Overview

Travel in London report 14

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

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

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

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

Travel in London is beginning to recover from the pandemic

Recent overall travel demand trends on the principal modes

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

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

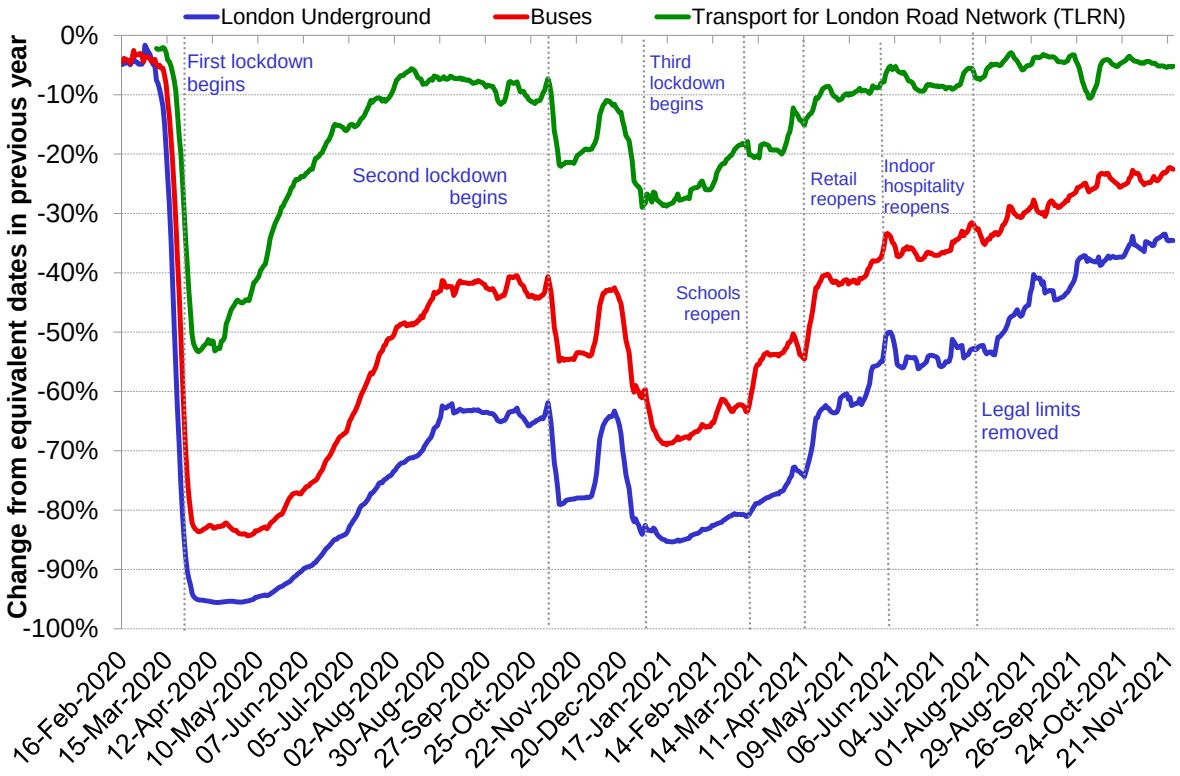
By November 2021 the demand for public transport overall was around 70 per cent of pre-pandemic levels. On the London Underground the weekly average demand was typically 62 per cent of pre-pandemic demand. Average weekly bus demand stood at 77 per cent. Road traffic on London's major roads was typically 96 per cent of pre-pandemic levels.

Figure 1 demonstrates the scale of the impact of the pandemic on the principal travel modes, including the dramatic dip in the early days of the pandemic and the changes in demand at each stage of the successive lockdowns and recoveries. Notable from

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

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

Figure 1 Change in demand on the main transport networks relative to the equivalent period in 2019, 7-day moving average, Feb 20 - Nov 21.



Source: TfL Traffic and service performance data.
Note: Demand for bus and LU in January and February 2021 is relative to equivalent dates in 2020.

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

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

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

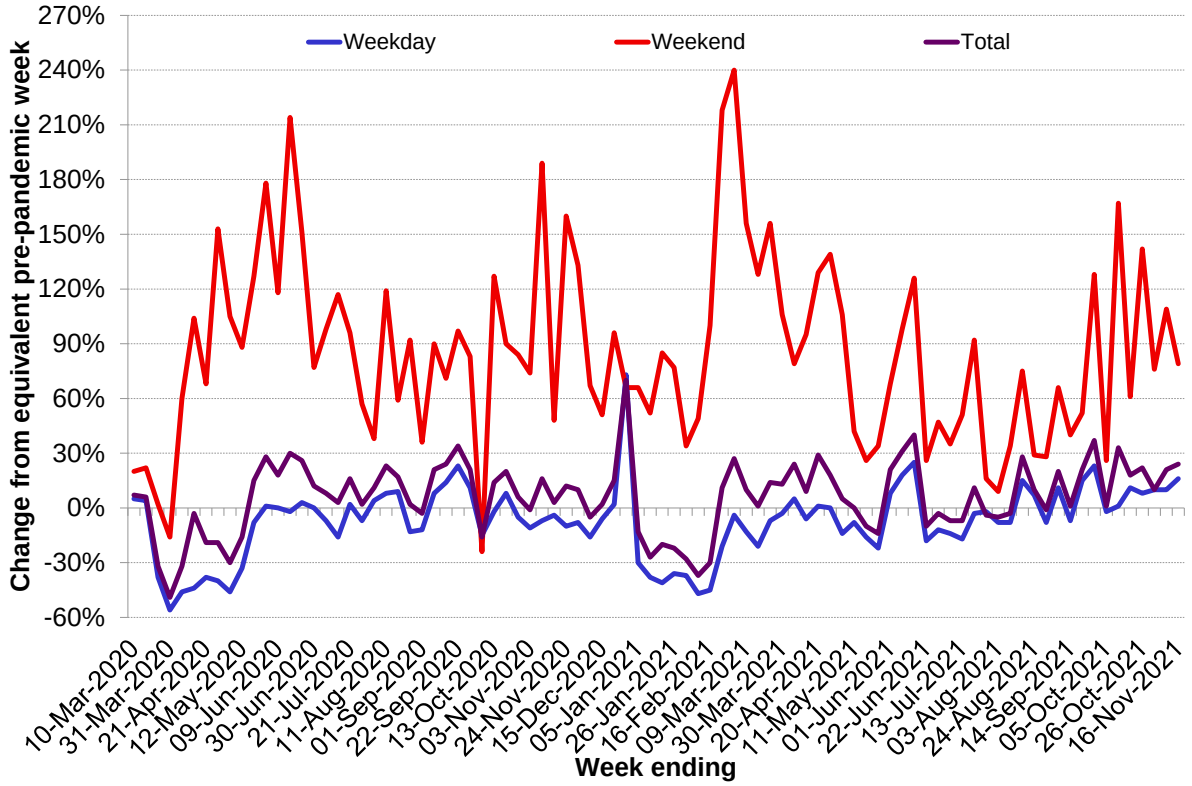
- The relatively high rates of leisure travel, particularly with a continuing absence of international tourism, however, suggest a widespread acceptance of mass public transport travel by Londoners under these conditions.
- On both bus and London Underground, the pre-pandemic demand pattern by day of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

Active travel and the pandemic

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

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

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



Source: TfL Network Performance.

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

Our analysis of walking data is mainly based on London Travel Demand Survey (LTDS) survey results. This shows that walking accounted for over 60 per cent of all trips made by Londoners during the first quarter of 2021 – and typically over 50 per cent during other periods during the pandemic, compared to 35 per cent pre pandemic. Most of these walking trips were local trips in inner and outer London. Although under the unwanted duress of pandemic restrictions, the scale of the shift to active modes during the pandemic highlights a potential opportunity to embed positive aspects of this into our recovery.

