

Bus action plan

Building an attractive, zero-emission bus service for all Londoners

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Deputy Mayor's foreword

London's bus network is central to people's lives and we must be ambitious about bus travel as we look forward to 2030

We are at a key juncture for tackling the climate emergency. As London continues to recover from the pandemic, we must now consider how we want the future of our city to look. The Capital's recovery from the pandemic must be green and inclusive to tackle climate change, protect Londoners' health by improving air quality and reduce congestion on our streets. To make this happen, we have to do all we can to support active travel, ensure equitable access to public transport and connect communities in ways that feel logical and instinctive.

London's buses, the most commonly used form of public transport in the Capital, will play a central role in making this happen. The bus is often the unsung hero of London's transport system: it gets people to work and children to school safely, and brings friends and families together. Buses deliver people to our town centres and high streets, operating 24-hours a day in many places, and support the creation of new homes across all parts of our city.

To deliver the bus network London needs, we must be ambitious and we must work as one city. We need to be especially ambitious in outer London. This is where there are fewer public transport options and car travel is often dominant, but it is also where real opportunities for the bus exist. We must grow the network and its customers to provide the connections that Londoners need, improve equitable and affordable access to our renowned public transport system, and decarbonise our city.

Our ability to do this is, however, dependent on long-term, sustainable funding.

I am determined that the bus network should rise to the challenge and meet the needs of Londoners over the next decade. This Bus action plan sets out what we need to achieve and begins the next chapter in our conversation about London's bus network.



Seb Dance
Deputy Mayor for Transport



A network for the future

Reducing car use will cut carbon emissions, and improving bus services will enable more people to do this more often

The pandemic and its impact on our lives over the past two years has brought the role of our transport system into greater focus. At the height of lockdown, buses supported key workers such as doctors, nurses, medical support staff, emergency service and food supply workers in making their essential journeys around London. As restrictions eased, buses have re-connected commuters and brought shoppers and visitors back to our high streets.

As we emerge from the pandemic, we now face a different kind of challenge. We are in a climate emergency and the Mayor has set an ambitious target for London to be a net zero carbon city by the end of this decade. Switching our car trips to more sustainable modes is one of the most effective ways we can all reduce our carbon footprints. For most of us, this will mean choosing the bus more often.

Making bus travel an option Londoners choose to use for more of their trips means improving all aspects of the journey. We need to provide a modern network that feels safe and secure, and connects Londoners with the places they want to go, with fast and reliable journey times.

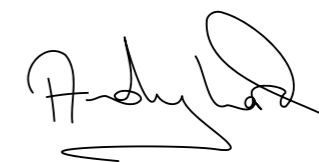
We cannot do this alone. Change can only be delivered by closely working with boroughs, bus operators and the Government. Improving bus journey times in particular requires a team effort, with 70 per cent of the most strategic streets for buses being on borough roads.

The financial pressures that all public transport authorities are now facing means we also need to get better value for money from the network. Investing in buses can be a win-win: by improving bus journey times we can reduce our costs and drive up revenue at the same time as more people are attracted to use the service. This revenue can be reinvested to improve the service further, creating a virtuous circle.

Choosing to take the bus is already a highly sustainable option but we are continuing to invest in our fleet to ensure that in future, it will be a zero carbon option. Working together, we can transform bus services in London over the next eight years to tackle the climate emergency and secure a green and inclusive recovery. Our Bus action plan sets out how we will do this.



Gareth Powell
Deputy Commissioner | Chief Customer and Strategy Officer



Andy Lord
Chief Operating Officer

A call to action

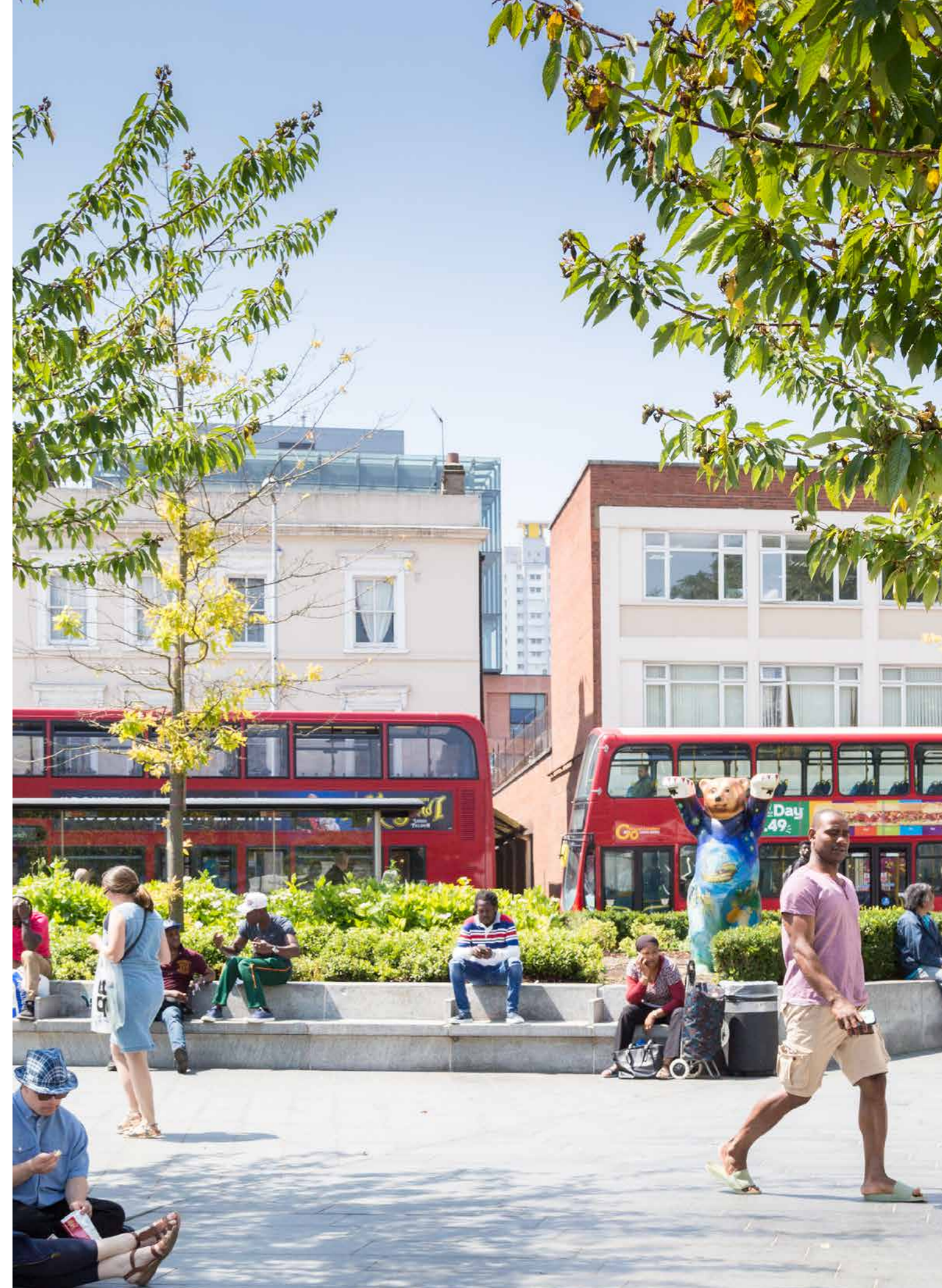
Transforming bus travel by 2030 is essential to ensure a green and inclusive recovery for London, and achieve the Mayor's target for London to be a net zero carbon city

London is at a crossroads. The past two years have been far from 'business as usual'. The coronavirus pandemic drastically reduced demand for public transport, as Londoners followed Government advice to stay at home. At the same time, the different periods of lockdown highlighted the dependence of many key workers on good, affordable and safe public transport to hospitals, care homes, schools, factories and shops across all parts of London.

Meanwhile, climate change is a real and present emergency, as demonstrated by recent flooding in London and across Europe, and increasing numbers of wildfires in Europe, the Middle East, north Africa, North America and Australia. This is why the Mayor of London has made clear his ambition for London to be a world leader in tackling the twin dangers of air pollution and the climate emergency, and has brought forward the 2050 target for London to be a net zero carbon city to 2030.

As we turn our attention to a post-pandemic world, we need to ensure that our city's recovery is green and inclusive, and supports local businesses and the regeneration of our town centres and high streets. This requires a transport system that gets Londoners and visitors to their destinations, and does so quickly, reliably and sustainably. The aims, outcomes and policies of the Mayor's Transport Strategy, in particular the need to enable continued mode shift, are essential to avoid a car-based recovery. Unless we continue to change the way we travel to more sustainable, space-efficient options, our streets will grind to a halt, our air quality will worsen, public health will suffer, and we will fail to tackle the climate emergency.

Improving bus travel will be key to making this change. Buses are the quickest, easiest and cheapest way to shift trips made by cars to public transport. Investing in the bus network can also support other measures, such as road user charging, as part of a comprehensive traffic reduction package. Now is the time to set out a new vision for how we plan, run and grow the bus network in London, ensuring it meets the needs of Londoners, responds to the challenges the Capital faces and puts us on track to a greener, healthier future.



Buses connect Londoners with their communities



Changes in bus services have been matched to changes in demand

As we start this work, we recognise the challenges we face. The impact of the pandemic resulted in lower customer demand and the collapse in fares revenue. We are now facing funding challenges on a scale not seen before. In response to this, we published our Financial Sustainability Plan in January 2021. This includes proposals to adjust public transport service levels, including a four per cent reduction in bus mileage. We believe that, on balance, these reductions will not significantly damage our ability to attract people back to our network or the Mayor's and the Government's shared policy objectives, because of the way we have matched changes in services to changes in demand as a result of the pandemic.

While we have made good progress towards financial sustainability as an organisation, we will need continued operational support for 2022/23 as we help get both London and the UK's economies back on track.

However, we can now see the recovery happening. Demand for our bus services increased consistently between spring and autumn 2021. Following a short dip in demand as Londoners followed the Government's Plan B restrictions and guidance, demand is increasing once more and already exceeding 80 per cent of pre-pandemic levels on some days. We are working hard to win customers back with reliable, safe, frequent and clean services. A diminished bus network is not what London needs in the long term.

In many parts of the Capital, the bus is the only credible alternative to a car for journeys that cannot be walked or cycled. A declining bus network would mean more Londoners relying on cars to get around. This would lead to increased congestion, make conditions for people walking and cycling less safe and attractive, increase emissions and impact air quality, and let Londoners down. We need to welcome our customers back, encourage them to use the bus for more of their trips, and attract car drivers to use the bus instead.

This plan is a call to action for everyone who can play a part in making London a greener and fairer city over the next decade – a great place to live and work that is even more connected and integrated. The Government, London boroughs and local authorities outside of London where our network extends beyond the GLA boundary, community groups, sustainable transport advocates, the business sector and organisations representing the needs of our customers all have a role in advocating for sustainable travel, with the bus at its core, and planning and delivering change on the bus network.

Our Bus action plan sets out how important the bus network is in London's future development. We want to work with these stakeholders over the next decade to get the most out of our bus network for Londoners and visitors alike, and ensure bus travel fulfils its crucial role in London's green recovery.

01

The case for change

An ambitious approach to London's bus services this decade is key to: tackling the climate emergency; meeting Londoners' diverse travel needs; avoiding a car-based recovery from the pandemic; complementing walking and cycling in creating Healthy Streets; and enabling London's sustainable growth and development



I am an
electric
bus

abellio
london

Tackling the climate emergency

Supporting a high-quality bus service is key to encouraging a shift away from car use and reducing carbon emissions

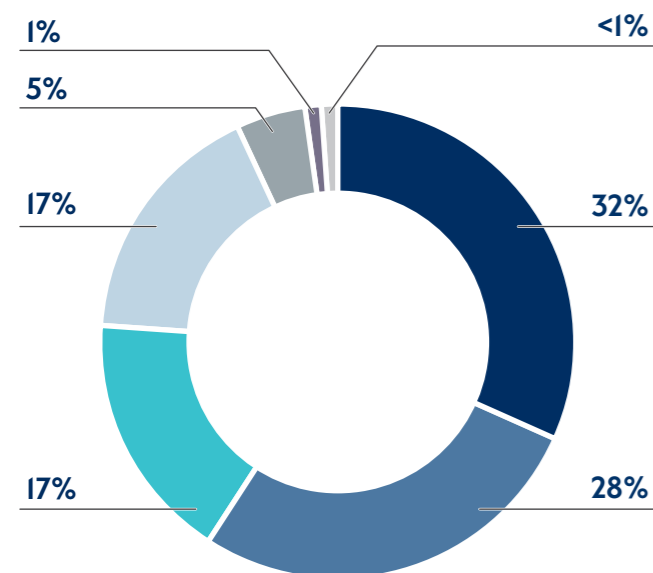
The Mayor's ambition is for London to be a net zero carbon city by 2030, with 28 boroughs having declared a climate emergency. Improving bus services will be crucial to achieving this in two ways.

We can reduce emissions from the bus fleet itself. London already has one of the largest electric bus fleets in western Europe. By accelerating the delivery of a zero-emission bus fleet to 2030, we can make bus travel a zero-carbon travel option in all parts of the Capital. This would take 500,000 tonnes of carbon emissions per year out of the transport system.



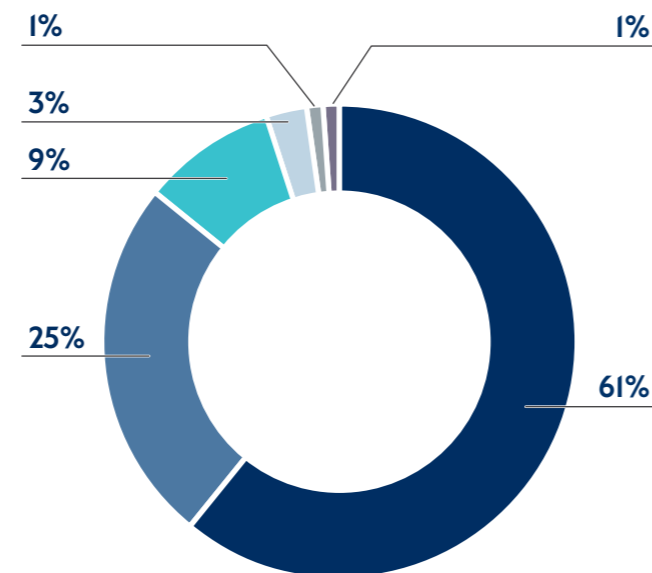
Buses will play a key role in enabling people to reduce car use

Figure 1: Sources of CO₂ emissions in London*
Overall emissions



- Domestic heat and power generation
- Road and rail
- Industrial heat and power generation
- Industrial processes
- Aviation
- Construction
- River

Breakdown of road and rail emissions (28%)



- Cars
- LGVs and HGVs
- TfL Bus
- Other Bus/Coach
- Rail
- Motorcycle

However, cars are by far the largest source of land transport emissions, as shown in Figure 1. It is estimated that car traffic must be reduced by at least 27 per cent in London by the end of the decade to meet climate change targets. The scale of reductions needed is likely to require a new kind of road user charging. We are starting to explore how a simple and fair road user charging scheme could be developed using more sophisticated types of technology.

Implementation of any new system would be subject to public and stakeholder consultation, impact assessment and Mayoral confirmation. A high-quality bus service that supports people switching away from cars would continue to be an important part of the overall approach. This is especially the case in outer London, where trips can sometimes be too long to walk or cycle.

In the meantime, the Mayor is considering a number of policies that could be ready within the next few years to encourage Londoners and those who drive within the Capital to shift from polluting cars to public transport and sustainable active travel, such as walking and cycling, and electric vehicles where necessary.

Mode shift to an attractive bus network will be critical to reducing carbon emissions in a way that works for everyone in the Capital. If more Londoners switched to

zero-emission cars, emissions would be reduced but congestion would increase. This would be bad for Londoners as it would not improve road danger or emissions from tyre and brake wear and would have negative impacts on health and wellbeing, and harm local economies. A green traffic jam is still a traffic jam.

In contrast, a modern bus service that provides an inclusive customer experience, is safe and secure, offers attractive journey times and provides the connections people need, alongside improved environments for walking and cycling, would enable Londoners to live low-carbon, car-free lifestyles.

While London has ambitious policies and programmes to reduce the causes and effects of climate change, we also need the Government to do its part. The Mayor has called on the Government to provide the funding needed to accelerate the electrification of our bus fleet. This will help the UK meet its national decarbonisation targets and support jobs in the bus industry across the country. By working together, we can make bus travel a zero-carbon option Londoners choose to use as part of a comprehensive active, efficient and sustainable transport network.

* Source: London Atmospheric Emissions Inventory, 2016

Meeting Londoners' diverse travel needs

Londoners depend on good bus services. Evidence shows that improving the quality and reliability of bus services attracts new users

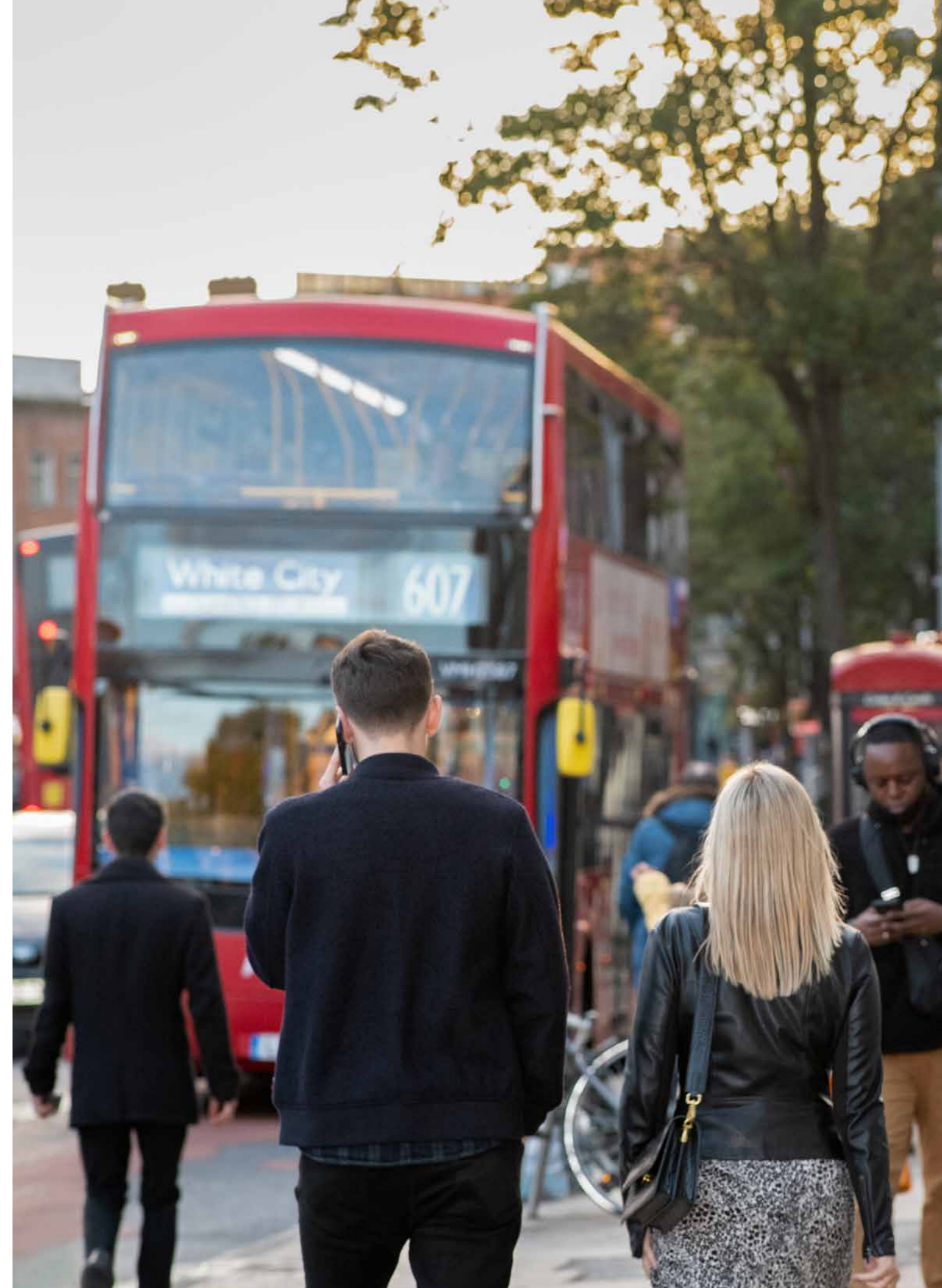
Bus travel is a core part of the sustainable transport network that keeps London moving and enables Londoners to go about their busy lives. More than six million bus journeys are made on a typical day, representing around one in five of all journeys made in the Capital¹.

In the early 2000s, as part of an integrated transport strategy to tackle London's chronic congestion and insufficient public transport capacity, we improved the reliability of bus journeys and the network was expanded. As a result, bus journeys increased by 69 per cent between 2000 and 2010.

Over the same period, walking, cycling and public transport mode share increased from 52 per cent to just under 60 per cent². The bus network helped change the way Londoners live and travel. This was made possible through close collaboration between us, boroughs, bus operators and other stakeholders, as shown in Figure 2.

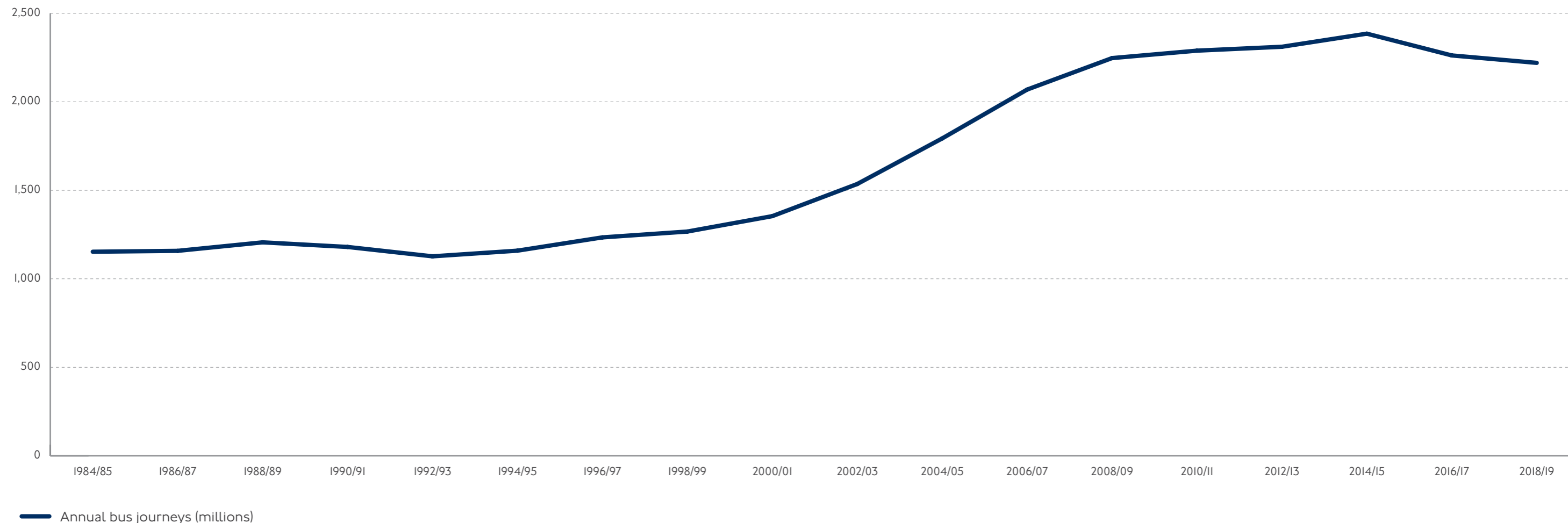
¹ Travel in London: Report I2, 2019

² Travel in London: Report I2, 2019



Improvements to bus services can increase customer numbers

Figure 2: Evolution of bus services 1984-2020



1985

Gross cost contracts introduced for new private operators



1990-2009

Introduction of new technologies, including SCOOT, iBus and CCTV



2000

Role of the Mayor of London created

1994-2005

Low floor buses introduced



2003

Congestion Charge introduced



2004

Flat fare structure introduced

2005-2006

Free bus fares for under 16's, and subsequently for under 18's in education



2014

Buses made fully cashless



2016

Hopper fare introduced

The bus serves all parts of the city and is unique among public transport modes as it can function both as a main mode of travel, from A to B, and as an access mode to Tube and rail stations, expanding the reach of these networks across wider areas of the Capital. While buses carry more people than any other mode (aside from walking) on central London's streets³, the majority of bus journeys take place within inner and outer London, with 46 per cent being entirely in outer London⁴.

Our bus network provides connectivity. It connects people to the places they want to go and people they want to see. Children rely on the bus to get to school and visit their friends, other residents rely on the bus to get to work, their GP and local shops and restaurants. The bus network runs 24/7, enabling key workers and others working during the night to travel between home and work when other services have stopped running, and supporting the re-emergence of London's vibrant night-time economy.

Our bus network provides capacity, particularly on busy radial links where there are no rail alternatives. Commuters on these corridors depend on bus travel to get to work on time.

It provides interchange with the wider network, enabling people who live further away from rail stations to access fast, high-capacity modes. Examples include bus stations like Canada Water, Harrow-on-the-Hill and Walthamstow Central.

The bus network is also our most inclusive public transport mode. Buses are affordable and accessible, broadening travel options for all Londoners. Our concessionary fares ensure everyone can benefit from the connections that buses provide.

It also supports Londoners' physical and mental health. In recent years, the link between transport and health has become increasingly well understood, and buses play an important role in delivering a healthier city by encouraging more active travel to and from bus stops, and by connecting communities.

Bus travel underpins London's success across all ten outcomes of the Mayor's Transport Strategy, as shown in Table I. Furthermore, improving bus travel can also help to keep us on track to achieve the Mayor's and Government's ambitions in a post-pandemic world, including:

- A green recovery: mode shift away from car will be critical to addressing the climate emergency and avoiding a car-based recovery from the pandemic. Buses are the main public transport alternative to car in many parts of London, and accelerating electrification of the bus fleet will support decarbonisation
- Ensuring an inclusive recovery: the bus is the most affordable, accessible and available mode of public transport that serves all parts of London
- Achieving long-term financial sustainability: growing bus use in off-peak times will provide essential revenue to be reinvested in the public transport services London needs
- Supporting new homes and jobs: bus travel will have an even bigger role in supporting new homes and jobs in the medium term if rail schemes are deferred

³ Mayor's Transport Strategy: Supporting Evidence – Challenges and Opportunities for London's Transport Network to 2041, 2017

⁴ London Travel Demand Survey 2018/19

Table 1: How bus travel can help deliver the outcomes of the Mayor's Transport Strategy

Eighty per cent of trips in London to be made by walking, cycling and public transport by 2041 Bus services are the only mode of public transport that can cater for the switch in car trips that are too long to walk or cycle needed in inner and outer London, as buses can cater for the more dispersed nature of these trips	
London's streets will be healthy and more Londoners will travel actively	The Mayor's aim is for all Londoners to do at least the recommended 20 minutes of activity each day by 2041. As an average bus trip involves around 7 minutes of walking to and from the stop, bus customers can achieve much of the minimum physical activity needed to stay healthy in one return trip.
London's streets will be safe and secure	Increasing our efforts to improve bus safety is an essential component of the Vision Zero approach to road danger. Furthermore, if public transport doesn't feel safe and secure to use, people are more likely to take other options, such as cars, which in turn will increase road danger.
London's streets will be used more efficiently and have less traffic on them	Buses are the most efficient form of motorised transport on our streets. A bus can carry up to 75 people using the same road space as three cars. In central London, buses account for 16 per cent of the road space used but 67 per cent of the movement of people on the carriageway.
London's streets will be clean and green	Poor air quality affects the health of all Londoners. A greener bus fleet will provide a zero-emission, sustainable option for journeys which cannot be made on foot or by cycle. We now have more than 700 zero-emission buses and all new vehicles added to the network will have zero tailpipe emissions.
The public transport network will meet the needs of a growing London	Buses are the most used form of public transport in London, and their flexibility means they can serve areas of the Capital that other public transport modes cannot reach. More than 96 per cent of London's population lives within 400 metres of a bus stop.
The public transport network will be safe, affordable and accessible for all	The bus is the most affordable, accessible and available mode of public transport in London. It has a central role in ensuring people can travel easily, spontaneously and independently, irrespective of age, income or disability.
Journeys by public transport will be pleasant, fast and reliable	An efficient and reliable bus network is the foundation of any city's integrated public transport system. By improving bus journey times for customers and enhancing the experience of using the bus we can deliver the comprehensive public transport offer that London needs.
Active, efficient and sustainable transport will be the best option in new developments	A well-connected bus network will enable car-free lifestyles by providing a high-quality, attractive mode of transport to connect new developments to shops, stations and other destinations.
Transport investment will unlock the delivery of new homes	The bus network has the greatest reach of any public transport mode, and the network can be adapted quickly to cater for new demand. It can spread the benefits of rail investment further by providing a reliable and comfortable feeder service.



