LONDON FIRST

In partnership with ARUP

Transport in London

New solutions for a changing city

Contents

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This report has been developed through a collaboration between London First and Arup.

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The figures and analysis in this report are deliberately high-level. The intent was not to undertake detailed transport demand and financial modelling, but rather to assess the order-of-magnitude impact that recent trends may have on both future travel and funding requirements.

Except where otherwise indicated in the text, we generally use the term 'rail' in this report to refer to all Transport for London-operated rail services in the capital: London Underground, TfL Rail (which will become the Elizabeth Line), London Overground, and Docklands Light Railway.

All photos are from Andrew Nothstine unless otherwise indicated.

Image source: Arup

Introduction

An existential crisis – and an opportunity for transformational change

Transport for London (TfL) was established, along with the mayoralty, at the turn of the millennium. This young organisation has achieved a lot. From the Oyster Card and Congestion Charge to the Overground and soon-to-open Crossrail, London's extensive and well utilised public transport network has been an integral part of the city's growth. Between 1997 and 2017 the city's population grew by 20%, yet the number of private vehicle trips in Greater London slightly decreased. Public transport trips have increased from 6m to 10m daily, supporting high value job creation and a better quality of life for Londoners. There can be no doubt that an effective mass transit network lies at the heart of London's competitiveness. TfL, and all three of London's mayors, deserve much credit for this success.

But there has always been a tension between the responsibilities granted to the Mayor and TfL for running London's transport services, and the resources available to them under London's limited devolution settlement. In short, London has been asked to run its own transport network without being given an adequate range of powers to pay for the services, service levels, and investments that the city needs.

Pre-pandemic, this led to an over-reliance on the farebox and particularly on the revenues generated from tube customers. As a result, TfL's finances were hit harder than those of other transport authorities when passenger numbers plummeted in the wake of the Covid pandemic. London saw a 65% reduction in tube demand and 44% reduction in bus demand between March and November 2020.

However, the funding model for London transport was already showing signs of stress before the pandemic hit. Driven by changing behaviours, new commuting patterns, network congestion, and new technologies, London saw bus passengers declining, rail passengers plateauing, and use of alternative modes increasing. All of which contributed to growing constraints on TfL's revenue.

Reinventing transport in London

In the short-term, there is no substitute for central government support, as London government simply does not have the powers and resources to otherwise fund the network. However, a continuous short-term cycle of funding negotiations with the Treasury is no way to run a transport network. London needs greater certainty and greater autonomy in matching its services and investments to its needs.

This report is our first attempt to frame to that debate. The first section examines how London and its transport network have evolved in modern times before assessing the impact and implications of the pandemic. Section two combines an analysis of the current funding challenge for TfL with an analysis of future trends and forecasts of future travel demand. The final section looks at how London could pay for the network and services that the city needs, taking into consideration the likely trends and critical questions of efficiency, equity, and the environment.

The starting point for any new funding model for London must be that a greater, though still small, share of the existing public revenues raised here must be channelled into paying for the transport services which makes these revenues possible in the first place. But while that provides a foundation for paying for the transport the city needs, more needs to be done.

We therefore examine a range of further options for meeting London's transport needs. Some are radical, others are more incremental, but none are easy. Getting the balance right is for all of us to debate. Now is the time to think creatively, recommit to London's devolved transport authority and look to the future.

Photo by Shutterstock

Why does public transport matter?

The Global City Power Index (GCPI) has ranked London as the most magnetic global city for its ability to attract people, capital, and enterprise from around the world. London's place at the top of the table, which it has held since 2012, is buoyed by top marks for accessibility. London is considered the most accessible major urban centre by GCPI, thanks to its extensive and well supported public transport and sustainable travel network.

Access to high-quality public transport and active travel opportunities supports a better quality of life for citizens. Research from the American Journal of Preventative Medicine shows that each additional hour spent in a car per day is associated with a 6% increase in the likelihood of obesity, while each additional kilometre walked per day was associated with a 5% reduction. And local air pollution in London is already at illegally high levels in many car-intensive areas – a situation that would be even worse without high-quality public transport.

The performance of London's transport network is also critical for meeting our sustainability objectives. Transport accounts for 26% of greenhouse gas emissions in London – a figure which we must reduce, but which is significantly lower than car-dominated cities where transport can account for around half of emissions.

There is no 'benefit-cost ratio' that can tell the whole story of the economic, environmental, and social benefits delivered by London's transport system. And the consequences of poor public transport provision never fall evenly across society. This is especially true in a city like London where the poor are less likely to own their own car. Just as public transport services and investments help to level up the country, they also serve to level up the city.

London's tube, buses, cycles, and taxis are worldwide icons for a reason – they are a quintessential part of the city's fabric and what makes London, London.

"Transport doesn't only shape our daily lives and determine how we get around London – it can create new opportunities for Londoners and shape the character of our city.

Sadiq Khan, Mayor of London,
Mayor's Transport Strategy

The dispersion of commuters that arrive into London from the Greater London Area and beyond. The blue sections of the arc represent the home-end of the journey, with the brighter yellow end of the arc representing the work-end of the journey

Image source: Arup

A changing London:

Evolution of transport in the city

An ever-changing London

London has continually adapted and changed throughout history, and its transport system has always played a central role in this. The city's development began as the first bridging point on the Thames, and Roman roads connected Londinium's barracks to Roman Britain and its ports across the rest of the empire.

London emerged as the capital of a united England in the early medieval period. The city's population grew continuously, overcoming the sometimes severe setbacks of plagues. The great fire of London marked a new era for transport in London – roads were widened (while mostly sticking to existing layouts) and wharves built across the Thames, setting the stage for Britain's growth as a global trading nation.

London has a history of shaping its own destiny by investing in the future, with transport infrastructure often at the heart of these investments – canals at the turn of the 18th century, the London and Greenwich railway in 1835 and the world's first underground railway in 1863. These and other bold investments enabled London to become the world's largest city in the early 19th century.

New challenges emerged in the 20th century. In the post-war era, London's population fell precipitously over many decades, due to poor quality of life for many, a changing global economy and government policies that favoured investment outside of London.

The city could have continued to decline, but interventions and investments made by forward-thinking leaders changed this trajectory. Canary Wharf's history provides one illustration: from swamps to the largest docks in the world, and then from a derelict industrial site to a global financial hub. But of course these changes were not preordained. Instead, they were the result of smart, sustained choices to reinvent the city in the face of severe challenges.

The following pages provide an overview of London's – and the London transport system's – evolution following the long and difficult period of 20th century decline.

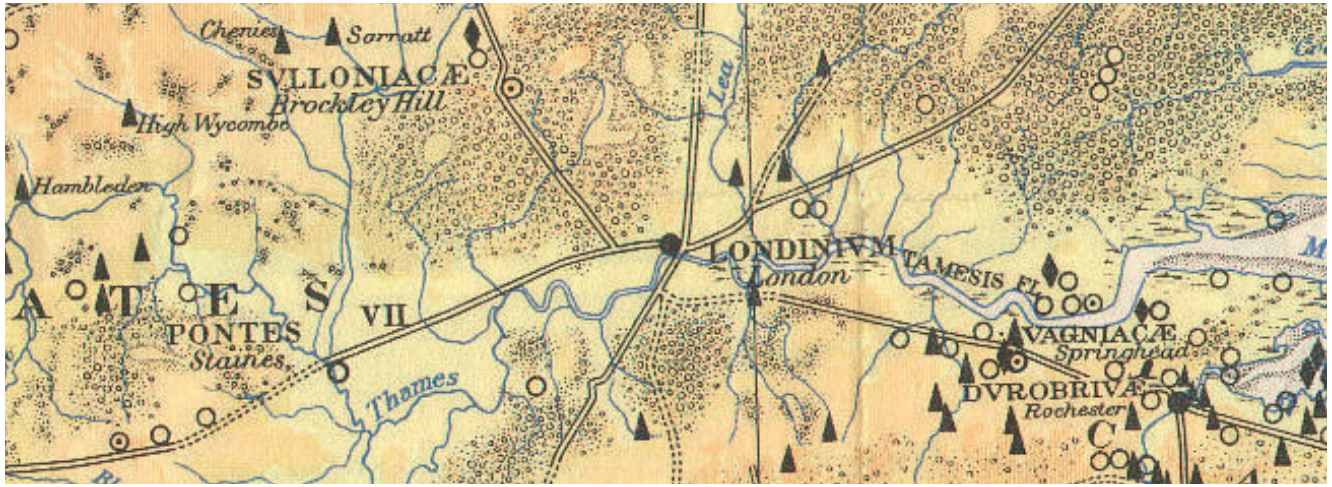


Image source: Ordnance Survey, Map of Roman Britain, Second Edition,1931.

Evolution of London's transport system in modern times

TfL Created

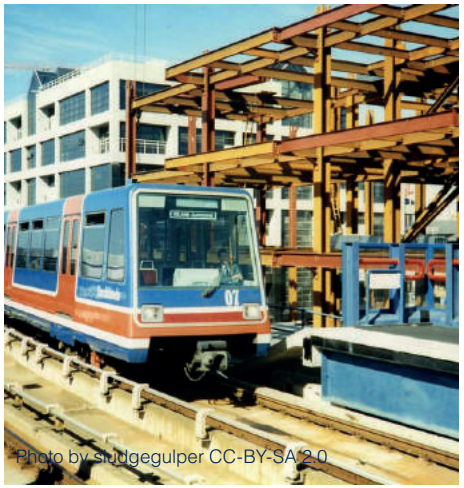


Photo by sludgegulper CC-BY-SA 2.0

Return to Growth

1980s-1990s

London's population begins growing again following post-war decline and the devastating fire at Kings Cross is an impetus for major change in London transport. There was a heavy reliance on central Government funding during this period.

Photo by M Mitchell on Unsplash

Invest & Expand

2000-2015

London enters a period of rapid population and economic growth, underpinned by transformational capital investments in the city's transport system supported with a commitment to long term funding.

Photo by Anjana Menon on Unsplash

Uncertainty & Change

2015-2019

London enters a period of uncertainty, with Brexit and rapid changes to lifestyles, technologies, and travel patterns. he London Underground generated an operational surplus that supported bus services; central Government grant was replaced by business rates retention.

Covid Crash

Photo by Ivan Teece on Unsplash

New Era of Mobility

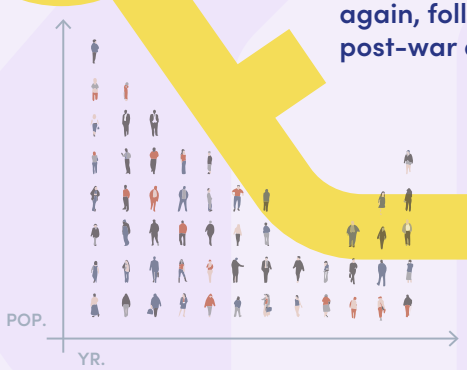
2020s and beyond

London has the opportunity to emerge as a global leader in providing a carbon-neutral and technologically-enabled transport network – aligned with the way people now live, work, and play in the city.