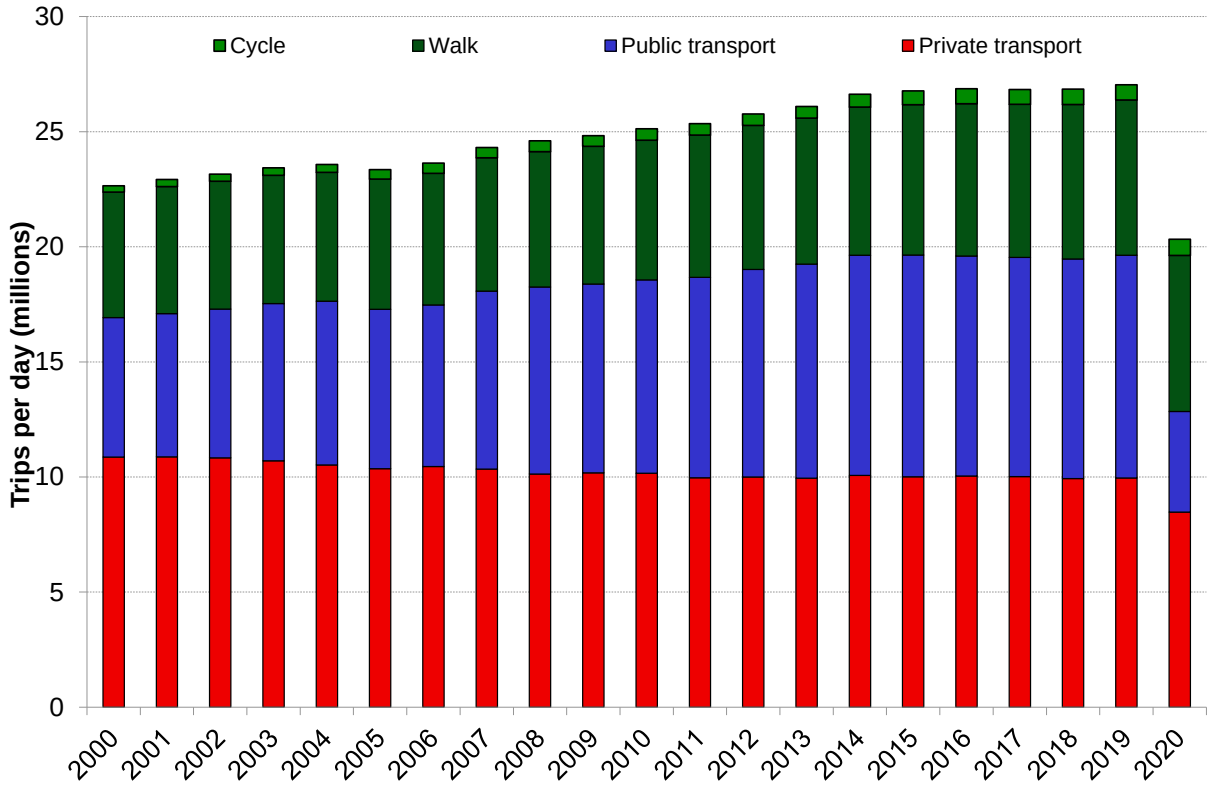
Consolidated estimates of travel demand and mode shares in 2020

Historic and pandemic context

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

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

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



Source: TfL City Planning.

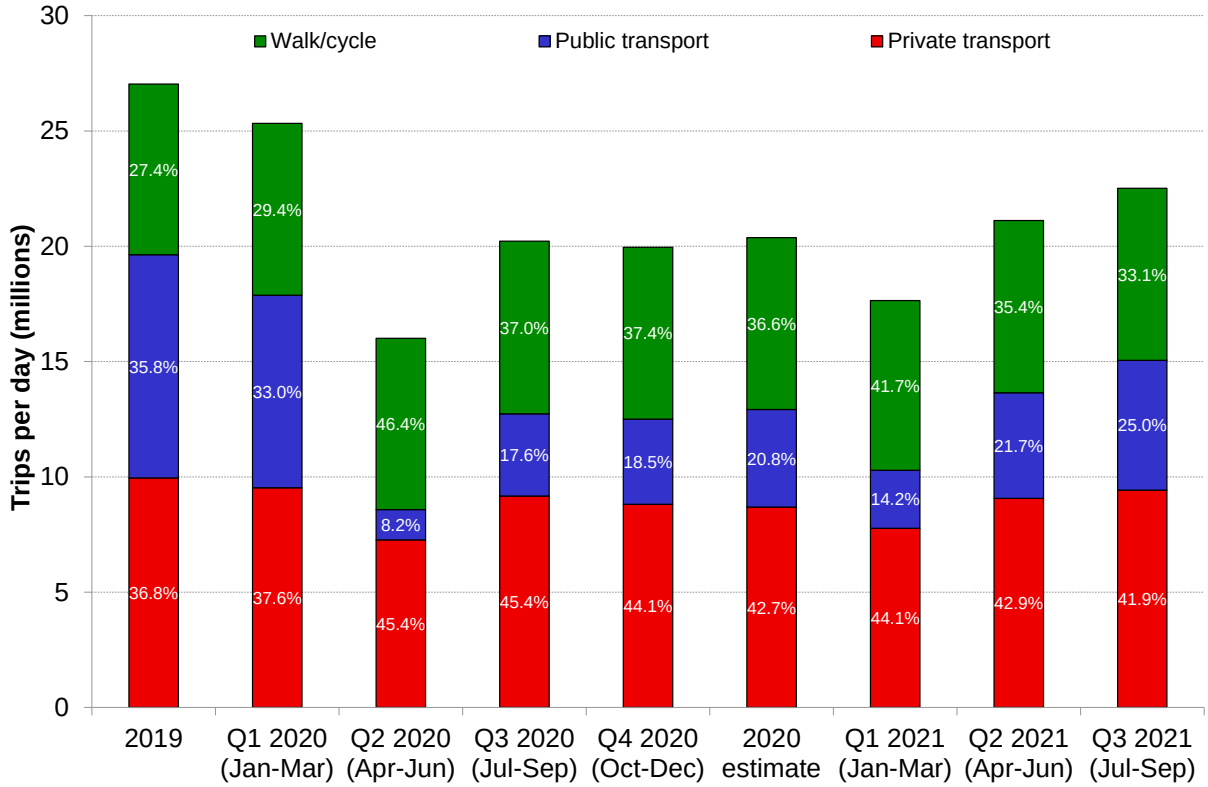
In 2020, it is estimated that 20.3 million trips were made on an average day. This compares to 27.0 million in 2019, a nominal reduction of 24.8 per cent. The overall active, efficient and sustainable mode share for travel in 2020 is estimated at 58.3 per cent, compared to 63.2 per cent in 2019.

Variability in travel patterns during the pandemic

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

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

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



Source: TfL City Planning.

In relation to figure 4:

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

The pandemic and the drivers of travel demand

London's population and economy

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

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

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

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

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

Changes to the travel behaviour of Londoners

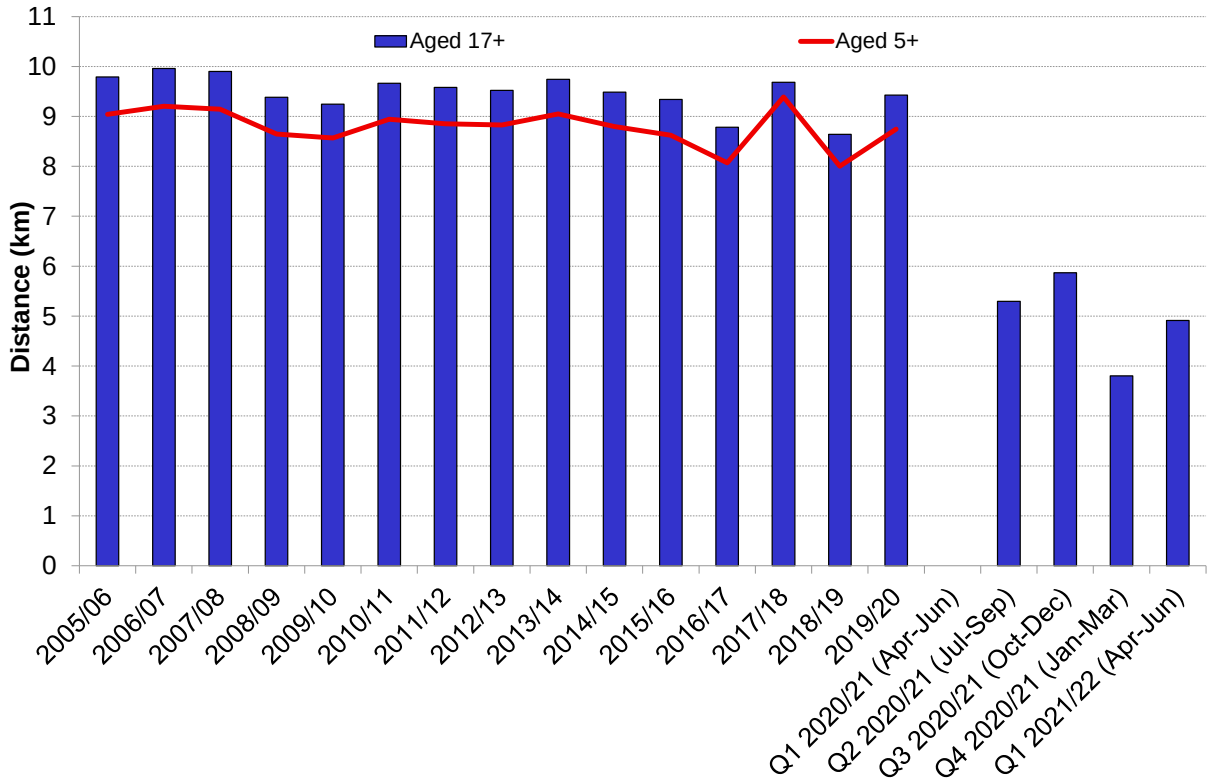
Looking at Londoner's travel behaviour itself, the following are some of the more significant features of 2020 in the longer-term context:

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

During the pandemic, the share of public transport trips by residents reduced dramatically, although residents' mode shares for both cycling and walking increased, meaning that the active, efficient and sustainable mode share for London residents was similar to the pre-pandemic level of 69 per cent, albeit comprised of a substantially different mix of trips.

