites across 12 TLRN Streetspace for London schemes surveyed between August and October 2020. These include high-profile schemes at locations including Bishopsgate, Park Lane, London Bridge, Edgware Road and upgrades to cycling infrastructure on CS7 and CS8. The results are compared to Mystery Shopper Survey results conducted at 39 randomly selected TLRN sites surveyed between June and September 2020. Further Mystery Shopper surveys are planned for schemes that are not yet complete, therefore these results should be treated as indicative until the full dataset is available.

Figure 8.19 shows that scores are higher for Streetspace for London sites across all indicators compared to the randomly selected core sample of TLRN sites.

Figure 8.19 Healthy Streets Mystery Shopper survey indicator scores, Streetspace for London sites completed to date (Aug-Oct 2020) vs sites in core TLRN sample (Jun-Sep 2020).



Source: TfL City Planning.

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Due to the absence of 'before' surveys at the Streetspace for London sites, it is not possible to say for certain that the higher scores were caused by the Streetspace for London intervention. However, the fact that scores are higher across all indicators does suggest that the Streetspace for London interventions have had a positive impact across the Healthy Streets indicators (excluding air quality which is not assessed as part of the Mystery Shopper survey). The largest proportional difference in scores between Streetspace for London schemes and the core sample of TLRN sites is for people choose to walk, cycle and use public transport, which aligns with the strategic aims of the Streetspace for London programme to help people to walk and cycle more often and make it easier and safer to maintain social distancing while on London's streets.

Case study: impact of street closures on businesses in Bedford Hill, London Borough of Wandsworth

As part of the Streetspace for London programme, Wandsworth Council started a road closures initiative to allow local shops, restaurants and cafes to open with greater social distancing measures in place for customers, giving them the reassurance of more space for queuing as well as being able to walk and cycle safely through town centres. The council worked with local business improvement districts and traders' associations to close several streets, including Bedford Hill, to through traffic during the summer months. The closure allowed bars and restaurants to place tables and chairs on the highway and was designed to give businesses additional outdoor space to allow customers to maintain safe distancing.

The council extended the temporary pedestrianisation at two locations (weekends only) until late October, a decision that was taken following positive feedback from businesses and residents during August. There was also strong support to extend the Bedford Hill closure. However, it was not extended beyond August due to issues relating to the bus diversion and wider traffic impact in the area.

Headline figures from Bedford Hill in August show that:

- 22 businesses were in favour of the closure
- Two businesses employed 5 new members of staff as a result of the closure
- Hospitality businesses were unanimous in their support of the scheme

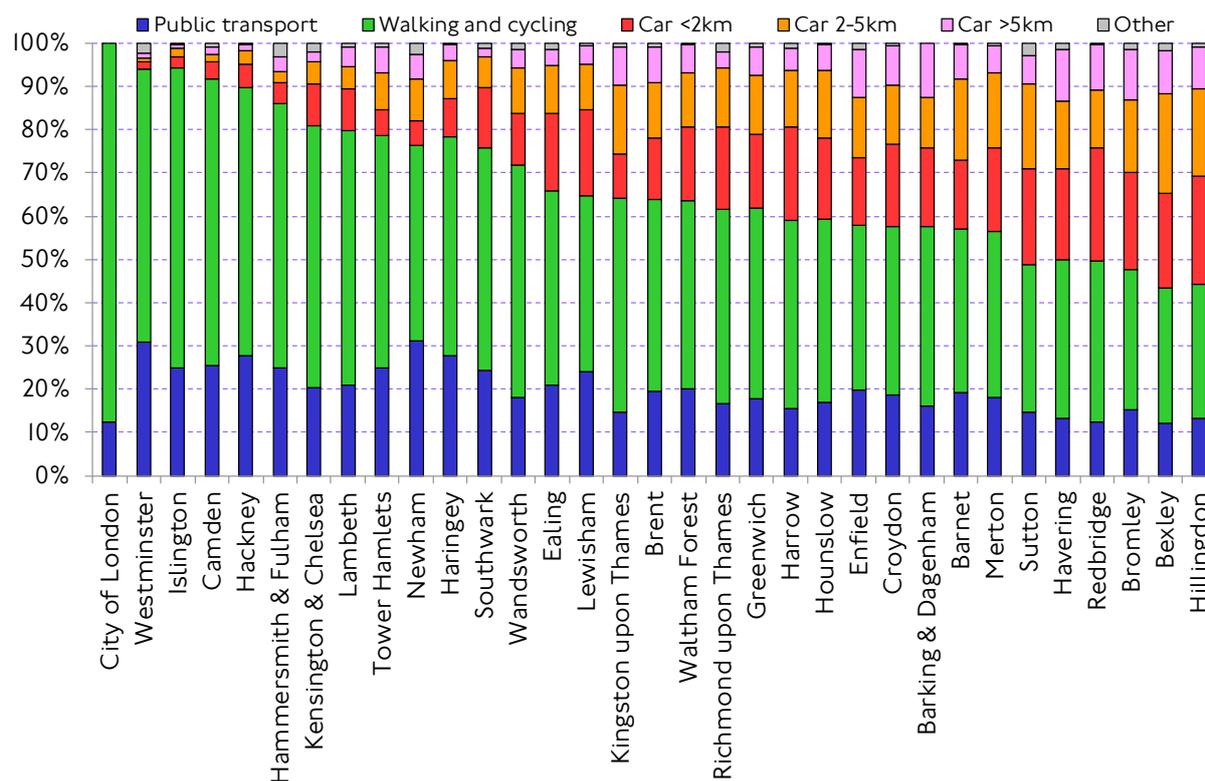
The shopping parade pedestrianisations have also provided broader understanding regarding the economic impact and the resident reception of such interventions. On average, trade with the road closures in place was up by 30 per cent year on year for July and August. Businesses estimate that, without the closure in place, trading would be down by 33 per cent year on year. The positive views of businesses challenge traditional fears that loss of parking and road access have a negative impact on trading (although it should be noted that some retail businesses do still hold this view).

Wandsworth Council have reported that the positive impacts of the temporary closures suggest that similar arrangements in the future would be beneficial for local businesses, residents and the wider town centres. They are exploring the possibility of installing more permanent changes to support events in the local community at a number of locations following more formal consultation to fully understand local views.

8. Developments arising from, and responses to, the pandemic

This example demonstrates the potential benefits for local businesses from improving conditions for active travel. Figure 8.20 shows that, in every borough, the majority of Londoners' trips to shops are short-distance trips that are either already walked or cycled or could be walked (trips under 2km) or cycled (trips under 5km). While public transport capacity is reduced, schemes that prioritise walking and cycling can help maximise the number of customers who can safely access businesses across London.

Figure 8.20 Trip-based mode share by destination borough, shopping trips, LTDS 3-year average, 2017/18-2019/20.



Source: TfL City Planning.

Streetspace for London programme: summary of early impacts and next steps

The Streetspace for London programme is a pragmatic response to the pandemic to support Londoners to walk and cycle while social distancing measures are in place. These measures and schemes that have been introduced are temporary and have been implemented at pace. This has meant that we were not able to engage and consult with local communities widely before implementing each scheme. We have undertaken Equality Impact Assessments on an individual schemes basis to ensure the needs of people with protected characteristics are considered. Local residents and stakeholders are able to share their feedback and experiences of schemes while they are on the ground. Through this feedback we can determine whether or not improvements need to be made to a scheme.

For example, on Cycleway 7 between Colliers Wood and Balham, we introduced temporary protected cycle lanes, using wand lane separators, banned several left turns, introduced bus stop bypasses and relocated loading and Blue Badge parking bays. In response to feedback on this scheme, several changes have been made, including introducing new loading bays, adjusting traffic signal timings to better

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manage traffic and bus journey times, and increasing the space between wands to allow vehicles to move out of the way of emergency service vehicles. TfL is continuing to review the scheme and working with the emergency services more broadly to understand the impact of the scheme on their operations.

Each temporary Streetspace for London scheme can be in place for up to 18 months and during this time TfL will actively listen to community and stakeholder feedback. TLRN schemes will also be monitored to determine their impact on road safety, congestion and bus journey times, air quality and cycling numbers. Monitoring data and community feedback will be reviewed for each scheme and will help to determine if a scheme should be removed, stay in place for the full 18 months or even be made permanent. Should we propose that a scheme is made permanent, there will be further engagement with local residents, businesses and stakeholders and a statutory consultation will be run ahead of any decision being made. The boroughs are responsible for ensuring a similar process is in place to review schemes on borough roads and we are supporting them with this as appropriate.

The monitoring data that is available to date from behavioural surveys indicates that some Streetspace for London interventions such as LTNs and School Streets have resulted in positive impacts for mode shift towards walking, cycling and away from car use. These outcomes are in line with the objectives of the Streetspace for London programme to ensure that reduced capacity on public transport was available to those who needed it most and to avoid the negative impacts of a car-based recovery. Our Customer Pulse data also shows that there is broad agreement with the creation of LTNs and School Streets. Although some bus users have not noticed any negative impacts on their bus routes, others have reported bus journeys being slower, longer wait times for buses or changes to bus stops or routes although the drivers of these changes are so far unclear. Survey results from the Railton Road LTN show that it has been effective in encouraging more active travel and less car and van use. While the majority of those living inside the scheme area would like to see it continue, support was much lower from people living outside the area. Early results from the Healthy Streets Mystery Shopper survey suggest that the Streetspace for London interventions may have had a positive impact on the experience of being on TLRN streets and results from Wandsworth demonstrate the economic benefits to businesses of road closures and pedestrianisation of high streets.

This section gives an indication of the initial impacts of the Streetspace for London programme. However, more information and data are required to fully understand the impacts, both at a scheme and strategic level. An extensive programme of monitoring activity is underway to evaluate the impacts of the Streetspace for London programme, including tracking delivery of schemes, measuring the impacts of schemes and collecting stakeholder feedback. Further findings arising from this work will be reported in due course.

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9 Coronavirus and travel behaviour

9.1 Introduction

The travel trends described in chapter 7 above 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). These ‘pandemic effects’ are summarised in table 6.1.

All of this has taken place in the context of those factors and trends that have traditionally determined the nature of 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 in terms of 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.

People undertake their daily activities in the context of all these factors – each optimising according to what they need to do, the travel choices that are available to them, and their own personal – or behavioural – evaluation of this landscape. 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 will need to do, in terms of activities such as employment and travel, in the medium-term future, and how their own 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. This forms an important part of the evidence base against which plans to contribute most effectively to London’s recovery can be made, as described in chapter 10.

Approach

The following sections of this chapter seek to explore the impact that the pandemic has had on different aspects of travel behaviour, covering:

- Personal safety and attitudes to risk
- Travel for different purposes including work, shopping and leisure
- The impact on active travel
- The implications for mode and destination choice, trip length and timing

Each section will set out evidence relating to the pattern of demand during the pandemic so far and, where possible, assess implications for the future in relation to travel in London during our recovery and beyond.

Data sources

The two main data sources that have been used to inform the analysis in this chapter are pandemic-adapted versions of our strategic monitoring surveys. The first of those is an adapted version of the London Travel Demand Survey, which is conducted annually, usually as a face-to-face survey in respondents’ homes.

9. Coronavirus and travel behaviour

While fieldwork for LTDS 2019/20 was unaffected by coronavirus, in quarter 1 2020/21, face-to-face fieldwork had to be suspended in line with government guidance. A pandemic-adapted telephone questionnaire was put into field in quarter 2. The initial results from this survey are unweighted. However, the sample is broadly representative in terms of age and region of London, with a sample size of 1,500 individuals. Responses for this dataset were collected between August and October 2020, being thus representative of the later summer/early autumn period.

The second survey is an adapted version of our Customer Pulse survey, our reputational tracker survey which usually runs on a periodic basis (every four weeks). Following the outbreak of the pandemic, the survey switched to weekly, with changes to the questionnaire made each week to reflect topics of importance throughout the development of the pandemic.

Other sources include ad-hoc surveys run by TfL, as well as external surveys and data analyses by the GLA, ONS and other organisations.

9.2 The pandemic and travel behaviour: personal safety

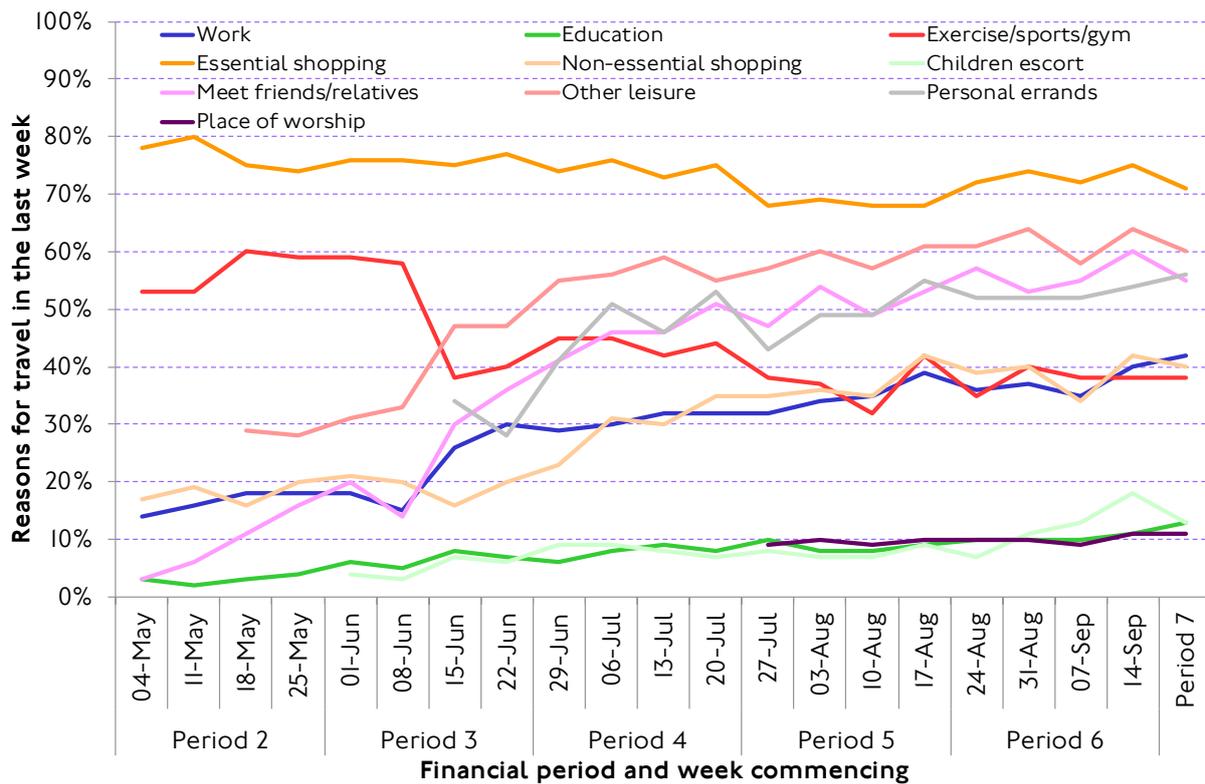
The pandemic and the national lockdown had a huge impact on society, affecting almost all aspects of our lives, including physical and mental health, employment, travel and discretionary activities. The impacts of the pandemic have fallen disproportionately on certain groups of society. For example, inequalities in health mean that older people, disabled people and men are more susceptible to severe cases of coronavirus. Those from certain BAME backgrounds remain at greater risk of contracting coronavirus due, at least in part, to their over-representation in key worker professions.

ONS data collated soon after the government implemented stay at home measures reported that more than 80 per cent of adults were very or somewhat worried about the effect of coronavirus on their life, and 50 per cent reported that coronavirus has affected their wellbeing and/or resulted in high levels of anxiety.

Reasons for travel

Figure 9.1, from TfL's Customer Pulse survey, shows the trend in reasons for travel in London during the pandemic. Travel throughout May and June (periods 2 and 3) was mostly restricted to permitted activities, such as shopping for essentials, exercise and travel to work/education. Following some easing of restrictions in mid-June, fewer people travelled for exercise and more people started travelling to meet friends/family and for leisure, although the number of people travelling for non-essential shopping remained low. In August and September (periods 5 and 6), the proportion of people travelling for leisure and shopping slowly increased, as well as travel for personal errands and meeting friends/family. The proportion of Londoners travelling to work and for non-essential shopping has remained reasonably stable over the period shown in the graph.

Figure 9.1 Reasons for travel in the last week, Customer Pulse, May-Oct 2020.



Source: TfL Customer Insight, Strategy & Experience.

Note: Sample size is 500 respondents per week until the end of Period 6 and 1000 in Period 7.

Perception of risk from coronavirus

More recently, a GLA poll of Londoners in September showed that 57 per cent of Londoners think that coronavirus poses a major or significant risk to people in London (down from 64 per cent in July) while the proportion of Londoners who think it poses a major or significant risk to them personally is much lower, at 28 per cent (also down slightly, from 30 per cent in July).

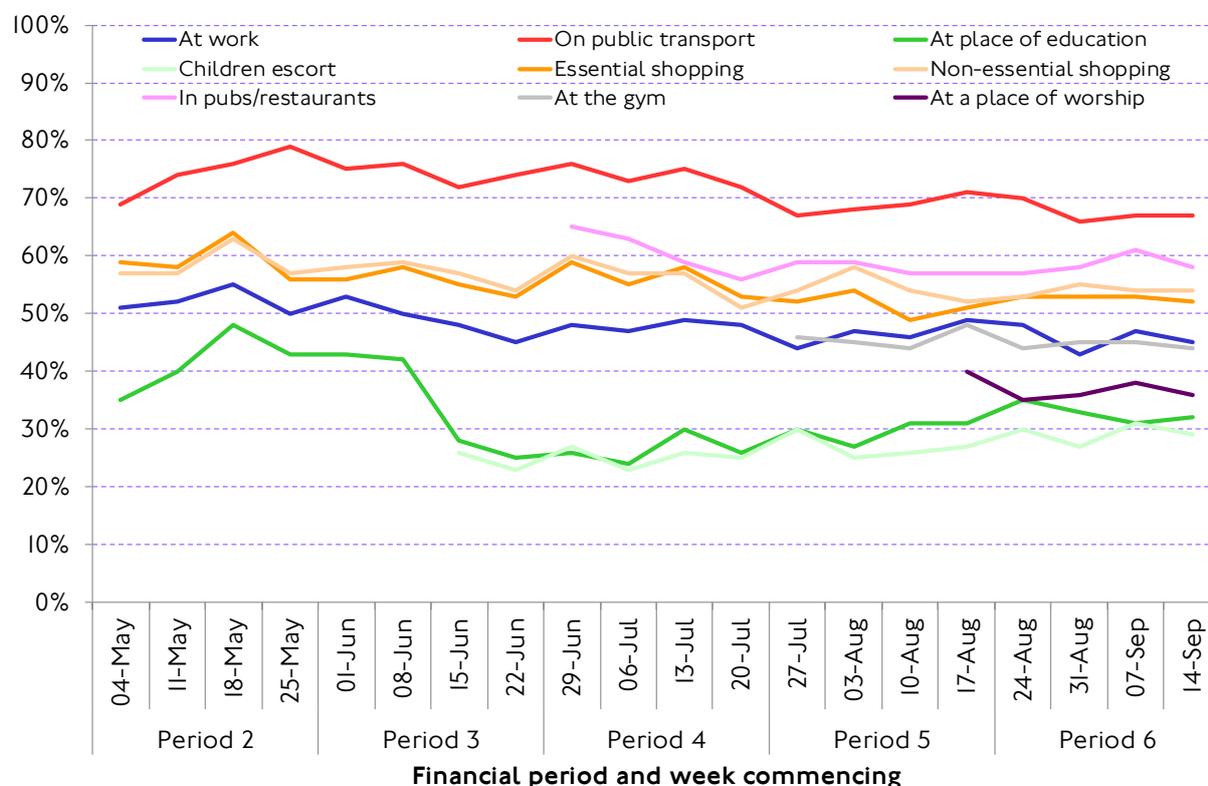
Figure 9.2 shows that Londoners' levels of concern about catching coronavirus varies considerably for different activities, although in terms of any single trip, these different concerns would compound each other. Respondents have the lowest concern about attending places of education, worship and taking children to school or nursery. Concern is slightly higher for shopping and spending time in pubs/restaurants, most likely because these activities typically involve more prolonged contact with others. The greatest concern about catching coronavirus, however, is when travelling on public transport. Research from the DfT's National Travel Attitudes Study shows that respondents are most concerned for their health when using modes that involve contact with other passengers, particularly modes which require them to sit or stand with other passengers. However, studies have suggested that the virus transmission risk is relatively low, and transport operators have been working hard to minimise it further. Respondents feel less concerned when using personal cars, bicycles and walking.

