

Transport for London – Written evidence (TTS0060)

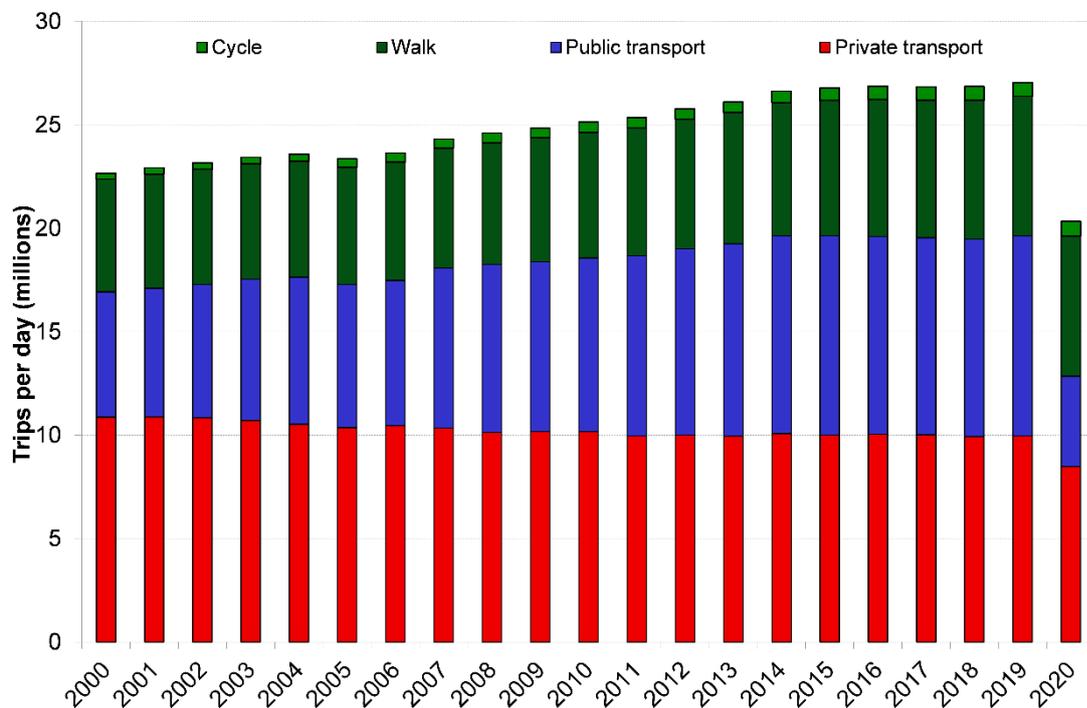
1. What are the current and anticipated levels of public transport demand and capacity in towns and cities in England? What influences public transport travel patterns? How does the choice of public transport vary across different demographic groups?

Background

This evidence relates specifically to conditions in Greater London. Further details and an interpretative summary of key travel and transport trends in London can be found in TfL’s annual Travel in London reports¹ (see: <https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>). The policy backdrop to transport in London is contained in mayoral Transport Strategies and in the Mayor’s London Plan, the spatial development strategy The current Mayor’s Transport strategy is available here² (<https://tfl.gov.uk/corporate/about-tfl/the-mayors-transport-strategy>). This commentary largely focuses on ‘business as usual’ conditions over the longer term, and details of the (exceptional) impact of the pandemic can be found in Travel in London report 14.

Current and anticipated levels of public transport demand and relevant historic trends

Figure 1 Estimated daily average trips by main mode, 7-day week, 2000-2020



Source: TfL City Planning

¹ <https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>

² <https://tfl.gov.uk/corporate/about-tfl/the-mayors-transport-strategy>

Public transport demand has increased in London over the last two decades, in both absolute and relative terms (Figure 1). This reflects the historic strong growth of London, the development of the public transport service offering - including significant new infrastructure - and constraints affecting the road network. In turn, these trends have broadly reflected the transport aims of successive Mayors, through their transport strategies. These broad trends were interrupted in early 2020 by the Coronavirus pandemic, for which London has now entered the early stages of a period of recovery, the ultimate outcomes of which are consequently not yet clear (see below).

Table 1 gives details of travel demand by mode, reflecting developments affecting specific modes over the most recent ten-year period.