Our bus network provides connectivity across the Capital



Focus on: London's bus customers

Bus travel is central to Londoners' lives. After walking, it is the most-commonly used form of travel in London. In total, 62 per cent of Londoners travel by bus at least once a week, as shown by Figure 3.

Travelling by bus is part of daily life for people of all ages and walks of life. While some Londoners rely more on the bus to get around, the overall profile of weekly bus users reflects the profile of London's adult population in terms of age, gender and socioeconomic group. Young Londoners have particularly high bus trip rates, due to the critical role of the bus as part of the journey to school.

The bus is the main mode of travel from origin to destination in more than three-quarters of bus journeys. The remaining bus journeys are part of longer trips by other modes, mostly rail or Tube, where the bus is used to access a station.

Londoners travel by bus for all types of purpose, with work and shopping each representing more than a quarter of trips, one in five trips being for leisure, and one in six trips being for education. However, when buses are used to access other modes like rail or Tube, this is mostly for work purposes, as shown in Figure 4.

Our customers tell us that they choose to travel by bus because it's a convenient and cheap mode they trust will get them from A to B, safely and reliably, although often not as quickly as they would like. This contrasts with the more emotional reasons Londoners tell us influence their decision to drive cars: it gives them a sense of freedom, control and comfort that the bus does not. If we are to grow bus use in the long-run, we need to address these factors which influence mode choice as well as the functional reasons. We can do this in a number of ways, including by improving how customers can access information to give them a greater sense of control, and by demonstrating visible investment to give a sense of progress and innovation.

**Sixty-two per cent
of Londoners travel
by bus at least once
a week**

Focus on: London's bus customers (continued)

Figure 3: Frequency of use – at least once a week or more
(% of Londoners aged five and over)

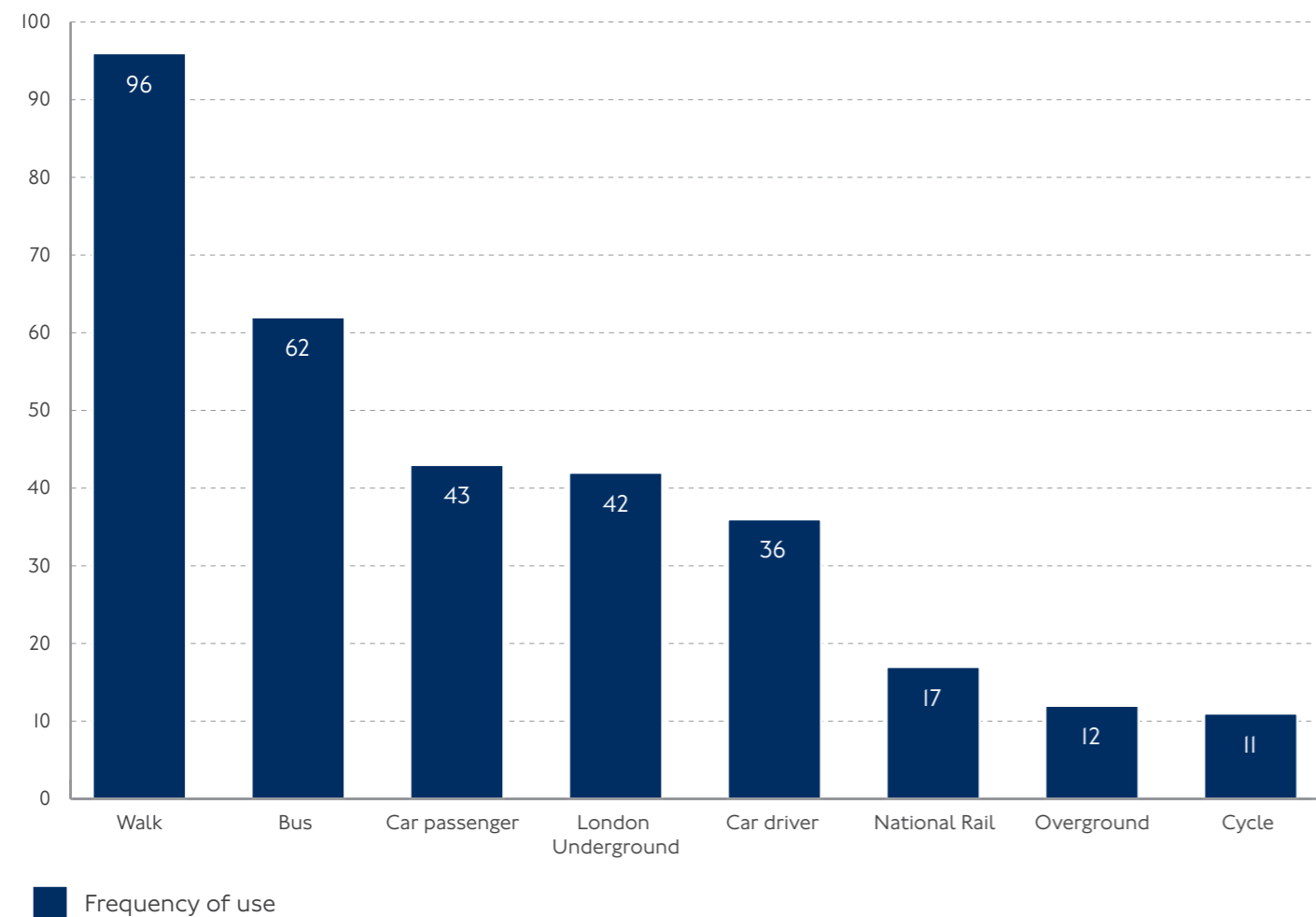
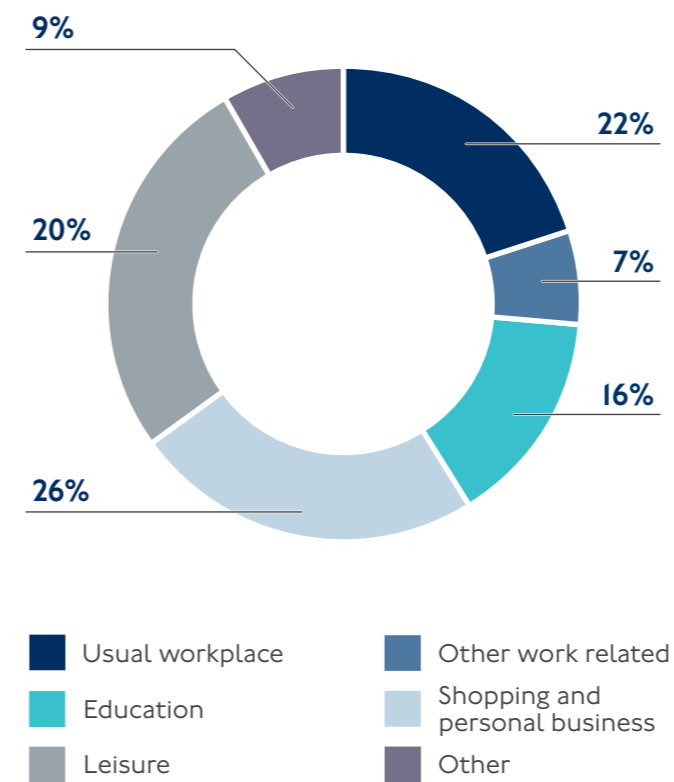
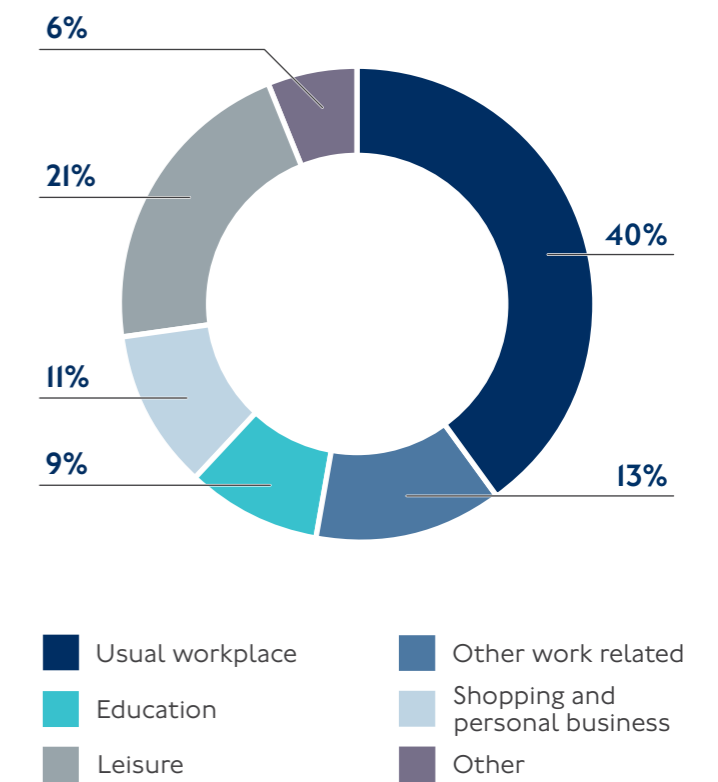


Figure 4: Trip purpose for bus journeys
Bus as main mode



Bus used to access other mode





Focus on: London's most inclusive public transport mode

As the most affordable, accessible and widely available mode of public transport in the Capital, some groups of Londoners rely more on buses to get around. Londoners from different groups use the bus more frequently than the London average, including those under the age of 25, those in households with an annual income of less than £20,000, women and Black, Asian and minority ethnic Londoners. After walking, Londoners who consider themselves to have a disability use the bus more than any other mode.

An affordable mode

Buses are the most affordable public transport mode serving all parts of London. Our concessionary fares extend free travel to children under 18 and older Londoners, as well as discounted travel to students,

apprentices and jobseekers. Through the Freedom Pass, boroughs enable older and disabled Londoners to travel for free. These concessions ensure all Londoners can access education and other public services they need. They connect people to family and friends, and allow everyone to experience the opportunities the Capital provides.

More than one-third of bus journeys are made by Londoners with an annual household income of less than £20,000⁵. This makes a large number of our bus customers particularly sensitive to economic downturns. Early evidence suggests young and low-income Londoners have been worst affected by the economic consequences of the pandemic. This brings into focus the importance of bus travel in supporting a recovery that is truly inclusive.

An accessible mode

The bus is the most accessible mode of public transport that serves all parts of London and our comprehensive network is well-placed to serve short trips made by those with mobility needs. Low-floor vehicles run on all our bus routes, and have a dedicated space for one wheelchair user and an access ramp. Buses can also be lowered to reduce the step-up from the pavement. All bus drivers complete diversity and inclusion training when they start working for a London bus operator to ensure they can support all customers, including those with specific needs such as accessibility.

Of all disabled Londoners, 52 per cent do not have household access to a car and therefore depend more on sustainable

modes. There is a clear opportunity for high-quality bus schemes to help us build back a fairer and more equal London, with the needs of bus users and disabled Londoners embedded in all schemes from the outset.

An available mode

Our bus network covers the widest area of any public transport mode in London. More than 96 per cent of Londoners live within 400 metres of a bus stop. This ensures almost all Londoners are connected to their local area, wherever they live. Our extensive Night Bus network also supports those working during the night.

⁵ London Travel Demand Survey 2018/19

Avoiding a car-based recovery from the pandemic

Ongoing changes in behaviour as well as the pandemic have significantly reshaped travel demand

Over the past decade, the way in which people travel has changed. Economic factors have reduced demand for shopping and leisure trips, and this has hit the bus market particularly hard. Additionally, the increase in internet shopping, leisure activity at home and flexible working has also changed the shape of travel demand, even before the pandemic.

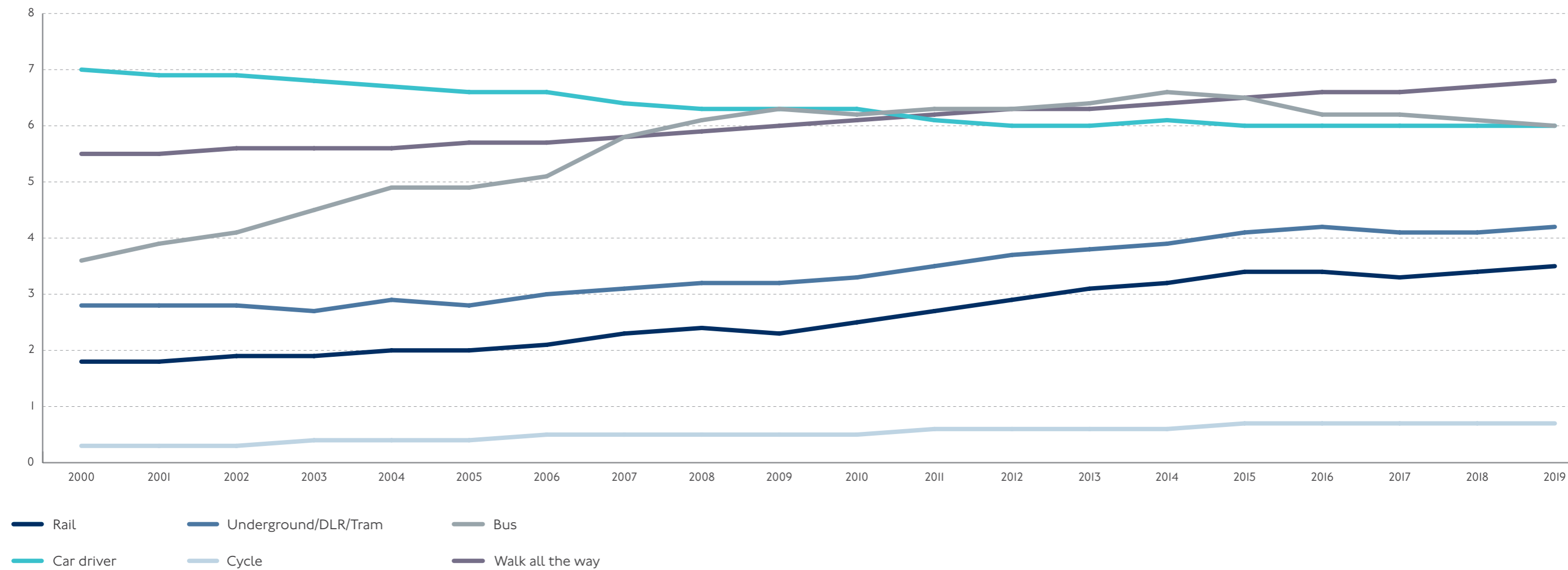
The experience of using the transport network has changed too. Bus journey times have increased since the mid-2010s. Tube and rail upgrades, including the Night Tube and the expansion of the London Overground network, have changed the role of the bus: switching from being the main mode to feeder service in some places. At the same time, the emergence of new technologies and service models for ride-hailing and ride-sharing have broadened the options available to some customers who might once have relied on bus travel.

As a result of these changes, a decade and a half of growth in bus demand came to an end in 2015. This means that before the effects of the pandemic, the bus was the only sustainable mode where demand was falling, as shown in Figure 5.



We must continue to attract more customers to the bus network

Figure 5: Daily journeys by mode 2000-2019 (million)



We now face a unique challenge. The pandemic has changed people's perceptions and travel behaviours, so it is essential that we act now to prevent the recovery from the pandemic being a car-based one. This would pose significant long-term risks to road safety, public health, economic recovery and the environment, including air quality. It would also act as a long-term barrier to mode shift, as traffic dominated streets would make both buses and active travel modes such as cycling less attractive options.

To address this challenge, we need to continue our focus on mode shift to walking, cycling and public transport, particularly in outer London where car travel is highest. This will enable us to achieve a green and inclusive recovery. It will support Good Growth, which works to re-balance development in London towards more genuinely affordable homes, reduce car dependency and create a more sustainable and socially integrated city. It will also keep us on track to becoming a net zero carbon city by 2030.

Bus travel has a key role to play in achieving this mode shift. Services can be improved quickly between now and 2030, and buses are uniquely able to cater for journeys in outer London, where the need for mode shift is greatest but trips are often too long to walk or cycle and cannot be served by rail.

We have a world-leading network: it is well-integrated with other public transport modes and has greater customer numbers and network coverage than comparable cities. More than 96 per cent of people in London live within 400 metres of a bus stop, and buses take people to the heart of town centres and high streets. However, our ambition for bus travel must match the challenges London faces. Bus travel needs to contribute fully to achieving the Mayor's aim for 80 per cent of trips to be made by walking, cycling and public transport by 2041. This ambitious target is even more challenging in the context of the financial stress the pandemic has placed on public transport providers worldwide. We now need to achieve more with less. We need to transform how people travel, particularly in outer London. This can only be achieved by broadening the range of trips made by bus.



Our extensive bus network will help support a green recovery



Focus on: Bus travel during the pandemic

London's bus network performed a critical role during the pandemic by supporting essential trips, including commuting by key workers in health and social care, and food supply. Nevertheless, demand was substantially lower than normal levels. Bus customer numbers fell to less than 20 per cent of normal levels during the spring 2020 lockdown, from 23 March to 13 May 2020, before recovering to around 60 per cent of normal levels during the summer, as shown in Figure 6. By

autumn 2021, bus demand had returned to between 70 and 80 per cent of normal levels, showing it is the most resilient of all public transport modes. Demand fell slightly during December 2021 and January 2022 following the introduction of the Government's Plan B restrictions, but has quickly bounced back.

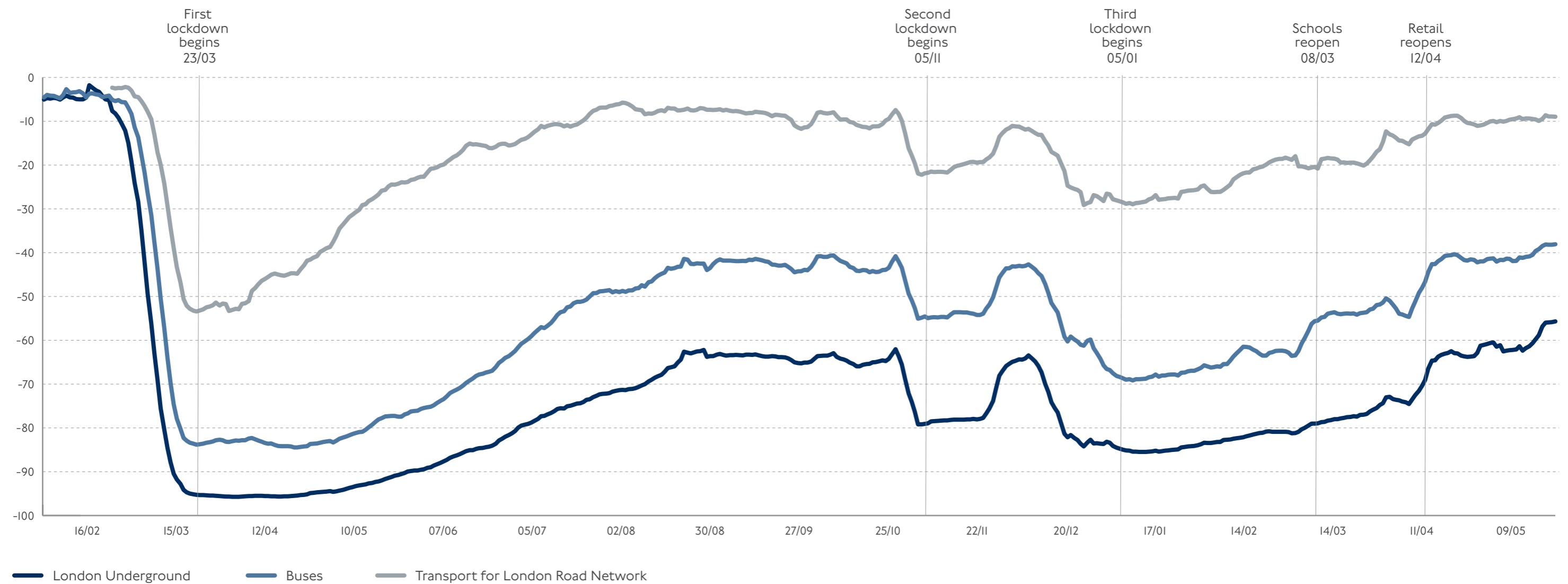
Our immediate challenge is to win back customers, with a focus on those who switched to car use, where

demand recovered more strongly. While most Londoners are becoming more comfortable about returning to the network, a small minority still don't see themselves using public transport again. We need to reassure these customers, by continuing to address their concerns around cleanliness and crowding, and letting them know the steps we are taking to keep them safe.

**By autumn 2021,
bus demand had
returned to between
70 and 80 per cent of
normal levels**

Focus on: Bus travel during the pandemic (continued)

Figure 6: Change in demand on the main transport networks in 2020/21 (percentage change)
(7-day moving average relative to equivalent period in 2019)



Complementing walking and cycling in creating Healthy Streets

Improving the bus network is essential to delivering better, healthier and more liveable streets for everyone

Helping more people to walk, cycle and use public transport is at the heart of the Mayor's vision to transform London's streets and create a healthier, fairer and more sustainable city for everyone. The Mayor's Transport Strategy sets out how investing in our streets using the Healthy Streets Approach can improve air quality, reduce congestion and help make London's diverse communities greener, healthier and more attractive places to live, work, play and do business.

London's streets account for more than 80 per cent of its public space⁶. Turning these streets into places where people want to walk, cycle and take public transport will connect communities, while enabling Londoners to start enjoying their city again as we recover from the pandemic. Creating streets for walking, cycling and public transport will also tackle pollution and congestion, and make it easier and more attractive for people to build activities into their daily lives that can provide health benefits.

Since 2016, investment in Healthy Streets has transformed streets across the Capital, with an extensive expansion of the cycle network, improved town centres and pedestrian connections, and the Safer Junctions programme to tackle some of the most dangerous locations in London.

Buses also have an important role to play in delivering the Healthy Streets objectives, as shown in Figure 7. Prioritising bus travel over cars and parking will further decarbonise our transport network and help tackle the climate emergency. It will reduce traffic and congestion, making walking and cycling more attractive to Londoners and visitors alike. This will also make our streets more attractive places to visit and spend time in – creating vibrant conditions in which businesses can thrive. Prioritising bus travel will also help tackle the Capital's serious physical and mental health inequalities.



Healthy Streets are supported by buses and active travel

6 Healthy Streets for London, 2017

Figure 7: How the Bus action plan will support Healthy Streets
Healthy Streets Indicators



- 01** Pedestrians from all walks of life
- 02** People choose to walk, cycle and use public transport
- 03** Clean air
- 04** People feel safe
- 05** Not too noisy
- 06** Easy to cross
- 07** Places to stop and rest
- 08** Shade and shelter
- 09** People feel relaxed
- 10** Things to see and do

The Healthy Streets Approach uses 10 evidence-based indicators that focus on the human experience of using streets. The indicators are interdependent and are all of equal importance. Improvements against these indicators will help create a better city for more people to live and work in.

The Bus action plan will support Healthy Streets by enabling mode shift from car and reducing motor traffic. In particular, our actions for buses will deliver significant improvements for these Healthy Streets Indicators.

Bus action plan deliverables

01	<p>Pedestrians from all walks of life We will connect more people to local destinations through the bus network, London's most affordable, accessible and widely available mode of public transport</p>
02	<p>People choose to walk, cycle and use public transport We will deliver more bus priority alongside continued expansion of the high-quality cycle network and walking improvements, making these modes of transport the obvious and attractive choices for more journeys</p>
03	<p>Clean air We will deliver a clean, green bus fleet, and attract more car drivers to switch to sustainable modes</p>
04	<p>People feel safe We will support Vision Zero through our Bus Safety Standard and improve our stops and shelters so customers feel safe</p>
07	<p>Places to stop and rest We will improve the experience at our stops, shelters and bus stations</p>

Source: Lucy Saunders

In short, improving the bus network means delivering better, healthier and more liveable streets for everyone living, working or studying in the Capital as well as those visiting. The Healthy Streets programme has therefore seen investment in new bus priority and other on-street measures to support buses. But to deliver better streets for Londoners, together with the boroughs we need to raise our ambitions for buses as part of the Healthy Streets programme, bringing these into line with our ongoing joint commitment to Vision Zero and active travel.

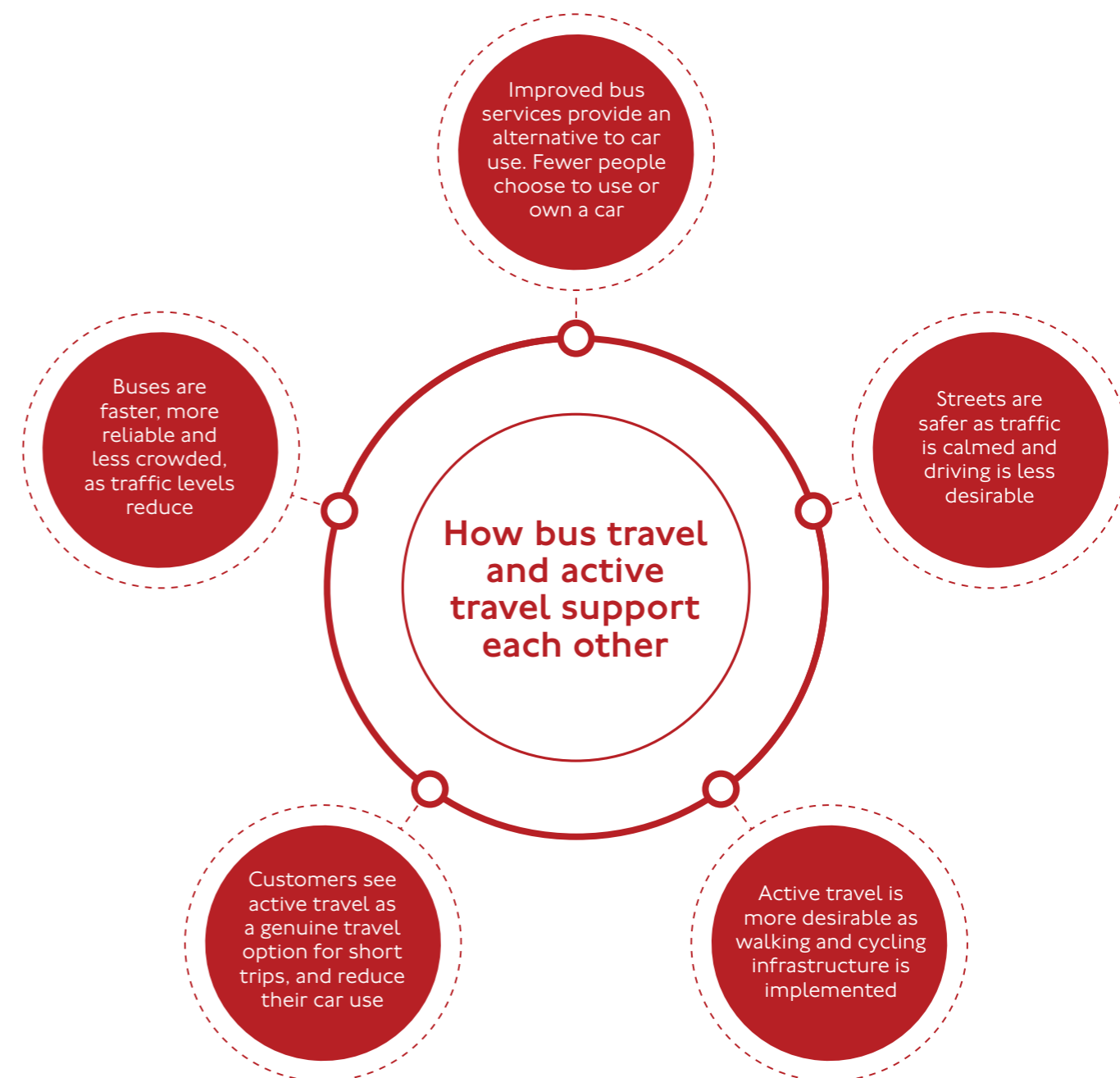
Delivering for buses as part of Healthy Streets isn't just about increased investment. It means thinking about customers' whole journeys when planning schemes, because that's how our customers decide the way they will travel. Almost all bus trips involve walking or cycling to and from bus stops. And if any part of the journey is challenging or unpleasant, customers may decide to avoid the bus entirely and drive instead. This can be for many different reasons: the walk may be too long; it may be difficult to cross the street to access the bus stop; poor air quality or noise may make waiting at the bus stop feel unpleasant; and poor lighting may make the walk and wait feel unsafe. These barriers can be even worse for disabled Londoners, older Londoners, women, and those travelling with small children. In contrast, a short walk through

a Low Traffic Neighbourhood⁷ to access a turn-up-and-go⁸ bus service from a well-lit bus stop is a quick, reliable and sustainable option.