We know that barriers around comfort, personal space and safety are at the front of customers' minds. Visible action and messaging around safety is therefore essential to encourage Londoners to use active, efficient and sustainable modes

9. Coronavirus and travel behaviour

as mobility recovers. More detail on the action TfL is taking to encourage customers back to public transport is explained below.

Figure 9.2 Concern about catching coronavirus by activity, Customer Pulse, May-Sep 2020.



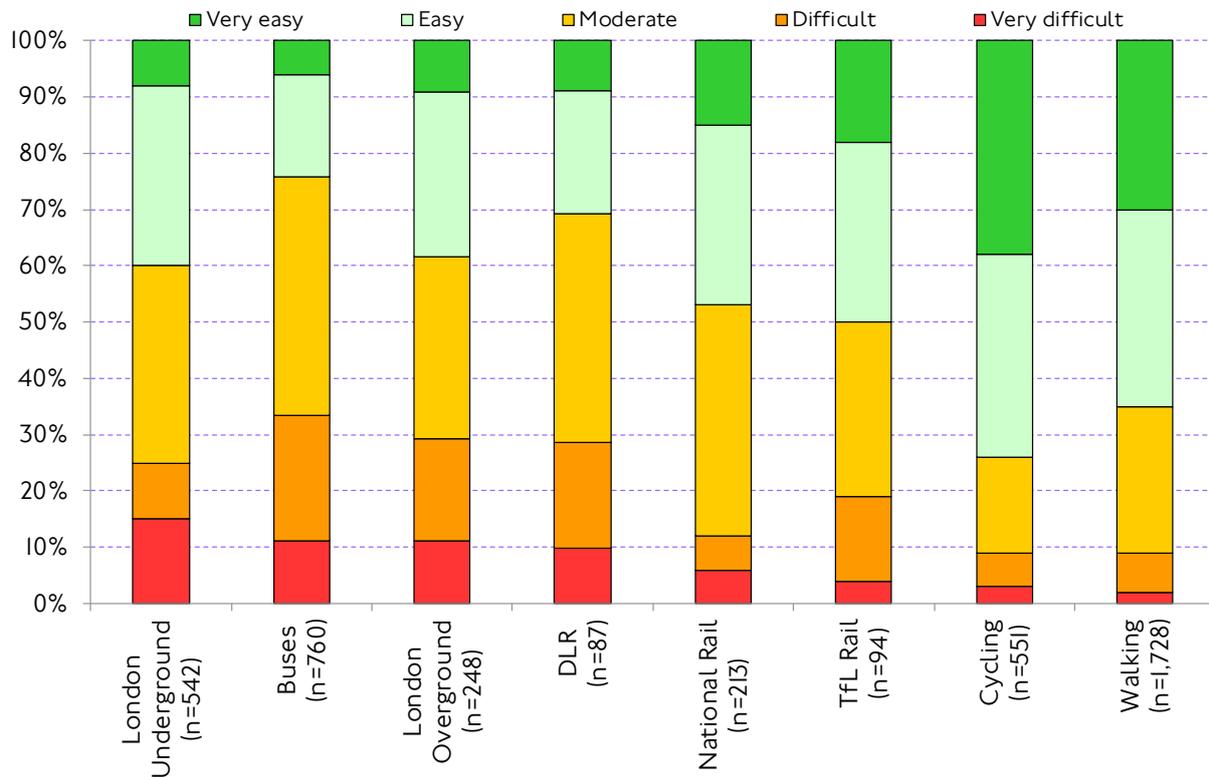
Source: TfL Customer Insight, Strategy & Experience.
 Note: Sample size is 500 respondents per week.

Research conducted in September 2020 shows that many Londoners have returned to public transport, with almost 70 per cent of respondents stating they had travelled on TfL’s services in the previous month. Yet the number of public transport journeys remains down and survey results show that those who have not travelled on TfL’s services recently are considerably more worried about safety and the health risks associated with public transport compared to those who have travelled on TfL’s services. Those who fall into at risk or vulnerable groups are understandably more likely to be reluctant to travel on public transport.

Social distancing

Figure 9.3 shows how our customers feel about the ease of social distancing on different modes. Although the sample size of those who have used each mode in the last week varies, the results show that social distancing is easiest when cycling, with almost three-quarters finding it easy or very easy to socially distance, with the equivalent proportion for walking at 65 per cent. Of the public transport modes, the highest scores for ease of social distancing were on TfL Rail and National Rail. The lowest scores for ease of social distancing were on buses (with just less than a quarter finding it easy or very easy) and the London Overground (an equivalent figure of 38 per cent).

Figure 9.3 Ease of social distancing by mode used in the last week, Customer Pulse, financial period 6 (Aug-Sep 2020).



Source: TfL Customer Insight, Strategy & Experience.

Note: The sample sizes indicate the number of survey respondents who travelled by each mode in the last week.

TfL has conducted research to identify the most important measures to enhance satisfaction among those who have returned to public transport as well as to reassure non-users that the public transport system is safe and reliable. In addition to our usual service priorities, such as providing value for money, ensuring the service is reliable and our buses, trains and stations are clean, we are also prioritising face covering enforcement on all modes and managing capacity in stations, on trains and buses to facilitate social distancing.

Figure 9.2 shows that efforts to reassure customers are working, as although concern about catching coronavirus remains highest when travelling on public transport compared to other activities, the level of concern has decreased over time, falling from almost 80 per cent at the end of May to less than 70 per cent by mid-September. However, coronavirus risk perception and social distancing requirements are likely to remain a disincentive to public transport use compared to other modes for some time.

Relationship between relative risk perception and public transport demand

To illustrate this, TfL have used agent-based modelling to investigate the relationship between public transport demand and the individual perception of coronavirus risk. The exercise assumes that all lockdown restrictions are relaxed, but that virus-related safety concerns remain, and the output details the expected level of return to public transport at different (individual) levels of perceived risk from coronavirus. The model uses pre-pandemic trip patterns to assess whether trips could be made by another mode, based on variables such as trip distance or

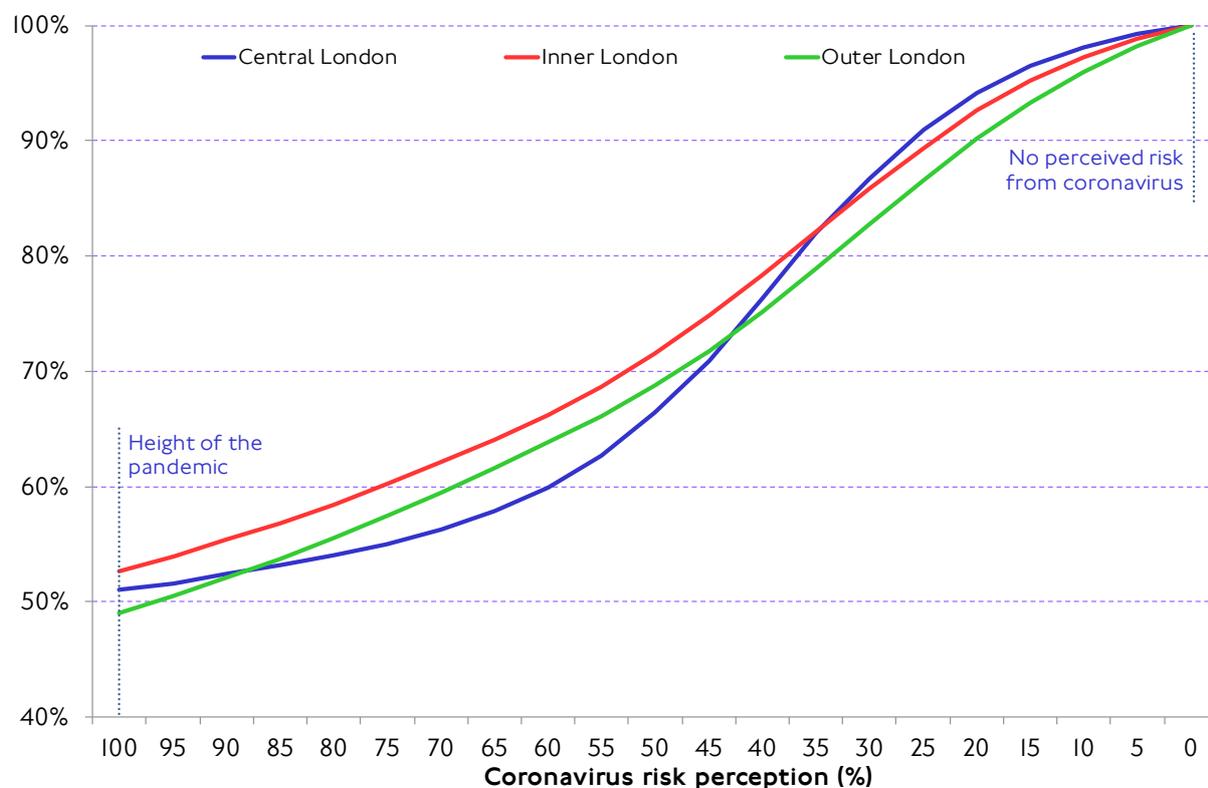
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car ownership. The model should be interpreted as being independent of any actual level of demand, relating to the relative risk perception of individuals.

Figure 9.4 shows the relationship between coronavirus risk perception and public transport demand. The curves have a shallow S shape, meaning that the public transport return would not be entirely linear as coronavirus risk perception reduces. Where perception of risk is highest the curves remain comparatively shallow, particularly in central London, showing that initial efforts to encourage people back to public may yield disproportionately poor results. At levels of low perceived risk, the return rate also lags the reduction in risk, meaning that there is likely to be a 'tail end' of people who would be very resistant to returning – a factor to be borne in mind when forecasting 'back to normal' levels of patronage. There may therefore be a relatively small but very persistent shortfall in 'new normal' patronage levels.

In the centre of the graph the curves steepen, showing that after slow initial growth further efforts to promote public transport could have a disproportionately greater effect. This is likely to be most dramatic for trips to central London, where alternatives are comparatively less attractive, therefore people making these trips will have a relatively greater tendency to return to public transport as the perceived risk falls. Overall, the analysis shows that a return to public transport will be relatively slow, particularly in central London, but as momentum builds people will follow, so long as trust in the system is maintained.

Figure 9.4 Relationship between individual perceived risk of coronavirus and recovery of public transport demand by area.



Source: TfL City Planning.

Note: The model uses pre-lockdown trip patterns and assumes all lockdown restrictions are relaxed.

Coronavirus recovery: restoring confidence in public transport

While TfL cannot of itself influence government restrictions and the extent of wider economic activity, results from our Customer Pulse survey show that agreement with the statement 'TfL is communicating well with Londoners during the coronavirus crisis' increased from 64 per cent to 66 per cent between July and September and agreement with the statement 'TfL provides a reliable service everyday' increased from 63 per cent to 66 per cent over the same time period.

We can maximise our potential role in the recovery by **understanding our customer priorities** and making public transport as 'fit as possible' in the circumstances. Customer Research undertaken in September 2020 identified three clear themes: face coverings and enforcement, cleanliness and cleaning, and capacity control and social distancing. There is a need to visibly deliver across each of these three themes to help restore the trust of customers, and these are our contemporary priorities.

9.3 Travel for work

Introduction

The pandemic led to major changes in commuter travel patterns. Following the Prime Minister's statement on 16 March 2020, when he encouraged home working where possible, some employers took immediate action and directed all employees to work from home. However, many key workers continued to travel to work as normal, and there is evidence that some employees and employers took precautionary action before this date.

As economic circumstances worsened, travel to work was impacted further as people stopped travelling to work due to being furloughed or in some cases because they had lost their jobs. Data from HMRC showed that in May, 1.07 million jobs had been furloughed in London (around 18 per cent of jobs in London and the highest number among all the regions, accounting for 12 per cent of the UK total). Furlough rates were greatest for businesses in specific sectors of the economy, such as hospitality, arts, entertainment and recreation as many activities in these sectors were prohibited under lockdown rules.

Data from ONS shows that nationally 33 per cent of the workforce are employed in key worker occupations and industries. In Greater London this figure is 29 per cent. In April 2020, 47 per cent of people in employment did some work from home, this national figure compares to 57 per cent in London – the highest of all UK regions. Due to the balance of employment sectors in London, Londoners tend to be more likely to be able to work from home than in other regions.

The reductions in travel for work have been most apparent in central London where commute demand fell earlier and faster than demand in the rest of London, due to the higher proportion of office-based workers in central London, who are more likely to be able to work from home. In general, a higher proportion of people who worked in outer London continued to travel to work throughout the lockdown period.

The ongoing absence of office-based workers in central and inner London also affected demand for daytime trips for non-work purposes. This affected the viability of businesses who rely on demand from office-based workers, who were more likely to be making trips near to their homes. Analysis of model results by

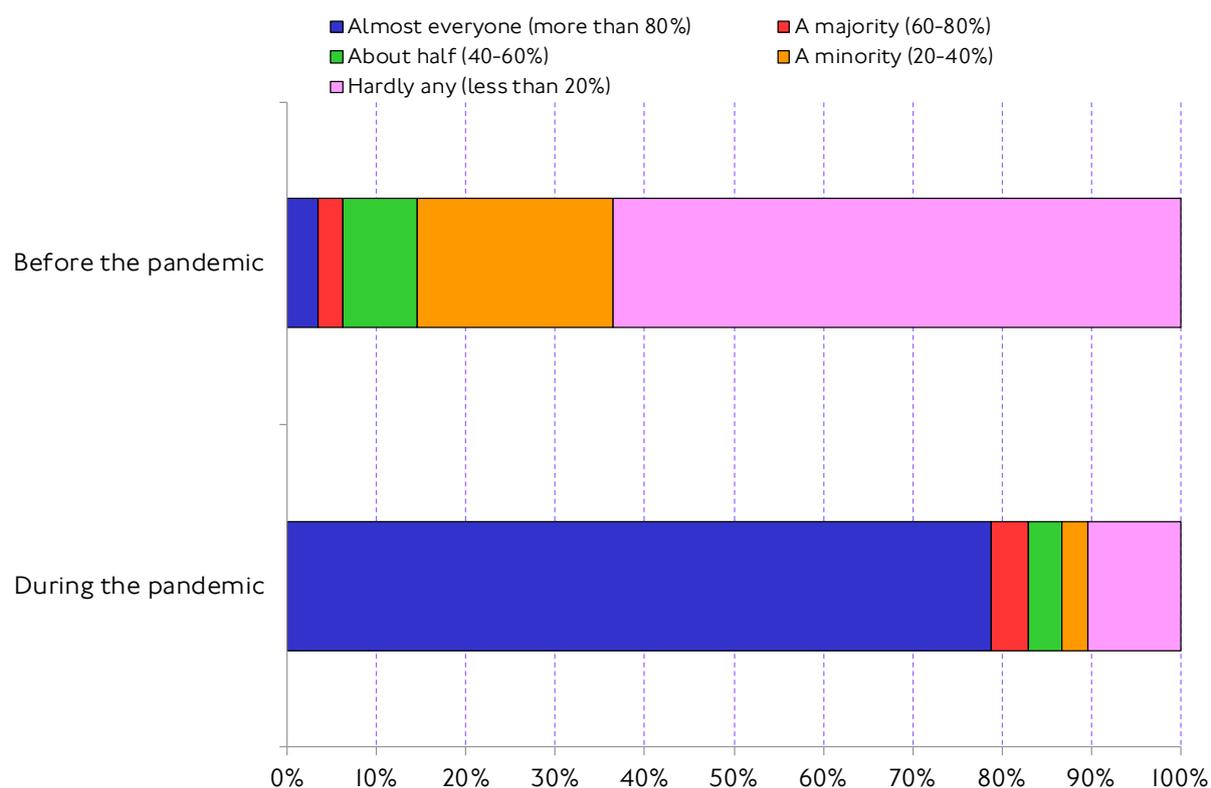
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the GLA estimates a £1.9bn loss in expenditure from commuters to the Central Activities Zone in 2020 compared to a no-pandemic scenario as a result of workplaces being closed^[8]. Resident workers account for around £1.4bn per cent of this loss, with the remaining £0.5bn from commuters outside of London. This is considered a conservative estimate, as it does not include other expenditure associated with workplaces being open due to a lack of data. This includes expenditure on non-office related items, eg personal services such as gym memberships, ad-hoc expenditure during lunch hours or after-work activities that take place due to the concentration of workers. It also excludes expenditure by businesses on company expense accounts, such as working lunches or staff away days.

Employer action

A survey conducted by TfL in May 2020 among a range of businesses found that during the crisis, 79 per cent of businesses stated that almost all employees were working from home. This compares to just 3 per cent of businesses before the pandemic (figure 9.5). The survey included businesses employing key workers, office workers and businesses in location-dependent sectors. It should be noted, however, that the sample is not representative of businesses in London and the findings should therefore be used indicatively.

Figure 9.5 Prevalence of working from home in businesses by stage of the pandemic, May 2020.



Source: TfL Travel Demand Management.

Prior to the pandemic, managerial perceptions around home working were perceived to be somewhat negative, with scepticism about the productivity levels of people who were not physically in the office. However, the drastic changes that have come about as a result of the pandemic have, in some cases, led to greater

innovation and proven levels of productivity, such that employers are likely to be more flexible than they were before. Results from TfL's survey of businesses in May showed that business respondents in London are expecting a great deal of change to working practices in the future as a result of the pandemic, particularly around working from home, flexible working and ongoing social distancing. A higher proportion of central and inner London business respondents anticipate more working from home and flexible working than outer London businesses.

This is supported by findings from a GLA survey of medium and large businesses in central London and the Isle of Dogs conducted in September 2020. The findings below relate to office-based central London businesses:

- Employees in this category are less likely to have returned to the office than employees of other businesses.
- 65 per cent are changing employee working arrangements to increase working from home on a permanent basis.
- Almost three-quarters (72 per cent) of the workforce are predicted to work from home for the next two years, compared to 50 per cent of workforce across all London businesses.
- 40 per cent of businesses think they will downsize their office accommodation in the next six months, but most plan to stay in central London.

