Transport for London Business Plan

2020/21 to 2024/25

MAYOR OF LONDON

TRANSPORT FOR LONDON
EVERY JOURNEY MATTERS

About Transport for London (TfL)

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

We have a key role in shaping what life is like in London, helping to realise the Mayor's vision for a 'City for All Londoners'. We are 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.

Contents

Forewords

We will continue to ensure our network is safe, secure, reliable and affordable while delivering the service and performance that keeps London moving, growing and open.

Mayor's foreword

Transport keeps Londoners connected and our city running 24/7

London's world-leading public transport network is something we often take for granted. It's also easy to forget the progress in recent decades in transforming London's streets for pedestrians and cyclists. But this public infrastructure is the backbone of our city and key to our economic success. Ensuring these networks continue to support London and Londoners is a huge task. It starts with getting the basics right and keeping our streets and public transport safe, reliable and affordable. But we must also invest for the future to cope with the pressures of a growing global city, as well as the climate emergency.

I'm proud of the work my administration has done to make it easier and cheaper for Londoners to move around. This includes launching the Night Tube, reducing industrial action on our transport network, introducing the Hopper Bus Fare and freezing Transport for London (TfL) fares for four years in a row. But there's much more to do to ensure we have a transport system that's fit for the 21st century.

Right now, TfL is making significant investments to respond to the challenges we face. For example, we're working on the biggest signalling upgrade in the history of TfL on the Circle, District, Hammersmith & City and Metropolitan lines. We're also updating rolling stock on the DLR and London Overground and bringing new trains to the Piccadilly line. Together, these improvements will make journeys less crowded and more comfortable.

I'm disappointed that the Crossrail management team recently announced a further delay to the opening of the Elizabeth line. Yet some significant milestones have been achieved this year, including the start of multi-train testing. When it opens, the Elizabeth line, alongside the Northern line extension to Battersea and London Overground extension to Barking Riverside, will change Londoners' lives for the better.

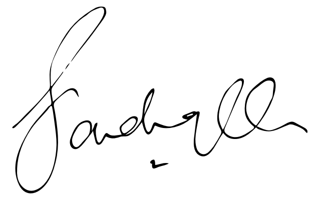
TfL has taken up my challenge to lead the way in tackling poor air quality. The introduction of the Ultra Low Emission Zone has already been a huge success. There has been a 36 per cent reduction in harmful nitrogen dioxide pollution since people began preparing for the scheme. We've already got the largest electric bus fleet in Europe, but we're pushing ahead with further bus electrification. There will be 2,000 zero-emission buses in London by the end of this Business Plan period.

There are already more electric vehicles on London's streets than any other UK city. At City Hall, we're accelerating the shift to zero-emission technologies with London's first ever electric vehicle infrastructure delivery plan. In addition, TfL has committed to install 300 rapid chargers by the end of 2020. I also want our transport network to consume and generate much greater levels of zero-carbon electricity.

I asked TfL to modernise and save money without sacrificing our investment programme – and they have. Nonetheless, London needs certainty over funding to maintain and improve its infrastructure. Though the Government said it would invest in areas that boost economic growth, the last spending round did not provide certainty of funding for TfL beyond 2021.

This uncertainty means TfL cannot commit to the next generation of improvements to London's transport network. This includes major new contracts like the signalling upgrade on the Piccadilly line and plans for Crossrail 2 and the Bakerloo line extension. These schemes could transform London's rail network and support new homes and jobs but require backing from central government to make them happen.

The national debate around infrastructure funding sometimes seeks to pit London against other regions. But this is not a zero-sum game. For our country's future success, central government can and must invest in both London and the regions. This is how we can plan for a productive, dynamic and prosperous future.



Sadiq Khan
Mayor of London

Commissioner's foreword

We will continue running safe and reliable services and work to secure investment

This Business Plan sets out how we will achieve the Mayor's Transport Strategy. We have a range of priorities – but safety is always number one.

In particular, road danger is the single biggest safety issue on London's streets. In 2018, 112 people were killed on London's roads and almost 4,000 more were seriously injured. Every one of these has a devastating effect on those involved. They are not inevitable, which is why we have committed to Vision Zero, working to eliminate all deaths and serious injuries on our networks by 2041.

The Mayor's Transport Strategy set out the bold aim that by 2041, 80 per cent of journeys will be made on foot, by bike or by public transport. We must achieve this if we want London to continue to grow sustainably, but we will not get there if people are not safe, and do not feel safe, as they travel. Our colleagues and contractors must also feel safe and we are committed to protect them from workplace violence and aggression.

We will deliver the Mayor's ambitious target of tripling the amount of protected cycling space in London over his four-year term. We will fully introduce our world-leading Bus Safety Standard and deliver our Safer Junctions programme, to address the 73 highest risk junctions in the Capital, building on the success of major schemes, such as Highbury Corner.

London's buses are key to moving people on our roads. They are an essential part of life, with six million journeys per day. We have already improved the efficiency of our bus network in central London and we will continue to rebalance the service to serve people better in outer London.

Our services must become cleaner and greener. After the success of the central London Ultra Low Emission Zone, we are expanding it to cover inner London, and our Low Emission Bus Zones are already helping to reduce air pollution. In 2020, all buses will meet the Euro VI emission standard or better. We are also planning the electrification of our entire fleet, creating a zero-emission network by 2037 at the latest. We aim to green our electricity demand to be 100 per cent zero carbon by 2030 and we are looking at how this might be done to create financial savings.

Since TfL was formed in 2000, there has been enormous commitment and sustained investment to revitalise our transport network, supporting our city's economic growth. We are working to modernise around 40 per cent of the London Underground network by upgrading the signalling and rolling stock on the Circle, District, Hammersmith & City and Metropolitan lines, and introducing fully electric trains on the London Overground.

> 'There has been enormous commitment and sustained investment to revitalise our transport network'

More widely, the economic uncertainty is increasing. We have had an overall reduction in government funding of £700m a year and London has borne the increased costs of Crossrail. Despite this, our net operating deficit, excluding the operating grant, is now one third of what it was in 2015/16, and we have reduced our like-for-like operating costs every year for the past four years.

On 7 November 2019, Crossrail Limited confirmed that the tunnelled section of the Elizabeth line will open as soon as practically possible in 2021. This creates additional capital and revenue pressures that we must absorb. We are proud that from December 2019, we will start running TfL Rail services between Paddington and Reading ahead of the service becoming part of the Elizabeth line, bringing in vital fare income as well as providing high quality services beyond the London boundary.

In this time of uncertainty, this Business Plan is focused on running safe and reliable services while investing to improve travel in London. But cities can only thrive if they benefit from steady, sustained funding in existing and new infrastructure. We now need to embark on the next phase of investment to modernise the Tube and create vital new capacity and connections. We are working urgently with the Government to secure this investment to keep London and the country moving.

Mike Brown MVO
Commissioner

CFO's foreword

We remain on track to generate a surplus by 2022/23 despite the headwinds we face

Our Business Plan continues to be subject to substantial pressures. Our priorities remain keeping our assets safe, completing Crossrail, and ensuring the Elizabeth line operates safely and reliably. However, the revised schedule for its opening in 2021 means we have taken a prudent view and absorbed a further £750m in lost revenue beyond what was factored into last year's plan. Meanwhile, Crossrail Limited's latest assumptions on the scheme's construction, including mitigation of risk, indicate additional funds of between £400m and £650m will be required. We are working with the Department for Transport and the Greater London Authority on how these additional costs will be resolved.

At the same time, the continuing subdued economy has affected long-term passenger trends and commercial income, meaning our projections for these income streams remain cautious.

In the face of these challenges, our liquidity policy is to hold around £1.2bn in cash and short-term investments, equivalent to two months' forecast operating expenditure. As our borrowing is constrained, cash reserves are a key source of liquidity and helps support our financial resilience. Over the period of the plan we will rebuild our cash reserves further so that we can be more agile in our investment programme spend.

Over the last few years we have been working on an extensive programme to run our organisation more efficiently. We have made difficult decisions to reduce our cost base and increase revenue. In that time, our general operating grant previously received from central government has been fully phased out. By firmly gripping our costs, both internally and through our supply chain, we have successfully reduced the annual net cost of operations by more than £1bn (excluding the grant previously received from government). We now forecast that we will reduce our net cost of operations again in 2019/20.

On a like-for-like basis, our operating costs are almost £200m lower than they were in 2015/16, effectively offsetting inflation during that time. Such savings will become increasingly challenging to match, meaning we will have to look for more innovative ways of saving money and generating income.

> 'By firmly gripping our costs we have successfully reduced the annual net cost of operations by more than £1bn'

We have taken a tough approach to prioritising capital investment, continuing only with work that is critical to maintaining current levels of safety and reliability, or with what is already contractually committed. Our modelling of longer-term investment needs shows that we have an average annual funding gap of nearly £1bn in outturn prices to complete the next phase of Tube rolling stock and signalling replacement while we continue to invest in the projects that will enable London's growth.

To ensure we can manage this, we need to secure long-term funding certainty from government in the next year. This is critical for us and our supply chain to be able to plan for the future and deliver the improvements London needs to keep it competitive and a place where people can travel safely, affordably and easily.

Simon Kilonback
Chief Finance Officer

Business at a glance

How we present the Business Plan

Streets, buses and other operations
Transport for London Road Network, London Buses, London Dial-a-Ride, London River Services, London Taxi and Private Hire, Santander Cycles, Victoria Coach Station and Emirates Air Line

Underground
London Underground

Elizabeth line
Currently operating as TfL Rail

Rail
DLR, London Overground and London Trams

Property
Our commercial and residential estate and building portfolio

Media
Advertising estate and digital marketing infrastructure

Commercial Consulting and International Operations
Our global consultancy operation and brand licensing

Facts and figures by 2024/25

3,000+
buses will comply with the Bus Safety Standard

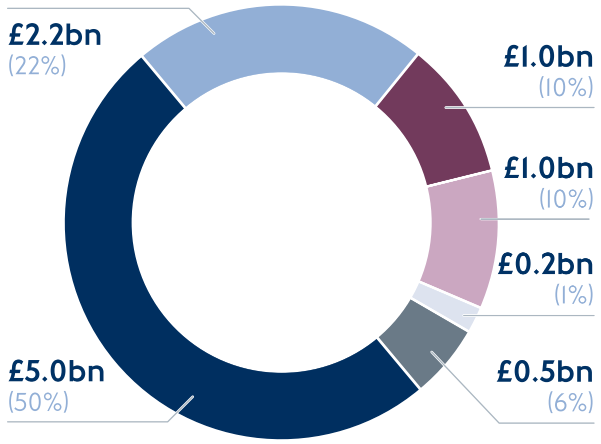
4.4bn
total passenger journeys (up from 4 billion in 2019/20)

11.3m
cycle hires (from 10.8 million in 2019/20)

New
DLR trains will arrive on the network

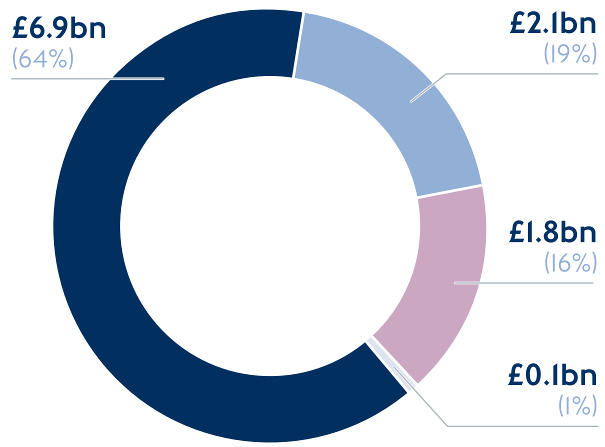
Sources of funding

2019/20 – projected



Total: **£9.9bn**

2024/25 – plan

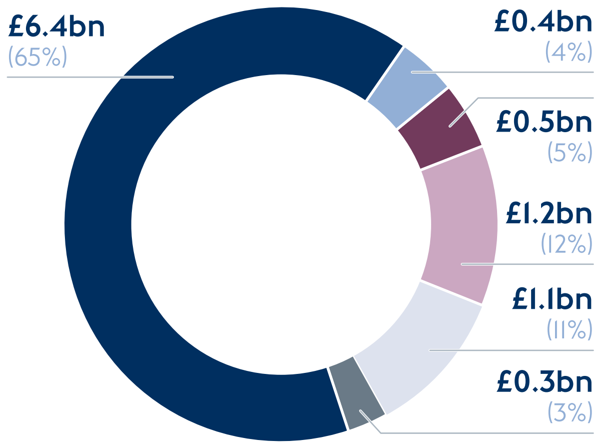


Total: **£10.8bn**

- Passenger income
- Grant funding
- Crossrail funding sources
- Other income
- Property and asset receipts
- Borrowing

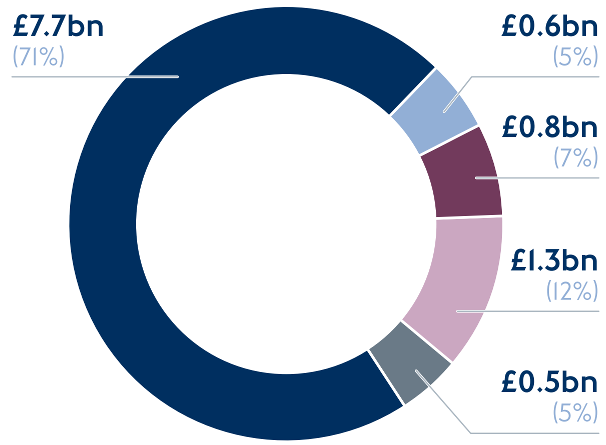
Total costs

2019/20 – projected



Total: **£9.9bn**

2024/25 – plan



Total: **£10.8bn**

- Operating costs
- Net financing costs
- Capital renewals
- New capital investment
- Crossrail investment programme
- Cash reserves movement

The 2019/20 grant funding and new capital investment includes Crossrail capital expenditure

Financial context

In the face of an ever-changing economic and political landscape, our organisation must evolve and adapt, seeking new revenue streams to ensure we continue to develop our services to better suit the demands of a growing city.

Financial context

We are changing our organisation to meet the financial challenges we are facing

The challenges we faced in the 2018 Business Plan remain. From April 2018, we became one of the only transport authorities in the world to not receive a direct central government operating grant for day-to-day running costs. We are still absorbing this loss of an average £700m per year and still have no long-term assurance on capital funding. The economy remains subdued and uncertain, and the delay to Crossrail has had a significant impact on our revenue and capital investment.

To meet these challenges while keeping our customers and colleagues safe, we have set robust financial targets. By focusing on expenditure, we have outperformed our 2019 Budget. In November, we asked our Board to approve a more challenging revised budget for 2019/20, which aligns to the latest forecast for our year-end position.

We expect our net cost of operations for 2019/20 to be £114m lower than last year. Despite launching new services, our operating costs, excluding the Elizabeth line, will be lower by the end of 2019/20 than they were five years ago. This puts us in a strong position to meet the challenges ahead as we make our organisation more efficient.

Across our business, we are on track to cover our full financing costs and the cost of renewing our assets, except for further rolling stock and signalling replacement, from operations surpluses by 2022/23. We need long-term funding certainty to commit to the next stage of asset replacement on the Underground.

We have no certainty of government capital funding beyond 2020/21. This poses significant challenges when planning the pipeline of investment London needs to keep growing. While we will continue to ensure safety and reliability, further enhancements will not be possible without adequate investment.

We have reduced the size of the inner London bus network to align it with changing demand and we are committed to growing the service in outer London. We do not plan to make significant changes to the overall size of the network over this plan but will continue to drive down costs through our retendering programme.

Alongside our organisational redesign, we are supporting a collaboration project with the Greater London Authority (GLA) to improve the way we work across the functional bodies in areas such as finance, human resources (HR), IT, estates and facilities management.

The Elizabeth line impact

The delay to the opening of the Elizabeth line, announced in August 2018, continues to have a major impact on our capital funding and revenue. In December 2018, we worked with the GLA and the Government to agree a financing package to cover the capital cost of the delay to completing the tunnelled section through central London.

On 7 November 2019, Crossrail Limited announced that its latest cost forecasts indicate a further £400m to £650m in additional funds will be needed to complete the complex testing of trains and manage the handover of the railway safely and reliably into customer service. We are working closely with the Department for Transport (DfT), who are joint sponsors of the project, and the GLA regarding how these additional costs will be resolved.

It was also confirmed that the tunnelled section of the Elizabeth line will not open in 2020 but will enter customer service as soon as practically possible in 2021. Crossrail Limited will provide further certainty about when the Elizabeth line will open early in 2020.

On 20 November 2019, we announced our updated projections of a further reduction in forecast Elizabeth line revenue of between £500m and £750m. This is in addition to the revenue impact factored into last year's plan and will be spread across the next four financial years. The peak impact of these additional revenue losses comes in 2021/22 and 2022/23. Our strong budgetary performance and the decisions we have taken over the past couple of years have strengthened our financial resilience and set us in a stronger position to be able to absorb these losses.

While this further delay is clearly very disappointing, it is only this year that the new Crossrail Limited leadership team established the full complexity of the remaining work to be done on software development and signalling systems, while getting the necessary safety approvals to complete the railway.

Significant milestones have been achieved this year, with stations, shafts and portals in the tunnelled section almost complete and multi-train testing starting. By early 2020, Custom House, Farringdon and Tottenham Court Road stations are due to be handed over. The fit-out of the tunnels is on schedule for completion in January 2020 before increased train testing in the tunnels begins later in the year.

Our savings programme

The initial phase of our change programme started in 2015/16 and delivered annualised savings of £747m by the end of 2018/19. These were offset by inflation of £435m (approximately £160m per annum on average) and other cost pressures.

Operating costs, on a like-for-like basis, adjusting for new services, restructuring and other one-off costs, have gone down every year from 2015/16 to 2018/19. While we expect a small increase in like-for-like operating costs in 2019/10, overall, they have reduced by £200m since 2015/16. This was driven by our firm cost control and savings programme, which made a significant contribution to the reduction in our deficit, as measured by the net cost of operations, by more than £1bn since 2015/16. During the same period, we have reduced our use of non-permanent labour by 60 per cent.

To achieve financial sustainability, we must go further. In this plan we are forecasting to save a further £722m by 2024/25 across our overall operations and maintenance activities. These are offset by inflation of almost £1bn over the plan. These savings are critical to our success, but the scale of savings also represents a major challenge when combined with the need to increase the volume of service improvements and our enhancement programme. By the end of the plan, these efficiency savings will represent a reduction of 10 per cent in our operating costs or eight per cent after taking into account inflation and other cost increases. The key initiatives to realise these savings include:

Back- and middle-office transformation

Last year, we began a further three-year programme to reduce back-and middle-office costs by 30 per cent. We have worked in consultation with our trade unions to review 25 business areas and more than 3,000 roles.

We continue to improve end-to-end processes and identify further structural integration across the organisation. We have created a single Business Services function, which brings together operational activity from both finance and HR. By following an industry-standard approach, we can streamline common processes, identify other ways to deliver services at reduced cost and standardise reporting.

Head office accommodation

We are consolidating our head office accommodation by leaving buildings and co-locating staff across three main office hubs. In September 2019, we sold our Broadway head office building. This was part of a long-term estate management strategy to reduce office accommodation costs and generate income to support investment and housing development programmes. By the end of this Business Plan, we expect savings to reach almost £50m per year. Our accommodation strategy is supported by a smart working programme, which will reduce the demand for desks by 30 per cent and we are going further with a two-hub strategy. It will also make us a more attractive employer and improve work-life balance. Efficiency savings will also be achieved through smarter working and better technology.

London Underground change plan

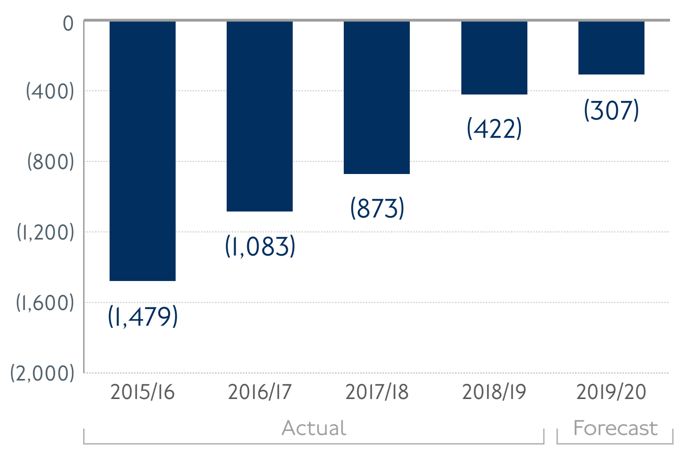
We are working towards financial sustainability by ensuring the Tube can cover its own costs and the ongoing costs of renewing the network. We will make savings across our supply chain, transform maintenance delivery and reshape our operating model, embracing new technology and being more agile on resource planning. In 2019, we have started commercial initiatives to get more value from our significant contracts and achieve efficiency in our supply chain. This work is expected to save more than £60m this year.

We are also reviewing our maintenance practices by improving our planning, which will drive more efficient delivery over this plan.

Major contracts

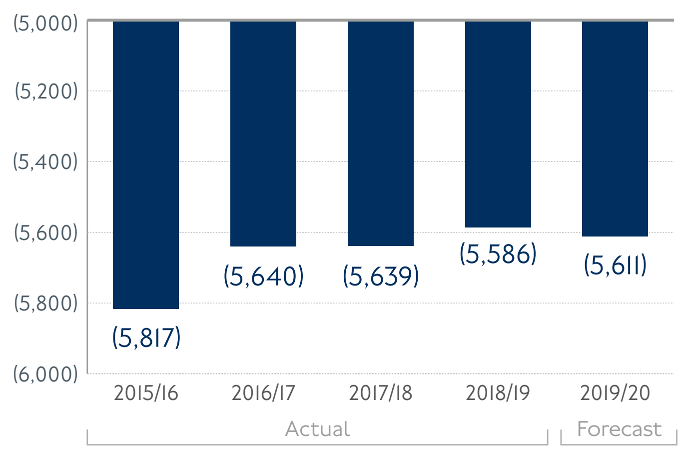
We will also make savings across some of our major operating contracts. We have reduced tender prices on buses by maintaining a competitive market. We are exploring a range of options that could help continue to reduce bus operating costs such as reducing mid contract changes, being flexible with our resources during periods such as school holidays when road conditions are better, as well as introducing supply chain finance.

Net cost of operations (our net deficit) (£m)*



We use this measure to demonstrate how we achieve break even. Since 2015/16, our net deficit has reduced by £1bn and we expect to generate a surplus by 2022/23.

Like-for-like operating costs (£m)



Like-for-like operating costs are £200m lower than in 2015/16.

* Net cost of operations is shown on a like-for-like basis after removing central government operating grant

Efficiency and productivity

As London's population and economy grows, transport services must improve every year

We must improve London's transport services within our financial constraints, which means we must continually improve our output and productivity. We have achieved this in recent years, while growing our network and adjusting to the removal of government grant support for our day-to-day operations. This Business Plan will continue this work.

Over recent years we have consistently expanded our transport offering without equivalent increases in costs. We have reduced our core operating costs (excluding the Elizabeth line and restructuring costs) from 2015/16 to 2019/20, while introducing new services, including the Ultra Low Emission Zone (ULEZ) and night services on the Tube and London Overground. We are also optimising and expanding transport capacity where it is needed most.

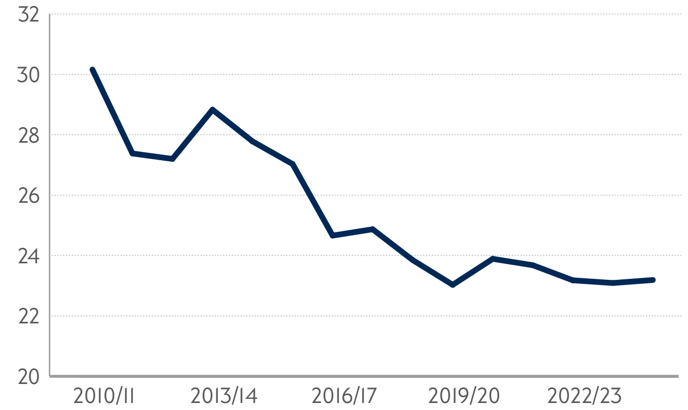
On London Underground, operated kilometres will be 28 per cent higher by 2024/25 than they were in 2010/11, reflecting the capacity and timetable enhancements we have delivered. Over the same period, the operating cost has decreased by one per cent, meaning the cost per operated kilometre has declined by 23 per cent, before inflation. We have achieved this by streamlining operations, reducing management layers and improving the performance of our assets. We have also reduced the cost per operated kilometre on London Overground and the DLR.

On the bus network, we are improving standards of air quality, safety and customer service while keeping the cost of operating each kilometre of service mostly flat in real terms. This has been achieved by improving how we tender, reducing excess capacity in parts of inner London to better match demand and committing strongly to cleaner bus technologies. This gives the market certainty and drives down the premium we pay for these.

Our change programme has released substantial savings in our central functions. Over the course of this plan, we will continue to review back- and middle-office activities, looking at all areas and benchmarking our performance against relevant comparators to understand where we can consolidate and reduce costs. We will do this while continuing to provide the services we need to operate and plan for future growth.

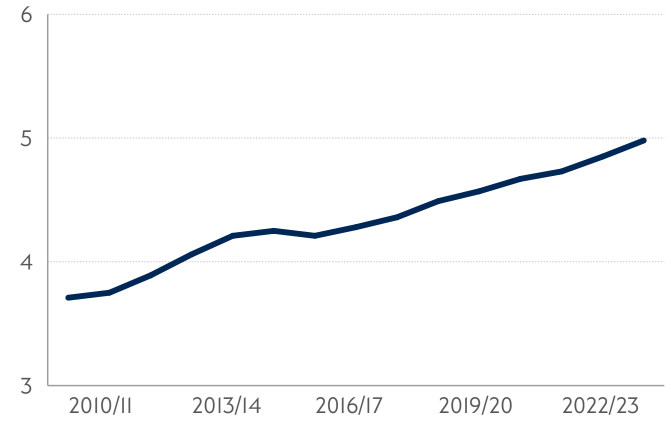
We benchmark our performance against international comparators through benchmarking groups. This shows our services are some of the best in the world at covering their operating costs through direct revenue. For recovery ratio – the proportion of operating costs covered by revenue – our main transport services perform far better than international comparators. Generally, only newer systems or networks with substantial commercial and retail operations perform better than us on this measure.

London Underground operating cost per km (£)



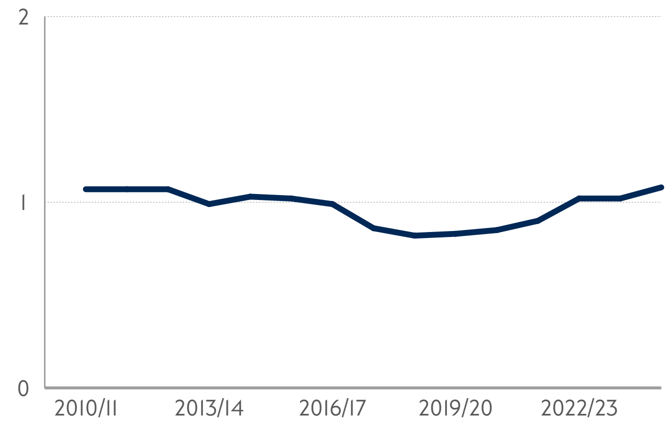
These costs will continue to improve. This is enabled by stringent cost control as well as running more services, enabled by our ongoing investment in the network.

Buses operating cost per km (£)



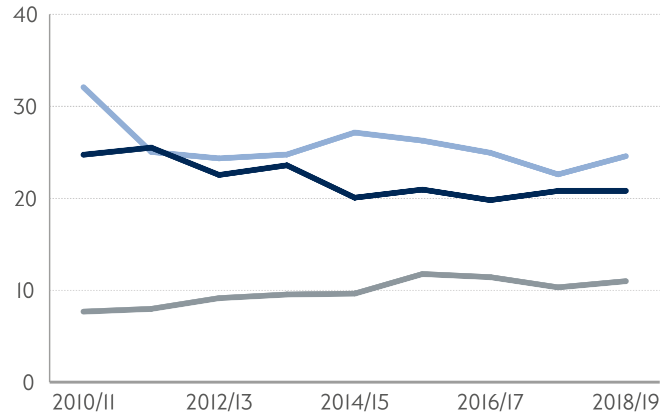
Bus operating costs are linked to inflation. We work with bus operators to keep the overall costs of running the network constant in real terms, while enabling investment in cleaner and safer vehicles.

Streets operating cost per km (£m)



Costs have reduced, reflecting the difficult decision to pause proactive roads maintenance. These costs will rise again as we return closer to previous levels of activity.

Rail operating cost per km (£)



Costs have generally fallen, with variation reflecting operating conditions. Future figures are dependent on our operators, so we only compare historic data.

■ DLR ■ London Overground ■ London Trams

Buses ranked fourth of the 15 members of our international benchmarking group in terms of revenue recovery ratio. The DLR and London Underground ranked seventh and eighth respectively out of 37 similar operators in our metro benchmarking group.

A sustained period of high operational performance and tight cost controls means we are working towards a net surplus for day-to-day operations across TfL. This sets us apart from most similar cities, which rely on significant public subsidy to fund regular transport operations. We continue to require government support to invest in our assets, support growth and sustain the bus network. By international standards, our bus services are very efficient and cover a high proportion of operating costs through revenue, while still offering substantial travel concessions and funding investment in cleaner and safer vehicles.

A significant exception to this trend is our streets operations, which are vital for walking, cycling, and for enabling essential journeys, such as freight deliveries, while supporting the Mayor's Transport Strategy goals. Street operations continue to operate at a substantial deficit. This is because we receive no share of road taxation and the roads themselves generate little revenue, currently limited mainly to the Congestion Charge, ULEZ and advertising. The continuing deficit in streets means we have had to reduce spending on non-safety-critical road maintenance in the past two years to avoid further cross subsidy from public transport services. We will continue to work with central government to seek to secure long-term certainty of funding for London's roads, in the same way it is provided to Highways England.