Well-designed bus interventions can support active travel. One bus can free up street space by carrying around 75 people in the same amount of space as three cars. High bus mode share can reduce traffic dominance, making streets easier and safer to cross, and more pleasant places to walk or cycle. Bus use also drives walking demand, with one fifth of all walking in London taking place as part of a bus trip⁹.

At the same time, interventions aimed at supporting active travel can also support bus travel. We can reduce short car trips by providing attractive alternatives for people to choose walking and cycling instead. In turn, this will reduce traffic congestion, making bus services faster, more reliable and easier to use for those who cannot walk or cycle short trips, as well as for those who are travelling longer distances, as shown in Figure 8.

Figure 8: How bus travel and active travel support each other



7 Low Traffic Neighbourhoods deliver safe and attractive streets for walking and cycling by preventing through traffic from using residential neighbourhoods to avoid main roads (often known as 'rat running'), while retaining local access for residents and visitors

8 If buses run reliably every twelve minutes, or more frequently, most passengers will treat the service as being 'turn-up-and-go' as highlighted in the TfL Guidelines for Planning Bus Services

9 London Travel Demand Survey 2018/19

It won't always be possible to deliver Healthy Streets schemes purely through the reallocation of road space, and 44 per cent of our most strategic bus links do not have the physical space for bus lanes in both directions. For this reason, we must also aim to reduce motor traffic. Approaches to this can range from local parking or access restrictions, like Low Traffic Neighbourhoods, to larger area-based schemes such as the Congestion Charge zone.

Dialling up our ambition for buses within the Healthy Streets programme does not mean diluting our commitment to creating safer streets for walking and cycling. Ultimately, Healthy Streets means delivering positive change for people using buses, walking and cycling as well as boosting safety across London. Our streets need significant improvement to make these modes attractive, accessible and safe for everyone. In addition, only by taking a joined-up approach to investment will we achieve Vision Zero and our environmental goals, as well as tackling physical and mental health inequalities.



The bus network helps connect people to local destinations

Enabling London's sustainable growth and development

We need to support more bus trips in areas that are growing and increase bus travel in the parts of the city where we need more mode shift

Because of its role as both a main mode and an access mode, bus travel is critical to achieving the Mayor's aim for 80 per cent of trips to be made by walking, cycling and public transport. To meet this mode share target, up to 9 million daily journeys may need to be made by bus by 2041, increasing from 6.1 million before the pandemic.

To achieve this, the bus needs to facilitate a significant increase in trips in areas which already have high levels of bus demand as well as support trips emerging in new locations where we need mode shift from car, particularly in outer London. The scale of change will be most significant in outer London, with some of the highest percentage increases in bus demand forecast to be in these boroughs.



Improving our bus services will encourage mode shift

Figure 9 shows how, before the pandemic, bus use tended to be highest in and around inner London town centres, in addition to some outer London town centres and transport hubs, including Woolwich, Croydon, Hounslow and Harrow.

Figure 9: Bus boardings (2019)

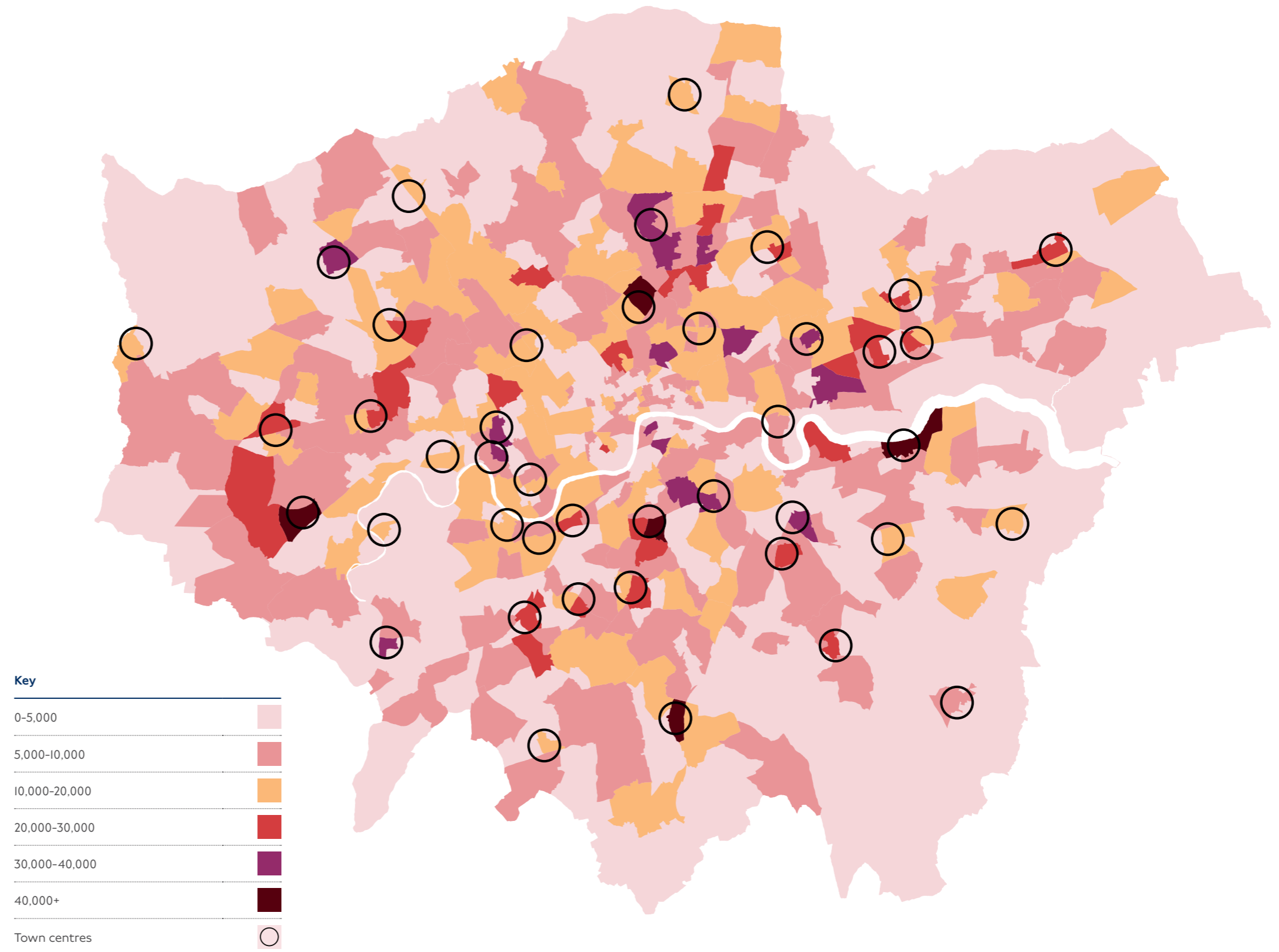
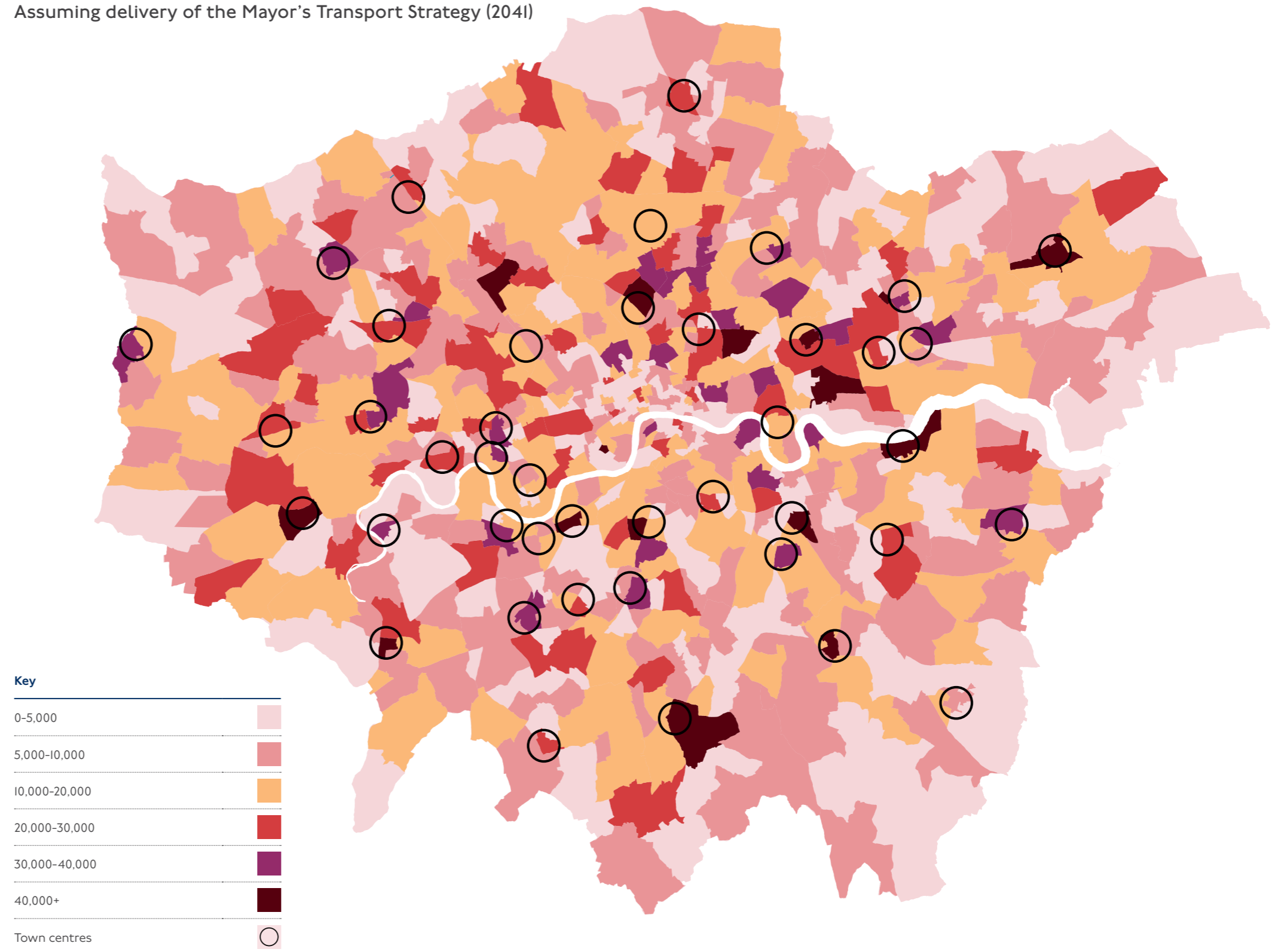


Figure 10 shows that by 2041, if we deliver the Mayor's Transport Strategy, bus use is forecast to increase considerably across all of inner and outer London.

Figure 10: Bus boardings
Assuming delivery of the Mayor's Transport Strategy (2041)





We must make best use of the road space available

The pandemic has created significant uncertainty about public transport demand in the medium term. At this point in the recovery, a very broad range of plausible scenarios are possible, but in almost all cases we risk falling significantly behind the trajectory laid out in the Mayor's Transport Strategy without decisive action.

When considering how to address this, we must be mindful that the nature of travel demand could be different to what has gone before. While new working patterns may emerge, offices will not stand empty for long and, when they are eventually filled or repurposed, people will still need to travel to and from them. Similarly, we know that home working encourages more local and ad hoc trips, many of which could be made by car if there is not an attractive sustainable alternative. Buses have a critical role to play in catering for these more local and dispersed trips and supporting town centres. This requires flexibility. The bus, as the most flexible public transport mode, is well placed for this.

In any scenario, severe cuts to bus services would be counter to the goals we are trying to achieve in London including decarbonisation, improving air quality, supporting local economies and improving social inclusion. Bus travel is therefore likely to play a strong part as the most resilient form of public transport investment in the medium-term, particularly in outer London.

London needs an integrated active, efficient and sustainable transport network that provides a competitive alternative to trips by car across all parts of the Capital. In outer London, where the network of rail stations is more spread out, bus travel must play a greater role. Given the distances and journey times involved, and the prevalence of car ownership in outer London, the service available to people needs to be more 'rail-like' to attract customers. We must provide the right infrastructure and the necessary connections to make bus the natural choice for more trips that are currently made by car. Frequent, fast, reliable and strategic links must be backed up by easy access to the heart of town centres, rail and Tube interchanges, and other destinations.

At the same time, we must protect road space and enhance the quality of services on links where the bus network already performs a critical role, in particular on high-demand corridors in central and inner London and on links to town centres. It won't always be possible to prioritise all modes on a single link so we should be open to alternative routes, or more radical traffic reduction measures where this can create the space needed. If we do this successfully, our active, efficient and sustainable transport network will be able to deliver more than the sum of its parts.



Focus on: Mode shift in outer London

Around half of bus journeys start in outer London

The path to a sustainable, liveable and less car-dependent city runs through outer London, and bus travel will have an indispensable role in making this happen. Currently, around half of bus journeys start in outer London and we will need to increase this number if we are to meet

the Mayor's aim for 80 per cent of trips to be made by walking, cycling and public transport by 2041. But outer London is also where car travel is most dominant. We must transform the bus services on offer in outer London to achieve the mode shift the Capital needs. First, our work needs to

focus on town centres and interchanges where bus use is already high, but a significant increase in bus customers will still need to be supported. The bus offer needs to be comfortable, convenient and reliable, as part of a comprehensive and integrated wider transport network.

Second, we need to focus our efforts on locations where bus use is currently low, and a large percentage mode shift is required. These trips will be more dispersed, and the bus offer needs to be attractive and relevant to car users for the scale of change required to be achieved.

02

Our vision

Buses play a fundamental role in delivering Healthy Streets and tackling the climate emergency. We need bus travel to be a zero-carbon option more Londoners choose to use, as part of a comprehensive active, efficient and sustainable transport network



Our vision for 2030

We have a clear vision of the high-quality bus service London needs for 2030

We need the bus network to realise its full potential to carry more people over the next decade. To do this, our vision is for bus services to provide an inclusive customer experience, be safe and secure, offer attractive journey times, provide the connections people need and provide a zero-carbon travel choice. This needs to be planned as part of an integrated walking, cycling and public transport network, enabling Londoners to safely, easily and reliably make their whole journeys without needing to travel by car as far as possible.

About three-quarters of Londoners would consider using the bus when planning their trips. We need to welcome them back to the network as we emerge from the pandemic, encouraging them to use the service more and providing them with a positive experience when they do so. We also need to address the barriers holding one in four Londoners back from even considering the bus as an option. This means seeking to improve bus outcomes across five priorities, as shown in Table 2.

Table 2: Our priorities and aims for 2030

Priority	Aim for 2030
Inclusive customer experience	A modern bus network that is relevant to Londoners and makes it easy for people to travel spontaneously and independently
Safety and security	A safe and secure bus network, with no one killed on or by a bus by 2030 and fewer people saying they are put off travelling due to security concerns
Journey times	A faster and more efficient bus network, with journey times improved by 10 per cent compared to 2015
Connectivity	A bus network that provides better connectivity for longer trips, particularly in outer London, while maintaining our network coverage of more than 96 per cent of Londoners living within 400 metres distance of a bus stop
Decarbonisation and climate change resilience	A green bus network with a zero-emission fleet, as a result of additional Government funding and support from manufacturers and operators



We need to welcome customers back to the network

Working together to achieve the vision

Our plan for 2030 recognises the diversity of London's boroughs

Realising the full potential of the bus network to support mode shift and achieve a net zero carbon London will only be possible by working with delivery partners across the Capital. We need a plan that everyone can get behind – an ambitious plan for 2030 which recognises the diverse circumstances of London's boroughs.

Our starting point brings many challenges. The effects of the pandemic have put public transport operators across the world under previously unimaginable stress. We recognise the difficulties we face and have outlined our response. Our Financial

Sustainability Plan includes proposals to adjust public transport service levels, including a four per cent reduction in bus mileage. We believe that, on balance, these reductions will not significantly damage our ability to attract people back to our network or the Mayor's and Government's shared policy objectives. However, at this point further reductions would not be supported by evidence and could put London's recovery in jeopardy. We need to welcome our customers back, encourage them to use the bus for more of their trips and attract car drivers to use the bus.



Our buses need to provide an inclusive customer experience

Figure II: Priorities of the Bus action plan

Safety and security

Londoners expect their bus network to be safe and secure. The pandemic has underlined this

Journey times

We urgently need to deliver a transformational improvement to bus journey times in order to provide a bus service Londoners will choose to use

Inclusive customer experience

We will work with boroughs, public transport advocates, academics, think tanks, political stakeholders and organisations representing our customers to ensure the inclusive customer experience of using the bus meets the diverse needs of Londoners and is relevant to the communities we serve. We will promote our services and plans so that Londoners can be kept up to date and aware of the ongoing improvements we are making to the bus network. Our customers want us to be innovative. We will continue to work closely with market innovators such as operators, suppliers, corporates, startups and others to shape the future of buses by investing in, shaping, testing and scaling new solutions, building on the success of programmes such as the Bus Safety Innovation Challenge. We will also review the potential for better integration with other transport modes to improve the bus customer experience and increase bus use, including running localised experiments to understand the degree to which potential options can benefit customers.

both staff and customers safe, providing reassurance that the bus network is safe to use. Looking ahead, having safety as our priority means: working with boroughs to deliver Vision Zero on the street network; working with bus operators and the police to improve the safety and security of people travelling and working on the bus network; and working with operators to focus on staff health and wellbeing. We will also communicate the steps we are taking to improve the safety and security of those travelling on the bus network to our customers, so they can feel confident in their journeys.

Journey times

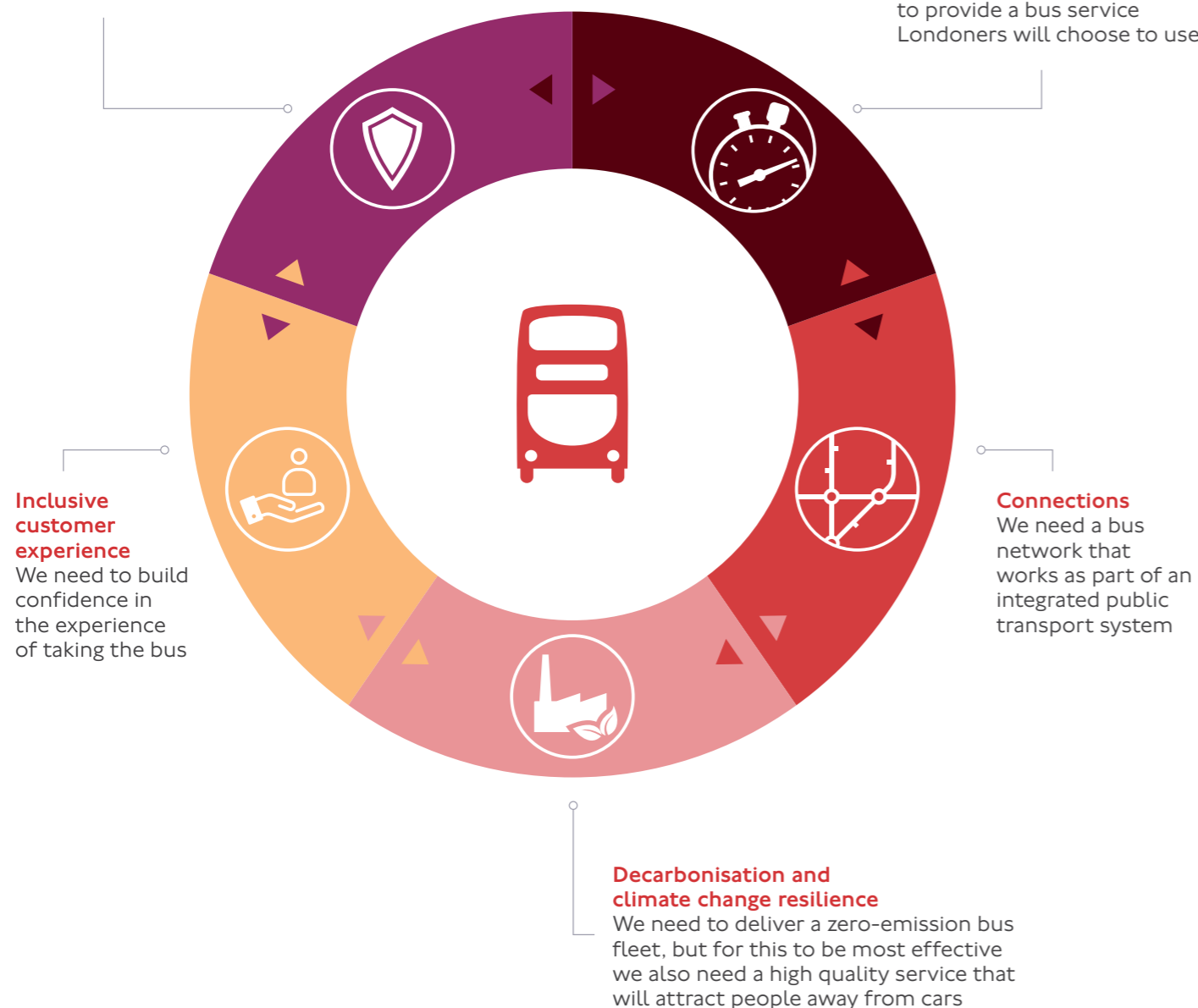
To ensure fast and reliable journey times, we will work with boroughs to prioritise buses over motor traffic on London's streets, delivering a bold and ambitious programme of Healthy Streets schemes which will transform both our own and borough roads for people walking, cycling and travelling by bus. Through this multi-modal approach to streets, we will ensure that enhancements for bus and other sustainable modes complement each other as part of an overall active, efficient and sustainable transport offer for Londoners.

Connections

Analysing our data, discussions with boroughs and listening to our customers will provide us with an understanding of local needs and demands in relation to connections. We will work with boroughs to unlock growth and leverage funding opportunities that arise from this.

Safety and security

It is essential to ensure travel in London is safe and secure for all, and people are not disproportionately impacted or deterred from travelling or working on our network because of safety concerns linked to a protected characteristic. Throughout the pandemic, we made evidence-led changes to our services and operations and enhanced cleaning regimes to keep



Inclusive customer experience

We need to build confidence in the experience of taking the bus

Connections

We need a bus network that works as part of an integrated public transport system

Decarbonisation and climate change resilience

We need to deliver a zero-emission bus fleet, but for this to be most effective we also need a high quality service that will attract people away from cars

Decarbonisation and climate change resilience

A safe, modern and efficient bus network, as well as walking, cycling and other public transport modes, immediately enables Londoners to live low-carbon lifestyles. In the longer-term, by electrifying our fleet, we can make bus travel a zero-carbon option, supporting the Government's wider decarbonisation objectives. In addition, we will also ensure our network is resilient to the effects of climate change.

Delivering our vision for 2030

It is vital that we tackle every one of these issues. In many cases change in one area is needed to unlock the full potential for improvement in another. For example, better journey times are critical to providing better connections, and better security will improve customer experience. We will work with stakeholders to deliver comprehensive packages of bus enhancements, rather than singular interventions where possible.



Electrifying our fleet will provide a zero-carbon travel option

03

Inclusive customer experience

We need to build confidence in the experience of taking the bus



I am an electric bus

abellio
london

Our actions: inclusive customer experience

Travelling by bus should be easy, comfortable and accessible to all

Our bus network is world-leading, but we need to keep raising the bar. We are in a competitive environment. New companies entering the market are offering innovative transport alternatives, and cars are now safer, cleaner and more comfortable, efficient and advanced than ever.

We need to build confidence in the experience of taking the bus by reconsidering what is needed to meet both the evolving needs of our existing customers and the car drivers we are looking to attract. This can be achieved through the provision of better information, developing trust in a safe environment, and meeting customer expectations of having a safe and comfortable experience at bus stops and on buses.

This is now more urgent than ever. The pandemic has exacerbated recurring problems for our existing customers, and in some places created new ones. Among those who stopped using the bus during the pandemic, around one in five cited concerns around the cleanliness of surfaces, ability to maintain social distancing, crowding, and others not using face coverings as barriers to travel. Among non-bus users these barriers were felt even more, further complicating mode shift from car. We are listening to customers' feedback. We collect information on bus users' journeys every day and will use that to inform and drive our activity to improve people's experiences on buses.

Bus travel is at the core of our inclusive transport network and will become even more crucial as London's population grows older, with the number of Londoners over the age of 70 expected to grow by 85 per cent between 2016 and 2041¹⁰. While our reputation for offering an accessible service is good, with significantly fewer complaints made about the accessibility of buses compared to other public transport modes, we must continue to tackle the barriers to travel and unique pain points that affect disabled and older people to ensure all Londoners can get around more easily, safely, confidently, spontaneously and independently.

¹⁰ Mayor's Transport Strategy: Supporting Evidence – Challenges and Opportunities for London's Transport Network to 2041, 2017



Bus travel is at the core of our inclusive transport network

Providing the information our customers need

The bus network is complex. It is accessed from more than 19,000 bus stops, almost all of which are unstaffed. It shares street space with cars, which makes journey times more variable. Sometimes it can be difficult to know which bus to use, exactly when the bus will arrive or whether there will be space to get on, especially when there's disruption. These issues are often even more pronounced for disabled customers who must be assured that their pre-planned routes offer the accessible and inclusive infrastructure and services they require for their end-to-end journeys.

People have grown accustomed to highly accurate and easily accessible real-time information in all areas of their lives, including travel by other modes, shopping and media. This raises their expectation for a level of information to be available when using the bus network which is often not met at the moment, making bus journeys feel slower and less reliable.

Providing more and better-quality information can encourage more bus travel. It gives a sense of control and confidence, directly addressing the anxiety and frustration which uncertainty and disruption creates. Having this sense of control is key to people's choice of transport mode, particularly for people who normally drive. The potential is significant, with three out of five non-bus-users saying they would take the bus more if real-time information was easier to access.

The changing digital landscape also means that information products that were once thought of as 'extra' features could soon become critical factors in driving journey decisions. The risk of inaction is real: failure to match evolving customer expectations can lead to terminal decline. We need to keep pace by providing customers with accurate information across a range of static and real-time digital channels to enable customers to plan their journeys and support them when things don't go according to plan. As part of this we will continue to engage with established third party platforms and developers, championing how our open bus data can improve the customer experience.

At the same time, we must continue to renew and maintain our systems that enable us to provide our customers with information. iBus, our automatic vehicle location system, is at the heart of this. As well as being the primary data source for live journey times, the system also enables other forms of data provision.