Return to Growth

1980

London's population begins growing again, following post-war decline

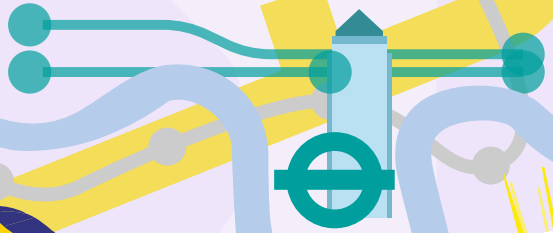


The devastating fire at Kings Cross is an impetus for addressing London's under-invested infrastructure

Jubilee line extended between 1992 and 1999

London Eye (1999)

DLR established to connect to Canary Wharf



London City Airport (1987)

Thames Clipper (1999)

Eurostar from Waterloo (1994)

Millenium Dome (1999)

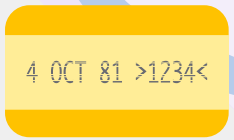
Zone 1

Zone 2

Zone 3

Zone 4

Zone 5



Development of a zonal fare structure

Significant reliance on government grant and limited modal integration

1999

GLA Act (1999) paves way for creation of TFL

Invest & Expand

TFL created (2000)

Introduction of Oyster

Congestion charge zone extension (2007) and contraction (2011)

Crossrail approved and construction begins

Congestion Charge (2003)

High levels of transport investment geared towards 2012 Olympics

2015

Focus on service performance, reliability and addressing backlog of maintenance

DLR ext.

First change of Mayor (2008)

Agreement of 10 year funding package - providing stability and enabling long-term planning (2010)

Cyclehire and cycle superhighways introduced

Significant expansion with introduction of London Overground (2007) and extension of DLR

London Overground

Transformational improvements to London Underground capacity and reliability

2000

Passenger growth (5% pa) and fare rises bring sustained income

London terrorist attacks (2005)

Uncertainty & Change

2016

Fares frozen during this period

1 in 10 contactless payments in the UK with TFL (2017)

Office workers begin to work more from home and leisure trips begin to fall

2m Londoners living in areas with illegal air pollution

Legal challenges to London's poor air quality

Unwinding of Government grant; replaced by retention of business rates

Cycling hits a record 745,000 trips a day in 2019

2019

Car and bike-sharing services boom; competition from non-TFL providers

Congestion contributes to decline in bus performance and passenger demand falls

Rail passenger demand plateaus

Rise in LGV traffic as online shopping grows significantly

E-economy takes off

Brexit (2016-20)

The COVID Crash

London Underground patronage falls to 6% of normal during the height of lockdown

Neighbourhoods and green spaces are more intensively utilised in lockdown

Working from home becomes the norm for office-based workers

Air quality improves as traffic initially decreases - later returning to pre-Covid levels

Congestion Charge initially paused, then raised to £15 and with longer hours of operation

2020

COVID-19

Two emergency grant agreements with central Government to cover shortfalls in fare revenue

E-scooters trials are announced

Low traffic community streets set up across the city

Rise in online shopping and deliveries as in-person retail declines

How has the ‘Covid Crash’ impacted TfL’s finances?

Not everyone can work from home, but in London a higher proportion of workers can than elsewhere in the UK. During the pandemic it was found that 57.2% of Londoners worked from home compared to 46.6% UK wide.

This has led to substantial declines in commuting journeys into central London (the Central Activity Zone - CAZ). From a financial perspective, these are the most high-yielding journey types for TfL – peak hour commutes that typically occur on the tube. A 10% fall in commuters to the CAZ results in losses of £300m for TfL, all other things being equal.

People are, however, making more local trips near their homes. This generally means more trips by car, walking or cycling – all of which result in no or minimal revenue to TfL, but which rely on longer-term investment and support.

‘Paying’ (to TfL) trips

‘Non-Paying’ (to TfL) trips

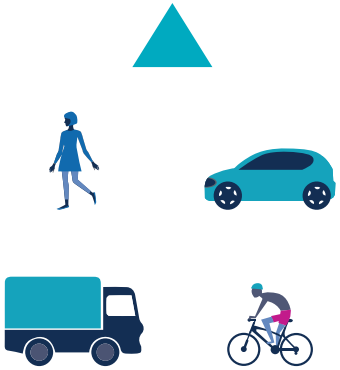


Photo by Roman Koester on Unsplash

Indicative impact on TfL revenues from different types of travellers

Example case studies

Young professional

Frequently commuted into central London pre-pandemic, now works from home 5 days per week. Has increased travel locally, with greater likelihood of cycling/walking options for these local trips.

- Fare zone: Zone 3 to Zone 1
- Travel mode: Tube

Change in TfL income per day

-£8.50

Change in TfL income since March 2020 ~180 working days

-£1,500

Experienced professional

Frequently commuted into central London pre-pandemic (with some home working), now works from home 5 days per week. Has increased travel locally, occasionally by bus, but greater likelihood of private car usage for these trips. Lives in outer London.

- Fare zone: Zone 6 to Zone 1
- Travel mode: Tube

-£19.10

-£3,400

Key worker e.g. NHS

Frequent local commuter who has been working throughout the pandemic. Slight increase in private car use for local trips due to health concerns, but generally takes the bus for commute in same pattern as pre-Covid.

- Fare zone: n/a
- Travel mode: bus

No change

No change

On-site engineer

Travels all across London, including central London. Previously used public transport but now uses private vehicle.

- Fare zone: CCZ/ULEZ
- Travel mode: private car

+£8 (net)

+£1,400 (net)

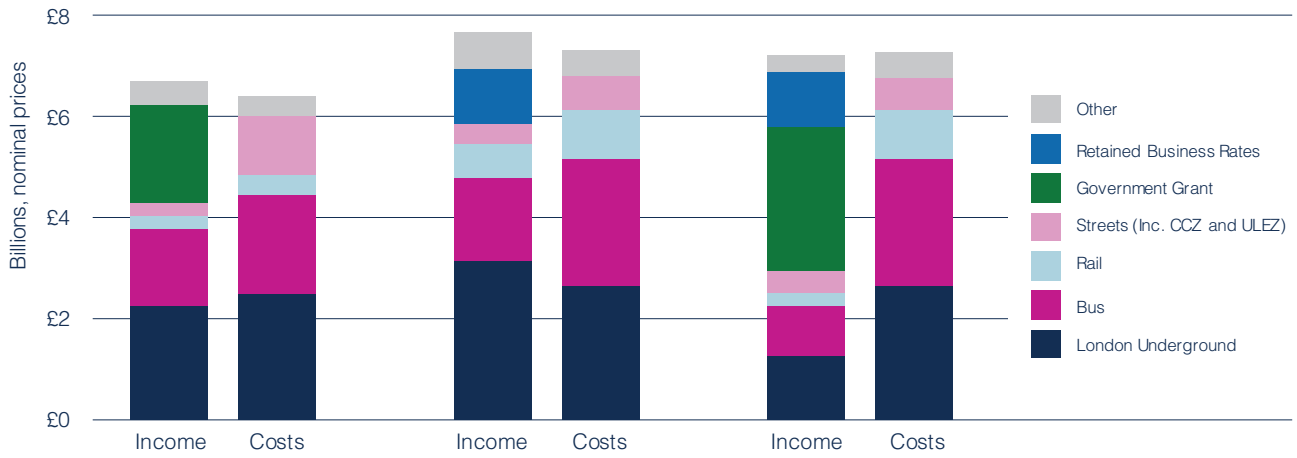
Funding models have changed with these broader shifts in the function of London's transport network

In the 1980s and early 1990s, London was heavily reliant on grants from central Government to fund the transport system. In the 2000s, passengers and revenues started to grow dramatically, due to major capital investments, strong economic and population growth and – importantly – the benefits of integration under the newly-created TfL. This led to a lower grant requirement.

For much of the past decade, the London Underground has generated a sizable operating surplus, which contributed to TfL having one of the highest farebox recovery ratios in the entire world. The Government grant was replaced with business rates retention during this period, but success at the farebox meant that this made up a smaller proportion of the overall funding package.

Note: the summary figures at right are indicative of the scale of costs and revenues across different parts of the transport network in these eras. They are intentionally an oversimplification and not intended to provide a specific or comprehensive overview of the complete financial position in these years. The graphs only include operational costs and income.

FY2020/21 figures are rough proxy estimates developed in early Dec 2020, prior to the announcement of London entering a 'Tier 4' lockdown and the further tightening in early January. The revenue figures are thus likely to be a significant overestimate.



Invest & Expand

2000-2015

Shift to reliance on farebox from London Underground; major investment and system expansion delivers major passenger growth

FY11/12 figures used to represent this era

Uncertainty & Change

2015-2019

London Underground revenue generating, subsidising bus services; business rates retention replaces grant

FY19/20 figures used to represent this era

Covid Crash

2020

Pandemic decimated fare revenue, requiring emergency Government support

Initial estimates for FY20/21; see notes at left

Photo by Andrew Nothstine

Implications for the future

The growth and improvement of London's transport network has been instrumental in the capital's economic success over the last half century, and in its move to become a more sustainable 'public transport city'. This network has become the envy of many other global cities for its high-quality performance and continual adaptation in the face of change. A deterioration in the quality of the transport network in London would impact directly on London and the UK's economic recovery post Covid and significantly reduce our ability to deliver a green recovery that meets our commitments on carbon reduction.

The underlying funding model for transport in London has changed over the years and needs now to evolve again to meet the city's future needs. Seeking to return to a past model would be wrong on two counts.

First, these previous models are ill-suited to the current way in which decisions and investments are made in London. For instance, they mostly preceded the welcome move towards greater devolution of local powers and accountabilities.

Second, such a backward facing step would fail to respond to the many drivers of change occurring pre-Covid – technological, lifestyle, work. A new model was always going to be needed soon. Covid simply accelerated the timetable. For the sake of the economy, the environment, and our quality of life, a new approach will be needed to meet the challenges of tomorrow.

Shaping that future

Since the 1980s, London has re-asserted itself as a leading global city. And much of what has made London attractive over the last three decades will return as the pandemic fades. But some things will have changed for good. London will need to respond and adapt if it is to thrive. This future is something that we will shape; not something that will happen to us.

This latest chapter in the life of the capital will likely involve people travelling into central London less frequently and for different reasons. But if people are travelling less frequently, then they may be prepared to travel further. And if spaces do open up – be it on the 08:15 into Victoria, or in central London office blocks – it is not difficult to imagine the new, and perhaps more diverse, people who will fill them. This could bring fresh energy to the city and maintain, or increase, its attractiveness as a destination.