Further improving efficiency and productivity are at the heart of this Business Plan. This will see us move to a surplus on day-to-day operations – including renewals – by 2022/23. The direct operating surplus on the Underground will continue to grow to more than £1bn per year. Our rail services will continue to improve the proportion of operating costs covered by revenue, and we will manage the deficit on buses. Combined with the change in our back- and middle-office functions, this will continue to establish us as one of the most efficient public transport authorities in the world.

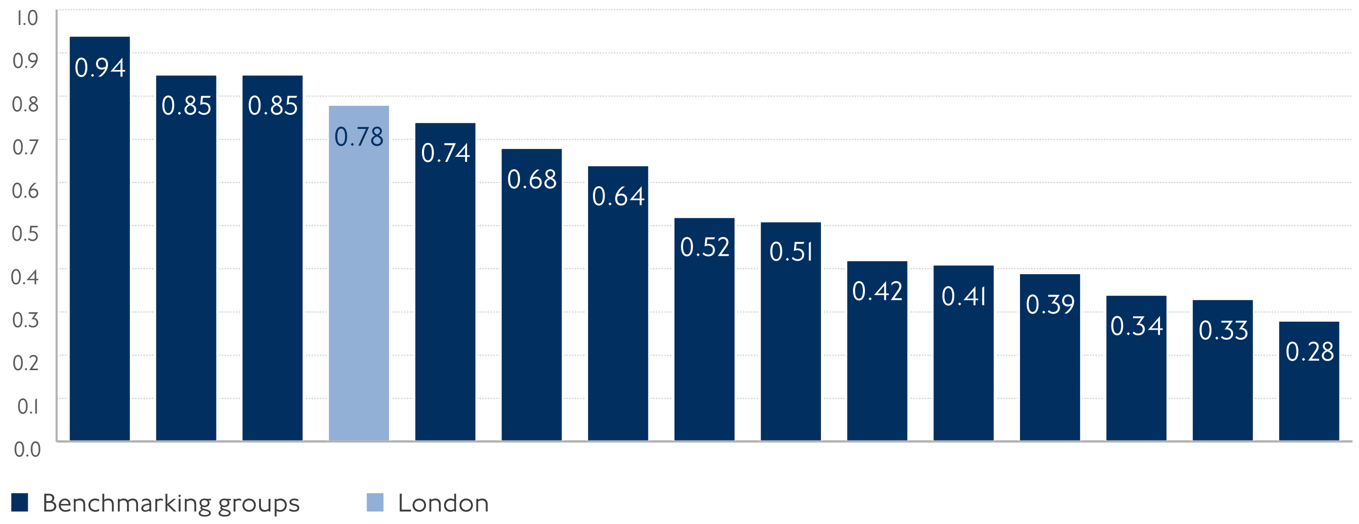
8th

in a list of 37 international benchmarking groups that our London Underground revenue recovery ratio compares to

4th

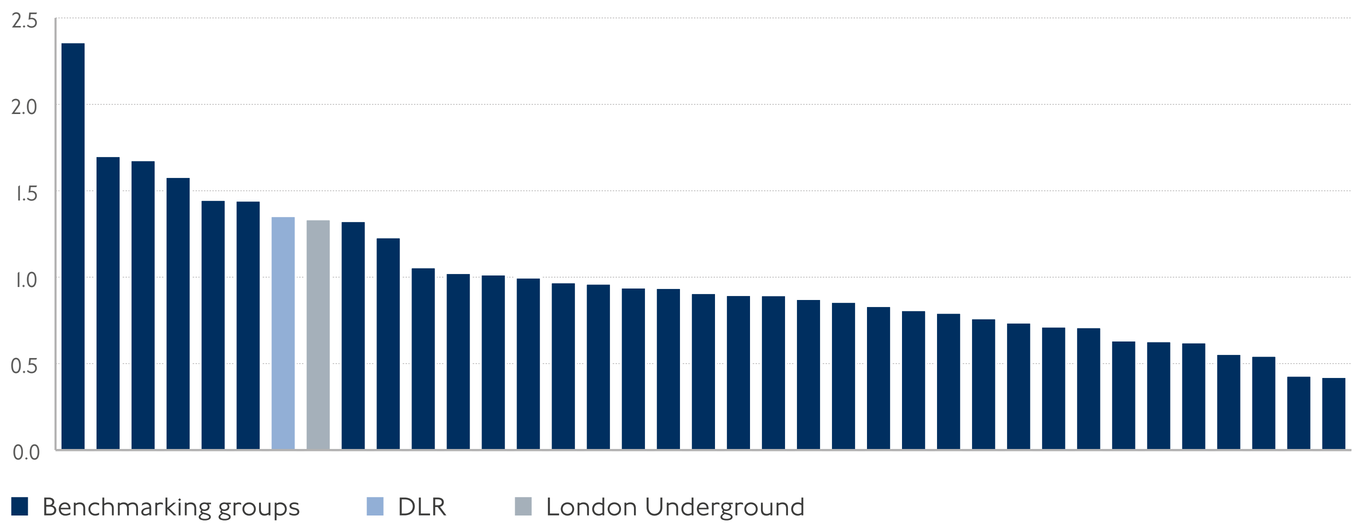
in a list of 15 international benchmarking groups that our bus revenue recovery ratio compares to

Recovery ratio – Proportion of operating costs covered by revenue on buses in 2018*



Our bus network is substantially above average compared to the bus networks we benchmark against. We have agreed with our benchmarking forum to fully anonymise data.

Recovery ratio – Proportion of operating costs covered by revenue on the London Underground and DLR in 2018**



London Underground and the DLR have higher cost recovery ratios than most comparator networks. We have agreed with our benchmarking forum to anonymise data.

* Source: International Bus Benchmarking Group

** Source: CoMet/NOVA

Growing non-fare revenues

Investing in assets and developing commercial partnerships will generate additional revenue

We are uniquely placed to generate long-term income from our commercial assets, partnerships and expertise.

We are one of the largest landholders in London and play a key role in the city's housing programme. Our long-term development pipeline will start to deliver an initial 10,000 homes across 320 acres. We have ambitions to be one of London's leading operators of rental housing. Over this plan, we will start to deliver our Build to Rent portfolio, which will provide more than 3,000 homes and create stable long-term revenue.

Our commercial estate consists of more than 2,000 commercial units, including around 800 commercial railway arches, offering space for retail, industrial and office uses. With an annual footfall of 1.3 billion, our retail units provide a fantastic opportunity to the businesses occupying them, which range from small businesses and pop-ups to global brands. We continue to open up disused arches and invest in key gateway locations, such as the retail arcades at Liverpool Street and Victoria. We encourage businesses to use their spaces in more innovative and technologically driven ways.

Our advertising estate accounts for 20 per cent of the UK's and 40 per cent of London's outdoor advertising value, reaching a diverse and engaged population of millions. We have introduced innovative high-tech advertising platforms to enable us to run dynamic and experiential campaigns. We are finding new ways to collaborate more creatively with brands and advertisers.

Wi-Fi has become a primary source of data, providing valuable information about the volumes of people using our network. We use this data to help our partners plan and measure their advertising campaigns on the network. All customer information through Wi-Fi is anonymised, so no individual customer can be identified, and no data is shared directly with brands or advertisers.

We are developing our transport authority consultancy work, and in its first year of operating, we are successfully delivering projects in five markets. Working with like-minded partners and clients, we intend to create a profitable revenue stream and self-financed growth, and to maximise the benefit for our organisation and London. These projects also give our talented people the chance to grow their skills through working with new organisations or in a different context, which could be transferred back to our business. An introduction to our work with the World Bank and Indian national government is on page 154.

Maximising these opportunities and building our commercial reputation will diversify our income base and increase our ability to reinvest in the network.

Our advertising space offers a dynamic and popular platform for experiential campaigns

Our people

We can only deliver for London through the skills and dedication of our people

Achieving our priorities is completely dependent on our people, both directly employed and within the supply chain. We are facing an unprecedented financial challenge, which means we need to control our day-to-day costs while delivering more with fewer people.

Safety remains our highest priority and we will continue to work to ensure the workplace is a safe and secure environment for our colleagues and contractors. We must also grow and diversify our business to ensure we have the skills and talent we need. To meet our business challenges, we need to make further progress in how we are leading, managing, recruiting and motivating our people. Our vision is to make our organisation a great place to work for everyone and we will only achieve our priorities if everyone is safe, engaged, valued and united by a passion to serve London.

Workplace safety

Any level of work-related violence and aggression against our colleagues is too high. Our people have the right to work without fear of being assaulted, abused or threatened.

In early 2020, we will be launching our first organisation-wide strategy aiming to eradicate work-related violence and aggression against our operational and customer-facing colleagues, our operators and contractors. As part of this, we are introducing a package of measures to prevent violence and aggression, improve the support we provide to colleagues who experience it and ensure we continually improve how we do this. This includes an investment in more enforcement and police officers to deal with the triggers of work-related violence and aggression, rolling out body-worn video equipment and doubling the size of our dedicated workplace violence team.

37%
of new hires in 2018/19 were women

30%
of our workforce is black, Asian or minority ethnic

Inspiration and motivation

We frequently ask our people how we can improve the experience of working at TfL and measure this through our annual Viewpoint people survey. Ensuring our colleagues are engaged is central to our Business Plan – as a key driver of performance, it is one of the measures we report on our scorecard.

We strive to provide a safe and healthy workplace and have developed a strategy to emphasise mental health and wellbeing. Our managers are trained to help support colleagues and we are also trialling an app that gives people the opportunity to reflect on and improve their personal wellbeing.

We will only be a great place to work for everyone if we have capable and inspirational current and future leaders that can motivate people to fulfil their potential. We are introducing a Leadership Foundation programme, which is designed to build leadership capabilities across all levels of our organisation.

We need people with a variety of skills, experiences and capabilities. To achieve this, we will continue to review our approach to reward to ensure our offering is fair and competitive. We are improving the opportunities people have to develop their careers, by aligning them to our most important business priorities and improving how we identify talent, potential and aspirations.

In 2020/21, we will launch a new approach to succession plans for senior leadership roles. This will ensure we better develop a pipeline of people who are able to lead the organisation in the future.

Representative workforce

To create an inclusive transport network, we must recruit a workforce that is representative, at all levels, of the city we serve. This diversity must be harnessed through inclusive leadership, cultures, systems and behaviours, and our people encouraged to use their diverse perspectives to solve organisational challenges.

Our workplace culture should enable everyone to feel they have something to contribute and can have their views heard. This includes developing a culture where people can speak up, and growing our network groups for our colleagues.

Our senior leaders' performance award will continue to rely on progress in meeting our scorecard targets, which places our people on an equal footing with our other priorities, including safety, reliability, customer satisfaction and finances.

We will continue to identify strategies to recruit and retain colleagues from under-represented groups. This includes diversifying our talent pipeline through executive recruitment, apprenticeships, graduate schemes and work placements, as well as through mentoring, secondments and leadership programmes.

We run a mentoring programme for black, Asian and minority ethnic colleagues working in technology and data with one of our lead suppliers. We are also key partners in the Mayor's Our Time programme, which sees a group of high-potential women being sponsored by senior leaders from across the GLA group.

Our people strategy will improve the transparency of career development opportunities for everyone – particularly those from underrepresented groups. Diversity in our senior leadership team continues to be a priority. Our mentoring programmes, coaching and sponsorship will drive greater diversity in applicants and appointments to senior roles.

We will continue to evolve our diversity and inclusion dashboards, which help drive local accountability, while also demonstrating our commitment to improving transparency.

Supporting staff

In July 2019, we launched a new People Impact Assessment tool that uses data to better predict, mitigate and monitor the people-related impacts of organisational change. We will continue to roll out and improve this tool based on feedback.

We are analysing the causes of pay gaps. Together with our academic partners at Harvard, we will design, roll out and monitor interventions aimed at reducing these gaps.

It is vital that we deliver all of this work in close partnership with our trade unions and staff network groups. This includes developing a reasonable adjustment service with our Staff Network Group for Disability, which will form part of our wider Disability Roadmap programme. This programme seeks to improve the recruitment, retention, promotion and inclusion of disabled staff.

We also have a strong commitment to supporting adults with learning disabilities or on the autism spectrum into work through our award-winning Steps into Work programme, which doubled its cohort in 2019/20 from 12 to 24.

The Stuart Ross Communications Internship

We will continue to develop our Stuart Ross Communications Internship, which was launched in our Press Office in 2007 to address the under-representation of people from diverse backgrounds in the PR industry.

The scheme has been very successful and was expanded as a pilot in 2018 to cover communications and marketing – industries where there is also an underrepresentation of people from diverse communities.

The expanded scheme will continue and the three different internships in the Press Office, Communications and Marketing teams will run as the Stuart Ross Communications Internship.

In 2020, we will take on five new people on these internships for 11 months, where they will learn the skills they need to get a job in the communications, marketing or PR industries. Interns will receive a bursary paid at the London Living Wage, as well as 28 days of annual leave, free travel across London and a pension, to ensure the programme is accessible to the widest possible demographic.

Five
new interns joining the scheme in 2020

Our workforce must be representative of the diverse city we serve

Managing risk

Embedding risk management makes strategic risks an integral part of decision making

This Business Plan is published at a time of increasing uncertainty, so monitoring and managing risk is more important than ever. Our sustained focus on cost control and organisational improvements means we are becoming increasingly financially resilient. This plan sets out how we will manage our finances, including our cash reserves, in a way that will enable us to respond if any of the more serious risks materialise.

Aside from financial and economic uncertainties, we have a wide range of key strategic risks that could affect our customers, staff, suppliers and other stakeholders. They include threats and opportunities around health, safety, and the environment; capital investment projects; technology; and our stakeholders' confidence in us. We operate under an Enterprise Risk Management framework, which provides a single common approach to risk management, enabling us to consistently identify, assess, prioritise, report on and manage risks. We have governance in place to ensure we manage risk to achieve our objectives.

We have identified 17 strategic risks. The chart opposite illustrates each strategic risk by the probability of its occurrence and the impact it may have on health, safety and the environment, and the size of the bubbles indicates a range for the financial impact from low to very high. A description of each risk is included in the appendix.

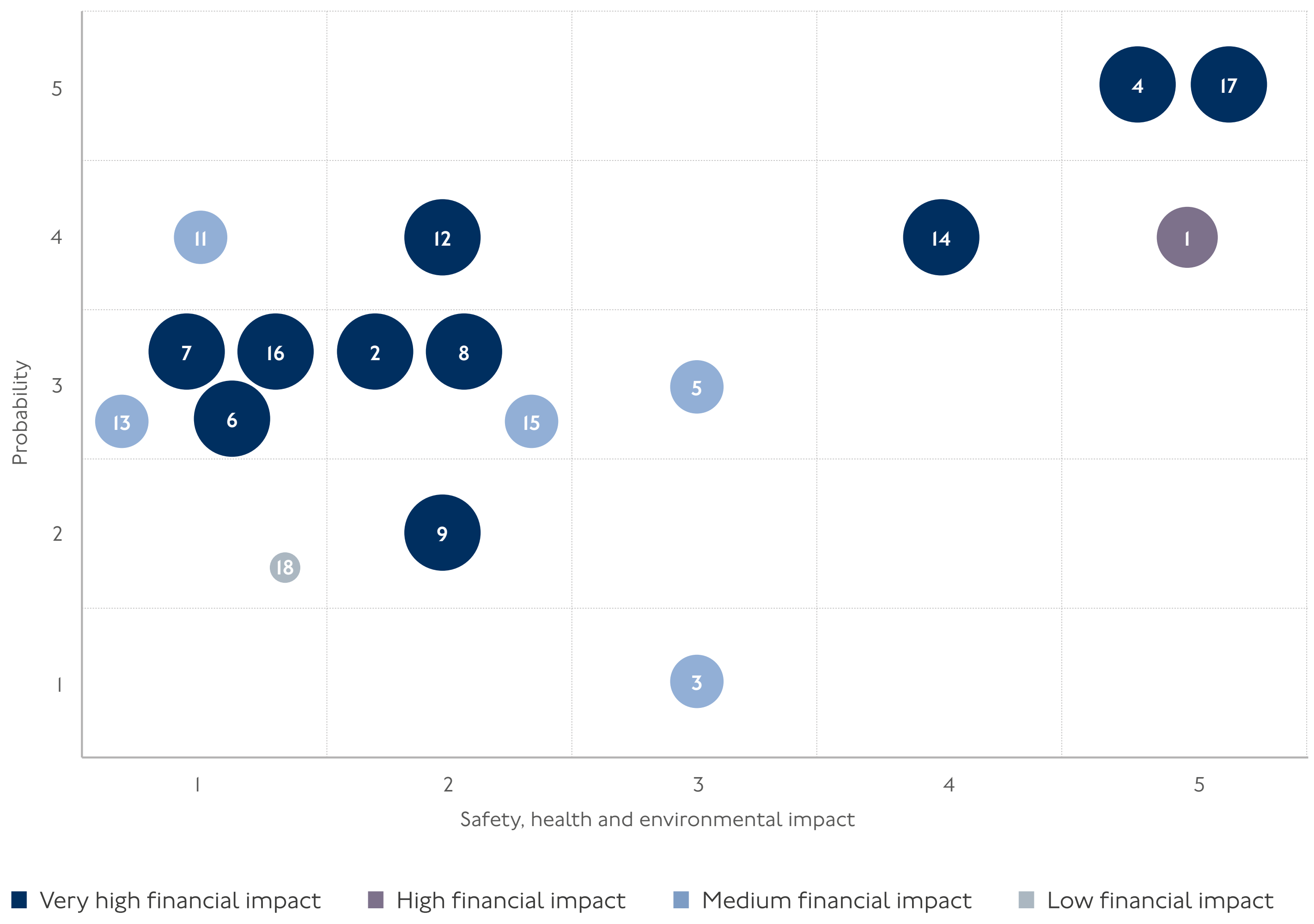
Preparing for Brexit

This plan is based on cautious economic forecasts, but is predicated on the assumption of stability in the UK economy. This stability is at risk from a disruptive Brexit in the absence of a trade deal with the European Union. We are preparing for this to ensure our operations continue as normal in all circumstances. Despite this, a disruptive Brexit could have a significant impact, primarily from reduced revenue driven by a weaker economy.

We would have to respond to the reduced revenue if Brexit-related risks materialise. This could affect the level of service we can provide and, most importantly, the investment we can commit to.

We are developing management structures that enable us to make investment decisions based on our financial position. We also continue to put our case to central government for secure, long-term funding to support transport investment. Political instability makes this harder to agree and may therefore impact our ability to support London's future growth.

Strategic risk



Risks*

1 Achieving safety outcomes
2 Talent attraction and retention
3 Governance and controls suitability
4 Major cyber security incident
5 Technological or market developments
6 Loss of external stakeholder trust
7 Financial sustainability
8 Inability to deliver predicted revenue growth
9 Ability to meet changing demand
11 Signficant technology/failure
12 Delivery of key investment programmes
13 Operational reliability
14 TfL's environmental impact
15 Resilient to climate change and extreme weather
16 Opening of the Elizabeth line
17 Protective security
18 Transformation

* Risk 10 (Catastrophic event) was closed as the causes and consequences were captured in other strategic risks

Building financial sustainability

It is important that we continually review our financial position and make prudent decisions on borrowing to ensure we continue to have the steady and secure funding that is required to grow our services.

Building financial sustainability

We must develop our financial position so we can invest in and develop our services

Building financial sustainability is key to continuing the progress we have made since last year's Business Plan. We must start to generate an operating surplus in 2022/23 as this will enable us to allocate as much funding as possible to our capital programme so we can invest in transport infrastructure and expand the network.

Our capital plan is also funded by existing and planned borrowing. We aim to maintain a strong credit rating to ensure continued access to markets on competitive terms. In 2019/20, it will be the first year we are able to cover financings from operating surpluses.

Further funding arrangements are part of our ongoing discussions with the Government for the 2020 comprehensive spending review. Our plans assume we do not raise additional borrowings after 2022/23 and start repaying the loan for the additional costs of Crossrail. By generating an operating surplus by 2022/23, we will cover the cost of financing, maintaining, operating and renewing the network. This ensures we can meet the minimum funding requirement of an operationally sustainable business and achieve our statutory duties and obligations.

We set challenging targets across the business and reviewed our capital programme, while managing the additional loss of income from the further delay to the opening of the Elizabeth line. We have reframed the meaning of financial sustainability to include covering the costs of maintaining the condition and performance of our existing network. To do this, our business areas must first cover their operating costs, including indirect costs, such as the customer contact centre and back- and middle-office functions, and the financing costs on their proportion of borrowing.

We are now presenting the financials for each business area to include revenues, operating and maintenance costs, renewals and debt service costs. This illustrates whether the business area is able to cover its full costs and generate a surplus to reinvest, or has an operational deficit, which must be covered from business rates received under the existing funding arrangements before being able to fund enhancements to our network.

Our business areas

The long-term target for London Underground is to cover its financing costs, indirect costs and critical capital expenditure, which includes its renewals spend plus the cost of rolling stock and signalling replacement. Improved operating surpluses from higher passenger revenue and our change programme, mean that the Underground will be able to contribute towards the cost of replacing life expired assets by the end of this plan.

Buses, streets and other surface operations require an ongoing subsidy. Our long-term financial target for this business area is to keep the net cost of operations, including capital renewals and indirect costs, within £854m per year of operating business rates. Ongoing operating cost inflation and reduced passenger volumes make this a challenging task.

Our target for rail operations, which includes the London Overground, DLR and Trams, is to cover their critical capital spend, which includes renewals and like-for-like replacement of life-expired rolling stock, from operating surpluses after indirect financing costs. This Business Plan projects that rail operations will come close to covering their financing cost from operating surpluses by 2024/25. However, they will not be able to contribute towards funding their own renewal cost during this plan.

The commercial business areas of property, media and consulting are targeted to generate operating surpluses that can be reinvested into the core transport business. The challenge for the property business is to meet its own funding requirements from capital disposals.

We are challenging ourselves to deliver our investment programme, which covers hundreds of projects, within a tightened, affordable funding envelope. We have developed our approach to better reflect the complexity and range of external challenges that sometimes frustrate our work. This enables us to make more agile decisions in response to the financial context, affordability and the latest business needs.

2022/23
when we will start to generate an operating surplus

One
more year of funding certainty through the Government Spending Review

Operating account

We will generate a net surplus from operations by 2022/23. Operating income, driven by the Elizabeth line, will cover operating, financing and renewals costs, other than further rolling stock and signalling replacement.

This plan includes the Mayor's recently announced freeze on fares set by TfL during 2020. From January 2021, our plan assumes that fares will rise by around the retail price index plus one per cent, to support vital investment in public transport. However, this is only a business planning assumption as our fares are set by the Mayor on an annual basis.

Other operating income increases over the plan, with the expansion of ULEZ from October 2021, the growth of commercial revenue streams through our media and property estate and as our consulting business becomes more established.

In 2019/20, we received £1.85bn through retained business rates. This represents 20 per cent of our overall funding and financing (excluding Crossrail) and is our second largest source of income after fares. This funding consists of £854m per year in Mayoral Business Rates notionally allocated to support our operating account. In this Business Plan, we assume the operating portion of business rates rises with inflation. The remainder, around £1bn per annum, replaces the former Investment Grant and increases in line with inflation.

Funding received from business rates allocated by the Mayor are not restricted to support capital investment and can be used to cover operating and financing costs. In our last Business Plan, we temporarily repurposed £100m a year, of investment business rates to the operating account to support the lost revenue from the delayed opening of the Elizabeth line, from 2019/20 to 2021/22. In view of the further delays, we have assumed that we would extend the £100m temporary transfer to 2022/23.

Retained business rates are a very stable form of funding that remains critical both to balancing our operating account and funding our regular investment programme. However, all funding, whether direct grants or business rates, is subject to the 2020 spending review. Certainty over the level and continuity of funding is vital for our ability to plan long term and ensure we are able to support our existing capital programme. Funding for the next stage of like-for-like replacement of life-expired rolling sock and signalling assets, alongside network upgrades and capacity extensions needs to be agreed separately.

Operating costs increase over the plan with the introduction of new services, including the Elizabeth line and on the London Overground. Core like-for-like costs are managed through our extensive savings programme to offset inflation as far as possible.

Operating account (£m)

	Actual	Forecast	Plan	Plan	Plan	Plan	Plan
	2018/19	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
Passenger income	4,854	4,970	5,123	5,412	5,966	6,414	6,870
Other operating income	812	1,007	1,045	1,356	1,599	1,718	1,752
Total operating income	**5,666**	**5,977**	**6,168**	**6,768**	**7,565**	**8,132**	**8,622**
Business Rates Retention	947	954	968	986	1,003	921	940
Other revenue grants	103	113	11	11	11	11	11
Total income	**6,716**	**7,044**	**7,147**	**7,765**	**8,579**	**9,064**	**9,573**
Operating cost	(6,296)	(6,419)	(6,618)	(7,064)	(7,249)	(7,492)	(7,698)
Net operating surplus	**420**	**625**	**529**	**701**	**1,330**	**1,572**	**1,875**
Net financing costs	(454)	(452)	(487)	(551)	(572)	(568)	(564)
Net surplus/(cost) of operations before renewals	**(32)**	**173**	**42**	**150**	**758**	**1,004**	**1,311**
Capital renewals	(388)	(480)	(535)	(665)	(700)	(707)	(750)
Net surplus/(cost) of operations	**(422)**	**(307)**	**(493)**	**(515)**	**58**	**297**	**561**

2019/20
when operating surplus will cover financing costs

20%
of our total funding (excluding Crossrail) is from business rates

Travel concessions

We have a comprehensive range of travel concessions, which are an important part of providing affordable travel. Alongside the Mayor's freeze on TfL fares and the introduction of the Hopper fare, these ensure people can move around London whoever they are, and whatever their circumstances.

In early 2020, we propose to replace the £5 refundable Oyster card deposit with a £5 fee. This will only affect cards issued after this time and will help reduce the number of cards that are returned after a few days or weeks. Customers who still use the card after a year will receive £5 pay as you go credit, essentially making their card free.

Earlier this year, we introduced an annual renewal process for the 60+ Oyster card to reduce the risk of misuse. The £10 renewal fee, which is in addition to the £20 one-off application fee, applies to cardholders who register for the scheme from 1 August 2019. The fee will not apply to cardholders who benefited from the scheme before 1 August 2019. The fee contributes to the running costs of the scheme.

Travel concessions

Concession	Description	Estimated revenue foregone in 2018/19
Zip Oyster photocards for under 16s	Free bus travel, free travel on rail for under 11s, subsidised travel fares for 11 to 15 year olds on rail.	£94m
16+ Zip Oyster photocard	Free bus travel for London residents, half-rate Travelcard and Bus Pass season tickets and discounted pay as you go fares for 16 to 18 year olds.	£76m
18+ Student and Apprentice Oyster photocards	30 per cent off Travelcard and Bus Pass season tickets for London students and apprentices.	£33m
Bus & Tram Discount photocard	Half adult-rate Bus Passes and bus pay as you go fares for Londoners receiving Income Support, or Employment and Support Allowance.	£28m
Jobcentre Plus	Half adult-rate fares on any services for those claiming Jobseeker's Allowance or Universal Credit.	£5m
Freedom Pass	Free travel at all times on all TfL services for people aged 66 or those with a disability. We fund travel in the morning peak, the boroughs compensate us at other times.	£24m
60+ London Oyster photocard	Free travel on TfL services 24/7, and on National Rail services after 09:30 on weekdays, for Londoners aged over 60 but below the Freedom Pass eligibility age.	£100m
Other schemes	School party free travel, Olympic elite athletes, injured veterans, armed forces personnel in uniform, some National Rail-operated Railcard holders and assistance dog trainers.	£1m

Our Zip Oyster photocards enable young people to travel for free in London

Capital investment priorities

Our capital programme remains broadly in line with last year's plan and we are planning to deliver the same outcomes.

We plan to spend an average of £1.3bn per year of new capital investment, £1.9bn including renewals. We have taken a more pragmatic approach to reflect the fact that some projects will be delayed – often due to complex procurements, consultation with stakeholders and delivery outside our own infrastructure.

Managing cash flow

To support our financial resilience, we must protect our liquidity. We are maintaining a minimum cash reserve equivalent to at least two months of our operating expenses. This is a prudent cash position which enables us to respond to unexpected shocks, such as a hard Brexit, a recession, and any further risk against Crossrail timescales.

We need to build up our cash reserves to create headroom to invest in enhancements over and above the baseline. With more granular cash forecasting we can be more agile in decision-making on our investment programme, depending on the financial context.

Capital account (£m)

	Actual	Forecast	Plan	Plan	Plan	Plan	Plan
	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
New capital investment	(1,247)	(1,199)	(1,546)	(1,288)	(1,206)	(1,199)	(1,255)
Crossrail investment programme	(1,389)	(1,055)	(626)	-	-	-	-
Total capital expenditure	**(2,636)**	**(2,254)**	**(2,172)**	**(1,288)**	**(1,206)**	**(1,199)**	**(1,255)**
Funded by:							
Mayoral business rates	976	893	910	930	951	1,072	1,093
Property receipts and asset sales	650	182	172	135	202	221	68
Borrowing	728	545	1,352	446	434	(109)	(144)
Crossrail funding sources	796	1,030	112	70	39	-	29
Other capital grants	218	208	173	5	7	13	11
Total	**3,368**	**2,858**	**2,719**	**1,586**	**1,633**	**1,197**	**1,057**
Net capital account	**732**	**604**	**547**	**298**	**427**	**(2)**	**(198)**

Cash flow summary (£m)

	Actual	Forecast	Plan	Plan	Plan	Plan	Plan
	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Net surplus/(cost) of operations	(422)	(307)	(493)	(515)	58	297	561
Net capital account	732	604	547	298	427	(2)	(198)
Working capital movements	(361)	(104)	(67)	(220)	93	229	179
Increase/(decrease) in cash balances	**(51)**	**193**	**(13)**	**(437)**	**578**	**524**	**542**

Investing in the future

Over this Business Plan, we will invest £1.9bn per year on average to:

- Introduce new, longer, walk-through trains on the Piccadilly line
- Modernise signalling on the Circle, District, Hammersmith & City and Metropolitan lines, improving frequency and journey times
- Complete the upgrade of Bank station in 2022/23
- Complete the Northern Line Extension in 2021 to support new homes and jobs
- Implement environmental and air quality improvements, including expanding the ULEZ to the North and South Circular Roads and making the entire bus fleet Euro VI compliant or better
- Continue to modernise the London Overground with new trains introduced
- Begin London Overground services along the Barking Riverside Extension in 2021, enabling regeneration of the area by creating new homes and jobs
- Progress plans to introduce new trains on the DLR, which will increase capacity
- Develop plans to introduce new trams to keep the network safe and reliable
- Work with the City of London and London boroughs on roads and assets, and to support Vision Zero
- Invest in renewals to maintain safety and reliability
- Invest in transformative projects to enable more walking and cycling

Borrowing

Prudent borrowing is an important source of financing and supports our capital investment

Investing in our transport infrastructure involves high upfront costs. Borrowing enables us to make vital improvements today and spread the costs over time.