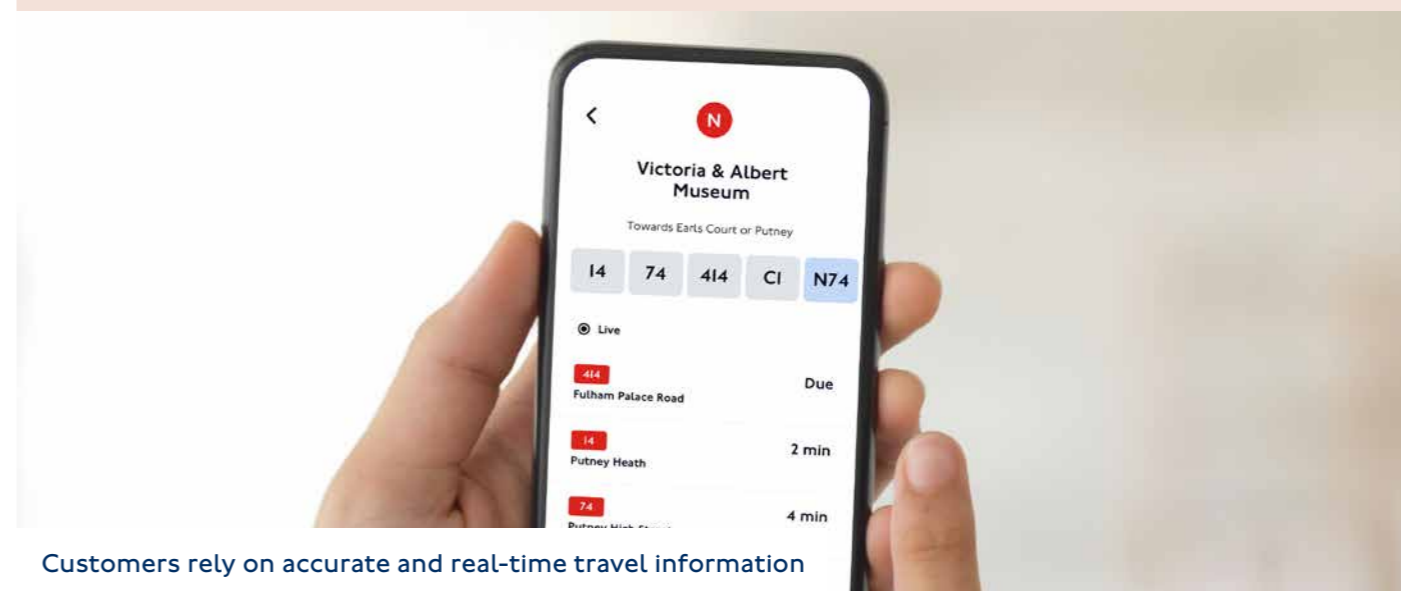
TfL Go for bus customers

The TfL Go app was launched in August 2020. The app provides real-time train and bus arrival times in a mobile-friendly interface. Bus customers can check live arrivals at their nearest bus stop and see the walking distance to get there. The app allows users to plan bus-only routes and indicates if there is any disruption so customers can plan accordingly.

Action 1

Promote our bus services and provide the information our customers need to be in control of their journeys by:

- Running wide-ranging campaigns to raise awareness of the bus network as a relevant and appealing sustainable alternative to the car and the role it can play in the future of the city, building on our current campaigns around recovery and zero-emission buses
- Promoting our services, new routes and pilot schemes, fares that give value for money and our TfL Go app, which provides real-time travel information
- Renewing and improving our bus customer information systems and infrastructure, including iBus and Journey Planner, to provide the live arrival, disruption, crowding and congestion information our customers need to feel in control of their journeys
- Delivering innovative real-time digital information displays across our bus stations, stops and shelters, beginning by trialling different technologies in 2022/23 to understand our customers' needs
- Developing new on-bus information screens, beginning with the trial on route 63 in 2022, and introducing digital screens on the outside of buses to provide customers with more accurate and detailed information
- Training our drivers to provide a higher level of assistance to customers throughout their journey and to better support customers when things go wrong
- Maintaining and upgrading our open data channels to encourage innovative customer information products from third parties



Customers rely on accurate and real-time travel information

Improving the customer journey experience

As the 'shop window' to the bus network, modern stop facilities can transform perceptions of bus travel and encourage large numbers of people who have previously rarely or never travelled by bus to consider doing so.

But waiting for the bus is often the most frustrating part of the journey. It can be especially unpleasant when it is dark or rainy, and people are not sure when the next bus will arrive or whether the driver will see them. Signs of neglect can subconsciously influence perceptions of safety and security, wait time and reliability, and can undermine the impact of good examples elsewhere. Getting basic maintenance and appearance right matters.

Once on board, the bus is not always the most comfortable place to be. It can feel too hot or cold, and it can sometimes be difficult to move around when boarding or alighting. The onboard experience is particularly crucial for attracting new customers. Non-users feel less positive towards the bus itself, often related to negative perceptions of comfort, personal space and crowding. With more comfortable bus design, seven out of ten non-users say they would use the bus more.

Action 2

Improve the experience for customers in vehicles and at bus stops, shelters and stations by:

- Identifying and trialling new layout and design features that can improve the customer experience and accessibility inside the bus, including better lighting and seating, and measures to improve thermal comfort, beginning with 29 vehicles on route 63 in 2022
- Upgrading and maintaining our bus stops and seeking to accelerate bus shelter renewals, using an inclusive design approach to meet customer requirements across comfort, accessibility, information, safety and security
- Developing new bus station design guidelines in 2022, and delivering new bus stations to these guidelines
- Refurbishing and upgrading existing bus stations to a level which meets customer requirements and supports more safe, comfortable and accessible bus travel, beginning with Kingston Cromwell Road bus station in 2022/23
- Looking to develop innovative new technology and services to provide improvements for bus customers, working through our Innovation Hub to engage with new suppliers and partners



Sixty-two per cent of Londoners travel by bus at least once a week

Enhancing the inclusivity of our services

An inclusively designed transport network enables everyone to make end-to-end trips spontaneously, easily, conveniently, safely and with dignity. An inclusive network is not limited to step-free access. It means addressing the diverse barriers to travel at all stages of the journey, from planning a trip to arriving at a destination. These include crowding, safety, crime and the fear of crime, lack of information (especially real-time information), physical and infrastructure barriers, and lack of awareness from staff or other passengers.

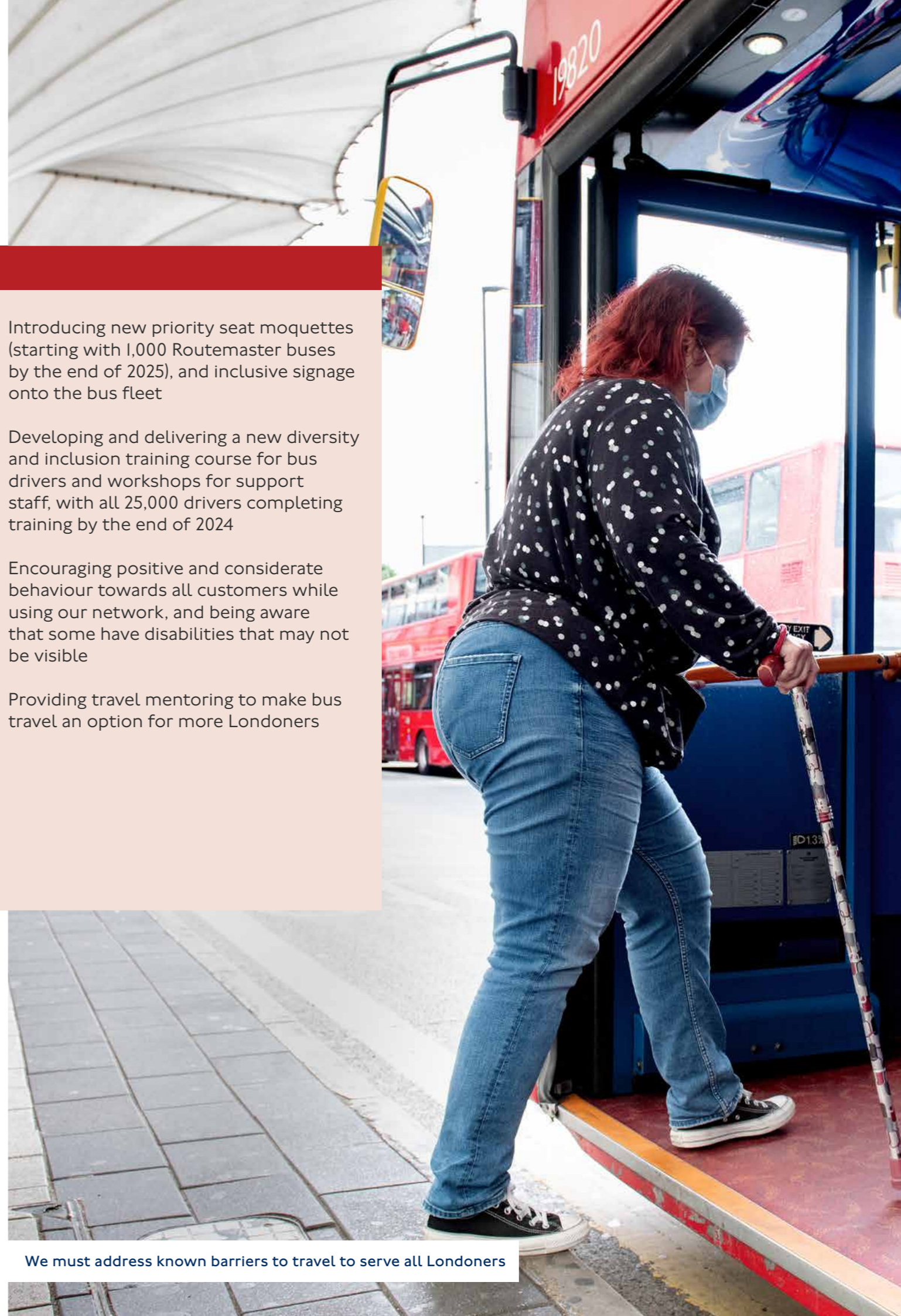
Being inclusive means thinking about the needs of people with both visible and non-visible impairments, as well as families and carers. It involves considering the unique barriers to travel faced by older Londoners, young Londoners, Black, Asian and minority ethnic Londoners, women and girls, parents and carers, and those on low incomes. It also means considering how a combination of one or more of these factors can affect people's experience.

To address this, we will adopt and integrate an inclusive design approach into everything we do, putting our customers and staff at the heart of the design process.

Action 3

Protect and enhance the accessibility and inclusivity of our network by:

- Working with diverse communities at a pan-London and local level to explore opportunities to enhance the inclusivity of bus stops and vehicles, seating, layouts, customer information and the broader experience of travelling by bus
- Working with boroughs to upgrade existing bus stops so that they meet the wheelchair accessible standard, ensuring that all new bus stops will be wheelchair accessible, and continuing to work with boroughs to convert hail and ride sections of the bus network to fixed stops
- Implementing new bus stop layouts with inclusive design features that benefit people walking and cycling, and continuing to engage and monitor to ensure that layouts (including nearby street furniture) are fit for purpose and accessible for all
- Introducing new priority seat moquettes (starting with 1,000 Routemaster buses by the end of 2025), and inclusive signage onto the bus fleet
- Developing and delivering a new diversity and inclusion training course for bus drivers and workshops for support staff, with all 25,000 drivers completing training by the end of 2024
- Encouraging positive and considerate behaviour towards all customers while using our network, and being aware that some have disabilities that may not be visible
- Providing travel mentoring to make bus travel an option for more Londoners



We must address known barriers to travel to serve all Londoners

King's Cross Station

Bus Stopping



12:21

£80 penalty fare or prosecution

Comments, complaints and suggestions

Please contact

Focus on: Digital information at all stages of the customer journey

Over the past two decades we have pioneered new technologies to provide customers with information at all stages of their journeys, from planning before they set off on their journey to their time on the bus itself.

Our Countdown signs enable greater flexibility and accuracy than the printed timetables customers had previously relied on. Since they were first trialled in the 1990s, they have been rolled-out at more than 2,500 sites in London. In 2009, our iBus automatic vehicle location system made

London the first city in the UK to provide on board, audio-visual, next-stop and destination information across its entire bus fleet.

Customers responded positively to these innovations when they were introduced. Countdown signs were valued as a practical source of information that customers did not have to actively seek out. iBus next-stop information was positively received when initially launched, with 91 per cent of customers supporting roll-out across more routes.

However, since these pioneering innovations, both technology and customer expectations have moved on, with smartphones driving a desire for greater access to a wide range of information 'on the go'.

We have been exploring a range of new technologies including: dynamic bus flags which use an integrated battery within the bus stop flag itself to provide real-time arrival information; e-ink screens to replicate and enhance the accuracy of information currently provided by paper timetables at stops; and enhanced on-board

information screens with additional journey information, including estimated journey times to key stops along the route and live departure and disruption information for Tube and rail services. As well as improving customer experience, digital displays could improve operational efficiency as we would no longer need to re-print bus stop information and bus blinds when there is a service change. This technology is now mature and with appropriate funding would be rolled out across more of the network.

04

Safety and security

Londoners expect their bus network to be safe and secure, and the pandemic has underlined this



I am an
electric
bus

abellio
london

Our actions: safety and security

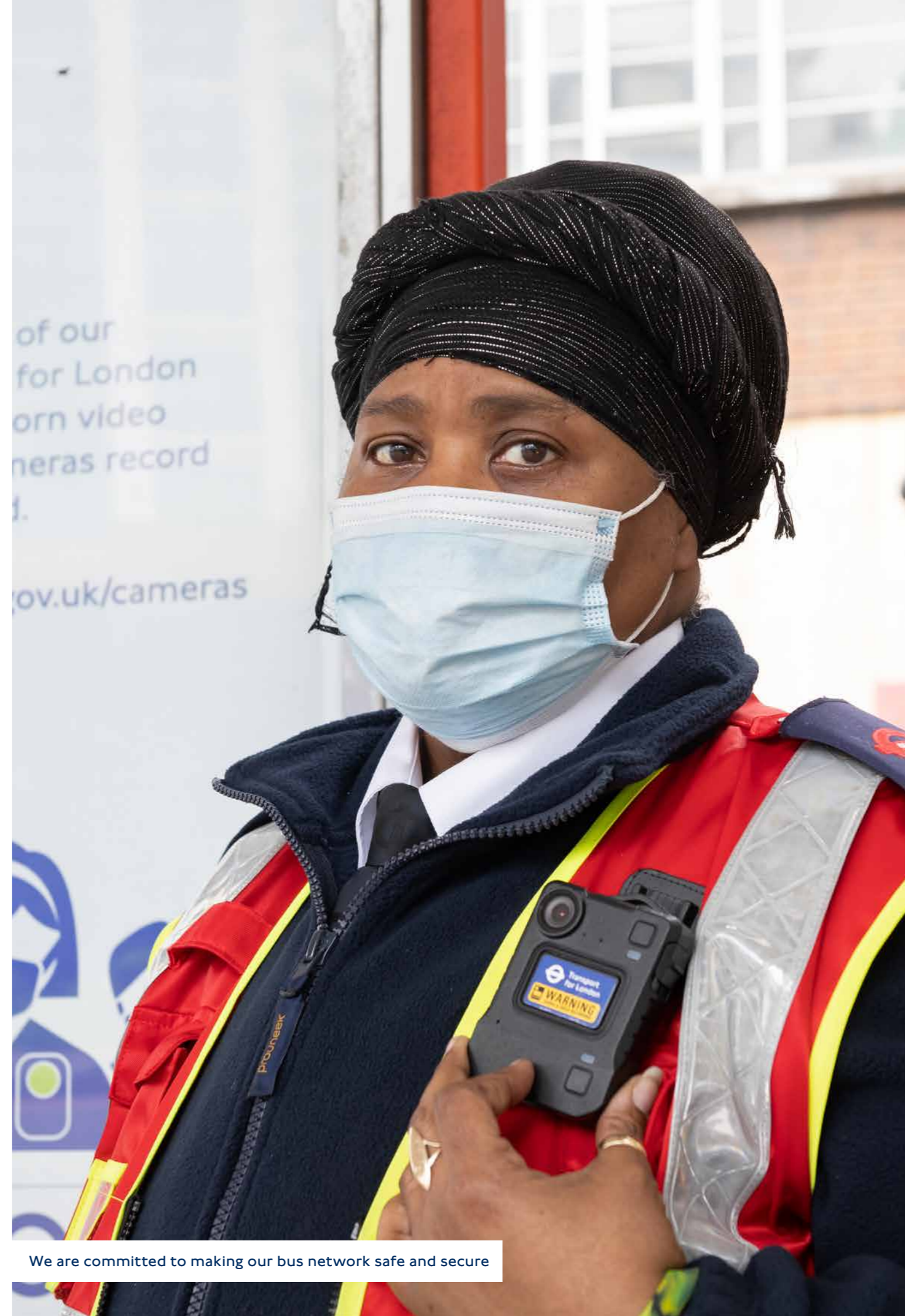
Everyone should be able to travel by bus safely and with confidence

Travelling on a bus is the safest form of road transport. However, on average around half of all injuries to our customers and workforce on public transport occur on buses, due to the high number of people that use them. Without continued investment in critical safety improvements, we will not achieve our Vision Zero aim for no one to be killed on or by a London bus by 2030.

People need to feel safe both on board and outside the bus, as well as on the streets that buses serve. Perceptions of poor personal security can prevent some people from using buses or using them more often. If we want to meet our target of increasing bus travel we need to address these barriers.

Bus stops that are poorly lit, not overlooked or suffer from a lack of maintenance can feel unsafe. If a bus stop or station feels unsafe, people will not choose to wait for a bus there, particularly at night. We need to ensure that our physical infrastructure makes people feel comfortable waiting for a service. Our ongoing investment and partnership working with the Metropolitan Police Service's Roads and Transport Policing Command, will continue to provide dedicated policing for our bus network, ensuring it remains a safe, low-crime environment. This is complemented by our own enforcement activity to ensure that customers pay their fares and follow the rules that are in place to keep customers and staff safe.

We must ensure the safety, security and welfare of our staff. Having now provided access to a toilet for drivers on every route, we need to go further, with well-maintained, larger and refurbished toilets to reflect their usage. Where possible, we could also make provision for customers for whom restricted access to toilets is a barrier to travel. We also need to improve and enlarge bus driver break facilities, many of which are now approaching or past their design life. These actions will help us attract and retain a diverse workforce, including women.



We are committed to making our bus network safe and secure



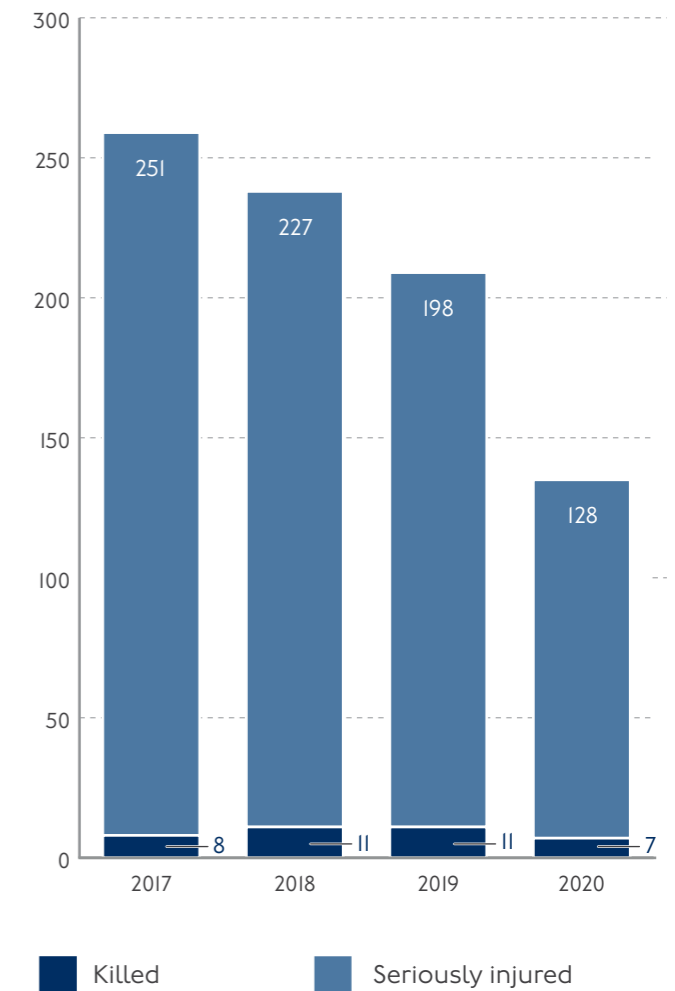
People should feel safe both on board and outside the bus

Delivering Vision Zero on our network

Londoners rightly expect their public transport services to be operated safely. The number of people killed or seriously injured by a bus has declined over the last four years, as shown in Figure I2, albeit the especially steep fall in 2020 should be interpreted in the context of the pandemic.

Our world leading Bus Safety Programme is delivering the greatest reduction in people killed or seriously injured per journey of any mode on the roads, with 77 per cent fewer people killed or seriously injured on or by a bus by the end of 2020, compared to 2005-09¹¹. The programme is wide ranging, and includes key themes of safe speeds, safe streets, safe vehicles, safe behaviours and post-collision response. For example, we have implemented Destination Zero training for drivers, which demonstrates road risks with the help of virtual-reality headsets. Underpinning all this is the culture change that no instance of death or serious injury should be considered inevitable or acceptable.

Figure I2: People killed or seriously injured from collisions involving a London Bus



Bus Safety Standard

Our 2019 Bus Safety Standard introduced new features on buses, including: intelligent speed assistance; acoustic vehicle alerting systems for quiet running vehicles; non-slip flooring to reduce passenger slips, trips and falls; pedal indicator lights to reduce instances of pedal confusion; and blind spot mirrors to increase visibility of vulnerable road users. The standard was based on extensive research and closely matched targeted action with the evidence of key risks. The Bus Safety Standard applies to all new vehicles entering the London bus fleet, up to 700 vehicles per year, with more than 600 currently in service.

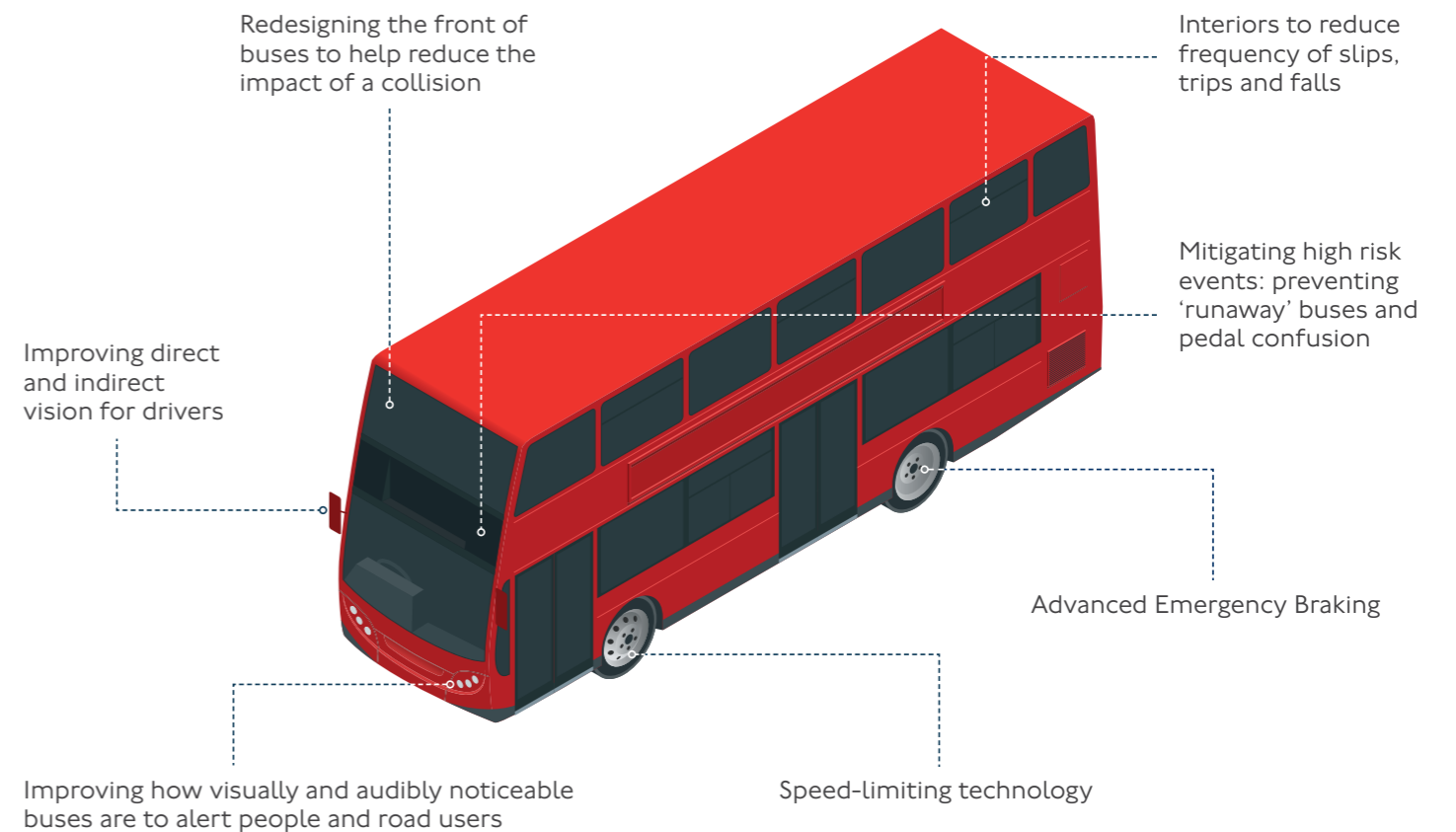
The 2021 Bus Safety Standard, which started being applied to vehicles on the street last year, makes camera monitoring systems that replace wing mirrors and afford an

improved field of vision compulsory, provides more occupant-friendly interiors and adds a mechanism to prevent the bus from moving when the driver leaves their cab. This will help to address injuries due to slips, trips and falls on buses because of collisions. In addition, we are conducting a further complementary review into non-collision events, leading to slips trips and falls, the rate of which per million passenger journeys has increased during the pandemic, although not the absolute number. Further improvements continue to be planned/rolled out, including Advanced Emergency Braking. Specially redesigned bus fronts, that reduce the impact of any collisions, will follow in 2024. Our Bus Safety Standard roadmap sets out the additional safety measures we require up to 2024.¹²



We continue to prioritise safety improvements across the fleet

Figure 13: Key safety features introduced through the Bus Safety Standard



We have also taken tough measures to improve safety by combatting bus driver fatigue, including ensuring that all managers in bus garages have undertaken fatigue training. All ten London bus operators now have a Fatigue Risk Management System and between September 2020 and the end of June 2021, we ran nearly 150 sessions, with 1,746 bus operator managers and operational supervisors attending.

Building on our commitment to the health and wellbeing of drivers we are rolling out health kiosks to bus operators. We have also expanded our £500,000 Bus Safety Innovation Challenge to focus on driver fatigue and health and wellbeing. Vehicle technology will continue to change so we will also continue to investigate how improved connected and autonomous vehicle technology can further help our Bus Safety Programme.