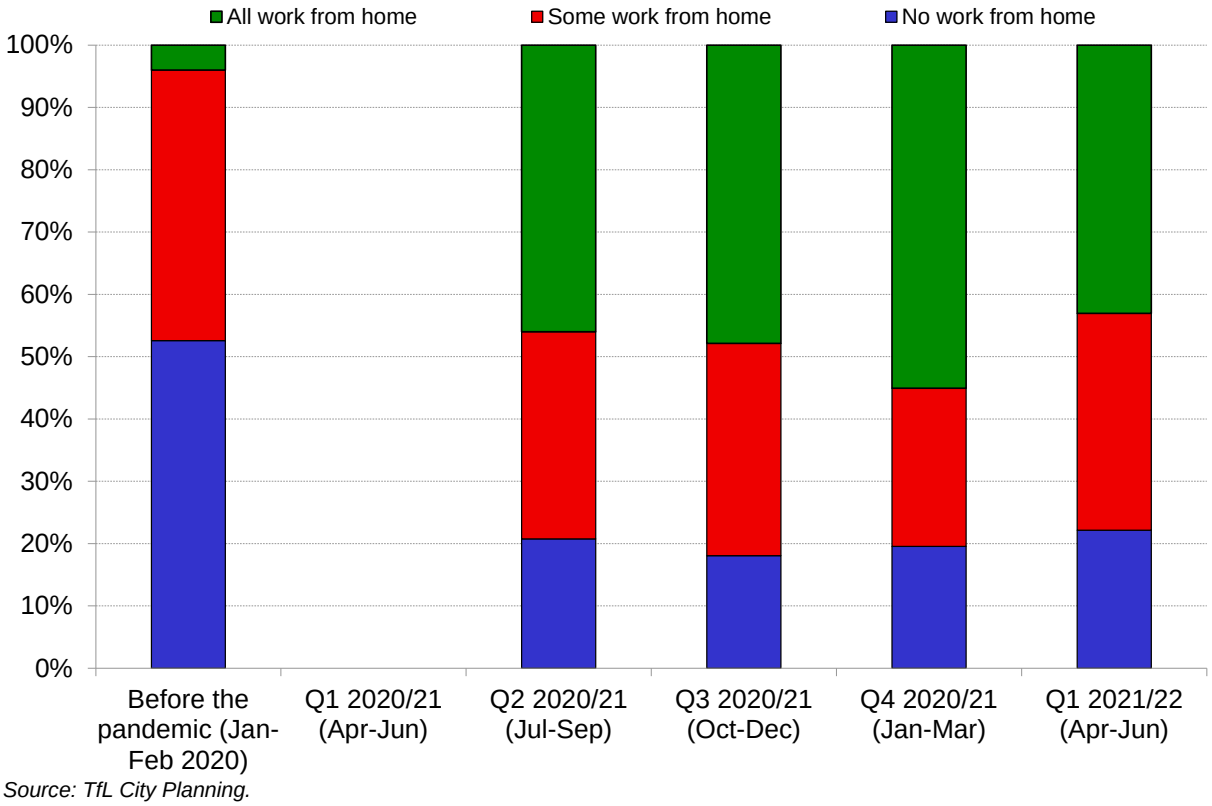
Working from home was one of the most prominent pandemic adaptations, and the practice continues to be widespread among office workers as we approach the end of 2021. Figure 6 shows the scale of the change among London residents. Recognising that working from home is an option available only to some, and that the imperative to work from home changed with different stages of the pandemic, the scale of the change, and the length of time it has had to become embedded, present obvious challenges for the recovery of pre-pandemic commuter travel. It is likely that residents who, previously, undertook only occasional home working will may increase the frequency of this given the pandemic experience.

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



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

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



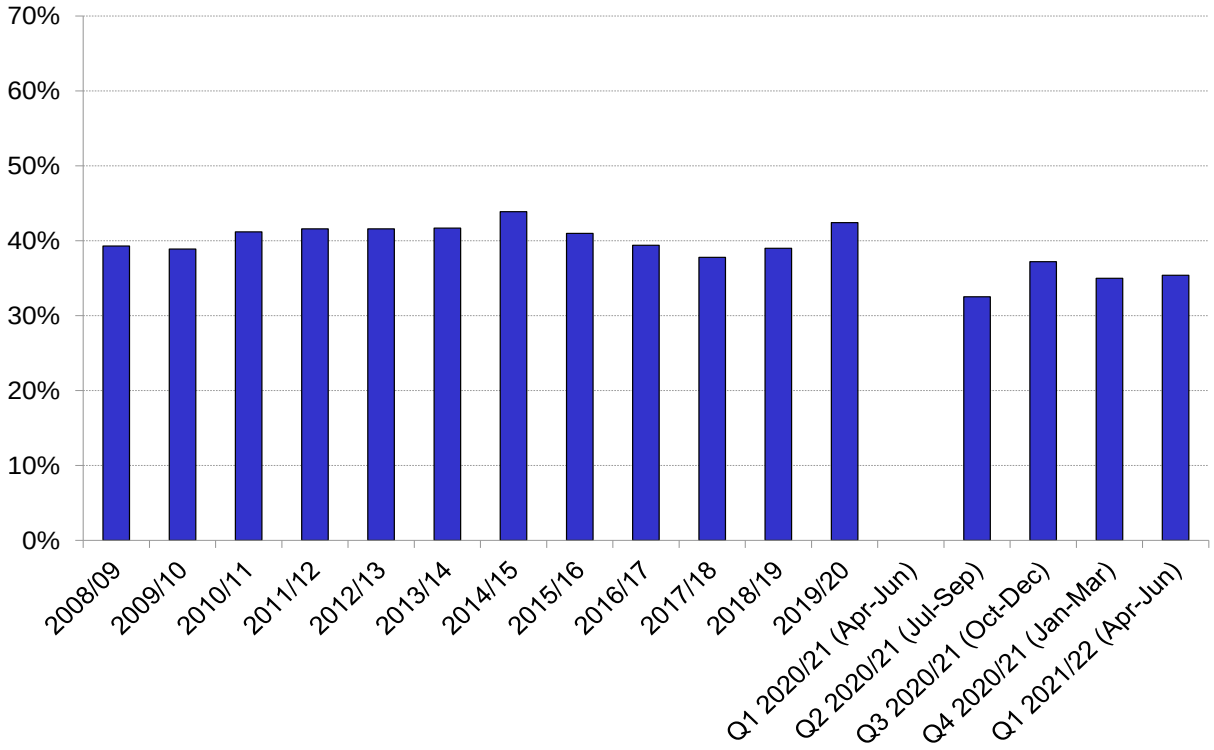
Source: TfL City Planning.

Healthy Streets and healthy people

Active travel

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

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



Source: TfL City Planning.

Streetspace for London

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

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

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

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

London's developing cycle network

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

Road traffic in London

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

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

Changes to the Congestion Charge in central London

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

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

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

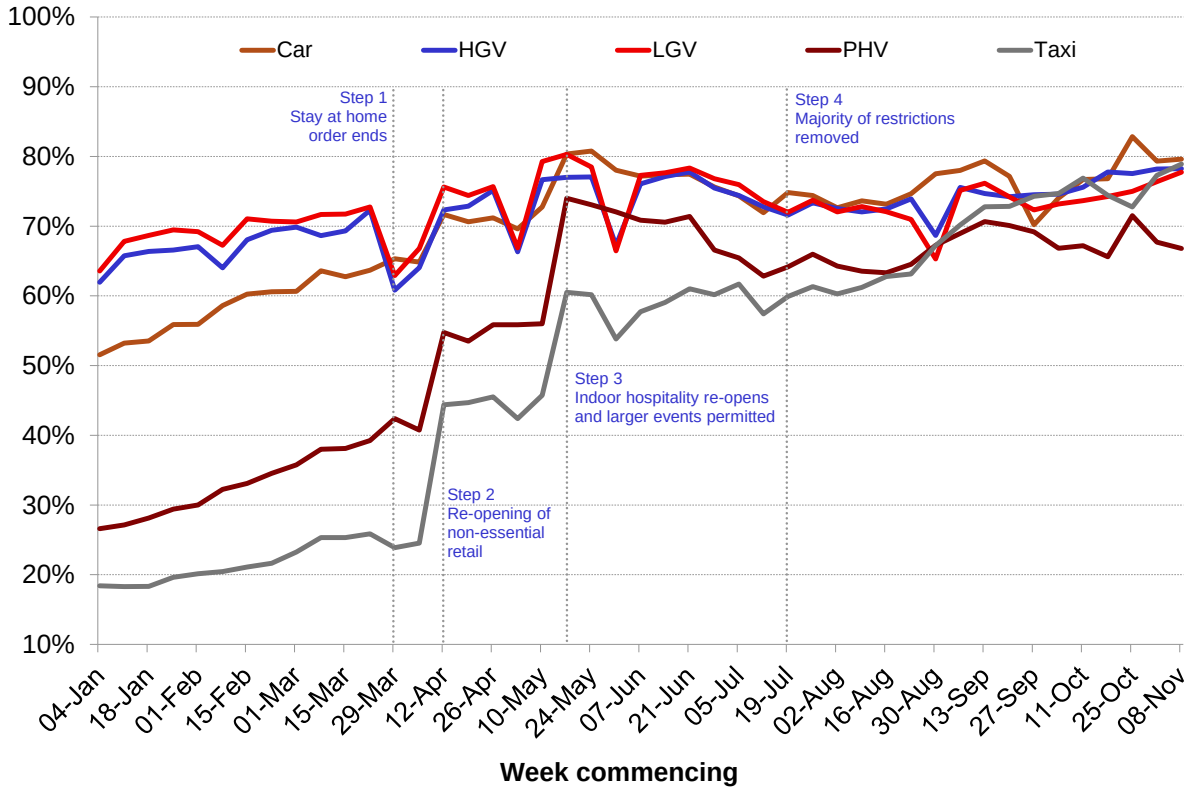
A decision on these proposals will be taken in December 2021.