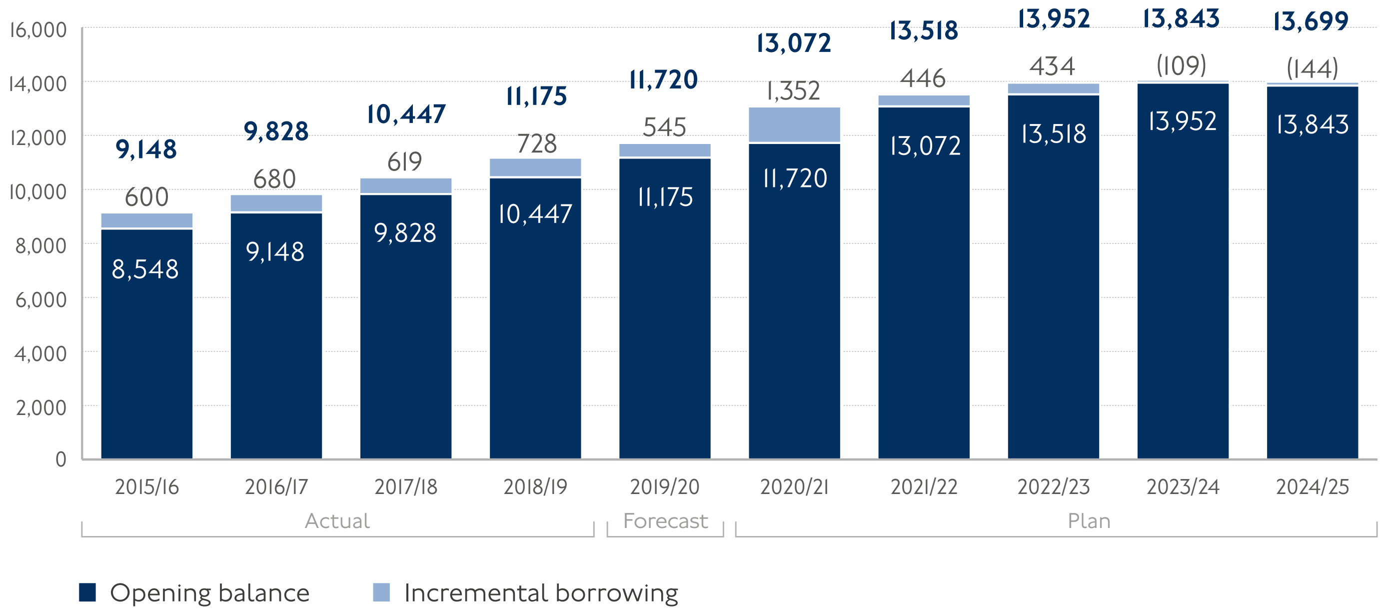
Borrowing raised over the period of this plan will finance our investment programme, including line upgrades on the Tube and rail networks, and new DLR trains. We regularly review the amounts we can borrow, ensuring they are prudent, affordable and sustainable.

Our borrowing levels to March 2021 have been agreed with the Government, as part of our 2017 funding settlement. In accordance with this, our outstanding borrowing is expected to reach £11.7bn by the end of 2019/20 and increase by around £600m in 2020/21 for capital investment purposes.

This plan also assumes we will borrow around £500m in both 2021/22 and 2022/23. This will be discussed with the Government as part of the 2020 Spending Review.

We also have a £750m loan facility from the Government to support the completion of the Crossrail project. This plan assumes we will draw the full amount in 2020/21, with principal repayments starting in 2021/22.

Total nominal value of borrowing (£m)



Our borrowing over the course of this plan will enable us to introduce new trains on the DLR

A sustainable capital plan

Steady funding will keep the network safe and reliable, and enable investments in future growth

We must be responsible stewards of London's transport infrastructure. The update to this year's long-term capital plan is focused on detailed estimates of our long-term capital baseline. This is the cost to maintain our current level of performance in terms of safety, reliability, capacity and asset condition.

Renewing and replacing life-expired and obsolete assets is crucial to the long-term sustainability of London's transport network. It supports the high standards of safety and reliability that we must deliver, ensuring passengers experience a consistent, high-quality service that encourages them to choose sustainable transport modes every day. Proper stewardship and investment in our assets is also the most cost-efficient way of managing them in the long term. Failing to properly renew assets leads to higher costs for maintenance and emergency repairs.

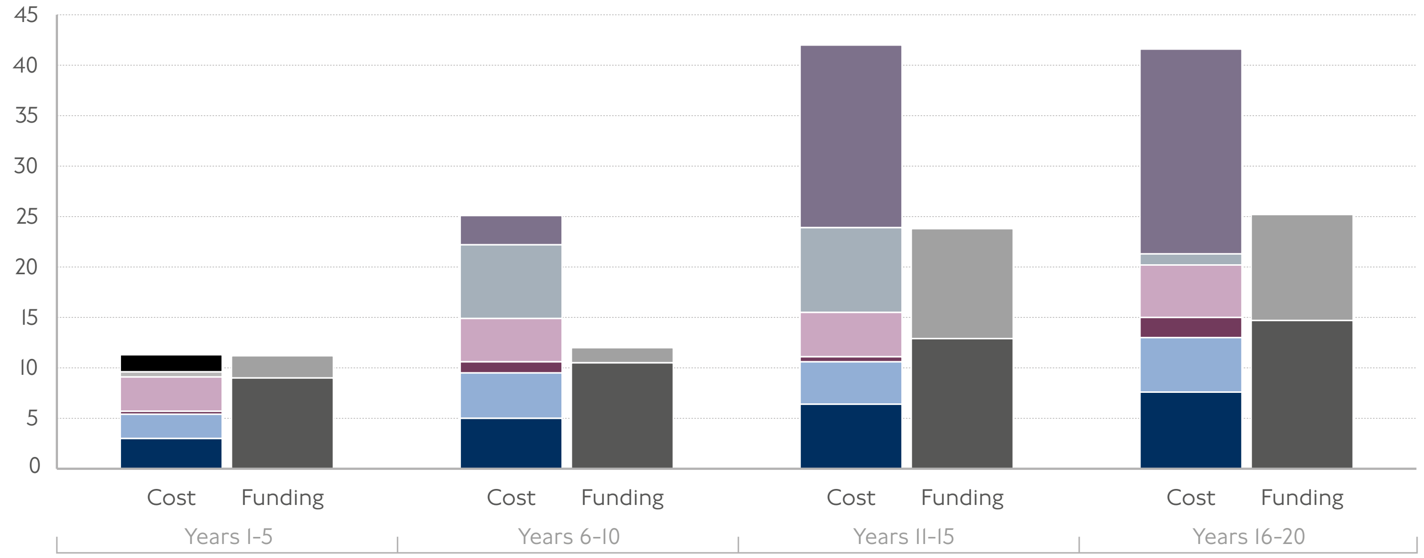
It is vital that we have a thorough understanding of our baseline. This enables us to evaluate our ongoing financial requirements and assess the affordability of enhancements and additions to our services to support growth. We estimate the average annual cost to meet this baseline requirement after our current Business Plan, in constant prices, is £1.4bn through the rest of the 2020s and 30s. This covers a variety of investments, including ongoing works to replace assets like rail track, road surfaces and technology networks.

It also covers larger programmes, such as replacing trains across six Tube lines and upgrading signalling systems. This includes the pressing need to replace the life-expired signalling system on the Piccadilly line, which we had to reconsider last year owing to funding constraints. It remains our intention to press ahead with this essential renewal as soon as the finances are available.

Our draft Business Plan is fully balanced in the first five years as shown in the graph. Our general funding – business rates, borrowing, capital receipts and operating surplus – and specific project funding sources match total investment in the next five years. The affordability of the Capital Strategy beyond the five-year draft Business Plan is dependent on TfL obtaining significant additional funding, which cannot be considered certain at this point in time. Fully funding our baseline will enable us to maintain the performance and capacity of our transport network. This is important, but is far from sufficient to support the future growth of London.

The Mayor's Transport Strategy has set an ambitious vision to improve and grow our network over the next two decades to support a population that will grow to more than 10 million. Enabling this will require substantial investment across London's street and rail networks, including major projects like Crossrail 2 and the Bakerloo Line Extension, as well as continued investment in

Draft capital strategy in outturn price (£bn)



The five years of this Business plan are fully balanced. Beyond this, affordability is dependent on obtaining significant additional funding, which is not certain at this point in time.

Healthy Streets. Delivering this vision would unlock hundreds of thousands of new homes and lead to lower congestion, cleaner air, better health outcomes, a more prosperous economy and real progress towards carbon neutrality. We estimate the average annual cost to deliver these improvements after our current Business Plan, in constant prices, is £4.4bn through the rest of the 2020s and 30s.

It will only be possible to achieve these levels of investment if the funding available to us increases. We have already had to make difficult decisions about what projects to prioritise, reflecting our reduced funding and challenging financial position. For example, the proposed upgrades to Holborn and Camden Town stations have had to be adapted pending availability of funding. We will continue to look for third-party funding and work with potential development partners, which could help fund these improvements. Without new funding sources, we will either have to allow our existing assets to degrade or fail to grow our transport capacity. Both of these choices would fail Londoners.

As things stand, we have just one more year of funding certainty, and beyond 2021, we do not know what our funding arrangements will be. We will continue to work with the Government and other stakeholders to identify sustainable, long-term funding and financing that enables us to maintain and make vital improvements to London's transport infrastructure.

Assets and investment priorities

We manage and operate a wide range of assets and services. We make informed investment decisions based on a range of factors, such as the expected asset lifespan and priorities for ensuring safety and reliability.

Assets and investment priorities

We must deliver our investment programme within a tightened, affordable funding envelope

We have various asset classes that form our baseline investment, which is our understanding of what we need to do to keep our network safe and reliable.

We have developed this by aggregating the asset strategies across the organisation and creating a financially unconstrained, whole-life cost optimising plan. This shows us the volume of work we must do in the long-term and indicates the cost, albeit unconstrained.

We then make choices based on deliverability, affordability and risk, which are factors to varying degrees within our control. We use this information to decide where to replace assets or extend the life of existing ones, and where our maintenance activities should be focused.

We are building up to a steady state spend with the aim of investing an estimated average of £1.4bn per year, in constant prices, as per our long-term capital strategy described on page 44.

£670m
average annual investment on capital renewals over this Business Plan

£150m
per year on average to renew our track assets over this Business Plan

Rolling stock

The heavy demand on our Tube and rail trains means they require frequent maintenance and renewal to keep them reliable and in good condition. Trains last for around 40 years (less for trams and DLR vehicles) before they need to be replaced. This means we need a new train every two weeks on average.

The condition of our rolling stock has improved significantly in the past decade, but it varies based on age, condition and specifics of that fleet. The Victoria line is our most reliable fleet, travelling more than 50,000km on average between faults. Our least reliable fleets on the DLR and on the Central and Waterloo & City lines travel less than 10,000km between faults.

Replacing trains requires major investment and we must balance between asset condition and customer benefits. During this Business Plan, we will replace our second-oldest fleet on the Piccadilly line as well as the oldest vehicles on the DLR and Trams. We will also complete the rollout of new trains on the London Overground and Elizabeth line.

In the longer term, we will need to replace the Bakerloo line fleet – the oldest trains operating on the UK mainland. This is dependent upon funding availability. We are running a significant renewal programme to address performance of the 1992 Stock on the Central and Waterloo & City lines, but these trains will also need replacing in due course.

Lines with more modern rolling stock still require regular maintenance and substantive overhauls to keep them operating and ensure they meet customer expectations. These refurbishments are less visible than introducing new fleets, but are crucial to maintaining safety and availability of trains. This work involves taking trains out of service, dismantling elements of them, replacing consumable components, improving the customer space and aligning to modern requirements. We will overhaul bogies, doors and couplers on the Metropolitan line and doors on the Victoria line during this Business Plan.

We will also invest in our fleet of engineering vehicles to ensure we can continue to renew the track, signalling equipment and other elements.

900
passenger trains running across rail and Tube by 2024/25

90%
of our Tube trains are in service during every peak period

Signalling

This covers the assets and software that keep trains a safe distance apart and enables higher-frequency services. We own almost all signalling assets on the Underground, DLR and tram networks. On the London Overground, most assets are owned by Network Rail to whom we pay an access charge.

We have a mixture of systems, reflecting the era when they were first installed. On some lines, the signalling dates back to the 1950s. These older systems rely on the train operator responding to coloured lights by the side of the track. More recently, computer-controlled systems have been installed, which enable trains to run faster and closer together, increasing reliability and capacity.

We replace the oldest signalling with modern, digital systems as they reach the end of their design life. The Four Lines Modernisation programme – due for completion in 2023 – is centred around a contract with Thales and replaces some of our oldest signalling assets. We will decide on the order of future works, depending on the potential capacity benefits, which is why the Piccadilly line is our top priority. We will progress this once there is certainty over funding. The progress of this project and other signalling schemes on our deep Tube lines will also influence our renewals needs beyond the next five years.

We are managing our existing signalling and control systems to ensure reliability. On the Underground, this focuses on a £172m programme over the plan to replace obsolete components and control systems. While modern computer-based systems provide considerably higher performance, they become obsolete more frequently, so the need for ongoing renewals will continue and possibly grow over time.

100 seconds between trains on the Victoria line

120 seconds between trains on the DLR

Track

We have two main types of track, deep Tube track, generally used in tunnels, and ballasted track, similar to that used on mainline rail networks. Our track assets also include drainage, as well as points and crossings that trains use to switch tracks at junctions, which have an average life of 40 years.

Through this plan, it will cost around £150m a year to renew track and £100m a year for maintenance. Most renewal spending is on replacing deep Tube track, points and crossings, with the remainder on ballasted track, depot track, and DLR, tram and London Overground track. Our maintenance programme, including track improvements and continual rail grinding to remove defects, helps to reduce noise and vibration for passengers, staff and lineside neighbours.

We use the average and residual life of the track to manage and monitor our assets. We regularly inspect our assets to enable reactive interventions, alongside planned renewals. As well as considering asset condition, we package works together so they can be done more efficiently.

We also prioritise interventions where they will improve capacity and reliability as part of line upgrades. For example, modifications have been made to points and crossings as part of the signalling installation for the Four Lines Modernisation programme.

We are modernising our track to make it more stable for trains to travel over and provide a longer asset life. This programme has been running for more than a decade, meaning the remaining sites are smaller and often more complex, causing an increasing unit rate. To counteract this, we are seeking to increase productivity through automatic track monitoring to carefully target interventions. In the longer term, we are increasing mechanisation, which also brings safety benefits.

'We prioritise interventions where they will improve capacity and reliability'

1,200km of track that we own and maintain on the Tube, DLR, tram and London Overground

40 years Average expected life of our deep Tube and ballasted track

Stations, civils and buildings

We are responsible for maintaining all but a few of our Tube, DLR, London Overground and TfL Rail stations and tram stops. Our stations contain a complex collection of assets and communication systems to ensure coordinated, safe operation. Other buildings and structures we maintain include train and staff depots, control centres, bridges, tunnels, ventilation shafts, drainage and earth structures.

Stations need continuous investment to maintain systems and assets to ensure they are safe and effective for customers. Customer delays as a result of station incidents on London Underground have reduced by 40 per cent in the past 10 years. During this plan, we will address communications, electrical, fire and mechanical issues across our estate as well as dealing with highest-risk issues such as falling materials and customer slips on worn surfaces.

We will also enhance accessibility through our step-free access programme and improve capacity where commercial opportunities enable this, including at South Kensington, Paddington, Colindale and Elephant & Castle. By 2021, all our TfL Rail (Elizabeth line) stations will be step-free from street to platform.

As part of the Piccadilly line upgrade and DLR train replacement programmes, we will modernise and enlarge our depot facilities at Northfields, Cockfosters and Beckton to support the introduction of new fleets on these lines.

Our bridges, tunnels and other structures account for around 30,000 assets. Bridges and tunnels are long-life assets that require ongoing inspection and monitoring, rather than regular replacement. We plan interventions using risk management tools and prioritise them based on safety and performance risks. We will enhance this process, including a comprehensive review of flood risk given changing environmental pressures, as well as a feasibility studies to reduce the need for future major works.

270
Tube stations across London

350km
of deep tunnels on the Underground

Our stations need continuous investment to ensure safety and suitability for customers

Lifts and escalators

Lifts and escalators enable us to process growing passenger numbers safely and efficiently, with lifts being vital for increasing accessibility. The total number of assets is expected to grow by 35 per cent by 2026 due to the opening of the Elizabeth line and completion of station upgrades, including our accessibility programme.

Each escalator runs for an average of 46 days between failures and each lift for around 25 days. Escalator availability has risen to 99.5 per cent in recent years, with lift availability reaching 98.5 per cent. Our target is to maintain this performance for escalators and improve our lifts availability to 99 per cent.

Maintaining and improving these performance levels requires ongoing refurbishment and renewal. Typically, escalators need refurbishing every 20 years and replacing every 40 years. We partially refurbish our lifts every five years and completely replace them every 10 to 20 years, depending on the type. This means we currently need to fully replace around one escalator and two lifts every month on average. This rate will increase as the number of assets grows.

Replacing an escalator or lift is a complex process. It must be fully dismantled and worked on in a very constrained space, while daily operations in the station continue around it. In 2019, we trialled a new method of escalator replacement at Wood Green, which could save £500,000 per escalator and reduce customer disruption. We plan to roll this out further over the next few years.

During this Business Plan, we will achieve the required rate of replacement by working on some of our poorest condition assets, including escalators at South Kensington and Marylebone, and lifts at Borough and Holloway Road. We will also run a mid-life refurbishment programme covering all escalators on the Jubilee line extension, which opened in 1999.

When we replace assets, we try to also standardise them where possible to reduce ongoing maintenance costs.

500+
escalators across our Tube and rail stations

300+
lifts at our Tube and rail stations

Power, cooling and energy

We have a range of assets that control and distribute power for moving rail vehicles, mitigate heat and generate energy in emergency situations. We must upgrade power assets when we increase capacity on lines.

The amount of electricity we use will increase as we run more services and improve the customer experience, such as by introducing air conditioning on more lines. Most of this power is distributed via our high-voltage power network from six major and two minor high voltage bulk supply points, and 230 buildings housing substations, switch houses and transformer rooms. We also use local low-voltage distribution networks and our emergency generating station at Greenwich. As well as our core ventilation network in tunnels and stations, we use sections of disused infrastructure to provide cooling, such as at the former Down Street station on the Piccadilly line.

> 'We are considering the best approach to enable electric charging at bus garages'

Power upgrades on the DLR and Piccadilly line will be a focus during this plan as we prepare to roll out new trains, and we will fully comply with the Electricity at Work Regulations by 2024. We are also considering the best approach to enable electric charging across London's bus garages.

Improving energy and cooling assets will be critical as we respond to the climate emergency declared by the Mayor. Our investment over this plan will see us increase our solar generation to 1.1MW and install LED lights across our network. Other ways we will further reduce and decarbonise our energy consumption include using waste heat from our network and using more renewable energy. We must find additional funding streams for these projects, for example from third-party funding sources.

We will also improve cooling on the Central line by replacing fans at Lancaster Gate, and on the Northern line by replacing a ventilation shaft and substation at Euston, which is proposed to be delivered by HS2 Limited.

1.5TWh
of electricity currently consumed annually

130
ventilation fans and platform air handling units

Major highway structures

Our investment in bridges and tunnels focuses on maintaining safety to enable goods and people to move throughout the capital. Our financial constraints mean we have not been able to spend as much as would ideally be required to ensure reliability and operability of our major structures over the past few years. The condition of our smaller assets has declined slightly due to a two-year pause on renewal work, which has resulted in additional safety measures being required. The number of bridges with additional inspections and interim measures has increased from 24 to 39. However, we are now restoring investment to recover the condition of these assets.

Throughout this Business Plan, we will address the most pressing structures, including the Westway and Rotherhithe Tunnel, to improve their condition and keep them operating safely and reliably. The Rotherhithe Tunnel will be completely refurbished in the next five years at a cost of around £140m, alleviating current disruption to the network. We also use preventative treatments, like painting and waterproofing, to reduce whole-life costs and we will strengthen bridges to remove weight restrictions and ensure our tunnels fully comply with safety legislation.

For our smaller and medium structures, we have a three- to five-year priority list, which is updated annually based on the latest inspection data. We use customised deterioration models to assess longer-term needs and work volumes and we evaluate these against a range of preventative and reactive intervention options. Intervention costs are calculated using past cost data and taking account of current condition, material, size and usage.

'Our bridges and structures include the A40 Westway, Vauxhall Bridge and Brent Cross structures'

1,800
highway bridges and structures that we maintain

12
road tunnels we manage and operate

Highway assets

We have an ongoing renewal programme of investment in our highway and traffic management infrastructure, focused on maintaining safety and operability.

On average, we should resurface 400,000m² of roads, renew 350 traffic signal junctions and 1,000 lighting columns each year. In the last two years, our investment has substantially reduced, meaning we have not met this rate of replacement and the condition of the assets has deteriorated. In 2018/19, the condition of our carriageways dropped from 92 per cent to 88 per cent, and the number of potholes increased. Road reliability has declined over the two-year pause in works, meaning more emergency repairs, speed restrictions and a reduced service, such as removing lighting on the A2 and A12. This situation will recover from 2020 when the renewal programme restarts.

Our plan is to gradually restore the condition of highways assets, with a focus on those that contribute more to walking, cycling and public transport. These include maintaining and renewing roads and paving to provide a safe and comfortable journey for all users, while also minimising whole-life costs and maximising recycling.

We will continue to install energy efficient signals and lighting. More than half of our lights are now LEDs, which deliver 40 per cent of energy savings, and the vast majority of the remaining units will be converted within five years. We will also maintain and increase the number of street trees. Every year we replace between 300 and 600 trees because they have died, become diseased or are unsafe.

In the long-term, we must identify adequate funding for London's roads, which does not force us to prioritise between serving public transport users and maintaining the strategic road network.

580km
of carriageway in our highway infrastructure

33,900
street lighting columns that we maintain and manage

Surface public transport assets

Our investment focuses on providing safe and operable assets, managing risks from the aging asset base, and maintaining today's performance levels. We use asset condition data and customer satisfaction surveys to prioritise our investment. For example, previously bus shelters were identified as needing to be replaced when they reached 15 years, regardless of their condition or usage. A new condition inspection regime has enabled us to extend the average life by targeting replacements more effectively, while still maintaining safety and the customer environment.

There is a relatively steady spend across this Business Plan. The previous two years focused on the new Woolwich Ferries and bus driver facilities, while works on bus shelters and stations were largely paused. In this plan, the bus budget is restored more rapidly than others to support patronage, mainly by maintaining bus shelters and improving bus stations.

This programme seeks to replace 400 to 600 bus shelters a year, alongside ongoing repairs. On average we aim to refurbish a bus station every two years, with the highest priority being Kingston Cromwell Road station. Maintaining, renewing and refurbishing bus infrastructure, will provide a safe, comfortable and appealing environment that will encourage people to use public transport.

We will also make £12m worth of essential repairs to Victoria Coach Station, including improving passenger facilities and removing asbestos. We will renew Santander Cycles bicycles and maintain the cycling infrastructure. We will carry out essential maintenance to the cableway on the Emirates Air Line, and conduct a rolling programme of repairs to our piers, including at Westminster and Embankment. We will also install six new 'bee roofs' on our bus shelters to help improve biodiversity on our streets.

Further funding would enable a us to take a proactive approach to renewals, which would reduce long-term costs and avoid issues building up, which can significantly impact performance.

12,000
bus shelters and 34 bus stations that we maintain

11,300
Santander Cycles we maintain across 19,250 docking points

Technology

Technology and data underpins everything we do. We collect and process vast amounts of data every day, including three million journeys made using contactless payment, around 670 million rows of bus event data and 500,000 rows of train diagnostic data on the Central line alone.

We prioritise our invest based on safety requirements, while building our operational resilience, reliability and ensuring value for money. This includes maintaining and upgrading payment systems to minimise lost revenue through down time and ensure ease of payment for our customers.

Typically, hardware and software needs to be refreshed every five years to maintain vendor support, service performance, lower support costs, and avoid cyber vulnerabilities that occur with end of life and unsupported technology. Where possible, we look to extend the life of our assets, but this comes with risks and increasing costs.

Changes in technology, such as regular vendor updates, cloud computing and greater use of mobile technology require more frequent investment. This Business Plan includes funding to refresh our ticket gates and readers to protect revenue collection. We will also fund data centre servers, network assets and end-user computing assets, such as desktops and phones.

Through our Bus Technology Programme, we will refresh service planning assets, real-time information, ticketing and performance management. We will also launch the TfL Go app, which has accessibility for mobility impaired customers at its heart.

We will deliver a modern communications network across the London Underground to replace the existing aging network. This includes deploying infrastructure within the Tube to support the Home Office's new Emergency Services Network and launching commercial 4G services, starting with a pilot for customers on a section of the Jubilee line. Technology investment will also support the objectives of the Mayor's Transport Strategy, such as enabling the expansion of the ULEZ in 2021 and the introduction of the HGV Safety Permit in 2020.

2,000
software applications and systems that we support

30,000
daily active users across 11,000 servers on our estate

Forecasting and trends

We will use all available sources to inform our future plans. This includes mapping potential changes in demand and assessing the possible effects of micro- and macro-economic conditions.

Approach to forecasting

Building our future plans using strong, evidenced foundations

Our plans are modelled on assumptions that draw upon independent data and statistics, actual events and our own expertise. While all forecasts are subject to a level of inaccuracy, especially looking further into the future, the uncertainty around Brexit and the macro-economic climate make it even more difficult than usual to forecast beyond the next two years.

UK economic forecasts have been less positive over the last year. In November 2018, the Bank of England forecast that the UK would grow by 1.7 per cent in 2019 and 2020. Projections published in August 2019 suggest that growth will be 1.3 per cent in both years. The main factors for this are a slowing global economy, including heightened trade tensions, and increased Brexit uncertainty.

Evidence shows that London's economy is also slowing. The GLA Economics forecasts assume a smooth exit from the EU and the growth rates in them should be seen in this light. However, analysis by both the Bank of England and Office for Budget Responsibility, indicates that the UK might slip into recession in 2020 if there is no smooth exit.

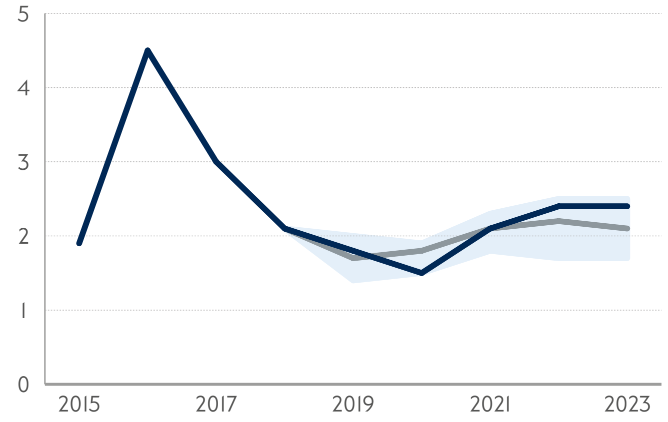
We use trend analysis and plans for closures, events and upgrades on the network, service frequency, and policy decisions, to forecast our demand and fares revenue, generating a range of scenarios. So, while economic forecasts are deteriorating, we also see the impact of recent trends, such as improvements in Tube demand and a slower decline in bus demand compared to last year's plan.

The graphs opposite illustrate the range of outcomes for key variables, which influence economic scenarios – London's growth, household consumption, employment and UK inflation.

Our other operating income, which includes the Congestion Charge and ULEZ, are influenced by factors such as compliance levels and the number of exempt vehicles, and our commercial income is directly affected by market conditions. As well as external factors, such as inflation, our cost base is dependent on our cost reduction programmes. These plans are not without risk, and we will assess the financial impact as plans progress to understand how they affect our targets.

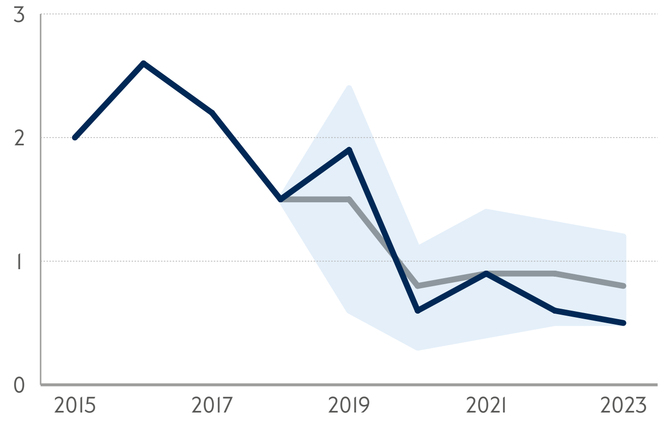
Monitoring and assessing external and internal threat and opportunity indicators is a key part of our planning and reporting process, enabling us to respond to early warning signs and take actions to keep us on track.