¹² Bus safety roadmap for new build buses

Action 4

Drive major improvements in safety across London's bus network and ensure our ambition of no one being killed in or by a London Bus by 2030 by:

- Continuing the roll out of the Bus Safety Standard on new vehicles, with all existing measures mandated by 2024. Retrofitting features such as intelligent speed assistance by the end of 2023, to bring forward the benefits resulting from a reduction in the number of casualties, and continuing to incorporate evidence-based safety measures
- Working with operators to expand and deliver the Fatigue Management Programme for bus drivers, incorporate new communications with bus drivers and other frontline staff and continue to look at new ways to manage and prevent fatigue
- Promoting innovative bus driver fatigue, health and wellbeing initiatives through delivery of the Bus Safety Programme and leading the Health & Wellbeing Innovation Challenge jointly with bus operators. Fatigue detection technology will be rolled out to 500 buses by the end of 2022
- Working with operators and the Design Council to develop a bus driver health and wellbeing programme that analyses the effectiveness of interventions
- Building on the success of the Destination Zero training programme, to equip drivers with the skills to adapt to the changing streetscape and better support the needs of our vulnerable and diverse customers, and work to achieve Vision Zero
- Promoting a culture of transparency, internally and across operators, proactively sharing learning opportunities and publishing data wherever possible, for example at the Safety Managers Meeting or the Bus Operator Forum
- Improving safety monitoring and assurance processes among operators, and enhancing incident reporting and investigation processes to aid identification of root causes and corrective actions
- Implementing a strategic data-led approach to reducing passenger injuries due to slips, trips and falls, involving the evaluation of a variety of technical, behavioural and procedural interventions
- Continue to investigate how improved connected and autonomous vehicle technology can further help our bus safety programme



We promote transparency internally and with our operators

Ensuring people feel safe and secure

Most users consider the bus network to be secure, and many appreciate the facilities provided on board, and at stops and stations.

The bus network is a low-crime environment, and the risk of becoming a victim of crime while travelling is low. There was a significant reduction in both crime volume and crime rate between 2005/6 and 2019/20 of around 60 per cent. The impact of the pandemic, with significant reductions in passenger journeys because of travel restrictions, saw crime fall to its lowest level ever in 2020/21. While this is increasing as more people return to the network, we are working closely with police to prevent offences, target offenders and reassure staff and customers. Improving the safety and security of the network remains a priority.

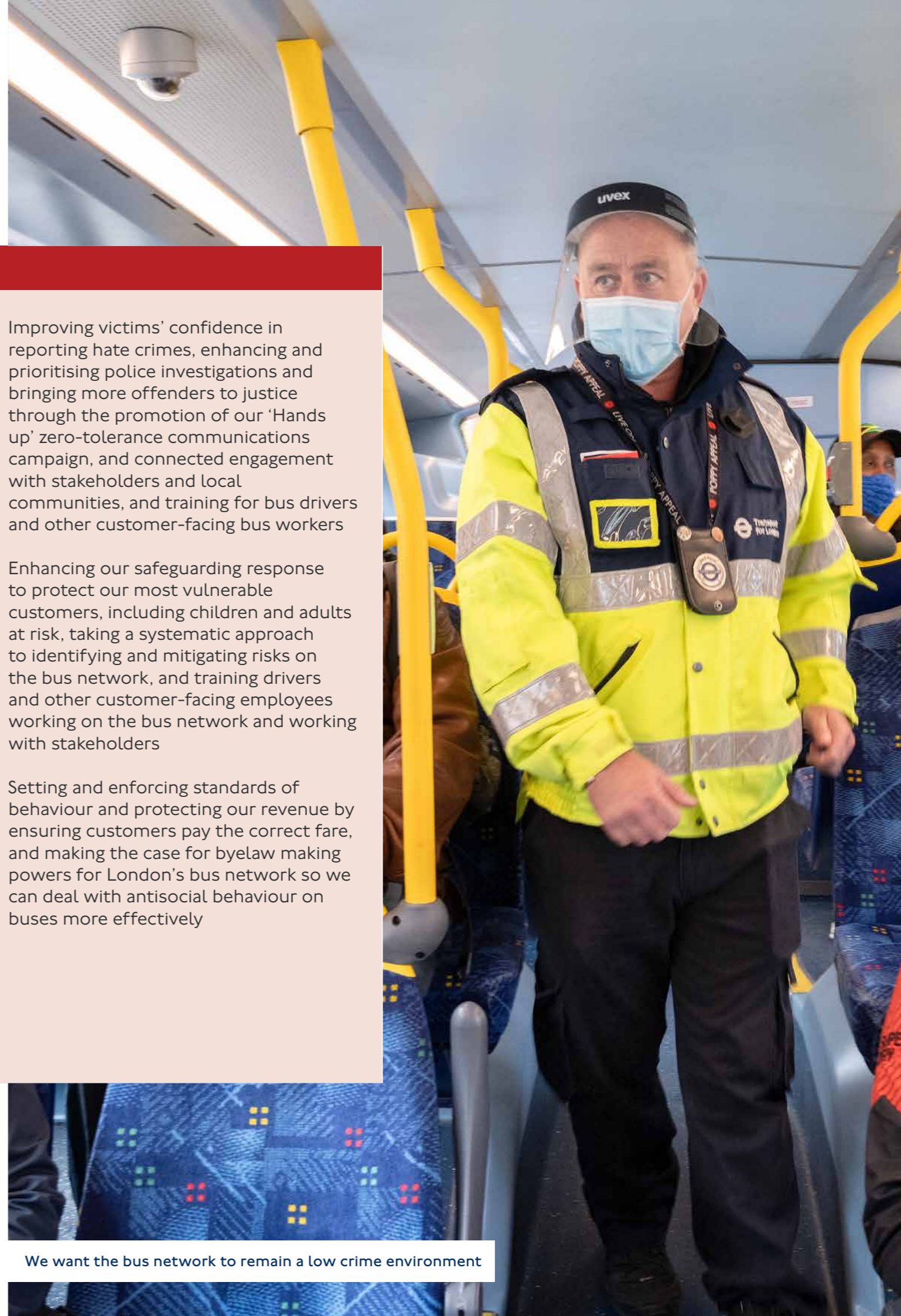
We also understand that the bus network does not always feel like a low crime environment. Women, disabled, young, Black, Asian and minority ethnic Londoners are all more likely to report feeling worried about their personal security when using public transport and are more likely to have experienced a worrying incident than other Londoners. These are also the customers that are most reliant on buses to get around, often with few alternative options.¹³

¹³ Travel in London: Understanding our diverse communities 2019

Action 5

Improve the safety and security of travelling by bus by:

- Continuing to fund and work in partnership with the Metropolitan Police Service's Roads and Transport Policing Command to provide dedicated policing for the bus network
- Delivering a Bus Security Programme by 2025 to ensure proportionate mitigation of security and crime risks, including terrorism, and ensuring this is applied at an early stage in projects
- Training bus drivers and other frontline staff on how to deal with sexual harassment (including how to handle reports from customers), with all 25,000 drivers completing this as part of enhanced diversity and inclusion training by the end of 2024
- Introducing signage on vehicles, and at stations and stops about what to do in an emergency and how to report crime
- Continuing our Project Guardian sessions in schools to educate girls and boys about sexual harassment on public transport and encourage them to report incidents to transport staff and the police, delivering at least 100 sessions each year
- Improving victims' confidence in reporting hate crimes, enhancing and prioritising police investigations and bringing more offenders to justice through the promotion of our 'Hands up' zero-tolerance communications campaign, and connected engagement with stakeholders and local communities, and training for bus drivers and other customer-facing bus workers
- Enhancing our safeguarding response to protect our most vulnerable customers, including children and adults at risk, taking a systematic approach to identifying and mitigating risks on the bus network, and training drivers and other customer-facing employees working on the bus network and working with stakeholders
- Setting and enforcing standards of behaviour and protecting our revenue by ensuring customers pay the correct fare, and making the case for byelaw making powers for London's bus network so we can deal with antisocial behaviour on buses more effectively



We want the bus network to remain a low crime environment



Focus on: Women's Safety Programme

We are committed to making our bus network a place where women and girls can feel and be safe.

For almost a decade, we have worked with the Metropolitan Police Service and the British Transport Police to tackle sexual harassment on public transport, an issue that disproportionately affects women and girls. Through our ground-breaking Project Guardian initiative and Report it to Stop it communication campaigns, we worked to improve victim confidence to report incidents by knowing that action will be taken, making it easier for victims to report and target offenders. Significant progress has been made in this area and, while our network is generally very safe for our employees and customers, there is more work to do.

Women and girls still have greater levels of concern about travelling than men, particularly at night. Different features of people's identity, such as race, disability and neurodiversity, sexuality and gender, can increase vulnerability and victimisation.

Acknowledging the experience of women and girls, as well as the tragic murders of sisters Bibaa Henry and Nicole Smallman in 2020, and Sarah Everard and Sabina Nessa in 2021 and the public outcry rightly surrounding them, has spurred us to do more and to do better to improve the safety of women and girls on our network and in our workplace. We have established a Women's Safety Programme, which is wide-reaching and builds on the ongoing work with our police partners to make our public transport network a hostile environment for offenders.

The Women's Safety Programme will include:

- A new communications campaign on buses and at bus stops that emphasises our zero-tolerance approach to sexual harassment
- Training for bus drivers and other frontline staff working on the bus network on how to deal with sexual harassment, including how to handle reports from customers, starting in April 2022
- Signage on vehicles, bus stations and stops about what to do in an emergency and how to report a crime
- Continuing our Project Guardian sessions in schools to educate girls and boys about sexual harassment on public transport and encourage them to report incidents to transport staff and the police, and looking at ways to expand their reach
- Considering what more we can do at transport hubs to make women and girls feel safer
- Improving support for staff who experience sexual harassment and misogyny as a form of work-related violence and aggression, taking a zero-tolerance approach to harassment and victimisation in the workplace
- Playing our full part in supporting and delivering on the Mayor's Women's Night Safety Charter and strategy to end violence against women and girls in London

Improving bus driver welfare

It is possible for bus drivers and supporting staff to experience violence and aggression on a daily basis. Our work-related violence and aggression strategy aims to protect frontline staff, and addressing this issue will prevent experienced people from leaving the bus industry. Video evidence is often key to ensuring successful prosecutions and we have introduced body-worn video cameras for all non-driving frontline staff, complementing our extensive use of CCTV on buses.

Supporting London's bus drivers and other frontline colleagues is not limited to tackling violence and aggression towards them. We are also improving welfare standards at work. A critical aspect of this has been our focus on improving toilet provision for our bus drivers, something that is particularly important to attract more women to the role and retain older drivers.

Ensuring there are appropriate rest facilities, such as mess rooms and quiet areas at bus stations and stands, where bus drivers take their breaks is also a priority. These make it easier for drivers to take a better-quality break, helping combat fatigue.

As London's bus network evolves, we will need to continue to add toilets and facilities to support route changes.

Action 6

Ensure bus drivers and operational staff can work safely and with dignity by:

- Working with bus operators to deliver on our pledge to prevent work-related violence and improve support for frontline transport staff when they are a victim, and reporting on our progress to TfL's Safety, Sustainability and Human Resources Panel
- Prioritising and supporting police investigations of work-related violence and aggression to bring more offenders to justice. We will continue to lobby for tougher sanctions for those that abuse, threaten or assault bus drivers and other frontline bus workers
- Encouraging staff to report hate crime and sexual harassment against them to the police, through regular communications addressing the barriers to reporting, publicising action against offenders and improving the support we provide to victims
- Renewing an average of eight driver welfare facilities, including mess rooms and toilets, every year until 2030



We must continue to improve welfare standards for bus drivers

05

Journey times

We urgently need to deliver a transformational improvement to bus journey times to provide a bus service that Londoners will choose to use



I am an
electric
bus

abellio
london

Our actions: journey times

We must continue to reverse the trend in declining journey times to win back customers and encourage more people to switch from using the car

Until recently, buses had been getting slower. In the six years leading up to the pandemic in 2020, average bus speeds in London dropped by more than three per cent, declining rapidly between 2013 and 2016 before recovering slightly towards the end of the decade (although remaining lower than before).

There has been a clear correlation between declining bus demand and deteriorating average bus speeds, as shown in Figure 14. Research shows that a ten per cent increase in journey times can, on its own, lead to a six per cent fall in bus demand¹⁴. Many of these journeys will instead be made by car or not be made at all, both bad outcomes for local economies.

Slower journey times are more than an operational cost, they are also an opportunity cost. Every vehicle added to the schedule to maintain reliability in congested areas is a vehicle that could otherwise have been used to enhance services elsewhere.

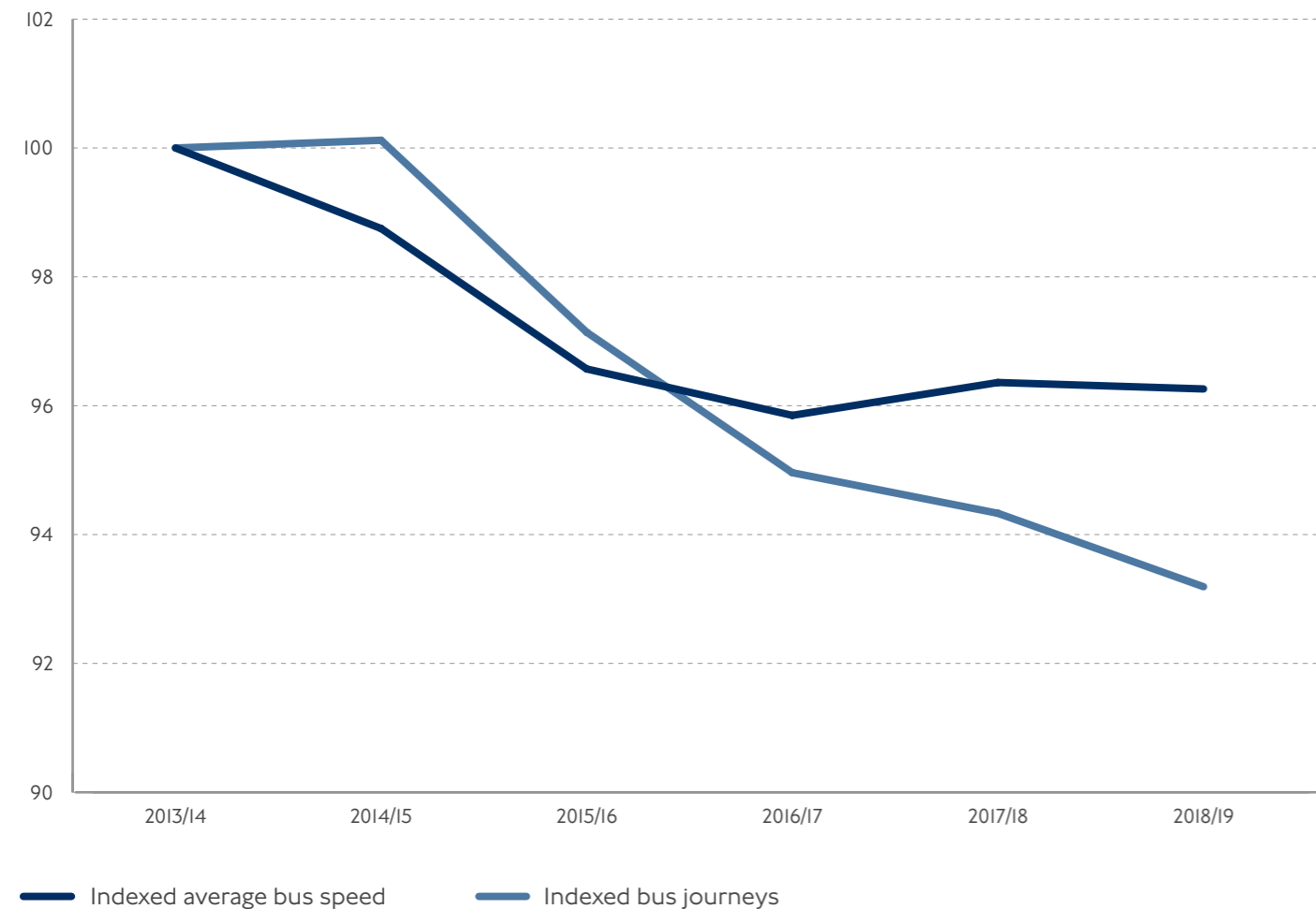
Traffic congestion doesn't just slow down buses, it also makes customers' journey times less dependable. A customer may find themselves on a bus that needs to wait at stops to even out gaps in the service, or even terminate short of their destination if significantly behind schedule. Customers perceive these frustrations in different ways. Time spent waiting for a bus is more frustrating than time spent on board a bus. Interchange can sometimes feel like a hassle, especially if it is not well-designed. We now measure weighted customer journey time to reflect this, as shown in Figure 15. This captures the whole bus customer journey experience, compiling elements of wait time, in-vehicle time, interchange, crowding, and reliability, and then weighting these elements to reflect how customers perceive time spent at different stages of the journey differently. Improving journey times means addressing all these elements.

¹⁴ The Impact of Congestion on Bus Passengers, Greener Journeys, 2016



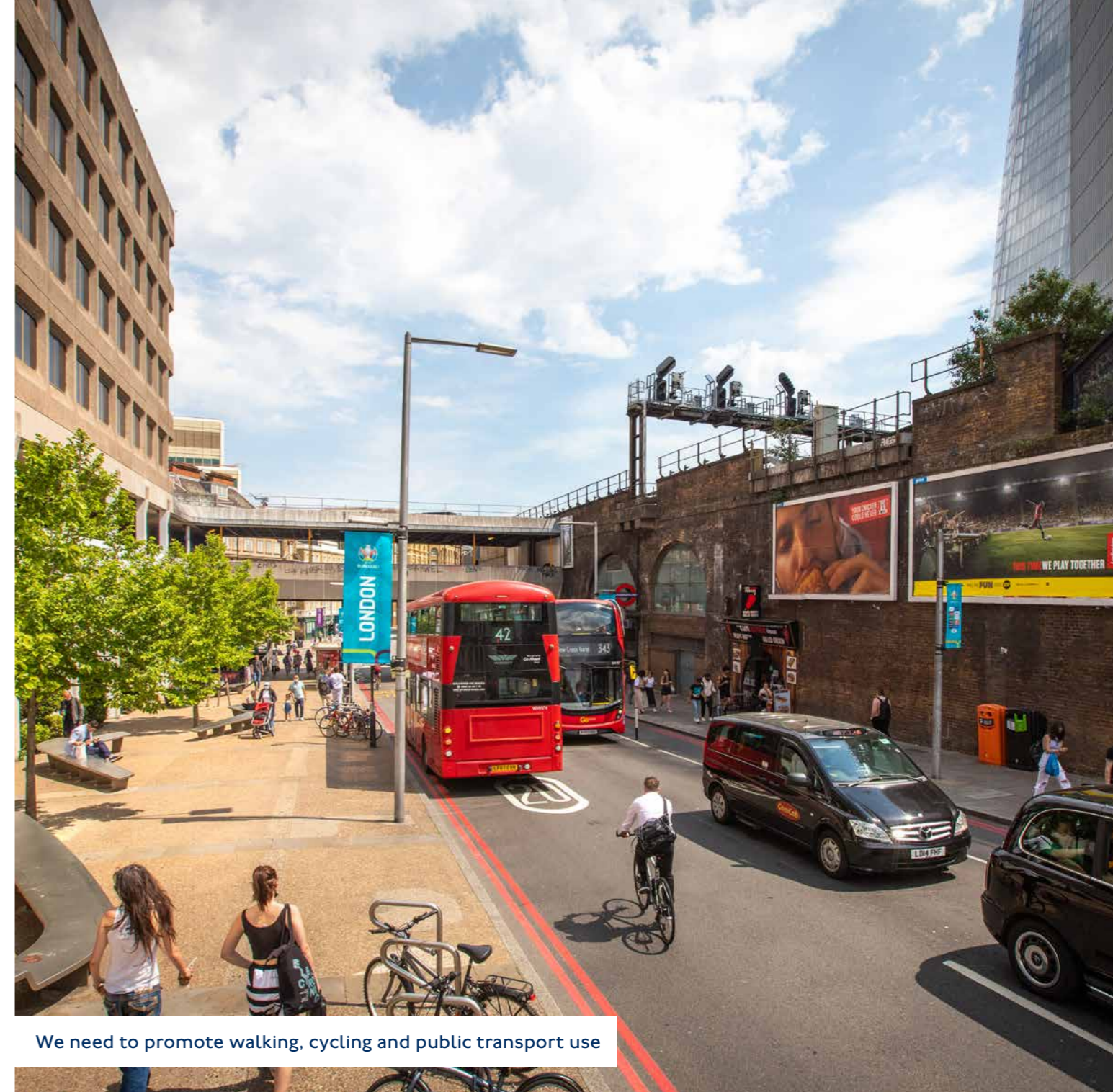
Improved journey times will increase bus passenger numbers

Figure 14: Indexed average bus speeds and bus journeys (2013-2019)



We urgently need to deliver a transformational improvement to bus journey times in order to provide a bus service that Londoners will choose to use. If we don't, we will find ourselves trapped in a vicious cycle where worsening congestion makes buses less attractive and more costly to run, driving more customers to the car and compounding the problem.

Reducing traffic levels will be critical for this. We saw the dramatic impact that reduced traffic volumes can have on bus journey times during the first lockdown in 2020. While average bus speeds have since declined as traffic returned, they remain slightly higher than pre-pandemic levels in most parts of London. We already work alongside boroughs to reduce traffic levels

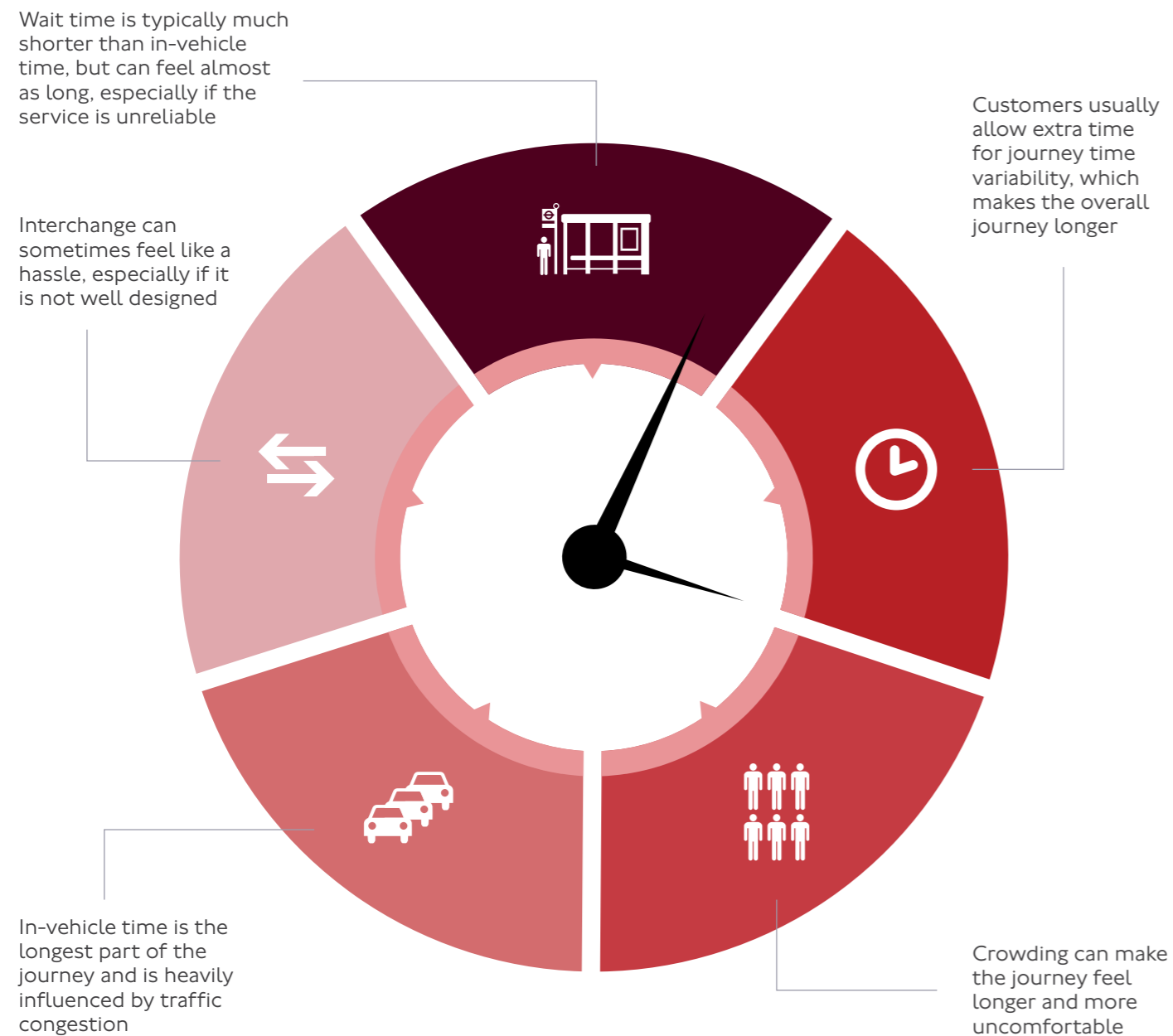


We need to promote walking, cycling and public transport use

through our investment in sustainable modes, promotion of low-car development and local measures around parking, but we need to go further.

Traffic congestion doesn't just slow down buses, it also makes customers' journey times less dependable

Figure 15: The components of bus customer journey time*

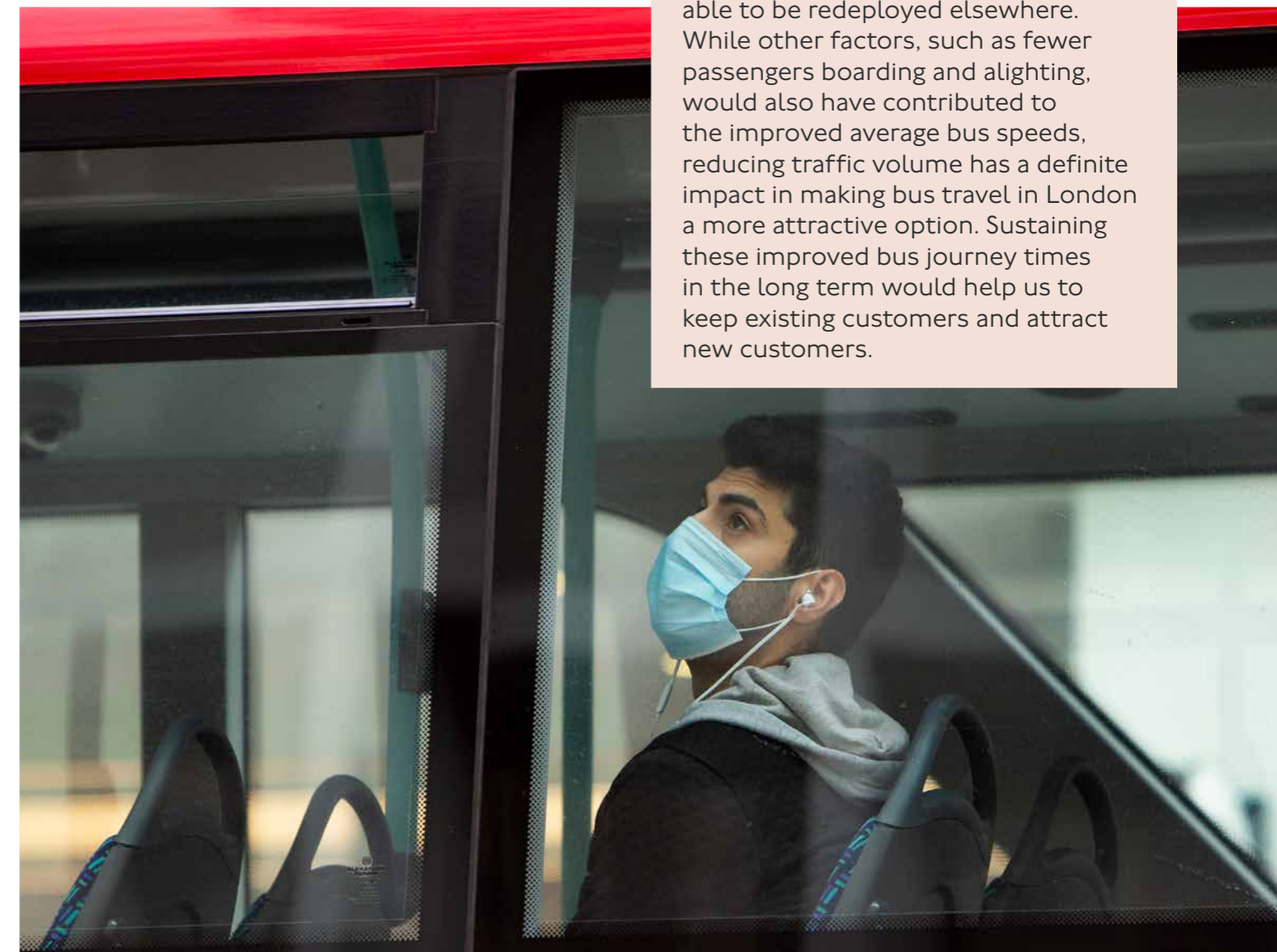


* Not to scale

A new road user charging system could be key to this approach by incentivising a shift away from the private car use which is responsible for much of the congestion and consequent delay to bus journey times. This contributes to a virtuous circle whereby buses become more attractive as congestion reduces, and the incentive to switch increases. The additional fares income generated from increased bus use could then be reinvested into the transport network to enable service levels to be improved.