Traffic in the central London Congestion Charge zone

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

In January 2021, during the winter lockdown, charging zone entries by heavy goods vehicles were around 66 per cent of pre-pandemic levels, the figure for LGVs was slightly higher at 68 per cent. At the start of November 2021, HGV and LGV entries were both 78 per cent of the pre-pandemic baseline.

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



Source: TfL Surface Transport

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

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

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

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

Road danger

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

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

There was a 12 per cent increase in the number of people regrettably killed or seriously injured while cycling in 2020 relative to 2019 (with six cyclists sustaining fatal injuries). This increase reflected increased cycling during the pandemic but represented a 64 per cent reduction in cycling fatalities relative to the 2005-2009 baseline. The risk of being killed or seriously injured while cycling in London fell by 24 per cent in 2020 relative to 2019.

People walking, cycling and motorcycling ('vulnerable road users') made up 82 per cent of all people killed or seriously injured, compared to 81 per cent in 2019. The number of motorcyclists killed or seriously injured declined by 25 per cent and has continued to decline year on year, despite motorcyclist fatalities remaining at 31 people in 2020. The number of pedestrians killed or seriously injured was 868 in 2020, down by 57 per cent against the 2005-2009 baseline, and by 36 per cent against 2019.

The number of people killed or seriously injured in or by a bus fell by 35 per cent between 2019 and 2020 to 135 people – the lowest number on record (and 77 per cent down on the 2005-2009 baseline), again reflecting an element of pandemic reduced demand. Unfortunately, however, in 2020 two bus passengers were fatally injured, one while attempting to board a bus, and one bus passenger following a fall within a bus.

Air quality and carbon reduction

London's air quality

In London in 2016 two million Londoners, including 400,000 children, lived in areas that exceeded legal limits for air pollution. Since then significant improvements have been achieved in air quality as we seek to reduce ambient levels of NO_2 towards statutory limits. New analysis from the London Atmospheric Emissions Inventory (LAEI) indicates that by 2019, the number of people who live in areas that exceed legal limits reduced to 174,000 people – a reduction of 91 per cent.[1] It is particularly important that air quality improves around schools and the number of state primary and secondary schools in areas exceeding the legal limit for NO_2 fell from 455 in 2016 to 14 in 2019, a reduction of 97 per cent.

Low Emission Zones

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

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

London Atmospheric Emissions Inventory update

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

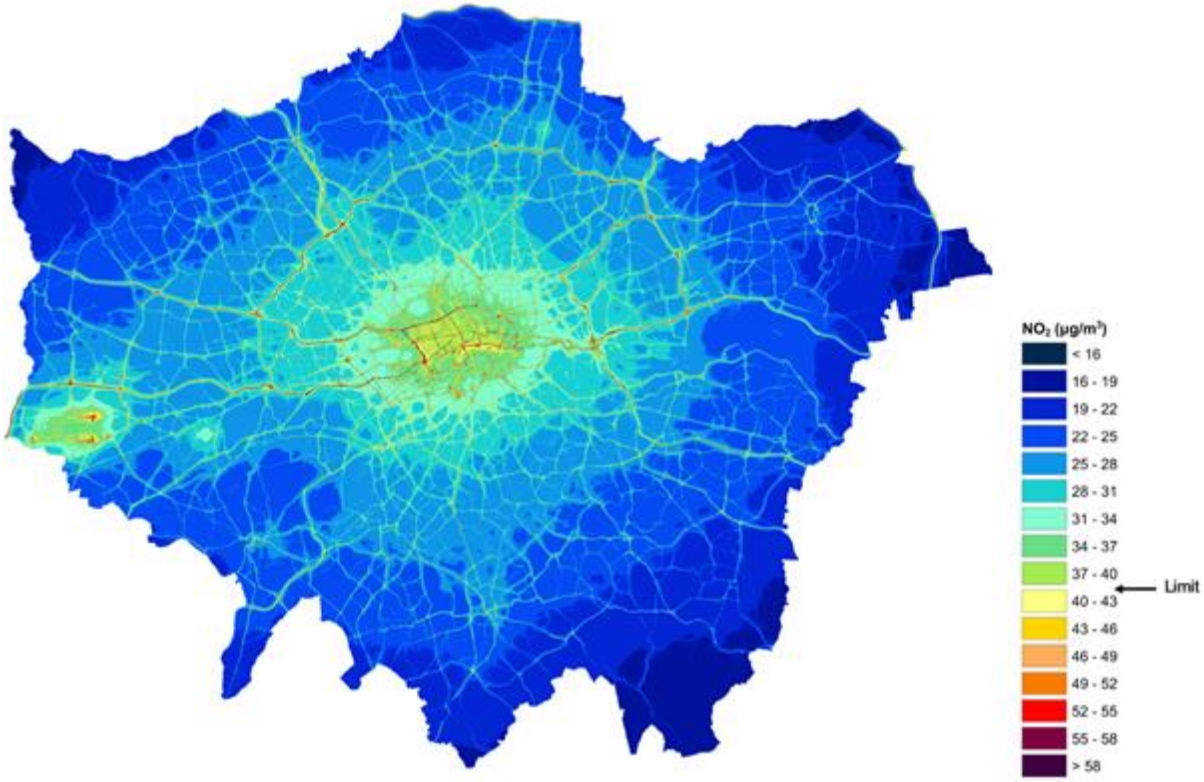
Vehicle fleet compositions reflect the changes brought about in 2019 on London's roads following the implementation of the ULEZ in central London. Figure 9 shows the NO_2 concentrations across the capital and whilst there has been significant progress, there is still more to do to achieve legal compliance.

Additional work is currently ongoing as part of the LAEI to forecast emissions and air quality concentration maps for 2025 and 2030. The results will take account of the impacts of the tougher standards for the London wide LEZ and the expansion of the ULEZ and will help inform what other measures may be needed to meet legal limits for NO_2 across London by 2025 at the latest. The full results will be published on the LAEI website together with the new 2019 baseline data in the new year.

[1] These figures have been updated following publication on 30 November 2021.

Comparing new figures for 2019 with previously published 2016 data (therefore, subject to a back casting amendment) indicates that London's NO_x emissions from road transport have reduced by 25 per cent. Although road transport is still the predominant source of NO_x across London, its proportion within total NO_x emissions has gradually decreased over time, from 54 per cent in 2013 and 50 per cent in 2016 to 43 per cent in 2019.

Figure 9 Concentrations of NO_2 in London, 2019.



Source: London Atmospheric Emissions Inventory, TfL City Planning.

Air quality, health and inequality

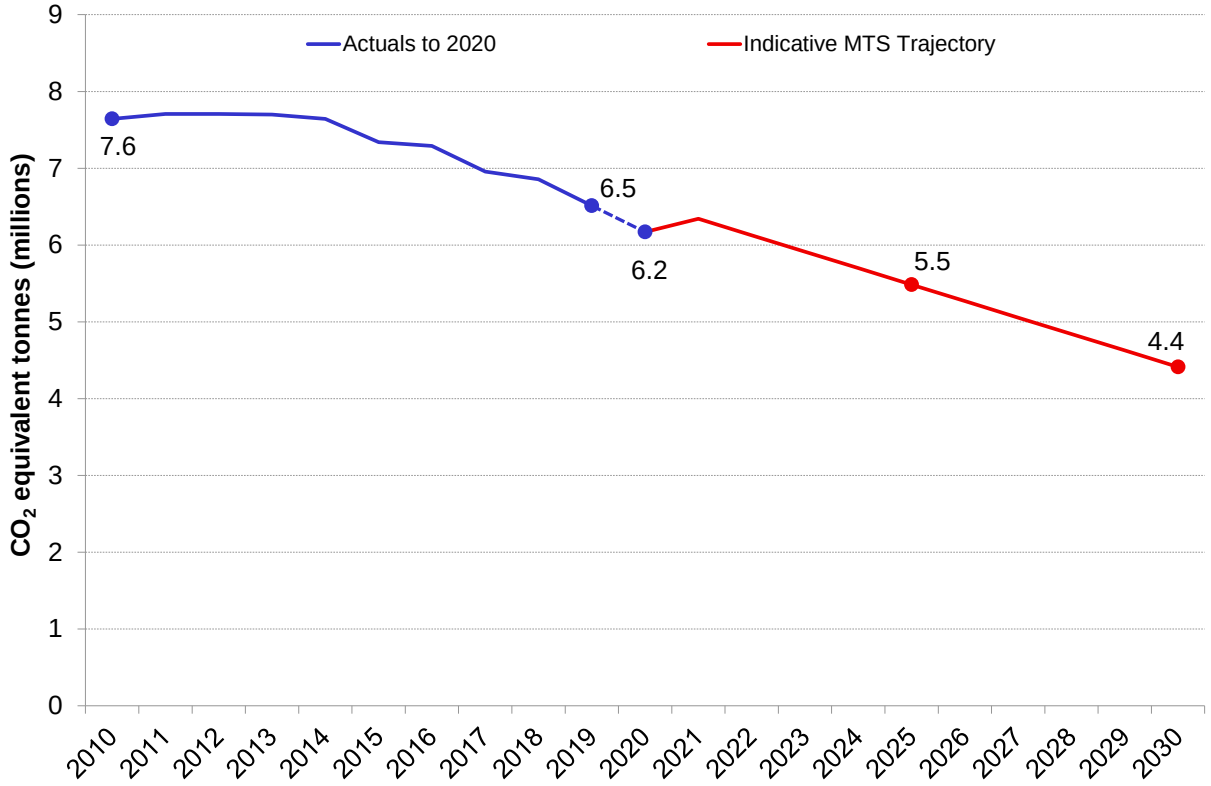
The significant health impacts of poor air quality and the imperatives to improve it have recently been highlighted by the World Health Organisation (WHO), which has suggested a lowering of existing health-based limit values for certain pollutants. A joint TfL/GLA study explored the relationships between air quality and inequalities, albeit based on a previous set of emissions estimates. The report confirmed earlier findings that communities with higher levels of deprivation, or higher proportions of people from non-white ethnic backgrounds, are more likely to be exposed to higher levels of air pollution. It is estimated that areas where the most deprived Londoners are likely to live experience average concentrations of NO_2 that are 13 per cent higher than the least deprived areas, with $PM_{2.5}$ concentrations 6 per cent higher. The report also shows that, following policies to improve air quality in London, the gap in NO_2 exposure between the most and least deprived areas of London in this regard has narrowed by up to 50 per cent since 2013.

