



# Delivering the Mayor's Transport Strategy 2022/23 [Draft]

June 2023

MAYOR OF LONDON



**TRANSPORT  
FOR LONDON**  
EVERY JOURNEY MATTERS

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## Acronyms

AEB	Advanced Emergency Braking
AVAS	Acoustic Vehicle Alerting System
BAP	Bus Action Plan
BCBT	Beyond Compulsory Basic Training
BIMA	British Interactive Media Association
BSI	British Standards Institute
CCTV	Close Circuit Television
CLBR	Central London Bus Review
CMS	Camera Monitoring Systems
DfT	Department for Transport
DLR	Docklands Light Railway
DVSA	Driver and Vehicle Standards Agency
DVS	Direct Vision Standard
ED&I	Equality, Diversity & Inclusion
EV	Electric Vehicle
EU	European Union
EVAWG	Ending Violence against Women and Girls
EVID	Electric Vehicle Infrastructure Delivery
EVIS	Electric Vehicle Infrastructure Strategy
FMP	Fatigue Management Plan
FORS	Fleet Operator Recognition Scheme
GLA	Greater London Authority
GST	Guys and St Thomas

GP	General Practitioner
HGV	Heavy Goods Vehicle
HS2	High Speed 2
HIF	Housing Infrastructure Fund
ISA	Intelligent Speed Assistance
IMD	Index of Multiple Deprivation
LAS	London Ambulance Service
LES	London Environment Strategy
LEVI	Local EV Infrastructure
LEZ	Low Emission Zone
LIP	Local Implementation Plan
LLDC	London Legacy Development Corporation
LTDS	London Travel Demand Survey
LTNs	Low Traffic Neighbourhoods
MOPAC	Mayor's Office for Policing and Crime
MPS	Metropolitan Police Service
MTS	Mayor's Transport Strategy
MW	Megawatts
NO <sub>2</sub>	Nitrogen Dioxide
NOS	Network Operating Strategy
NO <sub>x</sub>	Nitrogen Oxides
OOC	Old Oak Common
PAYG	Pay As You Go
PCN	Penalty Charge Notice
PHV	Private Hire Vehicle
PM <sub>2.5</sub>	Particulate Matter under 2.5 Microns in size
PM <sub>10</sub>	Particulate Matter under 10 Microns in size



PSS	Progressive Safe System
PTAL	Public Transport Access Level
RFID	Radio Frequency Identification
RPIP	Responsible Procurement Implementation Plan
RMT	National Union of Rail, Maritime and Transport Workers
RUC	Road User Charging
SFA	Step-Free Access
SHA	Sustainable Housing and Accessibility
SITS	Surface Intelligent Transport System
SRN	Strategic Road Network
SUD	Safe Urban Driving
SuDS	Sustainable Drainage Systems
SMAAs	Signal Migration Areas
TfL	Transport for London
TiL	Travel in London
TLRN	Transport for London Road Network
TTLP	TTL Properties Limited
ULEZ	Ultra Low Emission Zone
VRU	Vulnerable Road User
WAV	Wheelchair Accessible Vehicle
WHO	World Health Organization
WRRR	Work-Related Road Risk
ZEC	Zero Emission Capable

## Summary

This is the sixth annual progress report summarising the delivery of the Mayor's Transport Strategy (MTS) and relevant elements of the London Environment Strategy in the 2022/23 financial year. The report provides an analysis of key travel trends in 2022/23 and our progress in achieving the aims of the MTS. It outlines what we have delivered in the three key areas of the MTS – Healthy Streets and Healthy People; A Good Public Transport Experience; and New Homes and Jobs.

During 2022/23, life has continued to return to normal as we move further away from the times our everyday activity was affected by the coronavirus pandemic and associated restrictions. It is not yet possible for us to declare a fully settled state in terms of travel behaviours due to on-going disruptions such as industrial action and the cost-of-living crisis. What our data does indicate is that the impact of the pandemic on the overall mobility of Londoners appears to be abating, with the average daily trip rates per person having increased compared to the previous two years.

Demand for public transport has increased substantially in 2022/23 with ridership 31 per cent higher than in 2021/22. This has no doubt been helped by the opening of the Elizabeth line but significant increases were experienced across all of our public transport modes. We have also seen an encouraging increase in the levels of cycling with weekday cycling kilometres 18 per cent higher in 2022 than 2019. However, as with wider trends, it isn't yet possible to declare a fully settled status for cycling levels.

This increase in public transport and cycling journeys has contributed to our overall mode share for walking, cycling and public transport increasing to 61.5 per cent in 2022/23. This represents an increase on the previous two years and is almost back to the pre-pandemic level.

Our progress in increasing our active, efficient and sustainable mode share has been aided by extensive and wide-ranging delivery in our key MTS areas over 2022/23. The most significant of these was the opening of the Elizabeth line with phase one taking place in May 2022 and the final phase completing in May 2023. One in six journeys on Britain's rail network now take place on the line and it has increased central London's rail capacity by 10 per cent. Additional capacity upgrades on our rail modes has been provided by the opening of the Barking Riverside extension to the London Overground in July 2022, completion of the Bank station upgrade project in February 2023 and progress made with our Four Lines Modernisation signal systems upgrade programme.

On our bus network, in March 2023, the Mayor announced plans for the new Superloop, over four million kilometers of additional limited stop express bus services circling outer London. In 2022/23, we also re-started work on our Healthy Streets Programme after securing funding from central Government including funding for boroughs. Delivery in 2022/23 included 14.6km of new or upgraded cycleway and around 3,000 new cycle parking

spaces. We have taken action to broaden the appeal of cycling including adding 500 electric bikes to our Santander Cycle Hire scheme. To improve the safety of all Londoners we have taken significant action including further rolling out 20mph speed limits on the Transport for London Road Network, increasing the number of buses meeting our Bus Safety Standard and consulting on a Progressive Safety System for our Direct Vision Standard.

To improve our environment, activity delivered includes introducing a new scrappage scheme to help eligible vehicle owners to upgrade to a cleaner vehicle ahead of the ULEZ expansion in August 2023. We are on track to deliver 1,000 zero emission buses by summer 2023 making it one of the biggest zero emission bus fleets in Western Europe. We have launched our first Climate Change Adaptation Plan which will help us to adapt our systems to reduce the impacts of climate change and ensure that we are resilient in the face of more extreme and frequent weather events across London.

In 2022, we created a new commercial property company, TTL Properties Limited, which has so far delivered 700 new homes with 3,400 more under construction. To date, 47 per cent of these homes have been affordable. We also played an active role in helping boroughs to secure £113.8m for six transport related projects from round two of the Government's Levelling Up fund.

The policies embedded in the MTS provide strong direction to achieve the aims set out within it and, as this report shows, we are making good progress in delivering these policies. An increased pace of delivery is required to ensure all parts of London can benefit equally and integral to achieving this will be securing longer-term financial stability. Since the publication of our last progress report, we have agreed a funding settlement with central Government until March 2024. However, our finances remain constrained and we need longer-term capital funding certainty in order to achieve our priority aims of reducing traffic and improving safety, and unlock the full potential of the MTS vision.

# 1. Purpose and scope

This is the sixth annual progress report summarising the delivery of the MTS.

This report details changes in travel over the last year, the progress we have made in delivering the key outcomes in the MTS and the issues we need to consider as we seek to accelerate the delivery of this strategy.

## 1.1 The Mayor's Transport Strategy

The MTS, published in March 2018, outlines the Mayor's vision for transport in London. The overarching aim of the MTS is to transform London's streets, improve public transport and create opportunities for new homes and jobs. To achieve this, the MTS looks to reduce Londoners' dependency on cars and increase the active, efficient and sustainable (walking, cycling and public transport) mode share of trips in London to an ambitious 80 per cent by 2041.

In addition to the overarching mode share aim, the MTS is focused on achieving nine outcomes under three themes:

### 1.1.1 Healthy Streets and healthy people

- **Active:** London's streets will be healthy and more Londoners will travel actively;
- **Safe:** London's streets will be safe and secure;
- **Efficient:** London's streets will be used more efficiently and have less traffic on them; and
- **Green:** London's streets will be clean and green.

### 1.1.2 A good public transport experience

- **Connected:** The public transport network will meet the needs of a growing London;
- **Accessible:** Public transport will be safe, affordable and accessible to all; and
- **Quality:** Journeys by public transport will be pleasant, fast and reliable.

### 1.1.3 New homes and jobs

- **Sustainable:** Active, efficient and sustainable travel will be the best option in new developments; and
- **Unlocking:** Transport investment will unlock the delivery of new homes and jobs.

### 1.1.4 Mayor's Transport Strategy 2022 Update

In May 2022, the Mayor directed us to prepare a draft revision to Proposal 24 of the MTS that would provide for the role of Road User Charging (RUC) in addressing the triple challenges of toxic air pollution, the climate emergency and traffic congestion. Each of these

challenges is complex and cannot be addressed by any one measure. That said, reducing traffic is key to addressing each of them and is also central to achieving many of the wider aims of the MTS, including the active travel and mode shift targets. This revision included, as a next step, the potential expansion of the Ultra Low Emission Zone (ULEZ) London-wide. This was necessary because the existing MTS did not provide for the ULEZ to be expanded London-wide, which was being proposed as the next step in tackling the triple challenges, particularly air pollution.

In the summer of 2022, we consulted on this proposed revision to the MTS, along with other proposals for the expansion of the ULEZ London-wide and proposed changes to the Congestion Charge. Within the same consultation we asked for views on the future of RUC. This consultation is described in more detail in chapter three of this report. In November 2022, having considered the consultation responses, the findings of an integrated impact assessment and other relevant information, the Mayor announced his decision to approve the revision to the MTS.

Proposal 24.1 has now been published as an Addendum to the MTS. It updates the existing RUC proposals in the MTS with a new proposal to provide for an expanded ULEZ and also introduces the triple challenge as a policy basis for any future RUC schemes. Any future schemes would be subject to a public and stakeholder consultation and an assessment of their impacts, including their potential equality impacts.

Proposal 24.1 is as follows:

The Mayor, through TfL and the boroughs, will seek to address the triple challenges of toxic air pollution, the climate emergency and traffic congestion through RUC schemes including by expanding the ULEZ London-wide.

## 1.2 The London Environment Strategy

We have a pivotal role in delivering the London Environment Strategy (LES) as published in May 2018. In addition to measures set out in the MTS for environmental improvements to the transport system, including the ULEZ, we are largely responsible for significant elements within the LES including responsible procurement, reducing waste, our energy strategy, climate change adaptation, work to accelerate the reduction in carbon dioxide (CO<sub>2</sub>) emissions and delivering an increase in green infrastructure and a net-gain in biodiversity.

## 1.3 The London Plan

The London Plan 2021 is the Spatial Development Strategy for Greater London. It sets out a framework for how London will develop over the next 20-25 years and the Mayor's vision for Good Growth. The London Plan is part of the statutory development plan for London and directly informs decisions on planning applications across the capital. Borough Local Plans should conform with the London Plan to ensure that the planning system for London is consistent with strategic objectives.

The current London Plan includes the highest housing target London has ever had, at 52,000 new homes a year. It embeds active, efficient and sustainable travel in London through promoting high-density, mixed-use sustainable development with associated public transport investment and a restrictive approach to car parking provision.

## 1.4 TfL Vision & Values

The TfL Annual Scorecard tracks progress against strategic business objectives and has been designed to align with our Vision to be a strong, green heartbeat for London. To realise this Vision, it is important we embed Values that support the delivery of the MTS by us and our partners. Our Vision and Values are aligned to the MTS, including delivering our Vision Zero safety ambitions, our ambitions for decarbonisation and air quality and improving the sustainable mode share of trips in London.

## 1.5 MTS Tracker

We report progress on delivering each MTS outcome via the Commissioner's reports to the Board, the annual Travel in London (TiL) report and this annual update to the Board. We have also embedded many of the outcomes in the TfL Scorecard and Vision and Values. However, we recognise many of the outcomes are not suitable to tracking in an annual scorecard. Having a detailed, technical, evidence-based assessment of the progress being made towards the outcomes improves transparency and to support this we have developed a separate data-led MTS tracker. The purpose of this tracker is two-fold: to act as an in-year performance management tool and to provide strategic context for the reporting of projects, initiatives, and programmes across the nine MTS outcomes.

The 12 measures within the MTS Tracker are shown in Table 1.

This MTS annual update is the second update where we report on the tracker outcomes. It covers each of the outcome areas and outlines within chapter 3 how activities across the previous year have supported our longer-term ambitions. Where a 'strategic gap' has been identified, we discuss future challenges in chapter 4 and how updated policies or new services, schemes or infrastructure may accelerate delivery of the MTS.

Outcome	Proposed measure	Mayor's Transport Strategy 2041 aim
Mode share	Percentage of trips undertaken by active, efficient and sustainable modes	80% of trips
Active	Percentage of Londoners doing 20 min active travel per day	70% of Londoners
Safe	Number of people killed or seriously injured on London's roads	Zero
	Number of customers killed or seriously injured on TfL services	Zero
Efficient	Number of car trips crossing cordons in central, inner and outer London	3 million fewer daily trips
Green	Average roadside NO <sub>2</sub> concentration in central, inner and outer London	60-70% reduction, equivalent to 94% emissions drop
	All CO <sub>2</sub> emissions from London's transport network	72% reduction – potential for more ambitious aim now
Connected	Percentage of Londoners living within 400 metres of a bus stop	Not directly in Mayor's Transport Strategy, but assumes it is maintained at current high level
Accessible	Additional journey time by step-free routes	50% reduction
Quality	Percentage of rail-travelled km in crowding above 2 persons per square metre	10-20% reduction
	Average bus speed (within safety and speed limits)	5-15% improvement
New homes and jobs	Proportion of population living in PTAL 4 or higher, in Greater London and Opportunity Areas	36% for Greater London 56% for Opportunity Areas (2030)

**Table 1. MTS outcomes and Tracker measures. Source: TfL**

Figure 1. The five elements of the Mayor's Transport Strategy tracker measure

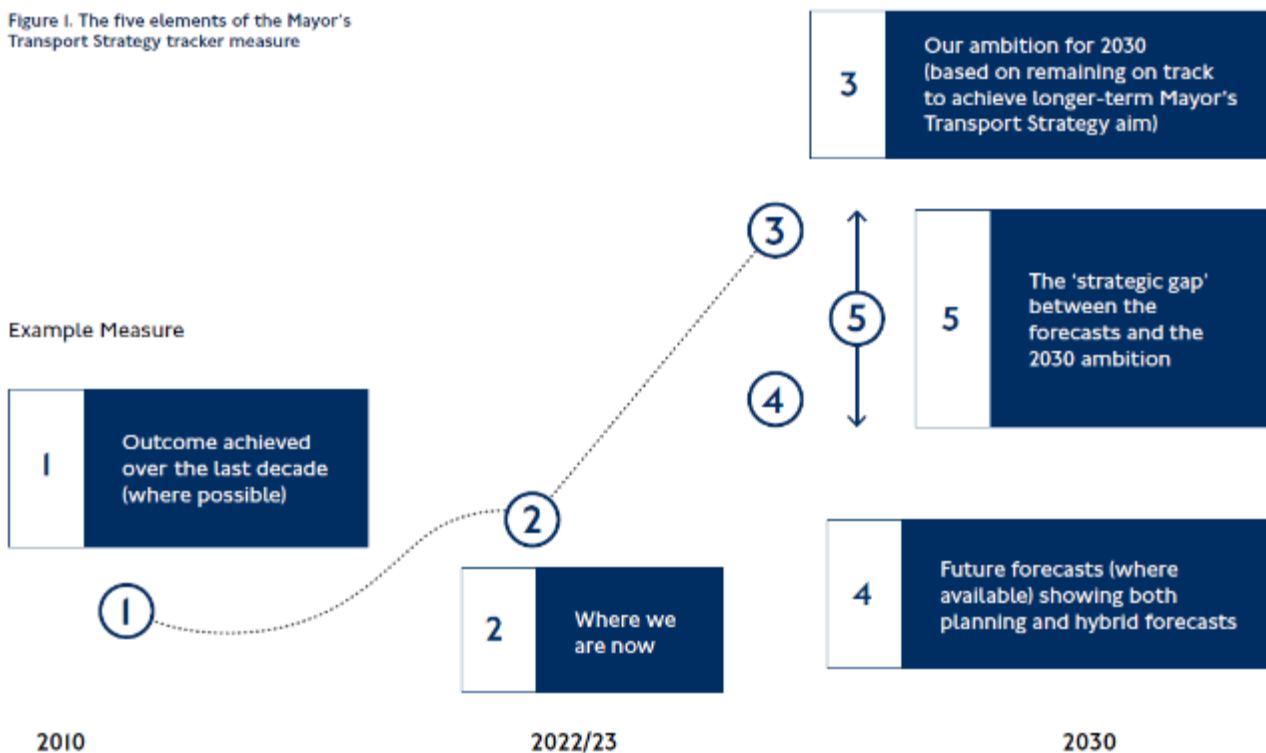


Figure 1. The five elements of the MTS Tracker measures. Source: TfL

Where 2022/23 data is available, we have used this to show a straight line trajectory to the MTS aim. For MTS Tracker metrics where the latest available data reported is from 2021/22, the straight line trajectory is based on pre-pandemic data, as data reported during 2020 and 2021 was substantially impacted by the pandemic.

Planning and Hybrid forecasts have been provided where available to demonstrate uncertainty over the period to 2030. Both Planning and Hybrid forecasts contain the same portfolio of investment limited to only those schemes that are funded and committed. The Planning forecast includes a modest increase in working from home compared to pre-pandemic forecasts, with levels of online shopping remaining as forecast before the pandemic and London getting back on track for achieving pre-pandemic projections of population growth by 2041. The Hybrid Forecast, however, incorporates evidence on how London is changing. This includes the latest population and employment projections, more working from home for office workers, a greater shift towards online shopping, greater flexibility to undertake leisure trips as part of the working day and slightly higher relative car ownership.



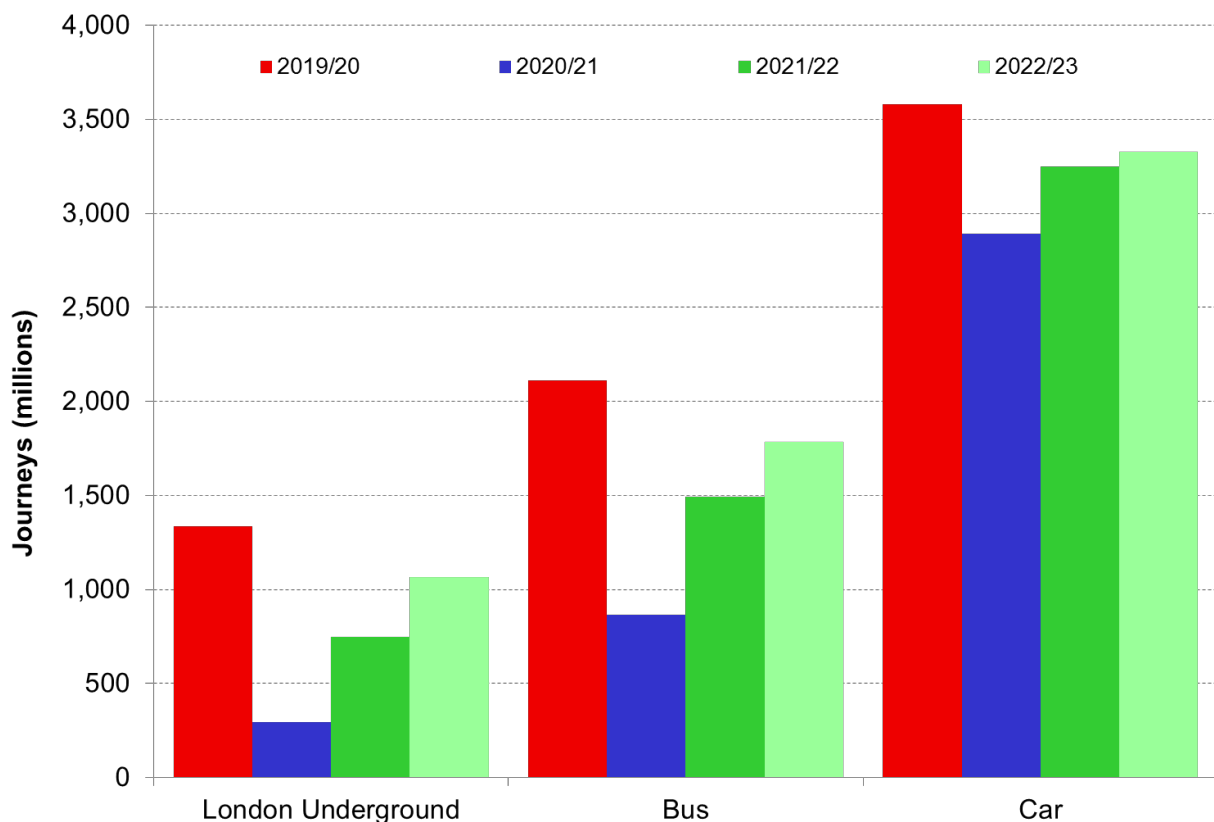
## 2. Recent patterns of travel demand

During 2022/23, travel demand on our public transport network has substantially increased with a 31 per cent increase in overall demand. The launch of the Elizabeth line has been a driver for this, however significant increases in demand were also seen on all public transport modes. Whilst positive, overall demand has not yet reached pre-pandemic levels and has been affected by a series of disruptions. The mode share of journeys made by walking, cycling and public transport is returning towards pre-pandemic levels but a significant challenge remains in meeting the trajectory required for the MTS mode share target for 2041.

### 2.1 Recent demand trends on the principal transport modes

Over the last year, the threat from the coronavirus pandemic has receded and life has gradually returned to normal. Although travel demand on the main networks has substantially recovered, it has not yet reached pre-pandemic levels. It is becoming clear there are some enduring legacies from the pandemic which will continue to affect travel demand, most notably an increase in hybrid working, principally affecting office-based workers and commute trips to central London. A series of disruptions during 2022 and into 2023, for example prolonged industrial action on the railways and an intensifying cost of living crisis, means that it is still not possible to declare 'fully settled' post-pandemic travel patterns, although there are now some useful indications that hint at what this might look like.

In terms of specific modes, demand on the bus and London Underground networks continued their recovery throughout 2022 (Figure 2).



**Figure 2. Demand on the main transport networks (Underground, Bus and car) for each financial year starting 2019/20. Source: TfL**

Whilst car demand certainly ‘led’ the early recovery, returning to near pre-pandemic levels at an early stage, this growth has not continued. In fact, traffic on the Transport for London Road Network (TLRN) has settled at a consistent circa five percentage points below pre-pandemic levels overall. This can be regarded as encouraging, but congestion remains high and at levels that are not compatible with MTS outcomes. Recent initiatives such as changes to the Congestion Charge alongside expansion of the ULEZ in 2021 are also factors that have affected traffic levels in central and inner London.

Tube recovery maintained a steep upwards trajectory over the year and increased by 42 per cent from 748 million trips in 2021/22 to 1,063 million in 2022/23. This represents on average 85 per cent of pre-pandemic demand, although it does vary by day of the week, with a stronger return of ridership at weekends.

Recovery of bus demand also continued and saw a 20 per cent increase in overall demand, from 1,491 million trips in 2021/22 to 1,782 million trips in 2022/23. This represents between 85 and 90 per cent of the pre-pandemic norm.

In terms of other modes, the position towards the end of 2022 can be summarised as:

- Docklands Light Railway (DLR) and London Overground saw 20 per cent and 29 per cent increases in demand over the year and they were typically seeing about 80 per cent of pre-pandemic demand.
- London Trams recovery was slightly lower with a nine per cent increase in demand and just less than 80 per cent of pre-pandemic levels.

- Elizabeth line had 138 million trips over the year. However, the data is more complex to provide because of a lack of like-for-like pre-pandemic versus post-pandemic data and the phased nature of its delivery. A full evaluation is not yet available but early indications at the end of 2022 were that demand on the Elizabeth line was exceeding expectations for that stage of the project implementation.

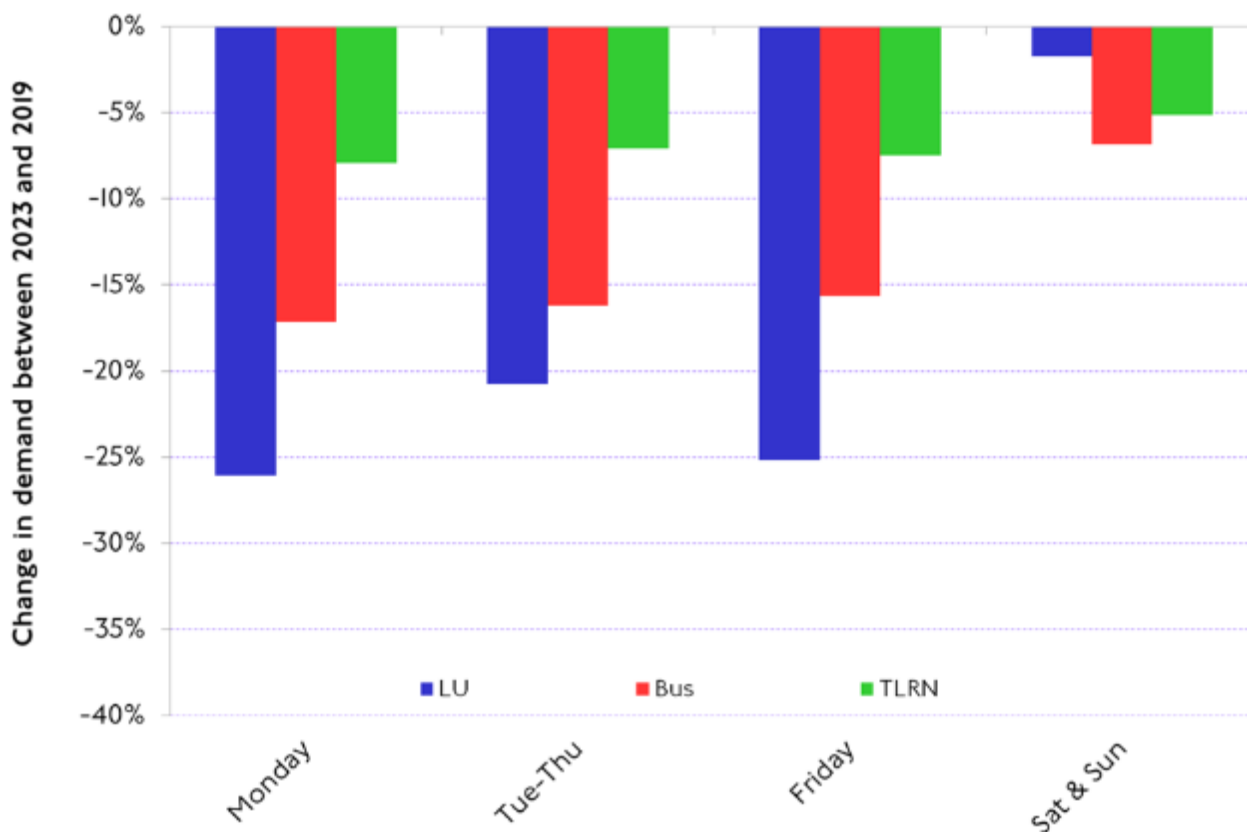
Across all the above public transport modes, ridership for 2022/23, which accounts for the proportional volume of journeys by mode, was up by 31 per cent on the pandemic affected 2021/22, with the Tube leading the way at 42 per cent higher. The weighted recovery across all these modes in 2022/23 was 81 per cent of the pre-pandemic baseline. This can be regarded as encouraging given the various challenges that affected post-pandemic recovery during 2022/23.

Our latest cycling volume estimates (based on area-based counts across central, inner and outer London) showed an increase of 18 per cent in weekday cycle kilometres in 2022 compared to the 2019 pre-pandemic baseline, and a 13 per cent increase in the number of daily cycle journeys.

## 2.2 Travel behaviours and the pandemic

Changed working patterns post-pandemic are having an enduring effect on travel demand. This is principally affecting Tube demand on days at the 'shoulder' of weekends (Mondays and Fridays). There is little indication that the 'shape' or timing (as opposed to volumes) of the weekday peak on TfL rail modes has changed. The difference in recovery between weekdays and weekends on public transport continues, with Tube demand at weekends now often higher than before the pandemic. In contrast, demand on Mondays and Fridays is around 25 per cent below pre-pandemic levels (Figure 3).

Recent bus demand is closer to pre-pandemic patterns. This recovery from the pandemic is taking place in the context of intensified cost of living pressures, which may be contributing to a reduction in the expected growth across all modes, but particularly perhaps to non-work related trips made by bus, as was observed in the pre-pandemic period. Changed working patterns and cost of living pressures will also have been expected to affected car travel yet, as shown in Figure 3, there has been stability in daily averages across the various days of the week.



**Figure 3. Relative recovery to pre-pandemic demand levels by days of week. Source: TfL.**

Looking at trips across all the modes shown in Figure 3, there is emerging evidence that trips are being increasingly consolidated on specific days, facilitated by more flexible working patterns.

The impact of the Elizabeth line on Tube and DLR demand is still being evaluated. Elizabeth line demand data across the week for the first weeks of 2023 suggests a similar picture to the Tube, with average Monday demand circa 15 per cent below the Tuesday to Thursday average and circa 10 per cent below on Fridays. The Elizabeth line will also have affected overall demand for the Tube, with one of its objectives being to relieve crowding on the Tube network. The full effects of this will be understood in time but the provisional data estimates that around 40 per cent of the central section of the Elizabeth line passenger kilometres have transferred from the Tube in the period after through running services were introduced in November 2022. It is estimated that 30 per cent of demand can be attributed to new trips being made and a shift from non-public transport modes. Where capacity on the Tube network has been freed up by customers shifting to the Elizabeth line, it is likely that other trips will transfer to the Tube network due to lower crowding levels, though this is so far unquantified. Across the whole of the Elizabeth line, it is estimated that 19 per cent of its demand has transferred from the Tube, and four per cent from the DLR.

In 2023, employers are likely to continue to review their policies on hybrid working as they seek to achieve the optimal balance between the benefits of home and office working where these options are viable for their staff. This will continue to have an impact on patterns of travel demand and travel behaviours.

## 2.3 Active, efficient and sustainable mode share

The pandemic significantly reduced overall mobility in London and accelerated a long-term trend of generally falling trip rates. In 2020/21, the first year of the pandemic, the average daily trip rate (number of trips made by all modes per individual) for London residents aged 17 or over fell by 24 per cent from 2.29 trips per person pre pandemic to 1.74. As shown in Figure 4, the latest provisional data for 2022/23 indicates that trip rates have continued their recovery. The overall trip rate for 2022/23 so far is 2.15 trips per person per day. The total number of trips per day in London for 2022 has risen to 24 million, in contrast to 27 million pre-pandemic numbers (2019).

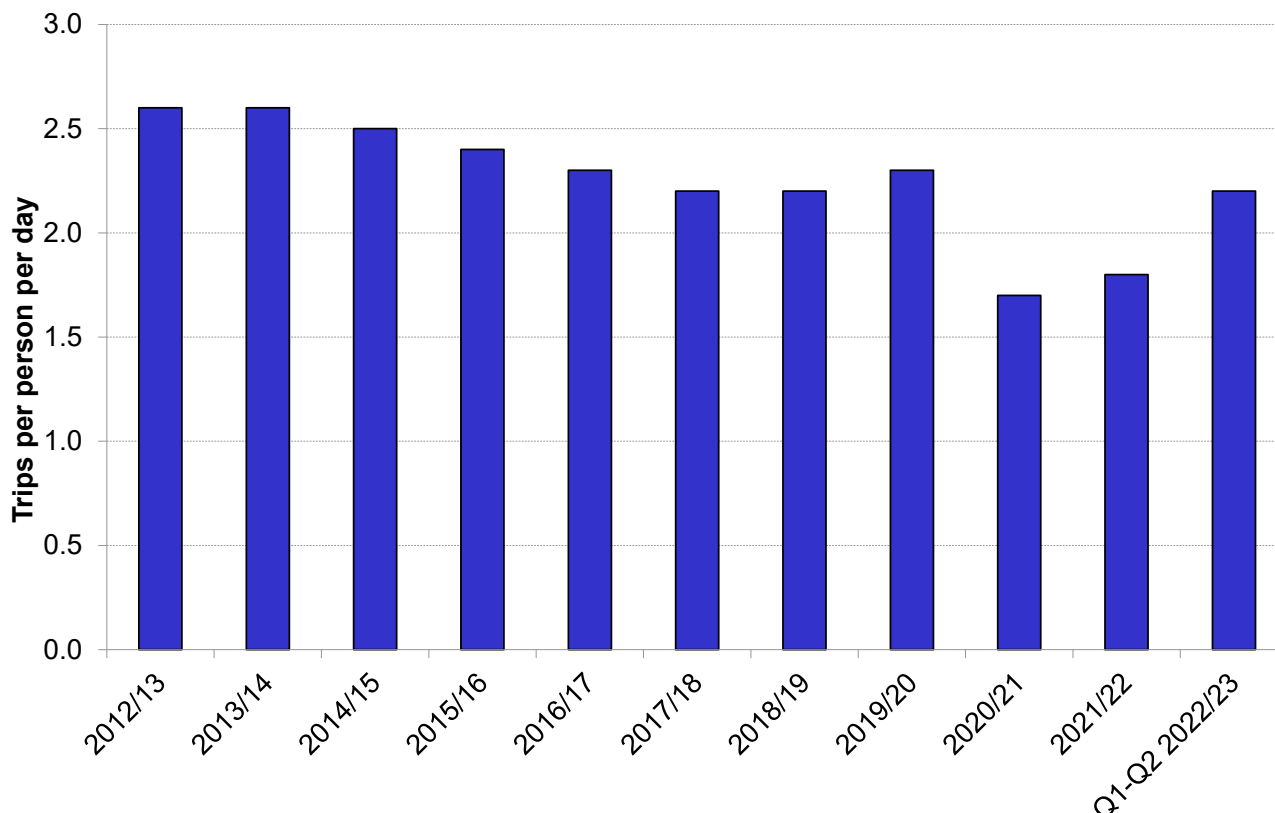
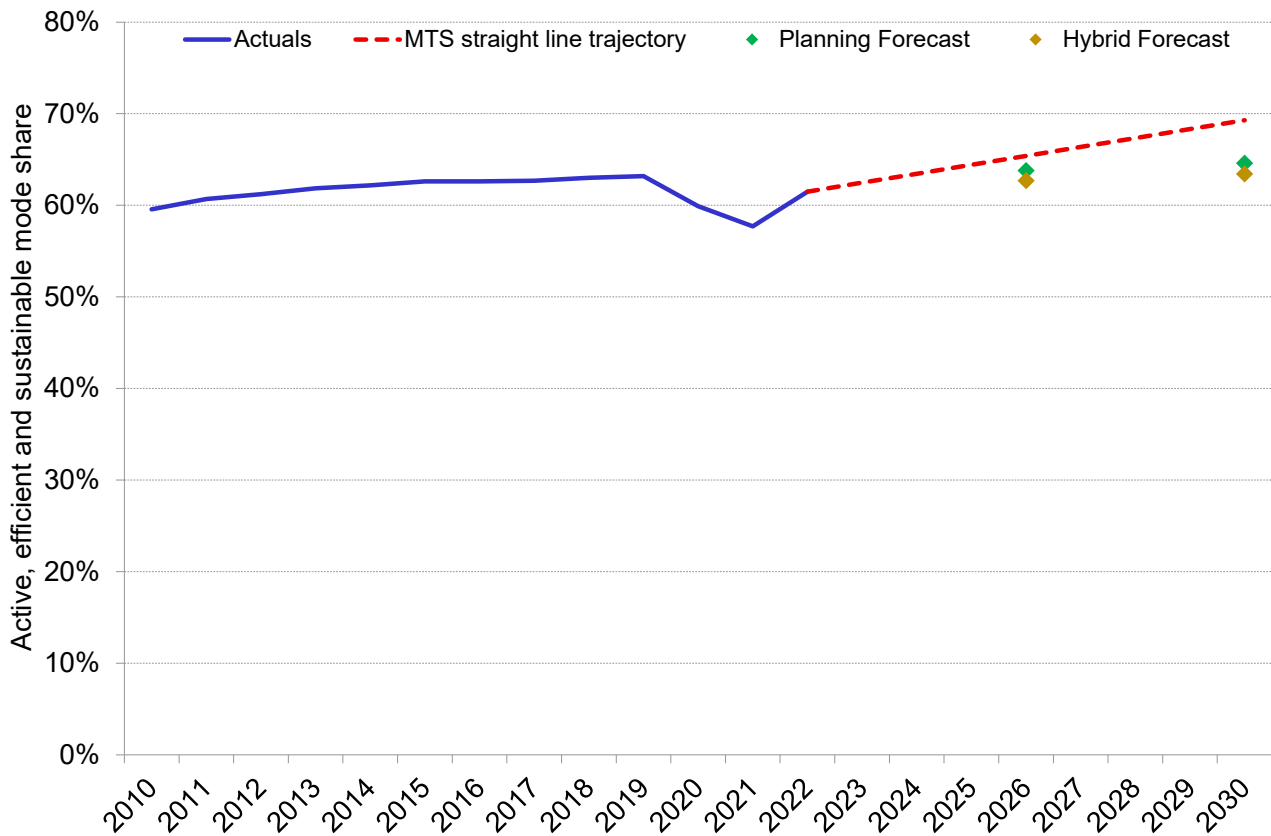


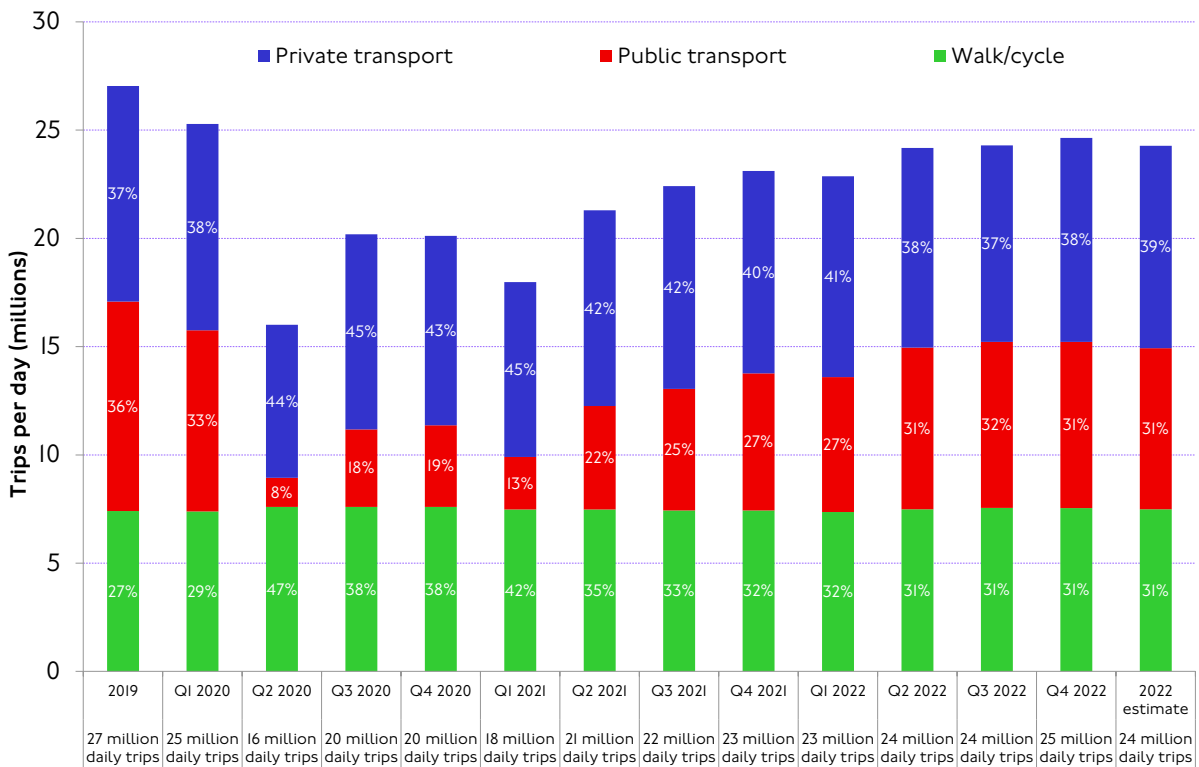
Figure 4. Trip rate among London residents (aged 17+), LTDS 2012/13 and Q1-Q2 2022/23. Source: TfL.