Table 1 Demand (million journeys) on TfL's modes, 2010/11-2020/21

| Year | Bus | LU | DLR | LO | TfL Rail | Trams | Total ¹ | Total ¹ year-on-year change (%) | River | Emirates Air Line |
|---------|-------|-------|-----|-----|----------|-------|--------------------|--|-------|-------------------|
| 2010/11 | 2,289 | 1,107 | 78 | 53 | - | 28 | 3,556 | 3.0 | 6.6 | - |
| 2011/12 | 2,320 | 1,171 | 86 | 103 | - | 29 | 3,708 | 4.3 | 6.6 | - |
| 2012/13 | 2,311 | 1,229 | 100 | 125 | - | 30 | 3,670 | 2.3 | 6.3 | 2.0 |
| 2013/14 | 2,382 | 1,265 | 102 | 136 | - | 31 | 3,916 | 3.2 | 8.4 | 1.5 |
| 2014/15 | 2,385 | 1,305 | 110 | 140 | - | 31 | 3,972 | 1.4 | 10.0 | 1.5 |
| 2015/16 | 2,314 | 1,349 | 117 | 183 | 37 | 27 | 4,028 | 1.4 | 10.2 | 1.5 |
| 2016/17 | 2,262 | 1,378 | 122 | 189 | 45 | 30 | 4,025 | -0.1 | 10.4 | 1.5 |
| 2017/18 | 2,247 | 1,357 | 120 | 190 | 42 | 29 | 3,985 | -1.0 | 10.0 | 1.4 |
| 2018/19 | 2,220 | 1,385 | 122 | 188 | 51 | 29 | 3,995 | 0.3 | 9.8 | 1.4 |
| 2019/20 | 2,112 | 1,337 | 117 | 186 | 56 | 27 | 3,835 | -4.0 | 9.6 | 1.2 |

Source: TfL Service Performance data

Note: Values for 2019/20 will have been affected by the Coronavirus pandemic from mid-March 2020.

Prior to the pandemic, the historic rate of growth in public transport demand (which had been 13.2 per cent between 2010/11 and 2015/16) slowed. Overall demand fell by 4.8 per cent between 2015 and 2019. It is thought that this primarily reflected affordability constraints affecting the attractiveness and financial viability of London as a place to live, stemming from the financial crisis of 2007/08, rising housing costs and wider geopolitical events. Prior to the pandemic, the evidence for social, technological and behavioural change (e.g. internet shopping) significantly affecting public transport demand growth was not definitive, although it was thought to be an emerging contributory factor to the slowing trend in the latter part of the decade.

Public transport capacity

Providing for London's future growth has consistently been a key part of Mayoral policy. Most recently, emphasising increased public transport connectivity to encourage and facilitate public transport use in pursuit of the Mayor's overall objective for 'Good Growth' and an 80 per cent share for 'active, efficient and sustainable modes' by 2041. Developments such as the early expansion of the

bus network, the modernisation of the Tube, the development of the London Rail and Overground networks and Docklands Light Railway will shortly be joined by the central section of the Elizabeth Line, the latter increasing public transport capacity in central London by 10 per cent. As a result, the total capacity provided by the public transport networks in London increased by 28 per cent between 2009/10 and 2019/20.

Table 2 shows the trend in the capacity provided (in terms of place-kilometres) on the main public transport modes over the last ten years. After two decades of sustained growth in capacity on all modes, with step changes following upgrades and extensions on the newer networks (DLR, London Overground, TfL Rail), the years before the pandemic saw slight decreases in the capacity offered by buses and trams.

Table 2 Capacity (million place-kilometres) provided by the main public transport modes, 2010/11-2020/21

| Year | Bus | LU | DLR | LO | Trams | Rail total and year-on-year change (%) | | Total and year-on-year change (%) | |
|---|-----------------------|--------|-------|-------|-------|--|---------------|-----------------------------------|------------------------|
| 2010/11 | 29,175 | 54,567 | 2,104 | 1,788 | 534 | 58,993 | 3.0% | 88,168 | 1.8% |
| 2011/12 | 29,804 | 57,694 | 2,371 | 3,317 | 536 | 63,918 | 8.3% | 93,722 | 6.3% |
| 2012/13 | 29,626 | 60,572 | 2,980 | 3,686 | 574 | 67,813 | 6.1% | 97,439 | 4.0% |
| 2013/14 | 29,605 | 61,461 | 3,061 | 4,106 | 599 | 69,227 | 2.1% | 98,832 | 1.4% |
| 2014/15 | 30,057 | 65,010 | 3,083 | 4,153 | 596 | 72,842 | 5.2% | 102,899 | 4.1% |
| 2015/16 | 30,386 | 66,880 | 3,029 | 7,654 | 601 | 78,164 | 7.3% | 108,550 | 5.5% |
| 2016/17 | 30,903 | 68,224 | 3,065 | 7,885 | 634 | 79,808 | 2.1% | 110,711 | 2.0% |
| 2017/18 | 33,602 ¹ | 68,844 | 3,060 | 7,906 | 653 | 80,464 | 0.8% | 114,066¹ | n/a¹ |
| 2018/19 | 32,360 ¹ | 69,310 | 3,096 | 8,312 | 640 | 81,358 | 1.1% | 113,718 | -0.3% |
| 2019/20 | 31,529 ^{1,2} | 67,171 | 3,081 | 8,587 | 632 | 79,471 | -2.3% | 111,000 | -2.4% |
| 2020/21 | n/a ³ | 59,263 | 3,006 | 6,441 | 609 | 69,318 | -12.8% | n/a | n/a |
| Percentage change in 2020/21 from 2019/20 | | | | | | | | | |
| | n/a | -11.8 | -2.4 | -25.0 | -3.5 | | | | |

Source: TfL Service Performance data

Note: Values for rail modes represent capacity using a standing density assumption of four people per square metre.