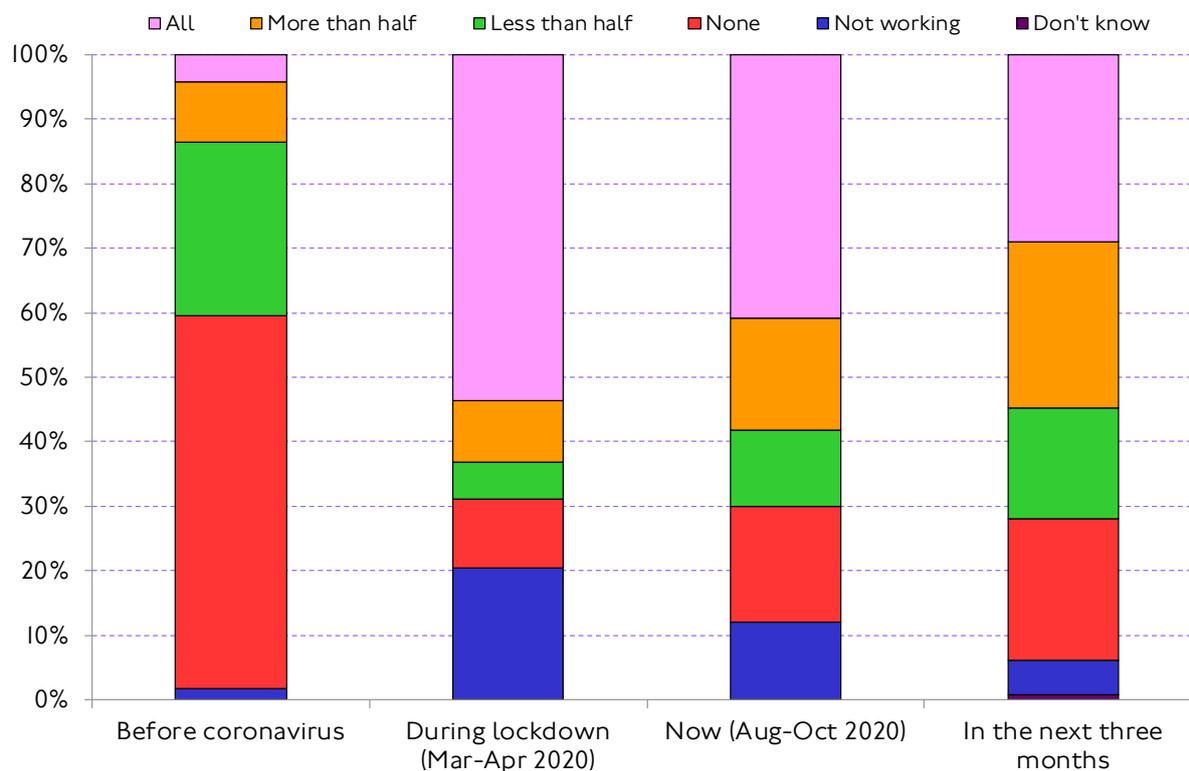
Indeed, the prospect of more homeworking has benefits for employers; according to an ONS survey of businesses conducted in autumn, the most common motivation for permanently increasing homeworking was improved staff wellbeing (60 per cent), followed closely by reduced overheads (55 per cent) and then increased productivity (34 per cent). Other potential benefits include reduced congestion and air pollution. However, there are other factors to consider, for example, offices remain attractive due to the opportunities for collaboration, community and creativity. Without a hybrid approach, there are concerns that continued mass working from home could, in the long term, erode working relationships, trust, collaboration and knowledge sharing. There are also unequal impacts of full-time homeworking on different groups, for example new or younger employees may be disadvantaged due to fewer opportunities to network and benefit from the expertise of senior colleagues. Furthermore, women are disproportionately affected as they are more likely to take on the greater share of responsibility for childcare and be more restricted in their ability to participate fully in office working.

Employee perspective

Figure 9.6 shows results from LTDS this year relating to the impact of the pandemic and travel restrictions on commuting. Before the pandemic, almost 60 per cent of London workers did not work from home at all and few (4 per cent) worked from home full-time. The picture changed entirely during the national lockdown in March and April 2020, where 20 per cent of workers stopped working and the proportion who travelled to work dropped to just 11 per cent. Some 54 per cent of workers began to work from home full-time and a further 15 per cent worked from home part-time.

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Figure 9.6 Proportion of work done or expected to be done from home, LTDS unweighted results, Aug-Oct 2020.



Source: TfL City Planning.

Note: The 'next three months' is relative to when each respondent completed the survey between August and October.

Many employees working from home during lockdown initially realised the benefits to work-life balance, including greater flexibility, more free time and reduced costs associated with travelling to work. However, the attractiveness of working from home can vary hugely based on individuals' own circumstances, type of work and home setup. This is particularly true in London, where, due to high housing costs, many workers live in flat shares or small properties and few have access to private outdoor space. Some of the reported downsides of working from home full time during the pandemic include social disconnection, lower quality IT equipment/working space, confinement, and in some cases a reduction in productivity. With no commute or physical space to distinguish between work and personal lives, many have found it difficult to manage the work-life balance and are missing the benefits that come with being in physical proximity to colleagues.

Between August and October, the proportion of Londoners not working decreased to 12 per cent (from 20 per cent in lockdown) and the share of those travelling to work increased to 18 per cent from 11 per cent. The proportion of those working at home full-time decreased from 54 to 41 per cent, with the share of those working at home part-time increasing from 15 to 29 per cent (figure 9.6).

Despite the mixed experience of working from home, for many there is an expectation that working from home will continue. Almost three-quarters (72 per cent) of London workers expect to do some work from home in the next three months and 29 per cent of workers expect to work from home full-time.

Among many employees, there is a reluctance to return to work, particularly in central London. GLA survey results showed that the top organisational barriers to returning to pre-pandemic office occupancy levels in central London include concern from staff about using public transport (reported by 51 per cent of businesses) and a desire from employees to work remotely in the long term (49 per cent of businesses). Many employees are facing permanent changes to their working location and the new work-life balance is likely to involve a hybrid approach, with more fluidity between the workplace and home, whether in the form of remote working, part-time working, flexitime or staggered hours. Survey results show that alternating workdays and a change to social distancing rules are seen as the most effective measures in allowing more staff back to the office. This is followed by staggered start times and more hygiene facilities.

The potential longer-term persistence of remote working, social distancing on public transport and more general economic damage from the pandemic could have an impact on the spatial distribution and overall demand for commuting trips in the future. A permanent move to hybrid working could also have other impacts for travel in London. For example, data from job site Indeed.co.uk shows that in August the number of Londoners looking for work outside of the Capital was up by 27 per cent year on year. This could lead to an increase in 'reverse commuting' as job vacancies in London stall (particularly in traditionally abundant sectors like retail, hospitality and cleaning). It could also be read as an indication that people are looking to relocate out of London, supported by data from estate agent Hamptons in May which showed that the number of homes bought by London tenants outside the Capital was up by 42 per cent compared to last year. The balance of residents and workers inside and outside London could therefore be quite different in the longer term as a result of the pandemic, with implications for demand at terminal stations and the mode share of travel to work, with the possibility of a higher proportion of long-distance commuters and a shift in demand away from central London destinations. This raises questions as to whether the transport infrastructure can support these changes in commuting patterns. In particular, the slow recovery of travel and activities in and to London's critically important Central Activities Zone is potentially worrying for the vitality of London's economy, but also for our mostly radial public transport networks.

9.4 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 changes are explained further in Travel in London report I2.

The coronavirus pandemic, a national lockdown and ongoing social distancing measures have all had an impact on travel for discretionary trips. Key events and measures which have influenced travel for shopping and leisure purposes since March include:

- The closure of all leisure venues, including cafes, pubs and restaurants, following the government announcement on 20 March, and subsequent reopening of most non-essential shops, restaurants and other leisure venues from 4 July.

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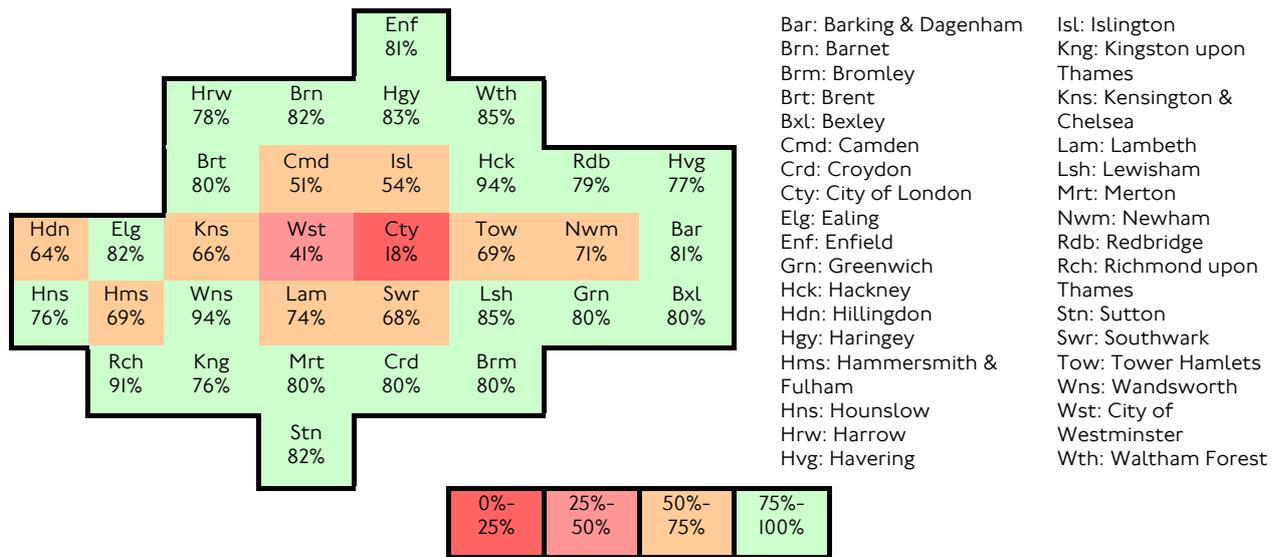
- Lockdown measures introduced on the 23 March stating that people should only leave their home to shop for basic necessities (such as food and medicine) and limit the frequency of these trips; undertake one form of exercise per day (such as walking, cycling or running); and travel to and from work, only if it is not possible to work from home.
- Businesses had to ensure people could comply with social distancing guidelines (2 metres, then 'one metre plus' from 4 July), in some cases this meant introducing queueing and one-way systems to limit numbers in shops and hospitality venues.
- From 24 September, all hospitality venues had to restrict their opening hours, and close by 22:00.
- A tiered approach to coronavirus restrictions came into effect from 17 October, with London in the 'high' category. People were encouraged to reduce the number of journeys they make, if possible; and not mix with other households indoors – in public or private spaces. A second national lockdown in England was introduced from 5 November.

The closure of non-essential shops and leisure venues in March led to a significant fall in travel demand for discretionary activities. **Online shopping** rose for both non-essential purchases, as well as food and grocery shopping, as people avoided spending time in public places to limit their exposure to the virus. However, the growth in LGV traffic required to support this growth was offset by more people working from home, resulting in a reduction in servicing and deliveries to central London in particular.

Although many leisure venues reopened following the easing of restrictions on 4 July, capacity was limited to facilitate social distancing. Furthermore, for some venues such as theatres and clubs it remains impractical to reopen with the current social distancing requirements. The government's **Eat Out To Help Out** scheme provided a welcome boost in seated diners to some struggling businesses. However, continuing concern about virus transmission risk, a significant reduction in tourism and changing travel patterns due to greater working from home has led to a slow recovery of **evening travel demand**, even before the introduction of the 22:00 curfew in September.

Londoners' trip patterns for discretionary travel have also changed as a result of many employees continuing to work from home. A high proportion of jobs are concentrated in **central London**, particularly in sectors where employees are more likely to be able to work from home. Therefore, shopping and leisure trips which may have previously been undertaken during or following the working day are no longer being made in the same way as, for many, the working day is spent at home. The impact of this spatially can be shown by mobile phone data, collected by Telefonica. As figure 9.7 shows, at the end of June the recovery of non-commute trips in central London was still very low, whereas most inner and outer London boroughs had recovered to over 75 per cent of pre-pandemic levels.

Figure 9.7 Recovery of non-commute trips by borough, Jun 2020 vs Feb 2020.



Source: TfL City Planning, based on data from Telefonica.

Retail footfall

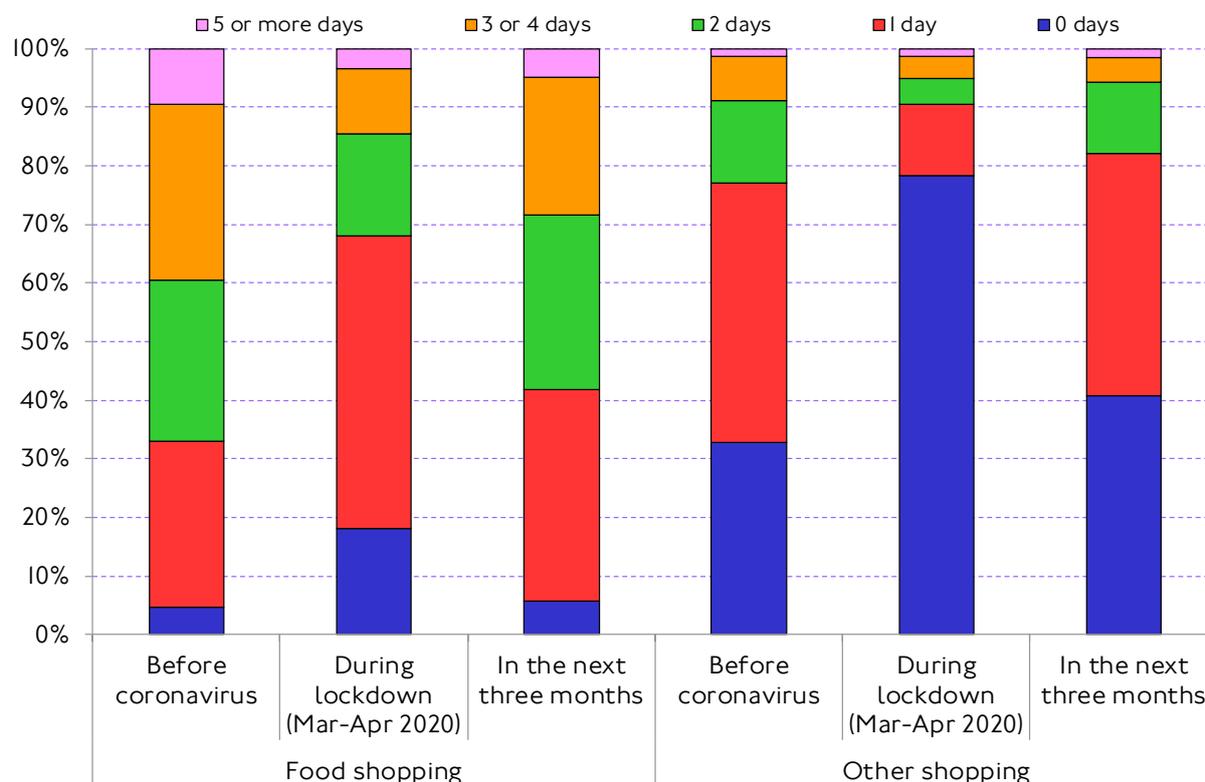
National retail footfall data from Springboard, comparing year-on-year percentage change in footfall, shows that following the lockdown announcement in March footfall volumes fell by around 80 per cent compared to pre-pandemic levels, as **non-essential shops** were shuttered and people were encouraged to limit the frequency at which they shopped for food and groceries.

Initial findings from our adapted London Travel Demand Survey shows the impact of the pandemic on Londoners’ shopping habits. Figure 9.8 shows how many days on an average week Londoners made, or anticipate making, a shopping trip. Some 68 per cent of Londoners shopped for food once a week or less during the lockdown in spring – this compares to a third of people who shopped at this frequency before the pandemic. For non-food shopping, around three-quarters of Londoners shopped once a week or less before lockdown; during lockdown this rose to 91 per cent, likely due to the closure of non-essential retailers. Figure 9.8 also shows that people anticipate continuing to shop less frequently than they did before the pandemic over the coming three months. Some 9 per cent more respondents anticipate shopping for food once a week or less in comparison to the pre-pandemic figure, and there is an 8 per cent rise in respondents stating that they will not shop for other purposes at all on a typical week compared to the pre-pandemic figure. Note that this data was collected prior to the November national lockdown announcement.

When non-essential shops reopened in mid-June there was a significant increase in retail park footfall (albeit 20 per cent lower than last year), although high street and shopping centre footfall only recovered to around 50 per cent of last years’ figures. The slow recovery of high street and shopping centre footfall following shops reopening could be due to several reasons, including people prioritising visiting friends and family (which had been restricted during lockdown), lower disposable incomes as a result of employment changes or concerns around virus transmission risk. Footfall recovery began to level off in September and continues to be greater at retail parks (around 90 per cent of pre-pandemic levels) than high streets and shopping centres, which remain around 60-70 per cent of 2019 levels.

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Figure 9.8 Weekly shopping frequency at representative periods, LTDS unweighted results, Aug-Oct 2020.



Source: TfL City Planning.

Note: The 'next three months' is relative to when each respondent completed the survey between August and October.

Online shopping

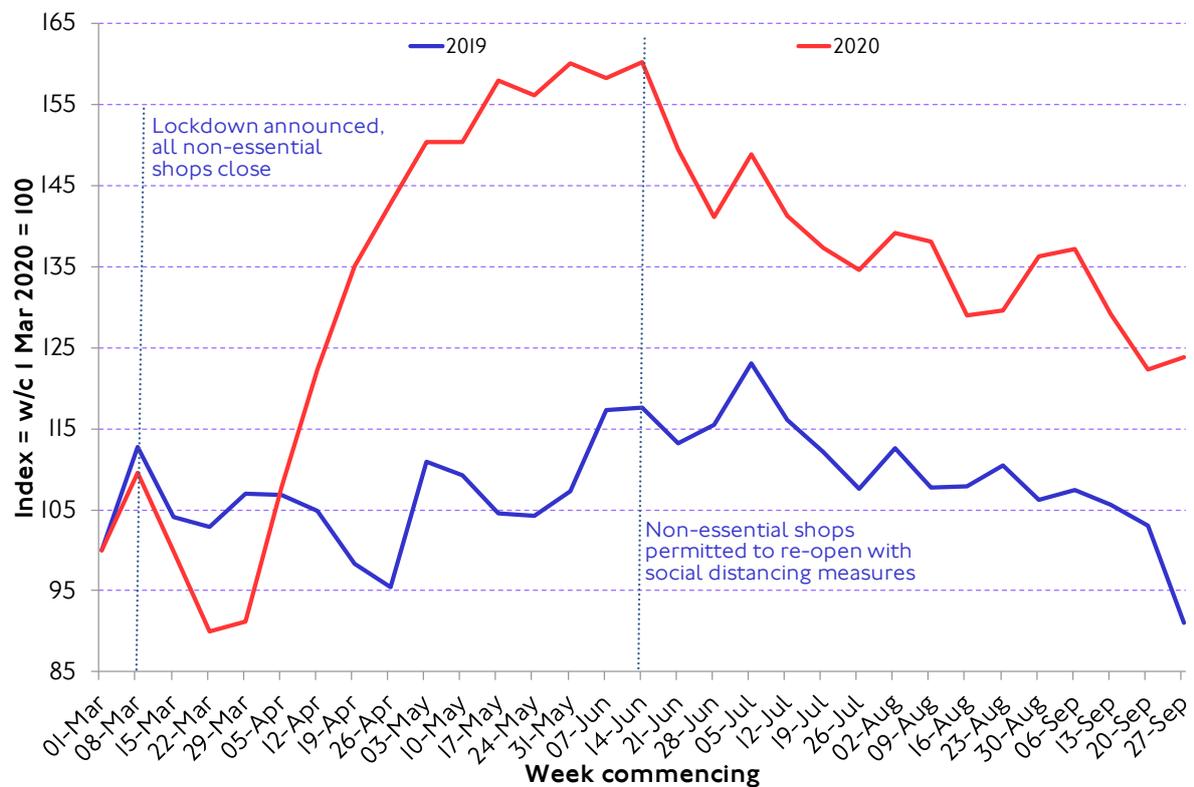
Overall, total **retail sales** have recovered relatively quickly, since a fall following the lockdown announcement. By the end of August sales were 5 per cent above February levels, some of which could be attributed to people delaying purchases during lockdown. However, as sales (both total transactions and amount spent) have recovered without a recovery of high street footfall, this could signify people are continuing to shop online despite the re-opening of non-essential shops.