Towards zero carbon

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

London's CO_2 emissions have been falling over recent decades, although at a pace commensurate with the 2050 rather than the 2030 target. Furthermore, the contribution of other sectors has fallen as the grid has decarbonised. Road transport is therefore responsible for an increasing proportion of total emissions – now estimated at 28 per cent. Figure 10 shows the need to significantly accelerate decarbonisation in London to meet the Mayor's ambition for 2030.

Figure 10 Historic trend and indicative trajectory in London's CO_2 emissions, 2010-2030.



Source: TfL City Planning.

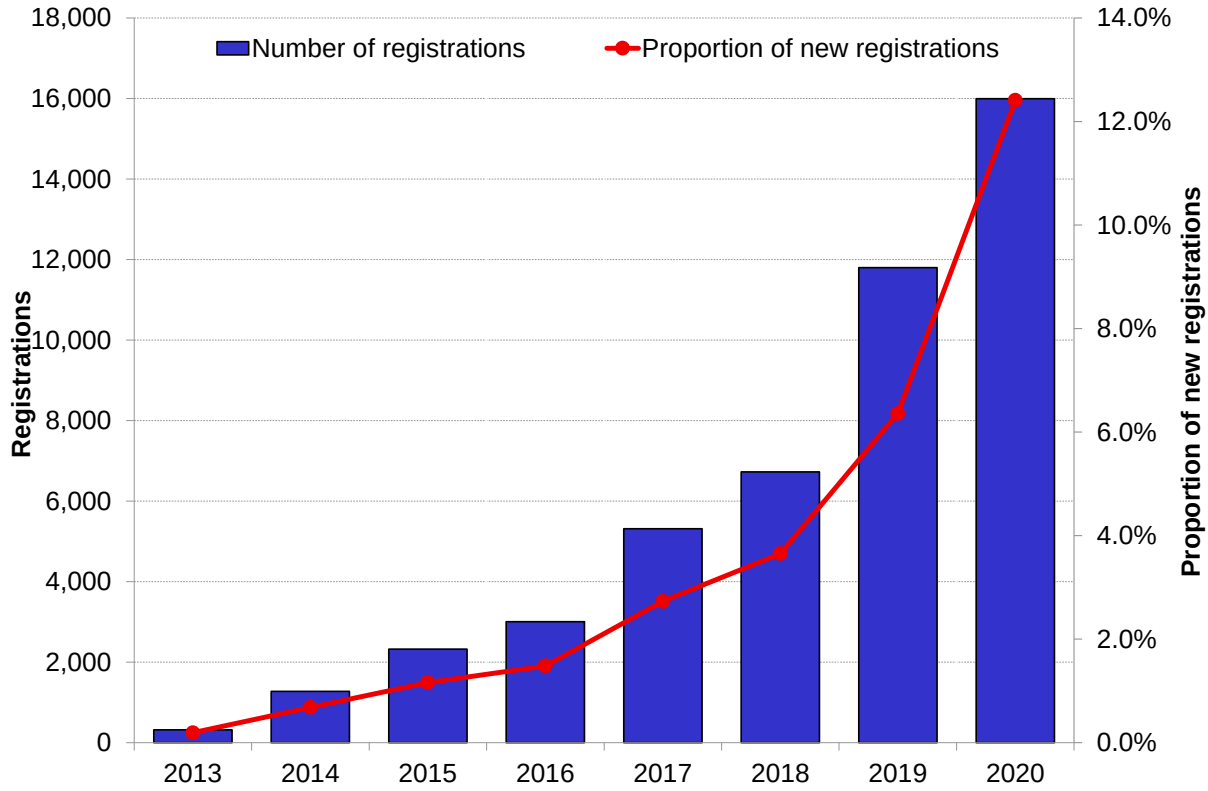
Recent initiatives have included:

- The early introduction of the ULEZ in central London in April 2019, which resulted in an estimated 6 per cent reduction in CO_2 emissions in the central zone.
- The recent expansion of the Ultra Low Emission Zone to inner London, estimated to reduce CO_2 emissions London wide by 4.6 per cent – the equivalent of taking 60,000 cars off the road.
- London has Western Europe's largest fleet of zero emission buses, currently 576 vehicles, alongside strict taxi and private hire licencing regulations for vehicle emissions, with 4,406 zero emission capable taxis registered in London as at October 2021.
- The Mayor launched a consultation on his updated Electric Vehicle Infrastructure summary in October 2021, the full document is to be published in December.

This presented an updated plan to help ensure that London has the infrastructure it needs to support a substantial shift to electric vehicles over the next decade. As at mid-2021, there were 7,600 public electric vehicle charge points in the Capital, this reflecting a mix of private and public sector investment, being one third of the UK total. However, it is estimated that as many as 60,000 charge points will be required by 2030 to fully support the necessary transition to electric vehicles, of which 4,000 would be rapid chargers.

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

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



Source: TfL City Planning.

A good public transport experience

Long-term trends in public transport demand

A long-term trend of increasing demand on public transport has reflected the growth of London and progressive enhancements to many aspects of connectivity and service delivery. Between 2009/10 and 2019/20, the number of public transport journeys on the principal modes increased by 11 per cent, while the number of

kilometres travelled increased by 26 per cent, suggesting an overall shift towards longer journeys. This growth, stronger in the first half of the last decade compared to the second half, has contributed towards the historic shift to active, efficient and sustainable modes, although the long-term positive trend was dramatically interrupted by the pandemic in 2020.

At the time of writing, overall public transport patronage has recovered to an estimated 70 per cent of pre-pandemic levels. This is made up of over 60 per cent of normal on the London Underground, and 75 per cent of normal on buses (weekly averages), reflecting an intermediate stage in the return to a post-pandemic 'settled' state, and in the context of a rapidly evolving picture.

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

Service provision and operational performance

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

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

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

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

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

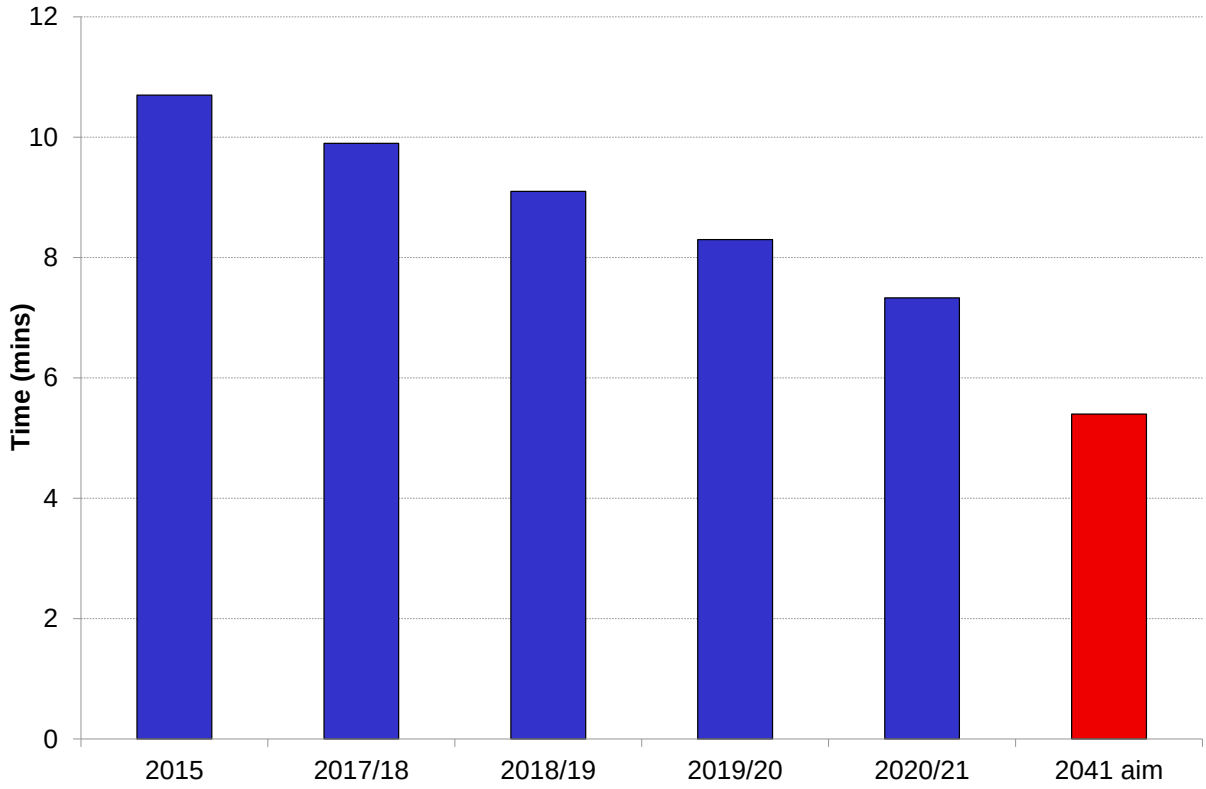
further understand the nature and implications of public transport crowding over the next period.