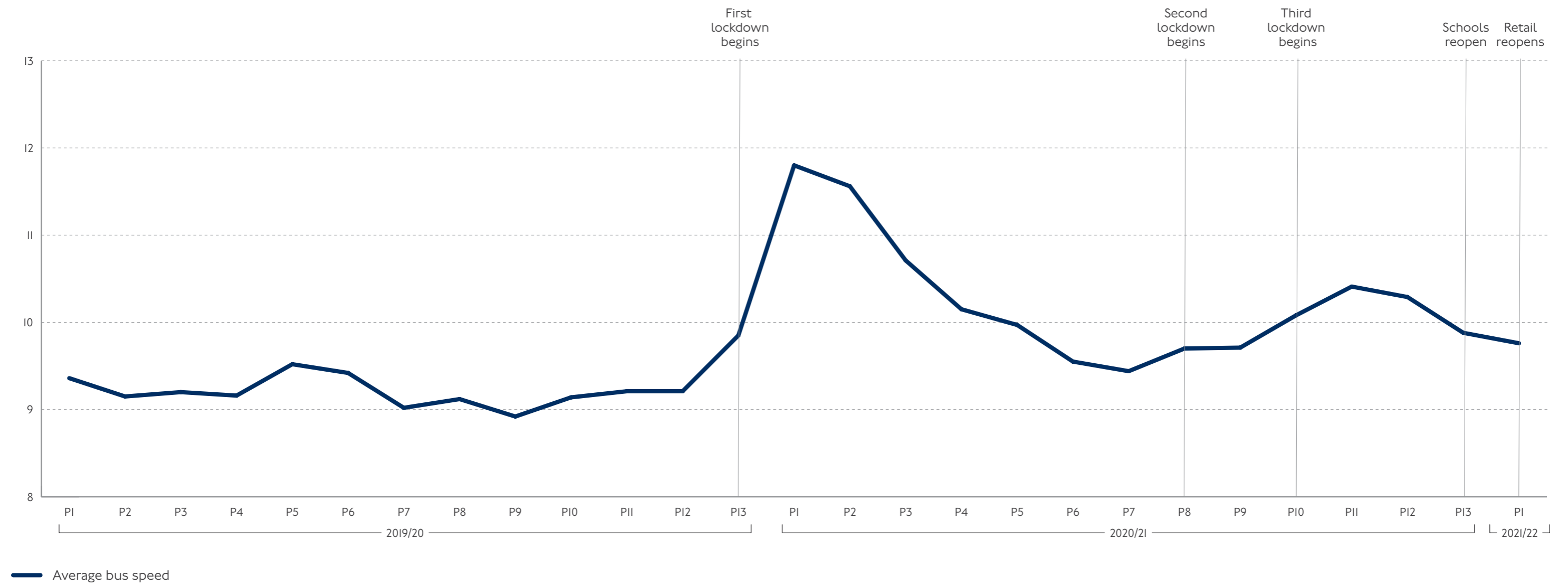
Bus journey times during the pandemic

The reduced traffic volumes during the pandemic had a dramatic impact on bus journey times, particularly during lockdown periods, as shown in Figure 16. On several routes, the improved bus journey times enabled the same service frequency to be operated with fewer vehicles, with more than 100 peak time buses able to be redeployed elsewhere. While other factors, such as fewer passengers boarding and alighting, would also have contributed to the improved average bus speeds, reducing traffic volume has a definite impact in making bus travel in London a more attractive option. Sustaining these improved bus journey times in the long term would help us to keep existing customers and attract new customers.



Maintaining and improving bus journey times must be a priority

Figure 16: Average bus speeds from 2019 to 2021 (mph)



Delivering better streets for buses

Our streets are the 'track' on which our buses run. Buses need a street network through which they can navigate freely and without additional obstacles resulting from congestion, parking or other kerbside activity. There are different ways of achieving this, and the right one will depend on local conditions. In some places, it will be appropriate to restrict access to the street to buses, cycles and pedestrians for part of the day. In others it can mean ensuring continuous bus priority by separating buses from general traffic, similar to rail, or short sections of bus lanes to allow buses to get to the front at junctions, or bypass a known pinch point.

We know that these measures can make a real difference to customer journey times and the overall resilience of the network. They also contribute to better journey times for commuter and long-distance coach services, and cross-boundary bus routes outside of our network, as well as showing Londoners that bus journeys matter.

Furthermore, bus and cycle-only streets and bus lanes can provide an improved experience for people using all sustainable modes. Bus priority reduces on-street car parking, in turn reducing the visual and physical dominance of cars and giving way to a more appealing environment for walking and cycling.



The city's roads must also be used for walking and cycling

Focus on: Bus lane schemes



London Borough of Waltham Forest
A transformational scheme, where bus requirements were considered early on in the planning and design stages

This multi-modal scheme in Walthamstow involved the removal of a gyratory, introduction of a new bus lane alongside segregated cycle lanes, pedestrian crossings and new public space. Two bus routes (route 357 and route 97) were re-routed as part of the scheme, resulting in a four-minute reduction in journey times.



A3 West Hill bus lane
London Borough of Wandsworth
A simple, low-cost scheme in the right location

This scheme in Putney involved the installation of a new 24/7 bus lane of 200 metres on the A3 northbound between the Tibbets Hill on-slip and Beaumont Road bus stop. Buses on this corridor were frequently delayed during the morning peak as they were sharing space with commuter and construction traffic. Since its implementation, journey times on this stretch of road for route 170 and route 670 have improved by more than two minutes in the morning peak and 30 seconds in the afternoon peak.



Focus on: Bus and cycle-only streets

Tottenham Court Road, London Borough of Camden

A street designed for sustainable modes, delivered by the borough and partly funded by us

From March 2021, sections of Tottenham Court Road have been open to buses and cycles only between 08:00 and 19:00, Monday to Saturday. The scheme aims to reduce congestion and air pollution and improve bus journey times, while also delivering a safer and more attractive environment for walking and cycling, and new areas of high-quality public realm. Monitoring shows that the package of traffic changes introduced has improved journey times on four bus routes, as well as reducing congestion across the area.



Focus on: Central London Bus Grid

Central London Bus Grid, City of London, City of Westminster and London Boroughs of Camden, Islington, Lambeth, Southwark and Tower Hamlets

Twenty strategic bus corridors in central London where bus priority would be most beneficial to bus operations and customers

The objective of the Central London Bus Grid is to deliver reliable average bus speeds of 10 to 13mph along key corridors in central London. Corridors were identified using a multi-criteria analysis including bus passenger numbers, speed and availability of alternative modes. The corridors provide connectivity to rail termini, areas without access to Tube services, areas with poor rail access and major hospitals. Enhancements continue to be delivered with more than 500 metres of new bus priority delivered on the grid in 2021.



Buses run best without other obstacles resulting from congestion

To support the development of more and better bus lanes, it will also be crucial to provide design guidance equivalent to our Cycle Route Quality Criteria, to provide consistency and clarity in recommended infrastructure provision. New bus priority design guidance will help designers and scheme promoters to cater for bus customers and develop best practice bus priority that delivers against the Healthy Streets indicators.

Action 7

Work with boroughs to deliver the changes required for buses through our investment in Healthy Streets by:

- Taking an integrated approach to all street planning, seeking to deliver bus, walk, cycle and safety benefits jointly wherever possible, including seeking to introduce more sustainable bus and cycle-only streets where appropriate
- Publishing new bus priority best practice guidance in 2023
- Aiming to introduce 25km of new and improved bus priority by 2025
- Upgrading our bus accessibility and priority infrastructure databases and expanding their use as a tool for local highway authorities to make improvements for bus customers

Making better use of street space

It is critical that we make the most of our existing assets, with street space being the most valuable. Traffic reduction measures will be critical where space is constrained.

We can also improve the operation of the street network to provide better priority for buses. We operate over 1,900 sets of signals as part of a bus priority system that detects where the bus is on the network. This can hold signals on green for an approaching bus or, if the bus arrives at a red signal, return the approach to green quicker. We run 400 of these signals on a system that prioritises those buses running behind schedule, allowing time to be regained on these routes. More generally, we review the timings of 20 per cent of London's 6,000 traffic signals every year to ensure we are optimising the priority we can give to buses. In total, this means buses receive some form of priority through traffic signals more than 150,000 times every day.

Our work is supported by our extensive traffic surveying and monitoring systems. In addition, our traffic engineers spend many hours on site looking at how the network functions. This work can identify further opportunities for improvements, some of which can be relatively low cost and easy to deliver. We need to pool this operational knowledge with the detailed local knowledge that exists in boroughs to identify and deliver more of these opportunities. We recently took this approach on route 63, where we undertook route walks with borough officers, enabling us to experience the route as the customer does. This generated 18 signal timing review locations and 12 low-cost infrastructure schemes to improve journey times.

Where we already have bus priority infrastructure in place, we should maximise the benefit of this. The majority of bus lanes do not operate on Sundays and extending operating hours can make bus travel a more dependable option at all times throughout the week. Since September 2020, as part of our response to the pandemic, we have been trialling

an extension of 24/7 bus lane operation to 84km of bus lanes on our roads, affecting 19 boroughs. This includes a more proactive approach to managing parking and kerbside activity. Monitoring shows that this has delivered real benefits for customers. We are committed to working closely with boroughs to apply the learnings of this trial to the wider network.

Focus on: Street management schemes



A406 Madeley Road London Borough of Ealing

Unlocking banned turns to enable re-routing and improve journey times

This scheme enabled route 112 to turn right from the A406 into Madeley Road, a banned manoeuvre for all traffic. The scheme has redirected this bus route from the most congested road in the UK to serve a new catchment area, generating up to 2,000 new bus trips. Journey times at peak times have improved by 6.5 minutes.



Figges Marsh London Borough of Merton

Identifying opportunities through operational observation

Through operational observation, an opportunity to improve bus journey times by simplifying this junction was identified and discussed with the borough. The existing signalised roundabout was removed and replaced with a new junction arrangement. The scheme delivered improved journey times for the 1,100 buses crossing the junction every day, and pedestrian and public realm improvements through widened footways.

Reducing the impact of roadworks on bus journey times

As buses cannot be diverted easily, disruption caused by roadworks is particularly challenging. In London, every year there are approximately 400,000 applications to carry out roadworks and all have the potential to be highly disruptive to buses if not well planned and managed. Much of the inconvenience customers experience is a result of short-term works that close stops, reduce lane and junction capacity or close roads entirely. We need to work better to reduce the impact of roadworks on bus customers. This means pooling our knowledge and expertise with boroughs when planning high impact roadworks and providing a bespoke support package where these are likely to impact key bus routes.

Working together, we can ensure that utility companies are on the road network for less time and help design traffic management that is less disruptive, using guidance from the Temporary Traffic Management handbook¹⁵. We can also better coordinate works to reduce disruptive roadworks as a whole and design bespoke traffic signal strategies to support the local area around works to reduce the impact on buses. By taking a common approach to roadworks we can support a safe and more efficient street network, where bus customers are less affected by congestion.

Action 8

Manage the operation of streets to ensure adequate priority for all active, efficient and sustainable modes by:

- Optimising traffic signalling to deliver greater priority for buses, pedestrians and cycles
- Reviewing underperforming routes with borough officers to observe issues at a local level, and pooling our expertise to understand the problem and identify solutions
- Delivering 'quick win' improvements identified through operational observation
- Working with boroughs to extend bus lane operating hours and reduce the impact of kerbside activity in bus lanes across the network
- Working with boroughs to reduce the impact of roadworks on bus customers

¹⁵ The Impact of Congestion on Bus Passengers, Greener Journeys, 2016

Optimising our operations

Journey times are driven by a combination of traffic levels and congestion, the operation of the street network and the operation of the bus service itself. In addition to building new bus priority and making more efficient use of our on-street assets, we can also find ways to improve customer journey times by working closely with bus operators in considering the way in which we run our services. This could be through incentivising operators to identify additional scheduling efficiencies, improving service regulation and measures to better reflect the levels of congestion throughout the year, improving journey times when average speeds allow.

In addition, we need to ensure stops and vehicle layouts allow for efficient boarding and alighting.

Action 9

Improve journey times through our operational approach by:

- Reviewing the regulation of services to optimise customer journey time and reliability
- Seeking to have more agile schedules that can respond better to the variability of traffic conditions throughout the year, through the use of improved technology and reviewing our contracting mechanisms
- Identifying opportunities to safely improve dwell times, time buses spend at scheduled stops without moving, by considering bus stop locations and design when delivering schemes on the street, vehicle layouts, and our customer information and behaviour campaigns



Buses connect commuters, shoppers and visitors across the city



Focus on: Prioritising investment in bus journey times

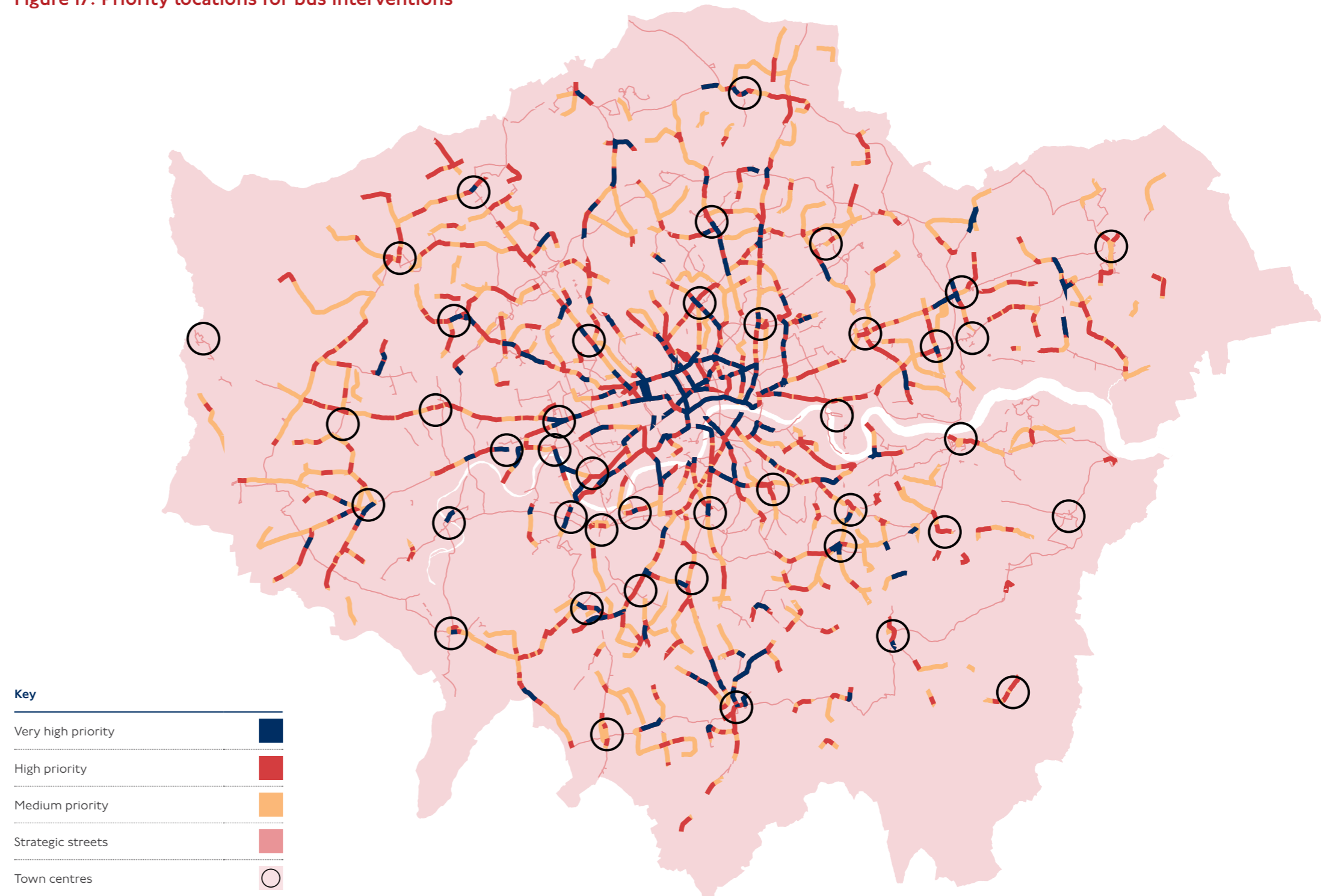
We have used strategic data relating to delay, dwell times, average bus speeds and forecast traffic speeds to identify and prioritise links where schemes to improve journey times could be most valuable for bus customers.

Seventy per cent of the most strategic streets for buses are on borough roads

Focus on: Prioritising investment in bus journey times (continued)

Figure 17 prioritises these links to show where we need to enhance bus performance. This highlights links in central London, around town centres and along key radial routes. The approach for each link will be determined by local characteristics and could range from large to small scale, including bus lanes, junction schemes, parking policy, traffic reduction measures and operational changes.

Figure 17: Priority locations for bus interventions





Focus on: Delivering for all active, efficient and sustainable modes

Buses and active travel are mutually supportive elements of the Healthy Streets approach. Improvements for one mode should either have no impact or, ideally, bring benefits to the other. However, poorly designed measures and those that focus on single modes can have negative effects on other sustainable modes.

Recent experience shows that well-planned schemes can provide significant improvements for bus customers while also making walking and cycling safer and more appealing. This can be achieved through holistic, multi-modal planning, and by designing schemes that prioritise walking, cycling and public transport over

general traffic, rather than at the expense of each other.

Reallocating road space

Where the road is wide enough, general traffic lanes and parking can be converted to bus lanes, protected cycling facilities or expanded footways for walking. An example of this is Plumstead Road in the Royal Borough of Greenwich, where 800 metres of bus, cycle and public realm improvements were delivered as part of a holistic scheme.

Traffic reduction

One of the most effective ways to improve streets jointly for sustainable modes is to reduce traffic levels. This could be by

creating a bus and cycle-only street, or through localised measures to reduce traffic such as bus gates, banned turns and other access restrictions. An example of this approach is the new bus gate at Stoke Newington Church Street in the London Borough of Hackney.

A 'whole corridor' approach

By planning for bus, cycling and walking improvements jointly we can improve these modes in an integrated way, considering where their dedicated infrastructure and enhancement should be located, and avoid clashes over limited road space. In some places this could mean expanded bus priority, 20mph speed limits and improved

footways on the main road, with high quality, direct cycle routes using a mix of main road and parallel streets.

Including bus facilities as part of urban realm projects

Urban realm projects provide an opportunity to improve walking routes to bus stops and enhance bus stop waiting environments. Facilities such as bus stands can also be integrated as part of changes to the urban realm, such as at Clapham Old Town in the London Borough of Lambeth where a new area of public realm was created, enabled through a redistribution of bus stands.

06

Connections

We need a bus network that works as part of an integrated public transport system



I am an electric bus

Our actions: connections

The bus should be the obvious choice to get around London, for more people, more often

London's bus network is the only accessible public transport network that covers the entire Capital. More than 96 per cent of Londoners live within 400 metres of a bus stop, and 90 per cent are within the same distance of a high-frequency service, defined as five buses per hour, as shown in Figure 18. Over 60 per cent of Londoners also live within 400 metres of a night-time service.

This dense, high-frequency network provides excellent local connectivity, taking people from near their home directly to local destinations such as town centres, schools and hospitals. For longer or more complicated journeys, however, the network doesn't always feel like a network. Most customers have a good understanding of their local services, but struggle to use a network that takes in more than six hundred routes for more complicated trips. It can be difficult to work out whether travelling by bus is an option. Navigating unfamiliar journeys can be stressful and interchanges can be confusing or unpleasant. Slow journey times and long or unreliable wait times can amplify these issues, especially on longer trips.

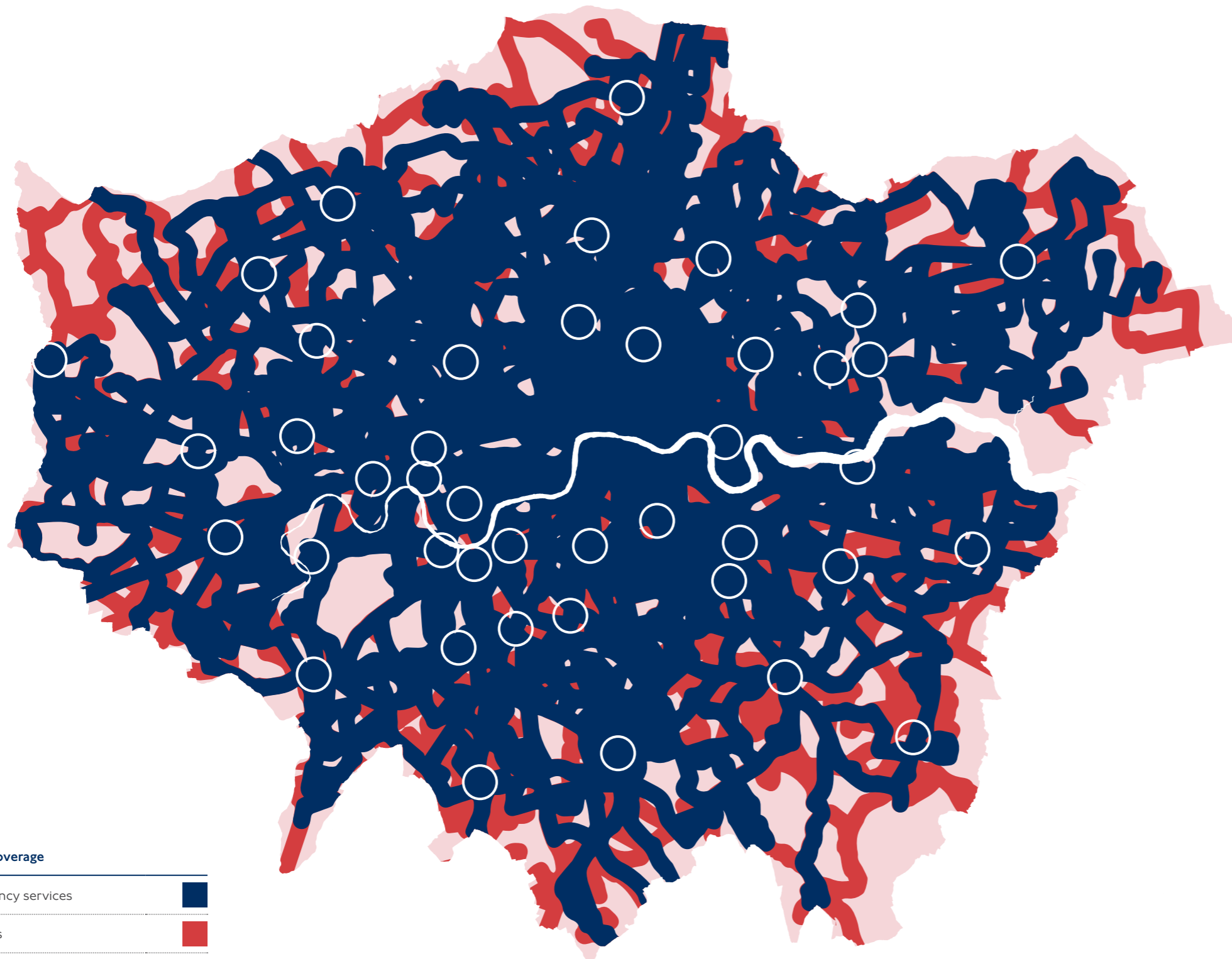
We need a bus network that works for longer trips as well as local ones. This does not mean a wholesale change in how we plan every bus route. Instead, we will work to make changes incrementally to transform excellent local connections into more than the sum of their parts: a network that is easy to use for short and simple, and long and complicated journeys alike. The Hopper fare, launched in 2016 and then extended in 2018, which enables customers to take unlimited journeys within one hour of touching in, was the first step towards this.

Our approach needs to consider two types of customer: those we are serving now who could use the bus for more of their trips and new customers who don't use the bus at all. We must also ensure that the bus network works for a growing London and is an attractive choice of travel for people moving to new neighbourhoods, as well as those moving to the Capital for the first time.






Buses can serve as an access mode to Tube and rail stations

Figure 18: Bus network coverage



Network Coverage

- High frequency services 
- Day services 
- Town centres 



More than

96%

of Londoners live within 400 metres of a bus stop



90%

of Londoners live within 400 metres of a high-frequency bus service



Focus on: Bus travel supporting town centres and local economies

Buses are crucial to the economic success of town centres and local economies. Bus users in Britain spend £27.2bn a year on shopping and leisure¹⁶. The bus has a crucial role in bringing people to town centres and shops across all parts of London, with around half a million shopping and leisure trips being made by bus in the Capital's suburbs every day¹⁷.

Local high streets can be transformed into more attractive places to shop through street works that incorporate greater priority for buses. Improved bus journey times can bring more people to the high street and reduce congestion as they switch from driving their cars. Better delivery and drop off arrangements for local shops can also be built into bus priority schemes.

¹⁶ The cross-sector benefits of backing the bus, Urban Transport Group, 2019

¹⁷ London Travel Demand Survey, 2019/20

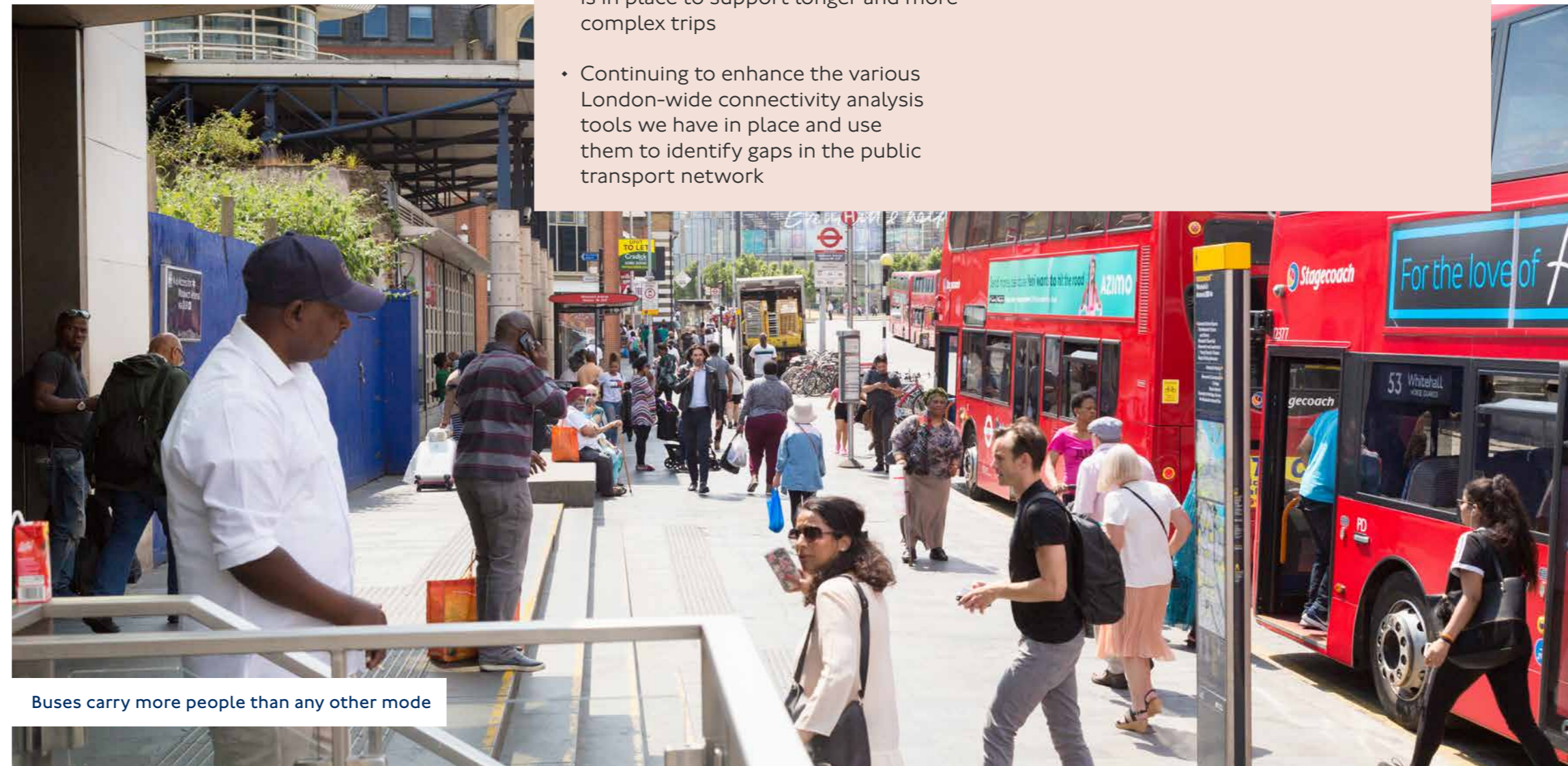
Around half a million shopping and leisure trips are made by bus in the Capital's suburbs every day

Planning our bus network to achieve mode shift

When planning bus routes, we must constantly find a balance between providing broad network coverage and delivering services at a high enough frequency to make the bus a turn-up-and-go mode. We need to balance speed and directness with the need to serve multiple destinations. We do this by keeping our network under continuous review, to ensure that it responds to changing customer needs.