ONS data shows that in 2019 **online sales** comprised around 20 per cent of retail sales. However, in April this rose to 30 per cent, and continued to rise to 33 per cent in May. Total online sales peaked in June, increasing by 62 per cent compared to February, and this remained high in August (up by 47 per cent). This increase in online shopping is also shown in our LTDS responses collected between August and October. When Londoners were asked how the number of deliveries they receive in a typical week compares to before coronavirus, over half (52 per cent) said the figure was more than before the pandemic.

Online shopping as a proportion of retailing remains highest for non-food retail, particularly for clothing and footwear. However, food sales experienced the largest growth in online purchasing, peaking at 122 per cent above February levels in June, and this remained 99 per cent higher in August. The closure of non-essential shops during lockdown and safety concerns about the risk of catching coronavirus in public spaces meant shopping online increased, but even as shops have reopened, people are continuing to shop online for groceries and other essential items. As figure 9.9 shows, home deliveries remained 30 per cent higher

than pre-lockdown levels at the end of August, although this is around half of the peak seen at the start of June.

Figure 9.9 Home delivery volumes index, Mar-Sep 2020.



Source: Metapack.

It is likely that increased levels of online shopping will continue, particularly as coronavirus risk persists. Research undertaken by the University of Leeds with 10 cities across England and Scotland showed that London residents were most likely to increase the amount of shopping they do online following the spring lockdown, compared to before: 31 per cent said they would do more online food and grocery shopping, and 34 per cent said they would shop more for other items online.

Restaurants, bars and the hospitality industry

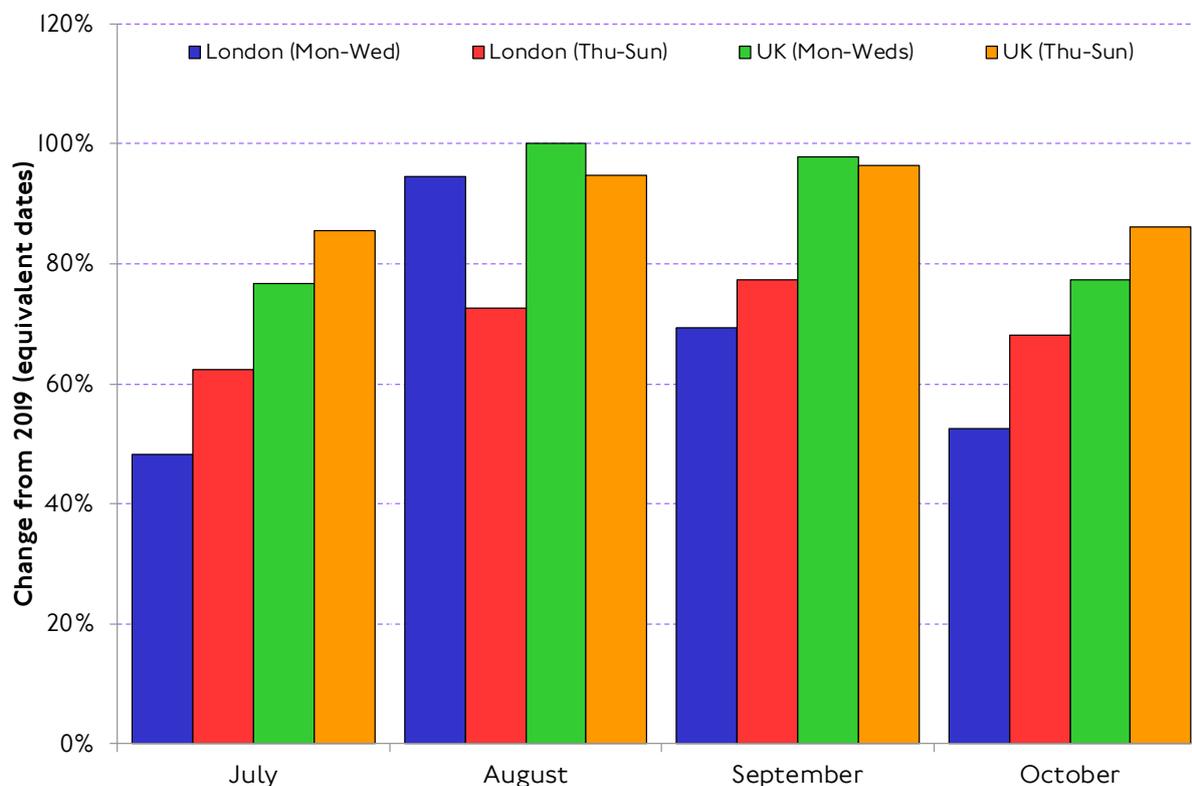
Figures from the ONS Opinions and Lifestyle survey show that in July, following the reopening of bars and restaurants, around 15 per cent of respondents said they had left the house to eat or drink at a cafe, restaurant or pub. This figure increased to 32 per cent in August and remained at 28 per cent in September, although by mid-October fell to 20 per cent, likely as a result of new Tier 2 and 3 restrictions. Figure 9.10, using data released by **OpenTable**, shows the change in total seated diners in participating re-opened restaurants in London and the UK over this period compared to 2019. The data shows that, overall, London's restaurants are recovering more slowly than the rest of the UK.

The success of the **Eat Out to Help Out** scheme, where the government subsidised restaurants to offer 50 per cent off food from Monday to Wednesday during August can also be seen in figure 9.10. Seated diners in London's restaurants on Mondays, Tuesdays and Wednesdays in August rose to 95 per cent of 2019 levels; across the UK this figure was 100. However, the recovery of seated diners on Thursday to Sunday in August only improved slightly on July figures, which

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could show people shifted their leisure habits, rather than eat out more regularly. Between September and October there was a decline in seated diners in London restaurants compared to 2019, from 73 per cent of 2019 levels in September to 60 per cent in October. This is likely due to new measures to limit the spread of the virus, such as the introduction of the 22:00 curfew and limits to household mixing.

Figure 9.10 Seated diners in re-opened restaurants by area and day of week, Jul-Oct 2020 vs 2019.



Source: OpenTable.

The reduction in **domestic and international tourists** visiting London and a fall in commuting (outlined in section 9.3) as a result of coronavirus restrictions has also influenced shopping and leisure activity, particularly in central London. A recent GLA report^[18] estimates a £10.9bn loss in tourism expenditure (£3.5bn domestic and £7.4bn international) in the Central Activity Zone (CAZ) relative to forecast expenditure in 2020 without the pandemic. A PwC report^[19] forecasting recovery of the hotel industry estimates that London's hotel occupancy rate will be 65 per cent lower in 2020 compared to 2019 (the national figure is 50 per cent). It forecasts that it could take the hotel industry four years to recover pre-pandemic levels of business. Therefore, as visitor numbers to London continue to remain low due to national and international restrictions and uncertainty, this will have a prolonged impact on leisure travel and the hospitality industry in central London.

These changing leisure patterns, as a result of lockdown and social distancing restrictions, as well as ongoing concern about the risks of catching coronavirus in public spaces, have affected the recovery of travel demand. As reported in section 7.5, licensed taxi and PHV volumes are taking longer to recover in comparison to other motorised modes. Evening and overnight traffic in central, inner and outer London is not recovering as quickly as daytime traffic. On public transport, recovery of weekday evening (19:00 – 00:00 data) demand is lower than

the recovery during the inter-peak and the daily average. In September, demand on London buses during weekday evenings had recovered to 57 per cent of pre-pandemic demand, this compares to 65 per cent during the inter-peak and 60 per cent overall. On London Underground, weekday evening demand was 35 per cent of pre-pandemic levels, this is lower than recovery during the inter-peak (43 per cent) and slightly below the daily average (36 per cent), which is also impacted by subdued peak demand.

Leisure during lockdown

During lockdown, as people were permitted to go out for **daily exercise**, many took the opportunity to walk, cycle or run for leisure more frequently. There was an increase in bike sales, as people spent more time cycling and walking.

Research undertaken by the University of Leeds with 10 cities across England and Scotland showed that Londoners increased the frequency that they visited local parks by 18 per cent during lockdown (second only to Bristol), they increased how often they walked for pleasure or exercise by 33 per cent and the amount they cycled for leisure by 25 per cent. As gyms remained shut, the frequency that Londoners ran or jogged outside doubled; the highest increase of all cities.

However, it is possible that much of the increase in exercise may have been undertaken by Londoners who were already active. Results from our LTDS survey adapted for coronavirus showed that before the pandemic a quarter of Londoners exercised 5 or more days a week. This figure rose to almost a third (32 per cent) during lockdown. At the other end of the spectrum, 21 per cent of Londoners did not exercise at all on an average week before the pandemic, this also rose to almost a third during lockdown.

As leisure activities became confined to the home or local area during lockdown **access to green space** became increasingly important. Analysis released by the ONS^[20] shows that 1 in 5 Londoners have no access to private outdoor space. However, Londoners are much more likely to live near a public park – 44 per cent of Londoners live within a 5-minute walk of a public park. However, national figures show a large inequality in access to green space, with unemployed, low-skilled workers and people from Black, Asian and Minority Ethnic groups significantly less likely to have access to outdoor space.

9.5 Active travel

The pandemic has had a substantial and potentially long-term impact on active travel. This has been the result of travel restrictions and advice to avoid public transport during lockdown, with ongoing capacity restrictions, alongside opportunities presented to many Londoners to use active modes more as part of adapted daily routines.

Active travel during lockdown

Following the announcement on 23 March, all non-essential shops and businesses were closed, and people were instructed to stay at home except for very limited purposes including essential shopping and one outdoor form of exercise per day. This had a considerable impact on travel demand, as many people began working from home and taking fewer, more local trips for essential purposes only. A study of pandemic travel behaviour in 10 city regions in England and Scotland by the University of Leeds showed that London was one of only two locations to see

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some decline in walking trips for commuting during lockdown, although walking overall increased by a fifth during this time. TfL's cycle counts showed that weekday cycle flows were lower in lockdown compared to the 2019 baseline, although flows at the weekend increased very significantly. This reflects an increase in leisure cycling, which was one of the few permitted outdoor activities during lockdown. Indeed, London had the highest proportional take-up of bikes in lockdown of all the cities included in the University of Leeds study, and it is estimated that cycling increased by 2.6 per cent during lockdown.

Walking and cycling frequency and achievement of 20 minutes of active travel

Initial (unweighted) findings from respondents surveyed between August and October as part of our adapted LTDS survey show that a greater proportion of London residents are cycling more frequently than they were before the pandemic. Some 11 per cent of respondents are now cycling on 3 or more days per week compared to 7 per cent before the pandemic and 9 per cent are cycling on 1 or 2 days per week compared to 8 per cent before.

The following results from LTDS show the level of agreement with different statements from people who cycle:

- More than half (52 per cent) are cycling to places where they used to travel by a different mode (eg car, public transport).
- 74 per cent think that the risk of catching coronavirus is lower when cycling compared to using other modes and 46 per cent say they are now cycling more to reduce their exposure to coronavirus.
- 47 per cent say they now go out on more cycle rides to get out or to get some exercise.
- 44 per cent think that cycling is easier now than it used to be, due to more dedicated space for cycling. However, 13 per cent think that cycling is more difficult than it used to be, due to higher levels of traffic.
- 42 per cent say they are now cycling longer distances or for a longer time.
- 39 per cent say that they now cycle on different routes than they did before the pandemic.

The proportion of London residents who walk on 3 days or more per week has dropped slightly (from 82 per cent to 80 per cent) – a finding which is consistent with results from the University of Leeds study and could be linked to a decline in walking for commuting purposes during lockdown. The proportion of residents who are walking on 1 or 2 days per week has increased slightly, from 11 per cent to 12 per cent.

The following results from LTDS show the level of agreement with different statements from people who walk:

- Just less than a third (31 per cent) of respondents are walking to places where they used to travel by a different mode (eg car, public transport).
- 70 per cent think that the risk of catching coronavirus is lower when walking and 41 per cent say they now walk more to reduce their exposure to it.
- 57 per cent say that they now go out on more walks to get out or to get some exercise and 42 per cent say that they now walk longer distances or for a longer time than they did before the pandemic.
- 41 per cent say they now walk on different routes to explore their local area.

- 20 per cent think that it is easier to walk now than it used to be, due to more dedicated space for walking, although a higher proportion (24 per cent) think that walking is more difficult now than it used to be, eg due to social distancing.

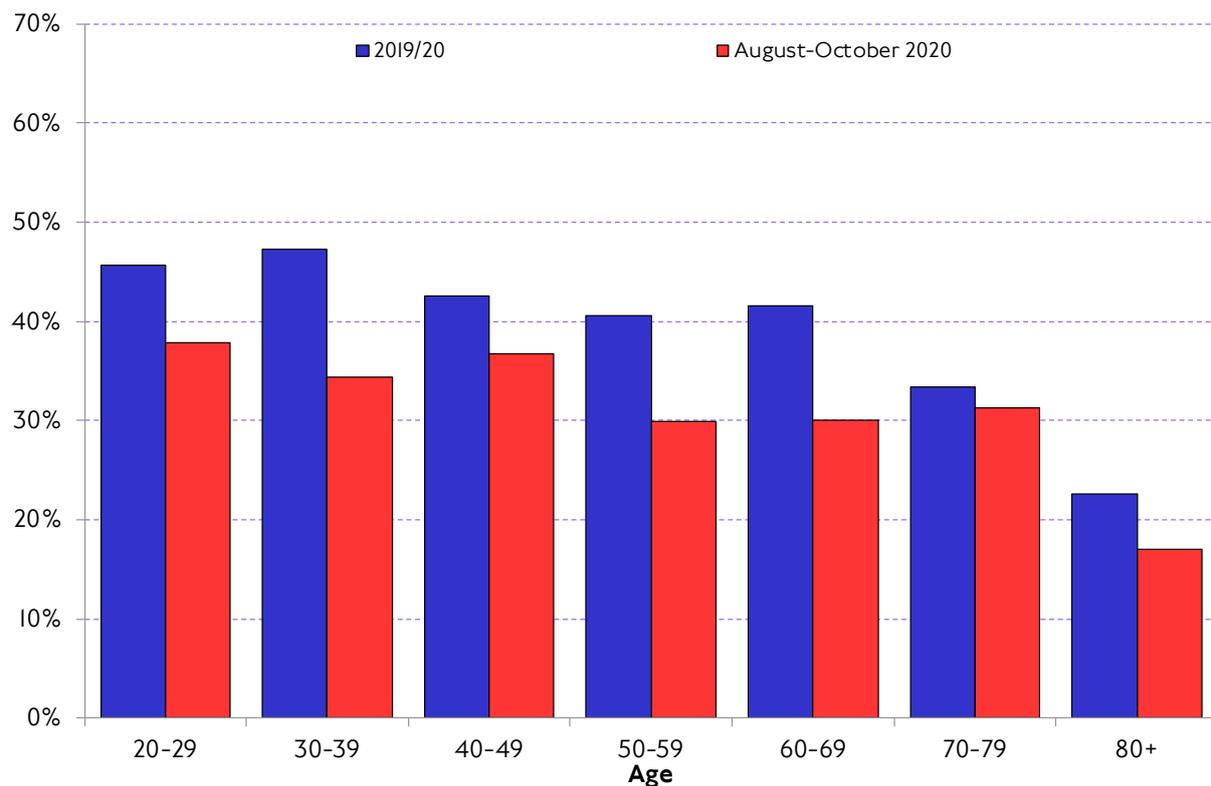
Section 3.2 explored travel-related physical activity using LTDS, which showed that in 2019/20, 42 per cent of Londoners achieved 20 minutes of active travel on the previous day. This can be compared to the proportion of London residents who achieved 20 minutes of active travel on the previous day during August-October 2020 from our adapted LTDS survey results. Note that the results are unweighted, and the sample size (1,432) is much lower than is usually reported from LTDS. The overall proportion of residents who achieved 20 minutes of active travel is lower since the pandemic compared to the 2019/20 average (33 per cent compared to 42 per cent). Figure 9.11 shows that the proportion of residents who achieved the 20 minutes is lower across all age groups.

The main contributory factor to lower overall achievement of the 20 minutes is likely to be a reduction in walking (and to some extent cycling) as part of the journey to work with a considerable shift to home working. Another factor is a move to shorter, more local trips as a result of the restrictions on travel. Although these restrictions to travel and changes to the location of activities such as work act against active travel, there have also been more opportunities to take part in active travel for leisure, as part of revised daily routines, as demonstrated by the statements above.

Figure 9.12 shows the number of days respondents achieved 20 minutes of active travel (walking, cycling or running) in the last week. Although figure 9.11 shows that overall achievement of 20 minutes of active travel seems to be lower since the outbreak of the pandemic compared to 2019/20, figure 9.12 shows that a quarter of residents achieved 20 minutes of active travel on all 7 days in the last week, and this proportion is highest among those in their 50s and 60s (31 per cent respectively). However, there is also a fairly high proportion (28 per cent) who say that they did not achieve 20 minutes of active travel on any day in the last week. We know that travel overall has reduced significantly due to increased working from home, restrictions on travel and perceived risk of contracting the virus. The proportion of residents who did not achieve 20 minutes of active travel on any day in the last week is much higher among older residents, who are more likely to be higher risk or vulnerable to coronavirus. Around 12 per cent achieved 20 minutes of active travel on 5 out of 7 days in the last week, which probably reflects commuting-related active travel (for those who have continued to travel to work throughout the pandemic) or active travel that is incorporated into the working day.