Growth in gross value added (%)



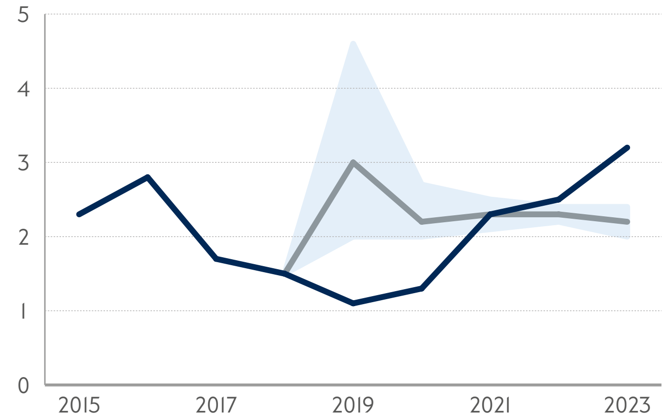
This is a measure of the value of all goods and services produced in London.

Growth in employment (%)



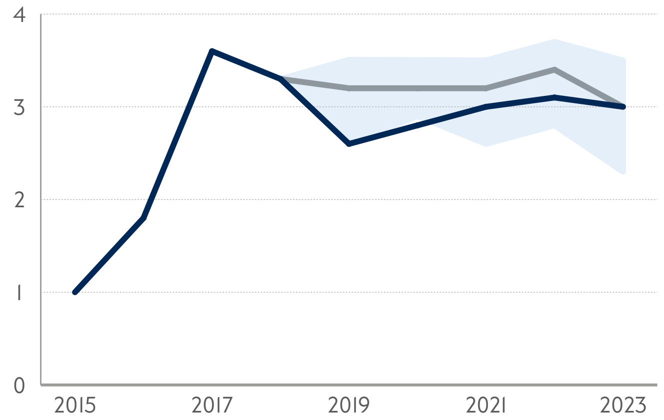
This is defined as the total number of skilled and unskilled jobs available in London.

Growth in consumption (%)



This is the extent to which goods or services are used, and reflective of the portion of household income spent, not saved.

Retail price index inflation (%)



This reflects the change in costs of retail goods and services across the UK.

■ Historic actuals and forecast used ■ Average of external forecast ■ Range of external forecast

Source: GLA Economics calculations from independent forecasters from latest available forecast available as of 20 August 2019

Note: For gross value added and employment these forecasters are CEBR, Cambridge Econometric, Experian Economics and Oxford Economics. The forecasters for consumption are Cambridge Econometric, Experian Economics and Oxford Economics)

Forecasting demand

These graphs show the range of passenger journeys, factoring in economic scenarios. Favourable economic performance is reflected by the highest point, while poorer economic conditions result in the lowest point.

London Underground

In late 2017 and most of 2018, there was a decline in passenger journeys on the Underground. While commuting journeys increased in line with London's growing employment rate, there was a bigger fall in leisure trips. Real wage growth started to accelerate in autumn 2018 and consequently leisure journeys returned to growth. The acceleration in real wage growth led to higher growth in journeys in the second half of 2019.

The biggest drivers affecting passenger demand include service and major project improvements, such as the Four Lines Modernisation programme, which will see timetable improvements on the Circle, District, Hammersmith & City and Metropolitan lines.

Demand will also be affected by customers swapping the Tube for new routes via the Elizabeth line and TfL Rail services. The central section of the Elizabeth line between Paddington and Abbey Wood is due to open in 2021, and we expect more passengers to move across from the London Underground as each stage is opened, in addition to new demand overall.

This Business Plan includes improvements such as the Northern Line Extension, which is due to open two more stations in autumn 2021, and timetable improvements on the Northern and Jubilee lines in autumn 2021 and 2022 respectively.

Buses

Operated kilometres and speeds are two of the main drivers of demand for buses. Following our review of bus services in central London, we continue to adjust the network in response to demand. In 2019/20, the total number of operated kilometres in inner London have been reduced in response to falling demand. This will more than offset growth in outer London where new routes have been introduced and frequencies improved.

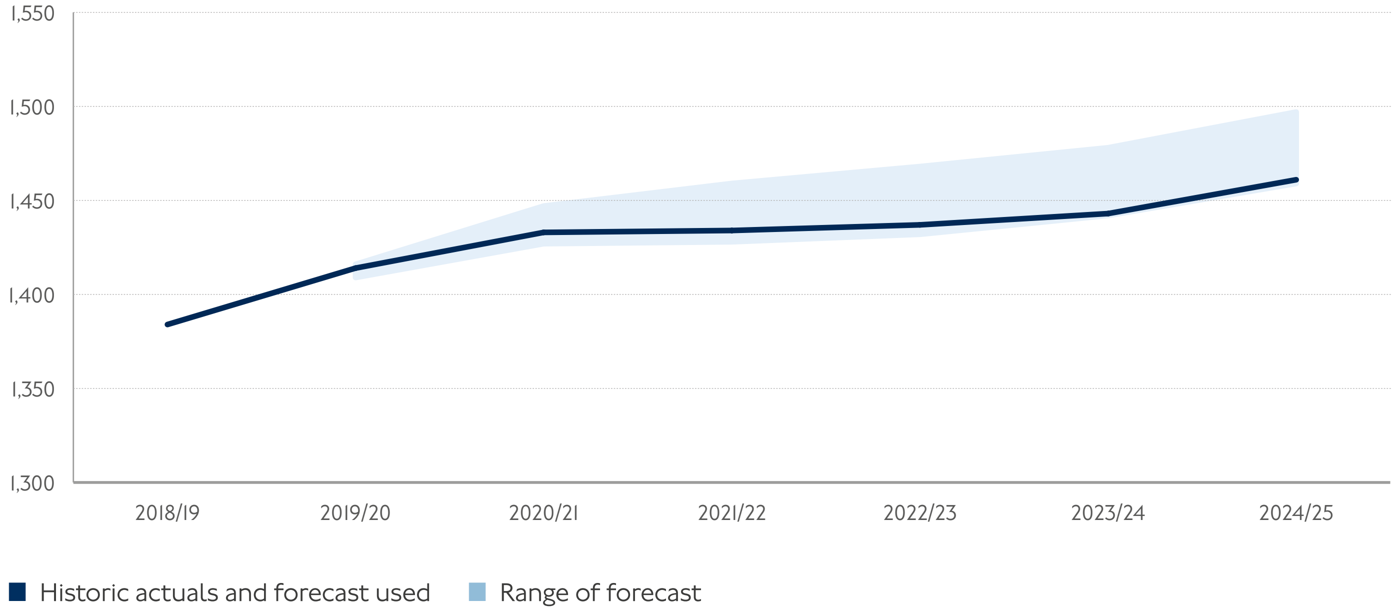
Beyond 2019, total operated kilometres will remain flat as we continue to reshape services. In outer London, service volume will grow by five million kilometres over the period of this plan. These enhancements will be targeted at areas where people are most likely to switch from cars to buses and where we can best drive demand, such as growth areas, town centres and hospitals.

We will operate more bus kilometres in the short term and bus speeds will be more stable than we projected in the 2018 Business Plan.

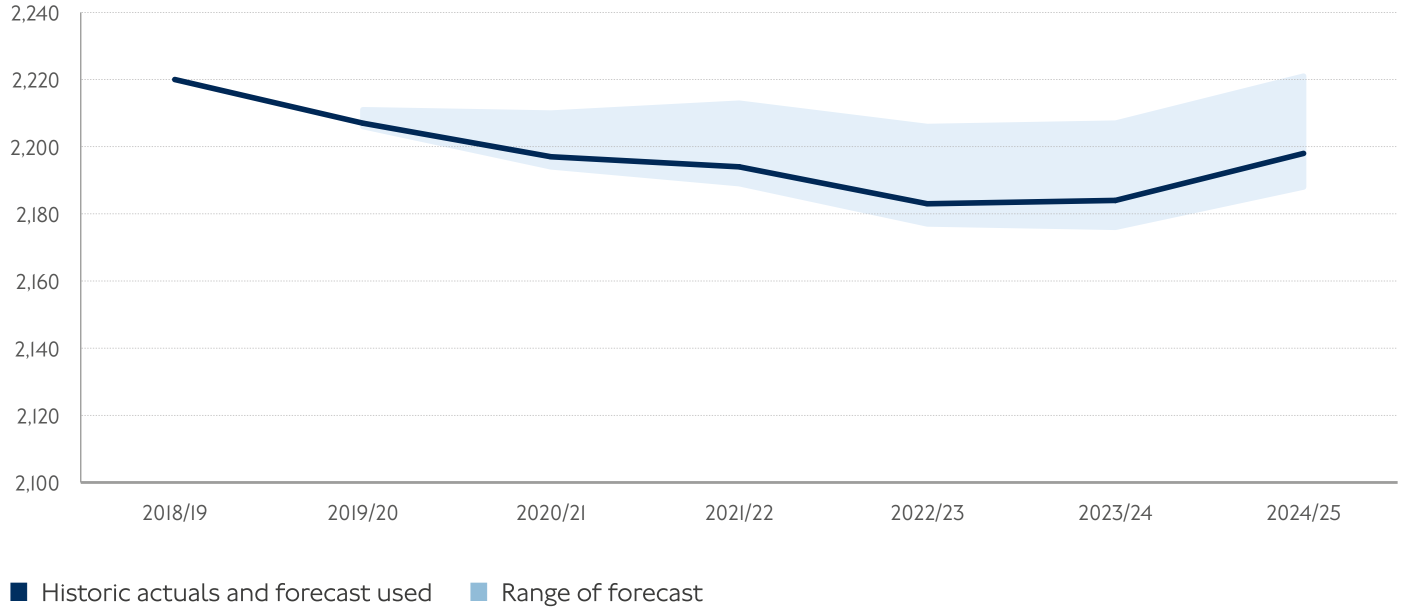
The decline in passenger numbers has eased in 2019/20, with off-peak and non-fare-payer demand improving. Bus journeys are forecast to fall by 0.7 per cent in 2019/20, compared to a reduction of 1.2 per cent in 2018/19.

In the short to medium term, bus demand is forecast to fall by 0.5 per cent each year as economic activity and population growth are more uncertain than in previous years. However, with plans to stabilise bus speeds, we are confident we can return bus patronage to growth in the long term and are forecasting increasing demand at the end of this Business Plan.

London Underground passenger journeys (millions)



Buses passenger journeys (millions)

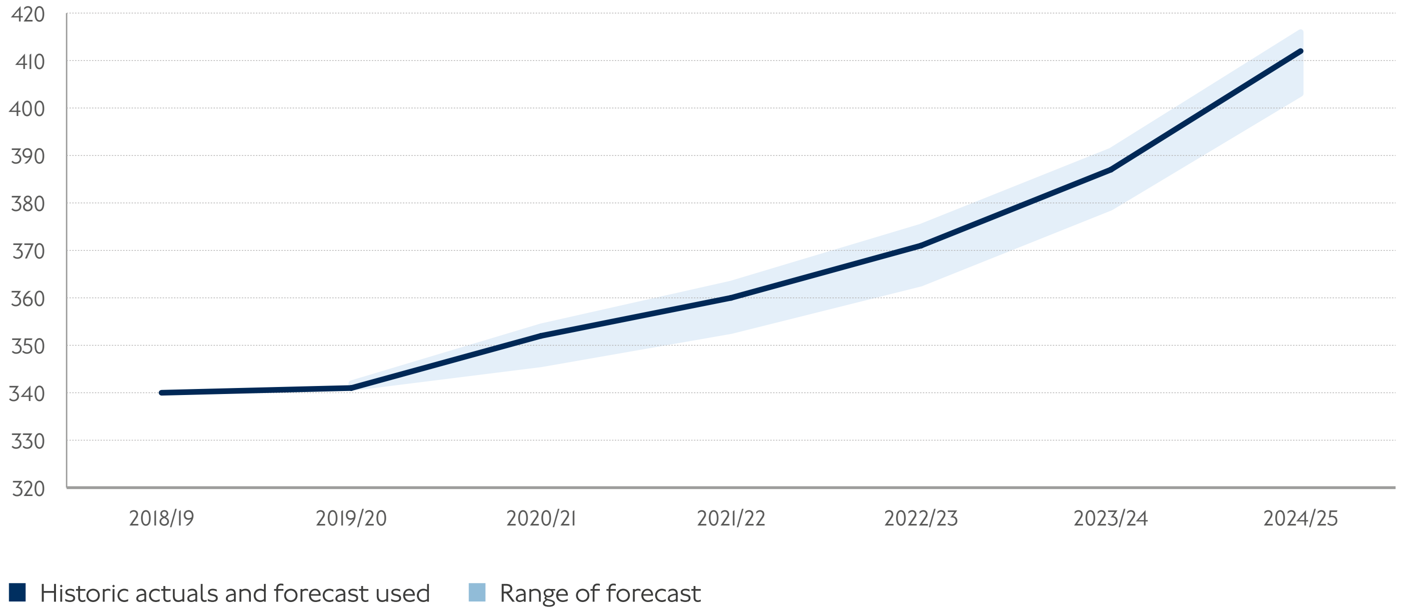


Rail
Owing to the relatively small size of our rail networks, internal factors disproportionately impact demand. These include planned engineering closures, new trains and service frequency changes.

Rail demand was flat in 2018/19. In 2019/20, we expect DLR journeys to grow while London Overground and trams journeys are forecast to remain static. From 2020/21, we expect London Overground journeys to increase strongly as the introduction of new trains between Gospel Oak and Barking and new peak services in north London boosts demand. The delay in the opening of the Elizabeth line will reduce abstraction of demand from the DLR and lift journeys in 2020/21, in contrast to the 2018 Business Plan. DLR demand due to Elizabeth line abstraction will now dip in 2021/22, before returning to growth in the medium to long term.

Demand for trams is expected to remain static in the near to medium term. An increase in demand is expected towards the end of this Business Plan with the opening of the Westfield development in Croydon town centre. The delay in related works means the increased demand will be later than in last year's plan.

Rail passenger journeys (millions)



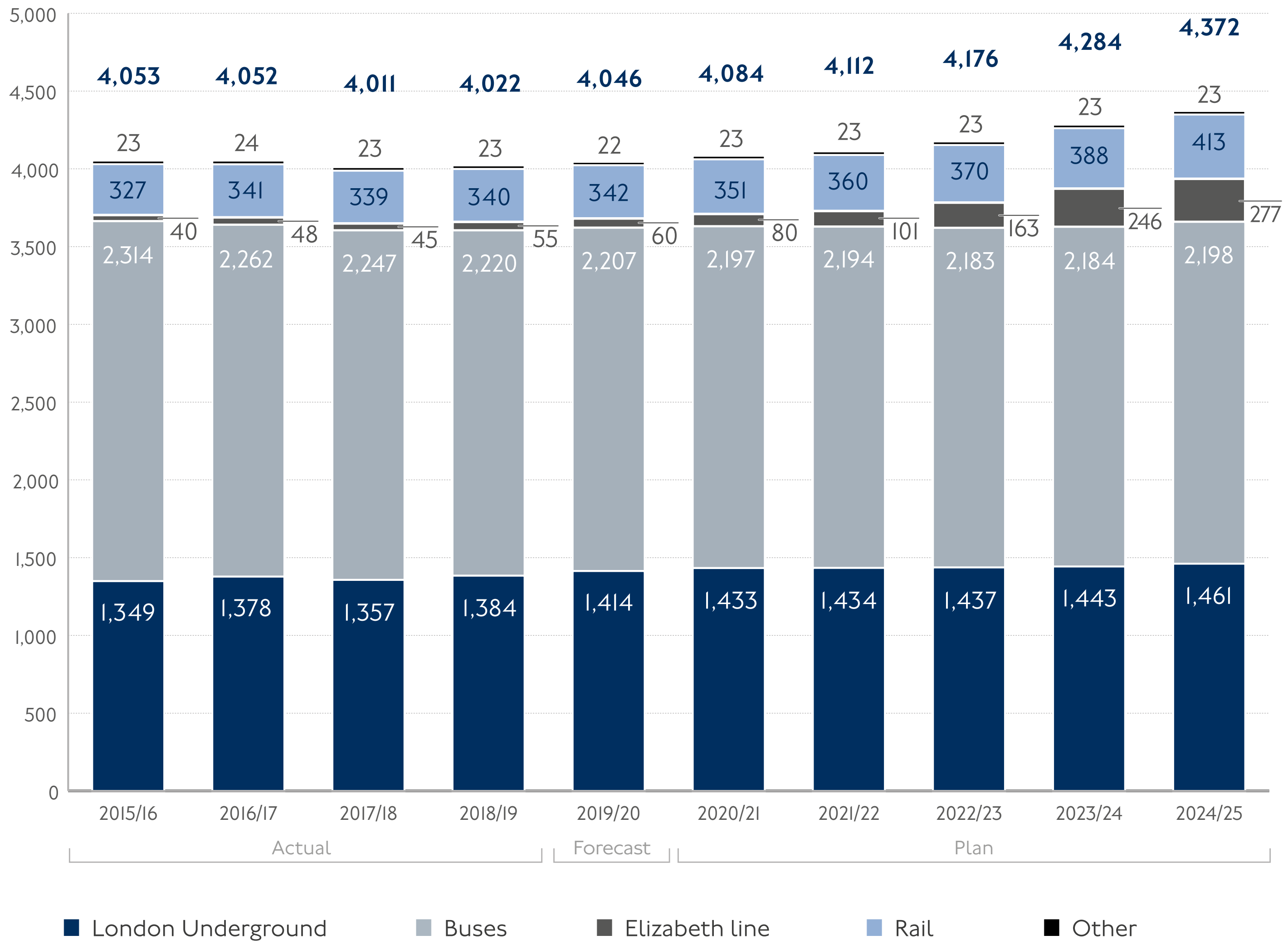
Operational trends

In the next five years, we expect the overall number of passenger journeys in London to increase by eight per cent, from 4,046m in 2019/20 to 4,372m in 2024/25. This is driven by the phased opening of the Elizabeth line, which will increase rail capacity in central London by 10 per cent once fully open, as well as general population and economic growth over the next five years.

We expect some passengers to move to the Elizabeth line from other modes, particularly the Underground and DLR. These modes should recover this loss and benefit in later years as the huge uplift in connectivity that the Elizabeth line brings will create new demand across the network.

We expect cycle hire to continue to steadily increase as we invest in cycling infrastructure, ensuring safety is our top priority.

Passenger journeys (millions)



Changing transport trends

London's economic success has played a key part in increasing sustainable travel

More people, jobs and investment have increased demand for sustainable travel, with Londoners and visitors choosing to walk, cycle and use public transport. This puts pressure on our public transport networks, particularly the Underground. For example, in November 2019, we saw the busiest day in the history of the Tube, with more than five million journeys taking place in a single day.

Since 2000, London has seen rapid population growth, which has led to increased demand for travel. In the last 10 years, London's population has grown by more than one million people. Over this time, public transport use has also grown, often at a more rapid rate than the population. This growth in demand and sustained investment, such as early investment in the bus network, was followed by the Tube upgrade programme, the transformation of the London Overground and innovations such as the Oyster card. Meanwhile, a fall in traffic reflected increasing constraints on the roads, the impact of the Congestion Charge and society's general move away from the car.

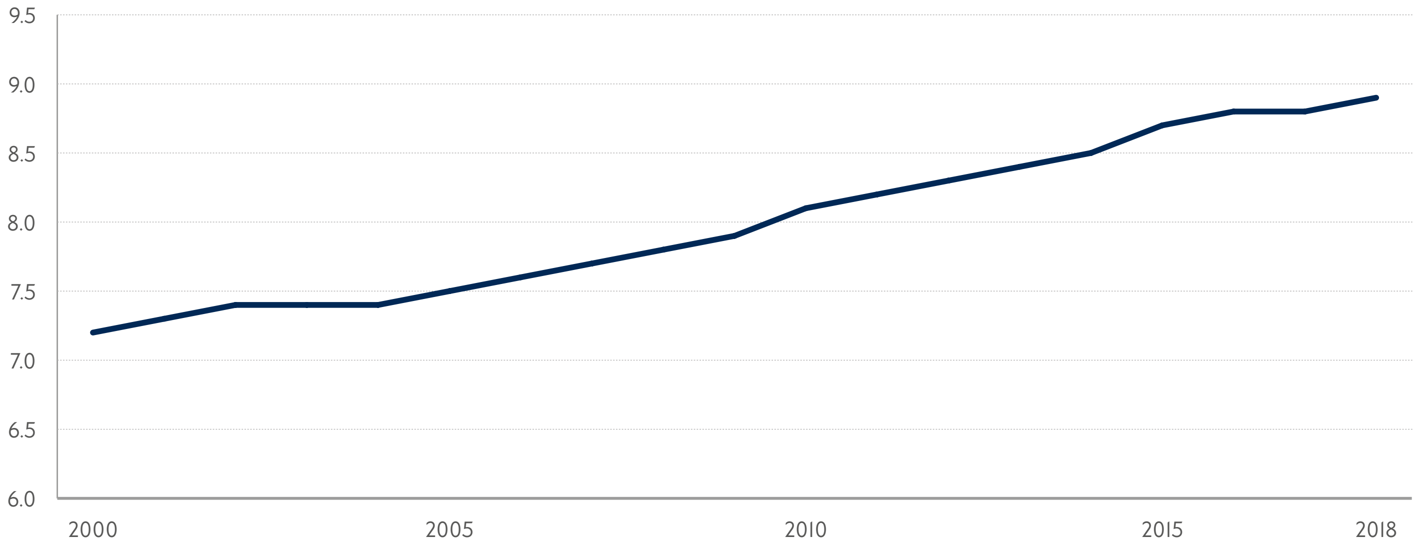
The impacts of climate change and extreme weather will also put the reliability of London's transport network under additional pressure. We are already seeing disruptions linked to extreme weather events and it is vital that we become more resilient to ensure our future operations.

We are now seeing potential challenges to these trends. With continued uncertainty in parts of the economy, a prolonged squeeze on disposable incomes owing to slow wage growth and rising housing costs, and slowing population growth, public transport growth has levelled off. Meanwhile, in some parts of London there have been increases in road traffic, primarily reflecting changes to freight and distribution. Furthermore, while employment remains buoyant, the economic structure of work is changing rapidly. Contemporary and future technology-driven trends, including increased flexible working, have implications for travel demand patterns that we must understand better.

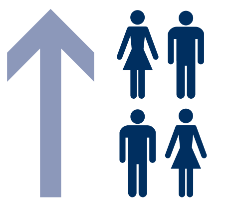
All these changes have affected our progress towards our strategic ambitions. These trends largely post-date the evidence base for the Mayor's Transport Strategy and may not be sustained beyond the short term, but they have all had a short-term impact on travel demand. They serve to intensify the need for the policies in the Mayor's Transport Strategy.

Against this backdrop, we continue to provide high levels of service and reliability. We are making large-scale investment in London's streets to make them safer and more attractive for walking and cycling, with above-average growth in cycling in locations that have received investment. The Elizabeth line will soon provide a step change in public transport connectivity to, from and within London.

London's population growth (millions)



The steady increase in growth from 2012 to 2015 was driven by international migration. As this declined, growth slowed to its lowest point in 2017. Since then, net international migration has again driven growth.



1 million

increase in London's population in the last 10 years

1.2%

average annual population growth since 2000

Key performance indicators

We use different metrics to measure our performance against the Mayor's Transport Strategy and our organisational priorities

Key performance indicators are reported on the TfL scorecard, which is approved by the Board, or on individual business area scorecards. Our scorecards capture the outcomes required over the next year to deliver our Business Plan and ensure we are on track to meet the outcomes of the Mayor's Transport Strategy. The following graphs show our progress so far, as well as a projection over the Business Plan period.

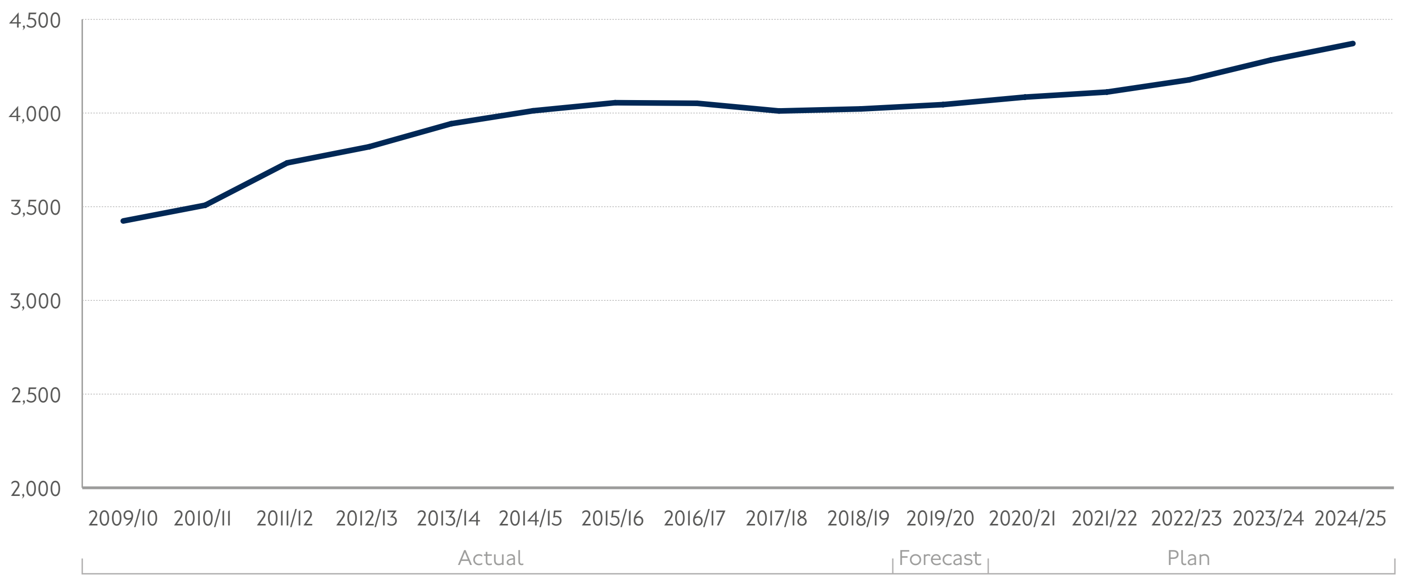
Passenger journeys

Between 2009/10 to 2014/15, increases were driven by demand for rail services and capacity increases on the Tube. The dip from 2016/17 was due to falling bus ridership, but we aim to stabilise this over the plan. In addition, the Elizabeth line will add more than 240 million new journeys in the later years.

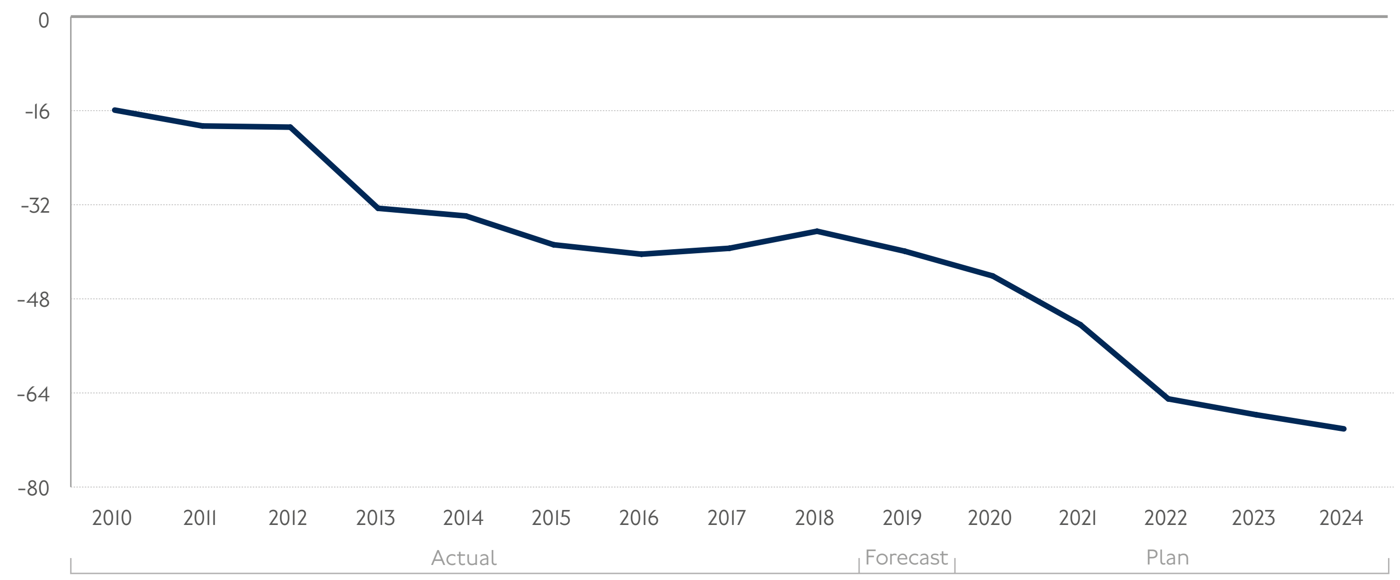
Safety

Our progress earlier in the decade has slowed recently and the 2022 target of 65 per cent remains very challenging. We will deliver a number of targeted initiatives designed to reduce road danger, including lowering speed limits in central London, delivering the Direct Vision Standard, improving safety at key junctions and launching our bus safety programme.