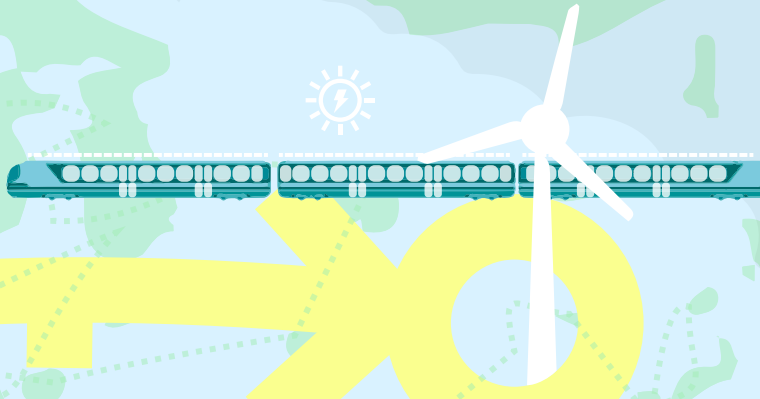
London can take decisions to improve its chances in the competitive environment of global cities.

We should actively seek to remain a hub, both domestically and internationally. We should choose to be open and connected to the world. We should choose to support the great cultural and educational institutions that give the city life. We should choose to invest in the infrastructure that enables efficient and enjoyable human interactions – and makes us more resilient to future shocks. We should choose to prioritise our environment, both locally and globally. We should choose to make the capital work, for everyone. And we should choose to believe in the city, both as a place and as a concept.

Photo by Tomek Baginski on Unsplash

Imagining a future for London transport

Shift to net-zero transport system



Increased local activity enhances London's 'city of villages' reputation

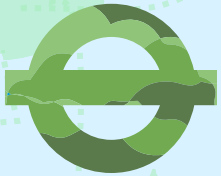
New and more dynamic uses in the Central Activity Zone

2030

Satellite and co-working offices revive the high street

Dynamic system replaces peak travel times; live updates on passenger numbers and cheapest travel times

Green network of walking and cycling routes set up to connect parks and nature across the city



Investment in public realm - creating new destinations, reasons to visit and a safer and more inclusive city

Affordable electric transport and new routes connect suburban communities

2021

Electrification of black cab fleet, 'Collectivo' initiatives, support for elderly and goods delivery

ULEZ Extension (2021-22)

The challenge

Influencing and shaping the changing city

Significant global and local trends are shaping a new era for cities, and the transport systems that support them

Trends in major cities across the globe

Changing priorities for urban places – most cities are moving towards more holistic and sustainable approaches to enable 'good growth' and economic competitiveness characterised by creating liveable, diverse and inclusive communities.

Transport critical to decarbonisation – transport is increasingly seen as a key enabler for decarbonisation and other policy aims far beyond just moving people & goods including health, social and economic equity, unlocking regeneration opportunities and supporting housing development.

Changing view of the role of streets – most cities are now adopting a view of streets as places for people, and not just cars – with implications for urban design, placemaking, active travel, and road usage.

Rising cost of living – many successful cities are facing serious affordable housing crises and other high costs that exacerbate inequality.

Increasing moves towards 'Digital Lifestyles' – e-commerce, e-entertainment, e-learning are all becoming a more common part of everyday life.

Growing prevalence of shared mobility options – private hire vehicles, bikeshare, car share, dockless bikes, electric scooters all booming.

Global trends particularly relevant to London

A slowing of population and travel demand growth – according to the Travel in London 13 (TIL13) report, a summary of travel and transport trends produced annually by TfL, 'population, economic and societal change led to slowing growth of travel demand in London in the four years up to 2019… London's population increased by just 0.6 per cent in 2019, the slowest rate of growth since 2004.'

Increasing freight and servicing / delivery trips – freight now accounts for a third of all vehicle trips in the Central London during the peak.[1]

Increasing adoption of active travel opportunities – the percentage of Londoners undertaking at least 20 minutes of active travel per day has increased to 42 percent (TIL13).

These trends will have significant impacts on how people travel in London – but these impacts are highly unpredictable

Projecting future travel demand is more uncertain now than at any point in TfL's existence. The pandemic will have significant effects on travel patterns – many of which cannot be forecast with certainty at this stage. These include:

Economy

Employment and wages have an obvious impact on commuting trips – but also leisure trips, which are correlated to disposable income. During the 2008 recession there were 1.7 million fewer passenger trips than in the previous year as London GVA declined by 5.5%. The medium and long-term impact of both Covid and Brexit on the London economy are subject to widely varying projections and forecasts.

Lifestyle

One of the most influential determinants of future travel demand will be the degree to which working from home becomes the norm. Most analysts believe that businesses and their staff will want to return to the office for part of the week but probably not every day. Where this balance lies will be critical. Additionally, changes in leisure activity have resulted in fewer trips on public transport as local and online consumption increases, especially in retail but also in hospitality.

Experience

Successful cities will increasingly be those that offer unique and diverse experiences in high-quality urban environments. The ability to attract people back into urban centres will rely in part on the quality of these experiences, perceptions of safety and well-being, and ease of access. This places greater emphasis on the quality of our public spaces and how these spaces are managed and used to attract new visitors. London's success in this regard will have an impact on future travel demand in the city.

Technology

New transport technology has been a key driver of change over the last five years, underpinned by the smartphone – new ways of booking transport have unlocked private hire, cycles and now e-scooters in some places. Electric vehicles and – in time – autonomous vehicles could bring environmental benefits but also new challenges and uncertainties. Technologies and business models can be expected to continue developing rapidly, in ways that are difficult to project 5-10 years out.

Political

Policy and investment choices, for example related to fares, fuel duty, zero emission vehicles or active transport, all affect the choices travellers will make. So too do wider political decisions. For example, population growth in London, a key driver for travel demand, has been significantly dependent on international migration. The key point here is that we have agency, at least in part, to shape trends through policy choices.

Scenario planning for the future

The broad range of ‘unknowns’ discussed on the previous pages means that we need to consider various scenarios for the future.

Transport for London set out their recovery planning framework in the Travel in London 13 annual report. We are focused primarily on the stage characterised by TfL as ‘steady state recovery,’ a point in time in which restrictions to daily life are lifted and the Covid pandemic is largely under control.

TfL sets out two possible scenarios for that period: ‘return to nearly normal’ and ‘change to London.’ In the first, travel in London returns to something resembling pre-pandemic, but demand for public transport and economic activity have not fully reached 2019 levels as some shifts in preferences and behaviour have ‘stuck.’ In the latter, the changes which are occurring now largely continue – a pronounced shift to working from home and substantial rise in local area travel, putting pressure on road space.

We have expanded on these scenarios with our views of what this period might look like – in the absence of major interventions between now and the mid-2020s. We have then undertaken some rudimentary, high-level modelling to look at the indicative scale of impact each could have on travel demand in London, and the corresponding impact on fare revenue. We have chosen a base year of 2024/25 for this modelling, as it is distant enough to assume we will beyond the pandemic but still falls within the range of TfL’s most recent five-year business plan.

There are, of course, dozens of other possible scenarios for London’s medium-term future. Some of these scenarios are far more pessimistic than those assessed in this report. To keep matters simple, maintain general alignment with TfL and GLA projections for the mid-2020s, and fit with our vision for London’s success, we have elected to base this analysis on the two scenarios that follow.

Potential scale of ridership decline at both rail stations (light purple) and bus stops (dark purple) in London, 2024/25 under Scenario 1 (see following page).

Image source: Arup

Two scenarios for the ‘steady state recovery period’

Scenario 1: Redistributed London

(correlates loosely with TfL’s Change to London scenario)

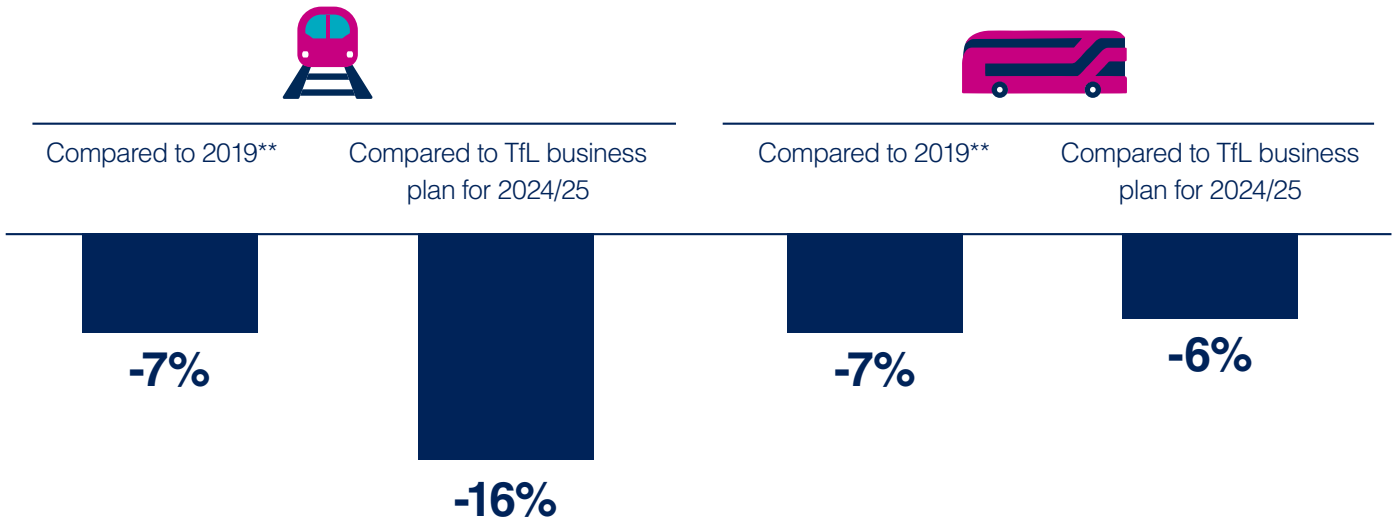
Major change ■ ■ ■ ■ Minor change

In this scenario, the pre-Covid gravitational force of Central London begins to decline, as the attractiveness and purpose of cities changes. While the wider region continues to grow, the pace is far more modest and the distribution of this growth more dispersed. The population of Inner London stagnates or begins to decline, as residents who no longer have a need to be close to their jobs move further away in search of more space or lifestyle changes.

Working from home has a sustained impact on how people choose to live, with reductions in central London commuting from all parts of the commuter belt, and in particular those traveling furthest. There is a small increase in leisure trips both locally and into central London, as a result of commuters having slightly more free time. Travel in local neighbourhoods increases substantially, typically by private car, walking, or cycling.

		Non-TfL
Trips into Central London	Radial Rail & Tube ▼ Bus Commuting ▼ Cars* ▼	Walk/bike ▼
Local trips	▲ Local bus Orbital/outer rail ▼	▲ +500m annual trips

*



* Pay via congestion charge or ULEZ.

** Future scenario years include Elizabeth Line and Northern Line extension, making apples-to-apples impact compared to 2019 more severe than it appears.