As shown in Figure 5, consolidated statistics for 2022 on the overall mode share for all journeys in London estimate the active, efficient and sustainable mode share at 61.5 per cent. This compares to 63.2 per cent during pre-pandemic 2019 and to the Mayor's aim for 80 per cent of all journeys in London to be made by walking, cycling or public transport by 2041. The 2022 data is, however, encouraging as it is an increase on a mode share in 2021, which stood at 57.7 per cent.



**Figure 5. MTS Tracker - Trajectory for active, efficient and sustainable mode share, observed 2010 – 2022, forecasts to 2030 and MTS target trajectory. Source: TfL.**

As Figure 6 shows, car travel has now apparently settled below pre-pandemic levels, and there are indications of an enduring positive pandemic impact on walking and cycling (with estimated walking and cycling mode share for 2022 at 31 per cent up from 27 per cent in 2019). Hence, the public transport demand deficit, and ways of addressing it, is the most important factor holding back growth in this measure.



**Figure 6. Estimated mode shares, 2019-2022. Source: TfL.**

A further factor is the scale of London's population growth. The 2021 Census shows the population was 8.8 million, 7.7 per cent higher than it was in 2011. However, this was somewhat lower than population during the 2010s (9.3 million) and the overall level of growth was lower than expected. The mode share trajectory had been partly estimated on London's growing population increasingly being accommodated in dense development which favoured public transport over car travel and car ownership.

## 3. Delivery over the last year

We have made significant progress in the last year in delivering the policies of the MTS. However, we are falling short in achieving a number of our key MTS aims including our active, efficient and sustainable mode share target, Vision Zero aims and traffic reduction aims. Integral to increasing our pace of delivery and getting back on track to achieve our aims will be securing a longer-term financial settlement from central Government.

### 3.1 Healthy Streets & Healthy People

To reduce traffic and road danger, improve the health of Londoners, tackle the climate emergency and improve air quality, we need to make it easier and safer for people to walk, cycle and use public transport. Healthy Streets means creating streets that work for everyone and are accessible, safe and inclusive. Attractive street environments encourage active travel, and a well-planned street network ensures that space for buses is prioritised, with high quality public transport connections that provide appealing alternatives to car use.

Reducing Londoners' dependency on cars will be an essential component in realising all these benefits. Real progress had been made pre-pandemic in encouraging people to switch from using the car to active, efficient and sustainable alternatives in London. We have started to see this progress return, but many more car journeys could still be made by walking, cycling or public transport.

#### 3.1.2 Active

It is recommended that adults undertake 20 minutes per day of physical activity to stay healthy. The most accessible way to achieve this is via active travel: not just walking and cycling trips, but also public transport journeys, since these will usually entail periods of walking. The MTS target is that by 2041 all Londoners will be doing the 20 minutes of active travel per day needed to stay healthy. Active travel has huge benefits for health and brings co-benefits in terms of moving away from car travel to more active, efficient and sustainable modes.

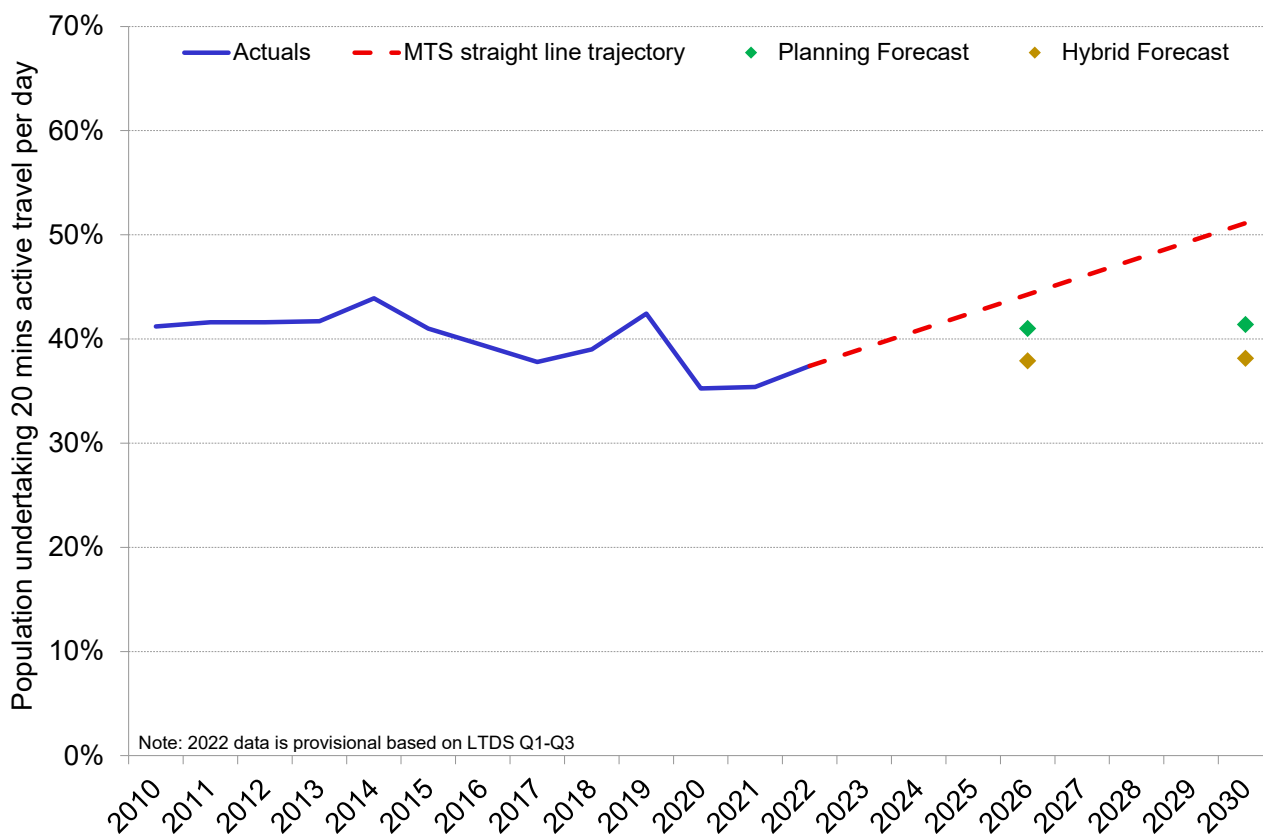
In the decade leading up to the pandemic, the proportion of Londoners achieving this target was around 40 per cent each year; in 2019 it was 42 per cent. However, this proportion fell to 35 per cent during the pandemic years of 2020 and 2021. The latest data from April to December 2022 shows an increase to 37 per cent (Figure 7). This is encouraging, but progress has been set back and it is likely to take a further two or three years to return to the pre-pandemic levels of active travel. This further impacts on our timeline to move towards the target.

This pattern can also be seen in, and is partly explained by, overall changes in travel behaviour because of the pandemic and the differential recovery of demand for different modes. Overall, Londoners are making fewer trips by public transport, despite some recovery over 2022/23, with demand for all TfL public transport modes at just over 80 per cent of pre-pandemic levels in 2022/23. The demand for cycling, on the other hand, is now exceeding pre-pandemic levels. This overall fall in trips means that there is less opportunity



for Londoners to meet their 20 minutes per day of active travel, as this is often achieved as part of a longer journey involving other modes: walking to the Tube station or bus stop, for example. While the increase in cycling is to be welcomed, it is not sufficient by itself to increase the proportion of Londoners achieving the recommended 20 minutes of physical activity per day.

This highlights the inter-connected nature of the mode share target and the active travel target in London and suggests that we need to continue to take action on both fronts. Investment in programmes reducing traffic dominance is central to enabling people to travel in more active, efficient and sustainable ways and must continue to be a priority in London.



**Figure 7. MTS Tracker for Active: Proportion of Londoners aged 20 and over who achieve 20 minutes of active travel per day, observed 2010 – 2022/23 (Q1-Q3 only), forecasts to 2030 and MTS target trajectory. Source: TfL.**

### 3.1.2.1 Healthy Streets investment to support active travel

In 2022, we announced that we will restart work on schemes to make the capital's roads safer and more attractive for those walking and cycling, following vital investment being secured as part of the latest funding agreement with central Government. This secured £80m per year to be invested in walking and cycling schemes, with a further £69m per year for us to allocate to boroughs for healthy streets. London's boroughs are central to the success of the Healthy Streets Approach and delivering across the outcomes of the MTS. They are responsible for 95 per cent of London's streets and around 70 per cent of the most important streets for the bus network.

## Low Traffic Neighbourhoods

Low Traffic Neighbourhoods (LTNs) are implemented by the boroughs, and are designed to reduce traffic in neighbourhoods by preventing motor vehicles passing directly through the LTN area, while retaining access for residents, businesses and emergency services. We know from earlier research that these measures can have a positive impact on people's travel behaviour by making it easier to walk and cycle.

Although LTNs are not new, many were implemented under temporary, experimental orders during the pandemic and the majority of these are now being made permanent (around 100 schemes remain of the 120 put in since March 2020). While the pace of LTN delivery has slowed down over the past year, they remain an important part of the Healthy Streets Approach and we continue to support boroughs' implementation of schemes.

The University of Westminster Active Travel Academy, in conjunction with the charity Possible, have undertaken a systematic review of the data from LTNs introduced in London since 2020. They have analysed the impact of LTNs on motor traffic on roads within LTNs or on their boundaries, comparing this to what traffic volumes may have been in the absence of the schemes<sup>1</sup>. The review found that after schemes were implemented, compared to pre-scheme:

- Motor traffic decreased at 74 per cent of count sites within LTNs.
- The number of internal roads carrying over 1,000 motor vehicles per day reduced from 59 per cent to 34 per cent.
- The median volume of traffic on roads within LTNs went from 1,226 to 666 motor vehicles per day.
- 45 per cent of boundary roads saw a fall in motor traffic and 53 per cent saw an increase.
- The median motor traffic volume on boundary roads remained very similar, although changes at individual sites included both large increases and decreases.

LTNs have been shown to support active travel for a wide range of users. For example counts of people cycling in the Dulwich Village LTN show that at peak times children make up over 20 per cent of people cycling, significantly above the London average.<sup>2</sup>

## Liveable Neighbourhoods programme

The Liveable Neighbourhoods programme was first implemented in 2017/18 and provides funding to enable boroughs to make changes to town centres and residential areas to improve conditions for people walking and cycling and to reduce traffic dominance. The programme was paused during the pandemic and the associated period of financial uncertainty, but in March 2023 we announced funding to boroughs that will help to continue five Liveable Neighbourhood schemes. The schemes are in both inner and outer London:

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<sup>1</sup> Thomas, A. and Aldred, R. (2023). *Changes in motor traffic inside London's LTNs and on boundary roads*. Available at: [https://docs.google.com/document/d/13Nsm\\_GFdH6CplpPpOZ7hbhLZScgqCAP7ZGI0xi4qDqA/edit#heading=h.e9amstptpyyl](https://docs.google.com/document/d/13Nsm_GFdH6CplpPpOZ7hbhLZScgqCAP7ZGI0xi4qDqA/edit#heading=h.e9amstptpyyl)

<sup>2</sup> Goodman, A., McDonald C. and Laverty A. (2021). *The value of measuring cycling diversity as well as cycling volume: a case study from South London*. Available at: [https://www.transportforqualityoflife.com/u/files/1\\_CycleDiversity\\_June2021.pdf](https://www.transportforqualityoflife.com/u/files/1_CycleDiversity_June2021.pdf) Last accessed 02/12/2022.

Holborn (Camden), West Ealing (Ealing), Enfield Town (Enfield), Greenwich Town Centre (Greenwich) and Coppermill Village (Waltham Forest).

### **Pedestrian crossing improvements**

Since 2016, we have introduced 181 new signalised pedestrian crossings on the TLRN and borough roads. In addition, we have introduced 'Pedestrian Countdown' technology to pedestrian crossings at 1,254 sites across London. We have also delivered innovative pedestrian green person priority signals at 43 sites, which give priority to people walking by showing them a continuous green signal until a vehicle is detected approaching. The technology has made journeys on foot quicker and improved people's compliance with red lights at crossings, with virtually no impact on traffic.

### **Leisure Walking Plan**

We launched our Leisure Walking Plan in late 2022, building on the Walking Action Plan of 2018. Its focus is on enabling Londoners – including people who move on wheels – to walk for pleasure and enjoy the benefits to their physical and mental health. We aim to create the world's largest, greenest and most accessible leisure walking network in London. Our commitments to the Walk London network include an audit of the network, upgrades such as better surfacing and signage and the addition of new routes. We have already delivered on the commitment to digitise the network with all Walk London routes now available on the 'Go Jauntly' app. A reduction in leisure walking is to be expected after the height of pandemic-related restrictions in 2020. However, the fact that the overall reduction in 2021/22 was minor (around two per cent), and that there is more socio-economic and ethnic diversity among Londoners walking for pleasure, shows that the popularity of leisure walking is likely to endure.

#### ***3.1.2.2 Future borough delivery of Healthy Streets measures***

In 2022/23, we supported boroughs through the Local Implementation Plan (LIP) process to plan investment over the next two years to 2025. We provided guidance and strategic data so that boroughs can deliver their Healthy Streets plans effectively. So far, we have allocated £63m to boroughs for delivery in 2023/24. This includes building on the success of the Streetspace programme, with a large number of the temporary schemes from 2020 now progressing towards permanent infrastructure after careful monitoring and evaluation.

Boroughs will continue to deliver infrastructure to:

- Enable all Londoners to feel that active travel is a safe and accessible option through a range of Vision Zero related and other interventions that deliver safer streets for cycling and walking.
- Enhance and expand London's bus priority network to enable faster and more reliable buses, making them a compelling offer for Londoners.

Over the next two years, boroughs will contribute to the delivery of 90 bus priority schemes including 25km of new bus lanes, transform junctions and corridors, further roll out School Streets, introduce over 3,500 secure residential cycle parking spaces, five Liveable Neighbourhood schemes, over 150 new or upgraded pedestrian crossings, and increase the

coverage of 20mph limits. In outer London in particular, these measures will help to enable more active travel and support the expansion of the ULEZ London-wide on 29 August 2023.

### 3.1.2.3 School Streets and STARS

Across London 27 per cent of car driver trips in the morning peak are for school drop-off, in some parts of London this is as high as 43 per cent. The [Walking Action Plan](#) (2018) set a target for 57 per cent of trips to primary schools to be walked by 2024. This target was later stretched to 60 per cent by 2024. The key interventions driving this progress are the Schools Streets and STARS programmes.

#### School Streets

School Streets enable more children to walk and cycle to school by introducing vehicle restrictions at drop-off and pick-up times around the school. The London boroughs have introduced more than 500 School Streets since the start of the pandemic, 373 of which were funded with support from us and the Greater London Authority (GLA).

In 2022, we published [Getting to Know School Streets](#), a guidance document which presents case studies of five schemes in the boroughs of Southwark, Ealing, Haringey, Waltham Forest and Redbridge. The research found that borough officers, school staff and parents all agreed that having a School Street was a positive step towards safer, calmer, cleaner, and healthier local areas. The guidance is intended to help boroughs decide how and when to introduce schemes locally and highlights the different design options available.

In 2022, we commissioned a study of five School Street schemes<sup>3</sup>, which found the following benefits:

- Less motor traffic: 70 to 90 per cent reduction in the number of motorised vehicles per hour on the School Street during the closure period.
- Reduced danger: motor vehicle speeds reduced up to 6.3 mph in the hours of operation compared to outside them.
- More active travel: an increase in the number of people cycling per hour during the closure period compared to outside the closure period.
- Social benefits such as improved community spirit and pride in the school.

An additional important benefit is cleaner air. Research from the Breathe London air quality monitoring network<sup>4</sup>, found that School Streets reduce nitrogen dioxide (NO<sub>2</sub>) by up to 23 per cent outside schools during morning drop-off.

We carried out a separate study<sup>5</sup> which found that School Streets have strong support from Londoners, with 77 per cent of parents and carers from a sample of 35 schools expressing support for the changes being kept in the long term, subject to consultation.

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<sup>3</sup> [Getting to know School Streets, an in-depth analysis of five School Streets in London, TfL, 2022](#)

<sup>4</sup> [Air Quality Monitoring Study: London School Streets](#), Air Quality Consultants (commissioned by GLA), March 2021

<sup>5</sup> [School Streets intervention sites vs control sites full report](#), TfL, Jan 2021

## Focus on: STARS – our accreditation scheme for London schools and nurseries

STARS is our accreditation scheme for London schools and nurseries. STARS inspires young Londoners to travel to school sustainably, actively, responsibly and safely by championing walking, scooting and cycling.

Participating schools are put in touch with their local borough officer who provides support throughout the accreditation process, helping the school to create a School Travel Plan and select the most suitable activities to address travel issues and reach their active travel targets. A STARS school can expect to see an average six per cent reduction in the number of trips to school made by car with gold and silver accredited schools seeing up to a 12 per cent reduction.

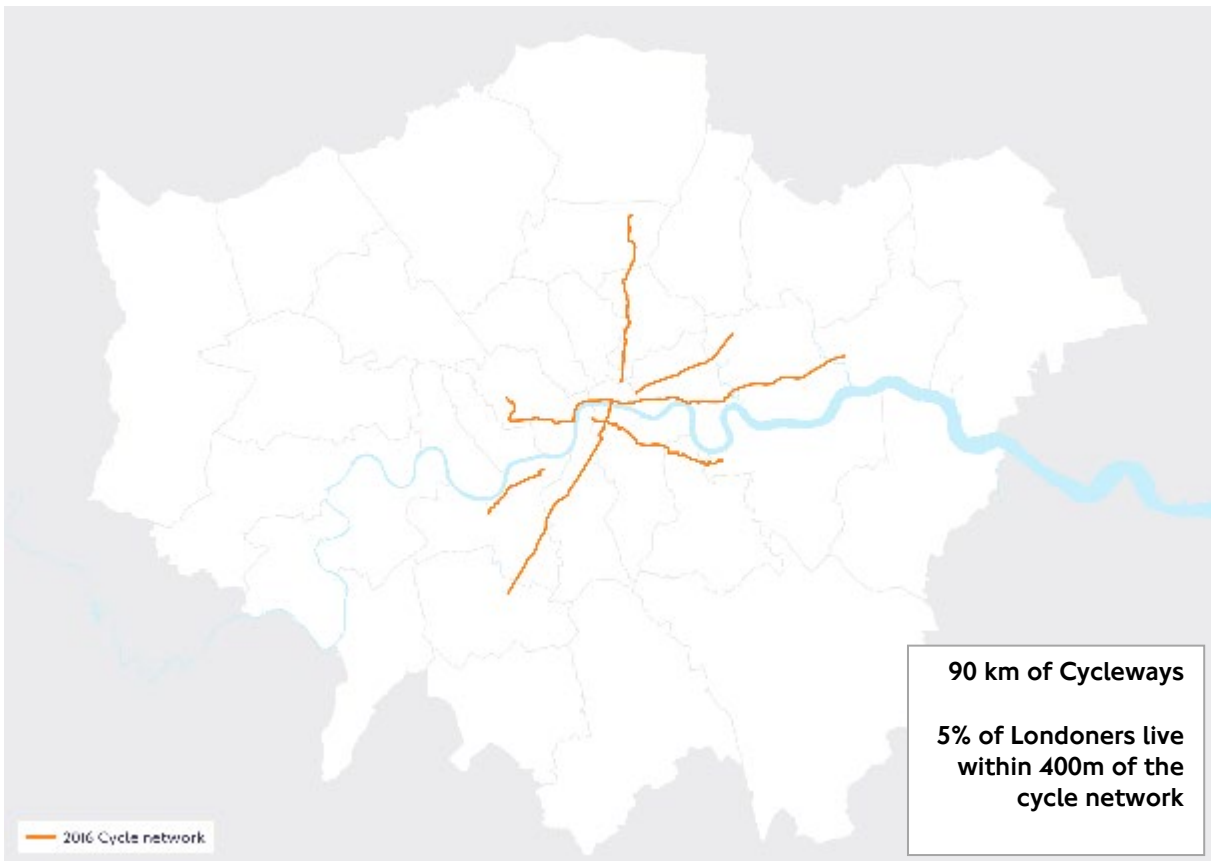
Our target is to double the number of STARS gold-accredited schools from 500 in the 2017/18 academic year to 1,000 by the end of the 2024/25 academic year (July 2025). There are currently 747 STARS gold-accredited schools based on assessment of the last completed academic year (2021/22). The target was set prior to the pandemic. Schools have faced an unprecedented challenge over the last two years from the pandemic and from significant financial constraints. Despite this, we have been working hard with our borough colleagues and delivery partner, the London Transport Museum, to maintain momentum on the important work of road safety, active travel and sustainability in schools. With additional resources already in place we are confident of reaching very close to our 1,000 target.



Figure 8. School Street closed to traffic. Source: TfL.

### 3.1.2.4 Broadening the appeal of cycling

Since 2016, we have more than trebled the size of the London-wide strategic cycle network, from 90km of Cycleways in 2016 to over 340km as of April 2023, as shown in Figure 9. Partly as a result of this investment in expanding the network, cycling has grown in popularity over the past few years and saw increases in ridership during the pandemic. Cycling levels remained strong in 2022 with a 13 per cent increase in the number of daily cycle journeys between 2019 and 2022. There are now an estimated 1.2 million trips cycled each day. This growth is more remarkable given that Londoners were still making fewer trips in 2022 than in 2019.





**Figure 9. Expansion of the cycle network 2016-2023. Source: TfL.**

There are also signs that people cycling are becoming more representative of Londoners. Our customer research shows that in 2020 the cycling population was broadly representative of Londoners in terms of ethnicity, with increases in participation among other under-represented groups such as women, disabled people and people on lower income. It is still uncertain whether this change in participation will be sustained in coming years and other surveys suggest there are still significant gaps in participation in some demographic groups.

We want to build on this momentum to further broaden the appeal of cycling to a more diverse range of Londoners. This will ensure all Londoners can enjoy the health and economic benefits of cycling while further contributing to our sustainable travel targets.

To achieve this we need to tackle the barriers deterring London’s diverse communities to take up cycling. The top barrier to cycling across all groups is concern about road danger, hence our focus is on expanding the high-quality Cycleway network and reducing car dominance. Building an inclusive Cycleway network reaching an ever-growing number of town centres, supported by lowered traffic speed and traffic-calmed neighbourhoods will provide more Londoners with the opportunity to cycle. Low Traffic Neighbourhoods play a particularly important role in accelerating the expansion of the Cycleway network. Lower motorised traffic volumes in these areas mean that potential new cycle routes might meet the New Cycle Route Quality Criteria without major infrastructure upgrades and could become part of the signed Cycleway network. Long-term funding security will be key to delivering this package of infrastructure.

Other interventions include improving access to secure cycle parking, providing free cycle training sessions, improving access to cycles, engaging with local communities and supporting grass-root projects.

Delivery highlights since April 2022:

- Together with the boroughs we have completed 14.6km of new or upgraded Cycleways, with another 13.9km in construction. As of the end of 2022, 22 per cent of Londoners live within 400m of the Cycleway network, up from five per cent in 2016.
- So far, in 2023 we have launched three new cycle routes which were enabled by traffic reduction in Low Traffic Neighbourhoods, with more routes to be launched this summer.
- In 2022/23, we have funded around 3,000 cycle parking spaces to be delivered by boroughs, including over 900 secure residential cycle parking spaces and 500 spaces in schools. New funding allocated in March 2023 will see another 3,500 secure residential spaces installed by March 2024.
- In 2022/23, we funded cycle training sessions for over 12,000 adults and nearly 30,000 children, with more funding awarded to boroughs in March 2023 to train more than 20,000 adults and 40,000 children by March 2024.
- In December 2022, in partnership with the London Marathon Charitable Trust, we announced funding for 87 new projects run by community groups to further boost walking and cycling through the Walking and Cycling Grants London Programme.
- We continued to expand and modernise our Santander Cycle Hire scheme, with the introduction of 500 electric bikes to the fleet. These have proven very popular with over 330,000 hires between October 2022 and May 2023, and e-bikes being hired on average twice as often as classic bikes. In 2022/23, there were over 10.5 million hires through the scheme -our third-busiest year. We also implemented a new, simplified tariff structure with a new single ride and monthly membership option.
- We published London's first Cargo Bike Action Plan in March 2023 to support the growing cycle freight industry and further reduce van traffic (more details in section 3.1.5.6 Clean freight).

In June 2023, we will publish a new Cycling Action Plan setting out our vision for cycling, new ambitious targets and our approach to breaking down barriers to making London a world-class city for cycling. Long term funding certainty will be crucial to support the delivery of the actions in this and our existing action plan.

### 3.1.2.5 E-scooters

In summer 2021, together with London Councils, five boroughs and three e-scooter operators (Dott, Lime and TIER), we launched an e-scooter rental trial, one of 32 such trials authorised by the Department for Transport (DfT) across the UK. These rental e-scooters have high safety standards that go beyond the national standards, including a speed limit of 12.5mph, larger wheels and lights that are always on throughout any ride. These safety measures have resulted in a strong safety record with a small number of serious injuries, which have been decreasing over time since their introduction.<sup>6</sup> This is an important

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<sup>6</sup> Travel in London 15, TfL, 2022



difference between trial e-scooters and private e-scooters, the latter of which are currently unregulated and, therefore, not built to any minimum standards. Private e-scooters remain illegal for use on public roads, pavements, and cycle lanes.

Since October 2022, following the addition of a further five boroughs, the e-scooter trial now operates in 10 boroughs - Camden, Ealing, Hammersmith & Fulham, Lambeth, Richmond upon Thames, Southwark, Tower Hamlets, Westminster, Royal Borough of Kensington & Chelsea and the City of London. It operates with over 4,000 vehicles and more than 500 designated parking locations. The trial has enabled more than 2.4 million trips with an average trip distance of 2.5km and is expected to run until 2024.



Figure 10. E-scooter statistics. Source: TfL.

In October 2022, we launched a competitive procurement to select operators for the next phase of London's rental e-scooter trial. This was in response to the recently updated DfT guidance that allows local authority trials to continue until 31 May 2024. Operators will be chosen on their ability to meet strict safety and operating standards, enhanced following lessons learnt from the first phase of the trial. The current trial contracts operated by Dott, Lime and TIER were extended until this procurement is complete.

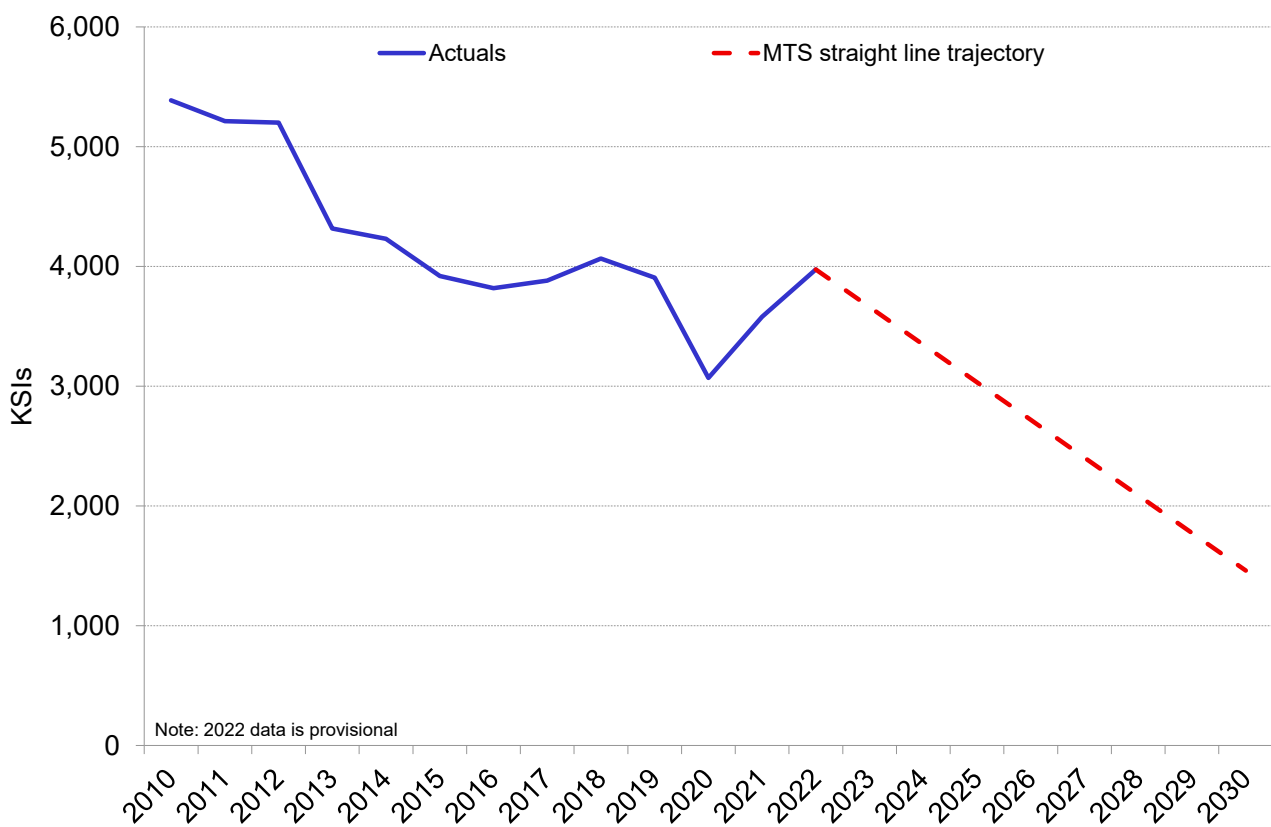
### 3.1.3 Safe: Vision Zero for road danger

The aim of Vision Zero is to eliminate all deaths and serious injuries on London's streets by 2041. Every death or serious injury on our streets is devastating, bringing heartache and tragedy to all those involved. Vision Zero challenges us to think differently about the safety of our streets and how we design our road system. While unintended, road collisions result from choices made by individuals, organisations and society and all too often cause death and serious injury. Our response must be to create a safe road system, with every component working together – safe speeds, safe streets, safe vehicles and safe behaviours – so that we can reduce road danger and protect Londoners from harm.

Our Vision Zero interim ambitions are to reduce road deaths and serious injuries by 65 per cent by 2022 (against a 2005-09 baseline) and 70 per cent by 2030 (against a 2010-14 baseline). This is the foundation of the city we want to build that is inclusive to all, responds to the climate crisis and is a great place to live. While this is an ambitious goal, we have seen examples that prove it is possible when looking at Oslo and Helsinki’s achievement of zero road deaths in 2019.

There is mixed progress on our MTS Tracker for safety which is measured by the number of people killed or seriously injured on London’s roads. Our provisional 2022 data (with final data subject to verification by the DfT in the summer) suggests that while London is outperforming other UK regions, we are not on track to meet the 2041 ambition. Our data suggests there was a 38 per cent reduction in the number of people killed or seriously injured (against a 2005-09 baseline) indicating that we missed our 2022 target. The 2022 provisional data equates to an 18 per cent reduction against a 2010-14 baseline which is used for our 2030 target (displayed in Figure 11 below).

Despite the fact we have further progress to make, there has been a 64 per cent reduction in the number of children killed or seriously injured and a 52 per cent reduction in the number of overall fatal injuries across all age groups (both against a 2005-09 baseline). Despite this gap between our achievement and indicative MTS trajectory, we have an evidence-led forward programme of activity in the next few years which will aid further progress and get us back on target. This includes measures to reduce traffic, which our data shows is one of the most effective ways to reduce the number of people killed or seriously injured. However, in order to get back on track we will need to secure a longer-term financial settlement from central Government.



**Figure 11. MTS Tracker for Safe: People killed or seriously injured on London's roads, observed 2010 – 2022 (2022 - provisional data) and MTS target trajectory. Source: TfL.**

### **3.1.3.1 Safe Streets**

In April 2017, the Safer Junctions programme was launched, which targets 73 high risk locations where people have been killed or injured while walking, cycling or riding motorcycles. To date we have delivered improvements at 44 junctions for vulnerable road users (VRUs) as part of the programme.

Design work continues for the remaining 29 Safer Junction locations. Since last year's update, construction has completed at York Road roundabout in Wandsworth and we have started on site to introduce new pedestrian crossings at the Holloway Road/Drayton Park Safer Junction in Islington.

Consultation on proposals to reduce road danger for pedestrians and cyclists at the Battersea Bridge junction with Cheyne Walk ended in January 2023 and the consultation report was published at the end of May. This is the second phase of the scheme, following the installation of a new pedestrian crossing over Battersea Bridge in December 2021.

Up to December 2021, the Safer Junction programme has delivered a 42 per cent reduction in cycling collisions and 19 per cent reduction in pedestrian collisions.

### **3.1.3.2 Safe speeds**

Lowering the speed of vehicles in London is key to reducing both the likelihood of a collision occurring and the severity of the outcome. By working with London's boroughs, we are making the case for an expansion of 20mph to the majority of roads and are recommending a default borough-wide 20mph limit as both the most affordable and quickest option for implementation. At present, 21 of the 33 London boroughs (including the City of London) have committed to, or are consulting on, a 20mph default limit. Figure 12 shows the TLRN roads subject to a 20mph speed limit as of May 2023. Similarly, Figure 13 shows boroughs with more than 75 per cent coverage of 20mph limits on all roads with speed limits.

In February 2023, we published indicative results from monitoring of phase one of the Lowering Speed Limits programme on the TLRN. Since a 20mph speed limit was introduced to the remaining TLRN within the Congestion Charge Zone in March 2020, collisions have reduced by 25 per cent (against a GLA-wide background reduction of 16.5 per cent) and collisions involving those walking, cycling or motorcycling have reduced by over a third. We plan to undertake further monitoring of personal injury collisions and vehicle speeds once post-implementation collision data is available for the full three-year monitoring period, recognising the need to gather data from the post-pandemic network as traffic levels return to a new normal.

The second phase of the Lowering Speed Limits programme is underway with proposals to lower the speed limit to 20mph on sections of the TLRN in Kensington and Chelsea, Greenwich, Lewisham, Southwark, Lambeth, Wandsworth, Merton, Sutton, Richmond and

Hounslow. As detailed in the Vision Zero progress report<sup>7</sup> published in 2021, the programme aims to provide a 20mph speed limit on 220km of the TLRN by May 2024. As of March 2023, over 142km has been delivered.