In order to increase customer numbers and mode share, especially in outer London where car travel is most dominant, we need to ensure that the bus is an attractive travel option for more trips and is relevant to new customers. Our planning approach must reflect this, particularly for non-radial trips where car mode share is high and existing public transport struggles to compete. London Overground's success since 2007 has demonstrated that we can achieve huge growth in the number of people using public transport if we fill connectivity gaps, address reliability and improve the overall customer experience to make it feel more like a network. In much of inner London we achieved this by improving rail services on the orbital rail network. Elsewhere, and in outer London in particular, we should aspire to achieve similar outcomes using the bus network.

This does not mean redesigning the entire network. Nor does it mean rebranding services, although this may be appropriate in some instances. Instead, we can develop the network by making the small, targeted adjustments needed to make a big difference. We can leverage our data and work with local stakeholders to identify demand potential and fill connectivity gaps. We can improve interchange between bus routes and with other modes. In addition, by taking forward the actions outlined in previous chapters, we can ensure the right supporting information and necessary improvements to journey times are in place to make the network work for customers.



Buses carry more people than any other mode

Action 10

Make the bus network function better as an integrated network by:

- Continuing to provide a high level of network coverage across London while working with partners to keep our network of more than 600 routes under review, responding quickly to changing customer requirements
- Working with local stakeholders to make interchange easier by providing safe and comfortable walking routes between bus stops, improving wayfinding and ensuring the right customer information is in place to support longer and more complex trips
- Continuing to enhance the various London-wide connectivity analysis tools we have in place and use them to identify gaps in the public transport network
- Developing new and improved connections where these address significant gaps and where mode shift potential is high, and working with boroughs to ensure the right supporting infrastructure is in place to support these
- Updating our service planning guidelines to support mode shift and growth in 2022
- Protecting supporting infrastructure, including bus stands, to enable service flexibility, reliability and future growth

Trialling new types of services

Our bus network provides a generally uniform service across London. There are some exceptions where limited stop services are available, such as route XI40 which runs a limited stop service for its entire length between Harrow and Heathrow or route X68 which runs as a limited stop service for part of its length between West Norwood and Waterloo. We have also recently trialled demand responsive buses in the boroughs of Sutton and Ealing, in partnership with bus operators and technology providers. Customers from all walks of life gave positive feedback about the app-based booking system and we are exploring how this technology could be used to enhance other TfL services such as Dial-a-Ride¹⁸. However, we also learnt that demand responsive buses are not a more cost-effective way of supporting the necessary reduction in car use and congestion in outer London than existing bus subsidies.

Our mostly uniform approach to services means that customers know what to expect from a red bus anywhere across the Capital. However, if we are to attract new customers who don't currently see the bus as an option for their journeys, we need to reconsider whether the existing approach is always the right one. This means reviewing the current service offer and considering how it can be adapted without undermining the strengths of a service that is simple, consistent and easy to understand. For example, we can take a fresh look at how limited stop services fit into the bus offer for longer trips in outer London which are currently mostly made by car, guided by the principles set out in Table 3.

Bus route XI40 limited stop bus route

Route XI40 was introduced as a limited stop service between Harrow Bus Station and Heathrow in December 2019, serving around one in three stops where it runs in parallel to the standard route I40. The route's launch was accompanied by other enhancements including real-time information at stops and USB chargers on buses. Following launch, customers reported increased satisfaction with their journey times compared to the standard route I40, and nearly four in five said they were likely to use the XI40 more often the following month.

We will also continue to investigate bus transit options as a way to provide easy to follow and accessible mass-transit lines to connect Opportunity Areas to the wider city.

When considering this we must also look at how changes are best communicated to customers, how different types of service can remain integrated into the network, what infrastructure is needed to maximise the journey time benefit and what other factors are needed to best meet customer expectations.

Table 3: Conditions where limited stop bus services are likely to be more valuable

Demand	<ul style="list-style-type: none"> • Sufficient demand to justify two high frequency routes, express and local • Consistent demand along route's length • Demand for longer distance links
Physical capability	<ul style="list-style-type: none"> • Sufficient road space to allow overtaking • Adequate bus speeds, to ensure benefits of limited stop services, with bus priority
Supports wider policy	<ul style="list-style-type: none"> • Provide new or enhanced connectivity • Not overlap rail links • Support Opportunity Areas or areas of housing development

Action II

Develop and deliver new types of service suitable for the markets we are serving and those we are growing by:

- Reviewing high-frequency corridors to identify where we could trial limited stop services, beginning with the identification and assessment of options for Old Kent Road in 2022
- Working with boroughs to deliver the supporting infrastructure needed to make limited stop services effective
- Working with boroughs and operators to investigate and implement other new service types, such as bus transit, where these combine service and infrastructure changes

Bus transit

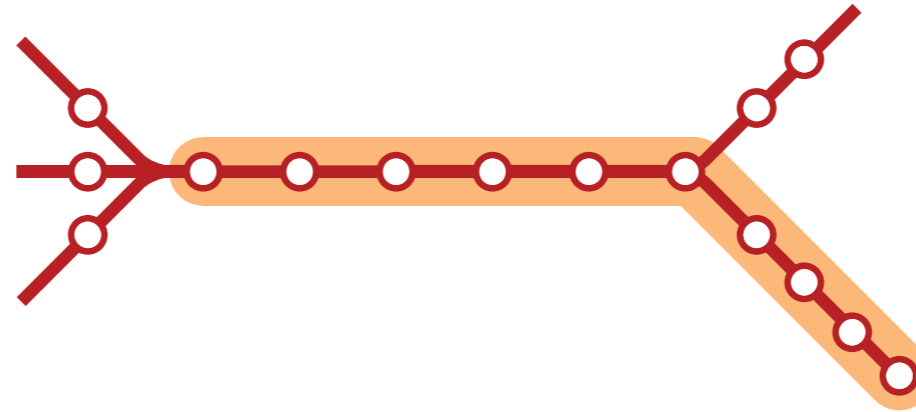
Bus transit schemes aim to combine the capacity and speed characteristics of light rail with the flexibility, lower cost and simplicity of a bus system. They provide segregated paths for buses, high priority at intersections, longer spacing between stops and rail-like features at stops. Transit schemes can range from moderate-intervention schemes consisting of advanced priority which is shared with the conventional network to fully segregated transitways, as shown in Figure I9.

We are investigating where bus transit schemes may have the potential to support growth in Opportunity Areas that are poorly connected to the rail network, such as the Thamesmead and Abbey Wood Opportunity Area. This is one of the largest regeneration areas in London, stretching across the Royal Borough of Greenwich and the London Borough of Bexley. In the long-term, with the transport improvements identified within the Opportunity Area Planning Framework, this area could accommodate between 5,000 and 15,500 new homes. A bus transit scheme is central to delivering the scale of growth planned for the area, and could improve connectivity to local town centres and stations for existing residents as well as kickstart new development while a DLR extension is planned and constructed.

Figure I9: Bus transit levels of service

Advanced priority corridor or busway

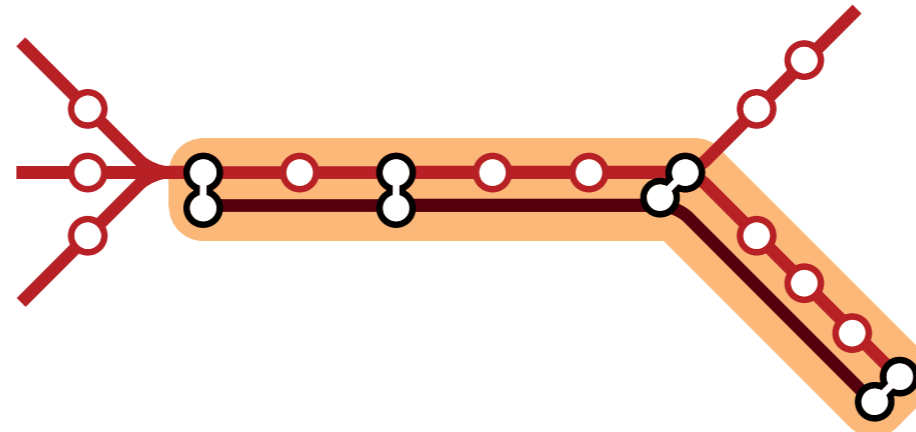
Local buses use advanced-priority corridor as part of a wider network



Shared transitway

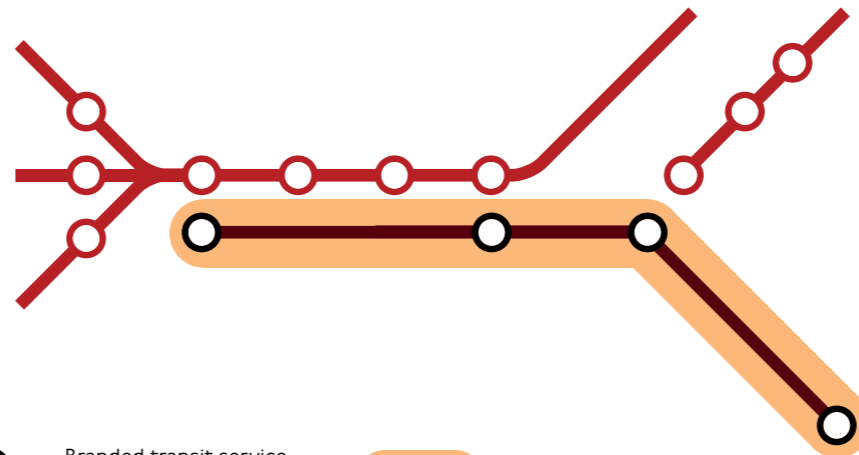
Transit service operates on total priority corridor with longer spacing between stops

Local buses can use corridor as part of a wider network





Specialised transitway

Transit service has wider spacing between stops and is mostly separated from other services which provide a feeder or local coverage role



 Local bus service and stop

 Branded transit service and stop

 Scheme area

Unlocking new homes and jobs

Good Growth is about ensuring development in London is socially and economically inclusive and environmentally sustainable. Buses play a key role in this by getting people to their destinations, including through efficient interchange with rail, reducing the need to travel by car and providing extra capacity to support new homes and jobs.

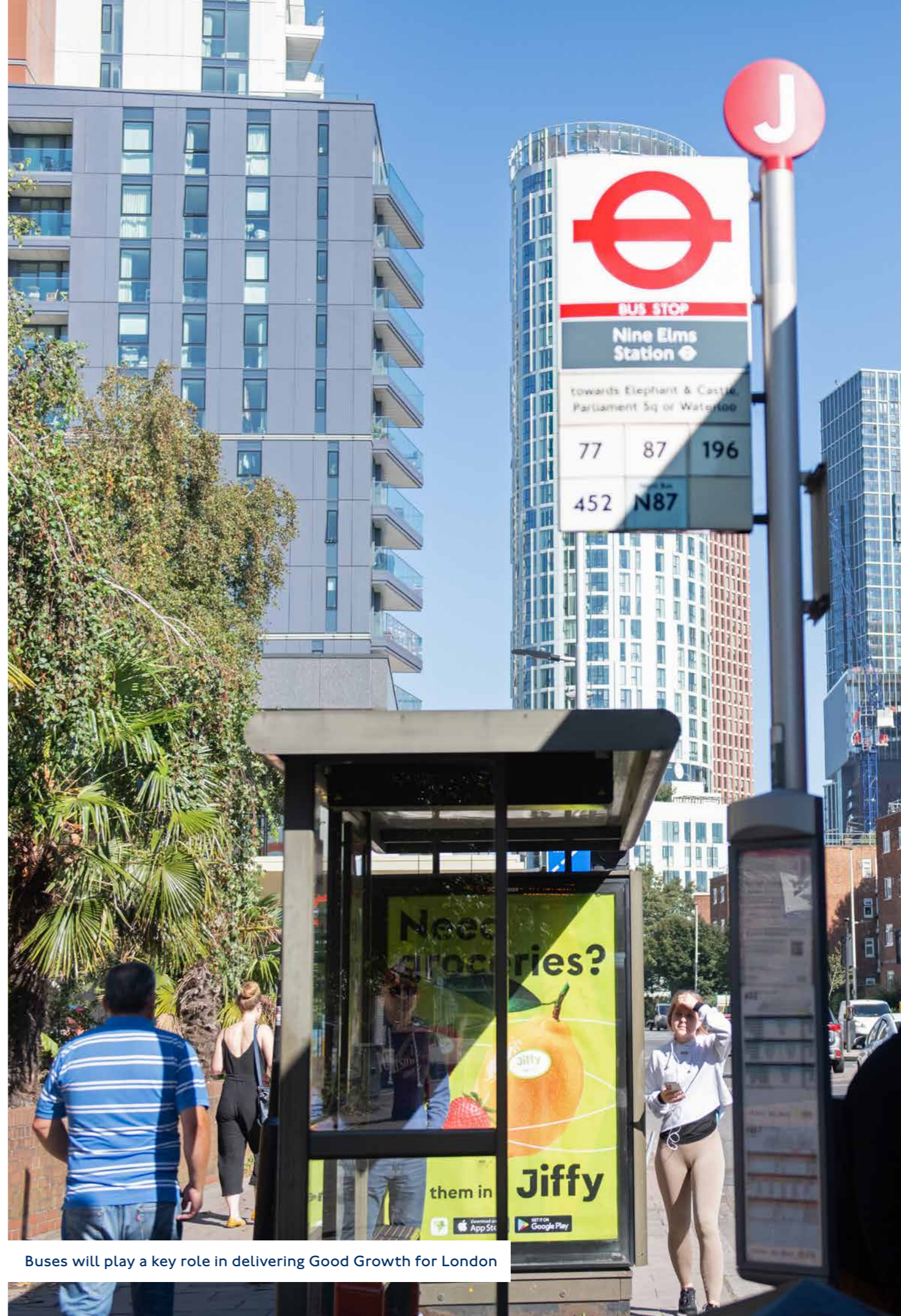
The bus network can help us to get more out of scarce land and deliver more new homes. The connectivity it provides means new buildings don't need to be planned around cars, which require more road space than public transport as well as land for parking. The efficient capacity the bus network provides means the street network around a development can support more people travelling to and from it, enabling more new homes, shops or workplaces to be provided on the site.

The role of the bus in delivering Good Growth will be critical over the next decade. In uncertain times, bus investment is resilient and can be delivered quickly, often using local funding mechanisms. We must therefore unleash the potential of the bus to unlock growth, particularly where rail investment is not planned or has been deferred. By putting the right supporting infrastructure in place from the start and ensuring the bus network has the quality to meet customer expectations we can give developers the confidence to invest.

Action 12

Leverage the bus network to unlock development and enable Good Growth, focusing on locations where rail investment is not planned or has been deferred, such as Old Kent Road, or where buses can further improve connectivity, by:

- Communicating the role of the bus in supporting growth and expectations for bus connectivity through engagement with boroughs, including when developing Local Implementation Plans, developers and consultants
- Identifying areas where major developments are planned or under construction and innovative bus-based solutions can increase connectivity, support growth and offer sustainable transport during construction
- Delivering suitable new streets for buses and efficient bus infrastructure, and safeguarding land for bus garages, stations and stands to support existing and new services, where needed
- Working with boroughs to leverage developer funding and other local funding sources for bus services and bus infrastructure, including welfare facilities



Buses will play a key role in delivering Good Growth for London



Focus on: Unlocking growth with improved bus connectivity

The bus network can provide the transport enhancements needed to unlock growth at different scales. Intervention can range from a comprehensive area-wide package to the local provision of bus infrastructure and temporary measures. The examples below are at varying stages of planning, consultation and delivery.

Meridian Water, London Borough of Enfield: Network re-structure including route extensions and new bus priority infrastructure

Meridian Water is one of the largest brownfield development opportunities in Greater London, with the potential to deliver up to 12,000 homes and 6,000 new jobs¹⁹.

Enfield Council and TfL have agreed a comprehensive package of interventions that will improve bus capacity and connectivity to support the homes planned. These include:

- Expanding the bus network so it connects the site to local rail stations, increasing the number of destinations
- Establishing a central public transport and active travel spine
- Ensuring high-quality bus priority remains at the heart of the development
- Restructuring and simplifying local bus routes to integrate the site with neighbouring communities and town centres

- Redirecting local bus routes away from the A406, which offers a poor walking and waiting environment for bus customers

The funding of these interventions has been secured as part of the planning obligations linked to this site and specific route changes will be subject to consultation. The Area action plan also recognises the importance of protecting garage capacity, in line with London Plan policy.

Brent Cross Town, London Borough of Barnet: Temporary measures followed by network re-structure

The Brent Cross Town site lies at the southern side of the Brent Cross/ Cricklewood Opportunity Area. A new Thameslink station, Brent Cross West, will improve connectivity to the west but part of the site will still not be easily accessible by public transport.

Subject to consultation, in the short-term, one new east-west link can be created and a temporary bus turning circle can be built near Brent Cross West station to enable bus access through the site. In the longer-term, as a new street network is introduced, bus services can be rerouted and new stops and stands can be provided, subject to consultation.

Southall Green Quarter, London Borough of Ealing: New infrastructure and developer funding to open up poorly connected site

The Southall Green Quarter (Gasworks) site is planned to accommodate 3,750 new homes, a hotel, cinema, offices and retail space. A new road linking South Road in Southall to Pump Lane in Hayes and funding through a Section 106 agreement will enable bus routes to be extended through the site, providing connectivity to an otherwise isolated location.

¹⁹ Edmonton Leaside Area Action Plan, 2016

07

Decarbonisation and climate change resilience

We need to deliver a zero-emission bus fleet, but for this to be most effective we will also need a high quality service that will attract people away from cars



I am an
electric
bus

Our actions: decarbonisation and climate change resilience

A zero-emission bus service will provide a zero-carbon choice for more people, for more of their trips

We need a modern bus service to enable mode shift from cars, the largest source of road and rail emissions. But we must also ensure our bus vehicles are clean and green so that the bus can be truly a zero-carbon option. At the same time we must also take action to ensure we are resilient to the effects of climate change.

Our track record of success means there are strong reasons to believe we can take this action. In 2016 the Mayor asked us to lead by example to improve air quality in London. Through our bold steps, the entire bus fleet met the ULEZ emissions standard of Euro VI by December 2020. Without this significant change, non-Euro VI buses would have remained in the fleet until 2025.

We have also already made good progress towards reducing carbon emissions: increasing the number of hybrid buses in the fleet has reduced carbon emissions by broadly 10 per cent. Our aim is for 10 per cent of the fleet to be zero emission by the end of 2022, and we now have more than 700 zero-emission buses on the road.

An ambitious programme, starting in earnest now, to make the whole London bus fleet zero emission by 2030, will save more than five million tonnes of carbon and promote green jobs in bus manufacturing across the country, driving a virtuous cycle of investment that reduces costs of transition for the whole of the UK. This ambition will bring London, which has the largest bus fleet in Europe, into alignment with other European capitals.



Upgrades will enable us to further reduce our carbon emissions

Delivering a zero-emission bus network

The urgent need to reduce our carbon emissions alongside the strong performance of electric buses and the growth of financing options has resulted in our commitment to no longer purchase diesel or hybrid buses. Instead, we will invest in zero-emission buses and infrastructure through the bus route tendering process. We have modified that process to reduce the costs of transition, including allowing mixed fleets on bus routes and moving from five plus two-year variable-length contracts to seven-year fixed-term contracts. This will make the transition to electric buses easier and has enabled us to bring forward the date for a zero-emission bus fleet from 2037 to 2034 saving 600,000 tonnes of carbon. However, more must be done to meet the Mayor's 2030 ambition.

Every garage needs to be converted to electric charging or hydrogen fuelling. To do this, we need support from stakeholders, particularly local authorities who may need to make changes to road layouts to accommodate zero-emission buses and UK Power Networks who will need to implement grid upgrades to accommodate new charging infrastructure.

We will also need additional Government funding, and further support from manufacturers and operators to ensure that services are maintained. The 2030 ambition will need to be reached while nine hundred buses a year arrive in London, older buses leave London and drivers and engineers are trained on the new technologies.

Action 13

Deliver a zero-emission bus fleet by:

- Ensuring all new buses joining the fleet are zero emission
- Accelerate the achievement of a zero-emission bus fleet from 2034 to 2030, subject to additional Government funding, and support from manufacturers and operators
- Working with bus manufacturers to develop a vibrant and competitive zero-emission bus vehicle market through clear and ambitious vehicle specifications
- Working with operators, boroughs and UK Power Networks to reduce the cost and difficulty of infrastructure upgrades needed to enable the transition of the bus fleet, including alterations to road layouts and grid upgrades to accommodate new charging infrastructure

Investing in opportunity charging and hydrogen fuel cell buses

Most of London's bus services can be provided by electric buses that are charged overnight. However, this will not be adequate for roughly 15 per cent of the network. For these longer routes, buses will either require additional charging throughout the day while they are in service, known as opportunity charging, or need to run on an alternative low or zero-carbon fuel, such as hydrogen. We

Hydrogen fuel pilot scheme

In collaboration with the DfT and EU, we have invested in twenty hydrogen fuel cell buses. The hydrogen fuel cell on each bus generates electricity all day to top up the batteries, extending their range.

Opportunity Charging pilot scheme

In collaboration with the DfT, we have invested in twenty opportunity charging buses. This puts fast chargers at the route's terminals, to put additional power into the bus during the existing layover period. The pilot will go live in 2023.

are investing in full-route technology pilot schemes for both hydrogen fuel cell buses and opportunity charging to meet this challenge and ease the cost of transitioning to a zero-emission fleet.

We are also looking at whether we can create a level playing field for these technologies, giving them an equal chance to succeed, to compete within the bus route tendering system.

Action 14

Deliver a zero-emission fleet for longer routes beyond the range of a single battery charge by:

- Assessing our ongoing hydrogen fuel cell pilot scheme for consumption, reliability and efficiency for five years from 2021, and seeking opportunities to generate the hydrogen used in the pilot from renewable sources from 2024 onwards
- Delivering an opportunity charging pilot scheme with target delivery dates of 2022 for charging infrastructure and 2022/23 for buses, with their phased introduction into service during 2023
- Assessing the long-term potential of hydrogen, opportunity charging and garage-based battery electric buses on a yearly basis
- Examining if any changes are needed to level the playing field for hydrogen fuel cell buses and opportunity charging technologies
- Discussing how bus manufacturers and operators are going to make their supply chains more environmentally sound over time, particularly with regard to the manufacture of batteries



Delivering a zero-emission bus network remains a priority

Delivering climate change adaptation and green infrastructure

Increases in extreme weather events due to climate change threaten the resilience of bus services and will likely increase the cost and complexity of maintaining operational performance standards. This means we need to take steps now to adapt the bus network to help maintain service reliability and attractiveness to customers.

Adaptation measures can be delivered for buses themselves, the road network and the buildings that support the bus network such as bus stations and garages. London's buses already include several measures to reduce the impacts of high summer temperatures, such as white roofs, tinted windows, and roof and engine insulation. Further improvements are under way to improve the ventilation, cooling and heating of buses while minimising the energy used, to ensure customers are comfortable throughout the year and encourage more people to use the bus.

An important climate change adaptation measure for the built environment is green infrastructure. For example, introducing street trees to provide shade during hot weather and raingardens to absorb stormwater runoffs, can help reduce surface water flooding. The pandemic has highlighted the need for streets to provide opportunities for leisure and social interaction that help reduce the impacts of health inequalities and deprivation. Well-designed and planned green infrastructure can transform the public realm, contribute towards several of the Mayor's ambitions and help create Healthy Streets.²⁰

To improve conditions for people using buses, the biggest opportunities are when works include physical changes and alterations to the kerb line. In these cases, it may be possible to install green infrastructure rather than hard paving. Green infrastructure in the form of green roofs can also be built into bus station and garage renewals, or new buildings. Sustainable Drainage Systems (SuDS), for example downpipe planters which reduce runoff from roofs, can be retrofitted onto existing buildings.

As well as green infrastructure, additional adaptation measures can include blue roofs on buildings (which store rainwater at roof level that can then be used for irrigation), taking advantage of future road surface materials that can better withstand higher temperatures, ensuring an appropriate road maintenance and gully clearance regime, and water efficiency measures to reduce demand on London's water supply.

²⁰ Contributions of green infrastructure to the Healthy Streets Approach

Action 15

Design and deliver projects and infrastructure for the weather conditions that London is likely to experience with climate change, in line with the Climate Change Committee recommendations. Make the most of opportunities for installing green infrastructure that contributes to climate change adaptation and supports biodiversity.

- As part of new infrastructure by:
 - Incorporating green infrastructure and SuDS, such as green roofs, into new bus stations or garages, where practicable, in line with the relevant policies as outlined in the London Plan
 - Installing green infrastructure and SuDS, such as street trees and raingardens, as part of highways projects that involve excavation work, where practicable
- As part of infrastructure renewal and refurbishment works by:
 - Working with bus operators to ensure bus garage renewals and refurbishments include climate change adaptation measures where possible, including green roofs, rainwater harvesting and passive cooling
 - Installing SuDS, where possible, where works result in changes to the kerbside, such as bus stop bypass creation
- By working with boroughs and local communities to identify opportunities for new green infrastructure adjacent to bus stops



Green infrastructure is a vital climate change adaptation measure

08

Delivering our vision for 2030

Delivering our vision for bus travel will require effective strategic and local planning, together with proper engagement and sustained funding



I am an
electric
bus

Delivering our vision for 2030

Working together, we can transform bus services in London over the next eight years to secure a green and inclusive recovery, and tackle the climate emergency

Bold action is needed to tackle the climate emergency and create a greener, healthier city. We need a significant shift away from car use to walking, cycling and public transport over the remainder of this decade. This means delivering a combination of measures, including potentially a new kind of road user charging system, supported by attractive sustainable transport alternatives.

Investing in the bus network is a quick, fair and cost-effective way to enhance public transport in the Capital and secure a sustainable recovery from the pandemic for London by 2030. In uncertain times, the network can respond in a flexible way to people's changing travel patterns and lifestyles. Where there is a robust case for change and strong local support, delivery can be fast and the benefits for Londoners can be realised quickly.