Total passenger journeys (million)



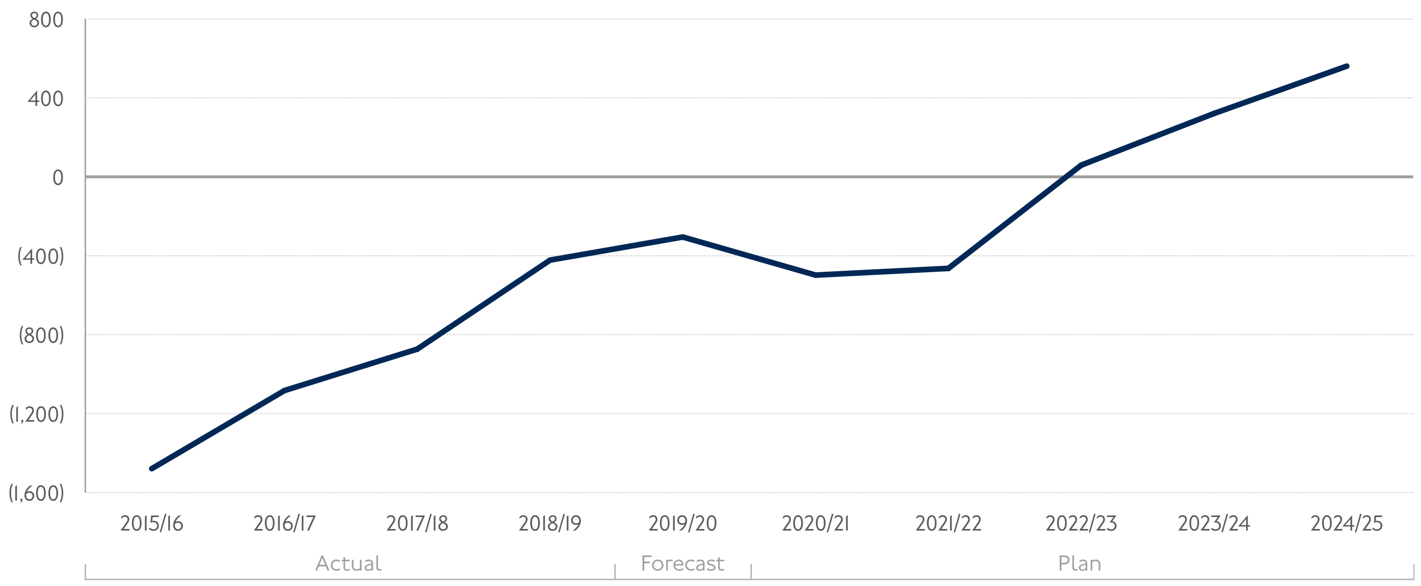
Reduction in people killed or seriously injured in London against 2005-09 baseline (%)



Net deficit

We have reduced our deficit, as measured by our net cost of operations, which shows our ability to cover financing costs and capital renewals, by more than £1bn, excluding the former Government general grant. We have achieved this by firmly gripping our costs, both internally and through our supply chain. Despite the financial headwinds of Elizabeth line delays and Brexit uncertainty, we are still forecasting to generate a net operating surplus in 2022/23.

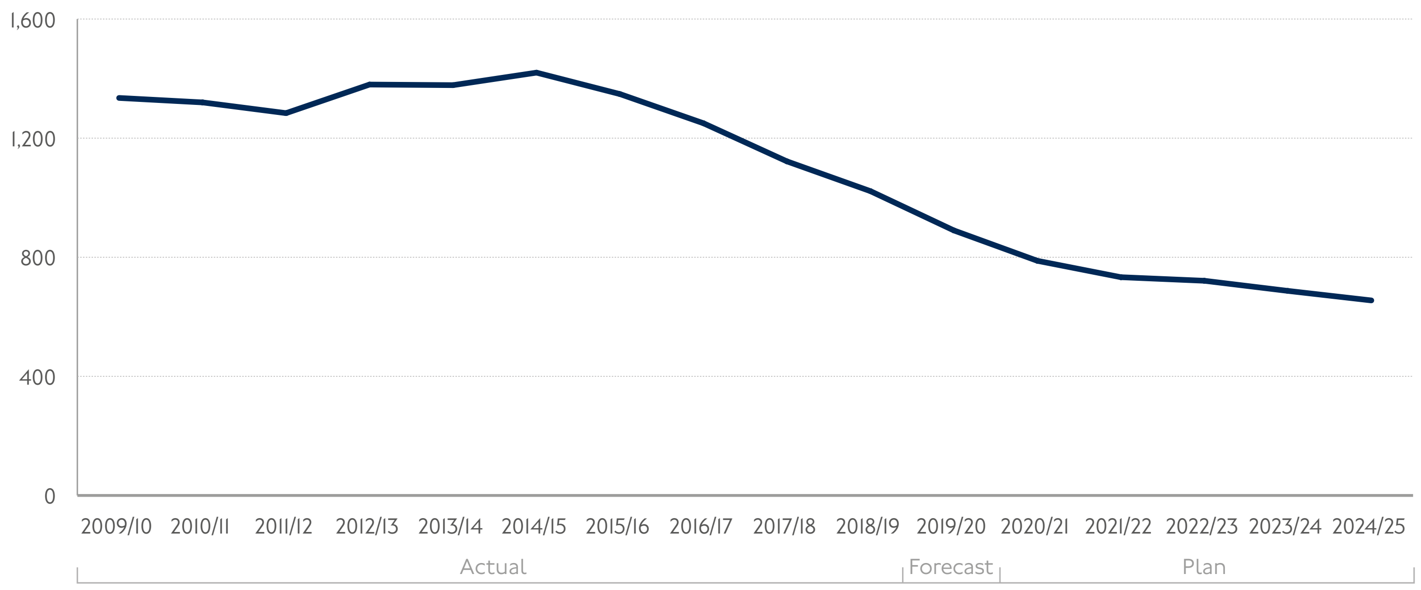
Net cost of operations (£m)



Environmental impact

Emissions increased in the early part of the decade, owing to Tube upgrades and an increase in the number of high-intensity bus routes. Since then, there has been a significant decrease as a result of investment in low emission buses, energy efficiency projects and the reduced carbon intensity of grid electricity.

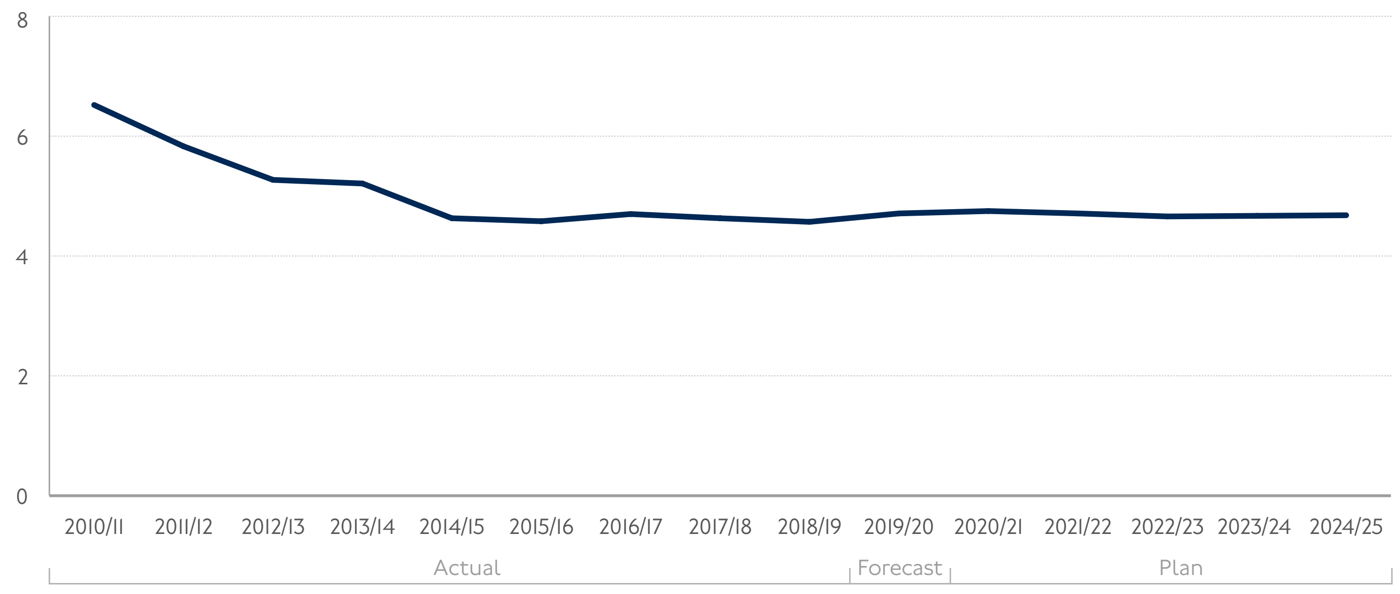
Total carbon emissions (kilotonnes CO_2)



London Underground excess journey time

Excess journey times have decreased substantially, largely due to improvements in asset reliability and rolling stock and signalling renewals. We are forecasting to hold this flat over the plan.

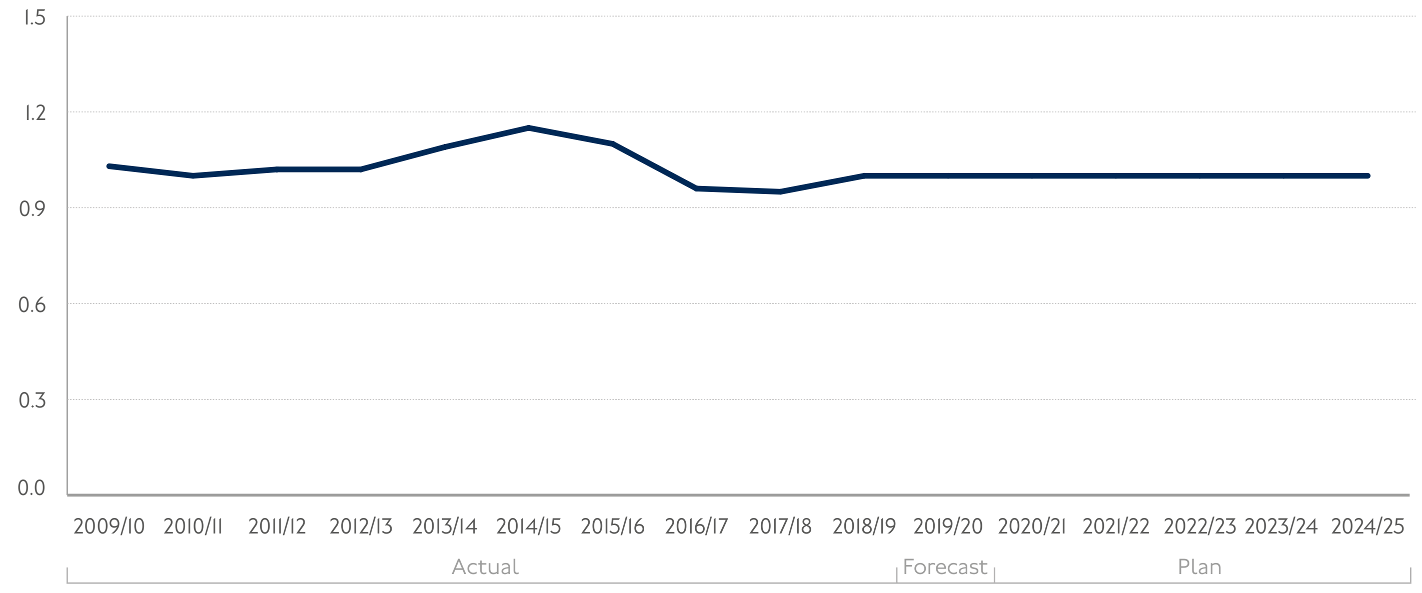
London Underground excess journey time (minutes)



Bus excess wait time

Excess wait time increased over the mid-part of the decade, owing to road disruption that lead to a decline in bus speeds. We addressed this by reducing roadworks and improving signal timings, and we are planning to hold excess wait times flat for the period of the plan.

Bus excess wait time (minutes)



Delivering the Mayor's Transport Strategy

Our work over the course of this Business Plan is underpinned by the guiding principles of the Mayor's Transport Strategy, which includes driving demand for sustainable travel and working towards our Vision Zero ambition.

The strategy and vision

The Mayor's Transport Strategy sets the priorities and longer-term direction of this Business Plan

The strategy acknowledges the key role of transport in shaping London and its global competitiveness, as well as in improving the health, opportunities and quality of life of those that live and work in the city.

The central aim of the strategy is to create a place that is not only home to more people but is a better space for them to live. This means a safer, healthier, cleaner, greener, more inclusive and better-connected city.

Healthy Streets and healthy people

Our investment is centred around improving the experience of being in the places where people live, work, go to school, spend time and travel. We will reduce traffic dominance and encourage people to walk, cycle and use public transport. This will help Londoners lead more active, healthy lives and create a city that works for all its residents.

A good public transport experience

We will ensure that public transport is an increasingly attractive alternative to using a car. Proper planning and investment in the whole journey will help integrate public transport with our on-street schemes. Making services available where people need them, reducing overcrowding and keeping fares affordable will help us achieve these goals.

New homes and jobs

Improvements to transport are vital for creating the new homes and jobs that London needs. Our investment will help create communities where amenities are within walking and cycling distance and public transport is available for longer journeys. This will protect the environment, ensure growth that supports healthy lifestyles and improve the quality of life for all Londoners.

Making the vision a reality

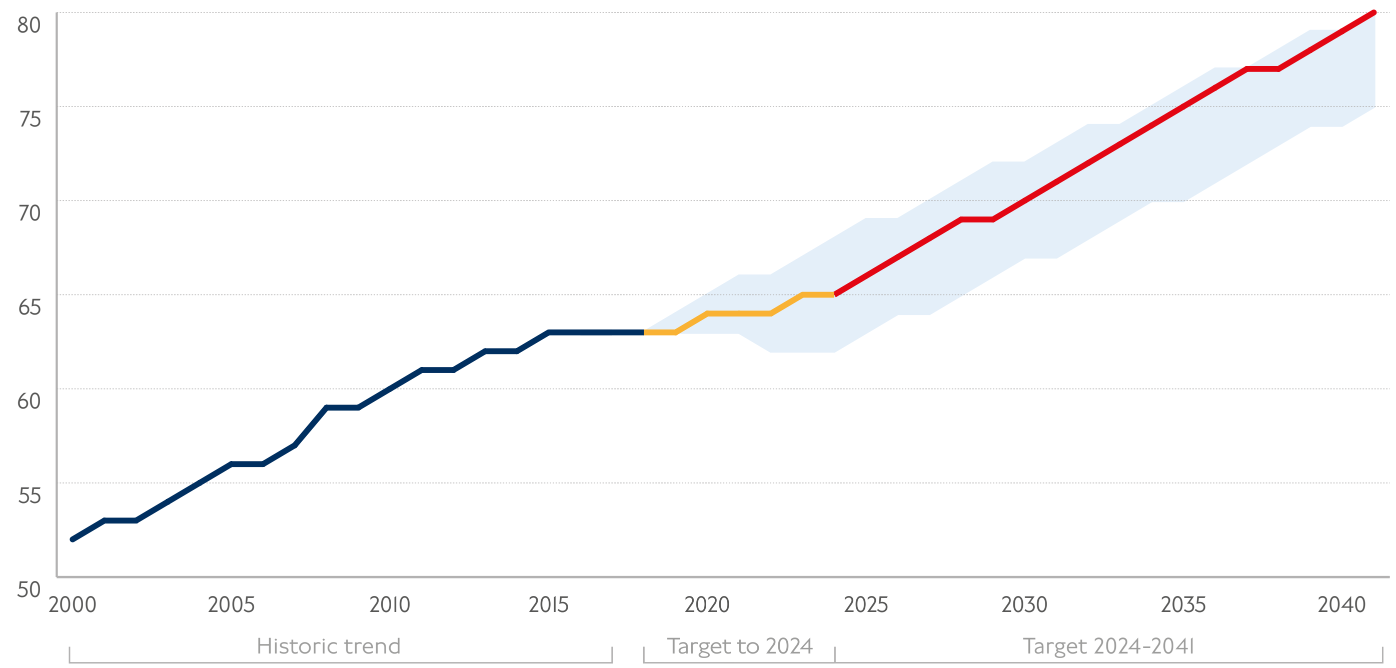
The Mayor's Transport Strategy aims for a significant shift in travel behaviour, so that, by 2041, 80 per cent of trips are made by walking, cycling or using public transport. Improving safety and security, and achieving Vision Zero, will be fundamental in supporting this strategy.

The investment outlined in this Business Plan will enhance the capacity and quality of the public transport network to improve connectivity, boost economic productivity, make travel more accessible and inclusive, and facilitate growth in jobs and homes. We will reduce the environmental impact of the transport network by cutting emissions, while becoming more resilient to climate events.

While the pace of change has notably slowed in recent years, the overall trajectory of growing travel demand and a shift towards active, sustainable and efficient modes, which are familiar over the last two decades, is being maintained. We expect the amount of trips made by sustainable modes to increase from 63 per cent to around 65 per cent by 2024. This will be an increase from 52 per cent in 2000 and will be the highest figure since TfL was formed.

This plan also supports the approach that transport is not only a means of moving people and goods, but also one that helps create the streets where people live, shop and spend time, where businesses develop and where communities come together.

Expected path to achieving the Mayor's sustainable transport ambition (%)



The shaded region shows the range of outcomes and risk to achieving the 80 per cent target.

Healthy Streets and healthy people

Our Business Plan is focused on increasing the number of people who travel on foot, by bike or who use public transport. Creating Healthy Streets and achieving Vision Zero are critical to reaching this aim.

36%
reduction in roadside nitrogen dioxide pollution in central London since February 2017

150km
of protected cycling space created by May 2020

2,000+
zero-emission buses over this Business Plan

20mph
speed limits introduced on some of our roads in central London

Vision Zero

Our Vision Zero commitment is that we will not tolerate anyone being killed or seriously injured while travelling in London. We are running a wide range of projects and programmes to support our work in eliminating deaths and serious injuries on the transport network. Our target is to reduce the number of people killed or seriously injured on our roads by 65 per cent against 2005/09 levels, increasing to 70 per cent for incidents involving buses, by 2022.

Safe speeds

We have started work to introduce 20mph speed limits on all our roads in the Congestion Charging zone, by early 2020. We are also bringing forward plans for safer speeds in some of the most high-risk areas outside central London, including Commercial Street and Whitechapel Road. Infrastructure designed to reduce speeds will be supported by driver information and increased enforcement to encourage motorists to drive safely.

Safe streets

We will continue investing to make London's streets safer. We are on course to complete 41 of our 73 Safer Junctions by May 2020, with the majority being completed or consulted on by 2023. Full details of our ambitions can be found in our Vision Zero action plan, which was published in July 2018. Recently completed schemes have led to a significant reduction in collisions. This includes 67 per cent reductions at St George's Circus and Charlie Brown's Roundabout. Future schemes include reducing road danger at the busy Elephant and Castle southern roundabout.

This plan also includes funding for more far-reaching schemes to tackle some of our riskiest roads. Locations earmarked for review include the Commercial Road corridor in east London and Bishopsgate in the City. We will also work with Lambeth Council to create a healthier, safer environment in Brixton town centre.

We will also continue to expand and improve London's cycle routes. Our new evidence-based quality criteria will ensure new routes meet strict safety standards, with a focus on traffic volumes and speeds.

41
out of 73 Safer Junctions to be completed by May 2020

Safe freight vehicles

The world's first Direct Vision Standard and HGV Safety Permit Scheme launched in October 2019. The scheme will reduce the danger posed by HGVs to vulnerable road users, such as people walking and cycling. Enforcement will begin in October 2020, giving the freight industry a year to improve the safety of their vehicles and apply for permits. HGVs must have a minimum level of driver direct vision of one-star or fit a safe system, such as cameras and sensors. Breach of the scheme will incur a £550 penalty charge notice. In 2024, the permit requirements will strengthen to a minimum of three stars or an enhanced safe system.

Safe trams

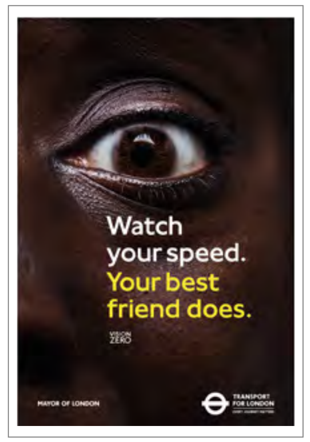
We have made significant progress in implementing the recommendations from the Rail Accident Investigation Branch following the tragic overturning of a tram at Sandilands in November 2016. Most of the recommendations have been completed, with the remaining ones in late stages of implementation. The most technically challenging project, and a first for trams in the UK, is the introduction of a new system that automatically applies the brakes if a tram exceeds the speed limit. This automatic braking system, which will be fully operational by December 2019, will not only improve safety in London, but we hope it will lead the way for other tram operators across the country.

Safe buses

Our Bus Safety Programme will continue to drive major safety improvements, helping us reach our target of no-one being killed on or by a bus by 2030. Our Bus Safety Standard is now applied to all new bus contracts, meaning buses on these routes will have the latest safety technology, including Intelligent Speed Assistance and redesigned vehicles. We are also developing an audio alert system for quiet buses and are running a Bus Safety Innovation Challenge, which awards funding to operators to trial new technology and techniques.

Safe behaviours

Our partners in the Metropolitan Police Service and City of London Police will continue to take a Vision Zero approach to roads policing, with a more intense focus on the riskiest locations and most dangerous drivers. This includes cracking down on drivers who speed, use mobile phones, have no insurance or licence, drive under the influence of drugs or alcohol, or in a dangerous or careless manner. We will also increase our Vision Zero messaging, including more intense communications at high risk locations and our new marketing campaign. We will continue our focus on the human cost of road casualties and challenging the belief that deaths and serious injuries are inevitable.



Growing our quality cycle network

We are on track to have delivered more than 150km of protected cycling space by May 2020 and will continue expanding the network of quality cycle routes over the course of this plan and beyond, using the quality criteria outlined in our Cycling Action Plan. Work is well under way on Cycleway 4 between Tower Bridge and Greenwich, with construction work soon to start on Cycleway 9 in west London.

Transforming our busiest junctions

We will continue transforming the areas around some of London's busiest junctions to make them safer, healthier and more pleasant places. In 2020, we will continue works at Old Street Roundabout and start work at Waterloo Roundabout to improve safety for people who walk and cycle, as well as creating more space to enable easy interchange on to public transport. We will continue to progress plans to improve Wandsworth town centre and remove traffic-dominated one-way systems at Vauxhall Cross and Stoke Newington. We will also continue working to improve safety at a number of other locations across London.

Rotherhithe to Canary Wharf crossing

We are developing proposals for a new, clean, fast ferry service between Rotherhithe and Canary Wharf. This new service will provide a much-needed walking and cycling link, helping to connect the communities on both sides of the Thames.

It will also support growth in these two key Opportunity Areas and will shorten journey times, as well as encouraging more active and sustainable travel.

We expect to provide further information on our plans for the new ferry service in 2020.

Improving cycle parking where it's needed

Secure and convenient cycle parking is an important part of enabling more people to cycle. We are working closely with boroughs and other partners to introduce more new facilities across London, for example doubling the capacity of a secure cycle parking hub outside Walthamstow Central station. Working with our partners, we have developed our new Cycle Infrastructure Database to identify where cycle parking is most needed and launched London's first Cycle Parking Implementation Plan in July 2019.

We will continue this strategic, evidence-based approach, including making parking an integral part of all new cycle routes to help unlock more new cycle journeys.

Growing our fleet of green buses

London continues to have one of the largest and greenest bus fleets in the world. Of the Capital's 9,000 buses, more than 85 per cent meet or exceed the ultra-clean Euro VI standard, including more than 2,800 that enter the central London ULEZ each day. We completed 12 Low Emission Bus Zones outside central London in 2019, one year earlier than planned, and will finish upgrading the fleet by autumn 2020 to make all London's bus routes at least ultra-low Euro VI.

We will continue working to make all our buses zero-emission at tailpipe by 2037 at the latest. London currently has more than 200 electric buses – Europe's largest electric fleet – and over this plan, this will grow to more than 2,000. Routes 43 and 134 became the UK's first routes to be awarded with double-deck electric buses, which are progressively entering service, and we have awarded contracts to operators for a further 200 electric buses, expected to enter service at the end of 2020.

Expanding ULEZ

In April 2019, we launched the world's first ULEZ in central London, which has already achieved real air quality improvements.

The ULEZ will be expanded further to the North and South Circular Roads in October 2021. In October 2020, the Low Emission Zone standard for HGVs, buses and coaches will be tightened to Euro VI (currently Euro IV for particulate matter).

We expect these schemes to lead to a 28 per cent reduction in road transport nitrogen oxides across London and to 71 per cent fewer schools being in areas exceeding legal limits by 2021.

To help Londoners prepare for the ULEZ expansion, the Mayor allocated £48m towards vehicle scrappage for micro-businesses and those on low incomes or with disabilities, to help them move to cleaner vehicles or switch to walking, cycling and public transport.

In addition, we will also continue to support the Mayor's Air Quality Fund, which over the past three years has delivered five ground breaking Low Emission Neighbourhoods along with 19 other local air quality projects.

Preparing for the effects of a changing climate

The Mayor has declared a climate emergency which poses a risk to our infrastructure, staff and customers and we are working hard to maintain operations in increasingly challenging conditions. London will experience warmer, wetter winters and hotter, drier summers, together with more frequent and intense severe weather events.

We are assessing the impact of current severe weather events on our transport system to help us understand the scale and frequency of future impacts. This will inform our planning to make the network more resilient.

For example, a recent Masters research project found differences in Underground lines' resilience to high temperatures. This was likely linked to different asset types in different lines and will have implications on the decisions we make on asset renewals.

We are mitigating the impacts of climate change by making public spaces greener, to provide shade and reduce surface water run-off. We are installing water fountains across London to provide free water to help people cope with increasing temperatures.

Boost to rapid charging points

We are on track to reach our target of installing 300 rapid charge points across the Capital by December 2020, having already installed 225 by December 2019.

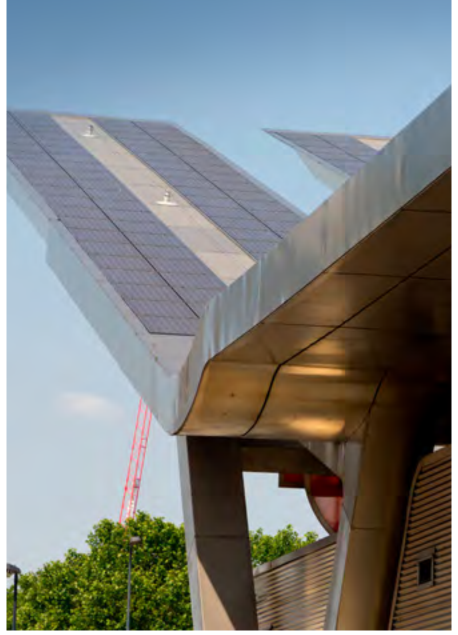
In June 2019, we launched the London electric vehicle infrastructure delivery plan, which was steered by the Mayor's Electric Vehicle Infrastructure Taskforce. This aims to ensure the availability of charging infrastructure in London is not a barrier to people switching to electric vehicles.

The delivery plan recommends focusing on deploying more rapid charging hubs and offering a good coverage of additional rapid charge points to serve London's town centres. This will assist essential road users, such as taxis, private hire vehicles and other commercial drivers to make the switch to electric vehicles.

There is already a growing fleet of 2,800 zero-emission capable taxis, including the first ever all-electric black cab.

Solar

We are installing 1.1 megawatts of solar generation capacity at three depots, starting with our tram depot in Croydon. We are also assessing other sites across our estate for suitability of solar either on rooftops or on land.



Power purchasing

The Mayor's Transport Strategy sets out an ambition to make our rail services zero carbon by 2030. While we are improving the energy efficiency of our operations and increasing renewable generation on our estate, we will still be one of London's largest users of grid electricity. That is why we are developing plans to purchase electricity through new renewable generation in the UK, subject to market testing demonstrating that this approach can deliver financial as well as environmental benefits.

Sustainable design

We evaluate the environmental risks and opportunities of our plans, building in the Mayor's Transport Strategy goals from the start. This includes incorporating more green spaces, sustainable drainage and energy efficiency, as well as designing and delivering projects in a sustainable way. A recent example is White Hart Lane station, which incorporates environmental benefits including 100 per cent recycled granite floor tiles for the concourse, staircases and lift landings, solar panels on the roof, and low energy produced standard glass. The station's mains supply is also from 100 per cent renewable energy.

Reducing our carbon footprint

We are supporting the shift from private car journeys to lower carbon options – walking, cycling and public transport. As well as making our bus fleet zero emission, we are working to reduce carbon emissions from our entire operations, including making our buildings, stations and infrastructure more energy efficient to cut emissions and save money. We are also progressively increasing the amount of zero-carbon energy supplied to our infrastructure and aim to be 100 per cent carbon free by 2030.

Investing in green infrastructure

Our existing and new green infrastructure assets include our trackside and road verges, trees, and green roofs and walls. They improve the wellbeing of Londoners, contribute to making the Capital more resilient to the impacts of extreme weather and adapting to climate change, and reflect London's status as a National Park City. We are working on the Mayor's commitment to increase tree cover, install sustainable drainage along highways and deliver biodiversity net gain through our major projects. We will maximise opportunities to enhance green infrastructure across our estate, connecting and enhancing designated nature conservation sites and integrating more planting within Healthy Streets initiatives to improve air quality and create more attractive and resilient public spaces.

Making our lights more energy efficient

We are improving the energy efficiency of our lighting at London Underground and London Overground stations. By the end of March 2020, we will have installed LED lighting at a further 21 Underground stations. The remaining 20 stations in our upgrade project will be complete by end of 2021.

Of our 33,900 street lighting columns, 18,000 are installed with LED luminaires. We are converting more streetlights to LED, with at least 3,000 further to be installed in 2020.

Rail traction energy efficiency

We are improving the energy efficiency of London Underground as part of our investment programme. Most Tube lines already have regenerative braking, meaning they use the energy captured from braking trains to accelerate other trains on the line. This reduces the overall energy demand and improves efficiency by 20 per cent.

The new trains we introduce on the London Underground will also be more energy efficient. The new Piccadilly line trains will include regenerative braking and provide improved energy efficiency to the upgraded service. Our Central line train improvement programme will help reduce more than 1,700 tonnes of carbon emissions each year from new traction motors and LED lighting in the trains.

1,700

tonnes of carbon emissions reduced each year from train improvements on the Central line

Bus priority

Buses carry more people each day than any other public transport mode in London. Therefore, an efficient and effective bus network is essential for sustainable growth. Our Bus Priority Programme targets investment to improve bus journey times and reliability, which are essential factors for retaining ridership and revenue while also minimising operating costs. We are looking to save more than 400 hours of bus travel time through a mix of traffic signal changes and new infrastructure, such as bus lanes, which will benefit thousands of passengers.

Making the most of our traffic lights

We will replace our current traffic light control system to enable us to manage the roads better, tackle congestion, improve air quality and make it more convenient to travel sustainably. The new system is expected to launch in 2021.