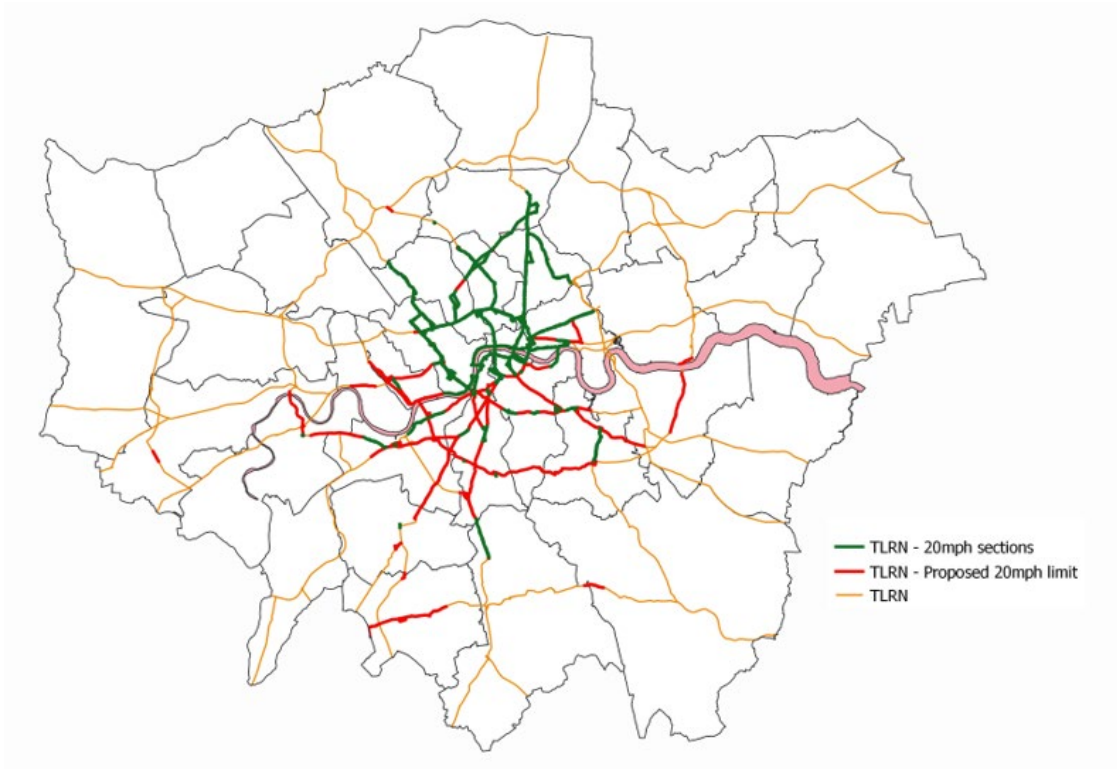
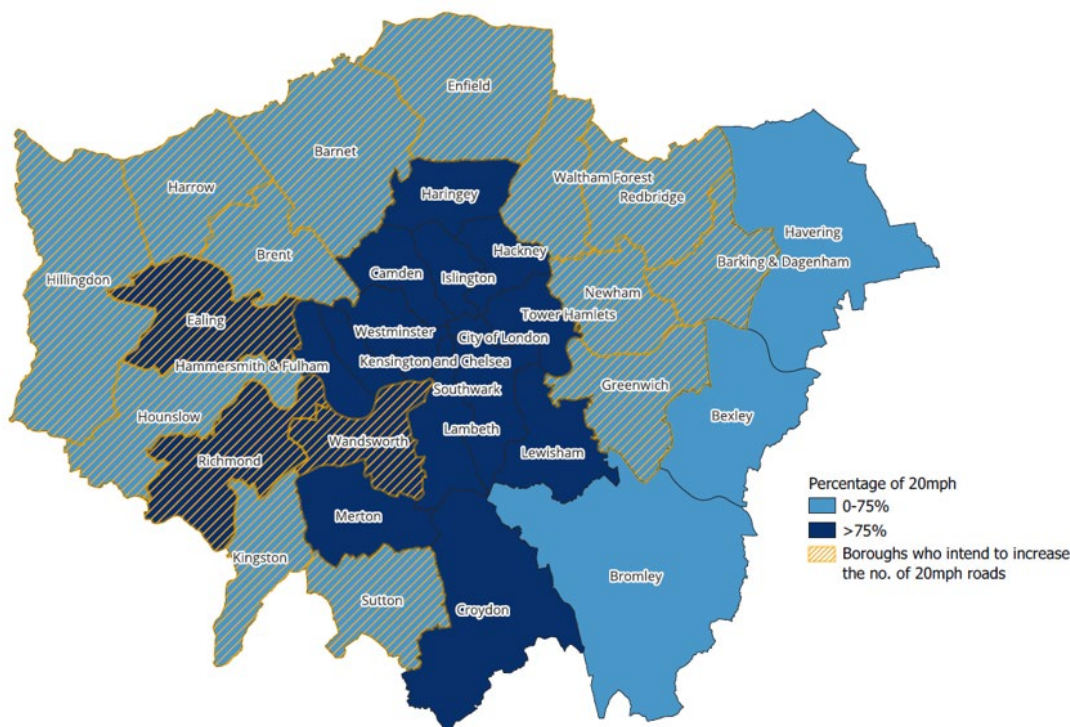


Figure 12. Map of the TLRN with a 20mph speed limit, May 2023. Source: TfL.

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<sup>7</sup> <https://content.tfl.gov.uk/vision-zero-action-plan-progress-report-2021.pdf>



**Figure 13. London boroughs with more than 75 per cent coverage of 20mph limits on all roads with speed limits along with boroughs who intend to increase the number of their roads with the speed limit, May 2023. Source: London Digital Speed Limit Map.**

### 3.1.3.3 Safe vehicles

#### Safe Buses

Travelling by bus is the safest form of road transport in London. Despite this, our provisional 2022 data suggests that we have missed our target of a 70 per cent reduction in the number of people being killed or seriously injured on or by a bus by 2022, achieving a 54 per cent reduction. This is below our 2019 achievement of 64 per cent. We have been investigating the reasons behind this change during the pandemic recovery period among other emerging challenges to achieving Vision Zero for the bus network. We have developed a new evidence-led strategy to ensure we are able to robustly meet these challenges and get back on target.

We continue to make our buses safer for everyone through our Bus Safety Standard, with 1,009 buses, which is more than 10 per cent of all buses in London, already meeting either the 2019 or 2021 standards' safety measures as of the end of April 2023. By the end of 2024, we expect to see new buses entering service in London with our 2024 safety standard requirements which include Advanced Emergency Braking (AEB), changes to the front-end design of the bus and greater alignment to, and advancement of, the international General Safety Regulation measures.

Improvements delivered so far include fitting more than 3,200 buses with Intelligent Speed Assistance (ISA) Technology, which limits the speed of the buses. By the end of 2024, it is expected that half of all buses will have this fitted. Other safety measures include 848 buses

fitted with Camera Monitoring Systems (CMS) that help to reduce blind spots and improve the quality of the driver's indirect vision in poor lighting and weather conditions. An Acoustic Vehicle Alerting System (AVAS) for quiet-running buses, with 802 buses fitted so far. By the end of 2023, all electric buses will have our innovative Responsive AVAS fitted, which allows for volume adaptation depending on ambient noise conditions and time of day, to make the system more effective.

Our Bus Safety Programme will continue to drive major safety improvements, helping us reach our target of no one being killed on or by a bus by 2030. We have now reached our milestone of 1,000 new buses meeting our Bus Safety Standard which is a fantastic achievement. Our new Bus Safety Strategy sets out how we will be further reducing the risk our buses pose to road users including people walking and people using the bus. The focus for the coming year will be on improving customer safety and reducing injuries among our passengers which will include a new bus safety innovation challenge. The current Fatigue, Health and Wellbeing Innovation Challenge continues to successfully support and deliver projects to reduce fatigue and improve the health and wellbeing of bus drivers. We have also started our fatigue detection technology project which will see around 450 buses fitted across the fleet over the next year.

## **Direct Vision Standard**

In March 2019, the Mayor launched the world leading Direct Vision Standard (DVS) and Heavy Goods Vehicles (HGVs) Safety Permit Scheme. DVS tackles road danger at its source by minimising HGV blind spots which contribute to many tragic deaths and life-changing injuries.

Since the beginning of enforcement of the scheme on 1st March 2021, all operators of HGVs over 12 tonnes (Gross Vehicle Weight) have been required to obtain a HGV safety permit for their vehicle, based upon the DVS star rating from 0-star (lowest) to 5-star (highest) to drive in London. These ratings correspond to the amount of visibility the driver has directly from the vehicle's cab windows.

As of March 2023, we have issued more than 244,000 permits, including more than 5,800 to five-star vehicles, which provide the highest levels of direct vision. Most vehicles, around 146,000, are rated 0-star and to obtain a permit they need to have the required Safe System fitted, improving protection for people walking, cycling or riding e-scooters or motorcycles and thus saving lives. Average daily compliance rates (where a vehicle is registered as having a DVS permit) remain high at 98 per cent.

During the 2022/23 financial year, we published the DVS One Year On report<sup>8</sup> highlighting the scheme's outcomes during its first full year of enforcement. This showed that fatal collisions where vision is a contributory factor have reduced by half, down from 12 to six, between 2018 and 2021. Data for the 2022/23 financial year shows that fatalities have been reduced further to three.

In 2022, to achieve our commitment to review and keep the scheme fit for purpose, we commissioned Loughborough University to carry out an independent review of the current Safe System required as part of the HGV Safety Permit Scheme. This review involved

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<sup>8</sup> <https://content.tfl.gov.uk/dvs-one-year-on-report-june-2022.pdf>

modelling, lab testing and real-world experiments as well a wider review of relevant technologies. The results informed a series of stakeholder workshops with key representatives from the freight industry, including trade bodies, vehicle manufacturers and equipment manufacturers. Walking, cycling and road safety groups have also been briefed as part of this process.

The outcomes of this review and feedback enabled us to draft our proposals for a Progressive Safe System (PSS), which we consulted on between February and April 2023. The PSS will mean increased, and improved, minimum safety requirements fitted to the lowest star rated HGVs over 12 tonnes from October 2024. We are currently working on the analysis of the responses we have obtained from the consultation to inform our proposal for a PSS.

### **Fleet Operator Recognition Scheme (FORS) accreditation update**

In addition to DVS, we keep working towards the Mayor's Vision Zero commitment with initiatives like FORS. FORS is a voluntary accreditation scheme for fleet operators that aims to drive up standards within fleet operations and demonstrate which operators are achieving exemplary levels of best practice in safety, efficiency and environmental protection. As part of this initiative, our Safe Urban Driving training course for HGV drivers is funded and delivered, to increase awareness of the risks to VRUs when driving in urban areas. To date over 110,000 HGV drivers have attended the course.

To date, FORS has circa 5,000 operators that have signed up to the scheme, with members nationally and within the European Union (EU). We specify FORS Silver level within our supplier contracts as part of the Work-Related Road Risk (WRRR) initiative to improve and retain a very high standard of vehicle and operator compliance and improve road safety. During the 2022/23 financial year, we have established a process of assessing alternative schemes and we have accredited the Driver and Vehicle Standards Agency's (DVSA) Earned Recognition scheme and the Mission Zero scheme as alternative choices to FORS for suppliers wishing to meet our WRRR contractual requirements.

### **Motorcycle courier training**

Motorcycles are the highest risk mode of transport on the road. In London they make up one per cent of the traffic and 26 per cent of all people killed or seriously injured. They are also disproportionately involved in collisions in which pedestrians are injured. We must address motorcycle safety in our efforts to achieve Vision Zero.

The meal and grocery delivery economy is growing in London. Since 2020, UK food delivery app revenue has more than doubled and is estimated to grow further. Motorcycles are frequently used by meal and grocery couriers in London, with an estimated 19,000 to 40,000 motorcycle riders working for food delivery companies in London. Couriers most commonly use smaller capacity motorcycles with an engine size of under 125cc for work. People riding these smaller capacity motorcycles make up the majority of serious injuries and a large proportion of fatalities in motorcycle collisions taking place in London. Furthermore, riding for work can carry additional risk if not mitigated.

As such, we are delivering our Beyond CBT (BCBT) training course to motorcycle delivery riders and couriers. This is a one-day training course that we deliver free of charge to any delivery rider who wishes to develop their riding skills. The course content includes the

Highway Code, maintenance, securing and riding with a load and the safe use of sat-navs. We also deliver 1-2-1 training, which is a tailored course for any rider to build confidence on roads most used by them. During the 2022/23 financial year, 1,605 riders have been trained (959 through the 1-2-1 course and 646 through BCBT sessions), which is over our target of 1,483.

We have engaged with meal and grocery delivery companies directly on Vision Zero and Road Safety. We have set up a bi-annual Motorcycle Road Safety Forum for these companies – the first one of which was held on the 8 November 2022 and the second in due to take place in summer 2023. We are using the forum to promote road safety, discuss common road safety issues in the industry and to share best practice and information. Following discussions at the first forum and on-going engagement we are planning to launch a Road Safety Charter in partnership with the meal and grocery delivery industry in summer 2023.

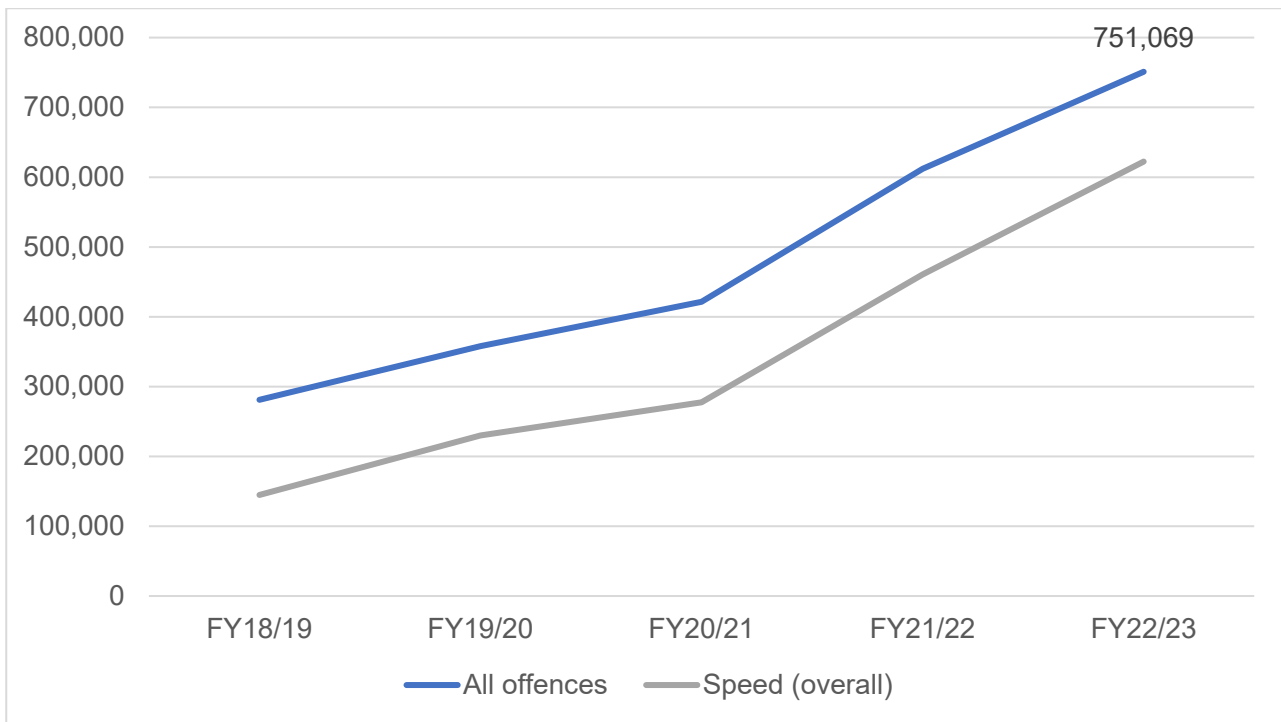
### **Intelligent Speed Assistance in the TfL fleet**

In January 2023, we published an evaluation of the ISA retrofit programme to our vehicle fleet. The evaluation analysed approximately two years' worth of trip and safety incident data from June 2020 to July 2022 to determine how effective the technology has been in our fleet. It found a 62 per cent reduction in speeding incidents amongst vehicles fitted with ISA, with reductions seen across all speed limits. There was also, amongst other positive findings, no increase observed in the number of harsh braking, cornering or acceleration incidents in vehicles fitted with the technology. This alleviates concerns that ISA fitment may have unintended consequences in terms of driving style. The results from the evaluation are extremely positive and will help us continue to make the strategic case for the inclusion of ISA technology in our fleet and more widely in London.

#### **3.1.3.4 Safe behaviours**

The Metropolitan Police Service (MPS) undertakes significant and wide-ranging activity to reduce road danger and prevent harm to all road users. The MPS prioritises its enforcement on the offences that cause the greatest risk and harm. This includes speeding, mobile phone offences, driving under the influence of drugs and alcohol, red light offences, careless or dangerous driving, driving without a licence or in an uninsured vehicle or driving while disqualified. In 2022/23, the MPS enforced almost 700,000 road traffic offences, which was 14 per cent higher than the previous year. Of these, over 570,000 were speeding offences, representing an increase of 24 per cent compared to the previous year.





**Figure 14. MPS traffic offence enforcement by year 2018/19 to 2022/23, all offences and speed offences. Source: TfL.**

In line with our commitments in the Vision Zero Action Plan progress report, we have been working with the MPS to increase the level of police enforcement capacity to tackle speeding and the harm it causes. In 2022, we increased the number of mobile safety cameras which complement police roadside enforcement activity and expanded the fixed safety camera network.

In addition, through a series of incisive and targeted marketing and engagement campaigns, we seek to tackle the behaviours that create most risk on London’s roads. Reducing and influencing speeding is a priority area with a new marketing campaign launching in September 2023 to target speeding drivers in 20 and 30mph zones. Additionally, we deliver communications targeted at motorcycle riders and other vehicle drivers, encouraging them both to look out for each other when turning into junctions. A new campaign for this activity will also be delivered in 2023/24.

### 3.1.3.5 Post-collision learning

On 18 April 2023, we published a report on inequalities on the road network. The research was completed as part of our Vision Zero commitment. It showed that deprivation, gender, age and mode of transport all have a significant impact on the risk of being killed or seriously injured in a collision.<sup>9</sup>

The research was completed as part of our Vision Zero commitment. The report found that (baseline average 2017-2019):

<sup>9</sup> <https://content.tfl.gov.uk/inequalities-in-road-danger-in-london-2017-2021.pdf>

- *Deprivation*: Twice as many people were killed or seriously injured per kilometre of road network when travelling in the 30 per cent most deprived areas of London compared to the 30 per cent least deprived areas.
- *Deprivation*: Almost twice as many people living in the 30 per cent most deprived areas of London are killed or seriously injured in road collisions than people living in the 30 per cent least deprived areas per 1,000 resident population.
- *Sex*: Per thousand people, more men are injured than women. This difference between the sexes increases with deprivation and injury severity. Men have over double the rate of fatal or serious injuries per thousand residents than women living in the 30 per cent most deprived areas of London.
- *Age*: The 16-30 age group has the highest casualty rate, followed by the 31-59 age group.
- *Higher risk communities*: Young men (aged 16-30) living in the 30 per cent most deprived areas of London and riding motorcycles have the highest killed or seriously injured rate (0.54 killed or seriously injured per 1,000 people), followed by young men (aged 16-30) living in the middle deprivation (IMD 4,5,6,7) 40 per cent of London and riding motorcycles (0.39 killed or seriously injured per 1,000 people).

We are working in partnership with the boroughs, police and other stakeholders to directly tackle road danger and continue to work on a number of major programmes to make both London's roads and the vehicles using them safer. However, the research conducted shows that continued action is needed to achieve the Mayor's Vision Zero goal of eliminating death and serious injury from the transport network, and to protect communities shown to be at higher risk of collisions. We will continue to analyse the causes of inequalities in road safety to help target future road safety programme planning and investment and drive further action to make London's roads safer.

### 3.1.4 Efficient use of street space

All journeys in London start on a street with 80 per cent of all journeys taking place entirely on the street network. Ensuring that our street space is used effectively, and enables healthy streets where people choose to walk, cycle and take the bus, is therefore critical to achieving key MTS targets. This means reducing overall traffic levels in London and optimising the use of the space available so that the most space-efficient and sustainable modes are prioritised. Reducing traffic dominance is also key to addressing the triple challenges of toxic air pollution, the climate emergency and traffic congestion.

#### 3.1.4.1 Planning and managing efficient streets

We continue to seek opportunities to manage our constrained street space effectively by optimising signal timings, implementing bus priority measures, working with the freight sector on innovative approaches to servicing and delivery, and exploring ways to reduce traffic overall. Managing kerbside space needs to be part of this approach as well, as even vehicles parked for relatively short periods take up space which could be better used to support sustainable modes, such as cycle hangars.

We are working towards a MTS target of a 10-15 per cent reduction in overall traffic levels by 2041. The Mayor's preferred pathway to net zero carbon in London, as set out in early

2022, includes taking action to reduce car vehicle kilometres travelled on London's roads by 27 per cent by 2030 relative to 2018.

Vehicle congestion cost London £5.1 billion in 2021<sup>10</sup>, not even considering the cost of congestion on bus passengers and on bus operating costs. Road traffic recovered towards pre-pandemic levels more quickly than demand for public transport. Although traffic remains around five percentage points below pre-pandemic levels, congestion continues to be high.

Congestion leads and gridlocked traffic lead to delayed and unreliable journeys as well as increasing air pollution and carbon emissions. It also has adverse impacts on journey times for bus users, making this a less attractive mode of transport, and impacts on essential trips such as freight and servicing and emergency services.

We will continue to take action to:

- Prioritise the most efficient modes of transport – walking, cycling and buses, in the way we plan and operate our streets
- Support freight in taking up more efficient and sustainable ways of working
- Explore the potential for future RUC as a means to address the triple challenges of toxic air pollution, the climate emergency and traffic congestion

## **Surface Intelligent Transport System**

Our Surface Intelligent Transport System (SITS) programme, which helps us to deliver a range of technology tools (such as our signal programme, further explained below), aimed at improving our operational capability and efficiency so that we can adapt our on-street operations to better deliver MTS outcomes in the context of a dynamic road network. The past 12 months have seen full deployment of a new incident management system as part of SITS into the Network Management Control Centre, and next year we will be operating a brand new and world-leading system for optimising movement on our roads.

## **Network Operating Strategy and Bus Sense programme**

To support efficient traffic management, we are developing a Network Operating Strategy (NOS), which will apply and build on our existing approaches on the TLRN and Strategic Road Network (SRN), to the entire road network in London.

The NOS will enable us to better manage our complex road networks to deliver better outcomes for people, businesses and essential services. Informed by extensive data and intelligence about how the network serves our customers, the strategy gives us a framework to collaborate with highway authorities and other partners to keep London moving.

The NOS also enables the delivery of innovations such as our Bus Sense programme. This partnership with boroughs and utility companies has supported the mitigation and coordination of high impact road activities on buses. Over 500,000 roadworks applications are received each year across London and they can cause a high level of volatility on the bus network as almost half of all roadworks are on bus routes, and they are responsible for a significant amount of bus delay. Our initial pilots with the London boroughs of Islington,

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<sup>10</sup> <https://inrix.com/press-releases/2021-traffic-scorecard-uk/> This figure does not take into account the cost of congestion on bus passengers and bus operating costs.

Lambeth and Tower Hamlets are already delivering tangible journey time savings for customers and in future can be rolled out more widely.

### Healthy Streets signal programme to prioritise sustainable modes

There are over 6,000 sets of traffic signals in London and we are responsible for the management of all of them, regardless of whether they are on the TLRN, the SRN or borough roads. Signal timing reviews – which look at how different signals work in specific locations – offer an opportunity to make changes so that we can optimise conditions for active, efficient and sustainable modes of travel. For example, we co-ordinate signals to help buses progress more smoothly, reduce pedestrian wait times and use traffic signals to prioritise buses that are running late.

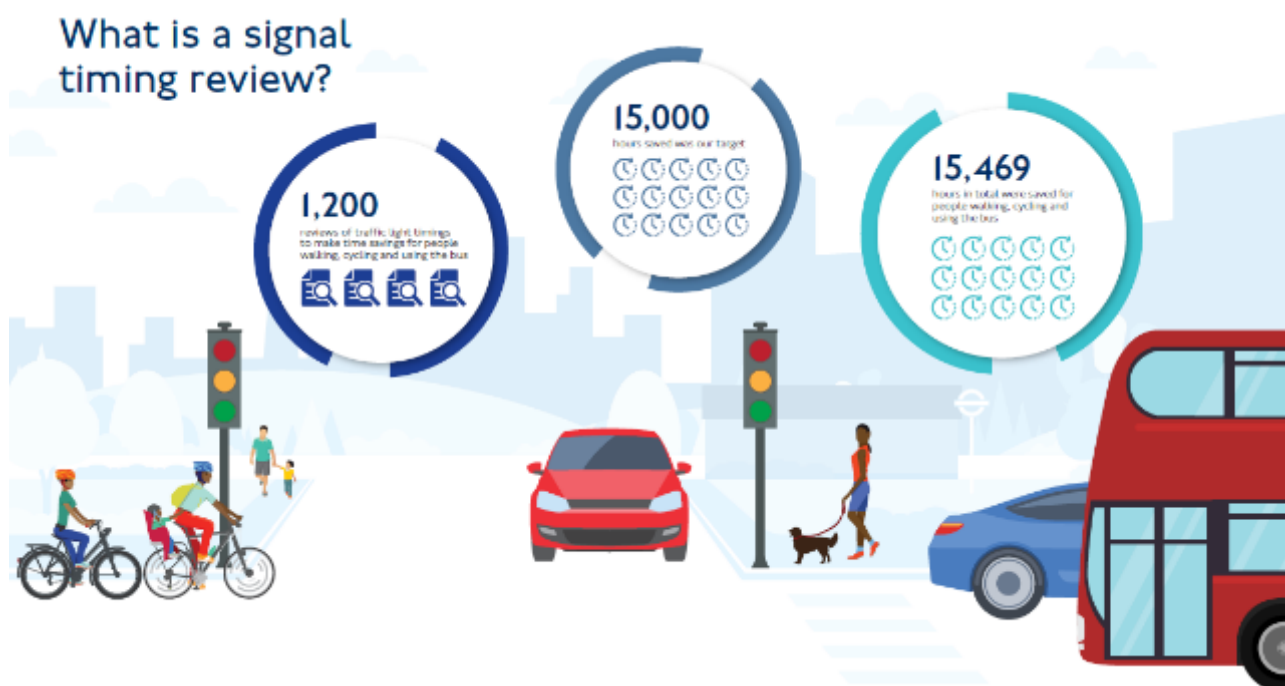


Figure 15. Signal timing reviews process and outputs. Source: TfL

In 2022/23, signal timing reviews enabled us to exceed our target of 15,000 hours saved for active, efficient and sustainable modes, reaching 15,469 hours saved. This includes:

- 13,742 bus passenger-hours saved from 732 signal reviews. This includes reviews of 125 junctions on the bus route network delivering around 2,500 hours savings.
- 1,706 hours saved for people walking from 538 signal reviews.
- 21 hours saved for people cycling from 13 signal reviews.

See 3.1.4.3 Supporting efficient ways of moving freight for information on the pilots of signal-retiming to support freight movements.

### Managing street works to reduce customer journey time and disruption

This year, we have continued to engage with works promoters (both within our organisation and external providers such as utility and other companies) to minimise any negative impacts of highway works on people walking, cycling and travelling by bus. We work

together to ensure that the temporary arrangements in place during the works – road layouts, traffic signal arrangements and signage – do not lead to unnecessary diversions, delay or barriers to accessing facilities. During 2022/23, we have avoided 6.3km of unnecessary diversions for pedestrians, 52km of bus diversions and just under 6km of cycle diversions. We also have protected bus priority measures and cycle facilities.

### **3.1.4.2 Bus Priority**

In March 2022, our Bus Action Plan (BAP) set out the vision for 2030, focusing on faster journeys, improved customer experience and decarbonisation. Buses are an effective use of street space and are the quickest, easiest and cheapest way to shift trips made by cars to public transport. As such, they are key to achieving the 80 per cent target for active, efficient and sustainable mode share.

We know that slower bus speeds and longer, less dependable journey times – caused by congestion, parking and other kerbside activity – make people less likely to travel by bus. We can see this in the decline in both bus speeds and demand in the six years leading up to the pandemic. Without intervention, there is the risk of a downward spiral as more people move from choosing the bus to choosing a car or choosing not to travel at all. As a result, improving bus journey times has been our immediate focus.

Bus priority measures are an important way to transform bus journey times and we are working with the boroughs to implement schemes across London. The right type of intervention will depend on local circumstances and there is a wide range of potential interventions, including bus gates, junction improvements, bus stop or stand relocation or consolidation and road signage and markings.

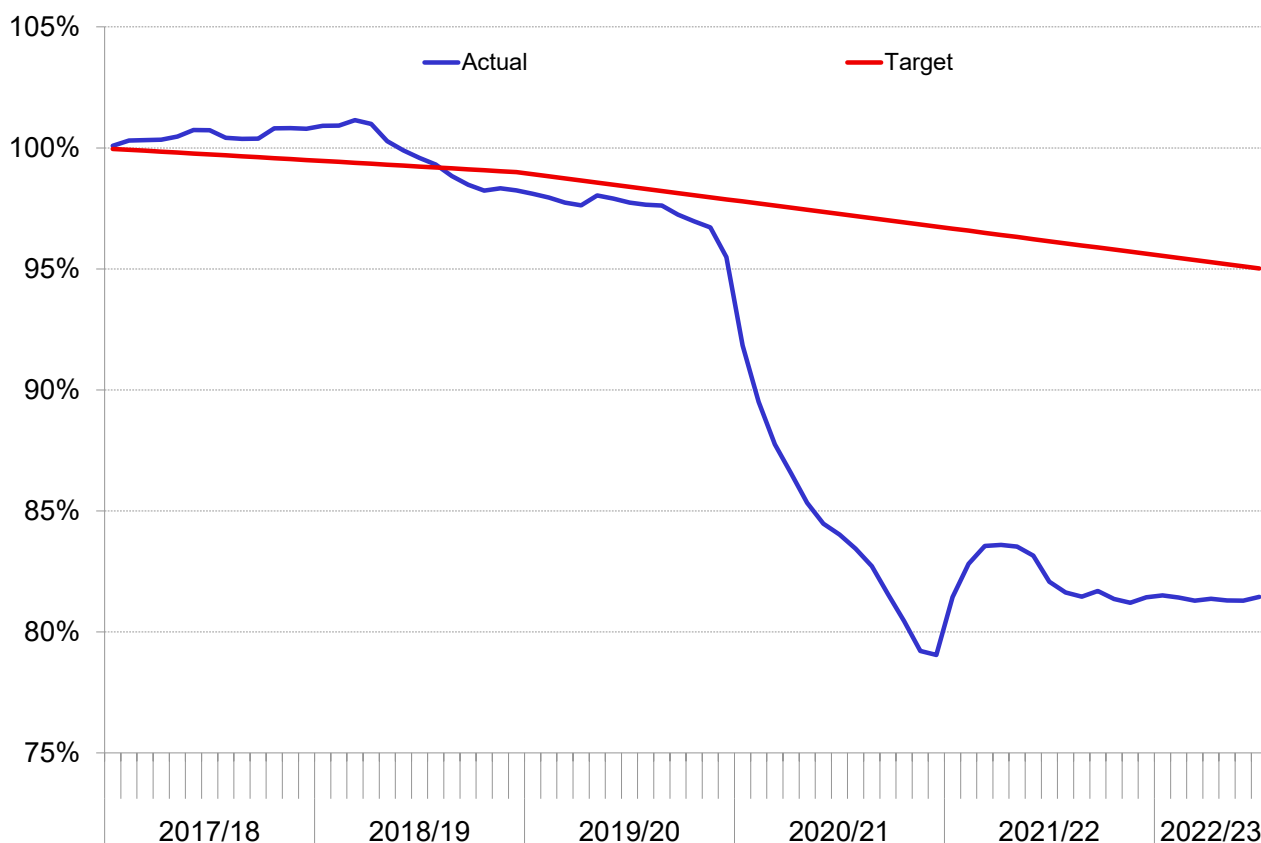
In the BAP, we committed to delivering an extra 25km of bus lane by 2025. We have now undertaken an assessment exercise to assess the bus lane potential of strategically important bus corridors. The outputs of this have informed the basis of our bus lane delivery programme with four of those 25km already delivered on both borough and TLRN roads, and a total of 10km planned for delivery by 2023/24. We will also be considering bus priority in delivering the Superloop, the expansion of the bus network in outer London announced in March 2023 (for more details on the BAP delivery, please see section 3.2.1.4 Improving bus services).

### **3.1.4.3 Supporting efficient ways of moving freight**

A specific aim of the MTS is to reduce the number of 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 pressures on the road network at this time of the day and would help to reduce road danger.

Figure 16 shows the observed trend over recent years and sets this in the context of the nominal trajectory required to meet this target. By early 2021, the reduction in the number of vans and lorries was more than 20 per cent against the 2016 baseline, mainly due to the impact of the pandemic. However, although there was an initial increase in goods vehicle numbers once the pandemic restrictions were lifted, in 2022 these numbers stabilised and

now sit at around 19 per cent below 2016 levels. This is well in exceedance of the MTS target.



**Figure 16. Observed freight movements in the central London Congestion Charge zone. Source: TfL**

To ensure these levels do not return to pre-pandemic figures, we continue working towards reducing motorised freight trips in central but also inner and outer London. Some initiatives to support efficient ways of moving freight we have worked on during 2022/23, include:

- Working with DHL Express, we used freight vehicle telematics data to identify locations on London's road network where HGVs frequently experience delays to their journeys and poor journey time reliability. Pilot freight signal timing reviews were then undertaken at six of the locations between April and September 2022. Initial results demonstrate the ability to reduce vehicle delays and stops for HGVs and other vehicles at several locations during the late evening and overnight period.
- Through our 'real-time road management for freight' pilot project, we monitored freight movements during the late evening and overnight at seven key locations between November 2022 and January 2023, and we intervened in real-time using freight signal strategies to support efficient and reliable freight trips. Analysis of these pilots and further analysis of the pilot freight timing reviews are currently being undertaken.
- We also continue investigating how technology and data can help to reduce the high number of bridge strikes and over-height vehicles in tunnels in London. Funding is being sought for the first stage of a potential programme of work that will help to address these issues and improve the efficiency and safety of London's road network, which impacts both road and rail.

- The London FreightLab, part of the Mayor's Civic Innovation Challenge, allowed innovators to develop solutions to help make freight cleaner, safer and more efficient, working in collaboration with industry partners. Through a public contest, five innovators were selected to develop their solutions. These five trials were conducted on a range of freight priorities including noise monitoring, kerbside solutions, reduction of tyre wear pollution, zero emission alternatives to vans, and reduction of near misses and hard brake incidents. The trials concluded at the end of the 2022/23 financial year, and the aim is to produce a final programme summary report during 2023, which will be made publicly available.

#### 3.1.4.4 Managing demand for road space

To reduce traffic, we will need to continue to develop proposals to manage demand, including road user charging (RUC). RUC is a proven method for reducing traffic and can also deliver benefits in terms of air quality, carbon emissions, safety and congestion.

In summer 2022, we consulted on proposals to help improve air quality, tackle the climate emergency and reduce traffic congestion, including changes to the Congestion Charge and asking for views on the future of RUC in London.

A potential new RUC scheme could replace existing schemes, such as the Congestion Charge, ULEZ and Low Emission Zone (LEZ), with a simple and fair scheme for customers. The consultation sought views on what a potential future scheme could look like, including what the priorities should be in terms of addressing challenges and what different elements of a scheme should be considered. The challenges most often identified by respondents were road safety and bus journey time and reliability.

We will use the responses to inform our future thinking around how such a scheme could be designed and developed. Any proposals which could be developed in the future would be subject to a further public and stakeholder consultation with information provided on detailed scheme proposals and their likely impacts.

### Congestion Charge

We keep the Congestion Charge under review so that it remains effective in managing traffic and congestion in central London, consulting on changes to the scheme when required. In summer 2022, we consulted on two changes to the scheme as well as some minor administrative changes. The two proposals were, firstly, to remove the £10 annual registration fee for each vehicle registered for Auto Pay (including Fleet Auto Pay) for the Congestion Charge, ULEZ and LEZ to help remove a barrier to people signing up to Auto Pay. Secondly, to increase the penalty charge notice (PCN) level for the Congestion Charge and ULEZ from £160 to £180, reflecting the decreased deterrent effect of the PCN charge over time. The Mayor decided to make these changes in November 2022 and they were implemented at the end of January 2023.

#### Focus on: Congestion Charge 20 years on

February 2023 marked 20 years since the introduction of the world-leading Congestion Charge in central London. On its introduction, the Congestion Charge was effective in limiting traffic entering the zone by 18 per cent during weekday charging hours and

## Focus on: Congestion Charge 20 years on

reducing congestion by 30 per cent. It also gave a huge boost to bus travel and helped people to switch to active, efficient and sustainable modes – an estimated ten per cent of journeys were switched to walking, cycling and public transport. Over time, the space freed-up by reduced traffic has enabled a re-design of streets to support other MTS priorities for active, efficient and sustainable travel. This includes, for example, the major new public spaces at Strand Aldwych and Tottenham Court Road.

The scheme continues to reduce the trend of worsening congestion that other cities have seen. This has helped ensure London's growth has been sustainable as high levels of traffic make deliveries less reliable, delay bus journeys, worsen air pollution, and make it less safe for people walking and cycling. £5.1bn was lost to congestion in London in 2021, a figure that would have been much higher with the three million additional car journeys that, in conjunction with wider transport interventions across London, the Congestion Charge helped avoid.

All revenue from the Congestion Charge – and any RUC scheme in London – is re-invested in London's transport network, helping Londoners travel by more environmentally friendly ways and furthering the aims of the MTS. In the early years of the scheme, the revenue raised helped to fund significant improvements to the bus network in central London. In its first year, this helped bus travel into the zone in charging hours to increase by 37 per cent and bus excess waiting time to fall by 30 per cent.<sup>11</sup>

The Congestion Charge remains a world-leader in demonstrating the impact and wide-ranging benefit of demand management. The LEZ and the ULEZ have built on the successes and lessons learned from the Congestion Charge, which will also inform the development of any future scheme.

### 3.1.4.5 Tracking progress against our aims

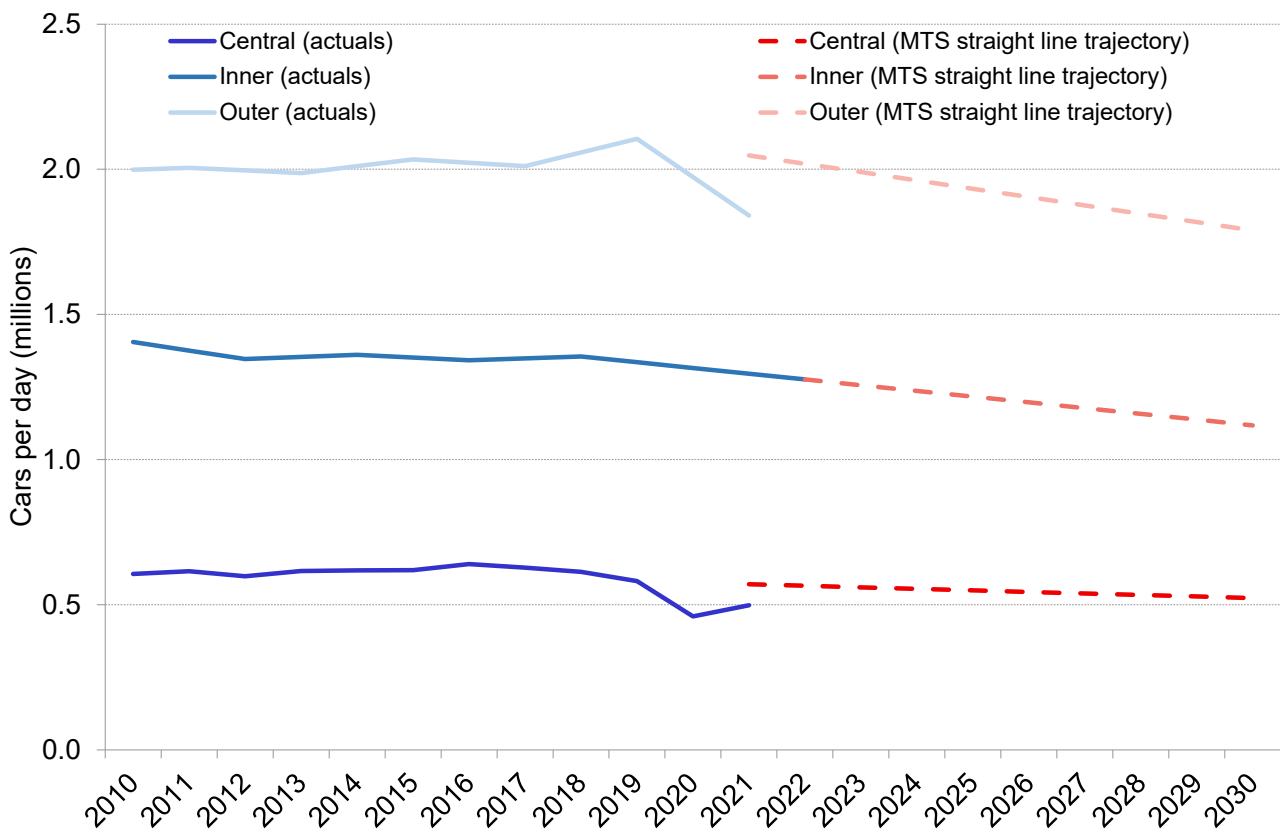
The MTS Tracker for the 'Efficient' outcome monitors reductions in car use, namely the target of three million fewer car crossings at the three cordons at central, inner and outer London by 2041.