Physical accessibility to public transport

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

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

Figure 12 Relative additional journey time using the step-free network, 2015 baseline to 2041 transport strategy target.



Source: TfL City Planning.

Public transport customer safety

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

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

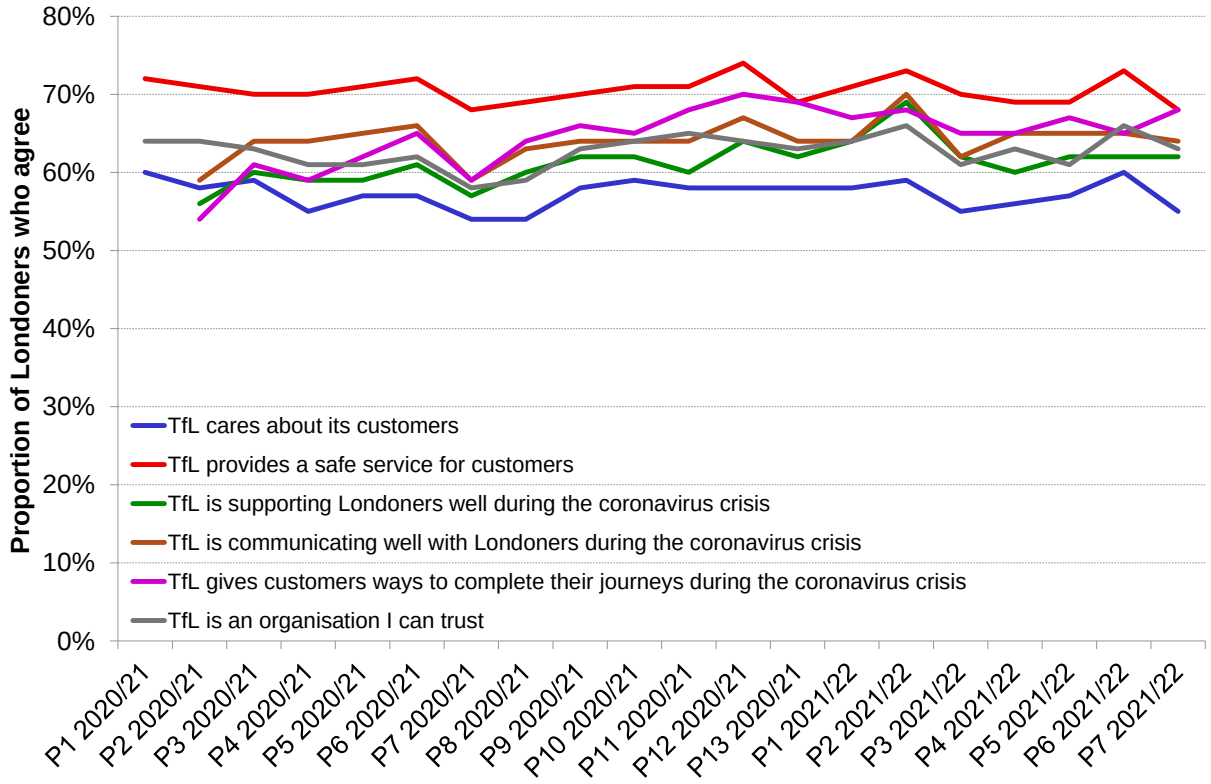
Crime and antisocial behaviour on public transport

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

Customer evaluation of TfL services

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

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



Source: TfL Customer Insight.

Supporting New Homes and Jobs

New London Plan

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

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

New transport infrastructure to support housing delivery

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

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

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

TfL Growth Fund

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

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

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

Housing on TfL land

Prior to the pandemic, TfL had a target to start on site for 10,000 homes across the capital by March 2021 (not 2020), including 50 per cent affordable housing on average across its sites brought to the market since May 2016. This was always a challenging target and the pandemic and multiple lengthy lockdowns has had a significant impact on our ability to build more homes, as it has for housebuilders across the country.

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

Recent approvals at planning committee have included:

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

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

Since 2016, more than 50 per cent of the homes bought have been affordable housing.

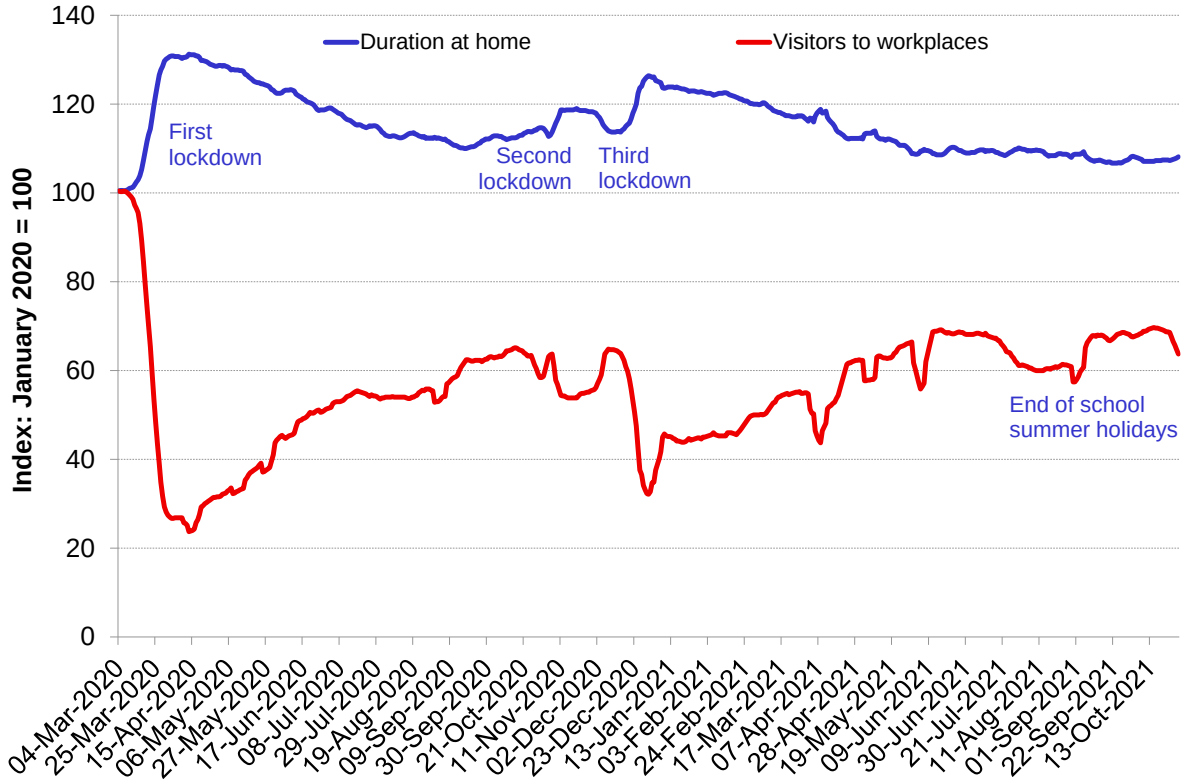
Perspectives on future travel demand in the context of the pandemic recovery in London

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

Perspectives on travel behaviour and the 'return to office'

- The lifting of all pandemic restrictions in July 2021 was not the catalyst for the swift return to normal that many expected. Several factors contributed to this, including, at the time, a surge in case numbers, the imminent start of the school summer holidays and the continued requirement for contacts of people who had tested positive to self-isolate.
- Since July, and particularly since the end of the school summer holidays (from September onwards) there has been a steady and sustained return to work among office workers, however Google activity data suggests that the number of people travelling to workplaces in London remains at around 70 per cent of the pre-pandemic baseline (figure 14).
- The evidence so far suggests that there is appetite among individuals and businesses for flexible working to continue in the long term and many businesses have already begun changing their work practices. Results from the LTDS indicate that 84 per cent of employees who are able to work from home would like to split their working time between home and their usual workplace and 81 per cent of those employees think that their employer will encourage a flexible or hybrid working arrangement in the future.