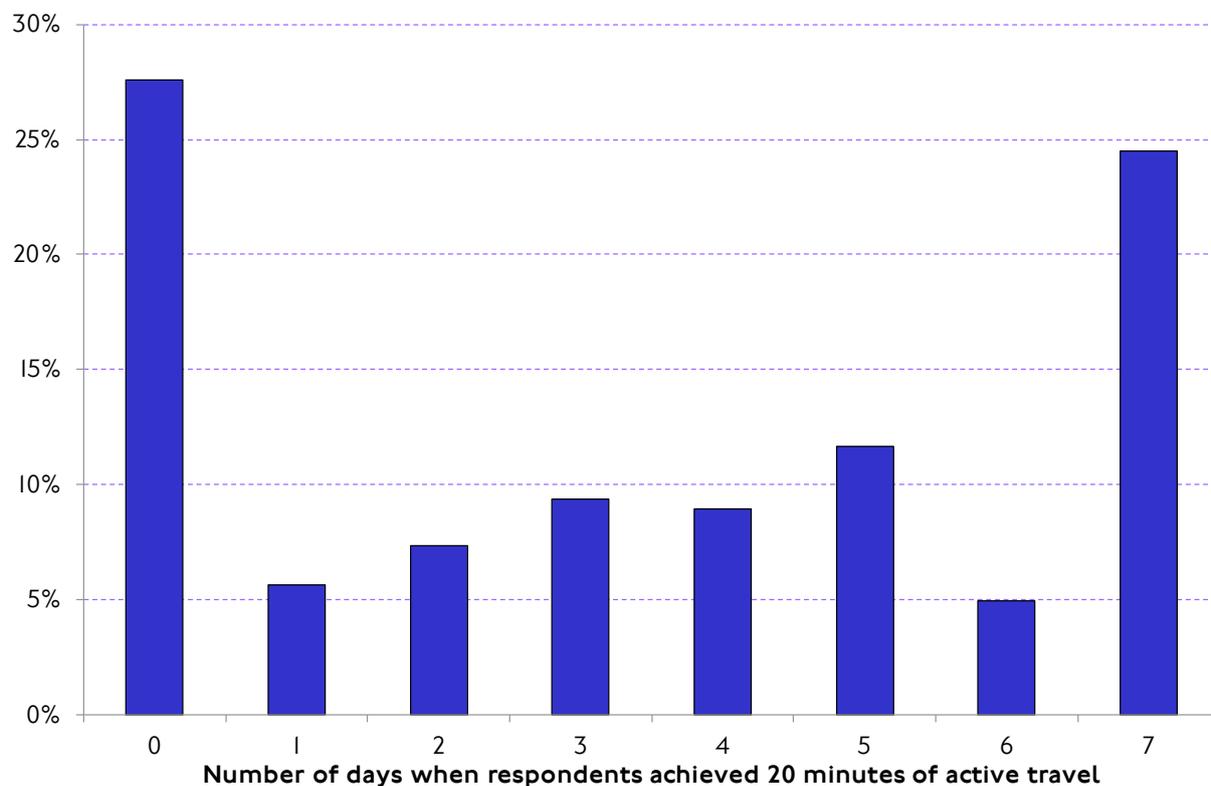
9. Coronavirus and travel behaviour

Figure 9.11 Londoners aged 20 and over who achieve 20 minutes of active travel per day by age, LTDS unweighted results, Aug-Oct 2020 vs 2019/20.



Source: TfL City Planning.

Figure 9.12 Respondents who achieved 20 minutes of active travel in the last week by number of days, LTDS unweighted results, Aug-Oct 2020.



Source: TfL City Planning.

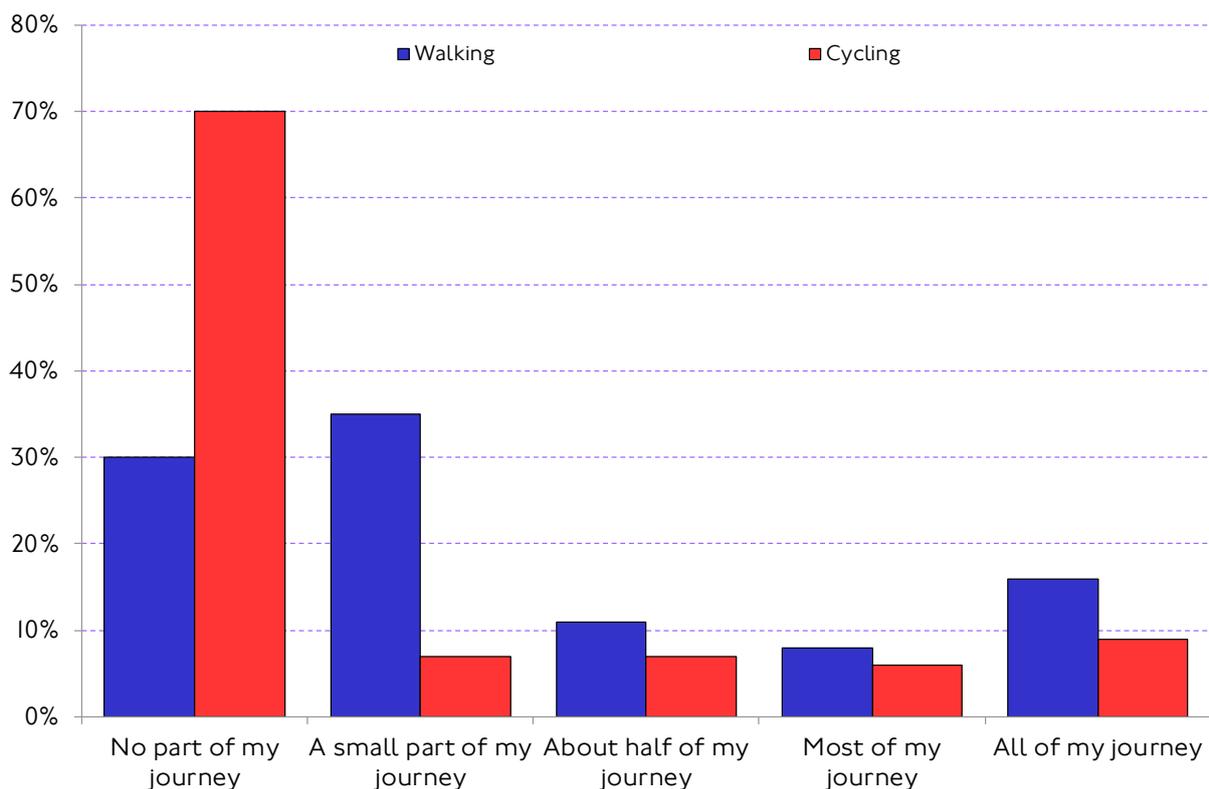
Long-term impacts of the pandemic on active travel behaviour

A key area of interest for TfL is whether the changes to travel behaviour and active travel particularly will continue in the long term as people return to work and capacity on public transport increases. A long-term increase in active travel would contribute to TfL's strategic goals, both in terms of the active, efficient and sustainable mode share, as well as contributing to our aim of all Londoners achieving 20 minutes of active travel per day.

For leisure travel, a Centre for London study showed that one-third of respondents said they will cycle more once lockdown is over. Half of respondents (46 per cent) said they will be more likely to go for a walk, run or cycle in the future, compared to before the pandemic. This is particularly marked in inner London (51 per cent). However, a third of respondents also said they will use cars more, which presents a challenge to TfL in terms of competition for road space, air quality and sustainable travel, particularly as capacity on public transport is likely to be constrained in the short and medium term.

In terms of the journey to work, results from TfL's Customer Pulse survey in June showed that 30 per cent of respondents would consider cycling as part of their journey to work when they return to their workplace (figure 9.13).

Figure 9.13 Respondents who would consider walking or cycling as part of their journey to work when they return, n=498, Customer Pulse, Jun 2020.



Source: TfL Customer Insight, Strategy & Experience.

Of those who would consider cycling as part of their journey to work, 1 in 3 would consider cycling all the way. More detailed analysis of responses shows that men are more likely to consider cycling to work than women. For walking, around half (54 per cent) would consider walking some of their journey and 16 per cent of respondents would consider walking all the way, although 30 per cent would not

9. Coronavirus and travel behaviour

consider walking any part of their journey. Residents of inner London are more likely to consider walking all or part of their journey to work compared to residents of outer London and willingness to walk or cycle to work decreases with age.

While much has been made about the popularity of active modes during lockdown, the long-term impact on use of these modes is uncertain. While there is reduced capacity on public transport and perceptions of the risk of catching the virus remain reasonably high, the frequency and distance of walking and cycling are likely to remain higher than average and be used preferentially for a range of purposes including leisure cycling and walking to local shops and services. Whether these higher levels of walking and cycling continue once public transport capacity recovers and people return to work remains to be seen.

9.6 Mode choice

During the pandemic, travel demand has changed dramatically, both in terms of total demand and the modes used to travel. This was illustrated in section 7.8 of this report, which showed that in quarter 2 2020/21, total trips in London were around 60 per cent of normal, and even when some restrictions were lifted in quarter 3, total travel demand was still 74 per cent of normal. The reduction in demand was not even across the modes, with public transport demand down by more than 60 per cent even in quarter 3, compared with a drop of 10 per cent in private transport trips. Initial data from the second lockdown period in November suggests a similar pattern, with a decline in London Underground usage of at least 75 per cent and around 50 per cent in bus usage. In contrast, traffic levels are down by less than 20 per cent, again suggesting a continued preference for private transport over public transport under pandemic conditions.

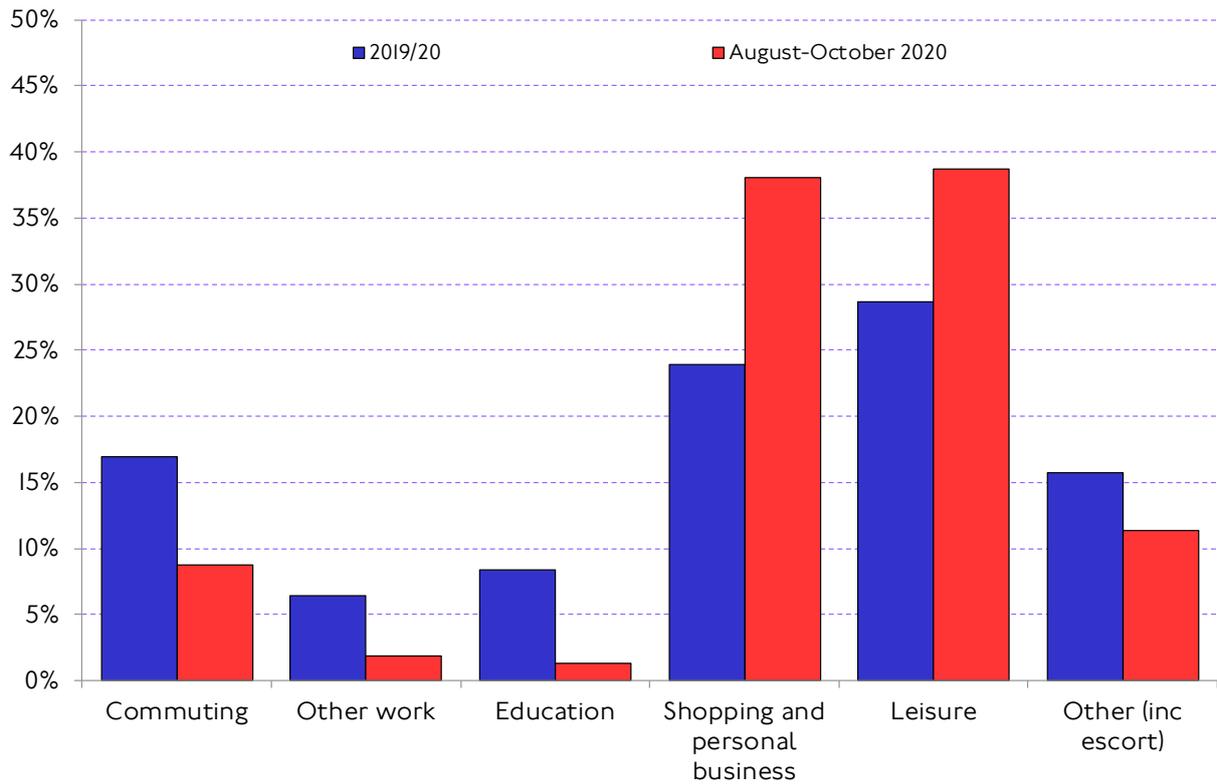
Why are people travelling?

Initial data from the 2020/21 adapted LTDS survey, representative of the late summer period, suggests that 70 per cent of respondents made a trip on the travel day, which is only slightly below the level of around 75 per cent in recent years.

The reason why people travel, and the ways in which they combine purposes as part of longer trip chains has, however, changed in 2020. Given the advice to work from home where possible through much of 2020, commuting and other work-related trips are much lower than usual, although still make up more than 10 per cent of all trips. In contrast, shopping, personal business and leisure trips make up a higher proportion of trips than normal, with more than three-quarters of all trips being for these purposes, compared with just more than half in 2019/20 (figure 9.14).

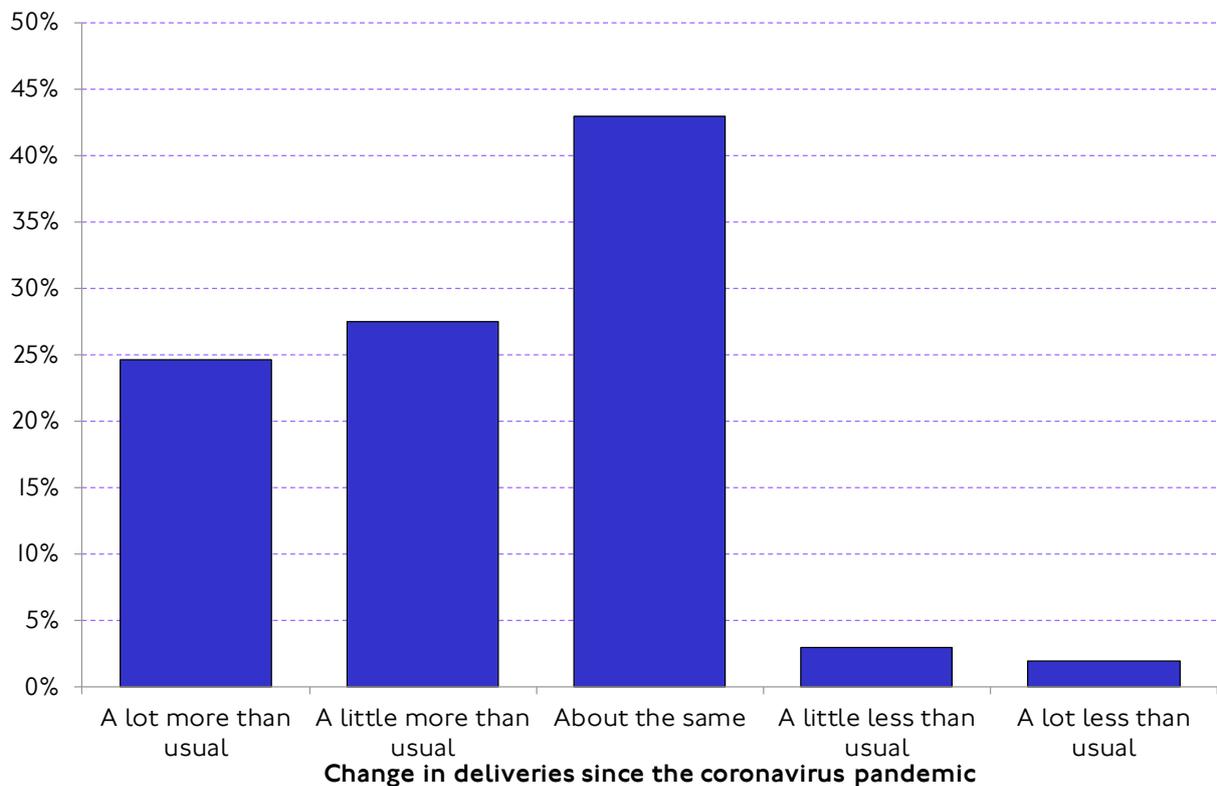
The high proportion of shopping and personal business trips comes despite various restrictions on shopping over this period, including limiting numbers of people in shops and compulsory face coverings. Figure 9.15 shows that more than half of all respondents have been receiving more deliveries than before the pandemic, which again would have been expected to suppress the demand for shopping trips.

Figure 9.14 Share of trips by Londoners by purpose, LTDS unweighted results, Aug-Oct 2020 vs 2019/20 financial year average.



Source: TfL City Planning.

Figure 9.15 Change in the number of deliveries from the pre-pandemic level, LTDS unweighted results, Aug-Oct 2020.

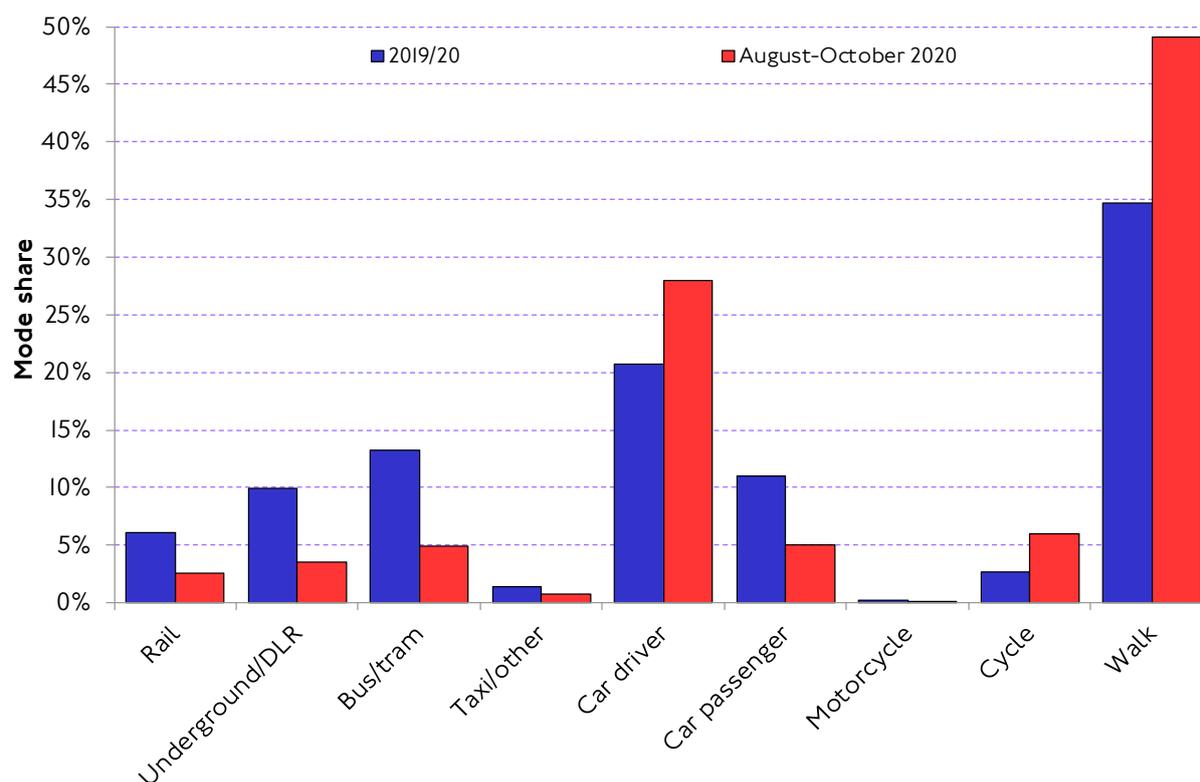


Source: TfL City Planning.

Which modes are people using?

Figure 9.16 shows that the modes used by London residents during 2020 are different to the pre-pandemic period. As has been shown earlier, public transport usage has been lower than normal across both bus and rail modes, while the share of car driver trips has been much higher. LTDS data also confirms an increase in both walking and cycling trips.

Figure 9.16 Trip-based mode share, LTDS unweighted results, Aug-Oct 2020 vs 2019/20 financial year average.