Two scenarios for the ‘steady state recovery period’

Scenario 2: A new equilibrium

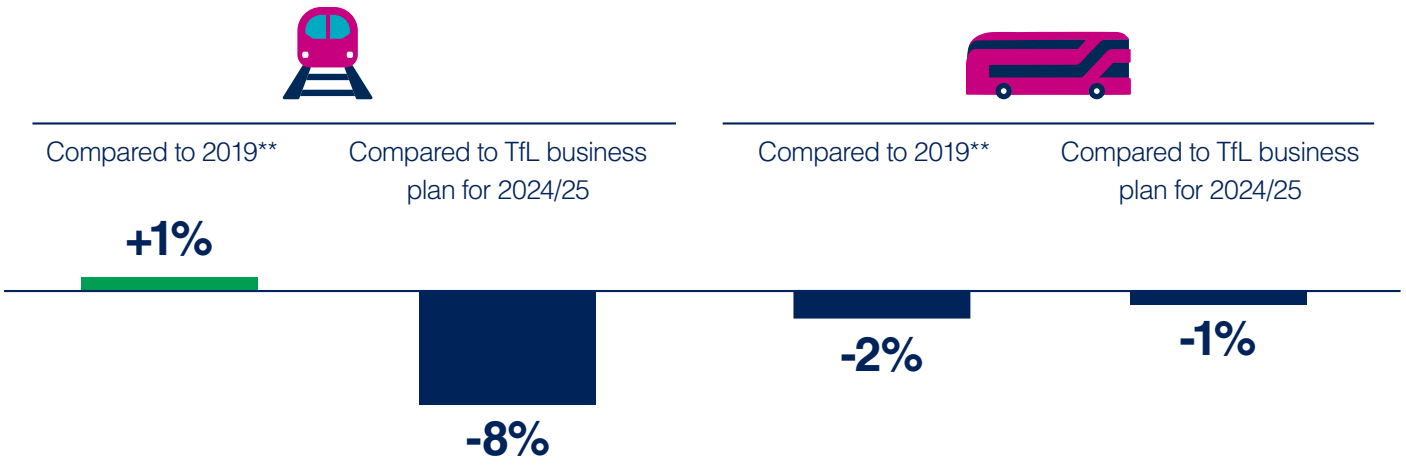
(correlates loosely with TfL’s Return to Nearly Normal scenario)

While the working from home trend continues, Central London remains an attractive place to live, work, and play. The reduction of “in-person” working means large companies require a smaller footprint, opening up space and opportunities for new businesses, including small and medium enterprises, to locate more affordably in Central London. So while the types and frequencies of commuter journeys into Central London may change, the overall labour pool of commuters will grow – offsetting some of the impact of increased working from home.

Similarly, in the residential market, while some may choose to relocate further afield to areas outside of London, this reduced demand will create opportunities and attract aspiring Londoners who were previously unable to afford the housing costs associated with inner London living, as housing supply continues to increase and demand softens.

Major change ■ ■ ■ ■ Minor change

	TfL	Non-TfL
Trips into Central London	Radial Rail ▼ Bus Commuting ▼ Cars* ▼	Walk/bike ▼
Local trips	▲ Local bus ▲ Orbital/outer rail	▲ +250m annual trips



* Pay via congestion charge or ULEZ.

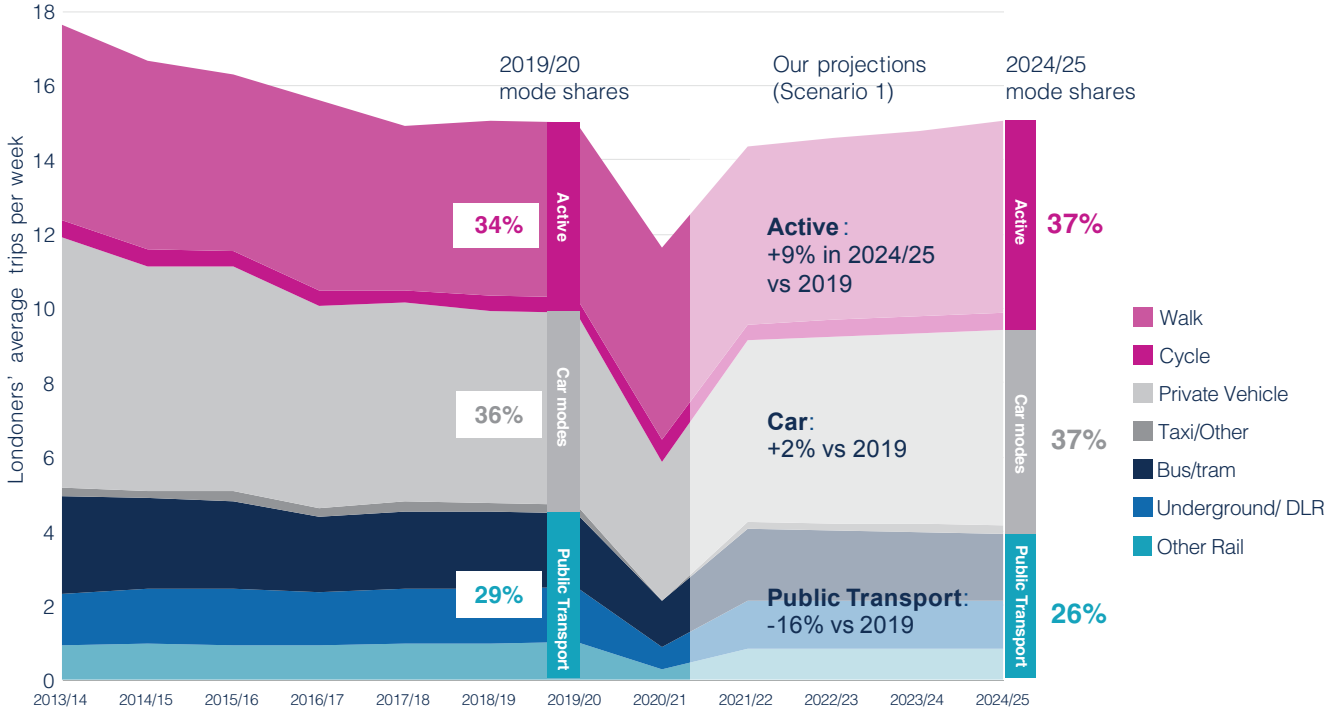
** Future scenario years include Elizabeth Line and Northern Line extension, making apples-to-apples impact compared to 2019 more severe than it appears.

What are the high-level conclusions from these scenarios?

On average, Londoners' make 2.1 trips per day, a steady decline from around 2.5 trips per day in 2013. The type of trips Londoners make has also been changing. The largest fall in trip rates over the last 10 years has been in private car trips. From 2005 to 2018, rates fell 30% as car ownership and availability declined.

Under our indicative modelling, the increase in home working in Scenario 1 results in 500m fewer trips to work per year by 2024, reducing the total number of work-related car and public transport trips across Greater London. As people spend more time at home, this could result in a corresponding increase in local trips, which are more likely to be made by car or walking / cycling. The scenario we have tested – which to reiterate assumes no major interventions – suggests a 9% increase in active travel trips by 2024/25 (compared to 2019), increasing the overall share of active travel trips in London from 34% to 37%. This is set against an increase in car trips and a significant reduction in public transport trips – 16% less in 2024/25 compared to 2019 levels.

Whilst the increase in local trips using active modes is welcome, the increase in local car trips is reversing a modern success story in London, unless measures are introduced to prevent this happening. There is real opportunity to deliver greener and more inclusive neighbourhoods with a focus on active travel, but this will require careful planning and investment. It would be harmful to the 'green economic recovery' of London to allow levels of car usage to start growing significantly again, adding to congestion and pollution in local neighbourhoods. To avoid this requires a new approach to how we think about the use of road space in London, including the way in which we pay to use it.



What does this mean for TfL's finances?

TfL relies heavily on passenger fares to fund operations. The likely decline in passenger numbers on rail and bus services in the medium-term, as forecast in our two scenarios, will place a significant strain on TfL's finances even beyond the current crisis period.

We have undertaken a high-level assessment to understand what this impact might look like in the mid-2020s, and the size of the potential funding gap it will create. Our estimates suggest that rail revenues may be down by c. 18-26% compared to TfL's current five-year business plan for 2024/25. Bus income is likely to be down from 2019 but largely in line with the original TfL forecast for 2024/25. This is because the business plan already included a fall in bus passengers and revenue, largely due to improvements to the rail network (opening of the Northern Line extension and Elizabeth Line) as well as changing demographics and incomes in the city.

For simplicity in this analysis, we have assumed that costs and other revenue sources remain broadly similar to the figures in the business plan for 2024/25. (We discuss potential cost savings in the following section.) We have also assumed that TfL will not take on any new debt to cover operating costs in the next few years, and instead and will need to work with central government to find a bridging solution. Capital enhancements are not included in this assessment. Devolved revenue streams like the current Business Rate Retention could come under greater pressure in the post-Covid era, and thus we have shown this income stream as potentially being lost or reduced – and thus contributing to the future gap range.

Based on this analysis, we estimate that the 2024/25 funding gap could be between £500 million and £2 billion.

This is a very high-level and indicative analysis, and is oversimplifying a highly complex financial picture. However, our estimated gap is within the range of conclusions reached by the Mayor's Independent Review commission, which suggests a gap of £1.5 to 2 billion (although this includes key capital enhancements, which our assessment does not). It is clear that under any scenario or forecast, new approaches will be needed to solve the likely ongoing and sizable gap.