These cordon counts have been used as the metric for the MTS Tracker (Figure 17) and show the number of cars passing the London boundary cordon, inner London cordon and central London cordon on a representative day. It should be noted that cordon counts are only carried out every other year, and that there has been some disruption to the count frequency owing to the pandemic. For these reasons, while the latest available data for the inner London cordon covers 2022, the latest available data for the central and outer cordons covers 2021.

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<sup>11</sup> <https://content.tfl.gov.uk/impacts-monitoring-report-2.pdf>





**Figure 17. MTS Tracker for Efficient: number of cars counted crossing Greater London, inner London and central London cordons, most recent data post pandemic and MTS target trajectory. Source: TfL.**

Figure 17 shows the observed car traffic at the cordons and the trajectory required if we are to meet the MTS target (this is not a forecast, although forecast data is referred to in this section). As can be seen in the graph, there has been an increase at the central London cordon (2021) following the 2020 dip and this is expected to return to pre-pandemic levels before settling back to the overall downward trend that has been observed in the years 2018 to 2019. At the inner London cordon, we can see that car traffic has continued to fall in 2022, in line with the pattern over the past decade, and this trend is forecast to continue.

At the outer London cordon, the latest data (2021) shows that the fall in car crossings occasioned by the pandemic has continued. However, we lack data for 2022 as the surveys are every two years.

While these reductions are to be welcomed, and indicate the success of interventions particularly in central and inner London over the past decade, the outer London picture is concerning. As it would be expected, the volume of traffic relates to the size of the cordon and this means that reductions in central and inner London risk being offset by a continuation or rise in traffic levels at the outer London cordon. Indeed, more than 70 per cent of London’s traffic is in outer London, so a continued increase in trips across this cordon has a significant overall impact.

A reduction in traffic, particularly in car use, is an important aspect of achieving the central MTS outcome of 80 per cent of all trips being by active, efficient and sustainable modes by 2041. Some of the main reasons for this effect are set out below, and in Chapter 4 we list our on-going approaches to tackling the problem.

- Traffic dominance is one of the main deterrents to people cycling and walking: a healthy street is one where people feel safe and comfortable to use these modes, including as part of a longer journey to access public transport.
- Car use is an inefficient way to use London's finite street space. Moving and parked cars take up space which could be better used to prioritise and protect more space-efficient and sustainable modes – bus lanes, cycleways and cycle parking – and enable more Londoners to choose to travel this way.
- Congestion, 75 per cent of which is caused by demand exceeding capacity, has negative impacts on other road users, including bus customers, freight and emergency services in terms of increased delay and unreliable journey times. We need to continue to work to improve bus journey times so that Londoners choose to take the bus more often. This will also be a fair approach as buses are an affordable and accessible option across London.
- The switch from car use to active, efficient and sustainable modes is, in many cases, highly achievable. Almost 10 million car journeys are made in London every day and more than 30 per cent of these could be walked in under 25 minutes, and around 1.7 million of these trips could easily be made by bus. This switch would also increase Londoners' time spent on active travel, thereby benefiting their health.

### 3.1.5 Green

Activities relating to the 'Green' outcome are being delivered in conjunction with the LES. The MTS and the LES share aims to clean London's air, decrease emissions, install further green infrastructure, increase biodiversity, reduce waste and adapt to climate change. These areas of work are crucial as we continue to work towards the Mayor's goal to make London a net zero carbon city by 2030.

#### 3.1.5.1 Improving air quality

In September 2021, the World Health Organization (WHO) recommended more stringent health-based air quality guidelines. This was in recognition of the growing body of health evidence that continued to show adverse health effects of air pollution in different ages and even at levels previously considered to be low.<sup>12</sup> In addition, an evidence review by the Environmental Research Group at Imperial College London<sup>13</sup>, commissioned by the GLA and published in April 2023, showed that air pollution causes harm to people at all stages of life, from being an unborn child to old age. Researchers found that concentrations of particulate matter under 2.5 microns (PM<sub>2.5</sub>) and NO<sub>2</sub>, of which road transport is a significant source, are particularly harmful. In 2019, road transport accounted for 43 per cent of nitrogen oxides (NO<sub>x</sub>) emissions, 31 per cent of PM<sub>2.5</sub> emissions and 27 per cent of CO<sub>2</sub> emissions in London. This means that a continued focus on reducing emissions from road transport is vital for the health and wellbeing of Londoners now and in the future.

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<sup>12</sup> <https://www.who.int/news/item/22-09-2021-new-who-global-air-quality-guidelines-aim-to-save-millions-of-lives-from-air-pollution>

<sup>13</sup> <https://www.london.gov.uk/sites/default/files/2023-04/Imperial%20College%20London%20Projects%20-%20impacts%20of%20air%20pollution%20across%20the%20life%20course%20%E2%80%93%20evidence%20highlight%20note.pdf>

In addition, research shows that those exposed to the worst air pollution are more likely to be those living in deprived areas and individuals from Black, Asian and minority ethnic communities.<sup>14</sup> Data covering the period 2016 to 2019 also showed that NO<sub>x</sub> emissions from road transport reduced at just half the rate in outer London as they did in central and inner London, and the percentage reduction was ten times greater in inner and central London than in outer London for particulate matter under 10 microns (PM<sub>10</sub>) and five times greater for PM<sub>2.5</sub>. In 2019, between 3,600 to 4,100 deaths were attributable to air pollution in London, with the greatest number in the outer London boroughs. This is mainly because of the higher proportion of elderly people in these areas who are more vulnerable to the health impacts of air pollution.

There have been significant, continued improvements in London's air quality as a result of the Mayor's air quality programme. The London Atmospheric Emissions Inventory 2019, which was updated in April 2023, demonstrates accelerated progress towards cleaner air since 2016. Whilst strong progress is being made to bring large areas of London within the WHO's interim targets for NO<sub>2</sub>, PM<sub>2.5</sub> and the WHO guideline for PM<sub>10</sub>, current projections show there are no areas of London that will come within the WHO's guidelines for NO<sub>2</sub> (annual average 10 µg/m<sup>3</sup>) and PM<sub>2.5</sub> (annual average 5 µg/m<sup>3</sup>) by 2030 without significant further action.

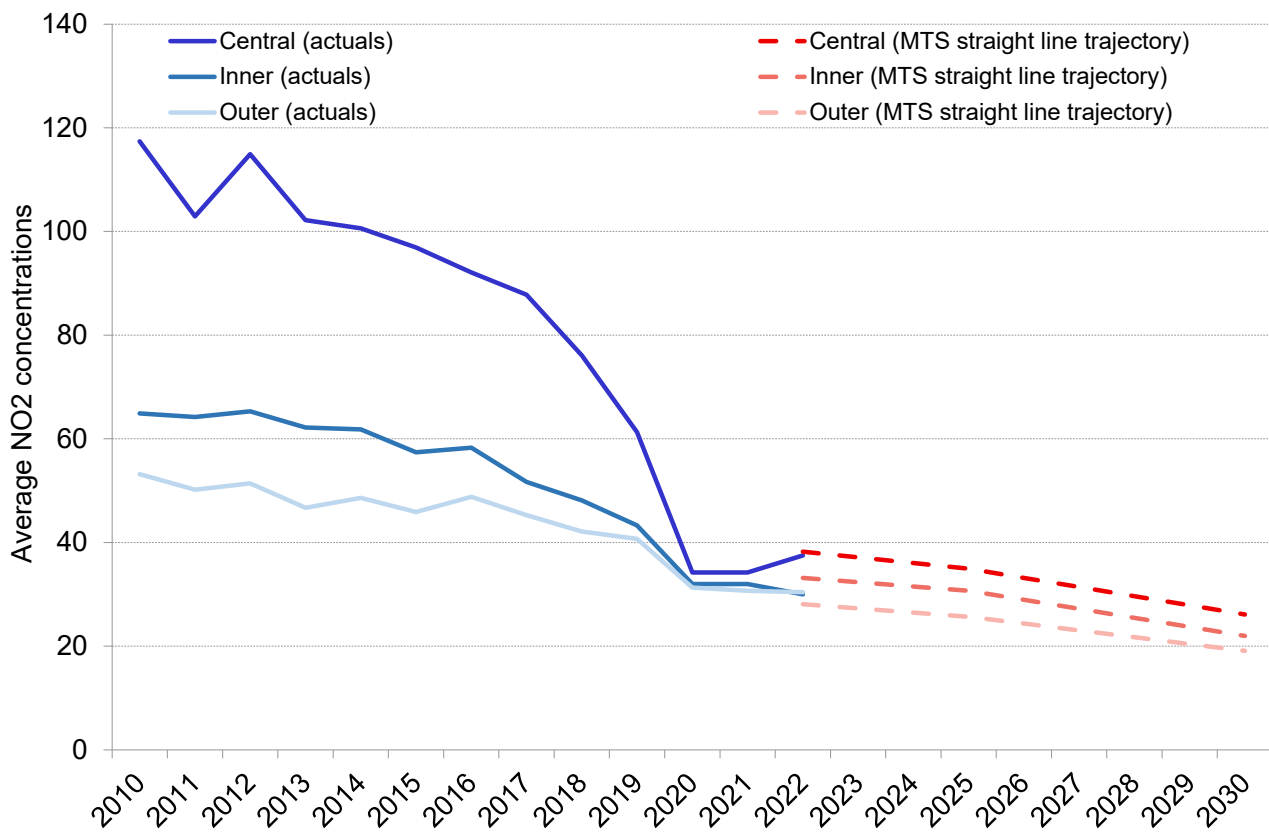
The Mayor has pledged to take further action, including expanding the ULEZ London-wide at the end of August 2023. Between 2016 and 2019, NO<sub>x</sub> emissions reduced by 18 per cent in Greater London and are forecast to reduce further by 31 per cent in 2025, and 44 per cent in 2030, compared to 2019 levels. This forecast was commissioned prior to the decision to expand the ULEZ London-wide being taken and, therefore, does not include this policy, which is anticipated to lead to a greater drop in emissions.

Specifically for road transport, NO<sub>x</sub> emissions reduced by 31 per cent between 2016 and 2019, which is more than double the reduction between 2013 and 2016. This is primarily influenced by strong Mayoral policies specifically targeting vehicle emissions. Due to this significant reduction, it is forecast that by 2025 road transport will no longer be the dominant source of NO<sub>x</sub> across London.

The levels of annual average roadside NO<sub>2</sub> concentrations are presented in Figure 18, showing the progress towards the MTS trajectory for NO<sub>2</sub> concentrations. The NO<sub>2</sub> concentration levels have dropped dramatically by two thirds from 115µg/m<sup>3</sup> in 2012 to 38 µg/m<sup>3</sup> in 2022 for central London sites. There has been a slight increase in 2022 compared to 2020 and 2021, which reflects the temporary reduction in traffic levels seen in those years due to the pandemic. However, 2022 levels still remain well below 2019 and remain on the MTS trajectory. Inner London sites have also seen large reductions, with NO<sub>2</sub> levels approximately halving from 65 µg/m<sup>3</sup> in 2012 to 30 µg/m<sup>3</sup> in 2022, already meeting the MTS trajectory figures for 2025. Outer London sites have also seen significant reductions from 51 µg/m<sup>3</sup> in 2012 to 30 µg/m<sup>3</sup> in 2022.

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<sup>14</sup> <https://www.london.gov.uk/press-releases/mayoral/toxic-air-reducing-far-more-slowly-in-outer-london>



**Figure 18. MTS Tracker for Green: annual average roadside NO<sub>2</sub> concentrations (µg/m<sup>3</sup>) in London, observed 2010 – 2022 and MTS target trajectory. Source: TfL.**

Compared to 2016, total PM<sub>2.5</sub> emissions reduced by five per cent in Greater London in 2019 and are forecast to reduce further by 11 per cent in 2025, and 18 per cent in 2030, from 2019 levels (again not accounting for the impact of the ULEZ expansion London-wide). Despite construction being the largest source of PM<sub>2.5</sub> emissions, and not road transport, road transport still accounted for 31 per cent of PM<sub>2.5</sub> emissions in 2019.

### Expected impacts of the London-wide ULEZ

The London-wide ULEZ is expected to reduce road transport NO<sub>x</sub> emissions by 5.4 per cent (362 tonnes) and PM<sub>2.5</sub> emissions by 1.5 per cent (7.8 tonnes) in London. That is more than the reduction of 240 tonnes of NO<sub>x</sub> in the first year of the central London ULEZ.

Data from the GLA, reviewed by Imperial College London, shows that road transport NO<sub>x</sub> emissions for all vehicles are expected to reduce by 5.5 per cent (214 tonnes) outside the Greater London area in 2023, compared to a scenario where there was no ULEZ expansion London-wide.<sup>15</sup>

Our data shows the effectiveness of our ULEZ and LEZ schemes in encouraging people to switch from older, more polluting, vehicles. As Table 2 shows, compliance with the required emissions standards for both the current ULEZ and LEZ significantly increased between February 2017 (when Londoners and businesses started preparing for new emissions standards) and March 2023. And for the planned London-wide ULEZ expansion, our data

<sup>15</sup> [ULEZ Scheme Integrated Impact Assessment \(IIA\)](#)

shows that at the end of 2022, 90 per cent of cars seen driving in outer London on an average day already met the ULEZ standards. This is up from the 85 per cent we estimate for November 2021 and 75 per cent for June 2020. It is expected that when the standards cover the expansion larger area, the proportion will be even higher.

Month	Current ULEZ	London-wide LEZ
February 2017	39%	48%
March 2022	93%	96%
March 2023	95%	97%

**Table 2. ULEZ and LEZ compliance levels. Source: TfL.**

Alongside the decision to proceed with expanding ULEZ London-wide, the Mayor announced he would be funding a £110m scrappage scheme which launched in January 2023. This builds on the success of the previous £61m scrappage scheme that helped to remove over 15,200 older, more polluting vehicles from London’s roads. This combined scrappage fund of £171m is the largest in the UK.

The scheme offers grant payments to Londoners on lower incomes and with disabilities, sole traders, micro businesses and charities to scrap or retrofit non-compliant vehicles. In addition, there are alternative offers such as a bus and tram pass, and we have also secured ULEZ support offers available both to general Londoners and exclusive offers to scrappage grant recipients. They include bike hire and purchase deals, cargo bike rental, vehicle leasing, and car club discounts.

Since the launch of the latest scrappage scheme, between 30 January and 11 April 2023, we approved 4,833 applications and £17.72m of funding had been committed. From the grants committed so far £4.1m has been committed to those on certain low income or disability benefits scrapping cars, motorcycles or Wheelchair Accessible Vehicles (WAVs) (which includes retrofitting of WAVs), whilst £13.5m has been committed to sole traders, micro-businesses and charities scrapping or retrofitting vans or minibuses.

In November 2022, we published an evaluation report of our previous scrappage scheme.<sup>16</sup> The report shows that the scheme was effective in helping people switch to sustainable modes of transport, with a third of survey respondents reporting that they did not replace their vehicle, as well as increases in walking (22 per cent), cycling (five per cent), bus use (16 per cent), underground travel (four per cent) and an overall decrease in car travel (two per cent).

Aside from the ULEZ, we have numerous other policies that aim to improve air quality in London. These include taking action through our taxi and private hire vehicle (PHV) licensing requirements. In November 2022, the maximum age limit for non-Euro 6 diesel taxis was reduced to 12 years and all PHVs being licensed for the first time must be Zero Emission Capable (ZEC). This is the final reduction in the maximum age limit introduced to

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<sup>16</sup> <https://content.tfl.gov.uk/ulez-scrappage-schemes-evaluation-report.docx>

reduce harmful emissions from taxis and improve air quality in the capital. As of 7 May 2023, there were 7,186 ZEC taxis licensed in London, which is 47 per cent of the total fleet.

From 1 January 2023, all PHVs newly registered in London must be ZEC. This means these vehicles must be able to drive without exhaust emissions for at least part of their range. As of 1 February 2023, 30.1 per cent of licensed PHVs in London were ZEC, emitting under 75g/km of CO<sub>2</sub>.

### **3.1.5.2 Net Zero Carbon**

The Mayor has increased his ambition to reduce carbon in London. He has brought forward the MTS commitment of London being a net zero carbon city by 2050 to 2030.

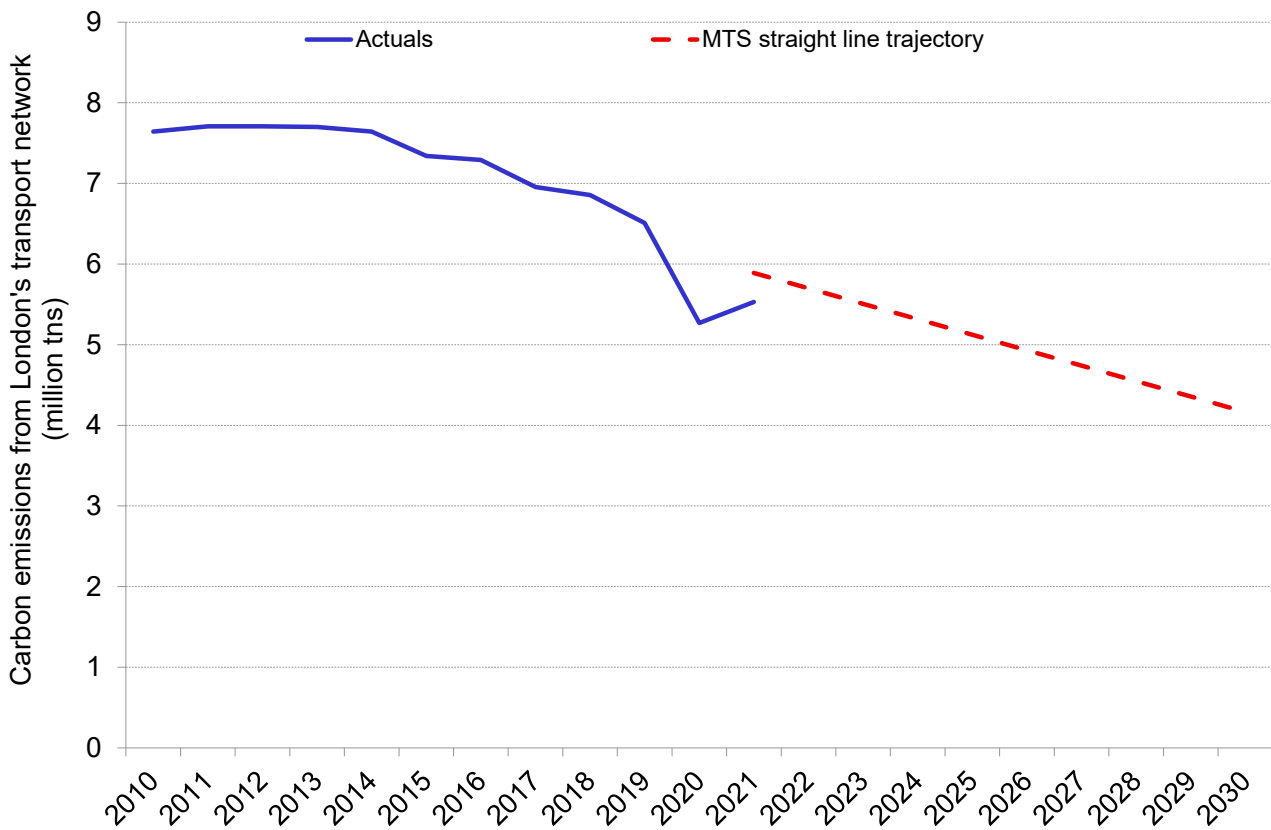
A 2022 report<sup>17</sup> commissioned by the GLA from Element Energy presented four potential Pathways to reach this goal. The Mayor has selected the 'Accelerated Green' scenario as the preferred pathway, which would require a 27 per cent reduction in car vehicle kilometres by 2030 relative to 2018.

The MTS Tracker (Figure 19) shows that while we are broadly on track to meet the original (2050) strategy aims, we need urgent and large-scale action to meet the accelerated 2030 target.

We are exploring the options that could be considered to respond to the accelerated 2030 target.

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<sup>17</sup> [https://www.london.gov.uk/sites/default/files/nz2030\\_element\\_energy.pdf](https://www.london.gov.uk/sites/default/files/nz2030_element_energy.pdf)



**Figure 19. MTS Tracker for Green: CO2 emissions from London’s transport network, observed 2010 – 2021 and MTS target trajectory. Source: TfL.**

In the immediate term, we are continuing to develop and implement measures which help to cut carbon emissions from our operations and our estate.

It is estimated that, since 2019, the ULEZ has led to a reduction of around 800,000 tonnes of carbon dioxide emissions from vehicles across London over the four-year period compared to without the ULEZ, a saving of three per cent<sup>18</sup>. This reduction in emissions is a vital step closer to achieving the Mayor’s aim of reaching net zero carbon emissions by 2030. In addition, the proposed London-wide ULEZ is expected to reduce road transport carbon emissions by 0.4 per cent (around 23,000 tonnes) across Greater London<sup>19</sup>.

### TfL Buildings Decarbonisation

Decarbonising our buildings is key to achieving our ambition of both net zero operations and head office buildings by 2030. In 2022 we completed a detailed review to establish:

- An improved carbon emissions baseline for our buildings

<sup>18</sup> Mayor of London (2023) Inner London Ultra Low Emission Zone – One Year Report. Source: <https://www.london.gov.uk/sites/default/files/2023-02/Inner%20London%20ULEZ%20One%20Year%20Report%20-%20final.pdf>

<sup>19</sup> See section 5.2.1 in Jacobs (2022) London-wide ULEZ Integrated Impact Assessment (ULEZ Scheme IIA) Source: [https://ehq-production-europe.s3.eu-west-1.amazonaws.com/2e0438f24520ece474690bb99a94108e4a555b1e/original/1652882837/c7731c1b9dd3c304567a31d5b4816351\\_London-wide\\_ULEZ\\_Integrated\\_Impact\\_Assessment\\_%28ULEZ\\_Scheme\\_IIA%29\\_%282%29.pdf](https://ehq-production-europe.s3.eu-west-1.amazonaws.com/2e0438f24520ece474690bb99a94108e4a555b1e/original/1652882837/c7731c1b9dd3c304567a31d5b4816351_London-wide_ULEZ_Integrated_Impact_Assessment_%28ULEZ_Scheme_IIA%29_%282%29.pdf)

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- Opportunities to cut carbon and cost across our buildings
- Actions to take as an organisation to accelerate progress towards net zero

Our findings from that project estimate that our buildings carbon footprint is approximately 11-12 per cent of our total operational carbon emissions. Our buildings decarbonisation strategy sets out four recommended action areas:

1. Putting in place conditions to enable carbon reduction to happen as part of business as usual.
2. Implement specific activities to accelerate decarbonisation trajectory.
3. Improve data to better target specific decarbonisation activities.
4. Ensure the right delivery model is in place to coordinate and drive packages forward.

We have secured £39 million of funding for decarbonisation of buildings as part of our Business Plan, which will be used to progress feasibility studies at eight priority sites. At Therapia Lane Tram depot, £592,000 was awarded by the Department for Energy Security as part of the Net Zero Public Sector Decarbonisation scheme, to help reduce carbon emissions on our network, amongst other schemes.

### **Power Purchase Agreement (PPA) progress**

Earlier this year, we issued a tender for a Power Purchase Agreement (PPA) that would provide up to 10 per cent of our required electricity from renewable sources. We had a positive response to the initial Selection Questionnaire stage and hope to complete the procurement in early 2024.

### **Solar Private Wire**

As London's single largest consumer of electricity, it is our responsibility to identify and utilise renewable energy sources. The Solar Private Wire project presents an opportunity to directly receive zero-carbon (solar generated) electricity from decentralised sources. This has twin benefits of guaranteeing renewable energy and providing financial savings.

Market engagement has been completed for a 'solar collaborator' who would carry out detailed project identification and development, where we would ultimately purchase the energy to assist with powering the Underground network. Detailed discussions with industry are underway.

Initial investigations suggest that our power network can accommodate 64 megawatts (MW) of renewable energy, equivalent to five per cent of the annual load.

### **Waste Heat**

We are exploring ways of using waste heat to reduce gas combustion and, hence, carbon emissions. A project to capture thermal energy coming from London Underground ventilation shafts will help local users by powering heating and hot water in nearby building. According to studies conducted, thousands of residential premises, in addition to commercial and public buildings, could benefit from the development of this Waste Heat project in six ventilation shafts in our network.



Current activity is focused on accelerating the delivery of an initial ventilation shaft site, with an expectation to identify an appropriate energy supplier in the summer. Work will continue in parallel to identify future waste heat opportunities across our estate, including other options for harnessing heat from alternative sources, including pumped water systems.

### 3.1.5.3 Electric vehicles

Zero emission capable (ZEC) vehicles make up an increasing share of vehicles being registered for the first time in London. As shown in Figure 20, ZEC cars, comprising of zero emission vehicles (ZEV) and plug-in hybrids, accounted for 28 per cent of all cars registered for the first time in 2022, up from 23 per cent in 2021. The majority of ZEC vehicles are ZEVs, made up mostly of electric and some hydrogen fuel cell vehicles, comprising 24 per cent of new car registrations in 2022 compared to 17 per cent in 2021. The first time registrations of petrol and diesel cars has continued to fall, with diesel cars making up six per cent of new registrations in 2022 compared to nine per cent in 2021 and 20 per cent in 2019. First time registrations of ZEV vans continue to increase accounting for six per cent of all new vans registered in 2022 compared with five per cent in 2021 and 1.6 per cent in 2019.

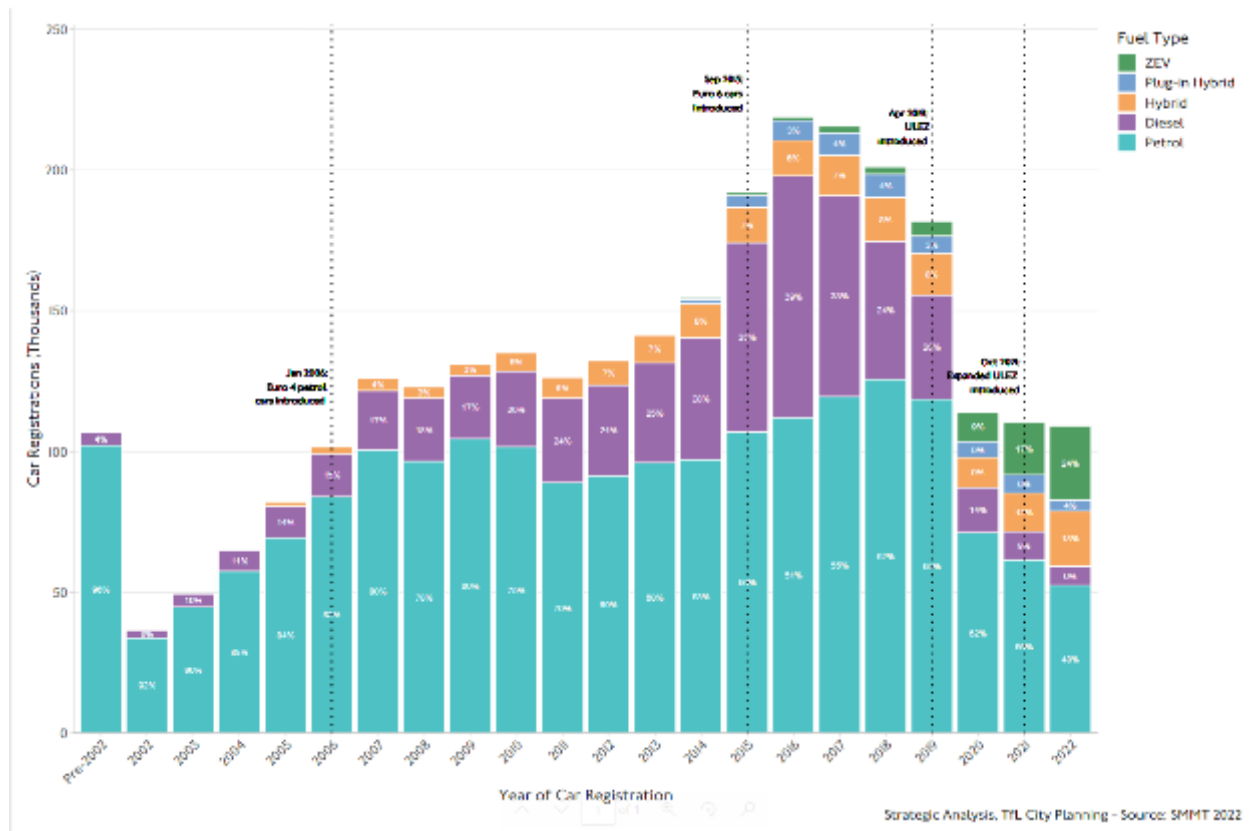
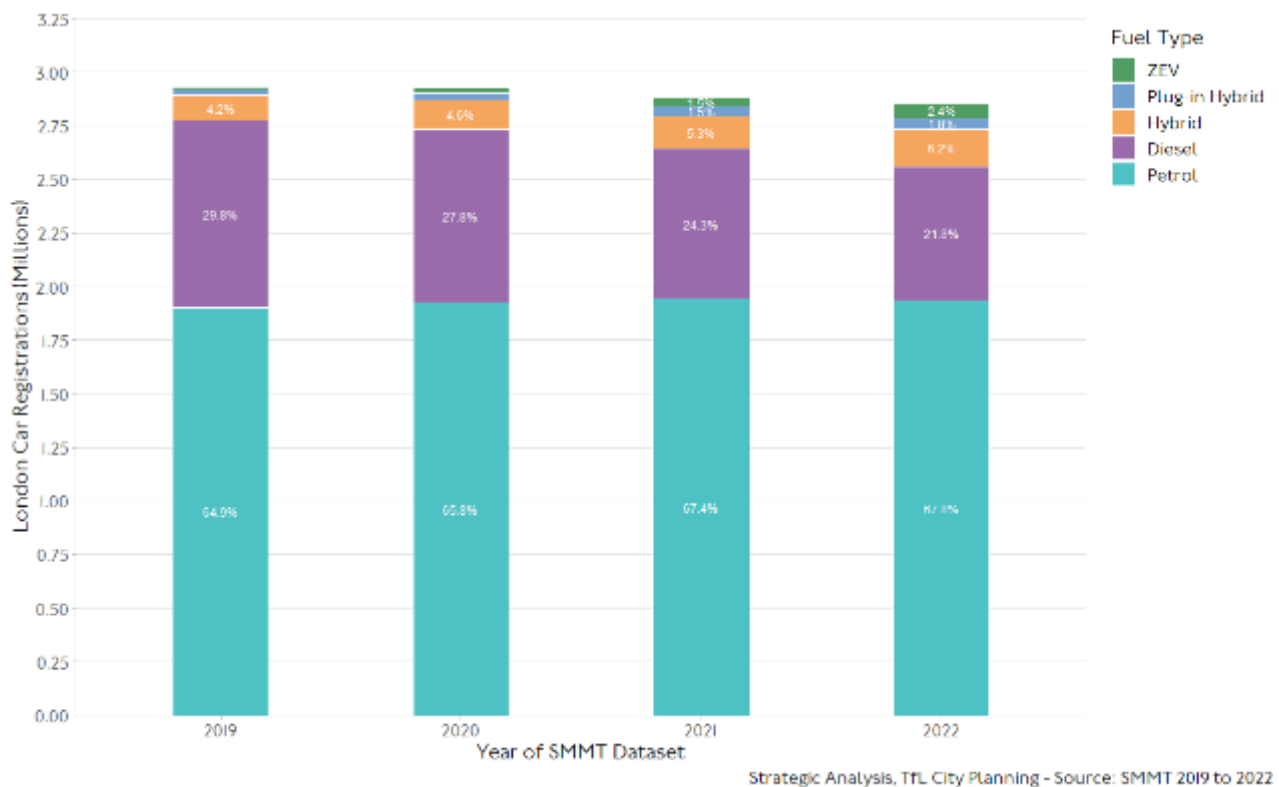


Figure 20. Car registrations in London by registration year and fuel type: TfL and SMMT.

Reflecting the increase in new ZEC car registrations, the proportion of ZEC cars of all cars registered in London has increased to a share of 4.2 per cent (121,000 cars) in 2022 compared with three per cent (86,500) vehicles registered in London in 2021. Reflecting the increase in new ZEC car registrations, the proportion of ZEC cars of all cars registered in

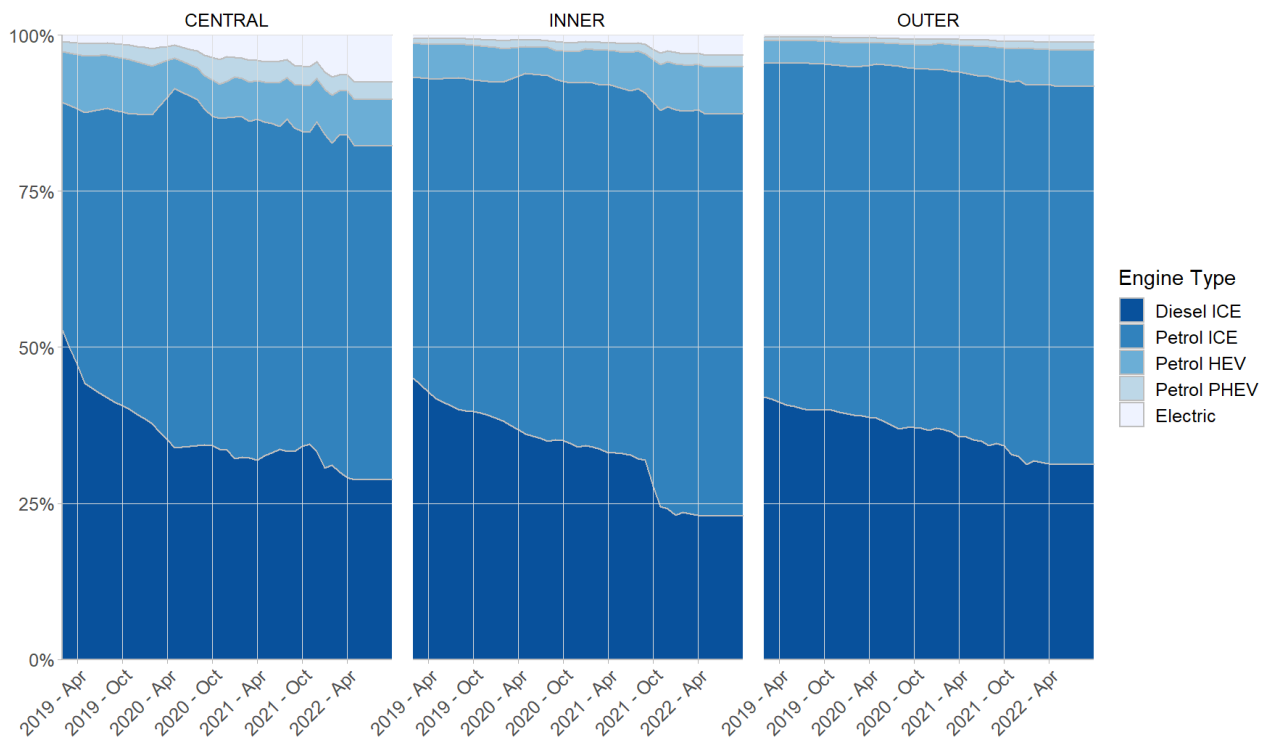
London has increased to a share of 4.2 per cent (121,000 cars) in 2022, compared with three per cent (86,500) vehicles registered in London in 2021.



**Figure 21. London car registrations by fuel type. Source: TfL and SMMT.**

The increase in uptake of EVs across London has translated to an increase in EV vehicle kilometres. The proportion of car kilometres, excluding private hire vehicles, in central London driven by EVs continues to increase, making up approximately seven per cent in late 2022 and around three per cent in inner London in late 2022, as shown in Figure 22. In central London, this increase will have been influenced by the change in eligibility criteria to ZEVs for the Congestion Charge Cleaner Vehicle Discount in October 2021.

EV vans accounted for approximately four per cent of total van vehicle kilometres in the same period in central London, despite having a smaller share, compared to cars, of the total registrations for vans by engine type. PHV EVs accounted for around 13 per cent of all PHV kilometres in late 2022 for central London, with the share slightly lower in inner London. The higher proportion of PHV EV kilometres compared to cars (excluding PHVs) has been influenced by our ZEC licensing requirements for PHVs.