We are also investing to make better use of our existing technology and infrastructure. There are 4,500 traffic light junctions that use SCOOT, which detects traffic volumes and instantly adjusts signal timings to make sure the busiest movements get more time. This year we are developing a new detector for pedestrians so that this technology can help more people wanting to cross roads.

Integrating innovation

New ideas and business models are being developed all the time. We must be actively involved in the future of transport, for the good of Londoners and the Capital. We engage with many partners to assess and test new ideas and developments. This means we can ensure appropriate safeguards are in place and decide which new business models or services could help. We are trialling demand responsive buses and working with the boroughs to develop a London-wide regulatory approach to dockless bike sharing. By using evidence and collaborative working, we can create longer-term policies or contractual frameworks to ensure new innovations are integrated and work for all.

Restarting our road renewals and maintenance programme

We are focused on using our limited funding to keep London's roads safe and reliable.

We will target the assets that are most in need, to provide the greatest benefits to road users – in particular those walking, cycling and using public transport.

From 2020/21, we will restart our proactive road renewals. This includes works to carriageways, footways, traffic signals, lighting, bridges, tunnels and drainage.

In 2020, we plan to resurface more than 30km of road, replace at least 3,000 streetlights with energy-efficient LEDs, modernise around 50 traffic signal sites and replace the expansion joints and waterproofing on Vauxhall Bridge.

We are also starting a multi-year programme of renewal works on the Westway (A40) and developing plans to refurbish Rotherhithe Tunnel.

Travel demand management

To help minimise disruption for customers, we now offer targeted travel advice. Our recent projects include helping customers make changes to their travel to avoid potential disruption, spreading demand for our services and in turn helping keep London moving. Our travel advice saw 41 per cent more customers use the Bakerloo line during works at Kennington station for the extension of the Northern line.

Over the coming years, we will provide similar support for customers ahead of other major projects in this Business Plan, including escalator works at Liverpool Street, works on the Northern line Bank branch, and maintenance work on bridges and other key road structures.

Smarter roadworks to improve safety and avoid disruption for road users

We will look to replicate the success of a new approach to road maintenance, which last year saw us reduce the number of night-time closures on the A2 by two thirds. This saved many hours of disruption, while also eliminating safety incidents.

We will continue to support the delivery of major infrastructure schemes, including making sure works on projects such as the Thames Tideway Tunnel and High Speed 2 are carried out as efficiently as possible and support the objectives of Healthy Streets and Vision Zero.

We will also continue to mitigate the impact of other major roadworks, including those by private developers.

Our new roadworks charter will see us collaborating with the largest utility companies to ensure roadworks are safe, efficient and that they support sustainable travel.

Liveable Neighbourhoods programme to encourage active travel

Our Liveable Neighbourhoods programme gives boroughs the opportunity to bid for funding for long-term schemes that encourage walking, cycling and the use of public transport.

Following the first two bidding rounds, authorities are submitting bids for the next round of funding. This will mean further investment, building on the £86m already awarded to 18 Liveable Neighbourhood projects across London.

The third round of bids comes alongside significant milestones for projects that are already under way. These include public consultations on the West Ealing, Romford Ring Road and Deptford Parks projects, and the start of construction on the Coppermill Village in Waltham Forest.

Local Implementation Plan funding

The Local Implementation Plan programme will continue to allocate funding to boroughs to deliver Healthy Streets changes, including measures to encourage people to walk, cycle and use public transport. Funding is retained at the same level as agreed in last year's plan. The programme helps boroughs deliver more than 500 schemes and initiatives across London each year and is integral to delivering the Mayor's Transport Strategy.

The major schemes currently under way at Camberwell town centre and the West End are due to complete in 2020/21.

Mini-Hollands

Our investment in cycling and walking through the Mini-Hollands programme is starting to transform Waltham Forest, Kingston and Enfield. These projects are planned to be completed in 2020/21, delivering high-quality cycle routes and better streets that encourage people to walk and cycle through outer London.

Car Free Day

In September 2019, London celebrated its biggest ever World Car Free Day. We worked closely with borough partners to deliver the Mayor's Reimagine event, which opened up 27km of roads around the City of London, Southwark and Tower Hamlets. In addition, 17 boroughs hosted their own local car-free events and 25 offered residents the opportunity to host a Play Street, of which there were 385 across London.

In 2020, we will build on the success of Car Free Day 2019 to encourage the growth of regular Play Streets and School Streets, and to reduce car use all year round.

Continuing essential repair work on Hammersmith Bridge

Hammersmith Bridge was used by six bus routes carrying an estimated 16,000 passengers each day before it was closed to traffic in April 2019. This was following the discovery of several hairline fractures.

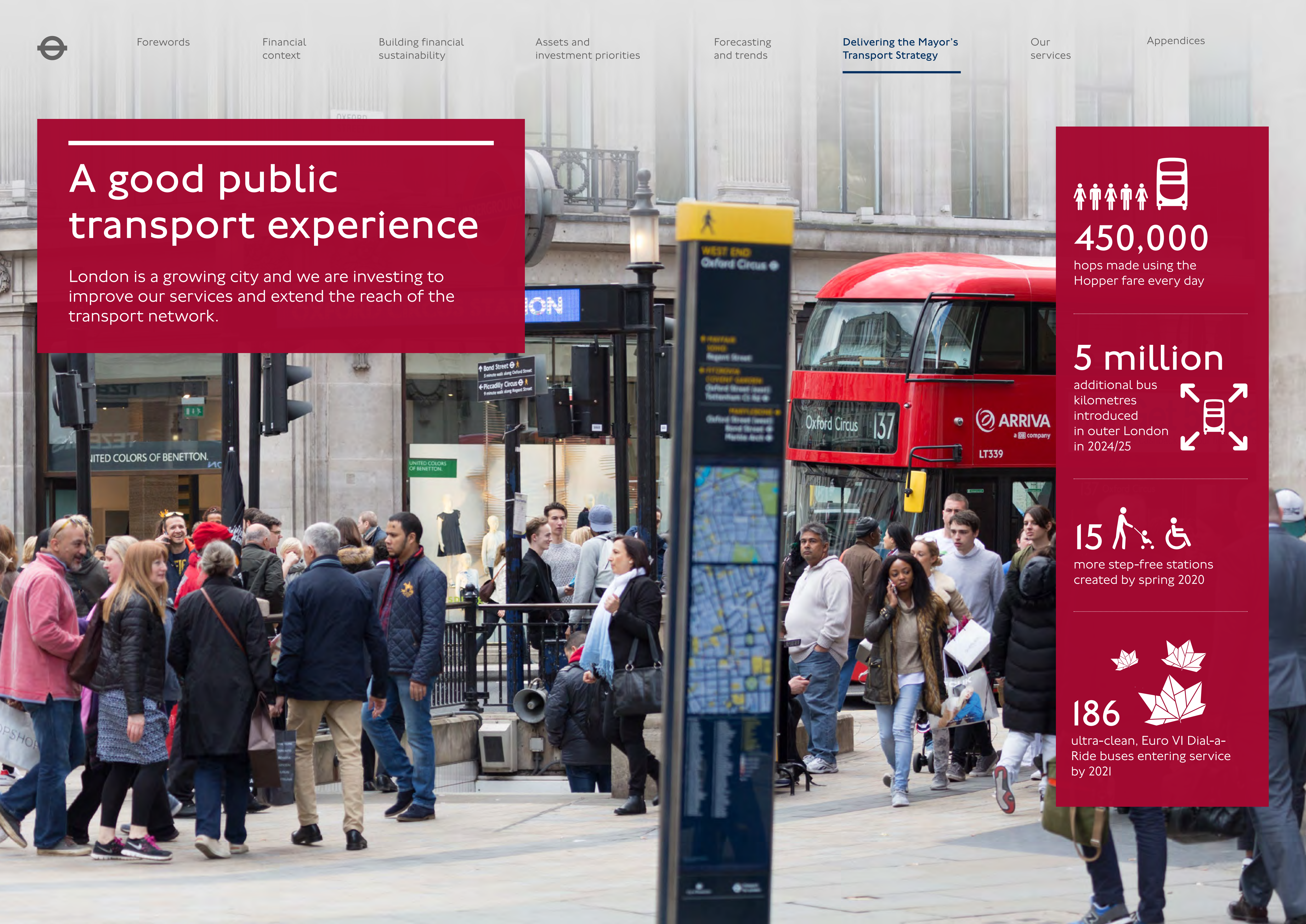
We have worked with the bridge's owner, Hammersmith & Fulham Council, on a repair plan that will see it reopened to cars and buses. We have allocated £25m from our borough roads and bridges budget to pay for design and preliminary works.

We will continue to work with the council to identify funding for the main construction works ahead of the planned award of a contract for this in spring 2020.

We have also made changes to local bus routes to improve links for people affected by the closure and adjusted traffic light timings to reduce delays.

A good public transport experience

London is a growing city and we are investing to improve our services and extend the reach of the transport network.



450,000
hops made using the Hopper fare every day

5 million
additional bus kilometres introduced in outer London in 2024/25

15
more step-free stations created by spring 2020

186
ultra-clean, Euro VI Dial-a-Ride buses entering service by 2021

Rail devolution

London Overground and TfL Rail are examples of how we can significantly improve customer service when commuter rail services are transferred to us. Since taking over these services, we have increased train frequency, increased station staff, reduced delays, improved accessibility and brought affordable, seamless travel into and around the Capital. With the Mayor, we are working with the DfT to consider how additional rail services, such as Great Northern, could be transferred to us so that we can improve them and support new jobs, homes and economic growth.

Making our network safer

Safety and security is our highest priority. Following 10 years of successive crime reduction on our network, we have seen crime levels rise in recent years. This has been driven by theft and low-level violence, as well as improvements to crime reporting.

We are committed to tackling crime and continue to work closely with the British Transport Police. We are prioritising action to tackle hate crime and sexual offences, and to protect our colleagues and most vulnerable customers.

We are investing £380m in the Central line to ensure the trains remain safe and reliable until they are eventually replaced. This includes installing on-train CCTV, as well as replacing critical components, improving wheelchair spaces and introducing LED lighting. We also have a programme to improve revenue protection and halve the level of fare evasion over the next five years. We will work with the police and partner agencies to integrate new technology and target our resources where they will have the greatest impact.

Inclusive journeys

Our diversity and inclusion vision is to deliver a transport network that provides safe, affordable, inclusive and seamless end-to-end journeys for everyone. This is how we support London's social and economic success – by connecting people to jobs, schools and colleges, shops, hospitals, open spaces, leisure facilities, and family and friends.

We are working on a new strategy, Action on Inclusion, to deliver this vision. The strategy will place a greater emphasis on using data, research and evidence to plan, deliver and evaluate our work. This includes embedding the learning from our Understanding Diverse Communities 2019 report.

Our forums and stakeholders, such as our Independent Disability Advisory Group, will continue to offer expert advice and first-hand experiences of the barriers to inclusive journeys. We will also collaborate with the wider industry to identify the innovations that will improve the customer experience.

Our architects, planners, surveyors, engineers, project managers and many others can have a huge impact on how inclusive journeys are. We will therefore continue to develop their understanding through equality impact assessments, Disability Equality and Dementia Friends training.

Inclusive design

Our Inclusive Design Framework will put people at the heart of the design process, ensuring they can use the transport network safely, easily, spontaneously and with dignity. The process acknowledges diversity and difference, while offering choice where a single design solution may not work for everyone.

We want everyone to feel safe and welcome when travelling in London, regardless of age, ability, background, gender, sexual orientation, ethnicity or culture and inclusive design will help us to do this. Key to this is the consideration of a wider set of barriers, including those experienced by customers with autism, dementia, learning difficulties or mental health issues. We will spearhead a global campaign to better understand how to design for the mind, leading to the development of a British Standards Institution Publically Available Specification.

Step-free stations

We are working towards the Mayor's commitment of creating 15 step-free Tube stations by spring 2020, with eight more due to be delivered by the end of 2023/24. We are also making five more stations step-free through our property development portfolio, such as at South Kensington and Colindale.

We are also supporting the delivery of step-free stations on the London Overground through the Government's Access for All programme, as well as using third-party funding. Through this programme, we have already installed lifts at West Hampstead station. Other stations that will potentially benefit include Brondesbury, Hackney Downs, Queens Park and Seven Sisters.

We are agreeing third-party funding to provide step-free access at Surrey Quays station as part of plans to deliver 14,000 new homes in the local area by 2031.

We are exploring innovative, low-cost ways to make our services more accessible for Londoners. This includes improving our turn-up-and-go service, improving signage and continuing our Diversity and Equality Awareness training for frontline colleagues.

New cleaner Dial-a-Ride vehicles

Our vital Dial-a-Ride service continues to help customers every year. We will continue to invest in renewing our fleet, building on our work to ensure we comply with the central London ULEZ, with 186 ultra-clean Euro VI diesel buses entering service in time for the expansion of the ULEZ in October 2021.

In addition to the emissions benefits, the new vehicles will provide a better and safer ride for our passengers. New features include improved braking, better air conditioning and heating, and upgraded suspension.

186
ultra-clean Dial-a-Ride buses entering service by October 2021

Record-breaking Santander Cycles

Covering 100 square kilometres of London, Santander Cycles is Europe's largest cycle hire scheme. We will build upon this success by introducing the scheme along Cycleway 4 between Tooley Street and Canada Water station when this route opens. More people than ever used Santander Cycles in 2018, with more than 10.5 million hires.

Improving and expanding our river services

In November 2019, we published our Passenger Pier Strategy, which sets out our approach to supporting safe and sustainable growth in passenger journeys on the Thames. Vision Zero is a key part of this and we are working closely on this with the river authorities and the river boat operators that we licence to use our piers.

Growth areas offer exciting opportunities for new river journeys, and the new pier at Royal Wharf, which opened in early November, is an example of this. We have also introduced a new cleaner Woolwich Ferry, marking a big step forward and setting an example for a cleaner Thames. We will continue to focus on keeping the newly modernised service as reliable as possible.

Demand-responsive bus trials running in two locations

We are running two 12-month research trials of demand-responsive bus services in Sutton and Ealing.

The services are designed to complement existing public transport and identify whether demand-responsive services could help reduce car dependency in outer London.

Customers can book a seat, using a dedicated app or over the phone. The buses do not follow a fixed route, with customers able to board at pre-determined safe stops within a defined service area.

The Go Sutton service launched in May 2019 and the Ealing service, launched in November 2019. We will use the results of these research trials to inform how we grow and adapt our bus network.

2

demand-responsive bus trials running in Sutton and Ealing

Modernising the bus network

Having modernised the central London bus network, we are investing in outer London bus services to accommodate growth and changing demand. We introduced six new routes in 2019, increased frequency on 24 routes and extended another two, as we work towards a five million kilometre increase in outer London services over the next five years.

Encouraging more people in outer London to travel by bus instead of by car will be vital in achieving the Mayor's target of 80 per cent of all journeys being made by sustainable modes by 2041. Currently, nearly half of all journeys in outer London are by private transport, compared to less than a quarter of trips in inner and central London.

Bank station upgrade project

We reached a landmark in the Bank Tube station upgrade project in 2019, with the completion of the roof over the new station entrance on Cannon Street. The project has now passed the halfway mark, with improvements also under way to create step-free access to the Northern line and DLR, a new southbound tunnel and platform for the Northern line.

A 96-metre moving walkway will speed up interchange times and reduce walking distances, which will improve access, circulation and interchange, and increase capacity by 40 per cent.

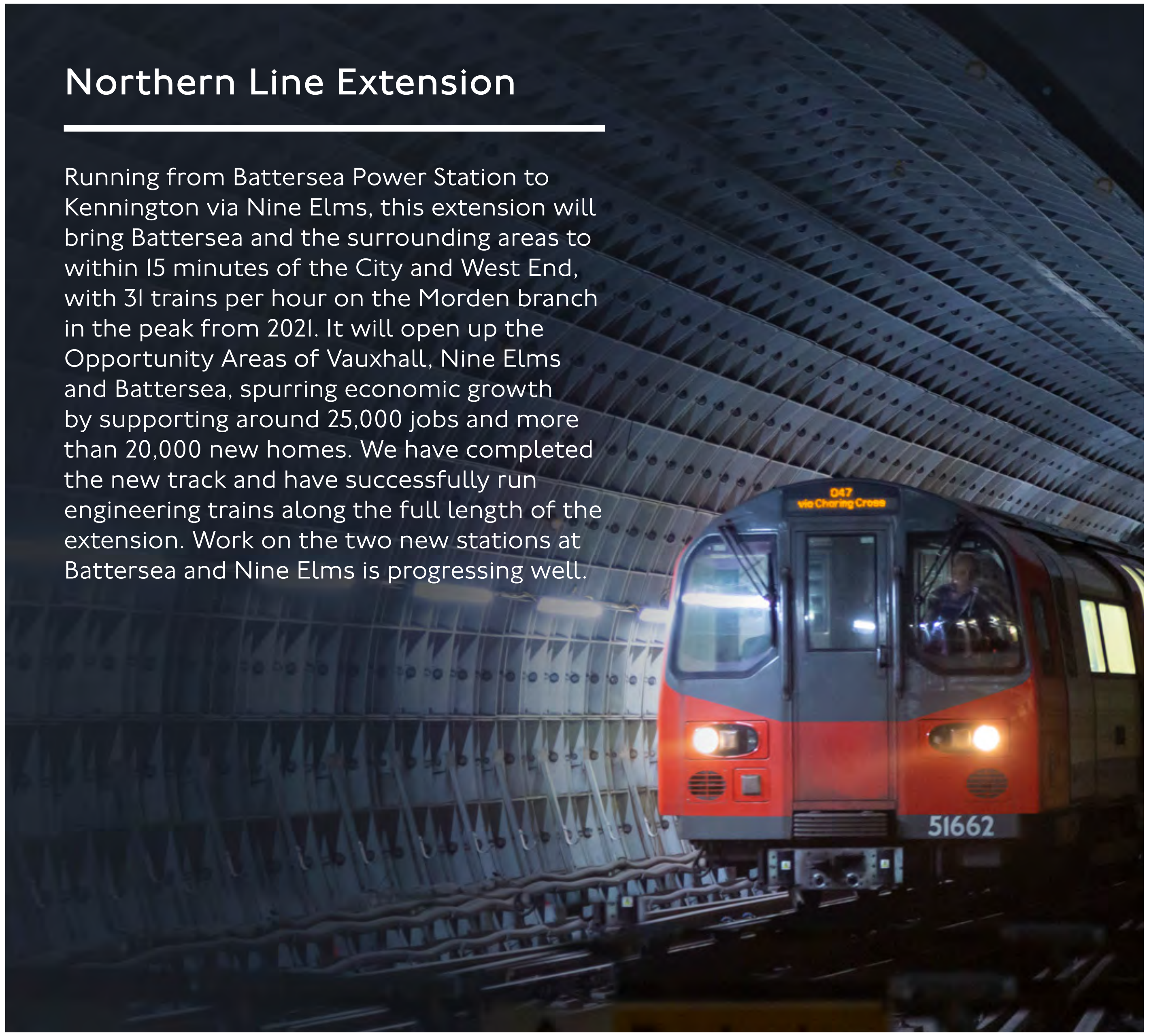
Improvements to this vital transport hub, used by more than 400,000 people a day, will be finished by 2022.

4G coming to the Underground

We are partnering with the telecoms industry to create a Connected London, meeting the Mayor's pledge to eradicate areas of poor connectivity. The revenue generated will be reinvested in the transport network. In 2020, eight stations on the Jubilee line will get full mobile connectivity with all Underground stations and tunnels completed by 2024. The network will also support the Government's new Emergency Services Network. As part of this project, we are installing new fibre optic cable and partnering with the boroughs to provide high-speed connectivity to areas of London with poor internet connections.

8

Jubilee line stations will get full mobile connectivity in 2020



Northern Line Extension

Running from Battersea Power Station to Kennington via Nine Elms, this extension will bring Battersea and the surrounding areas to within 15 minutes of the City and West End, with 31 trains per hour on the Morden branch in the peak from 2021. It will open up the Opportunity Areas of Vauxhall, Nine Elms and Battersea, spurring economic growth by supporting around 25,000 jobs and more than 20,000 new homes. We have completed the new track and have successfully run engineering trains along the full length of the extension. Work on the two new stations at Battersea and Nine Elms is progressing well.

Modernisation of Circle, District, Hammersmith & City, and Metropolitan lines

Following the introduction of 192 new, larger, walk-through trains across all four lines, work continues to replace and improve outdated signalling, power and depot assets. In 2019, we switched on the first sections of the new signalling, which are now operating between Hammersmith and Euston Square, and Finchley Road and Euston Square. The full programme will be completed by the end of 2023, delivering a 33 per cent capacity increase across 40 per cent of the Tube network.

Piccadilly line trains

In November 2018, we signed a contract with Siemens Mobility Limited to design and build 94 state-of-the-art Tube trains for the Piccadilly line, replacing the existing 1970s fleet. The new trains feature wider doors and longer, walk-through, air-cooled carriages. They will also boost reliability and frequency during peak times, from 24 to 27 trains per hour. Working closely with Siemens, we plan to develop and complete detailed design work by October 2020 and expect the first new trains to enter service during 2024.

London Overground

London Overground will continue to introduce new state-of-the-art trains across the network and improve frequency and reliability. Over the next year, we will increase frequency in east London between Dalston/Highbury & Islington and West Croydon/Crystal Palace/New Cross /Clapham Junction to 18 trains per hour, rising to 20 trains per hour from 2024. We have introduced the first class-710 trains on the Gospel Oak to Barking line and between Watford Junction and Euston, with services out of Liverpool Street to follow in 2020.

The extension of the London Overground to Barking Riverside is set to be complete by the end of 2021.

New trains to improve services on the DLR

We have ordered 43 new walk-through trains to increase capacity and support the delivery of new homes and jobs around the network.

The new trains, which are currently being designed, will provide a better customer experience when they enter service from 2023.

They feature real-time travel information, air-conditioning and mobile device charging points. We will continue work to expand the DLR depot at Beckton for the new trains.

New jobs and homes

Enhancing the capacity and quality of walking, cycling and public transport not only benefits Londoners but also builds the foundations to support growth now and in the future.

10,800
new homes supported by the Barking Riverside Extension

4.5km
extension to the London Overground to Barking Riverside

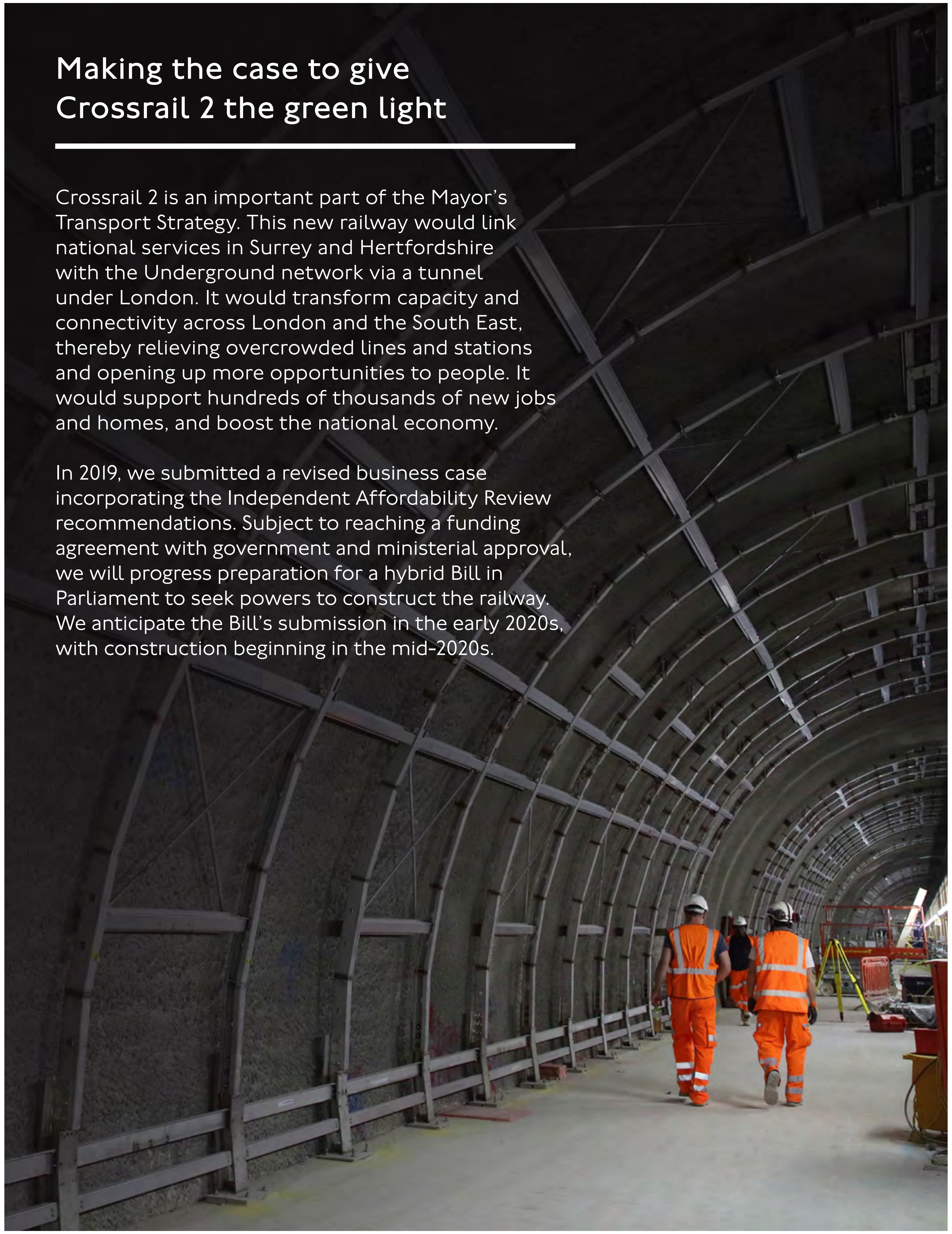
3,000
Build to Rent homes being built across seven sites

350
new homes being built at Blackhorse Road

Making the case to give Crossrail 2 the green light

Crossrail 2 is an important part of the Mayor's Transport Strategy. This new railway would link national services in Surrey and Hertfordshire with the Underground network via a tunnel under London. It would transform capacity and connectivity across London and the South East, thereby relieving overcrowded lines and stations and opening up more opportunities to people. It would support hundreds of thousands of new jobs and homes, and boost the national economy.

In 2019, we submitted a revised business case incorporating the Independent Affordability Review recommendations. Subject to reaching a funding agreement with government and ministerial approval, we will progress preparation for a hybrid Bill in Parliament to seek powers to construct the railway. We anticipate the Bill's submission in the early 2020s, with construction beginning in the mid-2020s.



Barking Riverside Extension will unlock new homes and jobs

We will continue the construction of the London Overground extension to Barking Riverside, which began in January 2019. The 4.5km extension of the existing Gospel Oak to Barking line will feature a new station within the Barking Riverside town square, with step-free access from street to train. It will also unlock up to 10,800 new homes and boost regeneration across an underdeveloped part of east London. This year we will work on the track, points and signalling, with train services expected to start running in late 2021.

Extending the Bakerloo line

The Bakerloo Line Extension is a Mayoral priority scheme that would transform capacity and connectivity across London and the South East. The extension could relieve congestion on overcrowded lines, open up more opportunities to more people and improve air quality. It would also support thousands of jobs and homes in the New Cross, Lewisham and Catford, and Old Kent Road Opportunity Areas.

We will continue to develop plans for an upgrade and extension of the Bakerloo line. This is an example of how we can both modernise and make best use of our existing assets, and bring the benefits of improved connectivity, increased capacity and reduced journey times to currently underserved areas. Following a public consultation in 2019, we will continue to develop the scheme with a view to targeting a Transport and Works Act Order submission in 2023. We will work with central government, the GLA and local authorities to develop a funding agreement and safeguard the preferred route.

Silvertown Tunnel to provide new river crossing

This new river crossing will effectively eliminate congestion and improve air quality in and around the Blackwall Tunnel.

Thr crossing will enable a significant upgrade in cross-river bus services, with all of the new double-deck buses using the tunnel expected to be zero-emission from launch. The improved links will support growth in jobs and housing.

A user charge at both the new tunnel and the existing Blackwall Tunnel will ensure overall traffic volumes and associated carbon emissions do not increase.

We are also working with boroughs on both sides of the river to deliver a package of local improvements, including walking and cycling connections, and new green spaces.

Following the award of the contract to design, build, finance and maintain the new crossing, works are due to start in 2020, with the new crossing expected to open in 2025.

Sustainable growth and Healthy Streets

We continue to support the sustainable delivery of homes and jobs in Opportunity Areas by improving streets for walking, cycling and public transport. We have started improvements on the eastern section of Nine Elms Lane and are continuing to work towards a safer solution for the western section.

We are planning bus, walking and cycling improvements at Tolworth Roundabout to support the surrounding developments. We will also continue working with boroughs to develop improvements at places such as Catford town centre and along Old Kent Road.

Construction continues at Blackhorse Road

When we started construction on our site at Blackhorse Road – less than six months after Waltham Forest Council granted us full planning permission – we achieved another key milestone on our journey towards delivering 10,000 homes across the Capital. Blackhorse Road is an exciting project where we, alongside Barratt London and London & Quadrant, are delivering 350 new homes, half of which will be affordable. The site will also have new retail and commercial space, including opportunities for small and independent businesses.

South Kensington station

Our work to develop the area surrounding the station continues to make progress. We will submit proposals to the Borough of Kensington & Chelsea in 2020, which are designed to improve the experience of our customers and local residents. In addition to residential and commercial space, our plans include step-free access to the Circle and District lines at South Kensington station.

Developing our Build to Rent portfolio

Working with Grainger plc, we have launched Connected Living London, a ground-breaking new partnership. Together, we are delivering one of the UK's biggest Build to Rent programmes, with 3,000 homes being built across seven sites.

Arnos Grove, which will be one of the first sites we submit to the Local Planning Authority, will see us transform a car park into around 150 good-quality rental homes – 40 per cent of which will be affordable. Not only will we provide the homes London desperately needs, but by developing on car parks, like Arnos Grove and Cockfosters, we will be promoting active and sustainable travel in line with the Mayor's Transport Strategy.