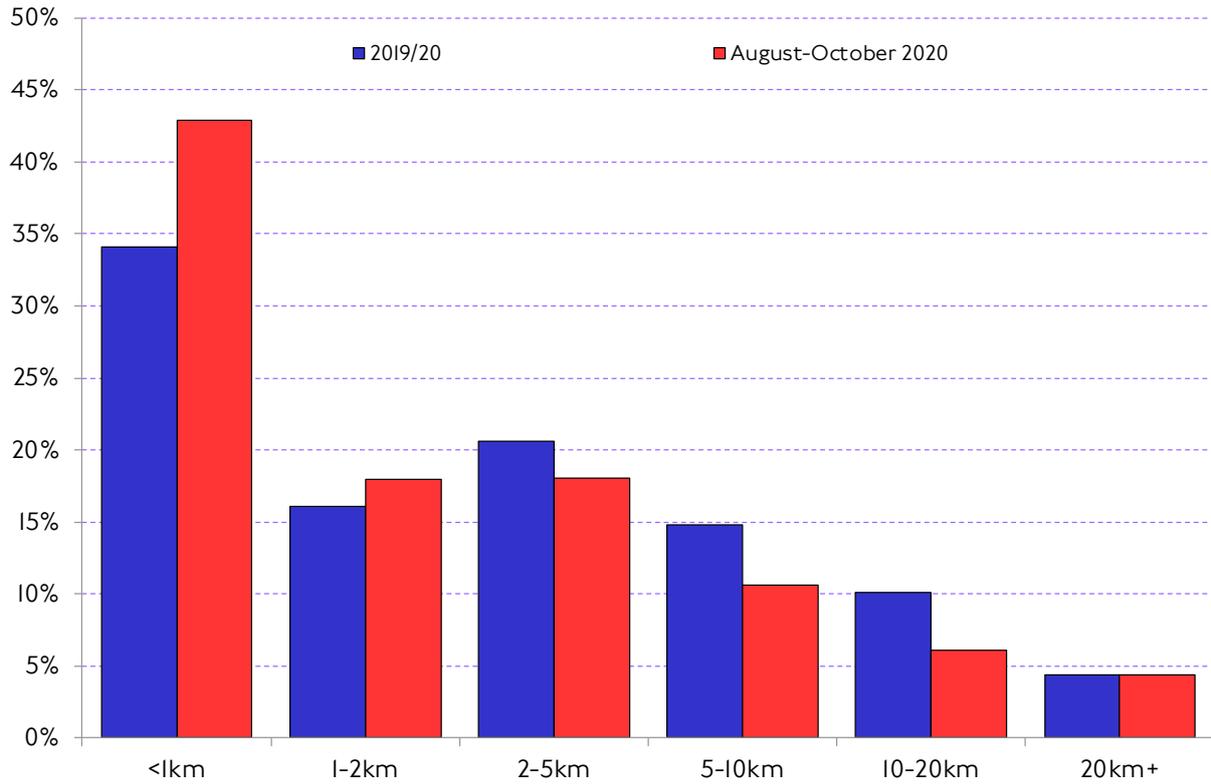


Source: TfL City Planning.

The change in modes used in 2020 could be explained by the change in purpose. Commuting trips are typically made on public transport – in 2019/20, 55 per cent of commute trips were by public transport. In contrast, shopping and leisure trips tend to be made by either private transport or by walking or cycling – in 2019/20, only one quarter of these trips were made by public transport. Therefore, some of the shift in mode share can be explained by the shift in the types of trips people have been making in 2020. If there is a widespread return to commuting in 2021, we can reasonably expect a shift back to public transport, although this will largely depend on future attitudes to home working.

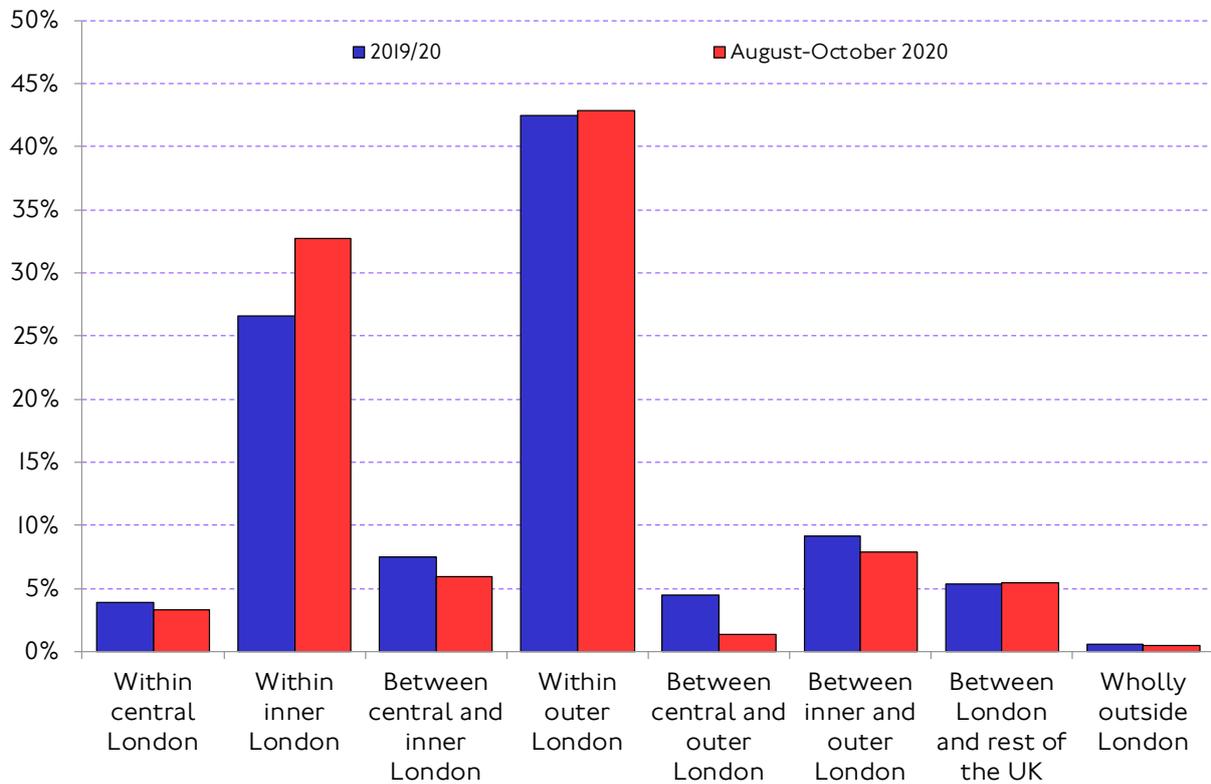
Another explanation for the mode choices made by Londoners in 2020 can be seen in the data on trip distances (figure 9.17). Londoners have been undertaking shorter trips, with 43 per cent of all trips being under 1km, and only 10 per cent of trips being longer than 10km. Again, this has implications for mode choice; in 2019/20, 82 per cent of all trips under 1km were walk trips, while almost 60 per cent of trips that are 10km or longer were made on public transport. If restrictions are lifted in 2021 and London residents return to making longer-distance trips, we can again expect a shift back to public transport.

Figure 9.17 Share of trips by Londoners by distance, LTDS unweighted results, Aug-Oct 2020 vs 2019/20 financial year average.



Source: TfL City Planning.

Figure 9.18 Share of trips by Londoners by origin and destination areas, LTDS unweighted results, Aug-Oct 2020 vs 2019/20 financial year average.



Source: TfL City Planning.

9. Coronavirus and travel behaviour

The area of London that residents travel to has a big impact on modal choice, with trips to central London usually made on public transport (typically around three-quarters), whereas only around 16 per cent of trips within outer London are made on public transport. Figure 9.18 shows that so far in 2020, fewer trips are being made to/from central London, with the highest share of trips being within outer London. Again, if trips to central London return during the recovery phase in 2021, we can expect public transport mode shares to return to similar levels, but otherwise we can expect a greater share of local (non-public transport) trips.

Summary

Initial data from the 2020/21 London Travel Demand Survey confirms that the modes used by London residents in 2020 have changed, with a drop in public transport usage and an increase in walking, cycling and private transport use. This appears mainly to be due to a change in the reasons people are travelling. Commute trips have declined, while shopping, personal business and leisure trips have increased. Trips have become more local, with an increase in the share of trips under 1km, which is likely to have increased the cycle and walk mode shares. Trips to central London, which typically are made on public transport, have declined, while local trips have increased.

The evidence suggests that, although public transport mode shares have declined in 2020, there are reasons to be optimistic that they will rebound to pre-pandemic levels in 2021. This will partly depend on several factors, including a widespread return to commuting, and the return of travel to central London. If the trend in increased home working continues longer term, and residents make more local trips, it is likely that public transport mode shares will remain below pre-pandemic levels.

10 Planning for recovery and potential long-term implications for travel in London

10.1 Introduction

For reasons explained above, travel demand in London has been dramatically reduced by the pandemic. However, within this overall impact there have been different impacts on the different modes and in different parts of London. Furthermore, although the impacts of the pandemic may be regarded as essentially temporary, the lengthy duration of the pandemic and the associated economic impacts mean the possibility of more lasting change to the factors underlying travel demand in London.

This chapter looks at TfL's approach to recovery planning, based on the evidence reviewed in the preceding chapters and the overall context provided by the Mayor's Transport Strategy. It describes:

- An **analytical framework** for recovery planning. A framework for how we are approaching the task of planning for the short to medium term, in the light of ongoing uncertainty about the progress and duration of the pandemic.
- A **short-term forecast** of travel demand, representing the immediate recovery phase.
- A **pair of medium-term scenarios** for London's recovery focusing on travel outcomes as the virus risk is reduced and restrictions are fully removed.
- A set of **five longer-term scenarios** for London more generally, notionally reflecting conditions in 2030, and reflecting what at the time of writing is a wide range of plausible long-term outcomes for London. These five scenarios effectively bound the range of future uncertainty for this decade, as viewed from the present point.

10.2 An analytical framework for recovery planning

Introduction

An analytical framework has been developed to support recovery planning. The framework is structured around the different **phases of London's recovery** from the pandemic and includes an analytical and interpretative evidence base to understand key challenges and develop plans that are robust in the face of ongoing uncertainty.

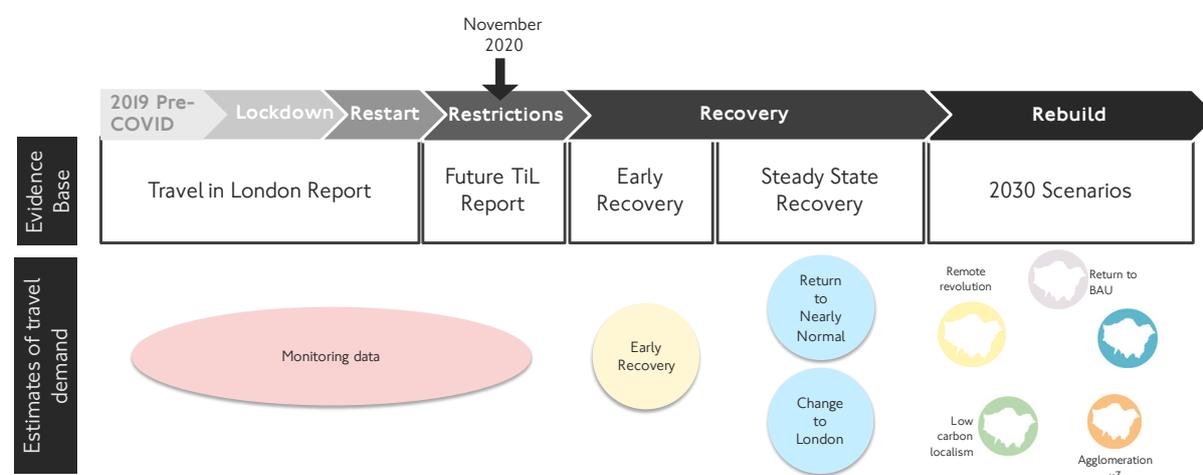
The pandemic and its lasting effects can be broadly thought to cover a number of **phases**. The analytical framework is built around these (nominal) time horizons, as demonstrated in figure 10.1. The phases are:

- A review of current evidence to understand **lockdown** and **restart** (summarised in chapters 6 to 9), and the current period of **restrictions**.
- A forecast to represent the **Early Recovery**, a period of time when the virus is controlled sufficiently (track and trace, mass testing etc.) to allow restrictions to be relaxed enough for offices to function in a 'near-normal' state.
- A set of forecasts to reflect the uncertainty of how a **Steady State Recovery** phase may develop once restrictions are fully lifted and all parts of the economy are open to full capacity.
- A set of five scenarios for London's long-term future as we **rebuild**.

10. Planning for recovery and potential long-term implications for travel in London

The phases are defined by the perceived and real threat of coronavirus, by the activities Londoners want to undertake, and by the extent to which activity has returned to London's economy.

Figure 10.1 Indicative phases and timelines of the analytical framework.



Source: TfL City Planning.

The evidence underpinning each of the different phases is based on a number of internal and third-party data sources which analyse the impact that the pandemic has had on Londoners' travel behaviour. To understand the resulting travel demand impacts of these changes over time TfL's strategic travel demand model MoTiON and supporting tools have been used to estimate how travel demand might change across the city for different purposes and for different demographic groups over different time horizons.

Dealing with uncertainty

In any forecasting work there is uncertainty. This is never truer than today where there are questions about the long-term effects of the pandemic on the economy and the behaviour and attitudes of Londoners. The framework reflects the increasing uncertainty the further into the future we look, using a single forecast for the short-term Early Recovery phase, two scenarios to reflect the direction recovery might take over the short to medium term (Steady State Recovery), and finally five longer term scenarios for Rebuild.

The following three sections look at the range of challenges and opportunities identified for each of the **three forward-looking phases** through a review of the emerging evidence so far.

10.3 Early Recovery phase

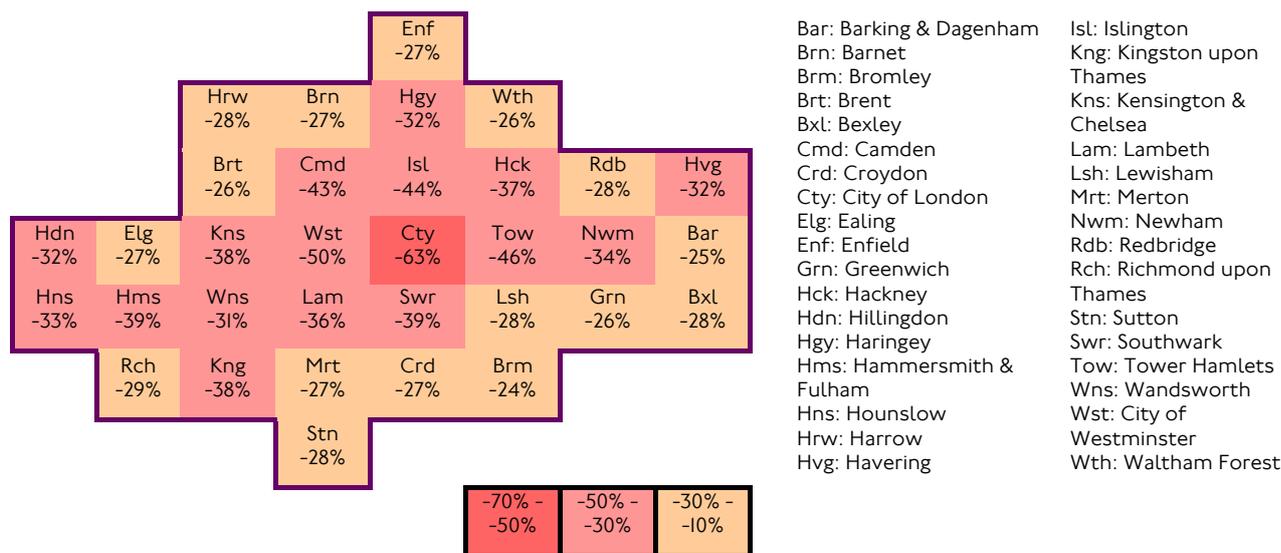
Introduction

The Early Recovery phase is characterised by a return of commuting and leisure activities, although the risk of contracting coronavirus remains. During this period it is likely that public transport demand will return to around 50-60 per cent of pre-lockdown levels, although this figure drops to 40-50 per cent for trips to central London. It will be essential to build peoples' trust in returning to the public transport system and support active travel to avoid embedding a car-led recovery during this phase.

Spatial impact on travel demand

Figure 10.2 shows the broad impacts on travel demand in this period spatially across London. During the Early Recovery phase there will be a rebalancing of activity towards suburban areas and smaller centres; a continuation of trends seen during lockdown and subsequent easing. This rebalancing of activity, as home working continues for some and some people remain uncomfortable with travelling into central London for shopping and leisure activities, creates an opportunity to support inner and outer London town centres and plan for an equitable recovery.

Figure 10.2 Travel demand by borough, Early Recovery phase vs 2016.



Source: TfL City Planning.

During the Early Recovery phase, **central London** remains visibly quieter, and demand is likely to remain well below pre-pandemic levels. However, some return to commuting demand may put pressure on ability to maintain social distancing on parts of the rail network, particularly from east and south London into central London. Modelling shows that as momentum builds people will continue to return to the network.

A slow return to central London is likely to have a continued impact on central London businesses. Those employed in service sectors, which rely on office workers and tourism, are at a relatively greater risk of unemployment. This could have knock-on impacts on inner and outer London economies, particularly in **low-income areas**. Analysis shows that unemployment impacts as a result of a quieter central London are likely to be felt most greatly by younger, lower paid, BAME Londoners living in boroughs from northwest to east London.

People with lower incomes are also less likely to be able to work from home and are returning to work and education more quickly but have also cut back on discretionary trips more than those with higher incomes. People aged over 65, who make up a much larger proportion of the population in **outer London** and are at higher risk from coronavirus, are returning most slowly to shopping and other personal business travel. This is also the case for those with children, particularly lone parents. These groups, and the groups more likely to be disproportionately impacted by unemployment, tend to rely more on public transport for commuter and discretionary travel.

10. Planning for recovery and potential long-term implications for travel in London

A return to car demand

Generally, across London the return of travel during the Early Recovery phase will be higher for those with access to cars, as Londoners remain cautious about using public transport. This is particularly true for shopping, escort and other personal business trips. While total trip making remains below pre-lockdown levels this may not lead to higher car use than before lockdown, but it does foreshadow a potential car-led recovery as overall mobility increases. Both the perception of the coronavirus risk on public transport and the redistribution of trips away from the centre could lead to a shift to car for longer-distance trips.

Supporting town centres, particularly in outer London, with reliable bus services will benefit Londoners most affected by the pandemic and help to mitigate against a car-led recovery by ensuring buses remain a viable option as motorised traffic returns. Additionally, many public transport trips, particularly in inner London, can only be made by public transport; facilitating these trips is essential for an equitable recovery. Buses play a vital role in ensuring that local town centres are accessible to all, particularly in outer London and for those unable to cycle or walk longer distances.

Modelling undertaken as part of this scenario shows that for 25 per cent of public transport trips the car is the only alternative, this rises to 32 per cent in outer London. Ensuring Londoners feel comfortable returning to the public transport network, for both commute and discretionary trips, will be essential to discourage car use and ensure equitability for Londoners who do not have the option of making a trip by car. Supporting public transport in and around London's suburban centres will be essential to mitigating a car-led recovery.

10.4 Steady State Recovery phase

The Steady State Recovery phase represents a period where the threat of the virus diminishes, either due to the availability of a vaccine or a sustained reduction in cases, but elements of travel behaviour formed during the pandemic remain.

Trips to central London are yet to return to pre-pandemic levels, with fewer weekday commuters continuing to have an impact on central London's leisure and hospitality industry. People may still have a sense of needing enhanced personal space but this is now a preference rather than a requirement for health. While productivity in the economy is returning, employment levels are lagging and are still not back to pre-lockdown levels, disproportionately affecting already disadvantaged groups: part-time workers, low-income and younger-age groups.