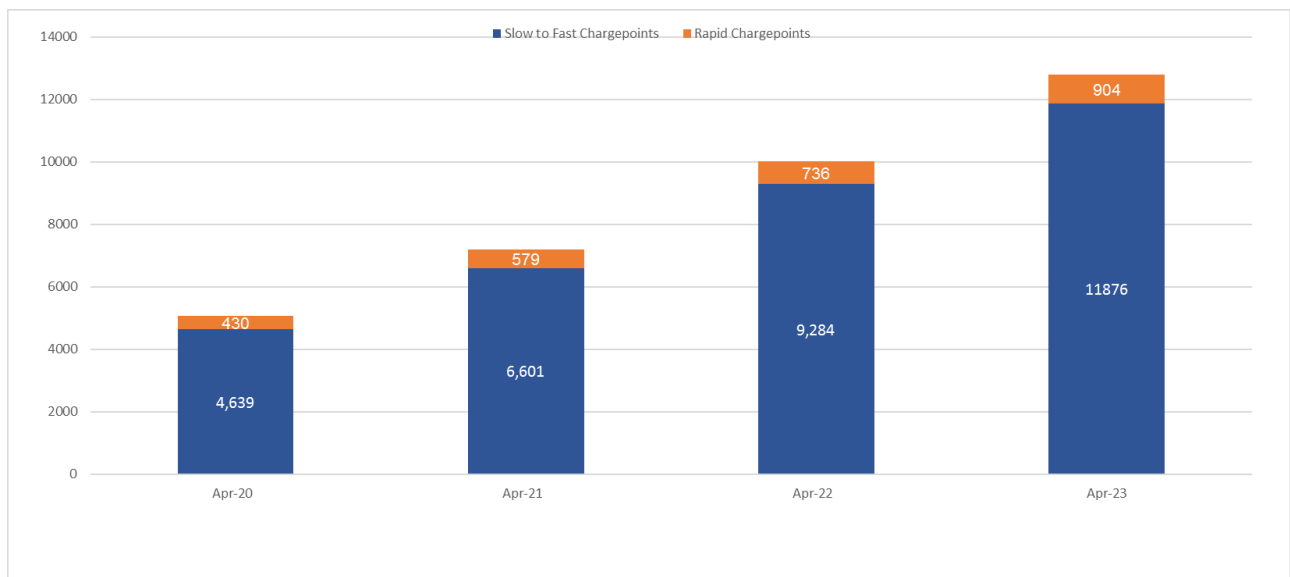


Source: Strategic Analysis, TfL City Planning

**Figure 22. Car vehicle kilometres fleet composition (excluding PHVs) by engine type and London zone. Source: TfL.**

### 3.1.5.4 Electric vehicle infrastructure

In April 2023, there were almost 12,800 public EV charge points in London, around one third of all public charge points in the UK. This is a 150 per cent increase in public charging infrastructure since April 2020.



**Figure 23. EV charging provision increase by slow to fast and rapid charger type. Source: DfT, Zapmap.**

We will continue to lead the rollout of the charge points needed to support the phasing out of petrol and diesel vehicle sales by 2030. Our Electric Vehicle Infrastructure Strategy (EVIS) sets out that London will need between 40,000 to 60,000 public charge points by 2030. Our key commitment in EVIS is to unlock GLA land for EV charging. This is done in two ways: by rolling out our Rapid Hubs programme, run by TTL Properties Limited (TTLP), which will deploy a network of rapid charging hubs on our estate and is progressing to tender for a joint venture partner, and by our Electric Vehicle Infrastructure Delivery (EVID) programme. Through this we have assessed hundreds of sites across the GLA estate for their suitability for rapid charge points. The first tranche of EVID will deliver rapid and ultra-rapid charge points across 100 parking bays on the TLRN. The contract for a charge point operator to deliver the first batch of sites was awarded in May 2023.

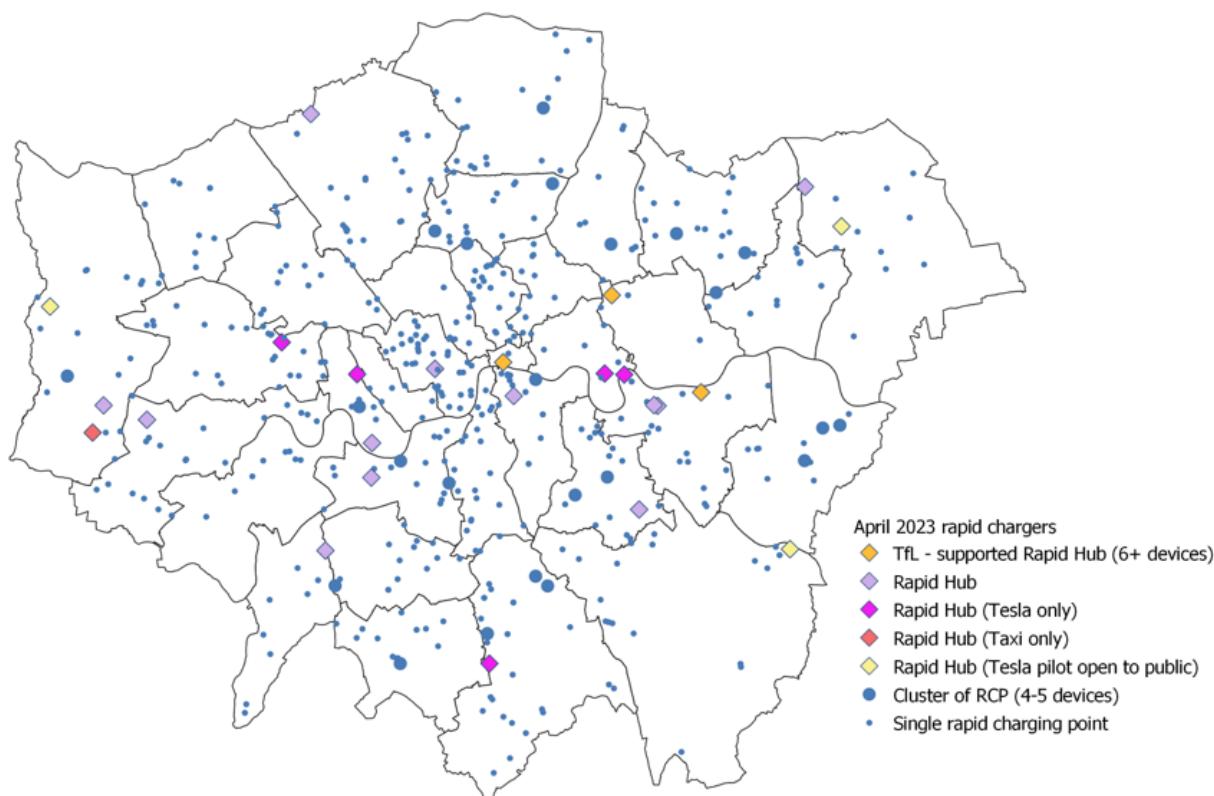
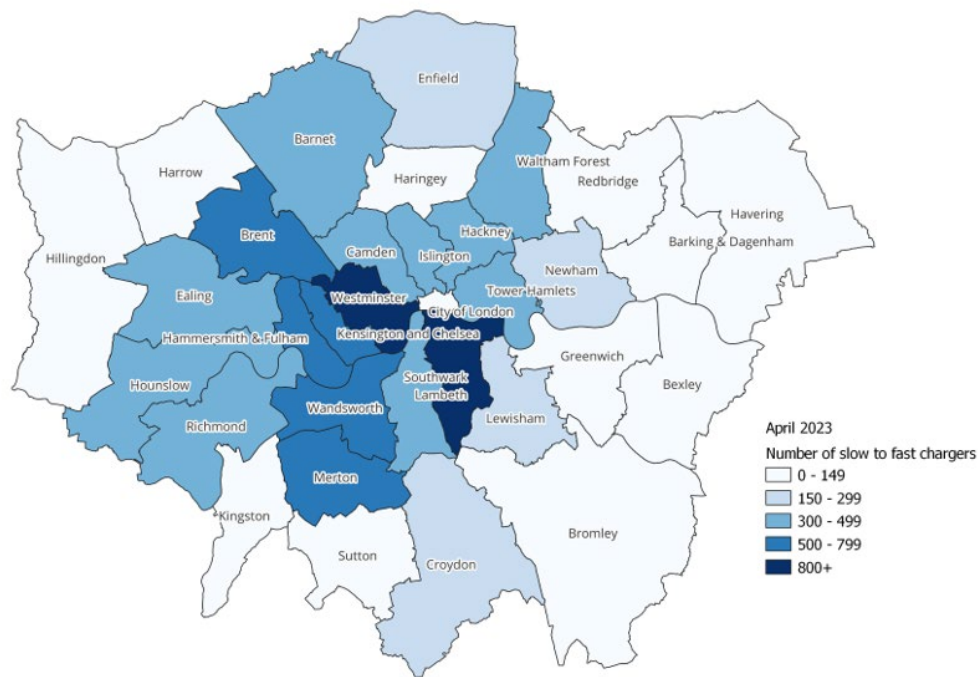


Figure 24. Rapid charging in London – April 2023. Source: Zapmap.



**Figure 25. Slow to fast residential and destination charging in London – April 2023 Source: Zapmap.**

Inner London boroughs have the highest numbers of public slow to fast charge points, reflecting demand for charge points from residents without access to private driveways and home charging. Our EVIS sets out how we will support the development of a consistent, equitable and balanced network of EV infrastructure across the whole of London.

In March 2023, London was allocated almost £36m of capital funding and £3m of capability resource funding from the central Government’s Local EV Infrastructure (LEVI) fund to expand the delivery of charging infrastructure to meet the needs of drivers without access to home charging. This is in addition to £9.7m in LEVI pilot funding awarded in 2022/23, which will deliver 400 fast charge points in Barnet, Hackney, Hounslow, Newham, Redbridge and Waltham Forest. This will significantly increase the resources available to the London boroughs to implement many more EV charge points over the next few years.

### **3.1.5.5 Transition to zero emission bus fleet**

We continue to expand our zero-emission bus fleet, which is now one of the largest in western Europe. Figure 26 and Figure 27 show zero emission bus routes in 2016 and all bus routes that are zero emission as of May 2023, along with those expected to be zero emission by the end of the year, respectively. In 2016, this consisted of three routes, and by the end of 2023, we are expected to have a total of 73 zero emission bus routes. At the end of March 2023, there were 970 zero-emission buses in service (making up over 10 per cent of the fleet), and we are on track to deliver 1,000 zero emission buses by summer 2023. London is expected to have a fully zero-emission bus fleet by 2034 (or around 2030 with additional government funding).

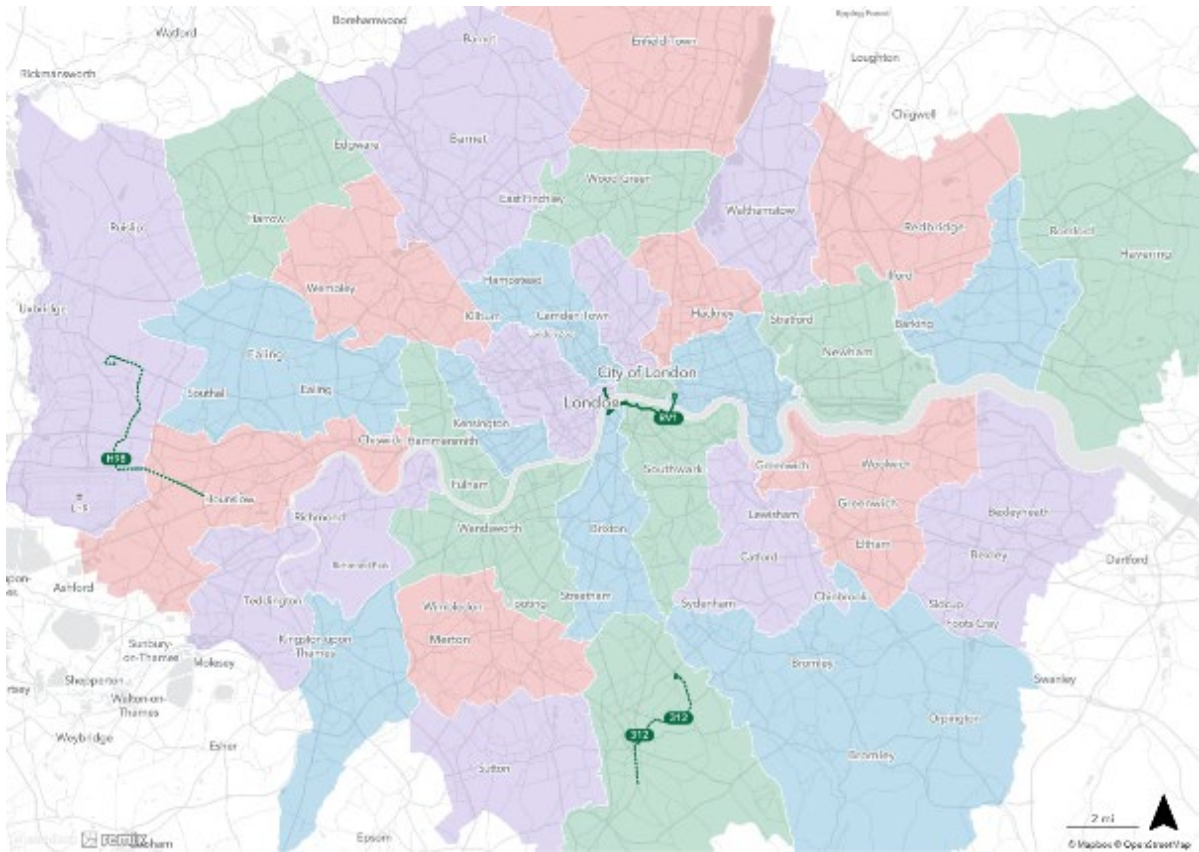


Figure 26. Zero Emission bus routes, May 2016. Source: TfL.

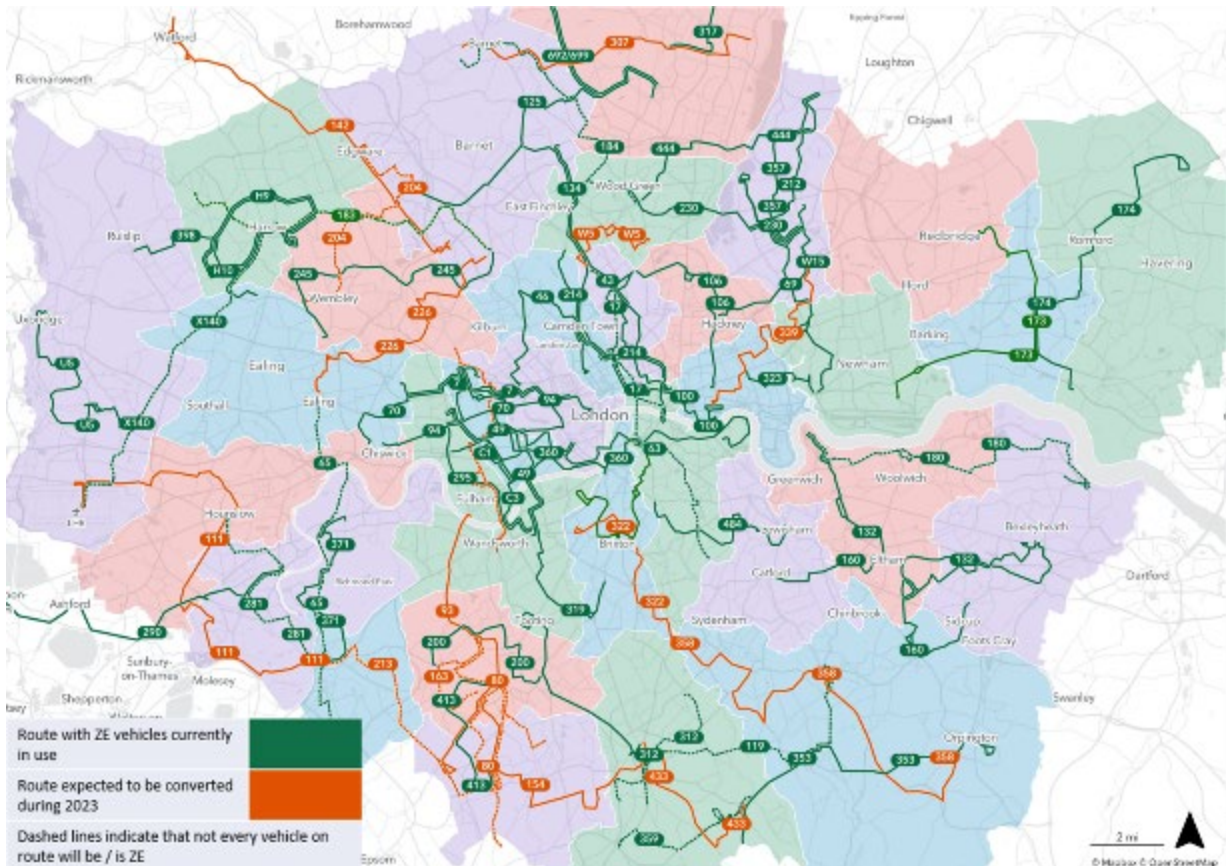


Figure 27. Current and expected zero emission Bus routes by the end of 2023. Source: TfL.

## Focus on: Pantograph electric buses

We are open to operating different types of zero-emission technology in our bus fleet, which includes hydrogen fuel cell and electric buses. This includes the new 'opportunity charged' double-deck electric buses, which have been operating since October 2022 on route 132 in Bexleyheath.

The new technology uses a pantograph, an arm-like structure, that attaches itself to the roof to deliver a quick, high-power charge to buses. Wireless Radio Frequency Identification (RFID) technology is used to allow the bus to communicate with the pantograph. It is the first time this technology has been used in London and is being used to power the all-electric route 132. The buses, which are conventionally charged overnight, receive a high-power current through the pantograph multiple times throughout the day for a power boost; this is known as 'opportunity charging'. Each top-up takes less than 10 minutes, allowing buses to travel further each day. The short top-up time and longer distance each bus can cover means fewer buses are needed to provide the same high level of service, allowing resources to be reinvested into other areas of the network.



**Figure 28. New opportunity charged double-deck electric buses. Source: TfL.**

From later this year, a further extension of 'opportunity charging', with pantographs conveniently located at each end of a bus route, will be trialled in another first for London. The 15-mile route 358 between Crystal Palace and Orpington is one of London's longest, with high daily vehicle mileage. A standard garage charge alone would not sustain a zero-emission bus the entire day. Due to the length of the route, a pantograph at each end of the route, rather than back at the garage, will mean buses receive a quick boost on the spot. With minimal turnaround time, fewer buses can again provide the same level of service. The 358 route will also benefit from strikingly designed new buses, with enhanced customer features and the latest bus safety features, whilst retaining the iconic red livery. The 20 new, single-deck ieTram buses which are built by Irizar e-mobility will be launched on the route 358 between Orpington-Bromley-Crystal Palace in late 2023.



**Figure 29. New single-deck ieTram buses. Source: TfL.**

### **3.1.5.6 Clean freight**

Freight movements alone accounted for 30 per cent of carbon emissions coming from road transport in London in 2019, second only to cars (51 per cent). However, goods vehicles account for 19 per cent of vehicle-kilometres, showing that freight operations are carbon-intensive compared to other vehicles. This effect is even bigger when looking at HGVs only, accounting for almost 16 per cent of road transport carbon emissions, whilst accounting for only three per cent of vehicle kilometres.

As part of the Mayor's vision for Healthy Streets in his Transport Strategy, and in the context of London's pathway to net zero carbon emissions by 2030, we have been working to reduce the emissions from freight and servicing. These policies, outlined in our Freight and Servicing Action Plan, include efforts to decarbonise the freight transport network by promoting and enabling the electrification of fleets, as well as consolidating freight trips and moving cargo from the road to less carbon-intensive modes such as rail and water.

Initiatives we delivered to support cleaner ways of moving freight in 2022/23 included:

- Publishing our Cargo Bike Action Plan in March 2023, setting out what we and stakeholders plan to do to grow cargo bike delivery and servicing trips in London. E-cargo bikes are a safe, clean and efficient alternative to vans and other light goods vehicles, being more reliable, taking less time, providing a clean and more economical alternative. The action plan outlines cargo bikes growth potential, and sets out 11 specific actions to address safety, behaviour change and infrastructure challenges.
- Offering continuing support to establish and operate light freight by water trials. The DHL and Guys and St Thomas' (GST) NHS Hospital Trust light freight by water trials are operating successfully, and industry has expressed interest in pursuing further trials at our passenger piers. During the 2022/23 financial year, we have engaged with the Port of London Authority and the Thames Estuary Growth Board on opportunities for light freight. We also had a successful light freight trial that brought goods into Festival Pier by river for onward delivery by cargo bikes.
- In August 2022, the GLA group published its Responsible Procurement Implementation Plan (RPIP) 2022-24 including an ambition for our new contracts with suppliers starting from 2025 to use zero emission vehicles on deliveries and servicing



by cars and vans (under 3.5 tonnes) to GLA group buildings. We are currently working towards the delivery of this ambition, starting with TfL and then expanding to the rest of the GLA family.

### **3.1.5.7 Green infrastructure and biodiversity**

In our Business Plan we have dedicated £1m this financial year, and £2m for subsequent years for climate change adaptation and green infrastructure measures, including Sustainable Drainage Systems (SuDS). Additionally, we are managing £3m of GLA funding (allocated for 2022/23 and 2023/2024) as part of a programme of providing green infrastructure measures and improving access to green space. Of this, £1m is being spent on TfL schemes with £2m allocated to the London Boroughs through a bid and assessment process. A key aim of these measures is to green existing LTNs introduced experimentally by boroughs as part of making these schemes permanent. The programme will also support a new leisure walking route that links together communities with green spaces across five inner London boroughs.

We produced and completed our first organisation-wide natural capital account in 2022. This indicates that nature across our network provides at least £328m of present value over a 60-year period to London and wider society. This will support decision-making to maximise the benefits that we and Londoners gain from our green assets, such as helping London both mitigate and adapt to a changing climate and supporting biodiversity.

We are developing a Green Infrastructure & Biodiversity Plan to set out how we will deliver the ambitions in the MTS and Corporate Environment Plan, as well as make the most of the many benefits that green infrastructure provides. Our vision is to protect, connect and enhance the green infrastructure on our estate.

The Environment Act 2021 requires at least a 10 per cent biodiversity net gain for applicable schemes. To help meet this requirement, we are investigating the potential for biodiversity offsetting on our estate, through ecological surveys of key sites this summer.

We are exceeding the MTS target of increasing our street tree numbers by one per cent each year until 2025. Our 2022/23 planting programme saw a net increase of 214 street trees which takes us to a total of 24,795 street trees.

We are working to support the MTS target of 50,000 additional square metres of catchment draining through SuDS every year on London's roads. Our new Climate Change Adaptation Plan has a target of 5,000 square metres (sqm) of TLRN highway catchment annually to drain into SuDS. Our current programme consists of three projects, one has already started construction on site and two due to start construction in late 2023, will ultimately deliver more than 10,000 sqm of catchment and we have more in the pipeline for subsequent years.

Reduced mowing to encourage wildflowers is one of the most efficient ways that we can support biodiversity along our road network. We have increased the area under this management to 130,000 sqm in 2022/23 and are planning to double this area by the end of 2024.

We have reduced use of pesticides on our road network by 70-80 per cent over the last three years. We aim to eliminate use of glyphosates where operationally and financially possible by 2024. We are working with partners and with the market to find suitable alternatives where they do not currently exist for our operations.



Figure 30. Wildflower verges. Source: TfL.

### Focus on: Green Infrastructure and SuDS

SuDS that incorporate green infrastructure, such as rain gardens and green roofs, can also provide other benefits such as reducing water pollution as well as improving the look and feel of streets and urban areas.

SuDS in the form of rain gardens help cut the risk of surface water flooding by slowing and reducing the flow of rainwater in a way that mimics natural processes.

We are currently working on the following schemes to be delivered in 2023/24:

- Edgware Road – Rain gardens in the ramps and stairs of the disused subway
- Old Street – Rain gardens, permeable paving, green roof, and 12 additional street trees
- Tolworth – A variety of different forms of SuDS around the roundabout and on the approach

We are also working on two larger schemes at Nine Elms Lane and Streatham High Road, which will include a porous cycle lane, tree pits and roadside rain gardens. These are planned to be completed next year.



Figure 31. Graphic depicting planned Old Street station green roof. Source: TfL.

### 3.1.5.8 Climate change adaptation and resilience

We published our brand-new Climate Change Adaptation Plan in March 2023, which was based on the climate risk assessment we completed last year as part of the Department for Environment, Food and Rural Affairs' Adaptation Reporting Power. This document complements our 2021 Corporate Environment Plan, helping us to move from strategy to delivery. The challenge is to adapt our systems to reduce the impacts of climate change and ensure that we are resilient in the face of more extreme and frequent weather events across London. Adapting to climate change also offers us positive opportunities to create a more attractive, nature-rich, liveable city, with strong communities and new partnerships. The Business Plan funding for climate change adaptation and green infrastructure will help accelerate delivery against the Climate Change Adaptation Plan's actions.

We are also a key partner in the development of London's first surface water flooding strategy. This ground-breaking initiative was identified as necessary through the Mayoral roundtable established following the July 2021 flood events.



**Figure 32. Climate Change Adaptation Plan 2023. Source: TfL.**

During 2022/23, London experienced a heatwave and a drought, together with multiple cold weather and intense rainfall events. These posed considerable challenges for our network, city and people.

For example, the heatwave in July 2022 saw several parts of London exceed temperatures of 40°C for the first time. This resulted in us issuing advice to customers not to travel unless necessary, as well as causing service disruption due to closures and speed restrictions. The extreme heat, combined with drought, caused multiple fires that put considerable pressure on the London Fire Brigade, as well as on our own emergency response teams. It also posed challenges to our ability to increase and, in certain cases, maintain green infrastructure across our estate.

Our operational teams continue to respond to challenges presented by the weather through adverse weather plans that cover all operational areas and enable our teams and contractors to respond to, and mitigate, the impacts of adverse weather. Our daily five-day look-ahead forecasts with defined triggers relating to temperature, rain, wind and snow are continually monitored.

### 3.2 Good Public Transport Experience

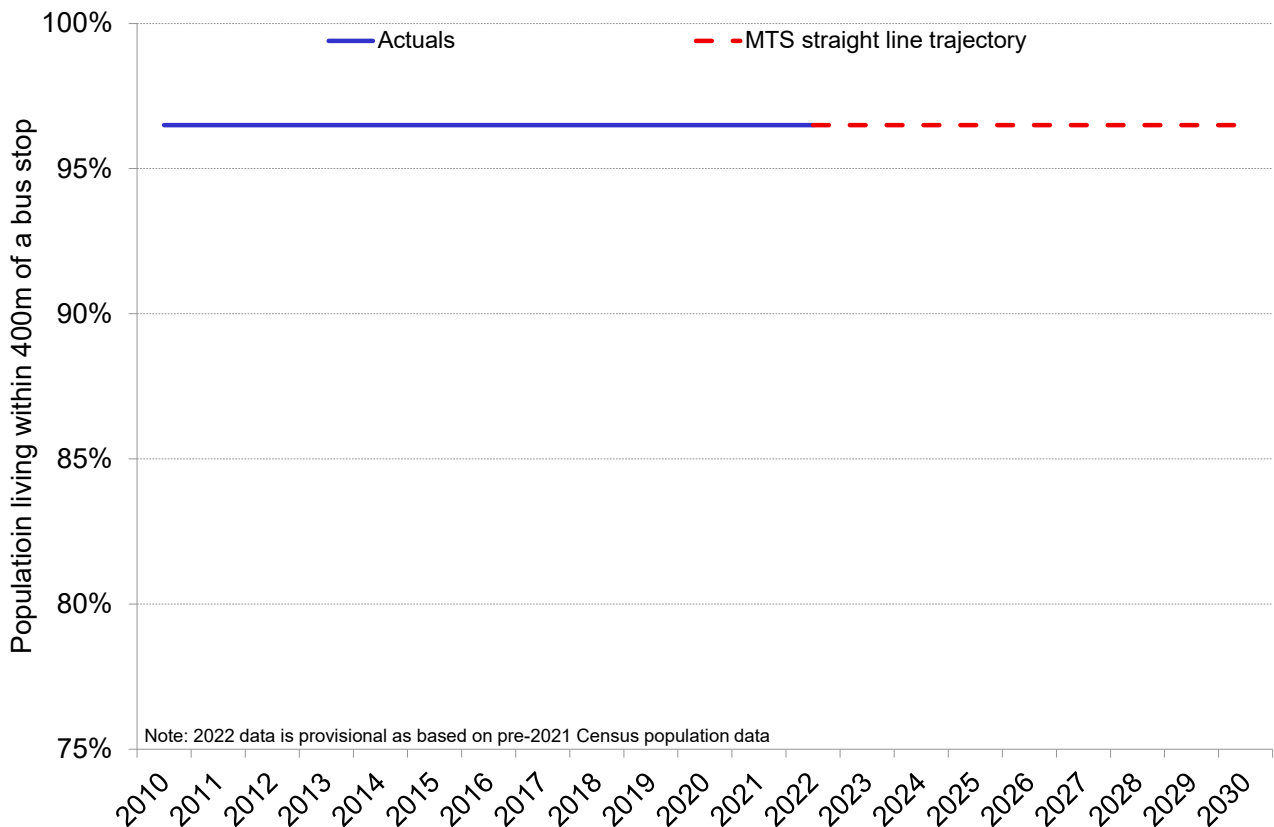
The MTS sets the path for the ongoing improvement to all public transport modes needed to meet customer expectations and continue to encourage people to make more of their journeys by sustainable modes of travel. There are three outcomes related to this Mayoral priority area: Connected, Accessible, and Quality.

- **Connected** – The public transport network will meet the needs of a growing London with more people able to travel on an expanded public transport network.
- **Accessible** – Public transport will be safe, affordable and accessible to all.
- **Quality** – Journeys by public transport will be pleasant, fast and reliable.

### 3.2.1 Connected

The key connectivity metric we use for public transport is the percentage of Londoners living within 400m of a bus stop that operates services during the day, which is used to represent connectivity with the public transport network in London.

This metric represents the ability of Londoners to access bus services within five minutes of where they live, connecting them to jobs, services and one another. Whilst the MTS does not set a target for this measure, success means maintaining connectivity to the extensive bus network we have already developed in London to be responsive to the needs of our customers. Figure 33 shows that we have performed consistently well against this measure with over 96 per cent of London residents living within 400m of a bus stop over the past decade, and we expect to continue to support this high level of access to bus services. Note that this data does not account for the latest population data available from the 2021 Census. Future updates to this metric may be affected by the revised population data.



**Figure 33. MTS Tracker for Connected: Londoners living within 400m of a bus stop, observed 2010 – 2022 and MTS target trajectory. Source: TfL.**

### 3.2.1.1 Elizabeth line

On 24 May 2022, we introduced the transformational Elizabeth line and opened nine brand new stations in central London. The new railway is the most significant addition to London's transport network in a generation, with one in six journeys on Britain's rail network having been made on the Elizabeth line. It has cut journey times between Abbey Wood and Paddington by almost half, to approximately 29 minutes. Trips between Farringdon and Canary Wharf now take around 10 minutes, instead of 24 minutes.

The new railway provides new journey options and supports wider regeneration and recovery from the pandemic – creating jobs, business opportunities and a huge economic boost for the country. It also connects London's major employment centres and increases central London's rail capacity by 10 per cent, the largest single increase in the capital's transport capacity in more than 70 years.

The Elizabeth line connects areas including world-leading financial centres in the Square Mile, and Canary Wharf, to key business and events hubs in the east including the Royal Docks, as well as London's cultural and creative heart in the West End.

On 24 October 2022, we opened Bond Street station to mark the completion of the last new station on the line, providing a new link to one of the busiest shopping districts in Europe.

On 6 November 2022, we launched the next stage of the line with routes from Reading, Heathrow, and Shenfield now connected with the central tunnels of the line. The 'through routes' have opened up new, direct journeys across the capital and out to Heathrow Airport and the home counties, delivering benefits, including reduced journey times, additional capacity, greater accessibility, and better connectivity to jobs, opportunities, and leisure for communities across London and the South-East. People landing or working at Heathrow Airport can now travel straight through central London on a direct train to areas such as Farringdon and Canary Wharf in as little as 36 and 45 minutes respectively.

Between May 2022, when the Elizabeth line opened, and the end of March 2023, there were over 125 million passenger journeys taken on the line, with around 600,000 people using the line each day. The line continues to be one of the top four performing rail services in the country.

The final stage of the Crossrail project concluded in May 2023, with the timetable changing to increase peak service frequency from 22 trains per hour to 24 trains per hour in the central section, and direct Shenfield – London Heathrow airport services. Other benefits include more frequent services to Heathrow and improved journey times for customers travelling from the west into central London. This timetable sees the completion of the Crossrail project, but we will continue to review the Elizabeth line timetables and changes can be made twice each year in line with National Rail timetable changes to add capacity where possible and provide the best service for our customers.

### 3.2.1.2 Improving capacity on the Underground

#### Northern line extension usage

In September 2021, the Northern line extension opened which was the first major extension of the London Underground since the Jubilee line extension in the late 1990s. The extension provided two new step-free stations at Battersea Power Station and Nine Elms.

Growth was boosted by the introduction of a new timetable on the Northern line in June 2022, which increased the train frequencies to these two stations, and more recently by the opening of the Battersea Power Station development in October 2022, which led to a large increase in passengers. We are now observing approximately 150,000 trips per week at Battersea Power Station and 75,000 trips per week at Nine Elms, with Figure 35 showing the very large rise in demand this has generated.

The two stations have different characteristics, with Nine Elms having a largely residential profile, with some employment trips, and Battersea Power Station having balanced two-way flows in the morning peak, reflecting strong residential and employment usage. Based on current projections we predict over 10 million annual trips on the extension in 2024/25.

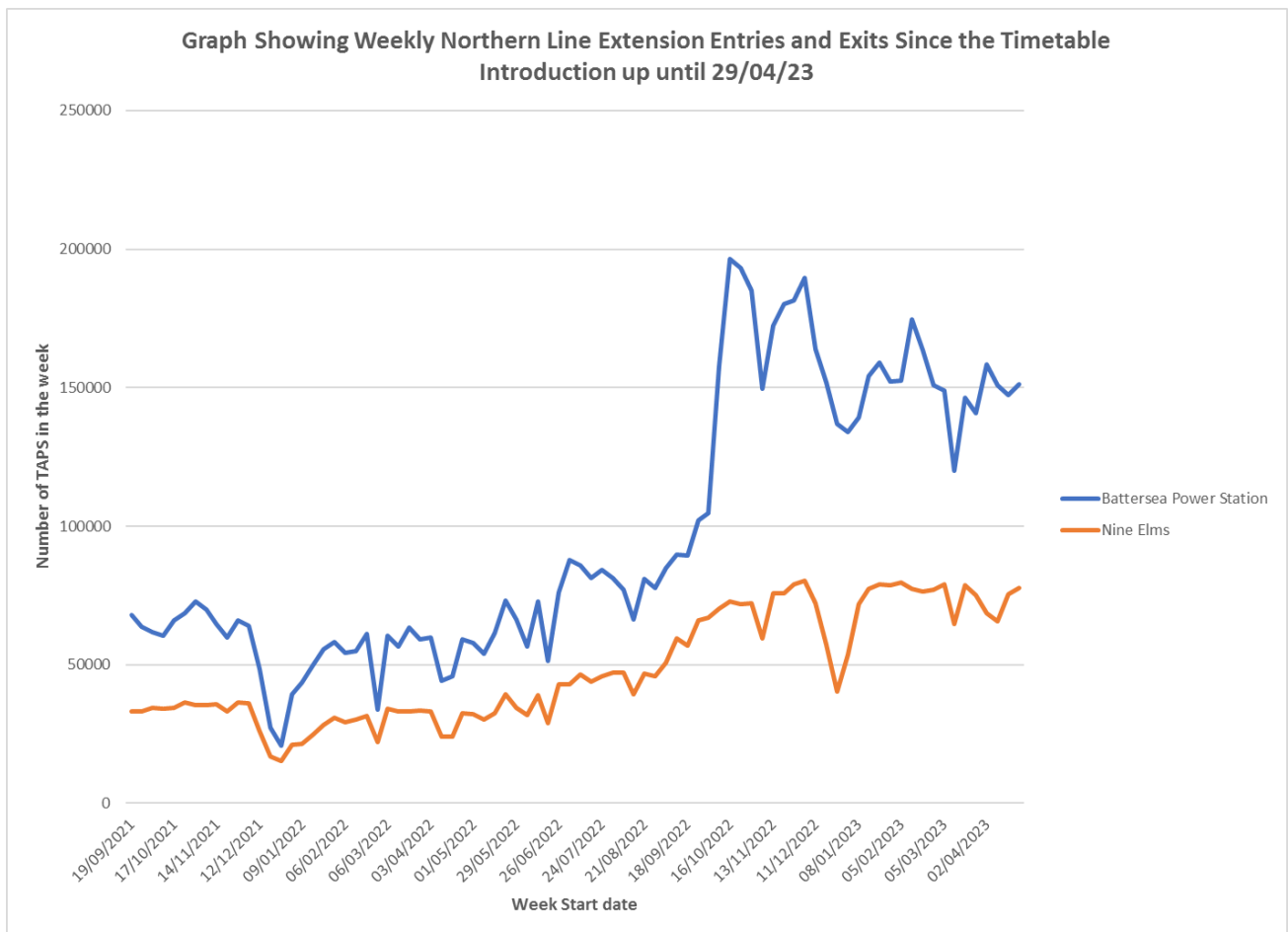


Figure 34. Usage per period at Nine Elms and Battersea Power Station stations. Source: TfL.

## Night Tube

In May 2022, we restarted Night Tube services throughout the night on Fridays and Saturdays over the whole length of the Jubilee line from Stanmore to Stratford, connecting customers with The O2 arena, West End and Wembley Stadium. Following on from this, in July 2022 we restarted services on the Northern and Piccadilly lines. Both of these follow on from the restart of the Victoria and Central line Night Tube and London Overground services in November 2021 and provides a further boost to London's night-time services, after they were suspended in March 2020 due to the pandemic.

## Barking Riverside Extension

The extension of London Overground to a brand-new step-free station at the heart of Barking Riverside opened to customers in July 2022, months ahead of schedule, providing new quicker, easier and sustainable journey options to this key regeneration area. The new station is fully step-free, bringing the total number of step-free stations across the London Overground network to more than 60, helping make London a more accessible city for everyone and supporting independent travel. The new route has reduced journey times between Barking town and Barking Riverside to just seven minutes, a journey which previously took 25 minutes by bus. The route operates four trains per hour, connecting Barking Riverside with the District and Hammersmith & City lines into central London and c2c trains at Barking. Customers can easily interchange with the new Elizabeth line at Forest Gate, just a short walk from Wanstead Park station, as well as River Bus services from Barking Riverside pier to Woolwich and beyond.

Since opening in July 2022, the volume of passengers entering and exiting Barking Riverside station has grown from around 1,800 per weekday to around 2,200 per weekday by early March 2023. Around 12,900 weekly journeys were made to and from the station by early March 2023, which was above the 10,700 passengers expected by this point based on the assumption that 2,500 homes would be completed and occupied within the station's catchment.



**Figure 35. The Barking Riverside extension has led to significant benefits. Source: TfL.**



## **Hackney Central station**

A new station entrance was opened at Hackney Central station in July 2022, providing quicker, more direct and simpler access to Hackney's town centre, and easier interchange to Hackney Downs station and local bus services.