150
rental homes to be built at Arnos Grove

Our services

We operate and manage a range of services, from the trains and trams that carry our passengers to the crossings and roads that people walk on.

Streets, buses and other surface operations

We will deliver high quality, reliable public transport options and make London safer and healthier

Safety is at the heart of all our projects, as we work towards our Vision Zero commitment. We will introduce lower speed limits in central London to reduce collisions and associated injuries, enhance the safety of bus design and deliver bus driver safety training.

We will continue improving bus journey times, reliability and customer experience. We will also make the fleet as green as possible, working towards more than 2,000 buses being zero emission over the course of this plan. Our new safer junctions and high-quality Cycleways will encourage more active travel.

We will tighten the Low Emission Zone standards and expand the ULEZ. We will also encourage the uptake of zero-emission vehicles by providing infrastructure including charge points for exclusive use by zero-emission capable taxis.

900
buses fitted with intelligent speed assistance technology

6
new 'bee roofs' to be fitted on bus shelters

300
rapid charging points delivered by 2020

£25m
committed for the first phase of the repairs to Hammersmith Bridge

Safety and security

We are funding a series of targeted interventions designed to reduce road danger, including delivering the Direct Vision Standard for HGVs to help drivers see vulnerable road users, implementing and introducing 20mph speed limits in central London, as well as delivering or consulting on the remaining Safer Junctions priority locations. A new programme of safer streets projects will seek to tackle some of the most high-risk roads on the network, including Commercial Road and Tooting town centre.

In 2018, we launched a world-leading Bus Safety Standard, with requirements incorporated into all new bus operator contracts. All new buses are also now fitted with intelligent speed assistance. Over the next two years, we will train more than 24,500 bus drivers in enhanced hazard perception.

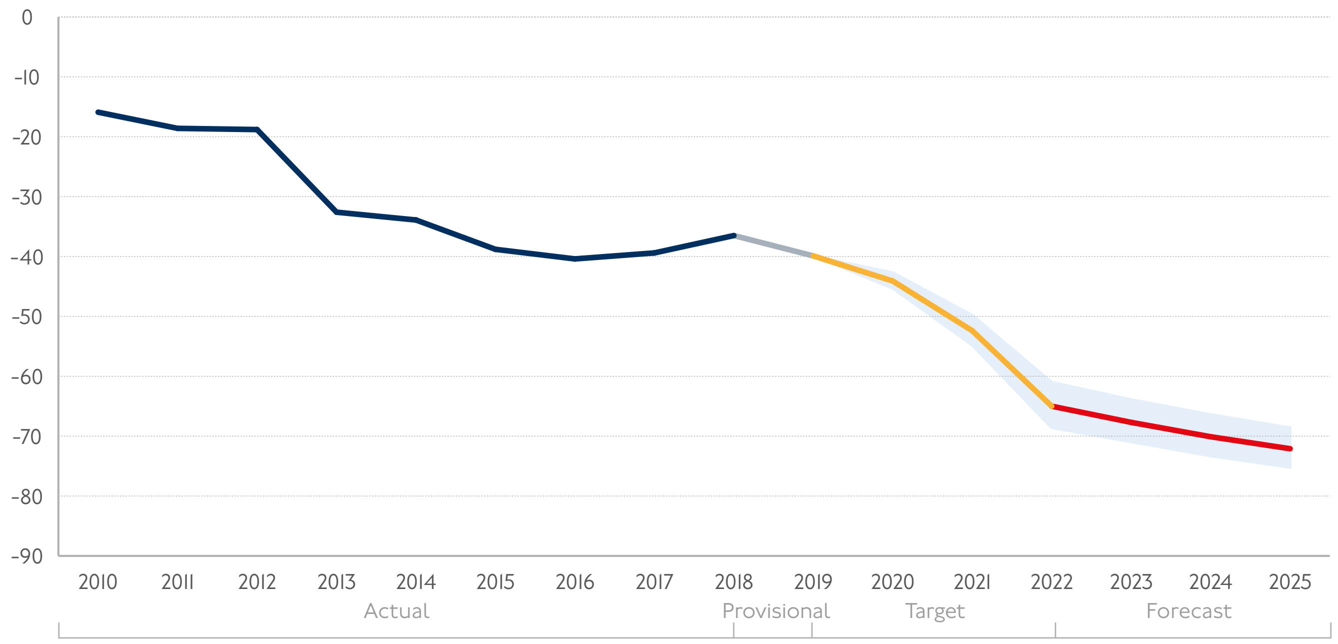
Our Vision Zero approach will be applied to our river operations and we will develop a new safety strategy and plan for the river, in partnership with river operators and the Port of London. This will be developed alongside a complementary strategy to improve security on our rivers and piers.

We continue to fund, and work alongside, the Metropolitan Police Service Roads and Transport Policing Command. We are focused on removing the highest risk drivers and vehicles from our roads. We will use a combination of enforcement, education and engineering measures to identify and target the root causes of road danger.

Safety and security

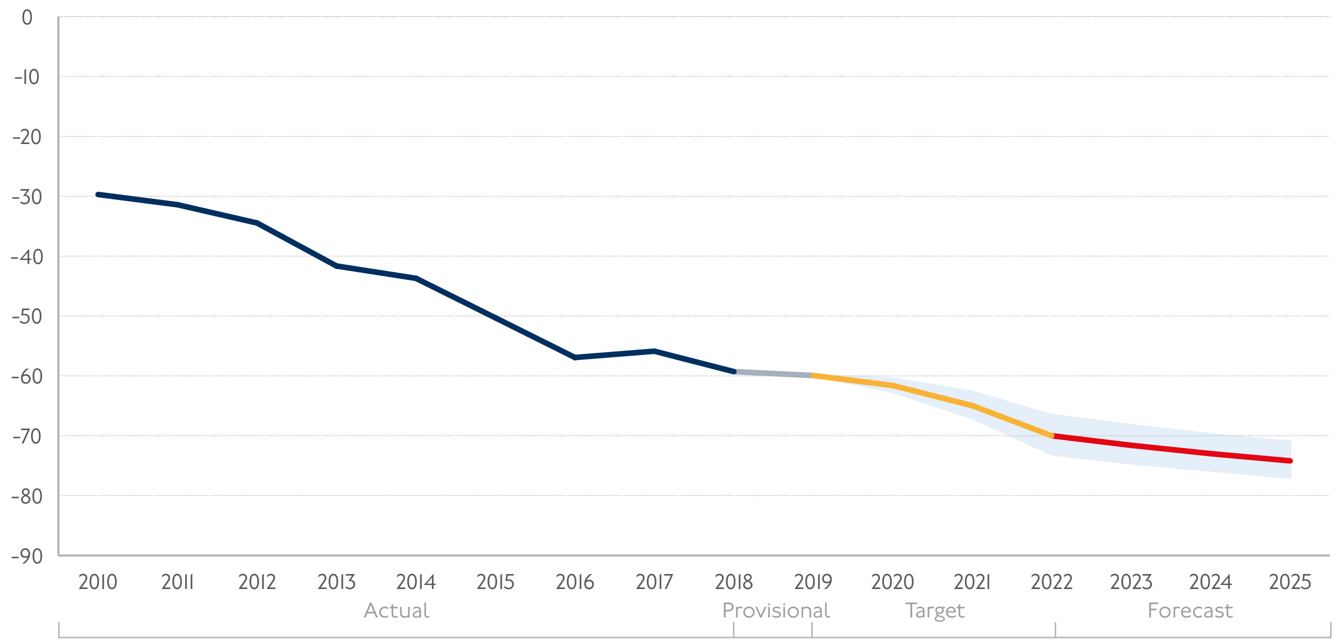
Safety measures	Forecast 2019	Plan 2020	Plan 2021	Plan 2022	Plan 2023	Plan 2024	Plan 2025
Reduction in people killed or seriously injured against a 2005-09 baseline (%)	39.9	44.1	52.4	65.0	67.7	70.1	72.1
Reduction in people killed or seriously injured on or by a bus against a 2005-09 baseline (%)	59.9	61.6	65.0	70.0	71.6	73.0	74.2

Reduction in people killed or seriously injured in London against 2005-09 baseline (%)



Our target is a 65 per cent reduction in the number of people killed or seriously injured in London by 2022 against the 2005-09 baseline. This plan includes funding for interventions designed to reduce road danger.

Reduction in people killed or seriously injured in London against 2005-09 baseline (buses) (%)



Our target is a 70 per cent reduction in the number of people killed or seriously injured in or by a bus by 2022 against the 2005-09 baseline. We have introduced Bus Safety Standards across the entire bus fleet.

We will continue to lead a fatigue working group across the organisation and work with bus and tram operators and our other services to learn from and improve approaches to fatigue risk management. This includes ensuring all bus operators have robust fatigue risk management systems and plans in place, and that all managers receive specific fatigue training. We will also launch a £500,000 fatigue innovation fund to encourage development and trial of new measures aimed at preventing fatigue.

We will continue to work with our suppliers to eliminate potentially fatal incidents involving striking utility infrastructure, such as electric cables, and gas and water pipes under London's streets. We are focusing on improving how we plan our works and identify where we can use technology to better map below-surface utility infrastructure and identify the potential to use innovative techniques for the largest risk activities.

Our officers work with the Metropolitan Police Service to provide a visible and reassuring presence on our bus network. They keep customers and staff safe and tackle antisocial behaviour and fare evasion. Collectively, we will continue to reduce the risk of violence and aggression towards bus drivers and our staff, while also focusing on preventing violent crime, hate crime and sexual offences.

Our commitment to improving the standards of London's taxi and private hire industry continues through effective regulation and rigorous enforcement. Working with the Metropolitan Police Service, we will improve operator, vehicle and driver standards, by tackling illegal and non-compliant activity, unsafe vehicles, poor driving and sexual offences.

We continue to support the Government with the recommendations of the Task and Finish Group, which are needed to improve the safety and security of travelling by taxi, private hire vehicle or pedicab in London. This includes regulating pedicabs. We believe that taking forward the report's recommendations is essential to making national legislation fit for purpose in these fast-changing industries. We urge the Government to implement these proposals quickly, as they are vital to ensure passenger safety.

Along with the boroughs, law enforcement and security agencies, we continue to design and implement protective security measures, to reduce the risk of terrorism and keep London safe.

Bus security

Bus security	Forecast 2019	Plan 2020	Plan 2021	Plan 2022	Plan 2023	Plan 2024
Recorded crimes per million bus passenger journeys	7.8	7.5	7.6	7.6	7.5	7.1

Operational performance

Economic activity and population are key factors in bus demand and, as such, our forecast is more uncertain than previous years. We anticipate that lower growth in the number of younger adult passengers and wider changes in consumer behaviour are likely to continue to reduce demand in the short term. However, given historically high levels of reliability and customer satisfaction, and the plans we are putting in place to stabilise bus speeds, we are confident that we can grow bus patronage in the medium to long term.

Cycling levels are forecast to increase significantly over this Business Plan. This will be achieved through growing the cycle network, including new routes such as Cycleway 4 between Tower Bridge and Greenwich and the substantially complete Mini-Hollands programme. Marketing communications and targeted community behaviour change programmes, such as our STARS schools education programme, walking and cycling Grants and cycle training, will be used to raise awareness and encourage people to use our growing cycle network, as well as encouraging people to reappraise cycling as a viable alternative to driving.

We will use the Healthy Streets Approach to design and maintain walking routes, which will ensure that walking is a more attractive and viable journey option. We are targeting a five per cent increase in the number of trips made on foot by 2025.

Demand for buses, walking and cycling

Demand forecasts (millions)	Forecast 2019/20	Plan 2020/21	Plan 2021/22	Plan 2022/23	Plan 2023/24	Plan 2024/25
Passenger journeys – bus	2,207	2,197	2,194	2,183	2,184	2,198
Journey numbers – walking	2,474	2,499	2,524	2,549	2,574	2,599
Journey numbers – cycling	299	326	353	380	407	434

Road asset performance

We are focused on keeping London's roads safe and maintaining reliability using our limited funding. We will target our investment on the assets which are most in need, to provide the greatest benefits to road users, particularly people that walk, cycle or use public transport.

Road asset performance

	Forecast	Plan	Plan	Plan	Plan	Plan
Asset condition	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
State of good repair – carriageways (%)	88	87	88	89	90	91
State of good repair – footways (%)	93	92	92	92	92	93

Bus performance

We continue to optimise the network in response to both changing demand, and TfL and partner authorities' plans for other modes. In outer London, service volume will grow by five million kilometres over the period of this plan. To help meet the Mayor's sustainable transport target by 2041, these network changes will be targeted in areas where people are most likely to switch to bus use and where we can best attract new demand, such as in growth areas and for hospital trips. To help improve bus reliability and efficiency we will continue to invest in bus priority schemes.

Bus performance

	Forecast	Plan	Plan	Plan	Plan	Plan
Bus performance	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
Weighted bus customer journey time (minutes)	32.9	32.9	32.9	32.9	32.9	32.9

Service volumes (million km operated)	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
Inner London	142	141	140	140	139	138
Outer London	324	325	326	326	327	328
Sections of routes outside the GLA boundary	11	11	11	11	11	11
Total	477	477	477	477	477	477

Other operations performance

Dial-a-Ride provides essential transport for older and disabled customers, carrying more than one million people each year. We are procuring a new booking and scheduling system in 2020/21. This will improve the customer experience, enabling online bookings while continuing to offer phone bookings. In April 2019, 90 new Euro VI vehicles were delivered in time for the launch of ULEZ and we have started the procurement of a further 166 vehicles.

We expect a modest rise in the use of Santander Cycles, owing to our continued investment in cycling and a renewed focus on the most popular hire stations and hire times, notably stations located in and around London's parks, during weekend periods.

We will continue to work with our partners, including the Port of London Authority, to support safe and sustainable river passenger growth.

In August 2019, we confirmed that we will continue to operate Victoria Coach Station. We will renew and modernise assets to ensure that the 87-year-old facility can continue to operate safely and reliably, with improved facilities for the 14 million passengers who use it every year.

Operational performance

	Forecast	Plan	Plan	Plan	Plan	Plan
Other operations measures	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
Dial-a-Ride trip requests scheduled (%)	89.0	89.0	89.0	89.5	89.5	89.5
London River Service passenger journeys, including Woolwich Ferry (millions)	10.2	10.3	10.4	10.6	10.7	10.8
Cycle hire – number of hires (millions)	10.8	10.9	11.0	11.1	11.2	11.3

Customer satisfaction

To maintain high levels of bus customer satisfaction, we will continue to incentivise operators to provide excellent customer service and look at ways to enhance our customer information. This includes trialling improved digital information screens on the inside and outside of vehicles.

We expect a slightly lower level of satisfaction rating from road users from 2019/20, compared to last year, owing to slightly worse performance associated with the Hammersmith Bridge closure and the construction of major schemes, including Old Street.

From late 2020 onwards, increased spending on maintenance activities and road surface renewal, and low-cost initiatives to paint, clean and declutter high streets will help us maintain our customer satisfaction score.

Customer satisfaction

	Forecast	Plan	Plan	Plan	Plan	Plan
Customer satisfaction	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
Streets (score)	70	70	70	70	70	70
Bus (score)	85	85	85	85	85	85
Pedestrian and cycling (score)	70	70	70	70	70	70

Road disruption

Our 24/7 network management control centre monitors the roads and intervenes to keep London moving. Our skilled on-street officers help minimise the impact of unplanned disruption and we work closely with the Metropolitan Police Service to limit the impact of incidents, such as road traffic collisions, protests and demonstrations. In collaboration with works promoters, we coordinate roadworks to minimise disruption.

From 2021, proposed changes to our lane rental scheme will further reduce roadworks disruption. Nevertheless, we forecast that disruption will get worse year-on-year owing to traffic increases in outer London, asset restrictions and closures, such as Hammersmith Bridge and delivery of Healthy Streets infrastructure projects.

Sustainable travel improvements

Every year, we review the timings of 20 per cent of London's 6,000 traffic signals to reduce delays and waiting times at junctions. Through a new approach, we expect to save more than 15,000 hours per day for people choosing sustainable transport methods – walking, cycling or by bus.

Safety failure rates at roadworks

We inspect works on our road network to ensure they comply with the safety measures in the roadworks Code of Practice for England. Failures are recorded when safety concerns are raised, based on a six-month rolling average. Issues can relate to signs, barriers, working practices or provision of safe routes for people walking or cycling. We work with the promoters to agree action plans when failure rates deteriorate. Our new Temporary Traffic Management Handbook sets out our expectations of how roadworks should be designed and managed.

Transport for London Road Network performance

Transport for London road network performance	Forecast 2019/20	Plan 2020/21	Plan 2021/22	Plan 2022/23	Plan 2023/24	Plan 2024/25
Road disruptions to average London journey times compared to previous year's performance	Within 10% of baseline	5-10% of baseline	5-10% of baseline	5-10% of baseline	5-10% of baseline	5-10% of baseline
Operational improvements to sustainable travel (hours)	15,000	15,000	15,000	15,000	15,000	15,000
Safety failure rates at roadworks (%)	19	18	17	16	15	14

Our traffic signal review will prioritise people using sustainable transport methods

Financial Summary

Our surface operations are subsidised by the £854m of business rates which are notionally allocated to the operating account. We therefore aim to bring net cost of operation within this funding envelope. Ongoing operating cost inflation and reduced passenger volumes makes this a challenging target, which will not be achieved during this plan.

Within our passenger income, recent trends of a slower reduction in bus passenger volumes are reflected in the projections of this Business Plan, with passenger income forecast to grow from £1,476m in 2019/20 to £1,712m in 2024/25.

Within other operating income, we plan to tighten emissions standards for HGVs in 2020 and extend the ULEZ to the North and South Circular Roads in 2021. Revenue generated from this will cover the cost of running the scheme. Any surplus is reinvested in improving air quality, including investing in low-emission buses and Dial-a-Ride vehicles, and to provide delicensing incentives for the oldest, most polluting taxis. Over time, revenues will decrease as vehicle compliance rates increase.

Contractual inflation is the main driver for direct operating cost growth. In recent years we have offset this with reductions to bus services where demand has fallen. However, from 2020 onwards we do not see this as a sustainable approach. We continue to drive efficiencies through our contracting process with suppliers, and focus on improving operational efficiencies, offsetting some of the impact. Operating costs include expenditure towards converting the entire bus fleet to zero emission by 2037 at the latest.

This plan also ensures we have enough police officers patrolling the network to help reduce crime and anti-social behaviour across London.

Capital

From 2020/21, we will restart our proactive road renewals as part of our strategy to ensure we have a safe and reliable network. This follows a pause of proactive renewals for the last two years. An increase of £49m in street maintenance from 2019/20 to 2020/21 aims to ensure conditions are maintained or improved.

Our new capital investment includes our Healthy Streets portfolio, including cycling, borough sponsored schemes and improvements and enhancements to our roads.

Our new capital investment reflects a lower cost option for the Rotherhithe to Canary Wharf crossing as we develop plans for a new ferry service to encourage more active and sustainable travel.

Financial summary (£m)

	Actual	Forecast	Plan	Plan	Plan	Plan	Plan
	2018/19	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
Passenger income	1,481	1,476	1,473	1,543	1,589	1,645	1,712
Other operating income	398	598	596	750	717	658	677
Total operating income	**1,879**	**2,074**	**2,069**	**2,293**	**2,306**	**2,303**	**2,389**
Direct operating cost	(2,733)	(2,824)	(2,886)	(3,029)	(3,082)	(3,129)	(3,224)
Direct operating deficit	**(854)**	**(750)**	**(817)**	**(736)**	**(776)**	**(826)**	**(835)**
Indirect net operating cost	(157)	(142)	(147)	(144)	(147)	(144)	(146)
Net operating cost before financing & renewals	**(1,011)**	**(892)**	**(964)**	**(880)**	**(923)**	**(970)**	**(981)**
Financing cost	(32)	(31)	(30)	(33)	(33)	(32)	(33)
Capital renewals	(64)	(75)	(123)	(164)	(155)	(122)	(124)
Net cost of operations	**(1,107)**	**(998)**	**(1,117)**	**(1,077)**	**(1,111)**	**(1,124)**	**(1,138)**
Capital renewals	(64)	(75)	(123)	(164)	(155)	(122)	(124)
New capital investment	(137)	(188)	(362)	(247)	(303)	(189)	(186)
Total capital investment	**(201)**	**(263)**	**(485)**	**(411)**	**(458)**	**(311)**	**(310)**

London Underground

The Tube is the oldest and one of the largest metros in the world, carrying nearly 1.4 billion passengers every year

Over the course of this plan, our investment will provide vital improvements and add much needed capacity to the network. This will support a shift away from car use and improve journeys for millions of customers.

As always, our primary focus is on providing a safe, reliable and world-class service every day. We are renewing our assets and ensuring our trains, tracks and infrastructure are in good, sustainable condition. We have 620 trains, 270 stations, more than 1,000km of track, 440 escalators, 2,255 ticket gates, and more than 16,000 bridges and structures.

We will upgrade signalling on the Circle, District, Hammersmith & City and Metropolitan lines, replace the 50-year-old fleet on the Piccadilly line, and complete major station upgrade works at some of our busiest stations, including Bank. We will also complete work on the Northern Line Extension by 2021 and create more step-free stations in 2020.

Safety and security

Our top priority is to provide a safe environment for customers and a safe place to work for our staff. London Underground is already one of the safest metros in the world and we are building on this by introducing new trains and signalling systems, and improving how we design and operate our stations.

We are working closely with the British Transport Police and other partners to reverse the recent increases in crime. We will continue to focus on tackling offences that cause the most harm, while putting measures in place to deal with theft, high-volume crime and low-level aggression between customers.

During the early years of this plan we expect that our focused activity to tackle anti-social behaviour, reduce the risk of workplace violence and make customers feel safe will generate a rise in crime reports. This means that despite a reduction in ridership, owing to the opening of the central section of the Elizabeth line, we anticipate a small rise in the crime rate.

We are launching a strategy across the entire organisation to tackle workplace violence and aggression against our people. This will include preventing incidents by tackling the common triggers of workplace violence and aggression, which include fare evasion, drinking alcohol and other antisocial behaviour.

We will continue to develop and embed our new approach to operational communications with our colleagues and contractors. This will cover our processes, rules and enhanced training programmes.

We have formed a steering group to reduce the risks associated with workers accessing the track in engineering hours and will introduce process and system improvements to significantly improve the safety of all workers on the track.

Safety and security

	Forecast	Plan	Plan	Plan	Plan	Plan
Safety and security measures	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
Recorded crimes per million passenger journeys	13.0	13.1	13.1	12.7	12.5	12.2

Passenger journeys

Demand for London Underground services is up from last year and expected to grow by 1.3 per cent in 2020/21. We expect this growth to continue across the plan. There will, of course, be some variation as the Elizabeth line is added to the network.

Customer satisfaction

Our passengers remain at the heart of everything we do. Customer satisfaction has remained high in recent years, with record scores of 85 in 2016/17 and 2017/18. Over the next five years, we aim to improve customer satisfaction by providing consistently great service at every station, train and line, supporting people when things go wrong, and removing barriers that prevent some people from travelling on the Tube.

Operational performance

	Forecast	Plan	Plan	Plan	Plan	Plan
London Underground forecasts	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
Passenger journeys (millions)	1,414	1,433	1,434	1,437	1,443	1,461
Customer satisfaction score	84	85	85	85	85	85
Excess journey time (minutes)*	4.71	4.75-4.78	4.71-4.77	4.66-4.73	4.67-4.75	4.68-4.76
Operated km (millions)	84.2	84.3	85.9	87.3	88.1	88.5

* Excess journey time is shown as a range

Financial summary

The long-term goal is that by the end of the next decade, London Underground can cover its renewals spend and the cost of like-for-like replacement of existing infrastructure.

Our direct operating surplus is forecast to grow from £973m in 2019/20 to £1,519m in 2024/25. With this, we can cover our indirect costs, such as the customer contact centre, HR, finance, legal and financing costs of borrowing for our capital programme. Our long-term aim is to cover our cost of renewals and like-for-like replacement of existing trains and signals.

Passenger income increases on average by 4.3 per cent per annum over this plan. This growth maintains the Mayor's fares freeze into 2020, but assumes fares will increase with retail price index plus one per cent thereafter. Demand growth assumptions are cautious and incorporate planned improvements to service frequency and capacity increase from asset renewals and replacement.

We are constraining operating costs growth to one per cent on average, which is a real-term reduction, while delivering service improvements. We are modernising the Tube and will work with our supply chain to ensure we get good value and improve how we plan the day-to-day running of our business. We will deliver one integrated plan for how we manage our assets by working across maintenance and projects. We will build on the progress we have already made in delivering maintenance more efficiently.

Capital investment

Keeping the network safe and reliable is our main focus. This plan establishes a critical level of spend for our maintenance and renewals, plus some asset replacement as part of our modernisation work. This investment includes works on stations, track, fleet and step-free access projects (such as installing lifts), which is vital to keep our assets in good working order.

We are also increasing capacity and delivering service improvements. Over this plan, our major projects team will deliver large and complex projects for the Underground, such as the modernisation of signalling on the Circle, District, Hammersmith & City and Metropolitan lines, the Northern Line Extension and the major station upgrade at Bank. Throughout this plan, there will be a year-on-year increase in investment for new Piccadilly line trains as we progress with procurement plans to replace the current rolling stock, our second oldest fleet.

Financial summary (£m)

	Actual	Forecast	Plan	Plan	Plan	Plan	Plan
	2018/19	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
Passenger income	2,793	2,880	2,978	3,108	3,241	3,381	3,557
Other operating income	32	32	22	14	13	14	14
Total operating income	**2,825**	**2,912**	**3,000**	**3,122**	**3,254**	**3,395**	**3,571**
Direct operating cost	(2,082)	(1,939)	(2,014)	(2,035)	(2,024)	(2,034)	(2,052)
Direct operating surplus	**743**	**973**	**986**	**1,087**	**1,230**	**1,361**	**1,519**
Indirect net operating cost	(419)	(346)	(380)	(358)	(388)	(379)	(379)
Net operating surplus before financing & renewals	**324**	**627**	**606**	**729**	**842**	**982**	**1,140**
Financing cost	(285)	(296)	(308)	(358)	(386)	(389)	(390)
Capital renewals	(285)	(352)	(339)	(418)	(443)	(457)	(500)
Net surplus/(cost) of operations	**(246)**	**(21)**	**(41)**	**(47)**	**13**	**136**	**250**
Capital renewals	(285)	(352)	(339)	(418)	(443)	(457)	(500)
New capital investment	(660)	(655)	(607)	(596)	(513)	(608)	(836)
Total capital expenditure	**(945)**	**(1,007)**	**(946)**	**(1,014)**	**(956)**	**(1,065)**	**(1,336)**

Elizabeth line

As the Capital's newest transport service, the Elizabeth line will increase central London's rail capacity by 10 per cent

The Elizabeth line will stretch more than 60 miles, from Reading and Heathrow in the west through central London tunnels across to Shenfield and Abbey Wood in the east.

Currently being built by Crossrail Limited, the new railway will stop at 41 accessible stations, 10 newly built and is expected to carry around 200 million people each year. The project will boost the economy by an estimated £42bn.

On 7 November 2019, Crossrail Limited provided an update on its progress to complete the Elizabeth line, which confirmed the tunnelled section between Paddington and Abbey Wood is now expected to open in 2021. More detail on a revised schedule will be provided by Crossrail Limited in early 2020.

41
step-free stations along the route of the Elizabeth line

200 million
passengers expected to use the Elizabeth line when it launches

£42bn
boost to the economy as a result of the Crossrail project

Passenger journeys

Passenger journeys in 2019/20 reflect the new TfL Rail route between Paddington and Reading which starts in December 2019. As the phased opening progresses, passenger journeys and operated kilometres will rise in step with this over the Business Plan period. When fully open there will be more than 240 million journeys every year on the Elizabeth line.

Customer satisfaction

The public performance measure and customer satisfaction score will also increase as the full service becomes operational.

Operational performance

	Forecast	Plan	Plan	Plan	Plan	Plan
Elizabeth line forecasts	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
Passenger journeys (millions)	60	80	101	163	246	277
Customer satisfaction score	84	84	85	85	85	85
Public performance measure (%)	94.5	94.5	94.75	95	95	95
Operated km (millions)	4.6	5.7	6.9	11.1	13.6	13.6

There will be more than 240 million journeys on the Elizabeth line every year when it opens

Financial summary (£m)

	Actual	Forecast	Plan	Plan	Plan	Plan	Plan
	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Passenger income	101	123	173	240	489	884	1,037
Other operating income	17	10	31	13	14	13	14
Central section regulatory income	-	-	27	190	391	404	417
Total operating income	**118**	**133**	**231**	**443**	**894**	**1,301**	**1,468**
Direct operating cost	(237)	(360)	(446)	(465)	(507)	(531)	(585)
Central section regulatory cost	-	-	(27)	(190)	(391)	(404)	(417)
Direct operating surplus/(deficit)	**(119)**	**(227)**	**(242)**	**(212)**	**(4)**	**366**	**466**
Indirect net operating cost	(10)	(18)	(18)	(19)	(22)	(22)	(23)
Net operating surplus/(cost) before financing	**(129)**	**(245)**	**(260)**	**(231)**	**(26)**	**344**	**443**
Financing cost	(82)	(78)	(103)	(110)	(102)	(95)	(90)
Net surplus/(cost) of operations	**(211)**	**(323)**	**(363)**	**(341)**	**(128)**	**249**	**353**
New capital investment	(258)	(26)	(42)	-	-	-	-
Crossrail investment programme	(1,389)	(1,055)	(626)	-	-	-	-
Total capital investment	**(1,647)**	**(1,081)**	**(668)**	**-**	**-**	**-**	**-**

Financial summary

Our passenger income will increase when the Paddington to Reading service opens in December 2019. As we progress through the phased opening of the Elizabeth line, we expect passenger income to rise with demand from £123m in 2019/20 to £1,037m in 2024/25.

While the further delay is disappointing, progress is being made against the new timeline. There is still a high level of uncertainty on costs and schedule, and we have therefore made prudent assumptions for passenger income and costs.

The central section regulatory income charge and costs relate to access charges when the central section opens and net to nil.