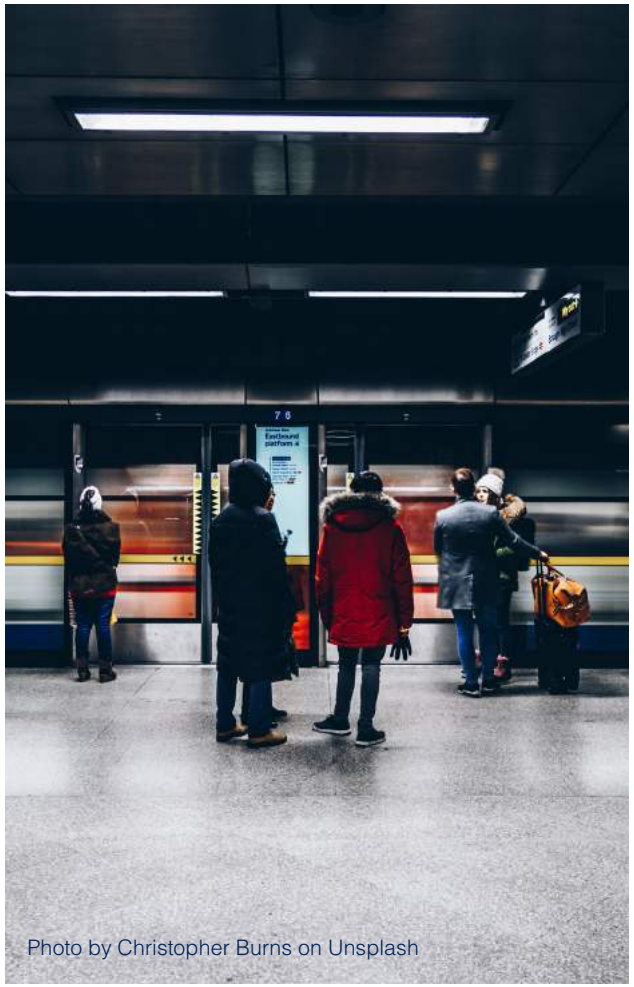
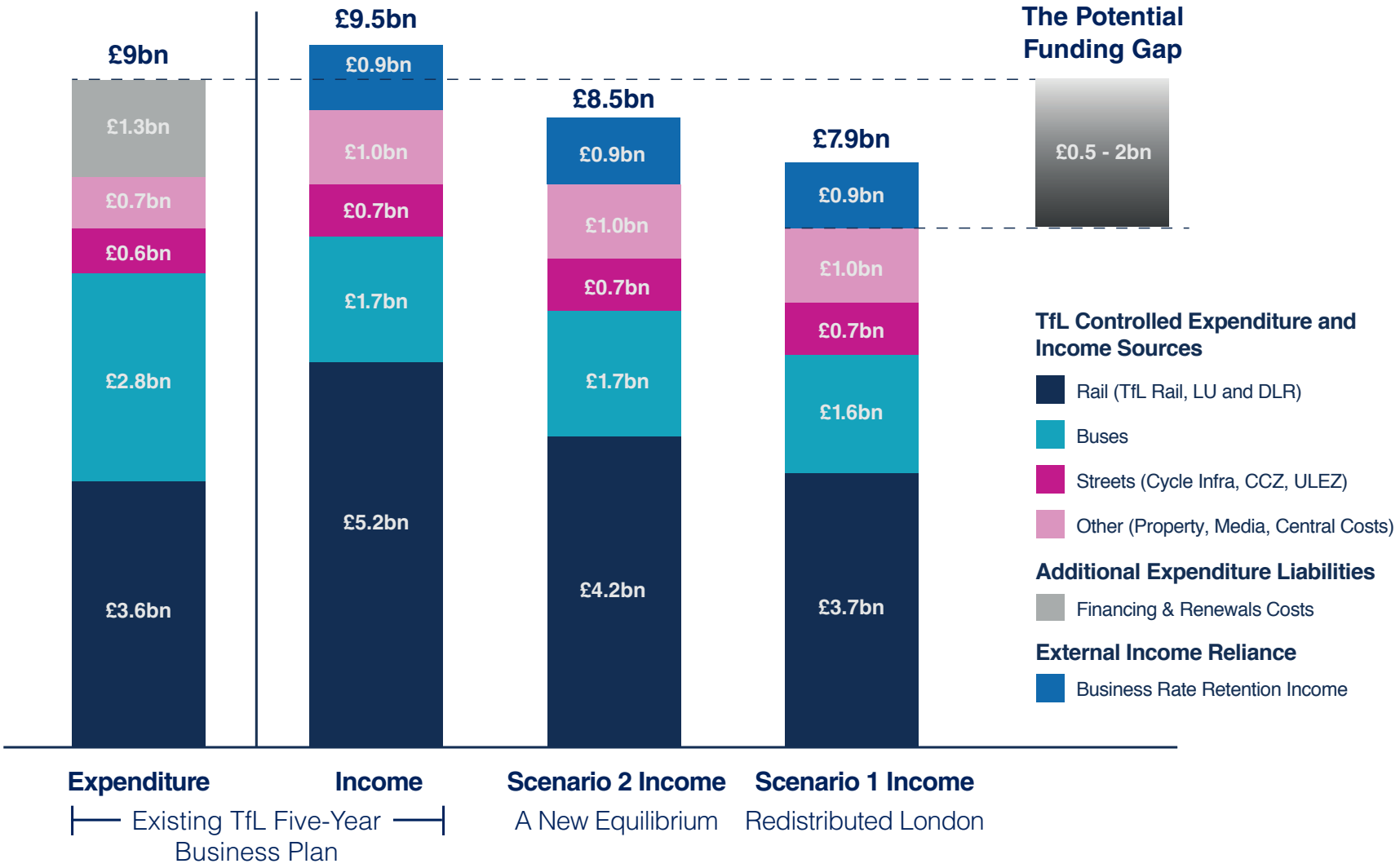


Photo by Christopher Burns on Unsplash

These scenarios result in a potential projected funding gap between £0.5 to £2 billion in FY2024/25 (operations only)



New models

Funding approaches for the next era of transport in London

Pathway to a new model for London

There are three principal sets of levers that can be used to support London's transport system over the next decade and beyond. These are:

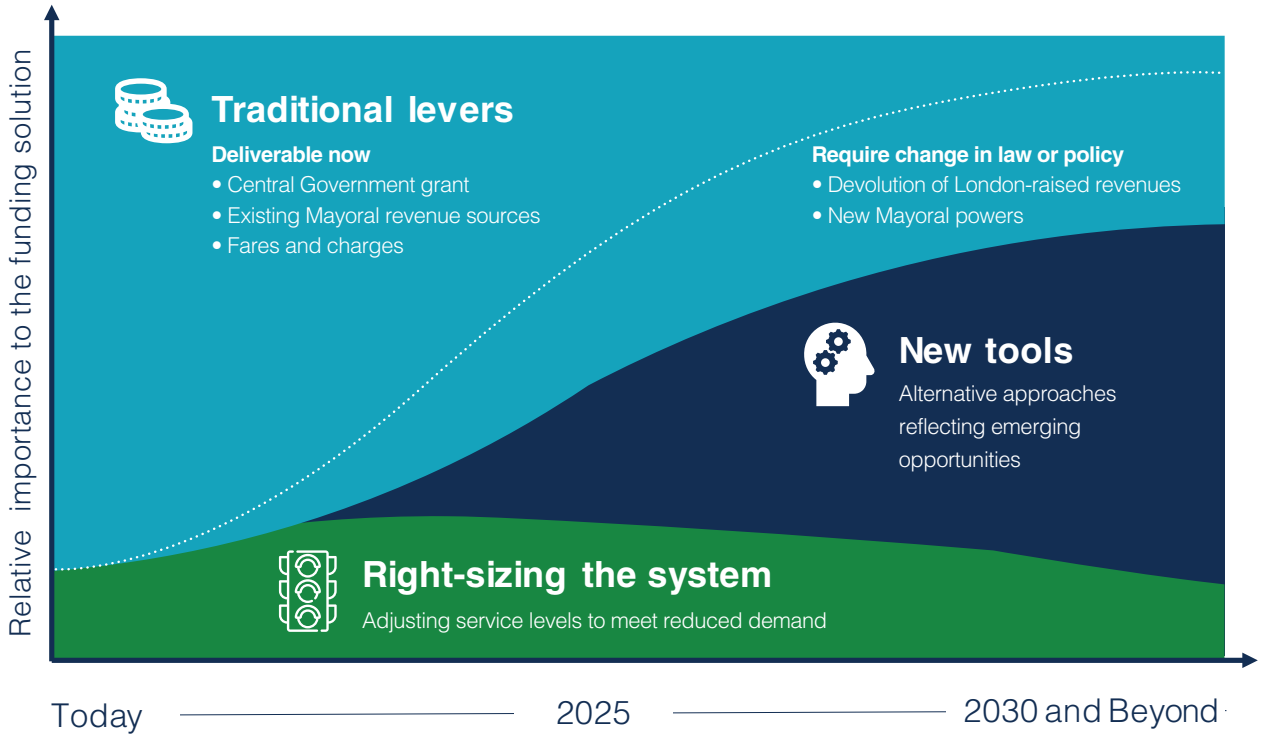
1. **'Right-sizing' the system to bring changing levels of demand in line with costs and revenues;**
2. **Seeking new funding from traditional sources, such as general taxation or transport-related fares and charges (some of which are deliverable now, and some of which would require changes in law or policy); and**
3. **Looking at new models or ideas that are tailored to emerging opportunities and can be introduced alongside the traditional levers.**

In practice, the appropriate solution is likely to be a blend of these categories, particularly during a near-term transition period. The devastating financial impact of Covid will require continued central Government support for at least the next couple of years, and any major new initiatives will take a similar amount of time to be designed, consulted on, and implemented.

By the end of the 2020s, however, transport will be quite different than it is today, as a result of the trends discussed in this report. TfL must start evolving into a new phase of its organisational life - underpinned by a new mindset, new partnerships, and critically a new set of tools to navigate and manage this change successfully.

From the perspective of central Government, London's path could provide important ideas and insights that can be adopted across the country. With a ban on the sale of petrol/diesel vehicles by 2030, current revenue mechanisms such as fuel duty and vehicle excise duty will need to be revised or replaced within the next decade.

A decade of transition: conceptual glide path to a new model



Cost reduction

The most direct approach to reducing costs is cutting services. The Mayor's independent panel assessed options for reducing bus and rail frequencies, closing the Night Tube and some stations at weekends, and eliminating cycle hire and ferry services. They estimate that taken together these drastic cuts could have a net financial impact of up to £427m per year. The commission notes, however, that there would be significant and unequal impacts from such a move.

Aggressive service cuts also run the risk of catalysing a spiral of decline in which poor quality services lead to lower passenger numbers and therefore lower revenues which, in turn, require further cuts. Such an approach would not meet the vision set out in this document, the Mayor's Transport Strategy or central government policy for a thriving and sustainable London.

That does not mean that costs cannot be reduced. To avoid major negative impacts on the quality of London's transport network there are two primary ways in which TfL can reduce its cost of operations: (1) seeking to harness greater organisational efficiencies, and (2) better aligning – or 'right-sizing' – services with future demand.

Based on our view that the likely funding gap is in the order of £0.5-£2 billion, this means that right sizing could ultimately contribute somewhere **between c.8 and 40% of the solution**.

	Illustrative Action	**Illustrative Potential Annual Savings**
Organisational Efficiencies	Seeking efficiencies through digitisation, management processes, HR policies, and other actions	**£50-60m**
Rail	10% peak-hour frequency reduction on Victoria, Northern, and Bakerloo Lines	**£40-50m**
Bus + Tram	Reduction of 25m annual bus km (5%)	**£75-100m**
Other Services	Privatise cycle hire and reduce river services	**£5-10m**
		TOTAL £170-£220m
	Contribution to a £2bn gap	

1. Organisational efficiencies

TfL has undertaken substantial measures to reduce costs and improve organisational efficiency. On a like-for-like basis TfL has managed to reduce its annual operating costs by £200m from 2015 to 2020, through reducing management overheads, streamlining operations, and improving asset performance. Much of the low hanging fruit has been harvested. Any further actions of a scale sufficient to have a material impact – such as major changes to salaries, pensions, benefits, and working practices – would bring significant organisational and political challenges.

Just because these would be challenging does not mean they should be dismissed, however, and other options can always be pursued, including increased use of digitisation, automation, and other emerging technologies that are fuelling efficiency improvements in other sectors. But on balance, we believe it will become increasingly difficult to identify and capitalise on further efficiencies that are capable of being delivered without serious impacts on London's transport operations.

Even if a further 10% reduction in corporate/non-operational spending could be found, the c.£50-60m that would be saved annually would only fill <1%-12% of the funding gap. Efficiency savings should be sought were appropriate, not least because of their cumulative effect over time, but they are unlikely to play a significant role in closing the current funding gap.