## **Bank station capacity upgrade**

In February 2023, we concluded the Bank station capacity upgrade, which increased the station's capacity by 40 per cent, reduced journey times and improved the overall journey experience for our passengers. The project involved the creation of a new Northern line tunnel, platform and circulation spaces, a new entrance on Cannon Street, the introduction of step-free access to the Northern and Waterloo & City lines, and improved interchange between the DLR, Central and Northern line platforms. These new interchanges include six new escalators and two new 100-metre-long moving walkways which significantly improve journey times for our customers by up to nine minutes between the lines. We have seen a resulting increase in customer demand at the station since October when these interchanges opened to the public.

The final phase of the project was the opening of a large new street-level entrance on Cannon Street in February. This includes six further escalators between street level and the Northern line platform, step-free access to the Northern line for the first time and improved step-free access to the DLR via new lifts.

## **Four Lines Modernisation – upgrading the signals on the underground**

We continue to make progress on the automatic signalling systems upgrade which is delivered by progressively installing new signalling on sections of the railway called Signal Migration Areas (SMAs).

Following our successful commissioning of the signalling section between Stepney Green to Becontree in January, the signalling section between Dagenham East and Upminster, went live in March. This is a significant achievement for the programme as it extends the roll-out of the new signalling system on the District line, completes automatic running on the east of the railway, and connects the first depot to the network.

The area now operating under the new signalling contains 62 stations and four complex junctions, including all of the Circle and Hammersmith & City lines. This means that two of the four sub-surface lines (and around 57 per cent of the Tube network in total) are now operated by an automatic signalling system.

The new system is already bringing benefits by improving reliability and journey times for customers. In September 2022, we introduced a new timetable, which brought a journey time improvement of around five per cent on the Circle and District lines between Monument, Fulham Broadway, Barons Court and Paddington. This adds to the journey time improvements of up to 10 per cent already introduced on the north side of the Circle line through a timetable change in September 2021. This now means the signalling on the Circle, Elizabeth line (central operating section), Hammersmith & City, Jubilee, Victoria, Central and Northern lines are all completely automated.

Our focus is now moving to software development and system testing for future SMAs covering the Metropolitan line north of Finchley Road.

## Piccadilly line upgrade

Stage one of the Piccadilly line upgrade will deliver a fleet of 94 high capacity, walk-through, air-conditioned trains along with the upgrading of supporting infrastructure and train maintenance facilities. These new fully accessible trains will be highly reliable and more energy efficient, replacing some of the oldest trains on our network. They will feature real-time customer information displays, digital advertising and improved in-car security systems. Once deliveries are complete the new trains will enable the peak service frequency on the Piccadilly line to be increased from 24 to 27 trains per hour, increasing line capacity by 23 per cent in total.

In November 2022, Siemens Mobility Ltd completed the manufacture of the first-in-type car body shell for the first new Piccadilly line train. The first trains are being built in Siemens' Vienna factory and when completed the nine-car trains will be transferred to a test track facility in Germany for rigorous pre-delivery trials in summer 2023. The first train is scheduled for delivery to London in summer 2024 to commence testing on our network.

Siemens are constructing a new UK train manufacturing facility at Goole, East Yorkshire where around 50 per cent of the new Piccadilly line train will be assembled.



Figure 36. Interior views of the new walk-through Piccadilly line trains. Source: TfL.

## Bakerloo line upgrade

Stage one of the Bakerloo Line Upgrade will replace the existing, life-expired fleet of trains which are currently 51 years old. A new maintenance facility will also be constructed at Stonebridge Park to replace the current facility which requires extensive reconfiguration and

upgrading for the maintenance of a modern fleet. Other works such as power and upgraded communications systems will also be required to enable the introduction of new trains. Feasibility work has started to help inform the delivery strategy and to develop the scope of the project.

A priced option currently exists for the purchase of new trains for the Bakerloo line within TfL's contract with Siemens Mobility Ltd for the supply of the new Piccadilly line fleet. By exercising this contract option, and subject to funding, new trains on the Bakerloo line could be introduced from the late 2020s. These new trains will provide significant benefits to customers with improved reliability, increased capacity, air-cooling, real-time information and journey time improvements.

### **3.2.1.3 Improving DLR**

#### **DLR rolling stock replacement programme**

Our rolling stock programme will deliver 54 new trains by 2026, to both replace the oldest trains on the DLR and expand the fleet. These new trains will improve the customer experience, reduce wait times and increase capacity across the network to support housing and employment growth in east London. The programme includes service enhancements, signalling changes, enhanced customer information systems, and expansions to Beckton Depot to stable and service the new fleet.

The manufacture and initial testing of the new DLR rolling stock is continuing as planned. We took delivery of the first train at our Beckton depot on 13 January 2023, two months ahead of target. Rigorous on-network testing is now underway, and we anticipate the first three trains coming into passenger service by the end of this financial year (2023/24).

The 54 new trains include 43 trains from the TfL Rolling Stock Replacement Programme and an additional 11 trains funded by Homes England through the Department for Levelling Up, Housing and Communities' Housing Infrastructure Fund (HIF). The latter provides further capacity that unlocks greatly expanded housing delivery in the Royal Docks and Isle of Dogs.

#### **DLR service timetable changes and optimisation**

During the pandemic the DLR timetable was amended so that all trains operated at full (three-car) length, but this could only be achieved by reducing frequencies. This change was introduced to improve operational resilience given higher staff absences and ensure passengers and staff could socially distance.

However, with demand recovering and the Elizabeth line changing how people use our network, these reduced frequencies were extending customer journey times and suppressing demand on certain routes and at certain times. To address this, we introduced a new timetable on the DLR in September 2022 with further enhancements following in May 2023. By returning to operating a mix of train lengths, we have been able to better use our limited fleet to enhance frequencies so we can support and grow demand without having to reduce frequencies elsewhere.

Today's timetable is similar to the pre-pandemic timetable but optimised for current demand. For instance, the opening of the Elizabeth line reduced demand on the DLR for certain

journeys, so we have moved some of this capacity to support other key journeys elsewhere on our network. Key changes include halving wait times between Stratford-Canary Wharf and Canning Town-Beckton, direct trains in the peaks from Stratford-Lewisham, and running a more frequent service for longer in the morning and evening peaks and later into the evenings.

As a result of these changes, customers spend much less time waiting for a train, experience less crowding on the busiest sections of the DLR network, and have faster and easier interchange to/from the Elizabeth line. We plan further service enhancements for customers from 2024 as we introduce our new, larger fleet.

### **3.2.1.4 Improving bus services**

#### **Progress on the Bus Action Plan**

We published our BAP in March 2022 to set out our 2030 vision for buses, including how they contribute to creating healthy streets. The plan sets out actions to improve customer experience, journey times, connections, safety and security, help reduce carbon emissions and achieve the Mayor's target for London to be a net zero carbon city by 2030.

Since the launch of the action plan, we have made the following improvements for the benefit of our customers:

- Four kilometres of new bus lane were added to the network as of the end of 2022/23. As part of the action plan, we aim to have 25km in total by 2025, with 10km delivered by March 2024.
- We have saved more than 13,700 bus passenger hours from 732 signal timing reviews in 2022/23; more than two thirds of buses in London now arrive at a set of traffic lights on green, or receive priority as a result of this work.
- More than 280 of our New Routemaster vehicles now have new moquette installed as part of their mid-life refurbishment to help customers identify priority seating.
- We completed the roll out of our 'Welcome aboard' inclusive signage across our whole fleet in early 2023.
- We have also introduced over 970 zero emission buses and we are on track to deliver 1,000 zero emission buses by summer 2023.
- Following our flagship trial of new on-board customer experience enhancements on buses along route 63, we also installed seven dynamic bus flags showing real-time bus departure information, 12 'Eden' customer information signs and 12 information screens at shelters across the route.

#### **Bus service enhancements**

The bus network is under continuous review to ensure it meets the changing needs of London. We are working to enhance the bus network in outer London with a number of improvements delivered in 2022, despite our challenging funding position.

In 2022, a new route 304 was introduced between Manor Park and Custom House; and several bus routes were extended to enhance services for our customers, and in many cases reduce journey times. There were frequency increases on other routes and we are planning new services and improvements to support growth areas in a number of outer London locations, many of which will be subject to public consultation. This follows the

Mayor's announcement that over one million kilometres will be added to outer London's bus network to strengthen alternatives to private cars and maximise the benefits of expanding the ULEZ.

We completed a public consultation on our Central London Bus Review (CLBR) in August 2022. To support us in responding to the issues raised in consultation, the Mayor has identified additional annual funding for us of approximately £25m per year. With this additional funding from the Mayor, we have been able to reconsider the scale of changes required, while still ensuring that the bus network matches customer demand, delivers value for money and supports London's economic recovery. Following our reassessment of the proposals post consultation, and the additional funding provided by the Mayor, we are progressing four of the original 16 neighbourhood proposals in the CLBR consultation, with the majority of the changes implemented on the 29 April 2023. The remaining changes will be delivered in 2023.

In 2023, we will extend and re-route a number of services to enhance connectivity and capacity across London. This programme started in March 2023 with the extension of route 485 to Wandsworth Riverside. Other changes will include changes to route 95 providing faster and more direct journeys between Shepherd's Bush and Southall in May, re-routing route 339 to serve more people near the Olympic Park making it easier and quicker to use the bus network and re-routing a number of buses around Wembley to provide faster and more direct bus services for our customers.

In early 2023, we consulted on proposals to create new zero emission bus connections through the Silvertown tunnel when it opens in 2025. After carefully considering the feedback we received, we have decided to progress the development of these proposals, with some amendments. The proposed new route X239 will run between Grove Park and Canary Wharf, Westferry Circus, with a non-stopping section between Sun-in-the-Sands roundabout and Orchard Place.

## Focus on: Superloop

As part of our plans to expand bus services in outer London, the Mayor announced plans for the Superloop in March 2023, with a view to delivering over four million kilometres of limited stop express bus services circling outer London, in addition to the 1 million kilometres previously announced by the Mayor. This consists of existing routes X26 (Croydon to Heathrow) and X140 (Heathrow-Harrow), while routes 607 and X68 complete our current limited stop service offer. Frequency on the X26 route will be increased from two to four buses per hour later this year.

The Superloop responds to borough aspirations to improve orbital connectivity in outer London and will provide quicker journey times through limited stop express services, with the Mayor of London providing £6m funding as an initial catalyst for improvements to outer London orbital bus services. It is proposed to be introduced in stages with some routes that would become part of the Superloop now in operation, providing quick links across outer London.



**Figure 37. The initial proposals for the Superloop would serve the broad locations identified in the map. Source: TfL.**

Our data shows that the most recently introduced limited-stop express route, the X140, delivered a 10-15 per cent increase in weekday demand and that frequencies at the busiest stops served by the X140 was increased. Surveys found that customers had increased satisfaction with their journey times and nearly four in five said they would use the X140 more often.

## Focus on: Superloop

The Superloop brand is designed to work with the iconic London Buses brand by using a new Roundel and bus livery to ensure clear identification of the new service, but still be recognisable as part of the London Buses network. The new branding will also feature on maps, timetables and other pieces of customer information.

We have started consulting on the first proposed addition to the Superloop between Harrow and North Finchley, with consultations on the remaining routes to start later in the year.



Figure 38. The Superloop will operate a limited stop bus service, calling at strategic stops. Source: TfL.

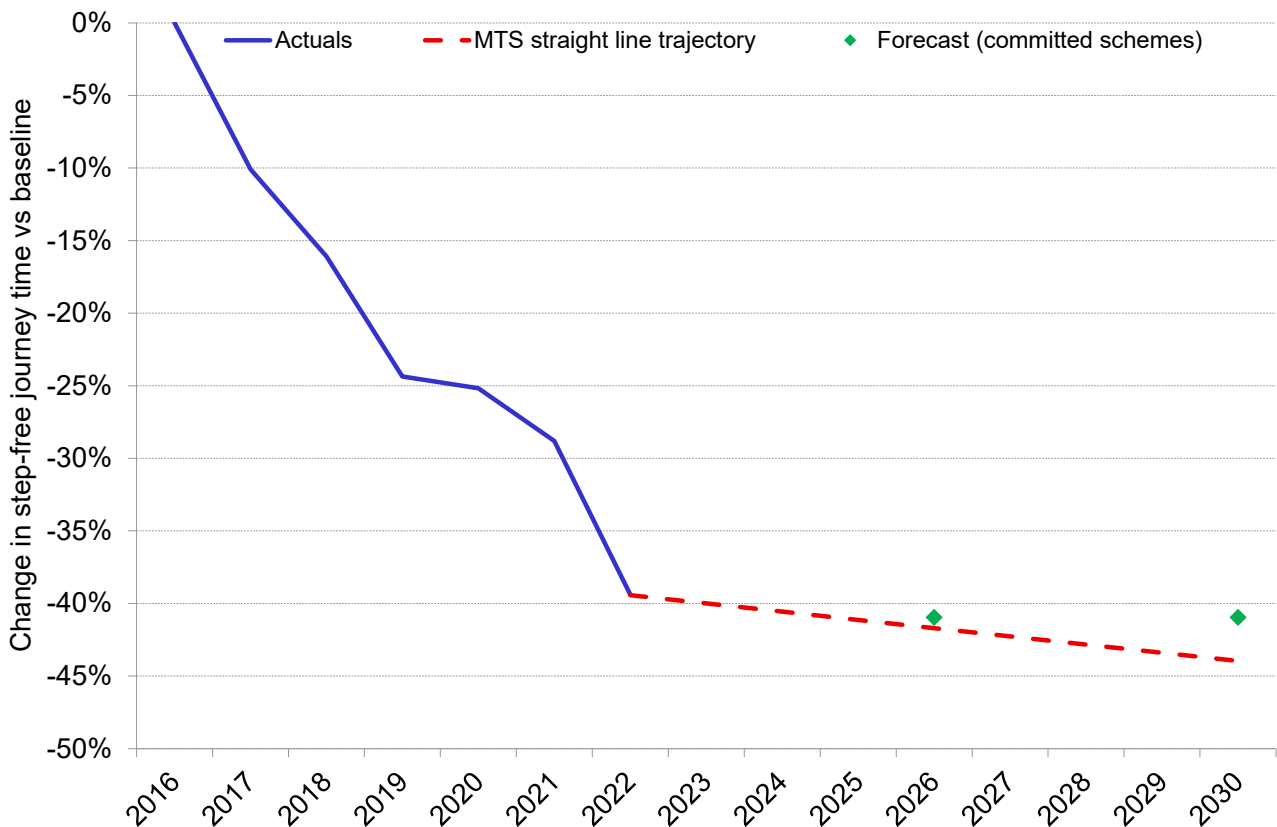
### 3.2.2 Accessible

Improving the accessibility of London's extensive public transport services is fundamental to supporting and enhancing the quality of life of Londoners, and those who frequently use our transport services. Around 16 per cent of London's population identify as disabled, and around 12 per cent of Londoners are aged over 65, meaning travel is more accessible and inclusive for Londoners is one of our top priorities. Parents, carers and those travelling with luggage may also benefit from an accessible transport network to help facilitate journeys. By working to deliver an equitable, accessible and inclusive public transport system that works for everyone, we can make people's lives easier and increase the appeal of sustainable public transport over the use of private cars.

People with disabilities using our public transport network face additional barriers, leading to longer journeys. Our key accessibility ambition is to reduce this differential in journey time by 50 per cent, by 2041 by delivering better access across public transport in London. With the launch of the Elizabeth line and improvements to the Tube network set out in this report

the differential in journey time has now reduced by 39 per cent, as shown by Figure 39. It is hugely important to continue to deliver accessibility improvements to ensure we serve all Londoners.

Despite funding challenges, we are currently ahead of trajectory to meet our MTS accessibility objectives by 2041 (with Figure 39 showing our shorter-term trajectory to 2030). We are in the process of prioritising stations for the next stage of the TfL accessibility programme. Securing third party funding, including from the DfT's Access for All programme, will be necessary if we are to deliver new schemes and we will seek opportunities to do this. If we are successful, it would further accelerate our progress towards a stretching objective of achieving the MTS target ten years early in 2031. This would further help us to address the challenges that disabled people and others experience when using public transport.



**Figure 39. MTS Tracker for Accessible: Percentage reduction in the journey time differential between step-free and non-step-free journeys, observed 2016 – 2022, forecast to 2030 (committed schemes) and MTS target trajectory. Source: TfL.**

### 3.2.2.1 Making the network more accessible

#### Plans for the future of Step-Free Access

With the introduction of step-free stations on the Elizabeth line, the percentage of stations with step-free access has reached 53 per cent (including Tube, London Overground, Elizabeth line, DLR and Tram services stations).



All stations managed by the Elizabeth line are staffed from first to the last train, with a 'turn up and go' service offered to anyone needing assistance (as is offered at all stations managed by London Underground and London Overground). Step-free access is in place from street to train across all Elizabeth line stations between Paddington and Woolwich inclusive (Elizabeth line served platforms only), as well as at all locations served by the DLR and Tram networks (DLR and Tram served platforms only). This helps customers who are older, disabled, travelling with children, or carrying luggage or larger items to travel safely by avoiding escalators and stairs. At all other stations on the Elizabeth line, staff will deploy a manual boarding ramp between the platform and train. Step-free access on the Elizabeth line has been integrated with our network, to improve the interchanges with other services including Tube, DLR, London Overground and National Rail services.

In winter 2021/22, we consulted on the future direction of Step-Free Access (SFA) on London Underground. The consultation asked, 'what's important in a step-free Tube station?' rather than 'which stations shall we make step-free?' to gain a deeper understanding of people's needs rather than asking them to 'vote' for a list of stations.

Among key findings of the consultation, 66 per cent of respondents said they would use the Tube more if there were more step-free stations, including 73 per cent of disabled respondents. Customers also told us they want step-free access at a balanced combination of stations of different sizes, as well as highlighting the importance of step-free access at interchanges and stations near town centres and tourist attractions. We are using this data, along with information on the complexity of making individual stations step-free and the social benefits of doing so, to assess where we may want to carry out feasibility studies.

In May 2022, Moorgate became step-free, taking the total to 92 of London's 272 Underground stations that are now step-free. The new Barking Riverside Overground station opened in July 2022 with step-free access and, with the opening of the Elizabeth Line in 2022, has meant that for the first time the majority (52.7 per cent) of our rail network is now step free, as shown in Table 3 below. This milestone was achieved in November 2023 with the opening of the Bond Street Elizabeth line station.

Network	Step-free station	Stations made step-free in 2022/23	Percentage of network that is now step-free (rounded to the nearest per cent)	Percentage change since 2016
Tube	92	1	34	8
London Overground	62	1	55	5
Elizabeth line ( <i>listed as TfL Rail in the 2021/22 report</i> )	41	8	100	60
DLR	45	N/A	100	No change
Tram (stops)	39	N/A	100	No change

**Table 3. Number of step-free stations on the TfL network in 2022/23. Source: TfL.**

Jointly with the GLA, we submitted successful bids to the central government for Levelling Up funding to make Colindale and Leyton stations step-free. Our Business Plan includes funding of approximately £20m per annum focused on improving accessibility throughout the rail network. We are currently undertaking a prioritisation exercise looking at benefits and complexity to inform an upcoming programme. We applied for funding from the DfT's 'Access for All' programme in September 2022 to introduce step-free access to more stations across the network, and we expect to hear the outcome of our nominations soon.

Following the central Government's announcement in March 2023 to delay High Speed 2 (HS2) services operating to and from Euston, we are working with the central Government to ensure funding for step-free access from street to platform at Euston London Underground and Euston Square stations is safeguarded as part of the Euston station HS2 works. Old Oak Common (OOC) is set to become a new transport super-hub and is expected to act as the temporary London terminus for HS2 services until Euston station is complete. To enable HS2 services at OOC significant enhancements are required to Elizabeth line services to accommodate the expected levels of demands, particularly for interchanging HS2 and Great Western Main Line passengers.

The currently planned Elizabeth line service levels are 12 trains per hour and to address the expected levels of demand, we would need to increase the number of trains, initially to 20 trains per hour with the flexibility to increase to 24 trains per hour. The station and rail systems are already designed to accommodate this increased service level, but we would need to procure four additional Class 345 Elizabeth line trains which would require confirmation of financial support from the department.

We also continue to ensure the bus network recognises and supports the diversity of our customers. We will be rolling out a new Equality, Diversity & Inclusion (ED&I) training programme for bus drivers to help them meet and support the needs of all bus users. The training is designed by a specialist ED&I training provider and has been shaped to address the issues that matter most to our customers using an analysis of detailed feedback and insight from our customers and stakeholder groups.

## Designing for Neurodiversity

In October 2022, the British Standards Institute (BSI) launched the '*PAS 6463:2022 Design for the Mind - Neurodiversity and the built environment*' standard, which we co-authored and co-sponsored.

This national standard provides designers, planners, and decision-makers with guidelines to accommodate the needs of people with autism, dyslexia, dyspraxia and other neurodivergent conditions when designing buildings and spaces. These guidelines will help inform decisions on our future projects to help create a more accessible network.

### Accessibility bridging device trial

We completed a trial of a new mini ramp (formally known as bridging device) as part of our ongoing work to make London's transport network more accessible and inclusive. The device is the same width as the boarding ramps already used on the network, but it is only 20cm in length. The trial took place at eight Jubilee line stations from November 2022 until February 2023 and included London Bridge, Canary Wharf and Green Park.

The specially commissioned device has been designed to provide additional support, comfort and reassurance to customers at step-free stations where there is a small, but technically compliant, gap between the platform and train. Following the success of the trial, our intention is to rollout the mini ramp in all LU stations that are fully step free from street to train, and complete as soon as possible, subject to procurement of this specialised equipment.



Figure 40. Accessibility bridging device being used on the Tube network during the trial. Source: TfL.

## Bus lane exemptions for non-blue light patient transport vehicles

London's NHS Patient Transport Services provide an important service for many patients who are unable to use public transport to travel to medical appointments and for treatment. In order to help London's NHS Trusts run these services efficiently and reduce missed appointments and delays within the NHS, we and the Mayor amended our bus lane policy in May 2023 to enable non-blue light liveried patient transport vehicles to use TLRN bus lanes whilst on duty. This change followed a 12-month trial in partnership with GST NHS Hospital Trust and the London Borough of Lambeth. The trial involved 154 liveried non-blue light patient transport vehicles used as ambulances to use 26km of bus lanes on the TLRN within the London boroughs of Wandsworth, Lewisham, and Southwark, and on roads directly managed by the London borough of Lambeth for a trial period.

The trial began in February 2022 and we worked with partners to monitor any impacts and benefits. The results of our monitoring showed the trial helped more patients arrive at their appointments on time, with fewer patients missing appointments. This has led to cost savings for GST, with fewer vehicles being used and vehicle fleets being used more efficiently. In addition, there was no discernable adverse impact on bus journey times or road safety in the trial area that could be attributed to the trial. Over the summer we will work closely with London boroughs to try to ensure these vehicles have access to bus lanes across London.

### Focus on: Tackling hate crime and sexual harassment

We continue to operate a zero-tolerance approach to hate crime and sexual harassment. Since launching campaigns to support both issues, we have now extended the call to all customers to be active bystanders. On 16 January 2023, together with our policing partners, we launched our bystander intervention campaign to help tackle sexual harassment. This was then followed by a campaign for bystander interventions for hate crime, launching in February 2023.

Encouraging active bystander intervention is an increasingly important part of our response. Research shows that bystander intervention can be an effective way of stopping a crime before it happens. Bystanders play a key role in preventing, discouraging or intervening when an act of violence has the potential to occur, as well as helping the police to identify and prosecute offenders through encouraging reporting.

The campaigns include posters on the network, social media, podcasts, and partnership content with Ladbible, the Evening Standard and Pink News. It gives bystanders some practical guidance on how to safely intervene, such as diffusing an incident by asking the person being targeted a small question, documenting and reporting what they see, and supporting the person targeted and asking if they are ok.



Figure 41. Posters from the bystander intervention campaign. Source: TfL.

### 3.2.2.2 Delivering value fares

Research shows that there is a strong correlation between access to public transport and access to essential services. Providing value fares ensures that public transport remains accessible for those who need it. As such, we aim to keep fares as affordable as possible.

The funding agreement with the central Government was predicated on the Mayor increasing fares for 2023/24 in line with increases in national rail fares set by the central Government. The Mayor approved an overall average increase on TfL fares under his control of 5.9 per cent to mirror the increase set by the central Government for national rail fares, which is in line with national growth rate for average weekly earnings. The fares increase was introduced from 5 March 2023.

In summary, this change saw bus and tram single fares increase by 10p to £1.75, and the daily bus and tram cap raised to £5.25. The Bus & Tram Pass season price is increased to £24.70 for a seven Day ticket. The free Hopper transfer within one hour remains unchanged, and we have retained free and discounted travel for children, young people, veterans, apprentices and those over 60 (where people meet the eligibility criteria). On the Tube, and on rail services in London where Tube fares apply, Pay As You Go (PAYG) fares have typically increased by between 10p and 30p.

Fares set by the Mayor are 12 per cent lower than if the Mayor had increased them during his fares freeze period in accordance with inflation. From April 2023, 5,800 of the lowest paid transport workers employed indirectly by us have been given free travel on our public transport services. This concession has been funded by the Mayor in response to the cost-of-living crisis, and to provide parity with our directly employed staff.

### 3.2.2.3 TfL Go app

The TfL Go app has been downloaded over 3.7 million times and is used over 680,000 times each month. The inclusive, high-quality design of the app has been recognised with

Design Week, Drum and BIMA (British Interactive Media Association) awards. TfL Go includes a range of accessibility features, such as identifying stations and locations that have gaps between trains and platforms and providing live information on platforms affected by lift disruption.

We regularly update the app with new features to help make travel in London even easier. Earlier this year we launched a new version of our journey planner where recommendations are based on real-time bus arrivals rather than timetables. We have also introduced single adult PAYG fares information to help customers assess the relative costs of journey options.

During the summer we launched 'Promoted Places'. This feature appears in search and helps customers discover and visit places of interest, cultural hubs and events. Since launch we have used the format to mark the opening of Bond Street Station, promote festive days out and celebrate summer and spring in the city. We also used it during Queen Elizabeth II's funeral to support customers finding the end of the queue for the Lying in State.

Future planned updates include account and payment features so that customers can plan, pay and travel via one integrated app experience. Customers will be able to top-up their Oyster card, purchase Travelcards and view their journey history. We continue to promote TfL Go through all our customer information products and a marketing campaign, and always encourage customers to download and use the app to check before they travel.

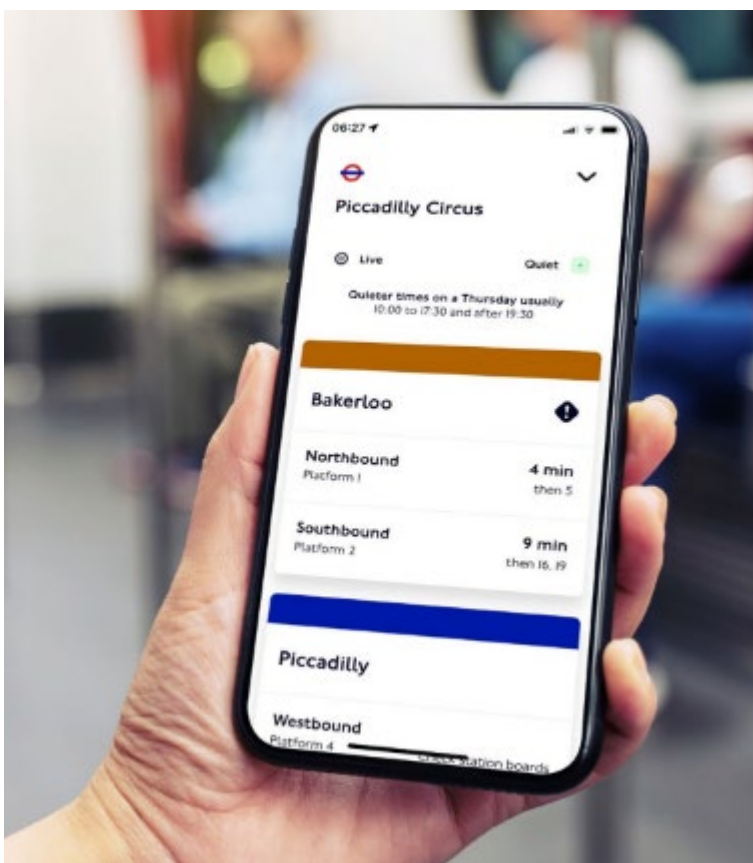


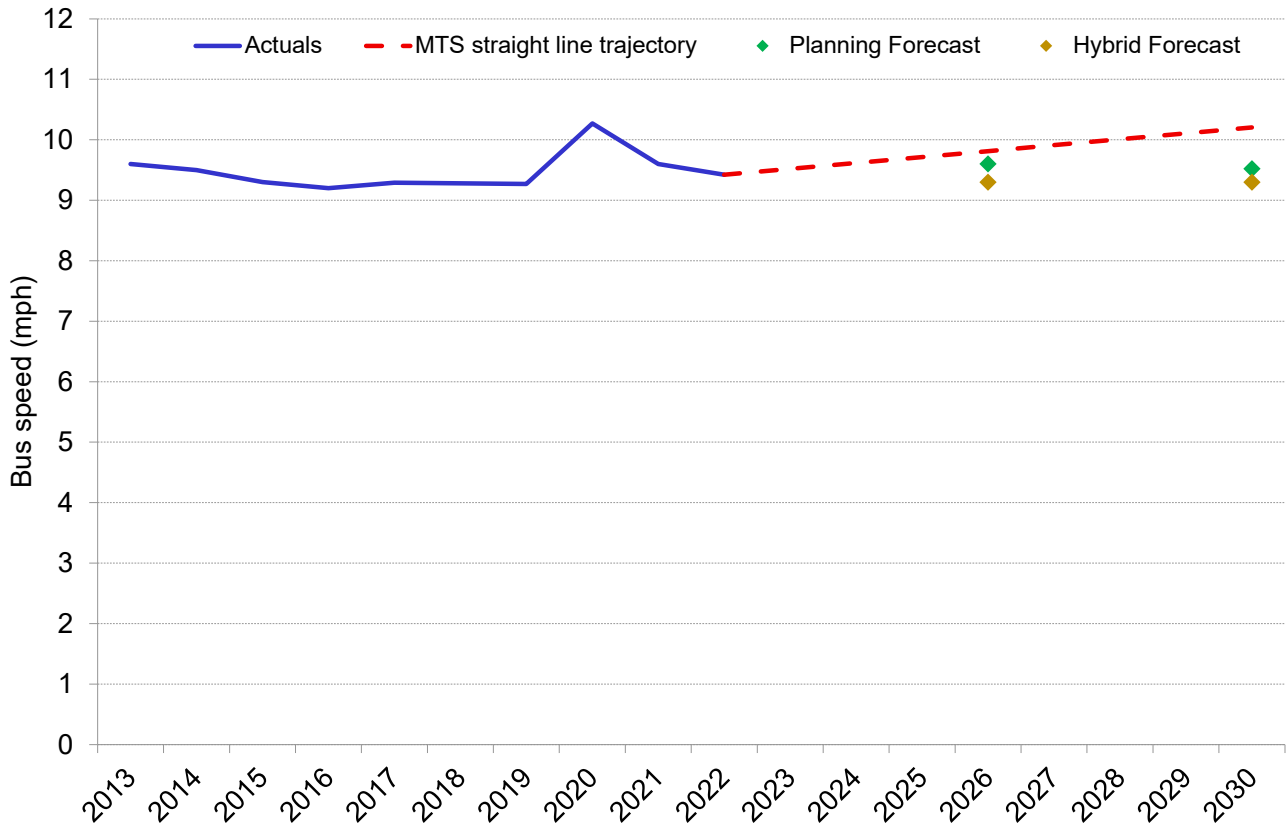
Figure 42. We continue to make improvements to the TfL Go app. Source: TfL.

### 3.2.3 Quality

A high-quality public transport experience is vital if public transport is to be a mode Londoners choose to use. This means we need to address the aspects of travelling by bus, Underground or rail that are difficult or discourage travel. We know that journey times matter to bus customers and that pre-pandemic declines in bus speeds contributed to a decline in bus use with many of these journeys being made by car or not being made at all, both bad outcomes for the environment, the health of Londoners, and local economies.

Bus speeds are a key indicator for the perceived quality of a service. Figure 43 shows that these speeds were declining since 2013, but this trend has changed since the pandemic. With recent increased rates of car travel, and therefore congestion, the large improvement seen in 2020 due to the exceptional circumstances of the pandemic has fallen back in 2021 and 2022, but we remain in a better position than before the pandemic.

However, bus speeds are at risk of declining again unless we take action. That is why our BAP has recognised that ‘we urgently need to deliver a transformational improvement to bus journey times to provide a bus service that Londoners will choose to use’. We measure our bus operational performance using a metric that reflects the customer’s perception of the average time taken to make a journey, including waiting, travel and interchange times. It also takes account of crowding and the variability of journey times. The operational performance in 2022/23 as measured by bus journey time was 34 minutes, which was slightly higher than our target of 33.5 minutes. This has been mainly due to operational and supply constraints, which are now improving, and we expect this to feed through to better operational performance in 2023/24. This will be helped by us and the boroughs making progress in delivering the 25km of additional bus lanes we expect to be in place by 2025.



**Figure 43. MTS Tracker for Quality: Bus speeds in London, observed 2013 to 2022, forecasts to 2030 and MTS target trajectory. Source: TfL.**

### **3.2.3.1 Bus customer improvements**

We operate one of Europe's largest bus fleets with one of the largest number of bus stops and shelters. We have more than 9,000 buses and 35,000 pieces of bus infrastructure across Greater London. Keeping Europe's largest bus network working involves a huge amount of work, from updating at-stop timetables to weekly cleaning, shelter replacements, graffiti removal and bus route updates. We have just put out to tender the next five years of contract activity for this work, with the aim of providing a greener, safer and more customer-focused experience.

Following the launch of a new fleet of 29 new electric buses with enhanced customer features on route 63 in February 2022, we have upgraded several shelters along the route, including a trial of two new types of digital information screen. Customers are given up-to-the-second information on bus delays and updates on the rest of our network, and before boarding the bus they can view every stop that they'll be taken to on their chosen route. In the future, these displays will be able to show the live location of all buses as they move along the route and information on how busy it is on board. We have conducted customer research to evaluate the overall impact of the various improvements across the route 63. This will help us to understand those with the greatest potential to stimulate growth in bus travel, and to ensure revenue is maintained and reinvested into further improvements to the network.

Our work to promote the bus network includes the greener buses campaign which launched to inform Londoners that all our buses are low or zero-emission (at the tailpipe). London-wide activity started in July 2022 and continued through to the end of November 2022, including bus wraps, posters, radio adverts, bus sides and bus rears. Local campaigns were launched at the end of November 2022 with activity promoting specific routes that converted to electric buses.

### **3.2.3.2 Customer service quality**

The MTS sets out the need to improve customer service so the whole public transport network becomes easier and more convenient for people to access and use. The measure we use in our periodic Customer Pulse survey to understand whether we are meeting Londoners' expectations is 'TfL cares about its customers'. Additional measures on our Customer Pulse survey help us to further understand how well we are delivering for Londoners and shows us where we should be focusing our efforts to improve the customer experience. We also monitor customer satisfaction, conduct mystery shopping, and learn lessons from customer complaints.

During the pandemic, people appreciated our efforts to keep London moving. Those travelling also enjoyed quieter public transport services. The Care score achieved all-time highs during this time. As demand returned and services were better used scores reverted to pre-pandemic levels. Despite some exceptional improvements to our services in the last year, such as the launch of the transformational Elizabeth line, the return of the Northern line Night Tube services and the opening of the Barking Riverside station, the full year Care score remains below our target (53 per cent, four percentage points off target). The score



will have been adversely affected by a turbulent industrial relations environment, speculation on our funding and future investment capability, and broader concerns about the cost of living.

Disabled Londoners score us lowest on Care, our metric to measure the proportion of Londoners that believe we care about them, and we know this group are affected disproportionately when things go wrong. We know these customers must overcome many barriers to use the network even when things are operating as they should. We also know disabled Londoners are affected disproportionately when things go wrong. We are working to improve accessibility and connectivity across the network to address these barriers.

People on lower incomes typically scored us lower on Care than people on higher incomes. It is thought this reflects a heavier reliance by people on lower incomes on our services for critical trips, such as getting to work on time. The Care score amongst females is lower than for males. Fears relating to personal safety in public spaces is known to be a major factor, which is particularly true of younger women (16-34 year olds) using the network at night. We work closely with boroughs and other partners to ensure we're making the streets and our transport network feel safer so that people can use public transport with confidence at night.

We fund and work in partnership with London's policing agencies to improve the safety of customers and staff, whilst progressing our EVAWG (Ending Violence against Women and Girls) programme. The relationship between crime and fear of crime is complex and there are no quick fixes to improve confidence. We know that accelerating change means looking far beyond what we are already doing, and we will continue to work with our partners, customers, communities, and women's organisations to build on the work that is already taking place.

Our feasibility study at Canning Town bus station is a prime example, using experimental and community led engagement to gain a greater understanding of safety and feelings of safety in and around the bus station from the perspective of women and girls. The project has identified relationships with local businesses, community groups and residents through engagement to begin to foster a sense of community ownership of the space. Early feedback suggests that the proposed interventions will help women and girls feel safer and more confident travelling on the public transport network. Several physical measures for the bus station and the surrounding local areas are also being explored.

Later this year, we will also be partnering with the Mayor's Office for Policing and Crime (MOPAC) to undertake a small number of women's safety audits at different locations across London. This will help to ensure that the view of women's and girls, and their lived experience, is used to inform the design, management or improvements to public space.