There remains uncertainty in how London will look once the public health risk posed by coronavirus has diminished. The extent to which attitudes and behaviours formed during the height of the pandemic embed into the everyday will change the shape and nature of travel in London to some degree. To reflect this uncertainty two forecasts have been produced for the Steady State Recovery phase:

- In the first **Return to Nearly Normal** scenario there has been a gradual return of employment activity in central London but still not at the same levels as experienced before lockdown. Things are slowly returning to business as usual but people are still spending more time in their local areas than they did before lockdown. Tourism is also likely to remain below pre-pandemic levels.

10. Planning for recovery and potential long-term implications for travel in London

- In the second **Change to London** scenario the return to central London has not materialised due to continued and extensive working from home and a shift in attitudes to public transport, and to crowding in particular. People are spending more time in their local areas and buses, pedestrians and cyclists compete for space alongside increased car users in inner and outer London.

Further detail on the defining characteristics and travel demand assumptions for the two scenarios is shown in table 10.1.

Table 10.1 Scenarios for the Steady State Recovery phase.

2021	Return to Nearly Normal	Change to London
Population	9.08 Million based on the 2019 ONS mid-year population estimate and modest growth from summer 2020 to autumn 2021 	
Unemployment	 Work force jobs reduce by -1.7% in 2020 followed by -5.5% in 2021. Following the GLA's 'Gradual Return' Scenario.	
Demographics	 Those on lower incomes, manual jobs, part time jobs, the young and women slightly more vulnerable to unemployment	
Working from home	 Slight increase in working from home in office jobs but only a 5-10% change in trip rate for industries such as finance & information and communication. Some other service sectors slightly affected but most return to normal leaving commuting trip rates at 97% of 2018 levels.	Much more working from home in office jobs, for those on higher incomes and for offices located in Central London leaving commuting trip rates at 86% of 2018 levels   
Business	 More online meetings for those in office jobs. For many others, a return to normal	
Shopping	 Footfall damaged by rise in online sales and the impact of less disposable income on the high street. Trips down 10%	 Footfall damaged by rise in online sales and the impact of less disposable income on the high street. In this scenario floorspace changes focused in Central London. Trip rates down 10%
Leisure	 Near normal return. Slightly higher proportions of trips 'from home' than 'from work' reflecting working from home patterns	 Greater flexibility means more 'other' trips, a 10% increase during the working day. However, there is a 5% decrease in these trips not starting from home. There are more shorter, local trips than trips to Central London
Education trip rates	Primary & Secondary Education patterns back to normal. For Tertiary education, a drop in travel as more online courses offered and fewer international students 	
Propensity to use sustainable modes	For the majority of people, attitudes to Public Transport are unaffected. For some who enjoyed walking and cycling during lockdown they make a permanent change. Some Central London street space schemes from 2020 remain 	10-15% of people make a permanent change away from Public Transport for all purposes. For those who enjoyed walking and cycling during lockdown they make a permanent change, for others they rely more on private car 
Long distance travel	 95% of long distance travel returning by late 2021 to follow DfT's high demand case	50% of long distance travel returning by late 2021 to follow DfT's medium demand case 

Source: TfL City Planning.

10. Planning for recovery and potential long-term implications for travel in London

Spatial impact of travel demand

Recovery of public transport demand is not even across London in the Steady State Recovery phase. This is in line with trends seen through lockdown and the subsequent easing of restrictions over summer. The recovery of public transport demand is impacted by factors such as employment and ability to work from home as well as perceptions of safety.

The modelling for both Steady State Recovery scenarios shows that public transport demand will remain below previous forecasts, especially in **central London**, even in a Return to Nearly Normal scenario (figure 10.3). Recovery of public transport demand will be impacted further if people continue to work from home and spend their leisure time locally, as seen in the Change to London scenario (figure 10.4). This will impact both central London demand and also some larger outer London town centres.

In **inner and outer London** there will need to be a focus on an equitable recovery. Many of the people most affected by the coronavirus pandemic, either due to increased health risk or unemployment, are more reliant on public transport modes. Additionally, many Londoners who are employed in jobs which cannot be undertaken from home are reliant on London's public transport network and often live in more deprived parts of London. For example, before the pandemic, 50 per cent of bus boarding occurred where the 40 per cent most deprived Londoners live. This increased to 56 per cent during early lockdown.

In inner London, improving bus performance as car traffic returns to the road network will be essential to improve public transport access for all Londoners, and to ensure that public transport continues to be a viable option for mode shift. Town centres, in outer London in particular, will need even greater focus on safe, high-quality walking and cycling routes that will provide a viable alternative to car use for shorter-distance trips as a greater proportion of Londoners work from home, spending more time locally.

The Central Activities Zone (CAZ)

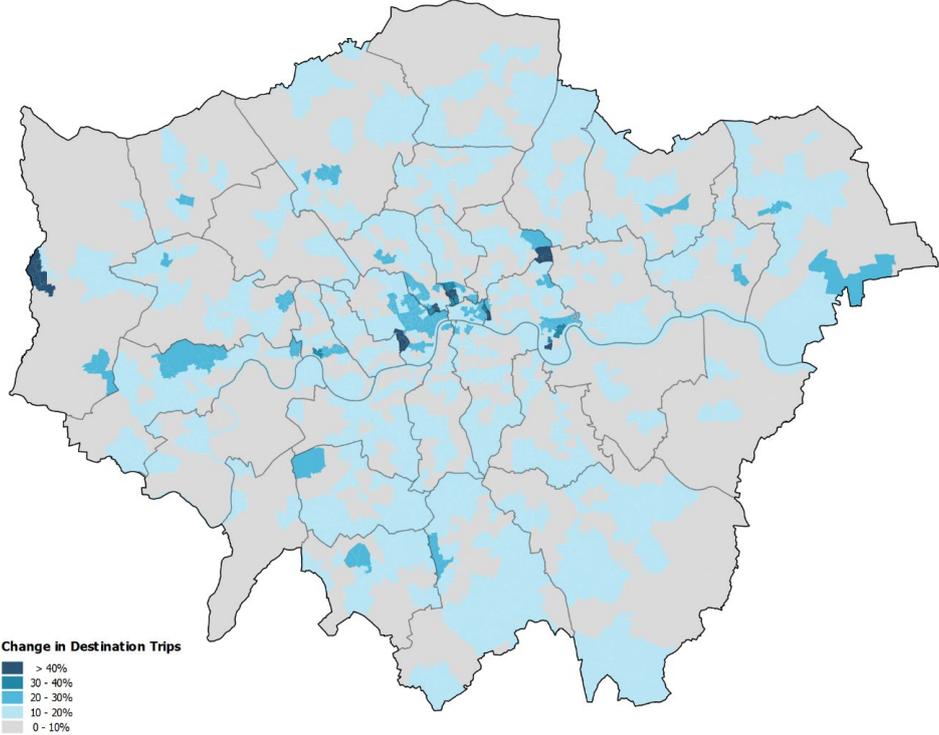
There remains uncertainty about the extent to which increased home working will be sustained long term, although levels of commuting are not expected to return fully during this time period. Compared to demand forecasts for 2021 before the pandemic, the Return to Nearly Normal scenario has 17 per cent fewer rail-based public transport trips during the morning peak to the CAZ and in the Change to London scenario rail-based trips to the CAZ are 28 per cent lower.

Before the pandemic, 20 per cent of the discretionary trips made in central London by London residents were made by those who commute into central London; a large number of trips made in central London during evenings and at weekends were also made by those who work in central London. With many employees who worked in central London before the pandemic having the ability to work from home, this could have a sustained impact on shopping and leisure activity in the CAZ.

Therefore, it is likely that the forecast reduction in work trips to central London during this phase will reduce demand for services, particularly food shopping and recreation during lunchtimes and evenings in central London. This poses challenges for the future function of the CAZ, and uncertainty around how the leisure industry can rebuild itself in the face of fewer weekday workers.

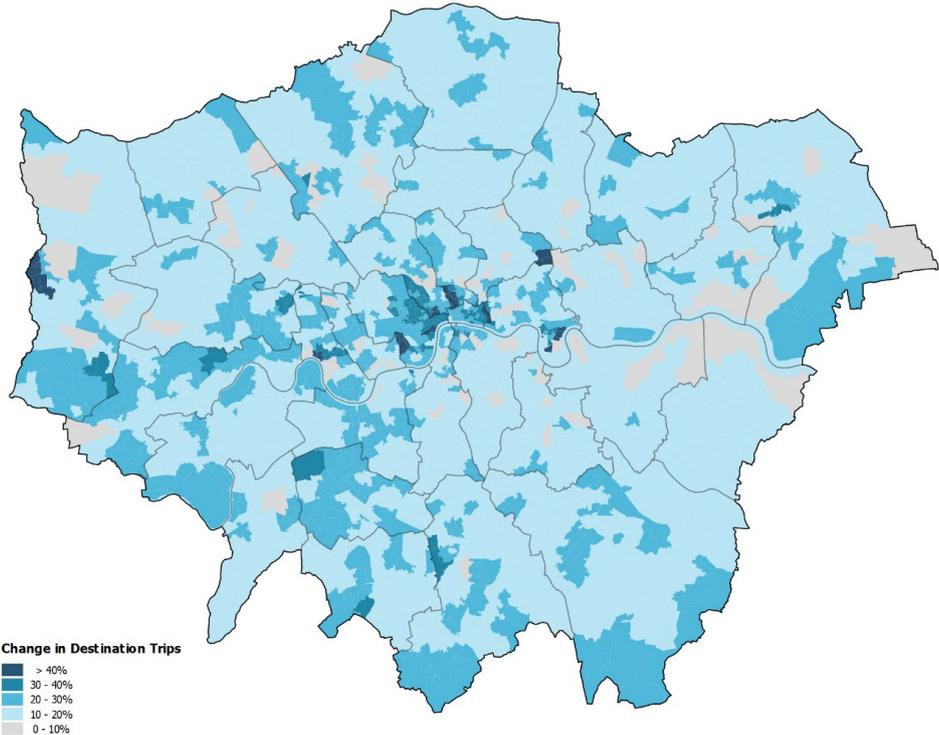
I0. Planning for recovery and potential long-term implications for travel in London

Figure I0.3 Return to Nearly Normal scenario: morning peak public transport trip destinations change vs 2021.



Source: TfL City Planning.

Figure I0.4 Change to London scenario: morning peak public transport trip destinations change vs 2021.



Source: TfL City Planning.

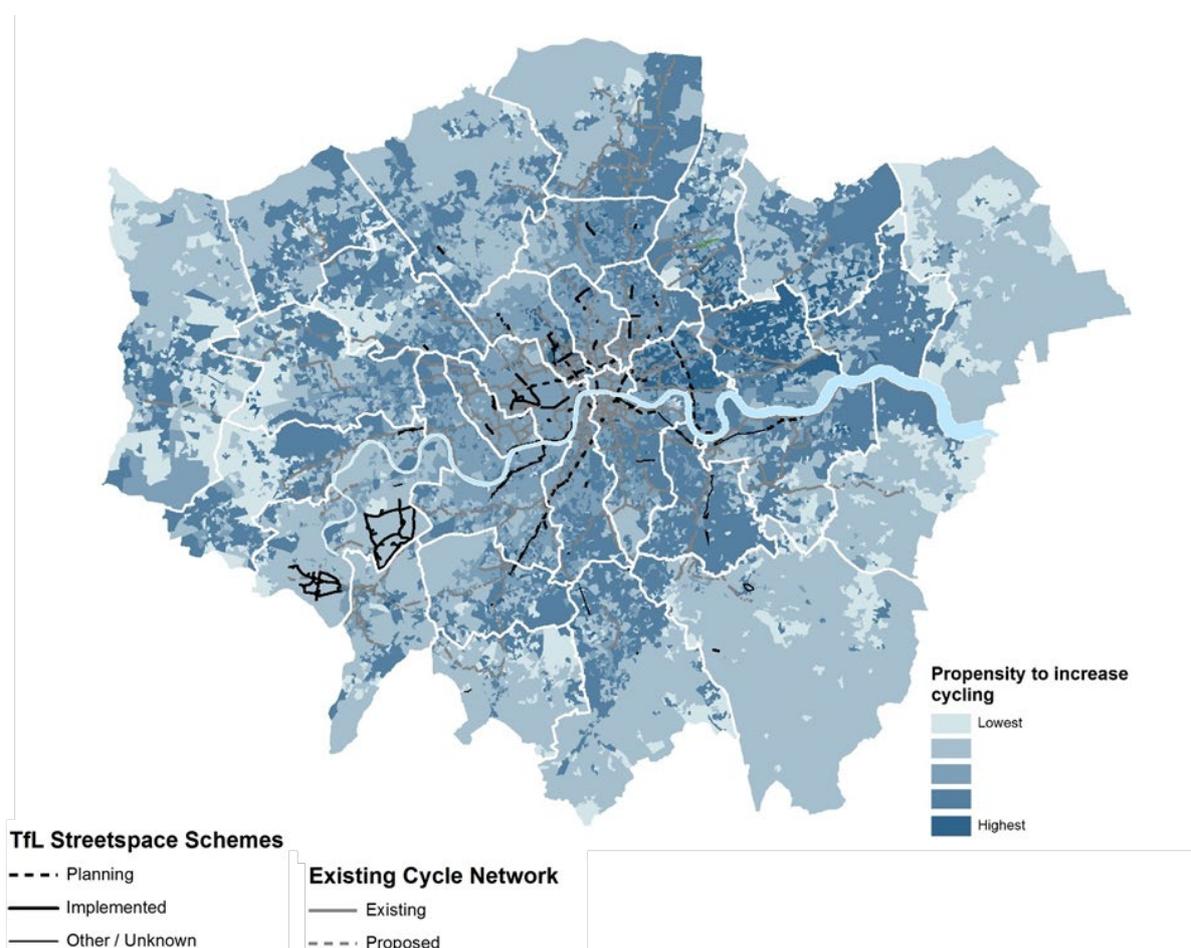
Active travel

Lockdown showed what can be achieved for active modes and buses when car traffic is reduced. In recent months significant temporary improvements for active modes and buses have been made possible by reduced car traffic. However, car traffic almost returned to pre-pandemic levels as lockdown was eased, and forecasts show that this is likely to be sustained.

The Steady State Recovery phase poses an opportunity to increase active travel, particularly for leisure and shopping trips, as a greater proportion of these trips may be undertaken locally as people spend more time at home for work. However, the location of these trips is likely to have a different distribution to where active travel trips are currently made.

Residents who tend to make more walk and cycle trips are concentrated in inner and central London, where temporary Streetspace for London schemes have largely been delivered. But there is propensity to increase active travel among residents further out than the current reach of schemes. Figure 10.5 shows large parts of outer London where residents have the propensity to increase cycling but there is currently no or limited infrastructure. As people are likely to continue to spend relatively more time locally and consequently travel shorter distances, this phase of the recovery provides a good opportunity to support new active travel trips in outer London locations where there is a high propensity for walking and cycling.

Figure 10.5 Propensity to increase cycling, existing cycle network and TfL Streetspace for London schemes.



10.5 Possible longer-term implications: our scenarios

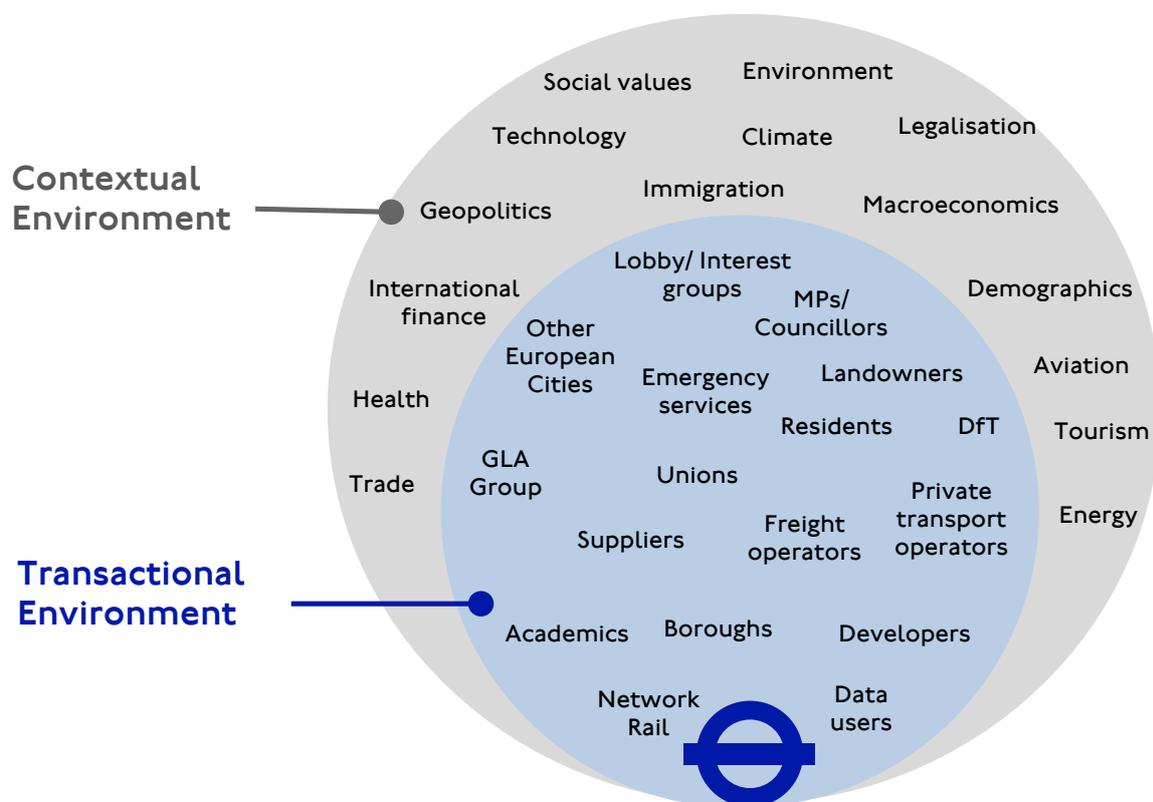
Planning for an uncertain future

Travel in London report 12 described how TfL was using scenario planning as a way of ensuring that our plans were robust in the face of what – in 2019 – was perceived to be a climate of growing uncertainty. Scenarios are illustrative stories about the wider context in which TfL could operate in future, to be used to improve our business planning. They are not formal or definitive forecasts of how future conditions may develop.

We used the Oxford Scenario Planning Approach (Ramírez and Wilkinson, 2016), which has been used effectively by major private and public sector firms to help them deal with uncertainty. The three scenarios that resulted from this work were to be used alongside our core central case planning forecast in relation to the assessment of plans and investment schemes. In this way, plans could be optimised to be resilient to several different possible futures – and the future risks inherent in plans could be more fully explored.

Developing the scenarios involved consultation and research with many stakeholders – which reflected the ‘transactional’ and ‘contextual’ environment within which TfL operates (figure 10.7). From a 2020 perspective, the coronavirus pandemic and our recovery from it could be added to the figure as a contemporarily all-encompassing preoccupation.

Figure 10.7 TfL’s ‘transactional’ and ‘contextual’ environments.



Source: TfL City Planning. After Vickers; Emery; Trist; Smith; Ramírez; van der Heijden.

10. Planning for recovery and potential long-term implications for travel in London

Three pre-coronavirus scenarios

Our 2019 research revealed seven key themes affecting the future of travel in London: London's place in the world, London's place in the UK, emerging business models, ways of working, living in London, the environment, and culture and values. The output of this work was three scenarios, which showed how the continuation of emerging trends could develop into different futures, alongside our core forecast. None of the three scenarios was to be considered more likely, desirable or plausible than others. Their main purpose was to better define the envelope of uncertainty affecting our medium- to long-term plans.