2. Right-sizing services with demand

More promisingly, the system could be 'right-sized' to realise cost reductions. This is not about cutting services to save money, but instead ensuring that London's transport network is responsive to changing demand patterns. For example, in much of central London bus routes run in parallel to the tube network below. This is due to the peak hour capacity constraints on the underground and the pricing structure that makes the bus the most affordable option for many. A more efficient solution might be practicable in the post-pandemic world.

Approaching the question of operational cost reduction from this perspective would minimise impacts on customer experience and thus avoid the 'decline cycle' where lower service quality creates further falls in demand and revenue. Our high-level assessment suggests that £120-160m per year could be saved through such right sizing measures, whilst striking the right balance between scaling the system to meet new demand levels, retaining vital connectivity, and maintaining the services upon which London's residents, visitors, and business rely.

Photo by Shutterstock

Traditional levers:
Options available under current laws and policies

There are three main categories of traditional levers that are available now:

1. **A central Government grant, provided out of general revenues;**
2. **Local revenue-raising sources that are currently within the Mayor of London's control; and**
3. **Changes to existing transport-related fares and charges.**

Government grant

The most straightforward long-term solution – and the only viable short-term solution – is a stable agreement with Government to fund the gap, in recognition of the critical contribution that London makes to the wider UK economy and Government balance sheet.

This support could be structured similarly to the five-year Periodic Review process utilised by Network Rail and Highways England – a 'tried and tested' model which ensures that investment is supporting defined outputs agreed through a robust regulatory process.

However, such an approach could be expected to meet with public and political opposition outside of London, where networks are not funded in this manner. Even if such an agreement was struck, it is always susceptible to a change in government policy.

Sources in current Mayoral control

Currently council tax is the only tax the Mayor has broad flexibility to vary. For instance, the Mayor has recently proposed a £15 Band D council tax precept to help support concessionary fares for under-18s and over-60s. The Mayor has also levied a business rate supplement to fund part of the cost of Crossrail. This funding stream is hypothecated for that purpose.

Transport-related fares and charges

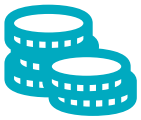
The Mayor also has power to vary a range of transport-related charges in the city. Fares are already increasing by RPI+1%, but they could be raised further. This would have major equity impacts and a dampening impact on economic activity, as well as lead to further declines in ridership and revenue.

Other options could include expanding the congestion charging scheme, for instance to the North and South Circulars as proposed by DfT; reducing concessions passes that provide free travel, for example means-testing the Over-60s pass; or introducing a workplace parking levy (however this is currently designated as borough led policy as set out in the MTS). There are also other, less 'traditional' sources available to TfL, but most of these are unlikely to raise significant revenue.

These options all have significant negative consequences, acceptability challenges or delivery risks. These could potentially be overcome and the negative impacts mitigated, but on balance they are unlikely to provide the right long-term solution for London.

Traditional levers:
Options available under current laws and policies

Option	Scale of potential revenue	Contribution to a £2bn gap	Medium-term plausibility	Assumptions
Central Government grant				
Central Government grant to TfL (long-term commitment)	n/a			In the short-term grant is the only to meet the funding gap; a longer-term, multi-year solution is unlikely to be stable over time
Taxation sources within current Mayoral control				
Additional council tax precept	**£60m**			A new Mayoral Precept, comparable to the London Olympic & Paralympic Precept, which equates to a £20 impact on Band D properties
Transport-related fares and charges				
Raise fares above current agreement	**£100-150m**			Fare rises increased to RPI+2%
Expansion of congestion charge zone	**£500m**			New £5 charge within North and South Circulars
Means-testing the over-60s free travel discount	**£65m**			50% of £131m lost revenue from Over-60 pass
Workplace parking levy	**£200-250m**			Extrapolation based on Nottingham revenue (income shared with boroughs)
Private hire surcharge	**£75m**			£1 per-trip surcharge
Bikeshare and e-scooter surcharge	**£15m**			A 50p per trip surcharge applied to all bikeshare and e-scooter trips
Station naming rights	**£10m**			£1m annual charge for 10 ‘non-landmark’ stations.



Traditional levers:

Options requiring changes to current laws and policies

There are two main categories of traditional levers that would require changes to current law or policy, and thus could not be immediately implemented:

1. **Devolution of taxation revenues; and**
2. **Devolution of further fiscal revenue raising powers to London.**

Devolution of revenues

Government could agree to devolve some portion of taxes raised in London back to London. For example some of the £2.7bn business rates tariff paid by London to central Government could be re-invested into London. Alternatively a small proportion of VAT, income or corporate taxes could be devolved to London – however, this is an unprecedented measure for any region of the country. Perhaps more attractive to Government would be a devolution agreement for VED or fuel duty, both of which are declining revenues and could instead be re-purposed by London into a more sustainable revenue tool (discussed later in this section).

Two London Finance Commissions (LFC, the first established by the Prime Minister when Mayor; the second by the current Mayor) have examined these options. The LFC found that, as well as compelling equity arguments for London retaining more of its taxation to meet its public spending needs (which in turn underpin the city's tax surplus), there are also strong efficiency arguments for some taxes.

For example, if London retained more of its business rates over time, then the incentives for dense development, which would reinforce economic growth, would be stronger. Further devolution of London-raised taxes should be part of any stable TfL funding settlement.

Devolution of powers

Central government could also devolve further fiscal revenue raising powers to the Mayor of London, as recommended by the LFC. While such a settlement could also be subject to policy changes, it is likely to be more resilient than simple government grant.

Two other forms of taxation currently not available to the Mayor of London, but which have been discussed historically, are a hypothecated employment tax for transport, similar to the 'Versement Transport' in France, or a tourist tax. While an employment tax has the potential to generate significant revenue, it would be difficult to implement at a regional (rather than national) scale and is an entirely new concept in the UK context.

Tourist taxes are simpler and adopted across much of the world, but would make a relatively small contribution to the TfL funding gap. This new revenue source would also be subject to competing demands from other needs across the city, meaning the portion going to TfL could be expected to be even smaller.

Traditional levers:
Options available under current laws and policies

Option	Scale of potential revenue	Contribution to a £2bn gap	Medium-term plausibility	Assumptions
Greater devolution of taxes generated in London				
Increased retention of business rates	**£700m**			25% of current BR Tariff paid by London to Central Government
Additional business rate supplement	**£200m**			2p per £ of rateable value, doubling the existing supplement
Retention of London-generated general taxes (e.g. VAT, income, corporate)	**£100-1,000m**			0.5% - 3% retention of estimated total VAT receipts collected in London
Retention of VED paid by Londoners	**£500m**			Estimate of total VED collected annually from vehicles registered in London
Retention of fuel duty paid by Londoners	**£850m**			50% retention of fuel duty paid for all vehicle kilometres driven annually in London
New taxation raising powers provided to Mayor				
Employment tax	**£1,400m**			1% on all London employees above a base wage level
Tourist tax	**£100m**			£4 per night levy on all commercial accommodation

Introducing new models for a new era

While the 'traditional levers' above have an important role to play in TfL's future business model, and are the only course of action available in the short term, we believe now is the time to explore new models for funding the London transport network to be introduced alongside these. The impact of Covid-19 will mean there is a fundamental shift in how people use the transport network in London. The relationship between home and work has changed for many Londoners, influencing their attitudes, preferences and behaviours.

There are also a series of pressing challenges London faces including the need for a strong and stable economic recovery, which also delivers the changes needed to meet our net zero commitments.

This is a rare opportunity to re-evaluate what we want from our transport network in London; to acknowledge and embrace the changes that are taking place in society; and the time to 'think big' about the right model for the next era of transport in London.

We have proposed four building blocks for a potential new model, each of which is intended to spark creative thinking and debate. Each of these carries significant complexities, some of which are discussed in this report. They would require transformational change, which is difficult and can be disruptive, especially in complex cities like London. But we believe these concepts have merits worthy of further consideration, with an optimal long-term solution leveraging elements of each.

London Vehicle Ownership Duty
Replacing VED with a new model for accessing London's road network

Smart Road Pricing
Paying to drive in London – smarter and greener

London Mobility Hub
Capturing new modes of transport and mobility providers

Integrated Fares
Reforming the fare system and network

Building blocks of a potential new approach

London Vehicle Ownership Duty

Replacing VED with a new model for accessing the road network

At the moment, all vehicles registered to an address in London pay Vehicle Excise Duty (VED) to the Government based on a combination of vehicle value and CO2 emissions. Annual VED contributions from Londoners towards investment in the non-London road network are around £500m. This system has to be reformed within the next decade to reflect the shift to electric vehicles, and there is an opportunity for London to be a pilot for the new system, based on a 'membership fee' approach where owners of vehicles pay an annual charge to be able to own a vehicle in London.

Contribution to a £2bn gap

£300-800m

Key Additional Benefits

- **Expedites clean vehicle transition**
- **London in control of its own taxation**
- **Can link with other Mayoral strategies**

Smart Road Pricing

Paying to drive in London – smarter & greener

Introducing a new charging mechanism for driving a vehicle in London would help discourage the potential for increasing vehicle use and create a source of income for investment in the wider transport system. Some road users already pay a flat charge to drive in London (via the CCZ, ULEZ, or tolls). Evolution of this scheme to a more dynamic system reflecting the type of vehicle, and the potential impact it is having in terms of congestion and pollution would allow people the flexibility to drive where and when they wanted on the basis the impact of their journey was reflected in the price they paid.

Contribution to a £2bn gap

£1,200-1,800m

Key Additional Benefits

- **Less congestion and pollution**
- **Flexible to changing priorities**
- **Uses road space more efficiently**

London Mobility Hub

Capturing new modes of transport and mobility providers

The range of mobility choices is growing all the time, and this should be embraced and welcomed rather than resisted. London has the potential to be a global benchmark for embracing the best transport technology has to offer in a mature global city context. Incorporating these new travel choices as part of the transport family requires a different approach where TfL is more of a commissioning and licensing authority, providing a platform and common standards for new operators to enter the market, and including a new mechanism for charging.

Contribution to a £2bn gap

£200-250m

Key Additional Benefits

- **Embraces innovative services**
- **Future-ready for new technologies**
- **Multi-modal trips become easier**

Integrated Fares

Reforming the fare system and network

Simplifying and harmonising existing fare structures would allow more effective use of existing transport capacity. This concept would integrate the flat-fare bus and zonal rail system into a single network-wide approach to fares. Removing the cost differential between services, travellers will choose the option best suited to their journey. In central London, this will often be the tube, allowing bus services in these congested areas to be reduced – saving substantial costs and freeing up road capacity. Because bus fares would increase in this model, new subsidies for those on low-incomes could be introduced.

Contribution to a £2bn gap

£250-500m

Key Additional Benefits

- **A simpler experience**
- **Better modal integration**
- **More space for active travel**

London Vehicle Ownership Duty (VED replacement)

What is it?

Vehicles operating on London streets are a mixture of commercial vehicles (freight, servicing and deliveries); privately owned cars and vans; and taxi and private hire services. The mix of vehicles varies by location in London and by time of day. Many of these vehicles originate from within Greater London – but not all.