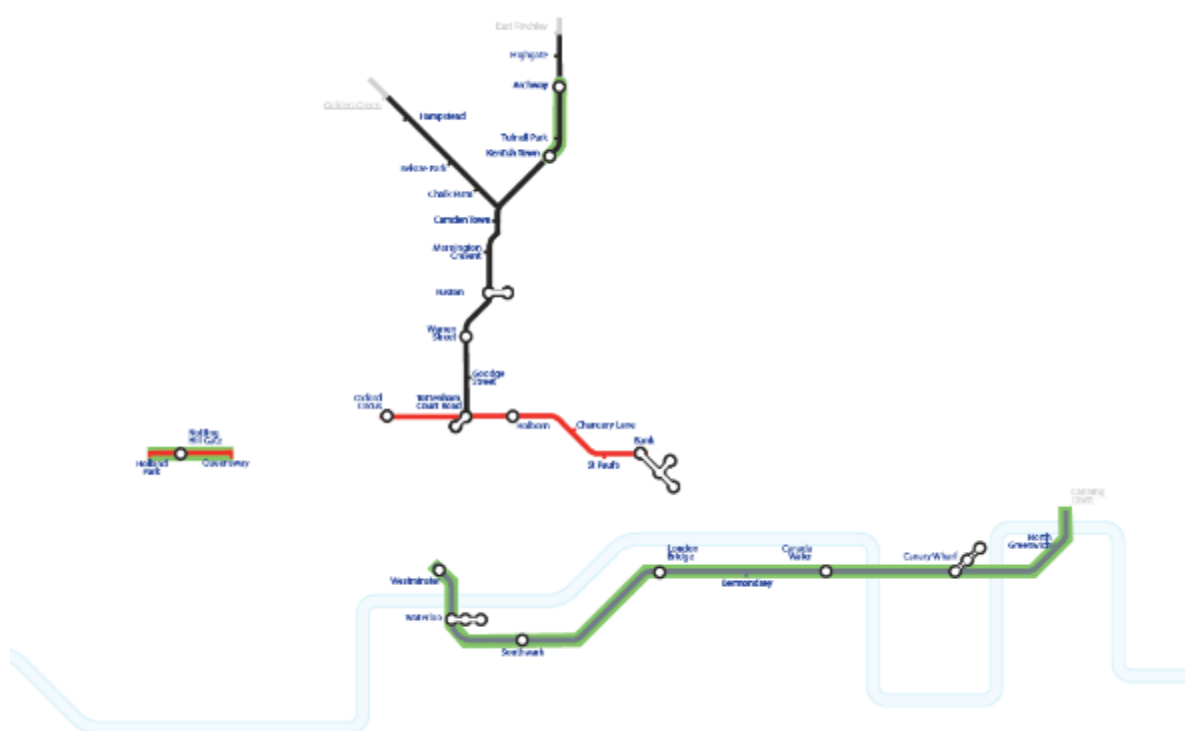
### **3.2.3.3 Cooling the Tube network**

During last summer's heatwave a new state-of-the-art cooling panel was installed on the disused platform at Holborn to begin feasibility trials for the cooling of air at the platforms of our deep Tube lines. The trial is part of the central Government's Living Lab scheme which has provided 70 per cent of the funding. The innovative convection cooling system was designed by TfL Engineering. The successful trial demonstrated higher than anticipated cooling performance. Subject to further environmental testing until mid-2024, it is anticipated that a suitable operational station will be chosen for a trial to begin in late 2025.

### 3.2.3.4 High speed mobile connectivity across the Tube network

All four UK mobile network operators, (EE, 3UK, Vodafone and O2) have signed up to the 4G and 5G mobile network on the Underground and are working with BAI communications to get their equipment installed onto the system at key locations across the city.

From this summer, customers travelling between Euston and Archway on the Northern line, between Holland Park and Queensway, and between Oxford Street and Tottenham Court Road on the Central line, and between Westminster and North Greenwich on the Jubilee line will have 4G and 5G high speed mobile coverage, as shown in Figure 44. There is coverage in ticket halls and on platforms, as well as in tunnels between those stations, enabling customers to get the latest travel information, access social media, check emails, make calls, and stream videos while on the move underground.



\* Green highlights show existing coverage, the rest of the map shows areas to go live in summer 2023.

\*\* Greyed out stations are above ground and therefore already have service. They have been included to give context as to where connectivity extends to.

**Figure 44. Expected mobile network coverage on the underground by the end of summer 2023.  
Source: TfL.**

We are in the process of delivering mobile coverage to more Central and Northern line stations as well as tunnel sections, including Euston, Oxford Circus, Tottenham Court Road, Mornington Crescent and Camden Town.

### 3.2.3.5 Rail reliability

The MTS sets an ambition to reduce the proportion of rail distance travelled in crowded conditions by 10-20 per cent. An appropriate threshold for this is two persons standing per square metre, which reflects lower customer tolerance of crowding post-pandemic. This outcome has proved to be highly sensitive to pandemic demand. In 2020, it dropped to effectively zero but in 2021 it recovered to three per cent. We need more time to evaluate how this measure settles post-pandemic relative to patterns of peak customer demand.

It is likely that as customers return to our network some of the reductions in crowding we saw during the pandemic will be eroded. Without further investment in capacity on our network, it is expected that crowding will increase as a result of population growth to 2030.

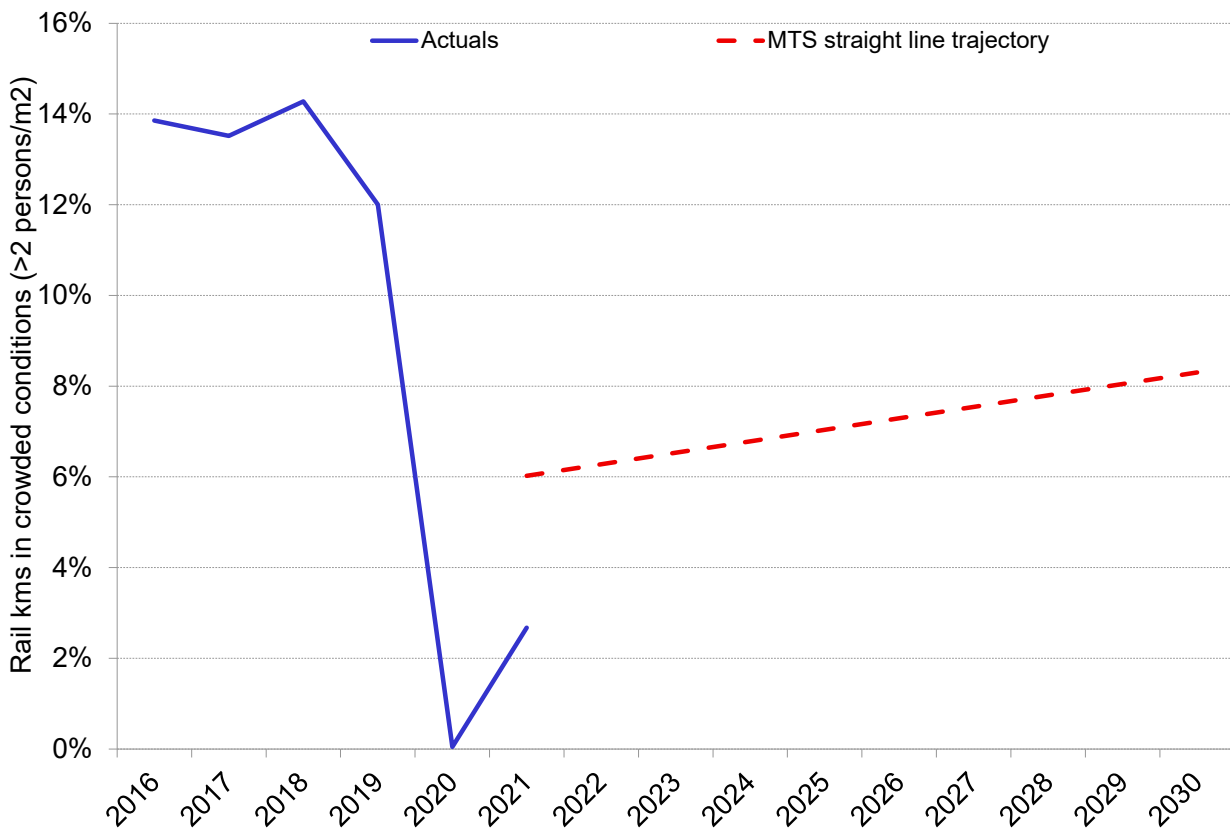


Figure 45. MTS Tracker for Quality: Percentage of rail travelled km in crowding above two persons per square metre, observed 2016-2021 and MTS targeted trajectory. Source: TfL.

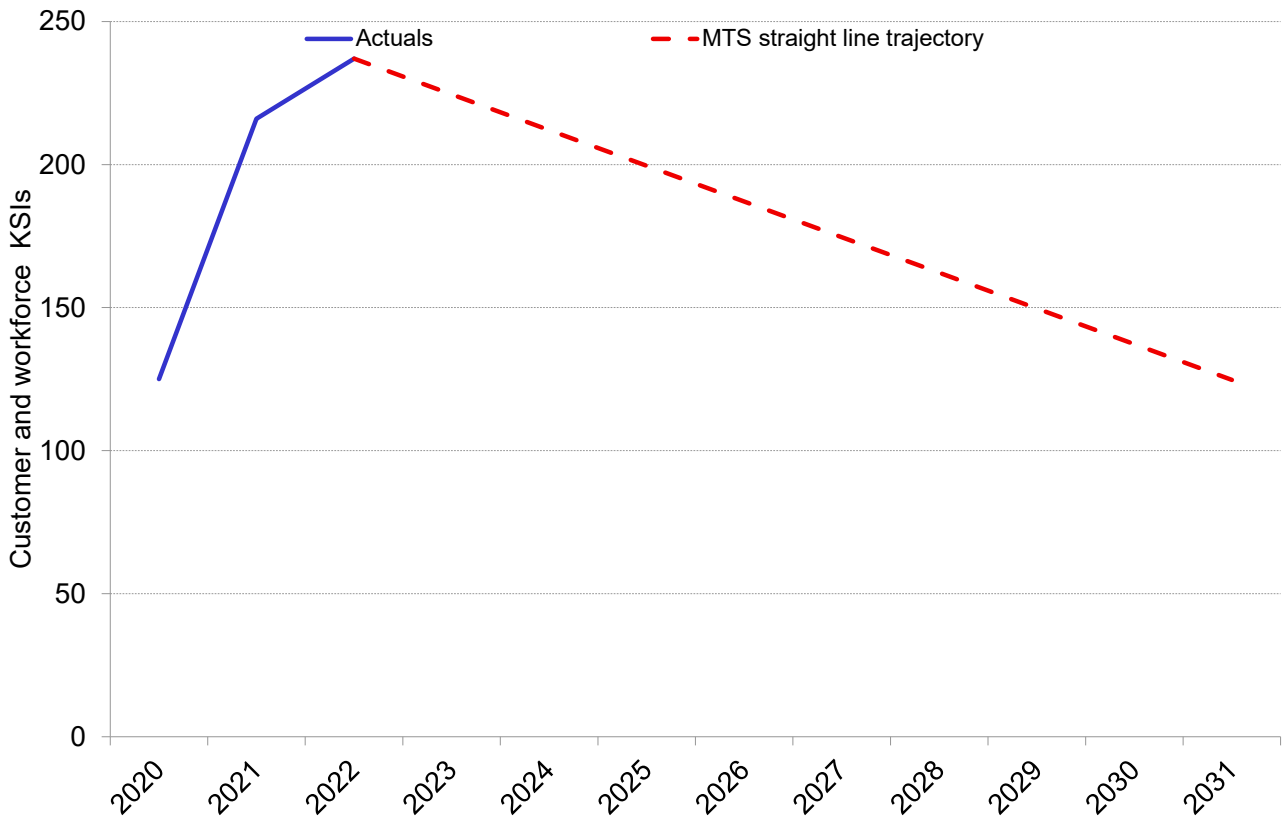
### 3.2.3.6 Vision Zero for public transport

#### Our performance

Across our public transport network four people tragically lost their lives between April 2022 and March 2023, the same number of people as the previous financial year. There were 234 serious injuries sustained on the network over the 2022/23 financial year, of which colleagues accounted for 19 of these, with the remainder being sustained by customers. This represents an increase of 29 customers seriously injured compared to the previous financial year.

This trend should be considered in light of the pandemic during which fewer passengers travelled on our network, meaning fewer were killed or seriously injured. As ridership recovers, we are now seeing a return to a more typical annual death and serious injury total.

We also updated the definition of serious injury at the beginning of 2020/21 to be more accurate. That means that our baseline was reset and we can't show a long-term trend. Looking at all injuries, regardless of severity, over a longer period of time we are seeing gradual improvement in customer and workforce safety, but we still need to do much more.



**Figure 46. MTS Tracker for Safety: Customer and workforce injuries, observed 2020-2022 and MTS targeted trajectory. Source: TfL.**

To achieve Vision Zero on the public transport network we are embarking on a new strategic approach, aligned to industry best practice, to continually build and improve effective controls and prioritise those risks affecting outcomes.

Having accessible information and tools that are understood and used by our workforce is an essential first step in preventing injury. We continually build and improve effective controls and prioritising our risks, making tools available for our workforce.

In Autumn 2022, we overhauled our Safety, Health and Environment Management System. This created a more user-friendly home for our safety policies. The system sets out clear accountabilities and helps our workforce make the right decisions to keep themselves and our customers safe. We also modernised the way we conduct inspections and assurance checks, providing a tool for our workforce to check compliance with our safety policies and requirements in their business area. Both projects are being rolled out in phases, which will continue and be completed in 2023/24.

From these foundations, we are taking an evidence-led approach to prioritise specific risks contributing to deaths and serious injuries. We are developing targeted initiatives to prevent future harm across the public transport network.

## **Slips, trips and falls**

This year, workshops with station colleagues and the Customer Experience Team have taken place to understand the most common customer behaviours that contribute to slip, trip and fall incidents occurring at these stations. The outcomes of these workshops have been used to identify actions to reduce these incidents such as improved signage to encourage customers carrying luggage to use lifts.

On our bus network, we have started a pilot with several bus operators to gather additional information about these incidents. This will help to create a more comprehensive dataset to understand and act on the common factors which lead to an incident.

## **Fatigue**

Workforce fatigue is an ongoing risk across our public transport and wider operations. In November 2022, we launched our Pan-TfL Fatigue Management Plan (FMP). The FMP sets out twelve activity areas for managing fatigue risk, aligned with regulatory and industry best practice. These include guidance on developing fatigue-friendly rosters and tips for managing sleep.

## **Managing intoxication across our network**

Some of our customers use our network after drinking alcohol and we have an important role in helping keep our customers and colleagues safe from the impacts of intoxication. In Autumn 2022, as we approached the World Cup and festive season, we launched our first pan-modal intoxication strategy.

As part of this strategy, we worked with the London Ambulance Service (LAS) to record passenger announcements reminding our customers to take care when travelling if they've been drinking, which were played on the London Underground and London Overground networks.

We also worked with external organisations to provide customers with help and support to make safe travel decisions and adopt safer travel behaviours at hotspot locations. This included working with Westminster Council's Night Stars and partnerships to deploy trained medics to engage with customers before they encounter harm to themselves or others.

## 3.3 New homes and jobs

The transport network has a crucial role to play in supporting people to live and work in London. New developments, planned to support and enable walking, cycling and public transport, enables people to live active, healthy lives and the city to function efficiently as it grows. There are two interlinked outcomes related to this mayoral priority:

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

The approach outlined in the MTS contributes to the London Plan's aims for Good Growth, which are to build strong and inclusive communities, make the best use of land, create a healthy city, deliver the homes Londoners need, grow a good economy and increase efficiency. The sustainability of development is also critical for the Mayor's aims for decarbonising transport in London by supporting mode shift away from the car. Good Growth encompasses both the Sustainable and Unlocking outcomes.

We work in partnership with our stakeholders to achieve these outcomes. We work with London boroughs and developers through the planning process, and in developing projects and bids to secure funding for infrastructure or transport service improvements which enable sustainable and car-free development. We are also focusing on the importance of an accessible network to ensure inclusive growth and enable more Londoners to live without cars.

It is important to highlight some significant risks to this agenda. Some financial commitment from us is often required to leverage third-party funding and transport schemes need to be sufficiently developed to attract funding. Although the capital funding position has improved since a year ago, our limited funding means there is a continued risk of losing opportunities for major improvements across London including SFA projects. Central Government is also considering planning reforms which could alter the infrastructure funding environment and there are increasing viability pressures on development, potentially limiting developer funding. In the short to medium term, this could place additional risk on our ability to secure funding through the planning process. In the longer-term it could also undermine any potential for significant revenue to help fund strategic infrastructure.

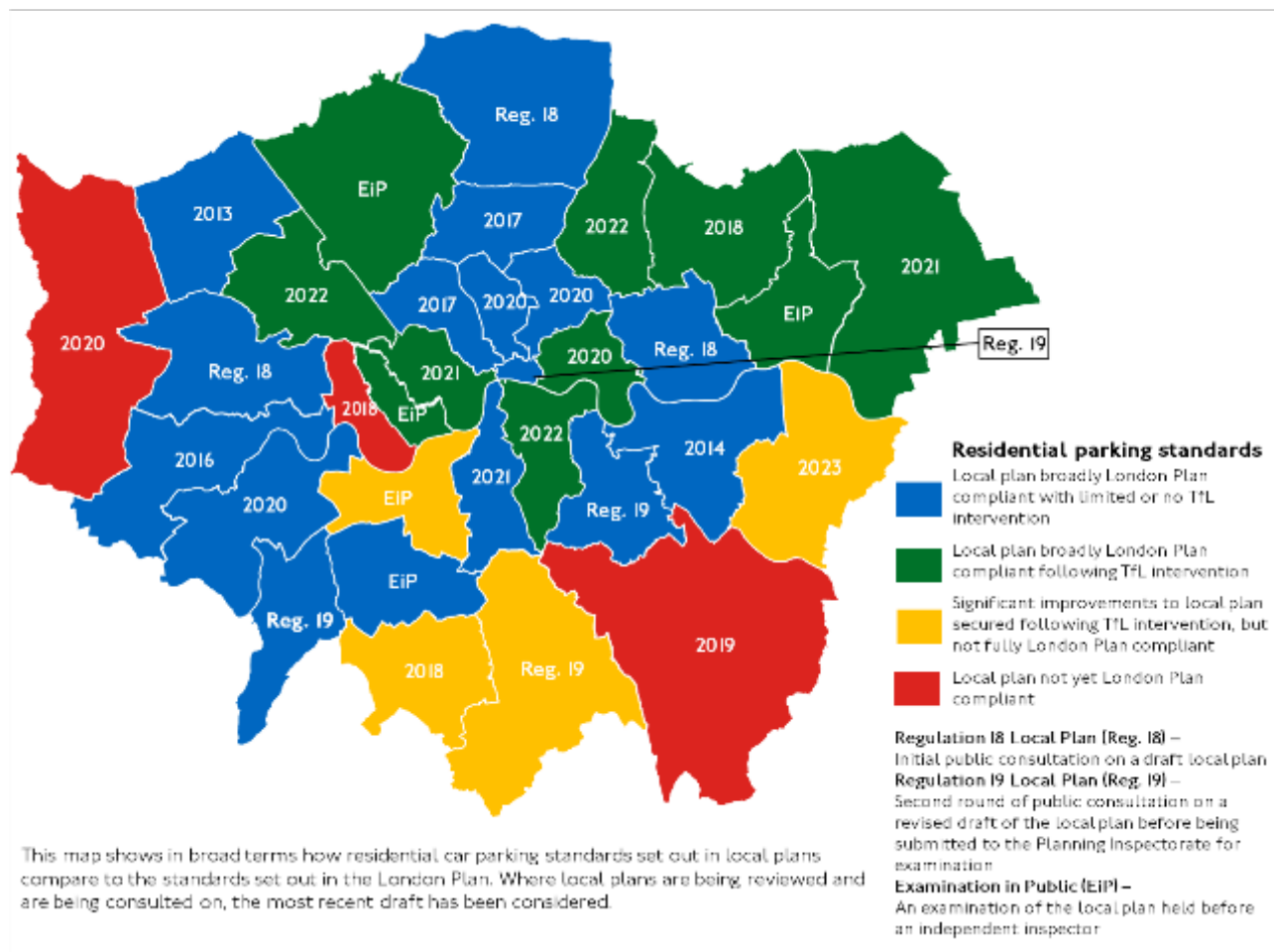
### 3.3.1 Sustainable

We continue to shape local plan policies across London so that they are better aligned with the Mayor's priorities as set out in the London Plan and the MTS. We have ensured policies require transport land and assets to be safeguarded and that car parking provision is minimised in new developments. Every car-free home delivered in London brings down car ownership and generates mode shift away from the car and makes the provision of public transport more sustainable.

#### 3.3.1.1 *Implementing the London Plan*

In the past year, we have worked with at least 13 boroughs to better embed sustainable transport in their local plan policies and attended three examination hearings where we

challenged policies that were not robust or evidence-based. As a result, we secured changes to align better with the London Plan. We have also shaped at least 18 supplementary planning documents that cover more detailed planning for particular areas of growth. Figure 47 illustrates how influential we have been in shaping local car parking policies.



**Figure 47. Borough residential parking standards compared to London Plan standards. Source: TfL.**

### 3.3.1.2 Sustainable transport, walking and cycling London Plan Guidance

London Plan Guidance on sustainable transport was published in its final form in December 2022 after earlier development and consultation. The guidance provides greater detail for local authorities and others to implement the London Plan as intended. The guidance is a material consideration in planning decisions and strengthens our ability to protect transport assets and operations across London. It replaces out-of-date, revoked guidance and is much more strongly focused on ensuring boroughs plan active travel networks and enhance the transport network through new developments. It also sets out that public transport, walking and cycling land should be safeguarded from development, but that land that is in use for car parking may offer the potential for redevelopment, so it can be used more efficiently for other uses as well as supporting mode shift.

### 3.3.2 Unlocking

We play an active role in unlocking housing and jobs across London. This includes using our own investment and leveraging third-party contributions to deliver transport infrastructure which enables more homes to be developed, more quickly and more sustainably. The masterplanning of key growth areas in London and the public transport interchanges that support them ensures that the right transport infrastructure is in place for growth and sets out the case to secure funding for that infrastructure. Public transport connections are key to unlocking parts of London to provide viable places to build homes and create jobs, generate placemaking and other environmental benefits, as well as providing new and accessible connections and improving the quality of journeys. The sustainability of development is an essential part of reducing carbon emissions from transport.

#### 3.3.2.1 *The Elizabeth line impacts on homes and jobs*

The Elizabeth line has transformed travel in London. The opening of the central section of the line brought an additional 210,000 residents to within 45 minutes of Canary Wharf station and 150,000 residents within 45 minutes of Liverpool Street station. It provides step-free access from street to train level at all stations between Paddington and Woolwich, and step-free access from street to platform level at all its other stations.

The Elizabeth line is estimated to lead to an increase in the number of homes and jobs in London. While these impacts will take time to fully emerge, early analysis has shown that these impacts are starting to materialise:

- **Homes:** Between 2008 and 2021, the Elizabeth line supported the delivery of 55,000 new homes within one kilometre of its stations. The number of housing completions along the line has been highest in Greenwich, Ealing, Tower Hamlets, and Newham. During the same period, the population within one kilometre of stations grew by 35 per cent compared to 13 per cent growth in London as a whole. Concentrating population growth in areas located close to the public transport network ensures that London is supporting sustainable growth. There has also been additional public realm, placemaking and town centre improvements along the route.
- **Jobs:** During its construction phase the Elizabeth line directly created 55,000 full-time jobs. It supported the construction skills gap by training more than 20,000 students and provided more than 1,000 apprenticeships. The opening of the line is predicted to create jobs in the areas it serves by changing transport costs and making places more attractive for firms to locate. There is early evidence of employment growth in areas close to the Elizabeth line due to firms relocating in anticipation of its opening. In areas within 500 metres of stations, the employment density increased from 180 jobs per hectare in 2009 to 194 jobs per hectare in 2019.

We will continue to monitor and assess the scale of housing and employment delivery in future progress reports.



### ***3.3.2.2 Northern line extension impacts on homes and jobs***

The Northern line extension and its stations at Battersea Power Station and Nine Elms will support the delivery of the 20,000 new homes and 25,000 new jobs in the Vauxhall Nine Elms Battersea Opportunity Area.

Since the opening of these stations in September 2021, the Battersea Power Station centre opened in October 2022 regenerating a historic building into an active use providing new facilities, employment and placemaking benefits in a key riverside location. The extension will continue to support more homes being built and occupied and new businesses moving into the area. For example, 2023 should see Apple move into their new headquarters in the power station. We continue to monitor the benefits delivered by the Northern line extension, including an evaluation of its economic, social and environmental impacts.



**Figure 48. Battersea Power Station. Source: TfL.**

### ***3.3.2.3 Elephant & Castle station capacity upgrade***

A new station entrance and Northern line ticket hall will support the creation of 7,500 new homes and 10,000 new jobs in the area, significantly increasing station capacity to meet both existing and increased demand for Tube services. People will enjoy step-free access to the Northern line for the first time at the station, and we will future-proof an interchange to the potential Bakerloo line extension. Stage one of the project includes the station box and

passenger tunnels to the existing Northern line platforms. The developer, Delancey, is creating the new structure for the station as part of its scheme. Our project team is currently pushing ahead with the procurement arrangements for the new tunnels, with the invitation to tender set for May 2024. A tender for essential pre-tunnelling ancillary works was issued in October, with the contract set to be awarded in February 2024. Stage two of the project, the station fit out, will be delivered once additional funds are secured.

#### **3.3.2.4 Barking Riverside extension opening**

The opening of Barking Riverside station in July 2022 unlocks the full development potential of the largest housing development in east London. The masterplan for the Barking Riverside development site includes 10,800 new homes (half of which will be affordable), a new school, healthcare, shopping, community and leisure facilities, high-quality public spaces, and connections to walking and cycling routes.

The development has been coupled with planning conditions to ensure that public transport and housing are coordinated and delivered sustainably. For example, no more than 4,000 homes could be occupied without the delivery of the London Overground extension. Thereby, the extension to Barking Riverside has unlocked the remaining 6,800 homes of the development, helping to meet strategic housing targets for London and to accommodate future population growth.

Together with the developer, Barking Riverside Limited, we are continuing to complete work on the public areas around the station which will form the district centre at the heart of the Barking Riverside development.

#### **3.3.2.5 Housing Infrastructure Funding for London Overground and DLR**

The Department for Levelling Up, Housing and Communities opened the HIF in 2017 – a central Government capital grant programme of up to £5.5bn to unlock and deliver new homes across England. Together with the GLA, we applied for two schemes that were awarded central Government funding. They include packages of interventions for the London Overground and the DLR to unlock new homes in Southwark and Lewisham, and Newham and Tower Hamlets, respectively.

The London Overground HIF programme was awarded £80.1m from the central Government in 2018 to enable phase 1 of the programme, comprising signalling and power upgrades for an increase in the capacity of the line between Dalston Junction and Surrey Quays from 16 to 18 trains per hour, capacity enhancements at Canada Water bus station, and an expansion of Surrey Quays station. Phase 1 will unlock development of 7,700 homes. The capacity enhancements at Surrey Quays station include a new station entrance and new step-free access along with power and signal upgrades. A contract has now been awarded for the detailed design and delivery of Surrey Quays station and early works are planned to start the summer of 2023 with completion expected in 2026. Procurement is underway for the delivery of the signalling, power upgrades and bus station works, which are expected to start delivery later in 2023. Phase 2 of the programme is subject to a future bid and funding agreement. It would provide a new station at Surrey Canal Road and stabling works, to allow an increase in frequencies to 20 trains per hour. Phases 1 and 2 would in total unlock development of 14,000 homes.

On the DLR HIF, we entered an agreement with the GLA and the government in December 2020 to receive up to £281m to purchase additional DLR trains, expand the Beckton DLR depot, and contribute to the cost of enabling works at the Poplar DLR depot. The amount was revised in December 2022 to £257.5m when, after further analysis and discussions, the maximum number of additional trains was adjusted from 14 to 11. Increases in train frequencies and the additional 10 per cent capacity of the new trains compared to the existing trains will help meet increased demand from new housing as well as improving journey quality and reliability for existing users. The DLR HIF builds on our investment in new DLR rolling stock, taking the total number purchased to 54. It is a great example of the contribution that we make to delivering the new homes and jobs objective of the MTS by supporting or enabling the delivery of up to 12,000 homes in total.



**Figure 49. First new DLR trains under test at Canary Wharf station. Source: TfL.**

Works to expand the depot are progressing, with the 'Northern Sidings' nearing completion and the recent award of a contract to construct the Maintenance Facility Building for the new trains. We successfully took delivery of the first new train at Beckton Depot in January 2023 and testing is underway to allow the trains to begin entering passenger service from early 2024. Associated network improvements are also underway to support deployment of all the new trains which we expect to complete in 2026.

### 3.3.2.6 Silvertown Tunnel

The Silvertown Tunnel scheme will comprehensively address the long-standing issues of congestion, poor reliability and a lack of resilience at the Blackwall Tunnel, as well as enabling a step change in cross-river bus services. The new 1.4km twin-bore road tunnel, alongside RUC at the Silvertown and Blackwall tunnels and new cross-river bus services, will support continued growth in east and southeast London. Since construction work began in 2020, good progress has been made with the tunnel boring machine having completed one of the two main tunnel drives. Outside of the main tunnel construction, progress continues with the wider highway works including the installation of a new walking and cycling bridge across the A102 in March 2023. This will replace the existing 1960s footbridge with a new, fully accessible bridge, built to modern design standards with improved lighting.

As part of the scheme, significant work is underway to prepare the land for major regeneration schemes planned around the tunnel either side of the river. For example, the main construction site on the north side of the River Thames will eventually become the Thameside West development which will see a new riverside neighbourhood with up to 5,000 new homes. We have been constructing a new river wall to future proof the area's flood defences, provide new inter-tidal habitat and enable a new riverside walkway to be introduced as part of the development. The 5,000 homes would be dependent on a new DLR station at Thames Wharf which is currently unfunded.

A significant programme of traffic, air quality and socio-economic monitoring and modelling is also underway to ensure the scheme delivers its planned benefits and we can manage any adverse impacts once it opens in 2025. This has informed the planning of new cross-river bus services for which we published our consultation report in March 2023.<sup>20</sup>

### 3.3.2.7 Supporting boroughs to level up

We have taken an active role in supporting boroughs to bid for central Government Levelling Up funding. The central government opened a national Levelling Up fund of £4.8bn in 2021 to invest in infrastructure that improves everyday life across the UK. Boroughs were able to apply for up to £20m per borough and the GLA are eligible to apply for one bid of up to £50m on transport projects. An update on each of the three rounds of funding is provided below.

#### Levelling Up Fund Round 1 projects

The first round launched in 2021 and London secured £65m in total on the following projects:

- Newham: Connections to Opportunity bid, building a new bridge over the River Lea in Newham (£19.8m)
- Newham: 15-Minute Neighbourhoods bid, connecting 75,000 of Newham's residents to vital infrastructure by a 15-minute walk or cycle (£19.9m)
- Ealing: Connecting Northolt station to White Hart Roundabout bid (£7.2m)

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<sup>20</sup> Silvertown Tunnel Bus Network: Consultation Report: March 2023 – [haveyoursay.tfl.gov.uk/19786/widgets/56145/documents/40186](https://haveyoursay.tfl.gov.uk/19786/widgets/56145/documents/40186)

- Tower Hamlets: Transforming Whitechapel Road bid (£9.3m)

All projects have established cross-TfL and borough working teams and are making progress to deliver their projects ahead of the deadline in 2024 and by exception in 2025.

### **Levelling Up Fund Round 2 projects**

The second round was launched in 2022, with results announced in January 2023 and the funding to be delivered by March 2025. London had eight successful bids of which six were transport related, unlocking a total of £113.8m transport investments:

- Hackney will receive £19m for Hackney Central that will improve public spaces like the Town Hall Square, create a new creative workspace, and invest in Hackney Central Library.
- Lewisham will receive £19m to update its town centre by revitalising the marketplace, creating a flagship culture and business hub, and improving its walking and cycling infrastructure.
- Camden will receive £7.7m to improve physical and community infrastructure in Camden, Gospel Oak, Haverstock and Kentish Town. Cycling and walking infrastructure will be improved, as well as accessible facilities and green spaces.
- Barking and Dagenham will receive £10.9m to provide new homes, safeguard jobs, and reduce crime.
- Sutton will receive £14.1m to double the number of trains running to Belmont station and improving connectivity to the London Cancer Hub.
- TfL and the GLA will receive £43m for improvements at two London Underground stations: Colindale and Leyton.

Our joint application with the GLA provisionally secured £43m and the funding will match over £20m in contributions from the boroughs of Barnet and Waltham Forest, and private developers to make the two stations step-free as well as supporting the delivery of new, affordable homes. Work is now ongoing to submit a full business case to the DfT to formally unlock the funding and deliver both projects.

### **Levelling Up Fund Round 3 projects**

The central Government recently announced the third round of the Levelling Up Fund with an overall budget of £1bn. The process is expected to mirror previous rounds and is another opportunity to bring forward much-needed schemes in London.

#### **3.3.2.8 TfL Growth Fund and Sustainable Housing and Accessibility Fund**

The Growth Fund has played a central role over many years in unlocking homes and jobs across London. In its latest iteration it contributed to important regeneration projects such as Woolwich Elizabeth line station; White Hart Lane, Ilford and Tottenham Hale station upgrades; and Elephant and Castle roundabout. The final Growth Fund project will be the Tolworth roundabout scheme currently under development. We have established a successor Sustainable Housing and Accessibility (SHA) Fund to ensure a focus on inclusive growth and help support the link between an accessible network and unlocking car-lite development. Work is ongoing on the prioritisation of this funding, to build a pipeline of projects and develop a clear short- to medium-term view of our investment priorities.

### 3.3.2.9 New homes on TfL land

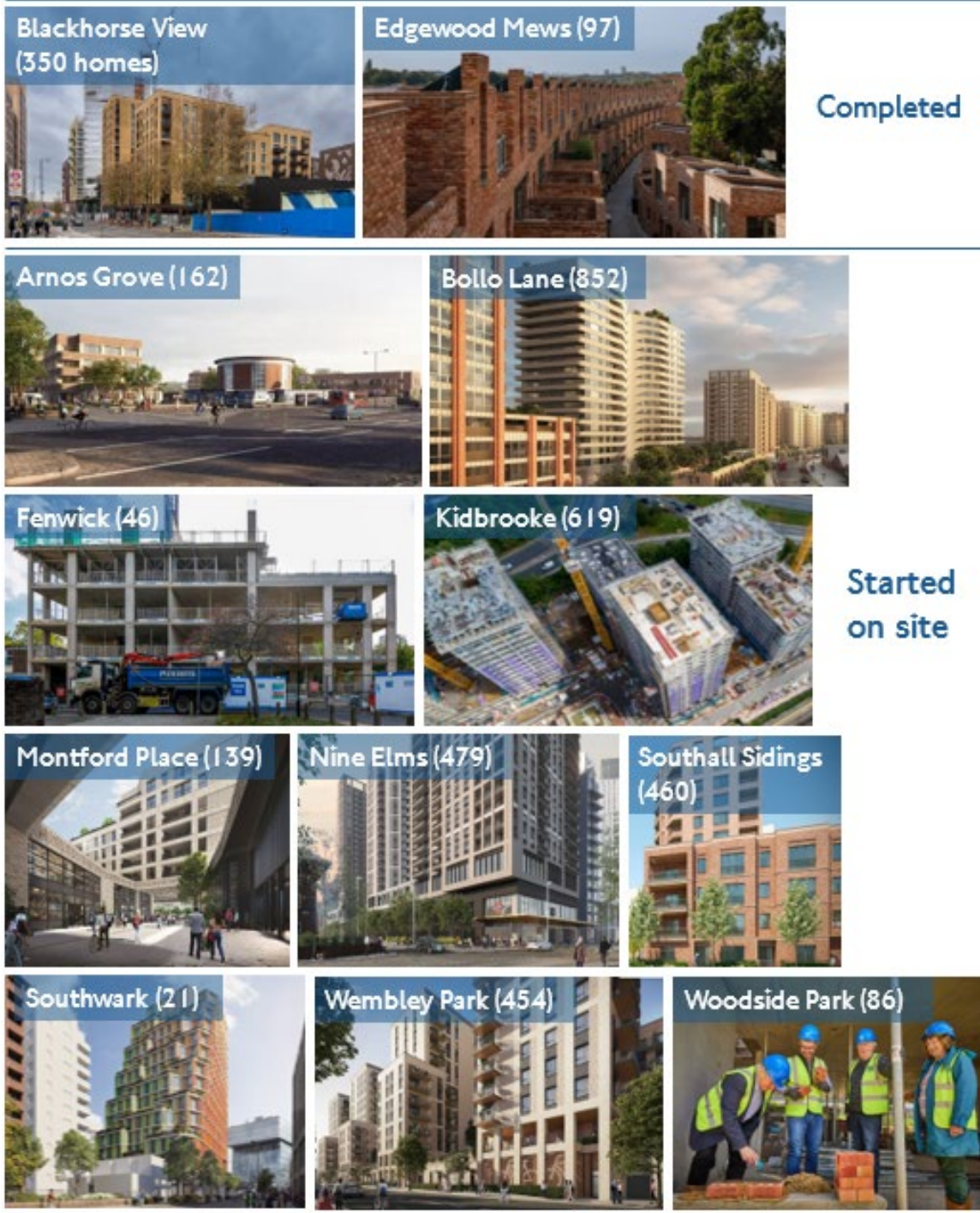
In 2022, we established a commercial property company, TTLP, to deliver new housing and jobs in high demand areas, to manage our commercial estate and undertake other development projects. We have completed over 700 new homes and currently have more than 3,400 homes under construction, of which 47 per cent to date are affordable, on target to reach 50 per cent in line with the London Plan. In addition, we have planning permission for a further 2,800 homes across 10 sites plus schemes submitted for planning permission that will deliver 520 more new homes. As part of the next phase of activity we expect to submit applications for up to a further 9,500 homes, including around 3,500 in Edgware town centre and 4,500 at Earls Court/Lille Bridge Road Depot.