Figure 14 Change in duration of home working and number of visitors to workplaces in London, 7-day rolling average, Mar 2020-Oct 2021 vs 5-weeks baseline from 3 Jan 2020.



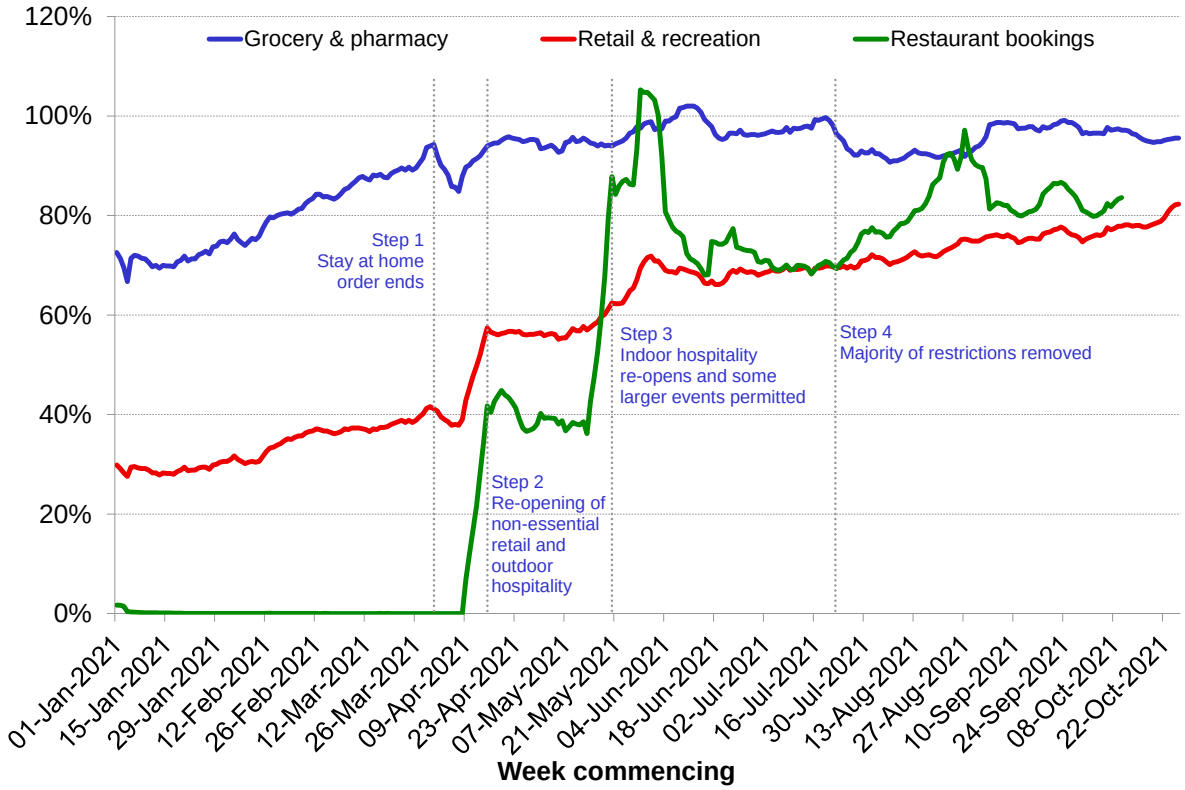
Source: Google COVID-19 Community Mobility Reports.

Perspectives on travel behaviour for shopping and leisure

Travel for shopping and leisure purposes recovered strongly through the re-opening of retail and hospitality, though remains below pre-pandemic levels (figure 15). Several factors are impacting on the recovery of discretionary travel – changing work patterns, increased online shopping and a significant fall in tourism.

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

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



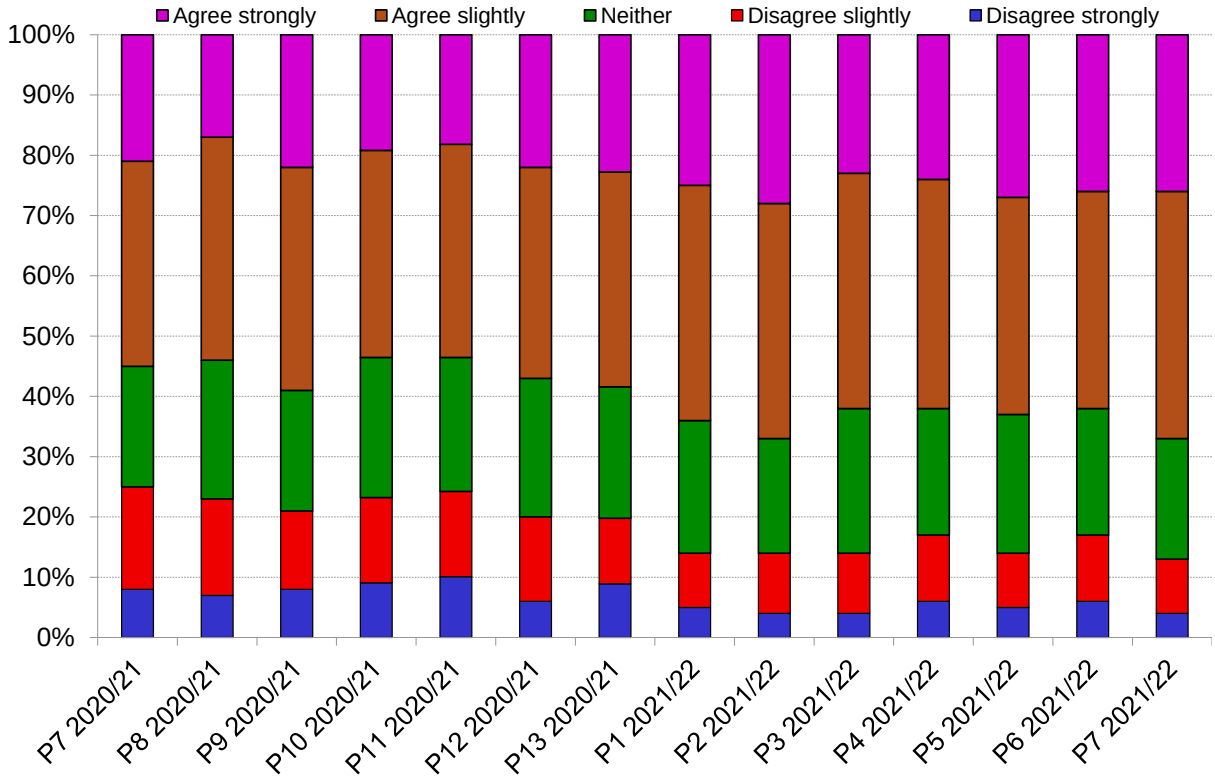
Source: OpenTable, Google Mobility Reports and GLA Coronavirus Mobility Report.
Note: Restaurant bookings baseline is 2019, Google Mobility baseline is 3 Jan to 7 Feb 2020.

Perspectives on personal safety

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

- The percentage of Londoners who agree with the statement ‘I feel confident to travel around London’ gradually increased in 2021 and reached 67 per cent in the latest period up to mid-October 2021 (figure 16)
- The perceived importance of pandemic safety measures, such as increased cleaning, ventilation, face coverings, ability to keep a distance from other passengers and visible staff has been decreasing slowly among our customers as the recovery progresses. Ventilation continues to be the most important factor in Londoners’ decision to use public transport.
- The latest evidence suggests that most Londoners feel that TfL is welcoming them back to the network and fewer Londoners were uncertain about when they will return to the network.

Figure 16 Agreement with the statement 'I feel confident to travel around London', Customer Pulse, period 7 2020/21–period 7 2021/22.