Innovating London, Rebalancing London and Accelerating London were the three scenarios that resulted and demonstrated three alternatives to the future assumed in our central case, with a nominal timeline of 2041.

- **Innovating London** is the story of London reinventing itself as a young, urban innovator, where technology changes how people live and work, but leaves some behind.
- **Rebalancing London** is the story of a more equal but ageing society with lower economic growth that focuses on self-sufficiency and liveability as world power moves east.
- **Accelerating London** is the story of an ever-growing, expanding London which acts as the beating heart of the world financial system, but struggles to deliver a high quality of life for all.

Scenario planning and coronavirus

The impact of the pandemic on patterns of travel and the economy are unprecedented – resulting in significant uncertainty in how they will affect the Capital in the longer term. Uncertainties relating to coronavirus have the effect of compounding uncertainties identified in the previous exercise – for example in relation to the nature and extent of future economic growth. Furthermore, at the time of writing, it is not yet possible to see a clear end to the crisis.

TfL has therefore used this approach to develop five further scenarios for the future of travel in London. These are based on the elements of the three scenarios described above, with a nominal time horizon of 2030. These five scenarios are now being used to inform our medium- and longer-term plans, by reviewing emerging evidence as the pandemic progresses that might identify possible 'directions of travel' more clearly as time progresses.

At this point in the pandemic, there is a very broad range of plausible scenarios for London's future. Travel volumes could be significantly impacted by changes in growth rates, individual preferences and by developments with the pandemic. The emerging evidence so far relating to travel and the pandemic includes several pointers to possible future trends, such as:

- An increase in active travel seems to be likely across all scenarios as it is linked to several prevailing influences: population growth, working and accessing services more locally, and people seeking ways to avoid crowding.
- Future rail growth is particularly volatile as this could be constrained by lower economic performance as well as greater remote working.
- There is a potential risk of an enhanced car recovery.

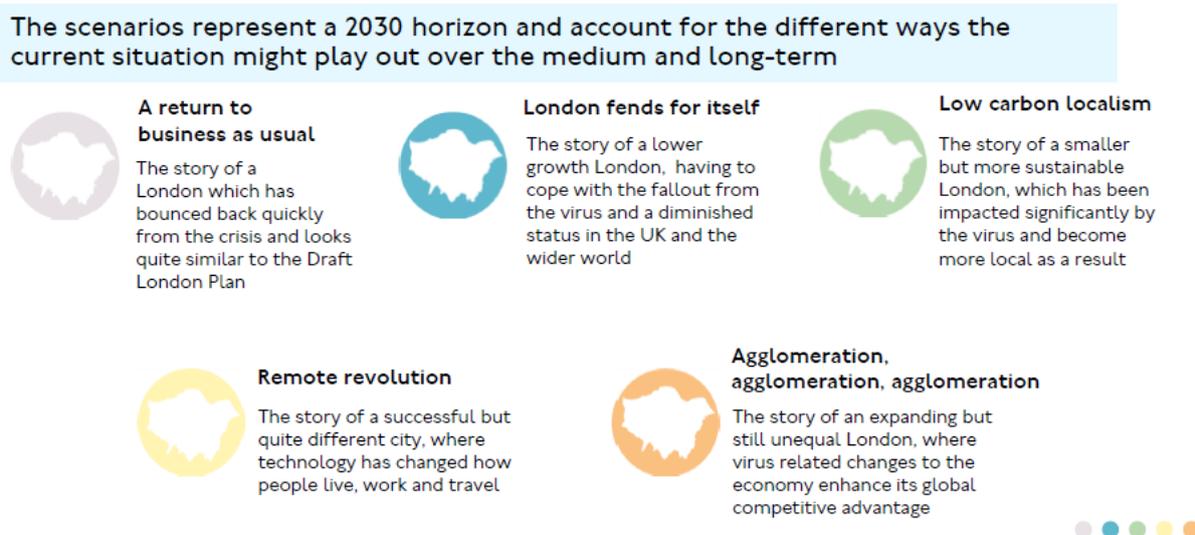
10. Planning for recovery and potential long-term implications for travel in London

- London's sustainable mode share would remain higher than the current mode shares in other UK cities.

Five post-coronavirus scenarios

Figure 10.8 summarises the five scenarios. While they represent a range of potential futures, all five are plausible given the extent of present uncertainty about the longer-term implications of the pandemic.

Figure 10.8 Five post-coronavirus scenarios for London.

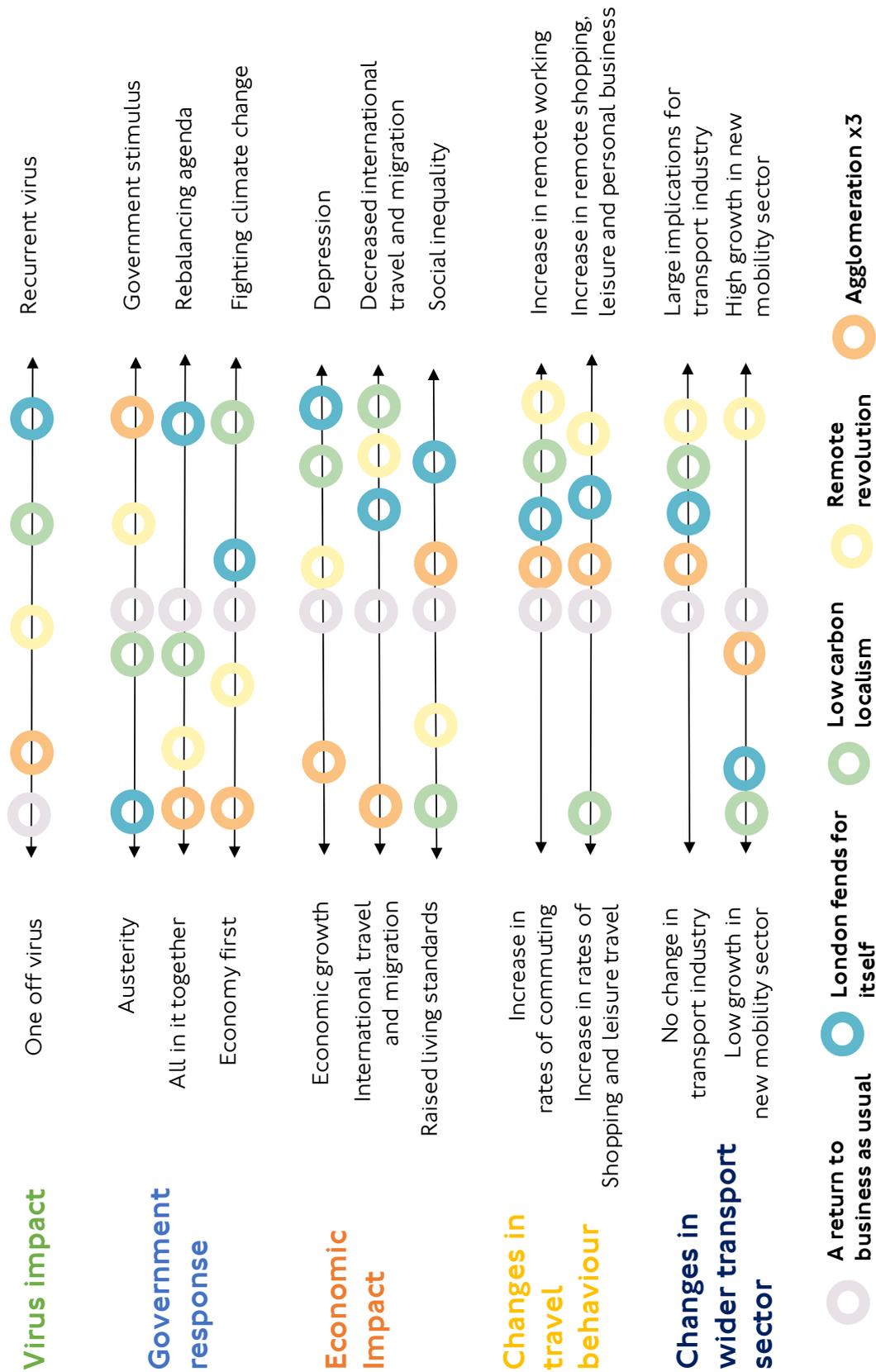


Source: TfL City Planning.

The scenarios were built up from a list of critical factors and outcomes. Figure 10.9 shows how each of these factors are expected to play out in the different scenarios. The following sections below outline the main characteristics of the different potential futures represented by the scenarios.

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Figure 10.9 Scenario outcomes for factors influencing travel demand.



Source: TfL City Planning.

10. Planning for recovery and potential long-term implications for travel in London

Scenario 1: A return to business as usual

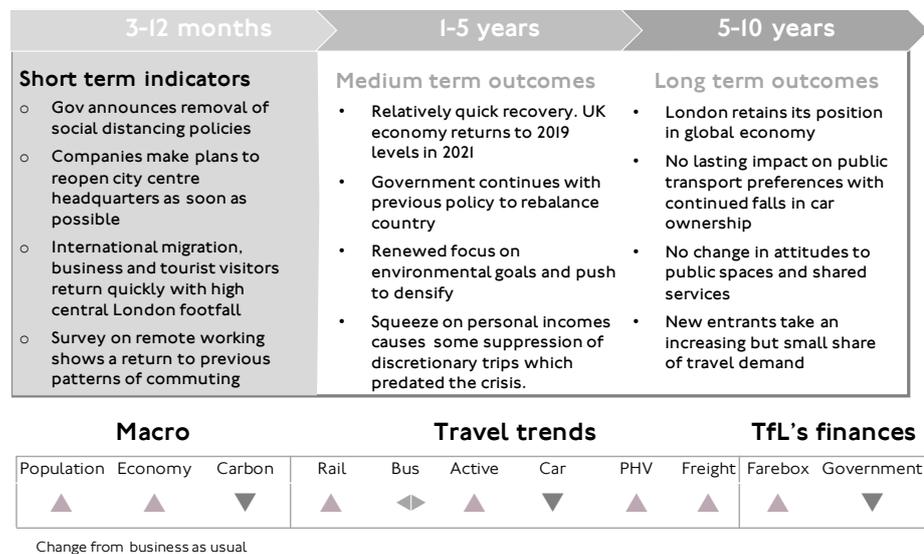
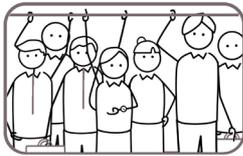
In this scenario, London bounces back quickly from the pandemic and major travel-related trends return to a similar position to those envisaged before the pandemic. There is a relatively quick economic recovery and London retains its position in the global economy. There are no lasting impacts on public transport preferences or changes in attitudes to public spaces and shared services. There is a mode shift towards rail and a reduction in car ownership consistent with projected growth and TfL's investment programme.

Figure 10.10 Scenario 1: London returns to business as usual.

A return to business as usual

The story of a London which has bounced back quickly from the crisis and looks quite similar to the Draft London Plan expectations

Urbanisation continues across the world and London is part of that. The city sees continuing population growth, general increases in economic growth and long run trends in travel demand.



Source: TfL City Planning.

Scenario 2: London fends for itself

This is the story of a lower-growth London having to cope with the fallout from the pandemic and a diminished status in the UK and the wider world. There is a protracted economic downturn and low growth. There is an acceleration of the desire to rebalance away from London, with an increased preference for private transport modes and a prolonged aversion to public transport.

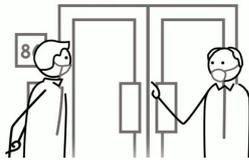
10. Planning for recovery and potential long-term implications for travel in London

Figure 10.11 Scenario 2: London fends for itself.

London fends for itself

The story of a lower growth London having to cope with the fallout from the virus and a diminished status in the UK and the wider world

London has a poor economic outcome relative to other world cities and other parts of the UK. Hostility to public transport and public space further reduce its appeal as a place to live and suppress public transport use.



6-12 months	1-5 years	5-10 years
Short term indicators <ul style="list-style-type: none"> o Prolonged social distancing and recurrent lockdown periods o Economic slowdown announced as worse than 2008 financial crisis o Government announces targeted fiscal stimulus outside of London o Drop in rental and house prices in inner London o Low central London footfall and public transport use after the end of social distancing 	Medium term outcomes <ul style="list-style-type: none"> • Protracted economic downturn • Acceleration of desire to rebalance away from London • Significantly reduced in-migration • Poor outcome from Brexit negotiations • Relocation of HQs away from London • Increased preference for private transport modes 	Long term outcomes <ul style="list-style-type: none"> • Period of austerity to reduce government debt • Low investment in London infrastructure • Lower population growth • Decline in London's place in the world • Subdued demand requires significant change in national funding model for public transport

Macro			Travel trends					TfL's finances		
Population	Economy	Carbon	Rail	Bus	Active	Car	PHV	Freight	Farebox	Government
▼	▼	▲	▼	▼	▲	▲	▼	◄	▼	▼

Change from business as usual

Source: TfL City Planning.

Scenario 3: Low carbon localism

This is the story of a smaller but more sustainable London, which has been impacted significantly by the pandemic and has become more locally focused as a result. There is moderate population and economic growth, focused away from central London, with a more general shift away from central London. There is a focus on fighting the climate change emergency. A reversal in decline of the high street stimulates more local trips by walking, cycling, bus and some car travel.

Figure 10.12 Scenario 3: Low carbon localism.

Low carbon localism

The story of a smaller but more sustainable London, which has been impacted significantly by the virus and become more local as a result

With reduced disposable incomes, people reduce their travel and consumption and rely more on family, friends and community groups to get by. Londoners prefer to travel, shop and do leisure activities in their local communities.



6-12 months	1-5 years	5-10 years
Short term indicators <ul style="list-style-type: none"> o Intermittent lockdown and social distancing required o Economic slowdown announced as worse than 2008 financial crisis o Job losses in financial and professional services o Government announces stimulus for low carbon sectors o Slow return of aviation demand o Supply chain issues for international products 	Medium term outcomes <ul style="list-style-type: none"> • Reduced consumption • Focus on fighting climate change emergency • Subdued air travel demand • Prolonged support for high streets and small businesses • Growth in manufacturing, agriculture and retail jobs 	Long term outcomes <ul style="list-style-type: none"> • Low economic growth • Net zero carbon by 2030 • More local trips by active travel modes • Decline in tourism and hospitality industries • Reversal in decline of high street • Growth in use and protection of public spaces and services

Macro			Travel trends					TfL's finances		
Population	Economy	Carbon	Rail	Bus	Active	Car	PHV	Freight	Farebox	Government
▼	▼	▼	▼	▲	▲	▼	▼	▼	▼	▲

Change from business as usual

Source: TfL City Planning.

10. Planning for recovery and potential long-term implications for travel in London

Scenario 4: Remote Revolution

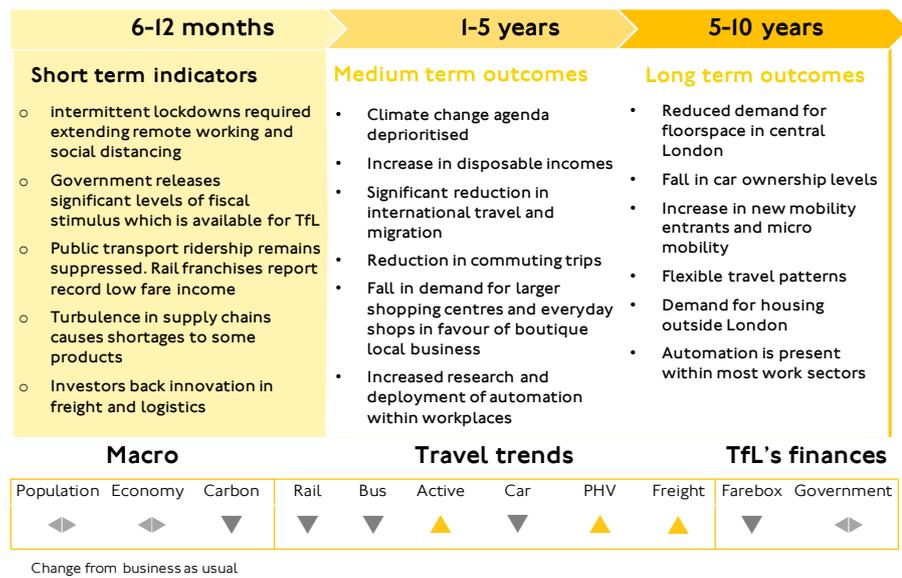
This is the story of a successful but quite different city, where technology has changed how people live, work and travel. There is strong economic growth but reduced per capita travel demand. People work and shop from home more but, when people do commute, they travel further. There is increased automation and a reduced demand for floorspace in central London. Londoners are more flexible about travel with lower car ownership and increased openness to new modes.

Figure 10.13 Scenario 4: Remote revolution.

Remote revolution

The story of a successful but quite different city, where technology has changed how people live, work and travel

The impact of the virus is to shake up the economy and businesses that cannot operate remotely struggle. Government uses its resources to support technology and digital infrastructure in exchange for the taxes and data they generate. Overall travel reduces, and technology and new mobility sectors boom.



Source: TfL City Planning.

Scenario 5: Agglomeration, agglomeration, agglomeration

This is the story of an expanding but still unequal London, where virus-related changes to the economy enhance its global competitive advantage. The economy bounces back to previous trends with high levels of international migration and population growth. London holds a competitive place in the world economy. With only marginal increases in remote working, there is a big increase in travel demand, particularly by rail with rising density driving down car use.

10. Planning for recovery and potential long-term implications for travel in London

Figure 10.14 Scenario 5: Agglomeration, agglomeration, agglomeration.

Agglomeration, agglomeration, agglomeration

The story of an expanding but still unequal London, where virus-related changes to the economy enhance its global competitive advantage

London retains its global status, supported by Government support for the city's economy. Economic and population growth recover to exceed London Plan projections which contributes to growing demand for travel despite more remote working.



6-12 months	1-5 years	5-10 years
Short term indicators <ul style="list-style-type: none"> Quick recovery from the pandemic, no long-term aversion to public transport or shared spaces Countries across the world prioritise their own economic recovery by reducing international aid Government stimulus provides high investment to London 	Medium term outcomes <ul style="list-style-type: none"> Economy bounces back to previous trend Increased consumption Marginal increases in remote working Public transport crowding returns to normal High levels of international travel and migration 	Long term outcomes <ul style="list-style-type: none"> London holds a competitive place in the world economy Climate change fades as a political priority High population growth Income inequality grows Increase in tourism and hospitality industries New entrants take on a small mode share

Macro			Travel trends					TfL's finances		
Population	Economy	Carbon	Rail	Bus	Active	Car	PHV	Freight	Farebox	Government
▲	▲	▲	▲	▲	▼	▲	◄	▲	▲	▲

Change from business as usual

Source: TfL City Planning.

Using the scenarios

At the time of writing, there remains a great deal of uncertainty over both short- and longer-term developments and how these might affect daily life and travel in London. The emerging evidence base reviewed in this part of the report will, in due course, point to certain features of these five scenarios that are more, or less, likely, to come about. It is possible that the future – as it emerges – will contain elements from all five of these scenarios, or it could tend more clearly towards just one.

For the short term we have identified high-level travel outcomes from each of the scenarios and have begun to look further at what this might mean for London and TfL, and in terms of the Mayor's transport aims for London. For example, an increase in active travel is likely across all scenarios as it is linked to several influences including population growth, working or accessing services more locally and people seeking ways to avoid crowding. Future rail growth is particularly uncertain as this could be constrained by lower economic performance as well as greater remote or automated working, and there is a risk of an enhanced car recovery.

Over the longer term, we will keep these scenarios under review, in the light of the emerging evidence, and refine them accordingly.

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