Approvals of planning permission last year included:

- 523 homes (35–40 per cent affordable) at Woolwich station on the Elizabeth line
- 348 homes (100 per cent affordable) at Hounslow West station
- 98 homes (100 per cent affordable) at Barkingside station
- 74 homes (100 per cent affordable) at Snaresbrook station

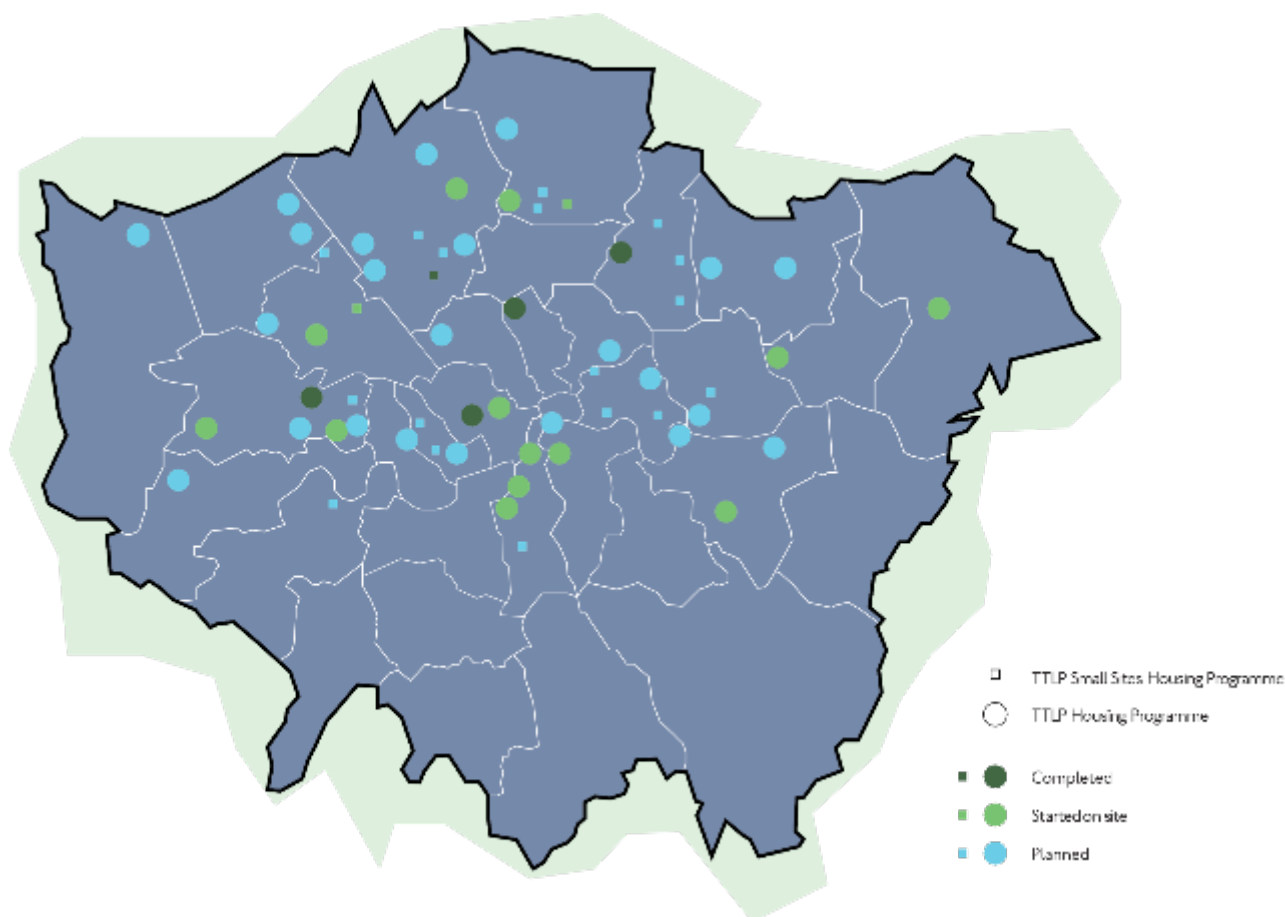
TTLP recently announced that it will be working with Barratt London as its joint venture partner to deliver up to 900 consented new homes (50 per cent affordable) on the Bollo Lane site in Acton. The joint venture will also be working on other 'pipeline' sites in our portfolio in west London.

**TTLP had built or started over 4,300 new homes by the end of March 2023:**



**Figure 50. TTLP developments under construction and completed as of 31 March 2023. Source: TfL.**

Across the capital, TTLP has a significant pipeline of sites, shown in Figure 51, which will enable us to start building a total of 20,000 homes by 2031 alongside delivering operational improvements.



**Figure 51. TfL’s Housing Programme and Small Sites Housing Programme<sup>21</sup> sites as of 31 March 2023. Source: TfL.**

We have agreed a portfolio approach with the Mayor which ensures that there is delivery of 50 per cent affordable housing across our portfolio. TfL remains committed to delivering its housing programme in full as soon as possible, and is working with the GLA, developers and boroughs to make sure that it can build the homes our city needs in a safe, responsible and transparent way.

All schemes in the programme will be rigorously reviewed to ensure they achieve the highest levels of sustainability in line with our Property Development Sustainable Development Framework. This framework is a metric-driven approach to optimising, specifying, delivering and monitoring best-in-class sustainability performance across the development portfolio. In terms of energy and carbon reduction, this means an average reduction of emissions of 55 per cent (and up to 80 per cent on some projects), which significantly exceeds the London Plan requirement of 35 per cent carbon reduction. We are currently reviewing our Net Zero Carbon roadmap and delivery plans, including retrofitting.

Bringing sites forward for development that are in and around transport infrastructure, including stations, bus depots and garages, aids us to facilitate step-free access at several of our stations and support the electrification of the bus fleet. Given the sustainable location of most of these sites we can deliver primarily car-free developments.

<sup>21</sup> Sites marketed through the GLA’s ‘Small Sites’ website ([london.gov.uk/small-sites](https://london.gov.uk/small-sites)).



We and our partners have trained more than 3,400 people in construction skills over the past three years, with more than 1,000 people progressing into employment within the construction industry. In line with our commitment to breaking down barriers to those who are traditionally under-represented in the construction sector, over 35 per cent (compared with an industry standard of below 10 per cent) of our beneficiaries are from ethnic minority backgrounds and a growing number of them are women.

### **3.3.2.10 New offices on TfL land**

After a competitive procurement process, TTLP has selected Helical as our preferred investment partner for the delivery of approximately 600,000 sq ft of new high quality and sustainable office space above or close to Tube stations. Known as the Platinum Portfolio, this currently consists of three new commercial office developments at Bank, Paddington and Southwark. All three sites have full planning permission to deliver sustainable commercial office developments, constructed based on Net Zero Carbon, that provide exceptional workplaces and positively impact the local community.

We also have the ambition to bring forward additional schemes within this long-term joint venture with Helical.

### **3.3.2.11 DLR to Thamesmead**

Improvements to public transport at Beckton Riverside and Thamesmead will be required to unlock 25,000–30,000 homes and transform two major brownfield sites with new town centres and employment opportunities. Thamesmead and Beckton Riverside sit at the heart of the largest concentration of Opportunity Areas in London and are a priority for regeneration and economic development in the Thames Estuary.

We are working with partners including the GLA, Greenwich, Newham, Homes England, the Department for Levelling Up, Housing and Communities, the DfT, and the three major landowners of Thamesmead Waterfront (a joint venture between Lendlease and Peabody), Abrdn (formerly Aberdeen Standard Investments) and St William, to address the transport and housing challenges across the area.

We are intending to submit a strategic outline business case to central Government in early June 2023. Alongside this, we hosted both the Housing Minister and Minister for London on site visits to Thamesmead this year. Optioneering is at an advanced stage and includes a new cross-river DLR extension from Gallions Reach to Thamesmead via Beckton Riverside. This would deliver a new DLR station at Beckton Riverside, a tunnel under the Thames and a new DLR station at Thamesmead. This is part of a package which also includes the assessment of a bus transit system, providing a quick and reliable service between Woolwich, Plumstead, Thamesmead and Abbey Wood.

We are working on how a scheme of this scale could be funded and delivered, and, subject to this, an application for consent could be submitted in 2026, with services operating by the early 2030s.

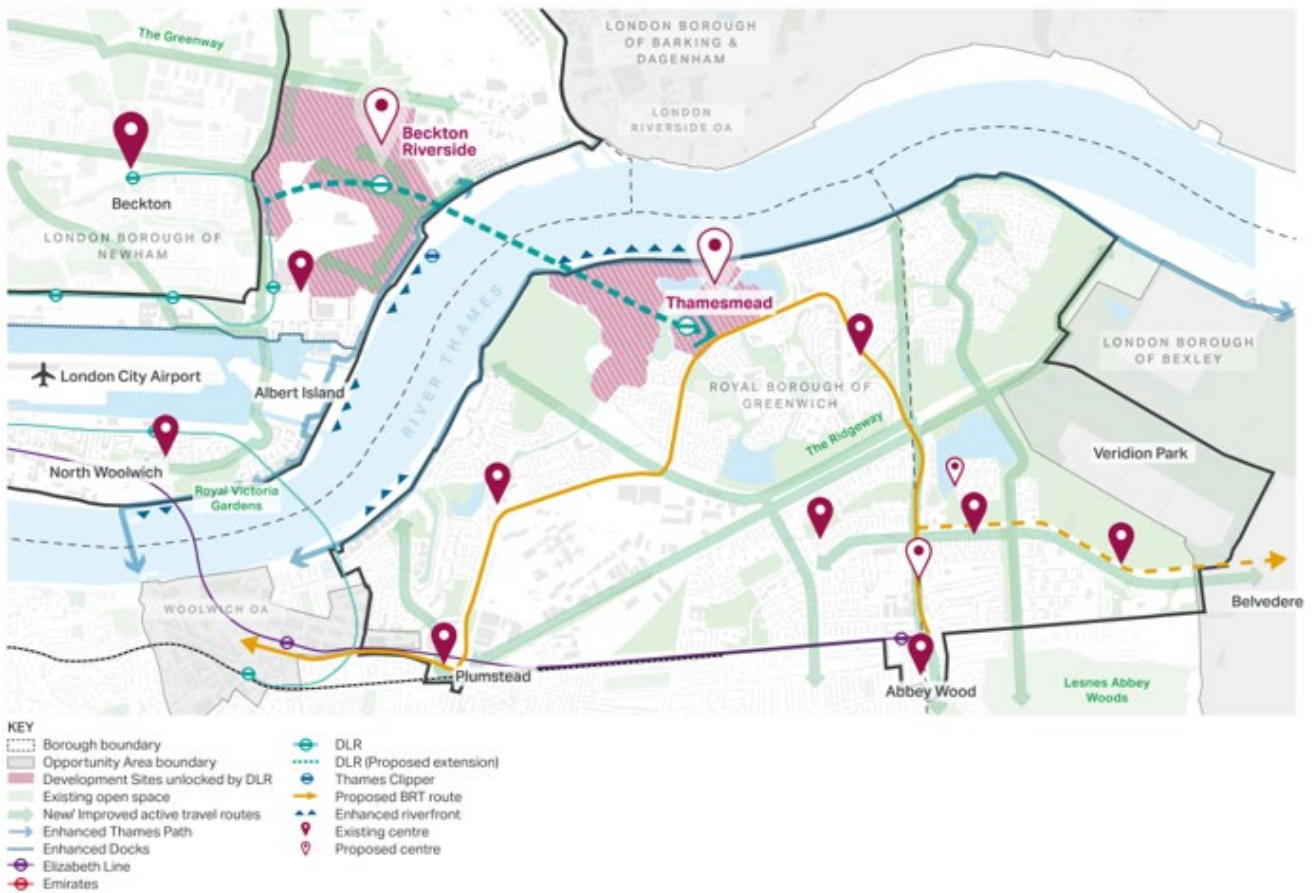


Figure 52 DLR extension and bus transit proposals for Thamesmead. Source: TfL.

### 3.3.2.12 West London Orbital

We are continuing to work closely with the West London Alliance and associated boroughs to develop the case for the West London Orbital. The proposed London Overground service would make use of existing underused rail lines across the west London boroughs of Barnet, Brent, Ealing and Hounslow. This much needed new orbital link would significantly speed up public transport connectivity across this part of outer London and support sustainable housing growth and jobs across west London. It would also offer interchange opportunities with the Elizabeth line and HS2 at OOC. The West London Orbital is forecast to support the development of 15,800 new homes.

The scheme is still at an early stage of development but, together with the boroughs and Network Rail, we are developing the feasibility design and the case for the scheme. Funding will be required from local sources as well as the central Government to deliver it.

### 3.3.2.13 Bakerloo line extension

Building upon the planned upgrade of the Bakerloo line, the Bakerloo line extension would provide a step change in public transport capacity, connectivity, and accessibility across southeast London. Once complete it will connect a historically under-served part of London to the Tube network, unlocking more than 25,000 homes and 5,000 jobs along the Old Kent

Road and the wider southeast corridor; relieving congestion on London's roads and bus services; improving the capital's air quality; and reducing journey times across the city.

The proposed extension remains a long-term priority and it has been safeguarded from Lambeth North to Lewisham by the Secretary of State for Transport. The station capacity upgrade currently under construction at Elephant and Castle will include future-proofing for an interchange to the extension. Work has continued to progress the scheme through ongoing design development to support future delivery and ensure compatibility with wider development along the route. Along with key stakeholders including Lewisham Council and Southwark Council we have also continued to make the case for the extension, including through updating the business case, and investigating different funding options that could allow the scheme to be delivered.

### **3.3.2.14 Crossrail 2**

The DfT has confirmed in various funding letters since October 2020, that it is a priority to update the 2015 Crossrail 2 safeguarding directions.

We continue to have discussions with the DfT to highlight to them the need to update the directions to reflect the current scheme design and to ensure the opportunity it presents, and its future requirements are protected. An update of the directions would release safeguarded land no longer required within the current design and protect new sites that have been identified as needed to deliver the scheme. We hope to reach an agreement with the DfT on next steps by summer 2023.

Our view is that Crossrail 2 will still be needed in the future to support London's growth and we have clearly demonstrated the case for the scheme. The project and scheme design to date has been put in good order, so it is ready for a time when the project can be progressed.

### **3.3.2.15 Stratford station improvements**

We are working with Network Rail and other partners to identify opportunities to improve the capacity, operational performance, customer experience and accessibility of London's transport interchanges.

Stratford station is one of London's busiest transport hubs. In 2019, there were 128 million passenger movements through the station on National Rail and TfL services, up from 40 million in 2006. There are up to 170 passenger train departures per hour, one every 21 seconds. Stratford, and east London more widely, has seen a significant increase in homes and jobs over the past 20 years, with similar or greater levels of growth anticipated in the next two decades. The station has a small footprint and inadequate customer waiting and circulation facilities, which cause operational difficulties, a situation which will worsen with committed and forecast growth in the area.

We are working with the London Legacy Development Corporation (LLDC), Network Rail and Newham to identify possible solutions to improve the user experience and enhance capacity at Stratford station. In spring 2023, the LLDC prepared a Strategic Outline Business Case to highlight the need for long-term interventions at this location. The project

partners, including us, are contributing funding for feasibility work to further develop longer-term solutions.

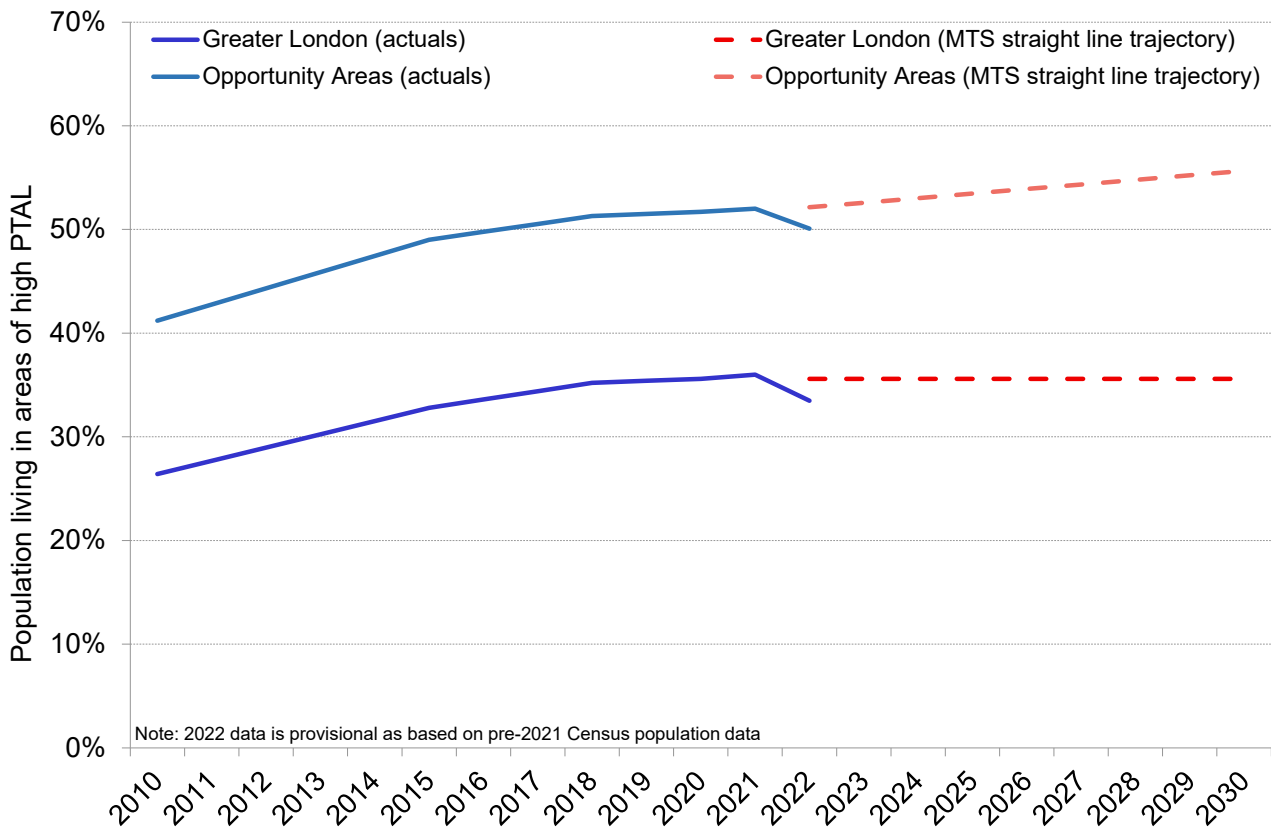
The case for intervention will seek to consider a range of factors, including the opportunities to make wider improvements to the urban realm and support wider development. This includes ensuring more effective integration with the town centre and the Queen Elizabeth Olympic Park, unlocking additional housing and employment land to support east London's population and employment growth, and ensuring benefits of new development are shared by the whole community.

### **3.3.2.16 Progress against our aims**

Overall, the delivery of homes and jobs in London is not within our direct control. However, we can influence London-wide policy and make investments and interventions that directly unlock particular areas of development, as well as improving the sustainability of new developments.

The MTS sets an ambition to increase the number of Londoners living in areas that are well connected by public transport – as measured by the Public Transport Access Level (PTAL). We have developed a measure of the proportion of Londoners living in areas with a PTAL of four or higher, both in Greater London and specifically in Opportunity Areas, where substantial housing growth is expected.

As shown in Figure 53, the proportion of Londoners living in areas with a PTAL of four or higher declined during the past year, mainly due to timetable changes on the National Rail network and, to a lesser degree, on the bus network. Before then, between 2010 and 2021, the proportion had been increasing, because of population growth in well-connected areas close to the public transport network, and because PTALs have increased since 2010. Future progress on this metric will be reliant on new homes and jobs being located in well-connected places and would be undermined by further service reductions, if implemented. Note that this data does not account for the latest population data available from the 2021 Census. Future updates to this metric may be affected by the revised population data.



**Figure 53. MTS Tracker for Sustainable and Unlocking: Proportion of population living in high PTAL areas, observed 2010-2022 and MTS target trajectory. Source: TfL.**

## 4. Future delivery of the MTS

Chapter 3 established our progress against each MTS outcome, together with the level of change needed by 2030 to remain on trajectory towards the 2041 ambitions (based on the measures on the MTS tracker). These are summarised in Table 4. Forecast data is also provided for metrics modelled using our Planning and Hybrid Forecasts.

The scale of the challenge is large, and achieving these ambitions therefore requires an integrated approach and commitment to long-term change. Table 4 shows that significant progress will be required this decade to remain on the trajectory towards the 2041 aims, based on the assumption that the rate of progress will be even between the 2020s and 2030s.

Many of the outcomes of the MTS are inter-related and progress on one outcome can support progress towards many other outcomes. On this basis, in last year's update we identified three key areas for action to address the most pressing issues where we will need to make progress in the coming years.

These were:

1. Reducing traffic
2. More progress on safety
3. Continuing investment

Outcome	Measure	Latest achievement	Aim 2030	Forecast 2030**
Mode share	Percentage of trips undertaken by active, efficient and sustainable modes	61.5% (2022)	69.3%	Planning Forecast: 64.6% Hybrid Forecast: 63.4%
Active	Percentage of Londoners doing 20 min active travel per day	37% (April - December 2022)	51%	Planning Forecast: 41% Hybrid Forecast: 38%
Safe	Number of people killed or seriously injured on London's roads	3,974 (2022*)	1,461	Not available
Safe	Number of customers and workforce killed or seriously injured on TfL services	238 (2022/23)	137	Not available
Efficient	Number of car trips crossing cordons in central, inner and outer London	Outer: 1.84m (2021); Inner: 1.28m (2022); Central: 0.50m (2021)	Outer: 1.79m Inner: 1.12m Central: 0.52m	Not available
Green	Average roadside NO2 concentration in central, inner and outer London	Outer: 30 µgm-3 Inner: 30 µgm-3 Central: 38 µgm-3 (2022)	Outer: 19 µgm-3 Inner: 22 µgm-3 Central: 26 µgm-3	Not available
Green	All CO2 emissions from London's transport network	5.53m tonnes (2021)	4.16 tonnes	Not available
Connected	Percentage of Londoners living within 400 metres of a bus stop	96.5% (2022)	96.5%	Not available
Accessible	Percentage reduction in additional journey time by step-free routes	-39% (2022)	-44%	-41% (based on committed schemes)
Quality	Percentage of rail travelled km in crowding above two persons per square metre	2.7% (2021)	8.3%	Not available
Quality	Average bus speed (within safety and speed limits)	9.4 mph (2022/23)	10.2 mph	Planning Forecast: 9.5mph Hybrid Forecast: 9.3mph
New homes and jobs	Proportion of population living in PTAL 4 or higher, in Greater London and Opportunity Areas (OAs)	London 33.5% (2022) OAs 50.1% (2022)	London: 35.6% OAs: 55.7%	Not available

**Table 4. Mayor's Transport Strategy tracker April 2023. Source: TfL.**

\* Provisional data: final data subject to verification by the DfT in the summer.

\*\*Forecast data is provided for those metrics which can be modelled in our Planning and Hybrid Forecasts.

## 4.1 Reducing traffic

In 2022, we revised the MTS to recognise the triple challenges of toxic air pollution, the climate emergency and traffic congestion, adding the policy basis for further RUC schemes. This revision was in the context of the proposed London-wide expansion of ULEZ and the Mayor's preferred pathway to net zero carbon, which requires a 27 per cent reduction in car vehicle kilometres travelled on London's roads by 2030.

The common denominator which will help us achieve these and other MTS outcomes is traffic reduction. Motorised traffic – particularly cars – is an inefficient use of the constrained space available and acts as a deterrent to people using active, efficient and sustainable modes. Congestion slows down buses, causing inconvenience to our customers and making buses less attractive. Fear of collisions is the main barrier to more people cycling. Despite significant improvements in recent years, air pollution is still the biggest environmental risk to the health of all Londoners, particularly the most vulnerable. We are facing a climate emergency and, since 25 per cent of London's carbon emissions come from road transport<sup>22</sup>, this is a further reason to reduce motorised traffic. Reducing unnecessary vehicles will also help to reduce road danger and move closer to achieving Vision Zero.

Even before the pandemic was over, we could see that traffic was recovering faster than public transport. While traffic is circa five per cent below 2019 levels, it is still high and congestion remains a problem. We have seen a downward trend in car crossings at the central and inner London cordons prior to the pandemic and, once the post-pandemic recovery has settled, would expect this to continue. While our most recent data for outer London dates to 2021, and there was a dip caused by the pandemic, we know that over the decade to 2019, traffic at this cordon had been increasing. There is uncertainty as to how this pattern will settle in the future, but – given that traffic in outer London accounts for around 70 per cent of all traffic in London – it is critical that we continue to focus on reducing trips here, including those originating outside London.

We will continue to identify and take action to reduce traffic dominance:

- Making walking, cycling and public transport a better option for all Londoners, for example by introducing new bus priority measures, the continued growth of the strategic cycle network, and addressing the barriers to using sustainable modes such as road danger. We will soon publish a new Cycling Action Plan which focuses on actions that help a more diverse group of people to benefit from the opportunity to cycle.
- Boroughs play a vital role in traffic reduction. We will continue to work with the boroughs and use the LIP process to deliver a range of local interventions including LTNs, School Streets, cycleways and cycle parking to enable more trips by walking and cycling and to shift away from private car use.

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<sup>22</sup> <https://content.tfl.gov.uk/next-steps-for-reducing-emissions-from-road-transport.pdf>



- Continue to deliver on the measures set out in the BAP so that more people choose to take the bus rather than the car. Buses are an efficient, sustainable and inclusive use of street space, and by improving bus journey times we can reduce our costs and also drive-up revenue. The introduction of the Superloop will see a greater number of Londoners served with better public transport provision. Scope for on-street complementary measures to improve the full customer offer is also being explored.
- 90 per cent of all goods are delivered by road so it is critical that we embed cleaner and safer ways for essential trips to take place and enable real alternatives to vans. As set out in the Cargo Bike Action Plan, we will work with the boroughs, businesses and the freight and servicing industry to support the growth of cargo bikes, which have the potential to replace van deliveries and make our streets cleaner and safer.
- Use the NOS to enable us to optimise the whole road network in London for sustainable modes and reduce delay and journey time volatility for customers using a bus. Continue to apply and develop proactive management of street works and changes to signal timings to save time for people walking and cycling and using the bus.
- Expand the ULEZ London-wide from 29 August 2023. While traffic reduction is not an objective of the scheme, it is expected to lead to a small (0.5 per cent<sup>23</sup>) reduction in overall car km. This year we published data from monitoring of the earlier expansion of ULEZ to inner London in October 2021, which showed a reduction in unique vehicles in the zone of almost five per cent.<sup>24</sup>

## 4.2 More progress on safety

Achieving Vision Zero ambitions both on London's roads and our public transport services is a critical, long-term undertaking. Improving safety will not only help achieve the Safe outcome of the MTS but will make sustainable travel more attractive to all – vital to making progress against Mode share, Active, Efficient and Green outcomes.

Vision Zero on London's roads requires a safe systems approach, based around five key pillars of action: Safe Speeds, Safe Streets, Safe Vehicles and Safe Behaviours, as well as post-collision response. There was a significant reduction in the number of people killed or seriously injured in 2020, during pandemic conditions on the roads. However, 2021 and 2022 saw a reversal of this trend as car journeys returned to near normal levels, and the number of people killed or seriously injured increased compared to 2020, which means we missed our 2022 target.

Compared to the number of deaths and serious injuries on London's road network, our public transport network is relatively safe. In 2022, fatalities amongst our customers and

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<sup>23</sup> Our proposals to help improve air quality, tackle the climate emergency, and reduce congestion by expanding the ULEZ London-wide and other measures, TfL, May 2022

<sup>24</sup> [Inner London ULEZ – One Year Report](#), Mayor of London, February 2023

workforce slightly reduced whilst serious injuries saw a small increase. Our focus here is to maintain and continually improve the safety of our public transport network.

To accelerate our progress towards the 2030 interim Vision Zero target (reducing the number of people who are killed or seriously injured by 70 per cent against 2010-14 levels) we will need to ensure continued focus on delivery of our evidence led Vision Zero Action Plan (VZAP). We are beginning work on identifying if we need to adapt the scale of ambition needed in order to meet our 2030 interim targets. We will also develop the subsequent iteration of the VZAP to incorporate the scale of ambition identified beyond the current delivery period of 2024/25.

Despite our slower than required progress in achieving our Vision Zero target, we continue to prioritise the safety of our customers, colleagues, contractors and members of the public, putting safety at the heart of everything we do.

We plan to deliver safety improvements across all aspects of our operations. Renewing and enhancing our assets is a key aspect of our safety activity, with investment to improve significant areas of our track and road infrastructure. By including environmental considerations in our safety investments, such as including sustainable drainage projects to reduce surface water flooding, we can provide even greater benefit to Londoners in the most cost-efficient manner.

We have comprehensive plans to reduce the dangers faced on our roads, working with the boroughs to deliver holistic improvements tailored to local circumstances. The total investment in safe and active travel, across both operating and capital expenditure, will average £150m per year until 2026. This will allow further delivery of the capital's strategic cycle routes, as well as the delivery of new cycleways and safer junctions to make London's major roads safer and more attractive for those walking and cycling.

Making junctions safer and enhancing our cycling network will be complemented by communication campaigns, improved safety camera provision, and investing in driver welfare, which will help us achieve our Vision Zero aims. We have a new Bus Safety Strategy to continually work towards the elimination of death and serious injuries involving buses – both inside and outside the bus. This includes further work in developing our Bus Safety Standard, trialling fatigue detection technology and working towards fitting ISA to greater numbers of our bus fleet.

Around 70 per cent of deaths and serious injuries in London take place on borough roads, so the strategic partnership between us, the police and London boroughs is the foundation of our approach to achieving Vision Zero. We commend the work undertaken by boroughs over many years to reduce road risk in their areas and to lead the way with key interventions such as area-wide 20mph limits and School Streets. The scope of this ambition and the embracing of Vision Zero is very clear in many borough LIPs.

The recently published report on inequalities on the road network shows that deprivation, gender, age and mode of transport all have a significant impact on the risk of being killed or seriously injured in a collision. We will continue to analyse the cause of inequalities in road safety, to help target future road safety programme planning and investment for infrastructure schemes, and to drive further action to make London's roads safer.

Progress in improving vehicle safety relies on legislation and further development by manufacturers. We continue to encourage central Government to adopt vehicle safety regulatory standards that encourage the safest vehicle technologies and features available through alignment with the European General Safety Regulation (GSR2). We must continue to reduce dangerous behaviours and better protect people when they are most at risk, such as walking, cycling or riding a motorcycle. Working with the MPS, our new and enhanced enforcement capacity will allow for a million additional offences to be enforced by 2023/24. We also need to prioritise road safety investment to help reduce the gap in road safety outcomes in areas of high deprivation, inequality and vulnerability and will be publishing further research soon.

Alongside these targeted safety measures, traffic reduction remains one of the most effective ways of reducing the number of people killed or seriously injured on our roads, particularly in residential neighbourhoods, and lowering traffic speeds reduces the likelihood and severity of collisions that may occur.

Internally we continue to invest in our processes and systems to help us manage risk strategically and proactively. Upgrades to our Safety, Health and Environment Management System, assurance delivery programme and risk assessment frameworks alongside replacing our incident reporting systems will improve our ability to identify and then take steps to proactively manage new and emerging risk as well as reacting to incidents across our network.

## 4.3 Continuing investment

Since the publication of our last progress report, we are in a much stronger financial position. Following the agreement of our long-term funding agreement with central Government last summer, we have published our first Business Plan in three years and our Budget for 23/24 shows us on track to return an operating surplus by the end of the financial year. As a result, our Business Plan forecasts a significant capital investment programme to progress our MTS outcomes. Nonetheless, our finances remain constrained and so to best prioritise investment, we have taken an outcomes-based approach to apportion investment towards the areas where most urgent progress is needed. While we are grateful for the financial support we have received to date, our capital funding certainty extends only to March 2024. This contrasts with eight Mayoral combined authorities who have received long-term capital funding settlements from the DfT, to 2031/32 and longer-term funding arrangements in place for both Network Rail and National Highways. Indeed, we are the only major transport body in the UK without long term funding certainty and we continue to make the case for a similar long-term capital settlement so we can fully fund the investments required to meet all our MTS targets, effectively plan for London's growth and replace our ageing rolling stock.

### **Healthy Streets for healthy people**

The safe, active and efficient MTS outcomes are where we most need to accelerate progress to reach our MTS trajectories. As a result, we have committed to continuing investment at the rate of £150m per annum on our Healthy Streets programme once our current central Government funding settlement ends. This will be spent on improvements to the TLRN and borough roads. The investment will make walking and cycling in London

safer and more attractive by delivering safer junctions, new cycleways and enhanced pedestrian environments, helping to keep us on track for our mode shift and Vision Zero targets.

In addition, we are investing in the expansion of ULEZ London-wide to improve air quality in outer London where we have seen less improvement than central and inner London. Our investment plans also keep us on track to deliver a fully zero-emissions bus network no later than 2034, helping to further improve air quality across London while also tackling climate change.

### **A good public transport experience**

We have generally been on or ahead of our MTS trajectories for a connected, accessible and good quality public transport network. We have prioritised investment to improve bus speeds and connectivity, particularly in outer London, to build off improvements seen during the pandemic and to prepare for the planned expansion of the ULEZ.

The way we provide information to our customers has shifted towards a more digital customer experience to provide real time information. We continue to enhance customer experience with the expansion of 4G/5G connectivity on the Tube network and features on the TfL Go app.

As part of our BAP, we are investing to reduce bus journey time, through more bus priority schemes and signal timing reviews. Due to financial support from the GLA, we have been able to protect the bus network from the more severe network reductions that had been proposed as part of our funding agreement. Instead by August 2023, we will have delivered one million kilometres of additional bus services in outer London to support ULEZ expansion.

We are ahead of trajectory for reducing additional step-free access journey time because of the opening of the Elizabeth line, London Underground Accessibility Programme and Network Rail Access for All funding. We are now working to develop a pipeline to continue progress. We have secured Levelling Up funding to make Leyton and Colindale stations step free and we are working on further opportunities to leverage third-party funding to deliver more schemes.

We are continuing with major renewals on our rail and Underground network to improve the quality of our services. From 2024, we will be delivering new trains onto the DLR to replace and increase the size of our fleet. The new fleet will increase capacity, improve reliability and make journeys more comfortable, as well as support population and employment growth across the network. Additionally, we will be replacing our ageing Piccadilly line fleet from 2025, with new walk-through and air-conditioned trains, for more frequent, reliable, and comfortable journeys. However, we currently do not have funding to replace other ageing rolling stock on London Underground, including fleet on the Bakerloo line (which is now over fifty years old – the oldest in continuous service in the UK) or on the Central and Waterloo and City lines. Similarly, the majority of our Trams fleet is reaching the end of its initial design life and, as a result, is experiencing declining reliability, with one of the lowest states of good repair categorisations across our fleets.

We will continue to make the case to central Government for further capital investment for large-scale projects which are unaffordable from our operating revenue alone. This includes new trains and signalling upgrade on the Bakerloo line; replacement Tram fleet; Piccadilly line signalling upgrade to increase frequency above 27 trains per hour, following the delivery of new rolling stock; and more SFA schemes.

## **New homes and jobs**

Investment in new public transport projects, such as the Elizabeth line, the Northern line extension or the Barking Riverside extension, have a clear effect on accelerating housing delivery.

We will continue to work with boroughs, central Government and other partners to ensure new housing is well connected to the public transport, walking and cycling network, and where funding is available, to deliver new infrastructure to unlock new development sites. The accelerated delivery of new homes and offices by TTLP will continue.

In two separate bids, we have successfully applied for Housing Infrastructure Funding from the Department for Levelling Up, Housing and Communities to purchase 11 new DLR trains and deliver associated depot infrastructure, as well as upgrades to the London Overground in east London to support the delivery of over 7,000 new homes.

Our Business Plan included a contribution to feasibility work for a potential DLR extension to Thamesmead to support the Thamesmead and Abbey Wood Opportunity Areas, as well as development at Beckton Riverside. Delivery of the extension would require additional investment and we will continue to make the case to central Government for this investment.

Applying for third-party funding is resource intensive and so we have created a new SHA Fund to support the internal process of bid writing, match funding and feasibility studies to successfully apply for more of these third-party funding opportunities.

To accelerate delivery of new homes and jobs across our estate, our commercial development subsidiary, TTLP, was made financially independent from us in 2022. As a dedicated commercial property company, TTLP has been able to agree a new £200m credit facility to help accelerate delivery and unlock new sites, with a new more ambitious target being set to deliver up to 20,000 new homes on TfL land over the next ten years. Since our land is generally located near or adjacent to transport infrastructure, the new homes and jobs will support sustainable travel and our mode share targets.

## **5. Conclusion**

During the last year life has continued to return to normal as we move further away from the times our everyday activity was affected by the pandemic and associated restrictions. However, on-going disruptions such as industrial action and the cost-of-living crisis, mean it is not yet possible for us to declare a fully settled state in terms of travel behaviours. Instead, what we have identified are some potentially enduring legacies of the pandemic,

such as a continued increase in hybrid working and a consolidation of travel demand on some modes in the middle of the week.

Travel demand on our main networks has substantially recovered, increasing by almost a third in the past year, but is not yet back at pre-pandemic levels. Traffic levels remain just below pre-pandemic levels but congestion remains high and at levels that will hinder the achievement of our MTS aims. The mode share of active, efficient and sustainable modes is getting back towards pre-pandemic levels, experiencing an increase in 2022, but the loss of mode share from 2020-2022 has set us back three years on our required growth trajectory.

Despite this, there have been several positives in the last year. The first of these is the completion of the Elizabeth line, which is the most significant addition to London's transport network in a generation and has increased London's rail capacity by 10 per cent. The new line has been very popular with Londoners with one in six journeys on Britain's rail network taking place on the line. It is expected to contribute to the significant creation of new homes and jobs in London. Alongside the Elizabeth line, we have provided additional capacity on our rail network through the Barking Riverside London Overground extension in July 2021 and conclusion of the upgrades to Bank station in February 2023.

Secondly, in August last year we secured a funding agreement with central Government on a settlement up to 31 March 2024. Whilst it is positive that the funding agreement allowed us to restart essential programmes, such as our Healthy Streets programme, it is essential that we secure a longer-term settlement with Government to ensure continued progress. In March 2023, we were able to announce new funding for boroughs to deliver Healthy Streets measures over the next two years. London's boroughs are essential to the delivery of the aims of the MTS with responsibility for 95 per cent of London's streets, and we work closely with them to help them deliver improvements. We have also taken an active role in supporting boroughs to level up and bid for central Government funding through the Levelling Up fund. In January 2023, it was announced that London had eight successful bids as part of round two of the fund, which will unlock a total of £113.8m transport investments.

In the next year, we need to make further progress in addressing road danger and customer and workforce injuries on our public transport network, and achieving our Vision Zero aims, which we are currently off target to achieve. We have a significant, evidence led forward programme of activity to aid us in getting back on track including additional buses meeting our Bus Safety Standard, setting the requirements for the PSS that will accompany the second phase of the DVS in 2024 and the further roll out of 20mph on our roads. We need to take further action to reduce traffic on our roads and make our roads more efficient. We have a plethora of measures to achieve this including our new NOS to help us better manage our complex roads.

The London-wide expansion of the ULEZ on the 29 August will help us to go further in reducing harmful air pollution. Without further action it is forecast that no areas of London will fall within the WHO's guidelines for safe air quality by 2030 for NO<sub>2</sub> or PM<sub>2.5</sub>.

With continued investment from the central Government, we will be able to deliver additional measures to make the significant progress needed to achieve our priority aims of reducing traffic and improving safety and unlock the full potential of the MTS vision. We continue to make best use of our available resources to deliver high-quality services, plan for the future,

and maintain our infrastructure to support Mayoral ambitions for transport, jobs, homes and the environment.