The bus network can be adapted quickly and in a cost-effective way

Integrated approach

Delivering our vision for bus travel will require effective strategic and local planning, together with proper engagement and sustained funding. It will also require the support of the broader transport policies set out in the Mayor's Transport Strategy, particularly an ambitious approach to road-space allocation for walking, cycling and public transport, coupled with measures to reduce car traffic volumes on both TfL's roads and borough streets, as shown in Figure 20. This means working closely with the Government, highway authorities, bus operators and other stakeholders. Boroughs know their areas and communities best, and sharing this expertise will be critical in developing and delivering the right solutions. In addition, as we deliver the plan, it is vitally important that we continue to respond to what Londoners are telling us and the unique needs of the diverse communities of the city.

Figure 20: Enablers of effective delivery of the Bus action plan



Buses play an important role in delivering Healthy Streets, alongside Vision Zero and active travel. To achieve the required level of change for buses while continuing to expand our cycle network and achieve Vision Zero, we will take an integrated approach to developing schemes that looks to deliver for all active, efficient and sustainable modes of travel. Because of the very limited street space in many locations, especially in central London and in town centres, we know we cannot in practice deliver for every objective in every location. Where this is the case, we will seek a balance across a wider area. The new guidance that has been developed for boroughs to help shape the delivery of their Local Implementation Plans over the next three years highlights the importance of this approach.



Focus on: Working with London's boroughs

The support of London's boroughs is crucial to delivering the changes we need on the Capital's streets. We want to reset the conversation around buses at all levels, to be more open and honest with each other to help us both achieve our shared objectives.

London's boroughs are responsible for 95 per cent of London's streets, including around 70 per cent of the most strategic streets for buses. Boroughs also understand the needs, concerns and aspirations of their local communities. It is vital that we use this insight to get the most out of investment and deliver the best possible bus network for Londoners.

We will work with boroughs to understand their aspirations for bus travel in their area

and seek to deliver transformative change on the street together by:

- Ensuring good engagement at both strategic and tactical levels, recognising the importance of our respective roles to deliver a wide range of outcomes
- Engaging early and frequently when reviewing and enhancing the bus network. Boroughs will know when route reviews are taking place, how they can influence the process, and where new vehicles and customer measures are being introduced
- Developing a rolling training and skills programme to help increase knowledge around the strategic importance of the bus network for boroughs and support

the delivery of effective schemes. We will also keep boroughs up to date with emerging best practice as the planning system is subject to reform

- Supporting boroughs in identifying funding opportunities and the case-making needed to realise it. Boroughs will be able to use our knowledge, experience and comprehensive data
- Working together to agree and deliver balanced outcomes for streets across a wide area, not just on individual corridors. This will be critical where it is not possible to prioritise all active, efficient and sustainable modes on a single link

We will continue to work with boroughs so that bus service and infrastructure enhancements are included in borough planning for transport and growth. Boroughs are actively encouraged to identify ambitious bus priority projects via their Local Implementation Plan delivery plans. Where projects unlock growth, boroughs are encouraged to work closely with us to seek contributions from developers to cover the cost of providing both the infrastructure capital costs to enable an efficient and reliable bus service, and an agreed level of revenue until the service reaches maturity. Boroughs are also encouraged to consider innovative measures such as a workplace parking levy to fund infrastructure, customer and service enhancements as part of a fully integrated mode-shift package.

Cost, funding and value for money

Investing in bus services gives a very high rate of return and, where invested in the national supply chain, can also support levelling-up and reduce disparities both within London and for all of the UK. It is estimated that each £1 invested in bus infrastructure and priority brings £3.32²¹ in economic benefits. These benefits include reduced congestion, improved air quality, and better health and safety outcomes for residents and bus users alike.

With our positive vision for buses, we can get even greater value for money from our current investment in streets. At the moment, we spend around £10m per year on highway and infrastructure improvements specifically focused on improving bus journey times, and around £100m per year to improve streets for walking, cycling and Vision Zero, as part of our Healthy Streets programmes. Delivering the Bus action plan will mean modifying the way we deliver this investment to ensure we are maximising improvements for existing and new bus users alongside people walking and cycling as part of a complementary network.

At this uncertain time, investing in improving bus services is a particularly safe decision that can be made confidently. The bus network is flexible and has always expanded and reduced based on demand as London has evolved. Currently, we spend more than £2bn per year on providing London with the bus services it needs. In response to reduced demand due to the impact of the pandemic, and the resulting impact on our finances, we included plans in our Financial Sustainability Plan for a four per cent reduction in bus mileage. We are currently in the process of implementing these changes, but have been clear that these are based on a review of demand levels. We keep the entire bus network under regular review and are well prepared to bring forward necessary changes if demand does not recover or if it recovers in a different way than anticipated.

However, we have also highlighted to the Government that further bus service reductions at this stage, when it is not yet clear how the pandemic will impact travel patterns, is not the right strategy for Londoners or the Capital's economy. The bus is critical to ensuring we do not have a car-based recovery from the pandemic, and avoid the negative outcomes that would bring. This is especially the case in outer London, where bus is often the only public transport alternative to car travel. As car ownership in London is substantially lower than elsewhere in the country, a car-based recovery would also not be equitable.

Our vehicle fleet will be gradually upgraded through the contract renewal process, providing greener and safer vehicles that incorporate many customer experience enhancements. The additional cost of accelerating electrification from our current target of 2034 to 2030 is around £500m and we have called on the Government to work with us in delivering this. The Government has committed to supporting electrification of bus fleets outside of London, and by extending this support to London we can progress towards our mutual goals of decarbonising, improving air quality and supporting the UK supply chain, particularly since nearly a third of the UK's buses operate in London.

While we have made good progress towards financial sustainability as an organisation, we will need continued operational support for 2022/23 as we help get both London and the UK's economies back on track. Beyond that, we would like to partner with the Government to agree a multi-year capital funding settlement, which would be a more predictable and efficient system to fund our whole transport network.

In the long-term, making buses a more attractive option is an effective way to reduce operational subsidy and deliver value for money. Our aim is to grow bus usage, to create the virtuous circle of improved ridership supporting investment into new routes and better frequencies that we saw in the early 2000s. By working with

boroughs, operators and other delivery partners to increase bus customer numbers, we can release more funds for investment while also delivering significant benefits for Londoners and the Capital's economy.

Bus delivery plan 2022-2030

Delivering our vision for London's bus services will require robust and ongoing engagement with stakeholders to ensure the actions continue to meet their needs and the needs of our customers, while helping secure an inclusive and green recovery from the pandemic and ensuring London progresses on a path towards net zero carbon. We will also need to respond to uncertainty, being prepared to accelerate the pace of change rapidly where we need to. Figure 21 outlines our envisaged delivery plan. This will be expanded as soon as possible, through engagement with delivery partners, as proposals are developed and funding secured.

21 Greener Journeys: Bus 2020 The Case for the Bus

Figure 2I: Intended bus delivery plan 2022-2030, subject to funding and to be expanded through engagement with partners and stakeholders

Theme	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Inclusive customer experience				New iBus system live						
	Investigate ways to improve the provision of diversion and disruption information									
	Trial new digital information screens at stops and shelters		Introduce digital information screens at stops and shelters, based on learnings from trial							
	Provide indicative busyness information for each bus route									
	Trial new on-bus digital information screens on route 63									
	Introduce digital bus blinds across more of the fleet									
	Develop new bus station design guidelines	Kingston Cromwell Road bus station upgrade completed								
	Renew and upgrade our bus stations, stops and shelters									
	Trial new on-bus design features on Route 63		Roll-out new on-bus design features, based on learnings from trial							
	Roll-out inclusive 'Welcome aboard' signage on all buses				New priority seat moquette introduced on 1,000 Routemasters					
Deliver diversity and inclusion training for all 25,000 bus drivers										
Continue to deliver customer-focused training for drivers										

■ Action ■ Milestone

Figure 2I: Intended bus delivery plan 2022-2030, subject to funding and to be expanded through engagement with partners and stakeholders (continued)

Theme	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Safety and security	Roll-out of the Bus Safety Standard on all new vehicles								No one is killed or seriously injured in or by a bus in London	
	Intelligent Speed Assistance retrofit roll-out	Intelligent Speed Assistance retrofit complete	All existing Bus Safety Standard measures mandated							
	Fatigue detection technology rolled out to 500 buses									
	Introduce signage for vehicles, stations and stops on what to do in an emergency and how to report crime									
	Train bus drivers and other frontline staff on how to deal with sexual harassment									
	Deliver at least 100 Project Guardian sessions in schools a year to educate children about sexual harassment on public transport									
	Deliver Bus Security Programme, seeking to constantly improve security and address any identified vulnerabilities									
	Aim to renew an average of eight driver welfare facilities a year, including mess rooms and toilets									

■ Action ■ Milestone

Figure 2I: Intended bus delivery plan 2022-2030, subject to funding and to be expanded through engagement with partners and stakeholders (continued)

Theme	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Journey times	Develop new bus priority proposals and deliver bus priority in town centres									
		Bus priority best practice guidance published								
	Deliver 25km of new and improved bus priority									
	Pilot and roll-out integrated approach for journey times, customer experience and connectivity enhancements in outer London									
	Deliver signal timing reviews to support bus journey times									
	Review temporary bus priority on Tower Bridge Road and New Kent Road and consider conversion to permanent scheme (Central London Bus Grid)									
	Maintain and improve bus priority and infrastructure databases									

■ Action ■ Milestone

Figure 2I: Intended bus delivery plan 2022-2030, subject to funding and to be expanded through engagement with partners and stakeholders (continued)

Theme	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Connections	Work with boroughs to plan and deliver on-street and bus service improvements to support new homes and jobs, such as at Nine Elms, Old Kent Road, Charlton, Isle of Dogs and Colindale									
	Continue to safeguard land for bus infrastructure, including bus garages									
	Conduct reviews of around 80-120 routes being re-tendered and conduct seven area reviews annually									
	Continue to make changes to our bus network to improve the experience for customers with a focus on connectivity, particularly in outer London									
	Identify and assess options for limited stop services on Old Kent Road									
	Deliver updated service planning guidelines to support mode shift and growth									

■ Action
 ■ Milestone

Figure 2I: Intended bus delivery plan 2022-2030, subject to funding and to be expanded through engagement with partners and stakeholders (continued)

Theme	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Decarbonisation and climate change resilience	Work towards accelerating delivery of a zero-emission bus fleet from 2034 to 2030, subject to additional Government funding and support from manufacturers and operators									
	Assess hydrogen fuel cell pilot for consumption, reliability and efficiency									Accelerated target date for zero-emission bus fleet
	Develop opportunity charging pilot	Opportunity charging pilot goes live								
			Seek opportunities to generate hydrogen used in pilot schemes from renewable sources							
	Seek opportunities to deliver green infrastructure and other climate change adaptation measures, alongside new and existing bus infrastructure									

■ Action ■ Milestone

Flexible delivery in this period of uncertainty

We are all still learning about the pandemic's long-term impact on people's travel patterns and the number of trips people are making has not yet returned to pre-pandemic levels. We must therefore work together to navigate this unprecedented period of uncertainty for the Capital to avoid a car-based recovery and the significant consequences this could have. Our strategic approach is to flexibly prioritise the scale and pace of delivery according to the evolving demand and financial context.

Initially, a focus on improving bus journey times will be the most efficient use of our collective limited resources. Improving journey times for people using bus services in all areas of London will benefit current users and will make bus services more attractive to new customers who might otherwise travel by car. This will improve the financial sustainability of London's bus services, where income can be invested back into improving services further, while also helping avoid a car-based recovery and the added congestion, pollution and road danger that would create. This aligns with the Government's approach outside London, as set out in the DfT's Bus Back Better strategy.

Improving bus journey times is, based on the evidence we have, the most effective way to make bus travel more attractive to existing and potential users, even in the absence of any other measures. This is good for existing customers who will benefit from quicker journeys and better reliability. It is also good for residents and businesses, who will benefit from safer, less congested and less polluted streets as mode shift from car to bus reduces traffic dominance.

Alongside this, we will manage, monitor and progress a programme of smaller scale enhancements that can be delivered quickly, such as improvements to bus stops and shelters – the 'shop window' to our bus network. Although small in scale, these enhancements will make people's experience of using the bus noticeably better.

Our latest assessments show that, if we can improve journey times, we can almost double the reduction in car travel by then redeploying buses released from the schedule to provide more frequent services, particularly in outer London. This is before any additional customer service enhancements, such as improved information, bus stops and shelters, and vehicle layouts, or new service types – all of which are expected to make bus use even more attractive compared to travelling by car.

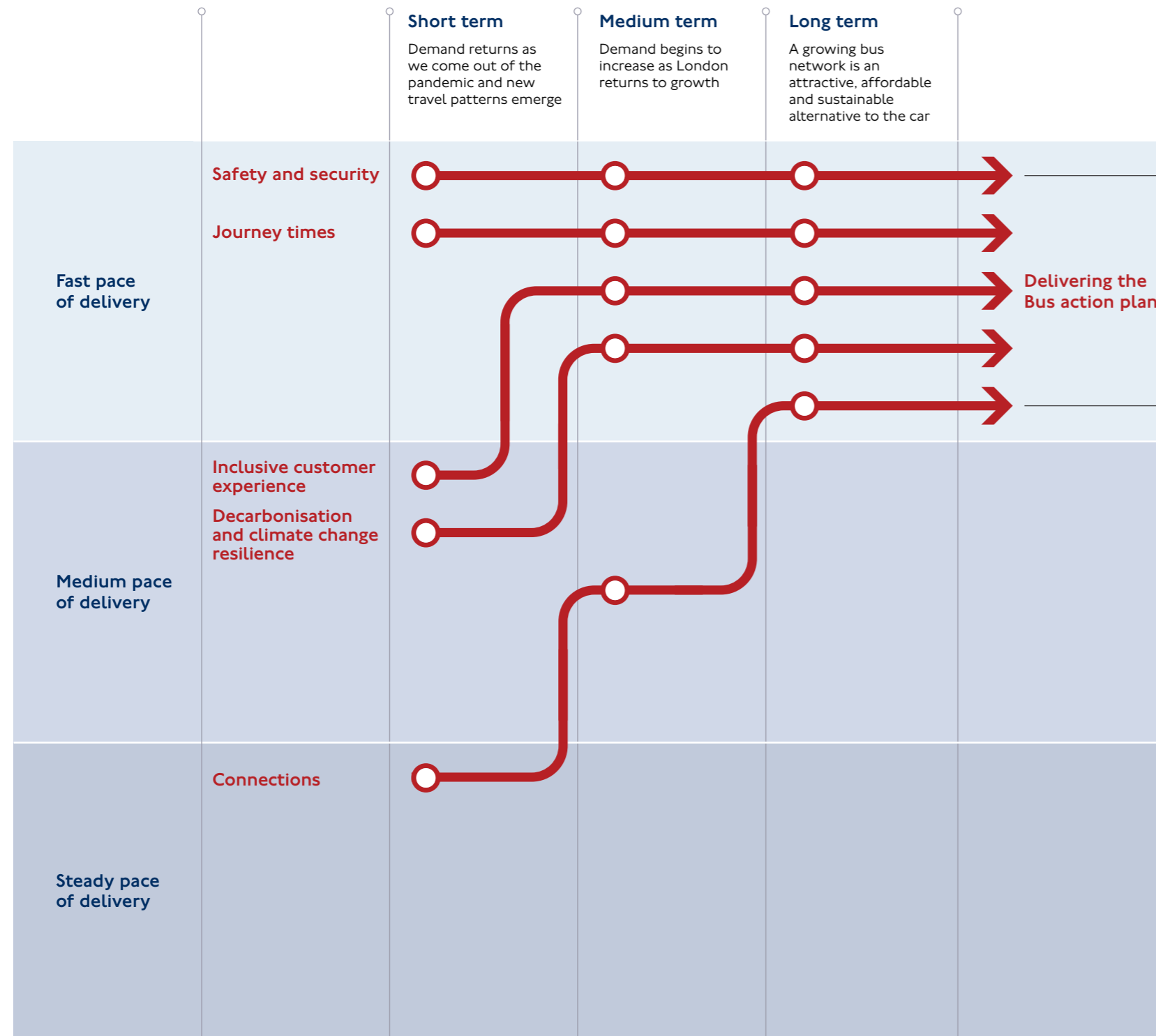
Alternatively, if people's lifestyles and travel patterns mean a slower take-up of bus services, our focus can easily be switched to maintaining the bus network while reducing cost and making the service more appealing. This means focusing on safety and security, journey times and inclusive customer experience, and redistributing resource to provide connections where they are most needed. We can then gradually accelerate delivery as London returns to higher levels of growth and more people return to buses. In the long term, we will make

bus travel a safe, attractive, affordable and sustainable alternative for more car trips, particularly in outer London by targeting journey times and re-investing savings to provide new connections, as shown in Figure 22. In parallel, we will continue to monitor impacts through operational data, customer insight and stakeholder engagement to ensure our actions are continuing to serve the needs of Londoners. We will also continue to learn from other cities, applying best practice and sharing insight into changing demand patterns and evolving customer needs.



The bus network serves all parts of the city throughout the day

Figure 22: How we can flex our pathway to achieving our vision for bus services in London



Progressing and realising our vision together

Our bus network is central to delivering the Mayor’s aim for 80 per cent of Londoners’ trips to be made by walking, cycling and public transport by 2041. We cannot achieve Vision Zero, an inclusive recovery, a net zero carbon London and Good Growth in the long-term if London’s bus services are not improved to fulfil their potential and enable people to travel across all parts of London without needing to use a car. High-quality bus services, together with improved environments for walking and cycling, can enable people in London to enjoy healthier, safer, low-carbon lifestyles, while living in more prosperous and inclusive communities

We must not let the short-term unprecedented uncertainty around demand and funding distract us from this essential, clear, positive vision for 2030. This vision is within our grasp. We have transformed the bus network before and seen great benefits to London. We need to work together to navigate current uncertainty and make best use of our most flexible public transport mode.

The Bus action plan is our starting point. It is designed to adapt to the post-pandemic world. We can accelerate plans if needed, or consolidate and improve based on how London changes and grows over the remainder of this decade, tailoring delivery to what the Capital needs. In doing so, we are committed to working collaboratively, openly and flexibly with boroughs, operators and all other stakeholders. Together we can deliver a bus network Londoners choose to use, as part of a comprehensive active, efficient and sustainable transport network that will enable London to emerge from the pandemic into a strong, sustainable, inclusive future.

09

Appendix

This section includes a selection of recommended and relevant reports, and a list of terms used



I am an
electric
bus

abellio
london

Glossary

A list of terms used within the Bus action plan

Active, efficient and sustainable modes	Trips made by walking, cycling or using public transport can be collectively referred to as 'active, efficient, and sustainable'.
Autonomous vehicles	Vehicles that perform at least some of the 'driving' task themselves. How autonomous a vehicle is depends on how much it can do (such as steering, acceleration and braking) and how much responsibility the driver retains (including performing some driving functions, monitoring only or being free to do other things).
Bus customer journey time	A metric that captures the whole bus customer journey experience, combining elements of wait time, in-vehicle time, interchange, crowding, wait time buffer and in-vehicle time buffer.
Bus priority	A planning approach where streets are designed to reduce bus journey times and improve the reliability of services. It can include bus lanes, measures to reduce the impact of parking and loading on the movement of buses, changes to traffic light timings and improvements to bus stops.
Bus Safety Programme	Our programme to implement a safe systems approach that supports the Mayor's Transport Strategy aim for no one to be killed on or by a London bus by 2030.
Bus Safety Standard	A standard introduced on new buses entering service from 2018. The standard uses new technology to improve the safety of buses in London. It builds on analysis of collisions in the Capital involving buses to inform the development of vehicle design and technology, to give the greatest reduction in casualties.
Cashless bus	Buses where cash fares are not accepted and payments must be made via Oyster or contactless card only.

Central, inner and outer London	<p>These definitions can vary depending on context. The Bus action plan primarily uses the following definitions:</p> <ul style="list-style-type: none"> • Central London: an area broadly equivalent to the Central Activities Zone (CAZ), as defined by the London Plan • Inner London (excluding central London, as appropriate): the boroughs of Camden, Hackney, Hammersmith & Fulham, Haringey, Islington, Kensington & Chelsea, Lambeth, Lewisham, Newham, Southwark, Tower Hamlets, Wandsworth and the City of London and City of Westminster, as defined by the Office for National Statistics • Outer London: the boroughs of Barking and Dagenham, Barnet, Bexley, Brent, Bromley, Croydon, Ealing, Enfield, Greenwich, Harrow, Havering, Hillingdon, Hounslow, Kingston upon Thames, Merton, Redbridge, Richmond upon Thames, Sutton and Waltham Forest, as defined by the Office for National Statistics <p>The London Plan also set out similar definitions of inner and outer London, which may be updated over time. However, for some uses, boundaries based on borough or CAZ are not appropriate, such as the inner London ULEZ, which is based on the North and South Circular Roads, or the Congestion Charge zone, which is based on the Inner Ring Road. In other circumstances, the concepts of central, inner and outer should be used more flexibly, such as when planning where transport services operate, as these are unlikely to do so only on one side of a boundary.</p>
Central London Bus Grid	A network of key bus corridors in central London introduced to deliver reliable average speeds of 10 to 13mph.
Congestion Charge	The charge applied to vehicles entering a defined area of central London, introduced to reduce congestion.
Decarbonisation	The process of removing or reducing the carbon output of an activity.

Demand responsive buses	A model of bus service where services and stops are not fixed, but respond to demand, in real time. Demand responsive buses enable customers to book a seat on a bus and use 'virtual bus stops' to complement the existing bus stop network. Bus routes are dynamic, adapting to demand in real time.
Destination Zero	An innovative training programme for bus drivers, demonstrating road risks with the help of virtual-reality headsets.
Dynamic bus flag	A bus flag that uses an integrated battery to display digital arrival information.
E-ink screen	A digital screen that replicates and enhances information provided by paper timetables at bus stops.
Electrification	The process of replacing vehicles with internal combustion engine powertrains with vehicles that have electric vehicle powertrains.
Euro VI standard	European exhaust emission standard for heavy vehicles, introduced in 2015. All London Buses meet the Euro VI standard.
Flat fare structure	The same fare is paid no matter what distance is travelled.
Freedom Pass	Concessionary travel scheme for older and disabled Londoners.
Green infrastructure	The network of parks, green spaces, gardens, woodlands, rivers, green roofs, street planting, rail and road verges and wetlands that is planned, designed and managed to: promote healthier living; lessen the impacts of climate change; improve air quality and water quality; encourage walking and cycling; store carbon; and improve biodiversity and ecological resilience.

Gross cost contracts	Contracts where the tendering authority pays the operator a specified sum to provide a specified service for a specified period, with the tendering authority retaining passenger revenue. Used to tender the operation of individual routes to private bus companies, from 1985-2000, under the London Regional Transport Act 1984. Following the creation of TfL in 2000, Quality Incentive Contracts were introduced as routes were retendered. This introduced a financial incentive for reliability of service.
Healthy Streets Approach	The Mayor and TfL's approach to prioritising people and their health in decision-making to create a healthy, inclusive and safe city for all. The approach makes London a more attractive place to walk, cycle and use public transport, and reduces the dominance of motorised transport.
High-frequency service	Service where buses run reliably every twelve minutes (or more frequently) enabling most passengers to treat the service as 'turn-up-and-go'.
Hybrid bus	A bus that is powered partially by both diesel and electricity.
Hydrogen fuel cell bus	A bus that is powered by an electric powertrain whereby fuel cells convert the chemical energy of hydrogen into electrical energy.
iBus	London Buses' automatic vehicle location system. Used to provide customers with detailed information on their journeys.
Journey Planner	Official journey planning function of TfL's website.
Local Implementation Plan (LIP)	Local Implementation Plans (LIPs) set out how each London borough will meet the objectives of the Mayor's Transport Strategy.
London Plan	The Mayor's spatial development strategy for London.
Low and Ultra Low Emission Zones (LEZ/ULEZ)	Charging zones that are applicable to vehicles dependent on their compliance with European emissions standards. On 25 October 2021 ULEZ was expanded from central London to all roads within the North and South Circular.

Low floor bus	A model of bus that has no steps between the ground and floor of the bus, making step-free journeys possible.
Low Traffic Neighbourhood (LTN)	A neighbourhood where safe and attractive streets for walking and cycling have been delivered by preventing through traffic while retaining local access for residents and visitors.
Mayor's Women's Night Safety Charter	A charter, introduced by the Mayor in 2018, to encourage councils, businesses, venues and other organisations to prioritise women's safety at night.
Opportunity Areas	London's principal areas of opportunity identified in the London Plan for accommodating large-scale development to provide substantial numbers of new jobs and homes. Each typically has more than 5,000 jobs or 2,500 homes, with a mixed and intensive use of land, assisted by good public transport accessibility.
Opportunity charging	Electric bus charging that takes place while buses are in service, rather than overnight at a garage.
SCOOT	Split Cycle Offset Optimisation Technique. SCOOT automatically adjusts traffic signal timings to adapt to current traffic conditions, using flow data from traffic sensors.
Street furniture	The objects and equipment that populate the surface level of a street. This includes bollards, benches, vehicle charging stations, traffic signs and streetlights.
Sustainable Drainage Systems (SuDS)	Drainage solutions that provide an alternative to the channelling of surface water through pipes and sewers, reducing pressure on these networks.
TfL Go	Official TfL travel app with arrival times, travel updates and transport maps.
Vision Zero	A safe systems approach to road danger reduction that aims to eliminate all deaths and serious injuries from London's transport network by 2041.
Women's Safety Programme	Our programme to make the transport system, including the bus network, a place where women and girls can feel and be safe.
Zero carbon	Activity that causes no net release of carbon dioxide and other greenhouse gas emissions into the atmosphere.

Zero-carbon fuel	Fuel that can be produced without emitting carbon, such as hydrogen from a renewable source.
Zero emission	Activity that produces zero harmful exhaust emissions, including PM, NO _x , NO ₂ , CO and CO ₂ .



Some groups of Londoners rely more on buses to get around

Further reading

A selection of recommended and relevant documents

[Bus Back Better: national bus strategy for England](#)

[Financial Sustainability Plan](#)

[Mayor's Transport Strategy](#)

[Mayor's Transport Strategy: Supporting Evidence – Challenges and Opportunities for London's Transport Network to 2041, 2017](#)

[Travel in London Reports](#)

[Travel in London: Understanding our diverse communities 2019](#)

[Vision Zero action plan, 2018](#)

[Vision Zero action plan, 2021](#)



We continue to explore and use a range of new technologies

About TfL

Part of the Greater London Authority family led by Mayor of London Sadiq Khan, we are the integrated transport authority responsible for delivering the Mayor's aims for transport.

We have a key role in shaping what life is like in London, helping to realise the Mayor's vision for a 'City for All Londoners'. We are committed to creating a fairer, greener, healthier and more prosperous city. The Mayor's Transport Strategy sets a target for 80 per cent of all journeys to be made on foot, by cycle or using public transport by 2041. To make this a reality, we prioritise health and the quality of people's experience in everything we do.

We manage the city's red route strategic roads and, through collaboration with the London boroughs, can help shape the character of all London's streets. These are the places where Londoners travel, work, shop and socialise. Making them places for people to walk, cycle and spend time will reduce car dependency and improve air quality, revitalise town centres, boost businesses and connect communities.

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

We are moving ahead with many of London's most significant infrastructure projects, using transport to unlock growth. We are working with partners on major projects like Crossrail 2 and the Bakerloo Line Extension that will deliver the new homes and jobs London and the UK need. We are in the final phases of completing the Elizabeth line which, when open, will add 10 per cent to central London's rail capacity.

Supporting the delivery of high-density, mixed-use developments that are planned around active and sustainable travel will ensure that London's growth is good growth. We also use our own land to provide thousands of new affordable homes and our own supply chain creates tens of thousands of jobs and apprenticeships across the country.

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

We are constantly working to improve the city for everyone. This means freezing TfL fares so everyone can afford to use public transport, using data and technology to make services intuitive and easy to use, and doing all we can to make streets and transport services accessible to all. We reinvest every penny of our income to continually improve transport networks for the people who use them every day.

None of this would be possible without the support of boroughs, communities and other partners who we work with to improve our services. We all need to pull together to deliver the Mayor's Transport Strategy; by doing so we can create a better city as London grows.