Each of these vehicle types makes a contribution towards the cost of motoring through the national Vehicle Excise Duty (VED) and tax paid on fuel. As we move towards the Government's commitment to banning the sale of all petrol/diesel cars/vans by 2030, both sources of tax income will decline. Furthermore, the current income generated from both sources goes directly to central Government. As we move towards a new electric vehicle fleet in the UK, Government needs to introduce a new way of taxing the use of road vehicles unless they wish to see the cost of driving reduce and a major reduction in tax income.

In addition to the cost of motoring for existing road users, we are experiencing growth and expansion of new mobility providers including on-demand private hire services; shared mobility; multiple cycle hire schemes and new models of micro-mobility. These services typically require a licence of some sort to operate in London but do not typically pay a significant contribution to the cost of maintaining the transport network they operate on.

The proposal is to replace VED for all vehicles registered in London with a new London Vehicle Ownership Duty that would be set by the Mayor. This could be equivalent in cost to current VED with charge levels that reflect the need for a rapid transition towards electric and cleaner vehicles. From an individual vehicle owner perspective, the level of cost may not vary from today. Setting the level of charge would be undertaken by the Mayor alongside other responsibilities such as public transport fares and thus allow a more integrated approach to be taken, focused on addressing the specific challenges London faces. For example, this could include significantly higher charges for vehicles with higher CO2 emissions or for commercial vehicles that do not meet future safety standards for cyclists. These would be decisions for the Mayor to take in the context of the wider environmental and transport strategy for London.

What can we learn from other cities that have tried this?

In Spain car taxes are paid locally rather than to national government, and many countries have been adapting their vehicle taxes to reflect new environmental principles. For example France taxes car power and weight, in addition to an emissions-based taxation. Singapore and Beijing have used permitting systems to reduce the number of vehicles allowed on roadways.

London Vehicle Ownership Duty (VED replacement)

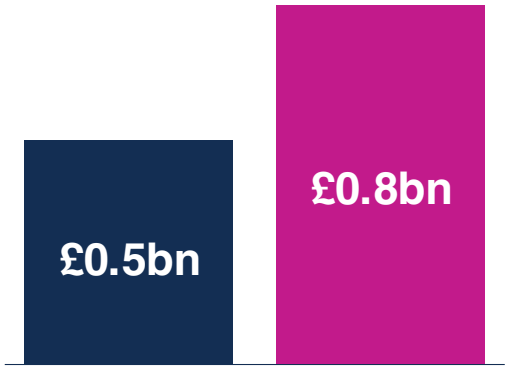
Benefits

- Allows the level of tax on vehicle ownership to be set by the Mayor as part of the broader environmental and transport strategy
- Raises greater revenue for London
- Can incentivise faster change to vehicles with less environmental impact
- Could be applied across full spectrum of road users including electric hire bikes and e-scooters at variable rates

What needs to change ?

- Requires a change in law and a decision to devolve VED in Greater London to the Mayor
- Could result in a different rate of vehicle tax for ownership of a vehicle in Greater London than the rest of the UK

How much could it generate?



How would it impact those using London's roads?

Paul runs a small business in Acton that delivers fresh fruit and vegetables by small van. He has a fleet of four vehicles, two of which are older models. In the old VED system, Paul paid £270 for each of the two older vehicles, or £540 annually. Paul has decided to trade these vans for a single new electric van which pays heavily-discounted London Vehicle Ownership Duty of £100, whilst introducing a new delivery tracking service to reduce unnecessary vehicle mileage.

Kim lives in Croydon and previously drove an 8 year old petrol crossover that costed £150 per year in VED. To avoid paying a higher London Vehicle Ownership Duty when it is introduced in a year, due to the age and high emissions of her vehicle, she has decided to trade her car for a new electric vehicle which has a lower charge of £75 per year.

Smart Road Pricing

What is it?

London has experienced year-on-year reductions in the use of private vehicles in London over the past two decades. However this trend has slowed and in some cases started to reverse, even before the pandemic, driven by a combination of lifestyle and economic factors, including rapid growth in the number of delivery vehicles.

This creates a series of challenges for London that cannot be left unaddressed, including a return to high levels of air pollution; a challenge to the commitments made for London to be zero carbon by 2050; and congested streets impacting the growth in active travel. A London where the streets are consistently congested and dominated by traffic will not support London's economic recovery.

We already have a system of paying to drive in some parts of the city and for certain vehicles through the Congestion Charge and the ULEZ. These are flat cordon based charging systems that have been effective but need to move into the digital age. It is time for road user charging to more accurately reflect a specific vehicle's impact on our road networks and our environment.

Smart Road Pricing (SRP) is a proposed evolution of the current Congestion Charging, ULEZ and tolling systems (such as DART) to an integrated, predictable and transparent distance-based variable charging scheme which more appropriately reflects the impact of individual users and the requirements of the road network. Individuals and businesses would connect through in-vehicle devices or smartphones for journey verification. Depending on the vehicle type, emissions class, time of day, and location of travel, a set rate would apply for the duration of a journey.

While SRP would create a true city-wide approach to fairly price road usage, it does not mean that all road usage would be charged. For example, the scheme could be designed so that vehicles in Outer London, or vehicles driving when there is no congestion, would not be charged. This approach would not always require drivers to pay more – in some circumstances they could pay the same as they do today for existing charges.

This version of SRP is a sophisticated 'end vision' for such a scheme, but there are a number of simpler, more deliverable stages that could be undertaken in the near-term as part of a comprehensive strategy - such as the proposed £3.50 London boundary charge.

What can we learn from other cities?

We know that the political implementation of road user charging is extraordinarily difficult and cannot simply be seen as a new tax on motorists. Distance-based road user charging must be about delivering direct benefits, including cleaner air, better journeys and improved public transport accessibility. Successful cities, like Singapore and Stockholm, have embraced a progressive narrative about the future of their street space. National level schemes under development in the Netherlands and New Zealand are aiming to follow suit.

Smart Road Pricing

Benefits

- Mitigates a 'car-led' recovery: nudges travellers to public transport or active travel modes where feasible
- Raises significant revenues that can be re-invested in ensuring London has a sustainable world-class transport system
- Greater equity: Vehicles pay fair share commensurate with impacts they create (congestion, pollution, road maintenance)
- Policy flexibility and dynamism: unlike congestion charging, the structure and charges could easily be varied to meet changing policy objectives
- Powers to implement already exist

What needs to change ?

- Requires the implementation of in-vehicle devices or smartphone accounts for the monitoring of distance and journeys
- Still requires some level of existing ANPR camera based system for enforcement and to manage non-frequent drivers in London
- Building public and political acceptability

Variable road user charging based on four key parameters

Vehicle Types

Private Car, Taxi, LGV etc.

Emissions Class

Heavy Polluter

Geography

Central, Inner & Outer

Congestion Levels

Congestion Free

Depending on a road users' classification across each of the four parameters above, they will incur a fixed charge per km. Charges are determined by applying a multiplier to a base charge. However, this does not mean all road users will be charged, as some parameters may be assigned a multiplier of 0. For example in the revenue figures presented on the following page, zero emission vehicles and vehicles travelling in Outer London are not charged at all.

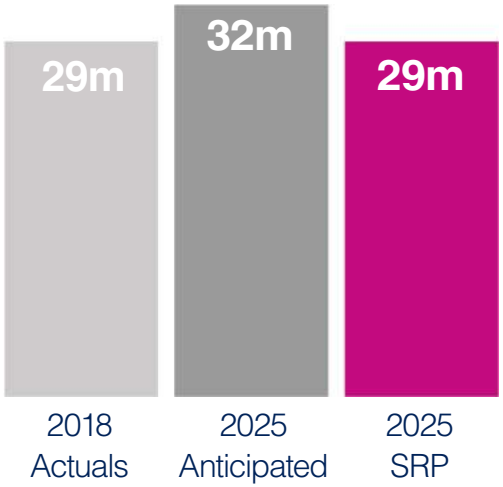
Smart Road Pricing

How much could it generate?

Net Revenue Potential 2025

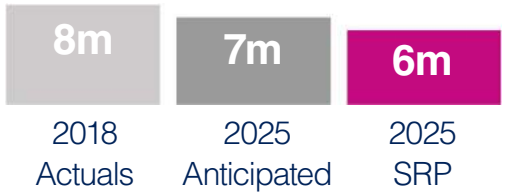
What would be the impact on road use?

Annual Vehicle KMs in London



What would it mean for the environment?

Annual CO2e Emissions from Road Use



How would it impact those using London's roads?

Katerina is an estate agent who lives in outer London and drops her children at nursery before driving 10km to her job in Greenwich between 8:00 and 9:00am. She could use public transport for her daily journey but prefers the flexibility of having a car. Katerina currently drives a Euro 3 petrol car. Smart Road Pricing encourages her to use public transport more often, especially at peak times

	Current (ULEZ)	Future (SRP)
Daily Charges	**£12.50**	**£18**

Simon a self-employed delivery driver working for a large distributor. He was worried about the new road pricing scheme, but whilst it costs more money to drive than previously, he has reduced costs by optimising his route to avoid travelling long distances at peak times, and his firm is consolidating deliveries. He's noticed the congestion is not as bad now, so he gets through more deliveries per hour. Some of his fellow drivers in central London have switched to cargo bike deliveries to reduce costs.

	Current (CCZ)	Future (SRP)
Daily Charges	**£15**	**£17.25**

London Mobility Service

What is it?

Over the 20-year life of TfL, new modes of transport have become part of the TfL family. This has helped deliver a truly integrated transport network for London with consistent levels of quality, reliability and – on the whole – access to a consistent fare structure and common payment methods. This has made it easier to move around by public transport, driving the growth in sustainable travel that has benefited London in so many ways.

As we look to the future, there will be new mobility providers, including more micro mobility solutions and more shared mobility options. These need to be equally embraced in the new TfL family so they are accessible in the same way by Londoners, with the same consistent approach to quality and safety and single methods of payment. In turn, these new providers need to pay their way, making a contribution for being part of the integrated network and for being given access to such a significant market of potential users in London.

There are two challenges to address with this. First, as a user, there is no single way of accessing consistent and reliable information about all of these travel choices. Second, the current licensing arrangements do not give sufficient strength and control to TfL to fully embrace these new services whilst making them work for London.

This requires a new approach that actively plans for and encourages the introduction of new mobility services in London. A future-focused framework of licensing, charging and enforcement is required to ensure these new services deliver benefits and make a fair contribution to the cost of operating transport in London.

Benefits

- Creates a new user-centric approach to mobility across London; providing Londoners with choice, while encouraging them to use the most efficient transport mode possible for each journey
- Provides public sector leadership to the emerging ‘mobility as a service’ market to ensure services are consistent in terms of quality and safety, and meet the needs of all Londoners
- Creates an integrated and fair playing-field across all mobility providers that is focused on delivering for London whilst ensuring that all participants make a fair contribution towards the cost of an integrated transport network in London

What needs to change ?