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

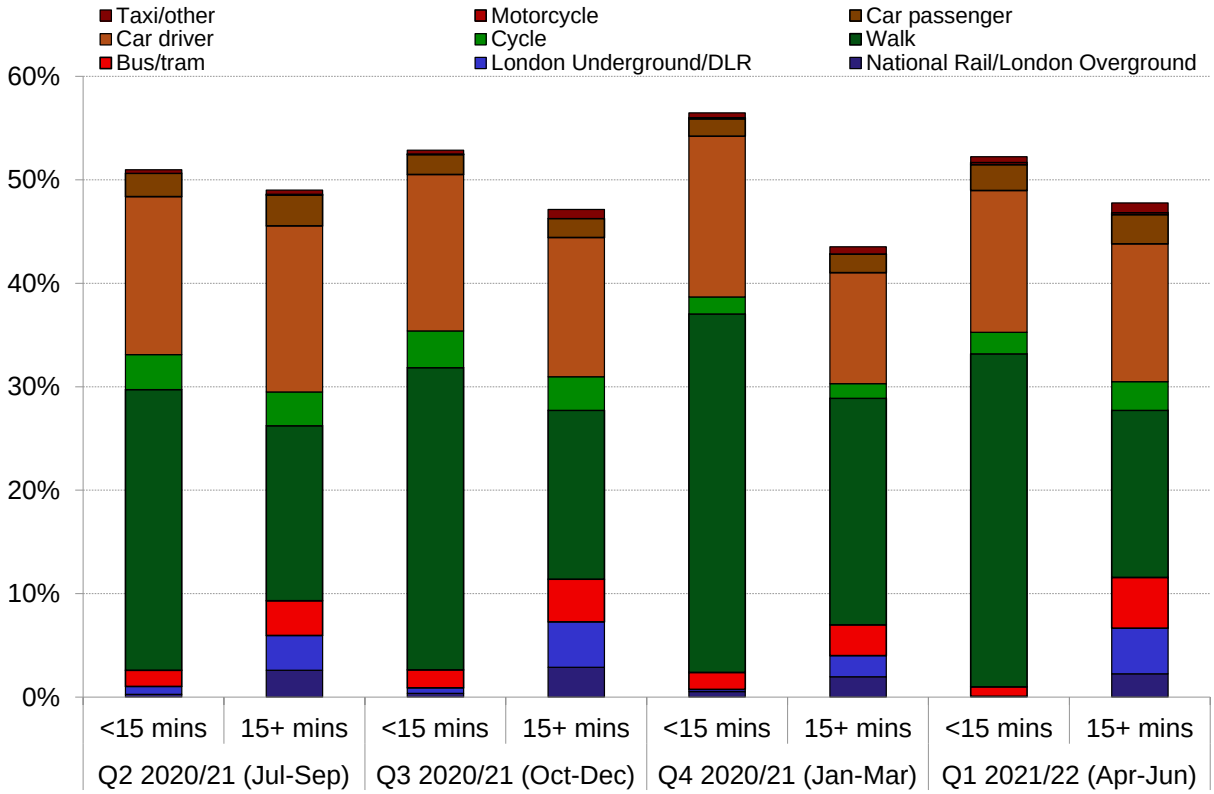
Perspectives on London as a '15-minute city'

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

- Prior to the pandemic, 47 per cent of all trips made by Londoners were undertaken in 15 minutes or less. Although 55 per cent of these trips were made by active modes, some 39 per cent were made by car – reflecting the greater distance that can be covered in that time.
- Trips during 2020/21 were more localised than before the pandemic, although not dramatically so. In Q2 (July to September 2020), when restrictions were limited, just over half of trips (51 per cent) made by Londoners were 15 minutes or less. This increased through the pandemic as the tier system and a second lockdown was introduced in Q3, and a third lockdown through Q4 (figure 17), and fell slightly in Q1 2021/22, as restrictions eased. Walking comprised the highest proportion of trips made both within 15 minutes, and longer than 15 minutes.
- Travel during the pandemic, particularly during periods of lockdown, was more localised – as restrictions on travel, and closure of shops and hospitality businesses limited travel demand.

- It remains to be seen whether, as we recover from the pandemic, these trends will persist. In terms of the Mayor's transport goals, there are both positive implications (for example, more active travel), as well as potentially negative ones (for example, the health of the central London economy).

Figure 17 Proportion of daily trips made by Londoners by duration and mode, LTDS, Q2-Q4 2020/21.



Source: TfL City Planning.
Note: Total number of trips varies in each quarter.

Update on our scenario-based planning for London

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

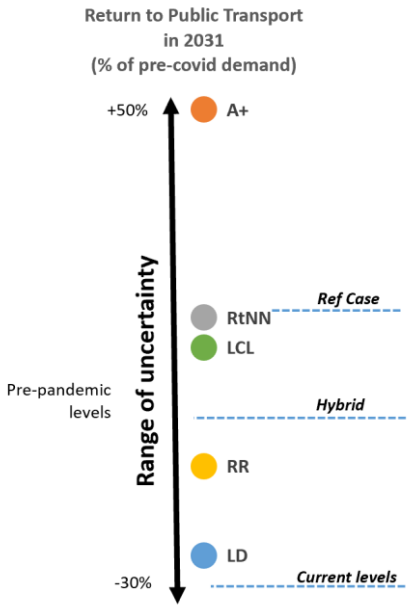
Our five scenarios describe a range of plausible futures for London post pandemic. They range from a relatively optimistic 'Agglomeration plus', which describes a vigorous rebound, through more 'central' scenarios including 'Return to Nearly Normal', describing a return to previous trajectories with a lingering pandemic impact, 'Low Carbon Localism', where the emphasis is on reducing climate impact, and 'Remote Revolution, where the rapid take up of new technologies impacts travel, to the relatively more pessimistic 'London Fends For Itself', where a combination of the pandemic and external forces constrain growth. They conceptually 'bound the envelope of uncertainty' in relation to future trends in the key drivers of travel

demand, such as London's population. To underpin the planning of major projects and schemes it is necessary to consider how these scenarios should be reflected in our assessment and forecasts of future travel demand.

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

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

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



Source: TfL City Planning, Strategic Analysis.
Note: A+: Agglomeration plus // RtNN: Return to Nearly Normal // LCL: Low Carbon Localism // RR: Remote Revolution // LD: London Declines.

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

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

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

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

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

Improving our statistics for the post-pandemic period

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

A new framework for tracking progress towards Mayoral transport strategy aims

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

achieve the Mayor's vision, the trajectory for which can be revised in future according to actual progress, as detailed in these reports.

Each of the Mayor's key aims are shown in figure 19 and one or more quantified indicators are given for each of the aims, and information relating to each indicator will be published in Travel in London reports.

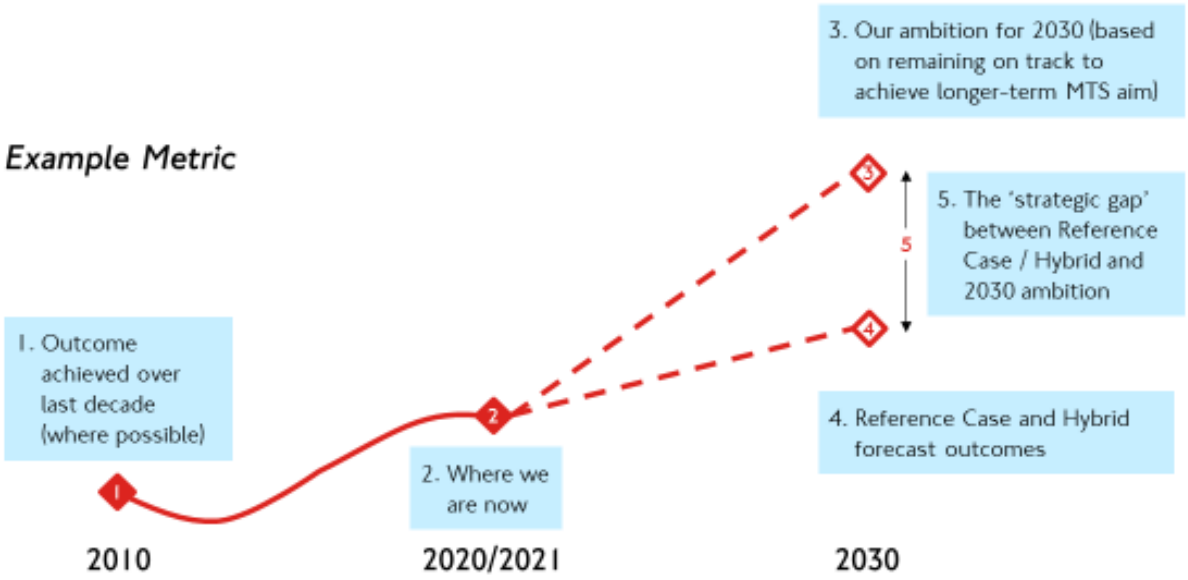
Figure 19 General framework for tracking progress against Mayoral transport strategy aims.

Outcome	Proposed measure	MTS 2041 aim
Mode share	Proportion of trips undertaken by active, efficient and sustainable modes	80 per cent of trips
Active	Proportion of Londoners doing 20 minutes of active travel per day	70 per cent of Londoners
Safe	Number of people killed or seriously injured on London's roads	Zero
	Number of people killed on or by a bus	Zero by 2030
Efficient	Number of car trips in central, inner and outer London	3 million fewer daily trips overall
Green	All CO_2 emissions from London's transport network	72 per cent reduction from 2015[1]
	Average roadside concentration of NO_2 at key locations	In development
	Average roadside concentration of PM_{10} and $PM_{2.5}$ at key locations	In development
Connected	Proportion of Londoners living within 400 metres of a bus route (or specifically those served by high frequency routes	Not in the MTS, but assumes it is maintained at very high level
Accessible	Additional journey time by step-free routes	50 per cent reduction from 2015
Quality	Proportion of kilometres travelled by rail in crowding conditions with density above 2/3/4 people per square metre (threshold to be confirmed)	10-20 per cent reduction from 2015
	Average bus speed (within safety and speed limits)	Increase by 5-15 per cent from 2015
Sustainable growth / unlocking	Proportion of new homes that do not have access to a parking space[2]	Not available

Source: TfL City Planning.
1: This target is likely to be revised soon and replaced by a more ambitious one.
2: Other alternative measures for this outcome are still being explored, including some based on connectivity for new developments.

Each indicator will be assessed according to a common framework, the general form of which is shown by figure 20. Here, current quantified status is shown as (conceptually) a mid-point on a timeline that extends back several years, and forwards to an interim 2030 planning horizon, aligned to the Mayor's aims for 2041.

Figure 20 Illustration of assessment of progress and improvement required to achieve the Mayoral vision for each indicator.



Source: TfL City Planning.

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