Underlying direct operating costs start to increase as assets are handed over into operational use and we incur maintenance costs, preparing and testing the central section, operating the service from Paddington to Reading, and lease costs for the new trains.

A direct operating surplus will be achieved in 2023/24, growing to £466m by 2024/25.

Capital investment relates to Crossrail construction costs and declines as it becomes a fully operational railway. Crossrail Limited indicated the project will require between £400m and £650m in additional funds to complete full-scale testing of the trains and railway systems as well as manage the handover of the railway safely and reliably into customer service. We are working closely with the Department for Transport and the GLA regarding how we will meet these additional costs.

Rail

The DLR, London Overground and trams provide easy and safe travel, while supporting new homes and jobs

We have already delivered the majority of the safety measures that were recommended following the tragic incident at Sandilands in 2016. We intend to purchase a new fleet of trams to keep the network safe and reliable in the long term.

We will continue to deliver new trains across some London Overground routes, which will increase capacity and improve the customer experience. We are also extending services to Barking Riverside to support development of around 10,800 new homes.

New trains have been ordered for the DLR to replace two-thirds of the existing fleet which is coming to the end of its operational life. We have successfully bid for £291m from the Government's Housing Infrastructure Fund for more trains and new upgraded stations, which will unlock new housing developments around the network with further capacity increases. We also plan to improve our depot facilities to keep operations reliable and support increased services.

4.5km
of new track as part of the Barking Riverside Extension

10,800
new homes supported by the Barking Riverside Extension

43
new trains ordered for the DLR

Safety and security

Providing a safe environment for our customers and staff remains our highest priority. We will continue to ensure safety and security considerations are built into the planning, design and management of our services. While levels of crime remain low on our rail networks, we continue to work with the British Transport Police to tackle crime and other antisocial behaviour that impacts the safety of our customers, colleagues, and those of our operators and contractors, as well as and reliable operation of our services.

By the beginning of 2020/21, we will have implemented all the recommendations made to us after the tragic overturning of a tram at Sandilands in 2016. We will closely monitor the effectiveness of these measures, particularly the automatic speed control equipment.

London Trams will implement the new industry-wide Safety Risk Model developed by the Light Rail Safety Standards Board, which will replace our existing model. This integrated approach will provide an up-to-date, informed calculation of the nature of the health and safety risk faced by our workforce, contractors, and customers.

We will continue to regularly meet with our contractors, using our zero harm forum to talk through safety incidents and learn important lessons so we can prevent them from happening in the future. This is also an excellent forum to discuss industry best practice and share experiences of new technologies.

The predicted rise in passenger journey volume on the London Overground, coupled with a stable volume of crime, means we anticipate a sustained reduction in crime rate over this plan.

Safety and security

	Forecast	Plan	Plan	Plan	Plan	Plan
Safety and security measures	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
Recorded crimes – London Overground network (per million passenger journeys)	9.4	9.1	8.6	8.3	8.0	7.6

Passenger journeys

The volume of passenger journeys is expected to rise over the course of this plan, owing to population growth, increased investment in infrastructure and enhanced service levels. However, it is anticipated that the opening of the Elizabeth line will temporarily reduce passenger numbers on the DLR in 2021/22.

Customer satisfaction

We will continue to maintain customer satisfaction at a high level by enhancing customer information, improving reliability and, where appropriate, increasing capacity.

Operational performance

	Forecast	Plan	Plan	Plan	Plan	Plan
Passenger journeys (millions)	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
DLR	123	125	122	125	133	147
London Overground	190	197	208	215	224	234
London Trams	29	29	30	30	31	32

Customer satisfaction

	Forecast	Plan	Plan	Plan	Plan	Plan
Customer satisfaction score	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
DLR	89	89	89	89	89	89
London Overground	85	85	85	85	85	85
London Trams	91	91	91	91	91	91

Financial summary (£m)

	Actual	Forecast	Plan	Plan	Plan	Plan	Plan
	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Passenger income	427	436	455	481	516	564	625
Other operating income	40	21	9	10	12	12	12
Total operating income	**467**	**457**	**464**	**491**	**528**	**576**	**637**
Direct operating cost	(454)	(475)	(496)	(516)	(526)	(548)	(576)
Direct operating surplus/(deficit)	**13**	**(18)**	**(32)**	**(25)**	**2**	**28**	**61**
Indirect net operating cost	(22)	(20)	(20)	(19)	(20)	(19)	(20)
Net operating surplus/(cost) before financing & renewals	**(9)**	**(38)**	**(52)**	**(44)**	**(18)**	**9**	**41**
Financing cost	(48)	(46)	(44)	(49)	(49)	(49)	(49)
Capital renewals	(31)	(34)	(33)	(37)	(46)	(79)	(76)
Net cost of operations	**(88)**	**(118)**	**(129)**	**(130)**	**(113)**	**(119)**	**(84)**
Capital renewals	(31)	(34)	(33)	(37)	(46)	(79)	(76)
New capital investment	(46)	(121)	(155)	(108)	(156)	(189)	(111)
Total capital expenditure	**(77)**	**(155)**	**(188)**	**(145)**	**(202)**	**(268)**	**(187)**

Financial summary

Our plan projects that rail operating costs will be covered by its income by 2023/24. We will work towards this as passenger demand continues to grow owing to population growth, London Overground infrastructure improvements and enhanced services.

This includes new trains in the north and west London and on routes from Liverpool Street, which enable increased service frequency during peak hours. We introduced new trains between Gospel Oak and Barking in 2019, with more coming into service in 2020/21. Operating costs will also increase owing to the enhanced services.

Rail operations will get close to covering its financing costs by the end of the plan, but will not generate sufficient surpluses to contribute to the cost of renewing the network during this plan.

Capital

We are investing in capacity increases and improving connectivity in east London, which will boost regeneration in this underdeveloped area. Our Major projects directorate is completing works on the Barking Riverside Extension, which includes 4.5km of new track and a new station at Barking Riverside. Train services are due to start in December 2021, with new DLR rolling stock being delivered towards the end of the plan.

We continue to invest in renewals works in each year of the plan on the DLR, London Overground and trams to keep them safe and reliable.

Property

We are building a better London by working with communities and our partners to create affordable and vibrant spaces of the future

As one of London's largest landowners, we have an important role in delivering the thousands of homes and jobs that our city needs. During this Business Plan, we will have started on sites that will deliver 10,000 homes, as well as two million sq ft of commercial floor space. By working with our partners, we will continue to achieve our target of 50 per cent of the homes being affordable.

We have the team, sites and long-term development pipeline to meet the Mayor's affordable homes target, while generating revenue to invest in our transport network.

1,500
quality rental homes to be delivered on Limmo Peninsula

1,700
training opportunities for Londoners by the end of 2019/20

500
affordable homes at Rayners Lane, Stanmore and Canon's Park

7,000
construction workers needed when our development programme is at its peak

Financial summary (£m)

	Actual	Forecast	Plan	Plan	Plan	Plan	Plan
	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Other operating income	94	106	122	129	154	171	173
Direct operating cost	(32)	(37)	(44)	(45)	(46)	(47)	(49)
Direct net operating surplus	**62**	**69**	**78**	**84**	**108**	**124**	**124**
Indirect net operating cost	(9)	(9)	(9)	(9)	(9)	(9)	(9)
Net surplus of operations	**53**	**60**	**69**	**75**	**99**	**115**	**115**
New capital investment	(39)	(101)	(264)	(292)	(202)	(165)	(82)
Property receipts	88	182	172	135	202	221	68
Crossrail OSD	159	85	29	65	35	-	29
Total capital investment	**209**	**166**	**(63)**	**(92)**	**35**	**56**	**15**

We will continue to develop long-term revenue streams through the Build to Rent programme, retail growth, and long-term interests in our joint venture developments. We will continue to undertake targeted disposals, particularly of surplus operational assets and head office buildings, as we move towards being a self-sustaining property function.

The sale of 55 Broadway and other head office buildings all form an integral part of our long-term estate management strategy. This will reduce our office accommodation costs and generate vital revenue to support the upgrading of critical transport infrastructure and our housing development programme.

Key projects and programmes

Our property development programme gives us an opportunity to establish a long-term, clear revenue stream. To fulfil the potential of our sites, we are adopting a variety of routes that will maximise revenue and deliver the homes that London needs quickly, with 50 per cent being affordable.

We have made significant progress on our Build to Rent investment portfolio – the latest aspect of our property development programme. In 2019, we announced our partnership with Grainger plc called Connected Living London. Together, we will transform seven sites, including Limmo Peninsula near Canning Town station in the East and Southall in the West. Connected Living London will deliver more than 3,000 quality rental homes, 40 per cent of which will be affordable. Over the course of this Business Plan we will have started on all seven sites and have established a stable long-term revenue stream.

Alongside our Build to Rent programme, we are bringing forward sites for development, which range in size and scale. They include our affordable housing-led projects, such as Rayners Lane, Stanmore and Canon's Park in Harrow, where we are working with Catalyst, one of the UK's leading housing associations, to provide 500 affordable homes and commercially-led schemes at South Kensington, Southwark and Landmark Court.

We continue to support the Mayor's Small sites, Small builders programme, releasing small sites for development each year. Construction has started on one of the first sites at Beechwood Avenue, which is due to be completed by 2021. We will work closely with the boroughs to pool our land and unlock larger town centre regeneration schemes, ensuring we can deliver homes, generate revenue and create great places that people want to live and work.

When our development programme is at its peak, we will need around 7,000 construction workers. This means ensuring we have the right people with the right skills is very important. Over the course of this Business Plan there will be an increased focus on our skills and training programme. By the end of 2019/20, we will have provided 1,700 training opportunities to Londoners through the Mayor's Construction Academy programme, of which we expect at least 600 to secure jobs in the construction industry.

Retail

We will continue to invest in our commercial estate, expanding opportunities to make the most of our unique asset base and enhance revenue. We recently started work at Victoria Arcade, a key gateway location in central London. Our plans will restore the heritage features of this historic arcade and create new modern retail units. We continue to invest in our portfolio of arches, providing the leisure and workspace London needs. The first business has moved into Wood Lane arches at White City, and we will be investing in arches from South Harrow to Kingsland Viaduct in Hackney.

Small businesses will always make up the vast majority of our estate. We have partnered with StreetDots to offer pop-up opportunities, enabling businesses to test their ideas and boost exposure. Over this plan, we will establish and implement a Small Business Policy, which will set out how we support London's small businesses and generate a sustainable income stream for us.

Media

Our advertising estate generates vital income that can be reinvested in to our services

We will complete our £82m investment upgrade and expansion of our digital advertising estate across our rail network in early 2020. Coupled with the expansion of digital advertising across our bus shelters, this will put us in a position to drive revenue growth from our advertising estate for investment into our transport network.

Our operating revenue is scheduled to grow year on year, and the assets that are being placed on the Elizabeth line will expand our digital footprint and increase gross revenues by around 10 per cent.

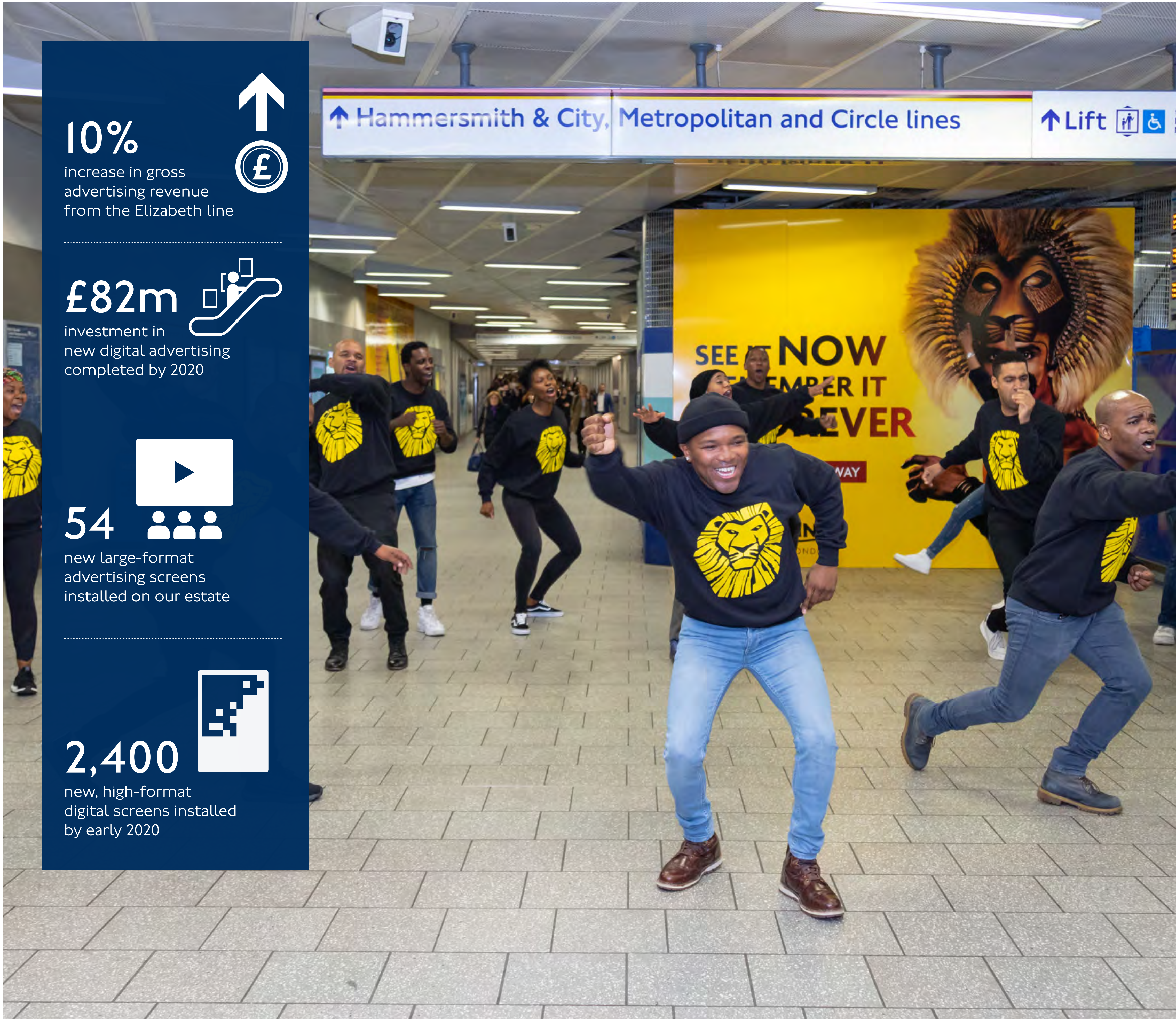
By looking at our data and working closely with key advertising partners, we aim to have the most transparent and accountable out-of-home advertising network in the world, which will offer the best connection to the London audience.

10%
increase in gross advertising revenue from the Elizabeth line

£82m
investment in new digital advertising completed by 2020

54
new large-format advertising screens installed on our estate

2,400
new, high-format digital screens installed by early 2020



Financial summary

Our operating income is forecast to increase by 1.4 per cent in 2019/20. This growth is in the context of a challenging out-of-home advertising market. Operating income is forecast to increase year-on-year to 2023/24, when it is expected to stabilise.

Operating costs are being tightly controlled to maximise the direct operating surplus generated by our assets, for reinvestment back into the transport network.

Capital investment tails off in 2019/20 as we complete the £82m investment programme for our digital advertising estate. Capital investment figures also include the capital repayments from the associated finance leases in future years.

Financial summary (£m)

	Actual	Forecast	Plan	Plan	Plan	Plan	Plan
	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Other operating income	148	150	153	155	162	171	171
Direct operating cost	(2)	(3)	(3)	(4)	(4)	(4)	(4)
Direct operating surplus	**146**	**147**	**150**	**151**	**158**	**167**	**167**
Indirect net operating cost	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Net surplus of operations	**144**	**145**	**148**	**149**	**156**	**165**	**165**
New capital investment	**(33)**	**(11)**	**13**	**17**	**15**	**6**	**1**

Key projects and programmes

In 2020, our advertising estate modernisation programme, which will see high-quality, full-motion, digital assets installed across our estate, will be complete. These will provide new and exciting advertising opportunities for brands to connect with an audience of more than 1.5 billion people that we carry around London every year.

These new assets include upgraded, larger-format digital portrait screens, bringing the total to nearly 400. We have also introduced 54 even larger digital landscape screens, a format that has not been available across our network before.

In addition, our digital escalator panels have been upgraded and refreshed. Also, a new digital ribbon has been introduced at the side of the escalators at some key locations to provide advertisers with an ever more immersive, digital format to engage with their customers.

These digital formats will also expand into a range of new products for advertisers. We have established a network of 88 full HD cross-track projection screens, as well as installing four major, large scale digital gateway screens at King's Cross, Bank, Liverpool Street and London Bridge, with two more to come at Waterloo and Charing Cross. By early 2020, more than 2,400 new, high-format digital screens will have been installed across our rail network.

The opening of the Elizabeth line will see further innovation, with portrait digital displays integrated into platform edge doors to create innovative digital galleries. The Elizabeth line infrastructure has been architecturally integrated into the stations to provide a high-quality estate for our advertisers.

We already have one of the most valuable out-of-home advertising estates in the world, displaying more than 16,000 advertisements in 2018. Our unique environment, supported by a globally recognised brand, enables us to provide immersive advertising opportunities and partnerships that are engaging and entertaining. This, coupled with our investment levels and a deeper understanding of our customers through our data, will enable us to improve their experience and drive the revenue growth we need to invest back into the transport network.

Commercial Consulting and International Operations

Our aim is to build one of the world's leading transport authority consultancies

We are leveraging our globally recognised expertise to establish ourselves as a leading consultancy in transport solutions. We aim to deliver a profitable revenue stream and self-financed growth, and thereby maximise the benefit for our organisation and London. We are entering the market with like-minded partners, while building our expertise, both of which will set us up for future sustainable growth. We are already delivering projects in five markets.

Across the three workstreams of advisory services, intellectual property, and operating and maintaining services, we forecast that we will provide development opportunities for our talented people and generate tens of millions of pounds of net revenue during this Business Plan.

Our financial ambition is to grow a sustainable consultancy business and expand our service, building revenues of £45m by the end of this Business Plan.

80+
people have been involved in bidding for and delivering projects

2021/22
next phase of our overseas projects to begin

7
countries that our staff are currently working with

Key projects and programmes

To ensure sustainable growth, we are building a consulting team and developing the governance structures and decision-making processes that will enable us to evaluate more opportunities and mitigate risks.

Our business strategy and project delivery approach are yielding positive outcomes, the team reflects the market demand for our services, governance structures are evolving to reflect decisions required to support the opportunities we are pursuing, and our strengthened processes allow us to evaluate and mitigate different risks.

While there is demand from every continent, we are targeting specific markets where there is both demand for our skills and funding available. We are developing long-term plans and aligning ourselves with partners, such as like-minded engineering or transport firms, professional services consultancies and funders. For example, we want to leverage our partner's infrastructure and reach, while using our globally recognised brand, intellectual property and unique experience to secure contracts.

We have a huge array of intellectual property and are identifying new products to commercialise. We will look for the most lucrative routes to market, while further creating, protecting and using our intellectual property across our organisation to secure longer-term gains.

Our people across the organisation want to be involved with our work, and we will work closely with our talent management programmes to help talent retention. More than 80 people from across the organisation have been involved in bidding for and delivering project work.

We will always manage projects so that they do not distract from our core business of delivering for London. We have implemented robust assessment and review processes that enable risk-based decision making. We are conducting a full risk review to ensure that appropriate mitigations are in place, and that the risk management approach is fully integrated into other teams.

Throughout 2019, as part of a new commercial partnership with the World Bank, we have been helping the Indian Ministry of Road Transport and Highways develop a new approach to city bus operations. This partnership, led by our Consulting team, was commissioned to investigate how to expand the role buses can play in providing better and more attractive public transport services to India's growing urban population.

In 2020/21, as well as projects in the UK, we will also see the next phase of our overseas work. Our staff are already working on projects in India, Denmark, Norway and Singapore. Each scheme has a robust plan and our existing health, safety and environmental practices and other assurance requirements will continue to ensure successful delivery and the protection of our valuable reputation.

We will take the same approach for other opportunities in North America, Australia, Argentina and Ireland (subject to contract).

Our consultancy work will never distract from the core business of delivering for London

Appendices

Our balance sheet, a breakdown of our investment programmes and strategic risks.

TfL Group balance sheet (£m)

Balance sheet	Actual 2018/19	Forecast 2019/20	Plan 2020/21	Plan 2021/22	Plan 2022/23	Plan 2023/24	Plan 2024/25
Intangible assets	113	119	188	198	172	176	152
Property, plant and equipment	40,815	42,668	44,569	45,493	46,376	47,146	47,983
Investment property	492	492	530	530	530	542	544
Investment in associate entities	233	236	247	252	235	10	7
Long-term derivatives	7	5	5	5	5	5	5
Long-term finance lease receivables	39	37	21	5	–	–	–
Long-term debtors	113	95	84	77	51	51	51
Long-term assets	**41,812**	**43,652**	**45,644**	**46,560**	**47,369**	**47,930**	**48,742**
Stocks	61	62	62	62	62	62	62
Short-term debtors	697	600	532	581	557	509	515
Assets held for sale	122	108	76	69	12	12	4
Short-term derivatives	12	18	18	18	18	18	18
Short-term finance lease receivables	13	16	17	16	5	–	–
Cash and short-term investments	1,882	2,076	2,063	1,627	2,205	2,729	3,271
Current assets	**2,787**	**2,880**	**2,768**	**2,373**	**2,859**	**3,330**	**3,870**
Short-term creditors	(2,167)	(2,118)	(2,008)	(1,889)	(1,953)	(2,177)	(2,440)
Short-term borrowings	(746)	(713)	(492)	(547)	(1,142)	(1,085)	(604)
Short-term finance lease liabilities	(70)	(31)	(29)	(31)	(36)	(40)	(42)
Short-term derivatives	(3)	(2)	(2)	(2)	(2)	(2)	(2)
Short-term provisions	(346)	(182)	(141)	(114)	(128)	(143)	(158)
Current liabilities	**(3,332)**	**(3,046)**	**(2,672)**	**(2,583)**	**(3,261)**	**(3,447)**	**(3,246)**

Balance sheet	Actual 2018/19	Forecast 2019/20	Plan 2020/21	Plan 2021/22	Plan 2022/23	Plan 2023/24	Plan 2024/25
Long-term creditors	(61)	(127)	(159)	(158)	(157)	(156)	(155)
Long-term borrowings	(10,399)	(10,977)	(12,550)	(12,941)	(12,779)	(12,728)	(13,064)
Long-term finance lease liabilities	(348)	(317)	(288)	(256)	(220)	(180)	(138)
Long-term financing liabilities	(133)	(136)	(133)	(123)	(113)	(103)	(93)
Long-term derivatives	(46)	(50)	(50)	(50)	(50)	(50)	(50)
Long-term provisions	(55)	(52)	(48)	(46)	(46)	(46)	(46)
Pension provision	(5,371)	(5,368)	(5,368)	(5,368)	(5,368)	(5,368)	(5,368)
Long-term liabilities	**(16,413)**	**(17,027)**	**(18,596)**	**(18,942)**	**(18,733)**	**(18,631)**	**(18,914)**
Net assets	**24,854**	**26,459**	**27,144**	**27,408**	**28,234**	**29,182**	**30,452**
Reserves							
Usable reserves	1,627	1,789	1,652	1,439	2,005	2,175	2,662
Unusable reserves	23,227	24,670	25,492	25,969	26,229	27,007	27,790
Total reserves	**24,854**	**26,459**	**27,144**	**27,408**	**28,234**	**29,182**	**30,452**

Capital investment (net of third-party funding)

London Underground

Project	2020/21-24/25 total (£m)
London Underground investment programme Maintain the safety, reliability and legal compliance of our passenger rolling stock, track assets, stations and other buildings and civils structures. It also involves maintaining our existing signalling equipment ahead of its eventual renewal, as well as updating our power assets and work to support the Mayor's energy priorities	2,193
Piccadilly line upgrade Modernisation of the Piccadilly line (new trains and enabling works)	2,078
Modernisation of the Circle, District, Hammersmith & City and Metropolitan lines Upgrade of the four lines will significantly increase capacity	429
Major station upgrades (including Bank station) Station capacity projects that are already in progress or starting imminently	243
Northern Line Extension Extension from Kennington to Battersea	214
Station step-free access Additional step-free access schemes beyond those delivered as part of station capacity projects or Crossrail construction	84
Capacity optimisation programme – railway system enhancements World class capacity will deliver capacity improvement outcomes for the Jubilee and Northern lines	66

Elizabeth line

Project	2020/21-24/25 total (£m)
Elizabeth line enabling work Various works paid for directly by us rather than through Crossrail Limited	42

Buses, streets and rail

Project	2020/21-24/25 total (£m)
Healthy Streets Work recognising the value of increasing walking, cycling and public transport, creating more sustainable, safe, clean and efficient freight and servicing. Additional schemes are also funded through the operating account	922
Assets Renewals and refurbishments to maintain the safety and reliability of highway, traffic, bus, coach and river assets. Key projects include bus driver facilities, Rotherhithe Tunnel and Woolwich Ferry	576
Capacity optimisation programme – DLR rolling stock Asset renewals, capacity enhancements and supporting infrastructure for new trains	548
Public Transport The renewal of our London Overground, DLR, Tram and other public transport assets. This includes stations and stops across all modes and fleet on the London Overground and DLR. This portfolio includes finalisation of White Hart Lane station on the London Overground. On Trams, it includes new rolling stock to replace the current fleet and infrastructure works to improve reliability. Additional items are also funded through the operating account	445
Silvertown crossing New road crossing at Silvertown via a tunnel under the Thames	166
Air quality Capital funded schemes, infrastructure and initiatives that improve air quality. Additional schemes are also funded through the operating account	134
Technology Asset renewals and infrastructure works to replace life expired technology and utilise the latest innovations to improve our transport offering for our customers. Additional items are also funded through the operating account	120
Barking Riverside Extension London Overground extension to Barking Riverside, supporting new housing	53

Professional services

Project	2020/21-24/25 total (£m)
Customer experience Various renewal and investment projects relating to revenue collection assets (for example, ticket vending machines and ticketing technologies), internal systems, IT infrastructure and cyber security	331

Property

Project	2020/21-24/25 total (£m)
Property development Developing and delivering our property portfolio, including delivering the Mayor's affordable housing pledge, Crossrail development sites and creatinga significant Build to Rent portfolio	891
Commercial property Improving and investing in our retail environments in and around stations and our commercial property to generate sustainable income	119

Strategic risk descriptions*

Risk number	Risk title	Description
1	Achieving safety outcomes	Risk of injury, death, and poor health and wellbeing to customers, contractors, staff and wider population by not following appropriate procedures, having poor procedures in place, not sufficiently identifying and managing risks and not having effective policies and programmes
2	Talent attraction and retention	We may not be able to attract, recruit, develop, engage and retain staff with the right competencies, behaviours and required level of skills
3	Governance and controls suitability	Governance and controls suitability may not be fit for purpose, and/or not provide adequate support to meet the changing demands on TfL and expectations of its stakeholders
4	Major cyber security incidents	A significant cyber security incident may occur that overcomes our preparations and results in a major theft or loss of personal or other important data, financial theft or loss, or interruption to key business systems
5	Technological/market developments	Technological or market changes, the emergence of new business models and changes in customer preferences may outpace our ability to adapt, presenting risks including safety, nuisance, reduced accessibility and our ability to achieve Mayor's Transport Strategy goals both in the short and longer term
6	Loss of external stakeholder trust	Loss of credibility and sympathy leading to lack of political support, potential impact on funding and consent environment. This risk is explicitly focused on the management of relationships, reputations and communications; managing other factors – such as the diversity of our funding sources – is covered elsewhere in the risk framework
7	Financial sustainability	Significant events/financial challenges leading to us not being financially sustainable to deliver our core transport services and invest affordably during the Business Plan period
8	Inability to deliver predicted revenue growth	Inability to deliver predicted revenue growth in line with forecast
9	Inability to meet changing demand	Due to economic factors and changes to people's travel behaviours, demand could be too high for us to accommodate or too low to meet income targets and deliver the Business Plan
11	Significant technology failure	A significant technology failure may occur that overcomes our preparations and results in interruption to key business systems, interference with operational activity, the materialisation of a safety hazard and/or regulatory fines
12	Delivery of key investment programmes and projects captured in the Business Plan	Internal or external events that have the potential to impact projects may result in an inability to efficiently deliver the investment programme portfolio and achieve planned benefits
13	Operational reliability	Not meeting operational targets and/or delivering less reliable services for customers and other users
14	Our environmental impact	Failure to meet our environmental objectives and legal requirements on environmental issues, which include emissions from rail and road transport, greening and biodiversity loss as a result of maintenance operation or construction, waste and pollution, and noise. These could result in reputational damage, legal/financial penalties, health impacts, reduced quality of life and a failure to meet statutory requirements
15	Climate change and extreme weather	Insufficient resilience and adaptation to extreme weather and climate change, such as flooding, high temperatures, supply chain disruption or invasive species, could result in reduced customer experience and reputational damage, reduced quality of life, increases in operational and capital spend
16	Opening of the Elizabeth line	Although there are five distinct phases to the opening of the Elizabeth line, this risk mainly refers to the delay in the scheduled opening of the central section between Paddington (Crossrail) and Abbey Wood
17	TfL protective security	Failure to prevent or respond to a security threat (internal and/or external) could adversely impact our operations, financial performance, people, customers, reputation and assets
18	Impact of transformation on Mayoral commitments and business priorities	Further transformation activity is planned to help deliver our Business Plan and address significant financial challenges. There is risk that delivery of largescale transformation could have a negative impact on the organisation's ability to effectively meet Mayoral and business priorities. The strategic objective of reducing our operating cost and achieving financial sustainability needs to be balanced against the need to maintain our commitments to the Mayor, deliver the Mayor's Transport Strategy and maintain business performance and safety across our network. This is a specific risk over and above the general engagement and financial risks covered in other strategic risks. This is all about maintaining performance through change

* Risk 10 (Catastrophic event) was closed as the causes and consequences were captured in other strategic risks

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