- Requires a re-positioning of TfL as the provider of mobility services, delivered through different operators
- Relies on the introduction of a new framework for the sharing of data from transport providers in London, drawing on the recommendations of the London Data Commission
- Requires changes to the current licensing arrangements for new mobility providers and may involve some changes in law

Integrated Fare System

What is it?

London has widely adopted cashless payment and contactless technology across almost all modes of transport. Whilst the method of payment is easy and widely supported, the fare structure sitting under this is complex, with significant differences in fare levels between rail, bus and other services. In simple terms, fares on the rail and tube network are significantly higher than the bus network, which require significant and increasing subsidy.

This split fare structure often leads to duplication in service with bus routes running in parallel to rail lines in order to maintain a lower cost service for the public to use. With demand on the rail network falling, this approach creates additional cost and inefficiencies in the system, as well as excessive capacity in certain corridors that will be difficult to maintain.

Due to the high fixed cost of rail infrastructure and the relatively low marginal cost of bus operation, encouraging more bus users to switch to rail where possible will make more efficient use of the network overall, reduce the cost of bus operation, and release capacity on the road network for more active travel.

For this to work, it requires more integration of the fare structure that allows for easier, multi-modal journeys based on a simple universal fare structure for all TfL modes, removing the separate flat bus fare and zonal rail structures. This would require changes to existing fare structures including a single network-wide approach to fares that is harmonised across bus and rail.

This will have the effect of reducing the scale and cost of bus operation by removing duplication and driving growth in demand for rail services. It will mean bus fares becoming more expensive, but this can be offset with concessionary fares targeted at those in greatest need.

Additionally, this approach could boost bus ridership elsewhere by specialising services to the different needs of inner and outer London – such as new express buses to serve commuters in areas without effective rail, bus rapid transit on the densest corridors, and shorter routes to bring passengers into interchange hubs.

What can we learn from other cities that have tried this?

Many of the world's major transport networks have moved to full mode neutrality, such as Berlin where all modes are part of a single structure, allowing tickets to be used across modes for a limited time period (often 1 hour). Seoul, in 2004, combined fare reform with a route and branch reform of the bus network into a hub and spoke model (with four distinct types of bus routes - Trunks, Metro, Branch and Circle lines). Seoul also introduced free bus and rail transfers across the network. This simplified the system, reducing delays, lowering costs and boosting demand.

Integrated Fare System

Benefits

- Encourages users onto the best service for their journey
- Reduces duplication of bus and rail network, saving costs, cutting carbon emissions and releasing road capacity for more active travel
- Buses are re-focussed on those areas with minimal rail services
- Encourages TfL to experiment with new bus services such as electrified bus rapid transit and express services
- Could boost bus ridership in outer London if paired with a wider bus reform strategy

What needs to change ?

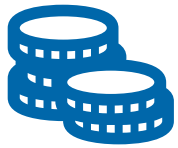
- Fares for some journeys will increase so targeted support will be needed
- Some services will be reduced where duplication is taking place
- Requires a change in the arrangement for concessionary fares, targeting those in need

Mode and Operator Neutral

- Same fares structure, all modes
- Free interchange

Simpler Fares

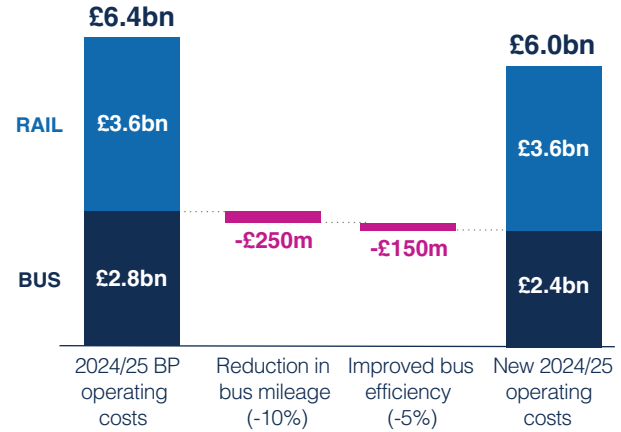
Fewer zones, applied to all transport modes



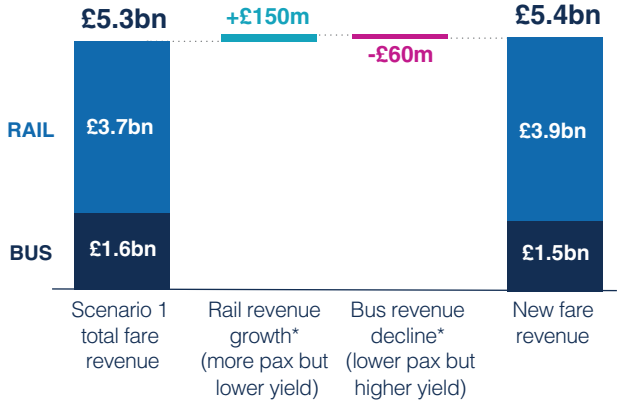
Improved and targeted support

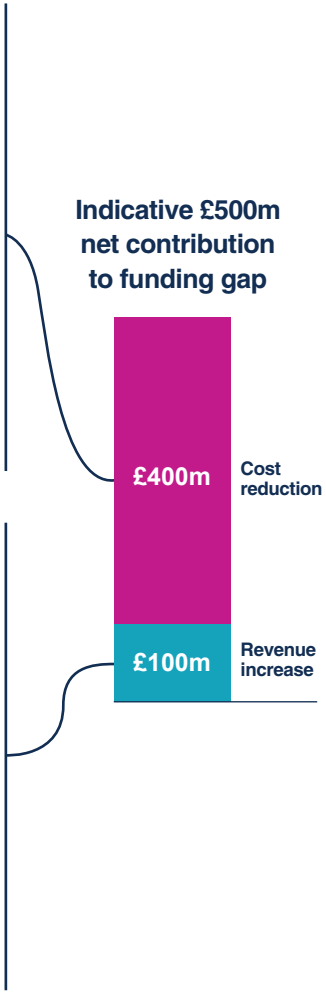
Integrated Fare System

Indicative cost savings of c.£400m



Indicative revenue increase of c.£100m





* Rail passengers increase as people shift from bus to rail, but yield per passenger decreases due to zonal reform; free interchanges with buses; and new concessionary fares. Bus passengers decrease, as routes that are duplicative with rail services are removed and fares are raised, but yields increase, partially off-setting these losses.

How would it impact public transport users?

Rajat used to take a direct bus to work in a shop in the city, but this had become less reliable with congestion, and now no longer runs the full route. However, he can now take the bus to Stratford where he catches the tube. Because he is entitled to a concessionary fare, his new journey is marginally more expensive but is much quicker and more reliable than his old journey.

Fatema cycles to work in central London along a busy road that was congested with buses, often trying to pass each other, making it difficult for cyclists to navigate. The number of buses using the road has reduced with more people now taking the tube which runs in parallel, making her journey safer and cleaner. She has noticed many more cyclists now taking this route, given there is less conflict with slow moving buses and other traffic.

These figures are based on an order-of-magnitude assessment, intended to provide an indication of the scale of potential financial impacts from this concept. They are not based on detailed modelling.

Longer-term and more ambitious thinking

The current transport system in London, like many global cities, has evolved in response to growing demand over the last several decades. This has enabled the network to expand into an extensive and highly integrated network that delivers substantial economic, social and environmental benefits for London and therefore for the rest of the UK.

Going forward, maintenance of this network will need to rely on new sources of funding that are not connected solely with rising demand and farebox income, but relate more to the economic success of the city and the wider role the network plays in delivering a broader set of outcomes. This includes a need to decarbonise quickly and to help support a more inclusive and connected London. The proposition is that London benefits from having an extensive and well functioning public transport network that is focused on delivering positive economic, social and environmental benefits for people living, working and visiting London – the benefits are measurable but the ways in which we pay for it need to change.

The cost of sustaining the transport network in London will be around £9bn per annum in 2024/25. We have advocated a number of new ways of paying to access the road network in Greater London that would increase London's revenues significantly, but these would still leave a significant shortfall to be covered by the traditional levers.

One rather radical approach, which is increasingly being examined in other cities, is a fundamental change in fares policy to provide free public transport at the point of use. Removing the direct cost to the consumer would encourage a transformational uptake amongst Londoners and visitors in sustainable, low-carbon transport, promoting economic activity and vibrancy across the region. This would be an immediate boost to the recovery of our urban centres and businesses, but would of course generate a significant cost that would need to be covered by other means.

The trade-off for this system would be the introduction of new hypothecated taxes and charges to cover the costs of operations. In addition to the proposals we have outlined for new ways of paying to access the road network, this could potentially include introducing a "payroll" tax, similar to the 'Versement Transport' system that funds significant portions of transport operations in France.

In early 2020, Luxembourg became the first country to make all public transport free to use. Zero-fare public transport exists today on a small scale in a number of cities and towns in Belgium, France, Estonia, Poland and Germany. Studies have shown a correlation between zero-fare public transport and an increase in mobility, particularly among younger and older people, as well as an increased sense of freedom. Many cities have experienced an immediate increase in ridership when shifting to a zero-fare system.

Conclusion

The time is now for bold decisions and creative solutions

The challenge of funding London's transport is not just the creation the pandemic, nor will its effects be merely financial.

In the short-term, TfL will need continued and predictable grant funding from central government. But in the medium-term there are two broad approaches that can be taken. The first is to look back to the way TfL was funded before the pandemic and try to fiddle with the percentages. The second is to look to the future, consider what a thriving, international, twenty-first century city could – and should – be, and then ensure a sustainable funding model to support that. We urge the latter.

This will not be simple, but we hope that this report helps to stimulate debate in the capital and beyond about the right way to fund and facilitate the movement of people and goods in London. We have not sought to prescribe the final balance of these different funding streams but a high-level assessment of the potential revenue streams suggests that a meaningful portion is likely to be found on London's roads.

Alongside London retaining more of the taxes it pays and the existing levers used to fund TfL, we should be thinking creatively and collaborating on big ideas with the potential to help ensure London is fit for the future:

- An annual membership fee for road users to ensure that those who drive into the capital pay their fair share for the maintenance of London's roads;
- Smart road user charging to replace the congestion charge with something fairer, simpler, and more flexible;
- A single integrated approach to all modes of passenger transport in the capital; and
- Significant reform to the network itself and the fares system to ensure that services are available where and when they are needed, and accessible for everyone who needs them.

Introducing any of these ideas will take thought, consultation, and time. They cannot be switched on overnight. We therefore urge all those engaged in this conversation about the city's future to begin to explore these ideas with vigour and optimism.

London has a history of delivering on bold ideas – particularly in transport. From the first underground passenger railways, to a Congestion Charge system that is much envied by cities around the world. The world is not going back to how it was before the pandemic, and London can either lead the way or catch up later. How we fund TfL will be one of the early choices we make; and it will have a central long-term impact on our capital and on London's ability to remain one of the best cities in the world in which to do business.

Photo by Kid Circus on Unsplash