1: A new methodology to calculate bus capacity was introduced in 2017/18, so values before this break are not comparable.

2: This value is subject to minor issues with the definition of some bus route capacities but is broadly accurate.

3: Various changes to capacity restrictions on buses, alongside the introduction of additional school services outside the contracted network mean that this figure cannot be accurately calculated for this financial year.

Table 3 shows these historic capacity trends in the context of aggregate public transport demand, comparing the relative changes in place-kilometres (a measure of the capacity provided) to the relative changes in passenger kilometres (a measure of demand). Due to unavailability of bus capacity figures for 2020/21, this comparison uses only data from the main TfL rail modes.

Table 3 Demand and supply change on the main TfL rail networks (London Underground, DLR, London Overground and London Trams), index: 2009/10 = 100, 2009/10-2020/21.

| Year | Demand | Supply (capacity) |
|---------|--------|-------------------|
| 2009/10 | 100 | 100 |
| 2010/11 | 107 | 103 |
| 2011/12 | 115 | 112 |
| 2012/13 | 123 | 118 |
| 2013/14 | 127 | 121 |
| 2014/15 | 133 | 127 |
| 2015/16 | 149 | 136 |
| 2016/17 | 154 | 139 |
| 2017/18 | 154 | 140 |
| 2018/19 | 158 | 142 |
| 2019/20 | 154 | 139 |
| 2020/21 | 38 | 121 |

Source: TfL Service Performance data

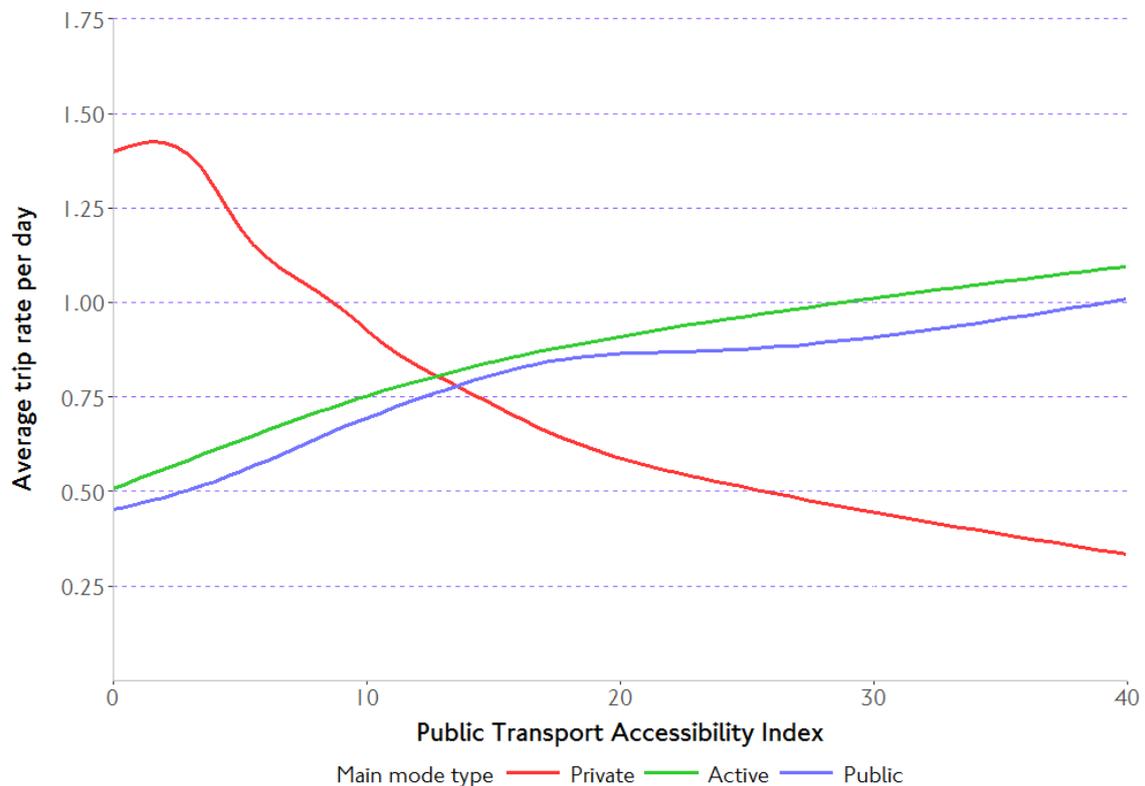
Notwithstanding this increase in capacity, parallel growth in demand means that there is an ongoing need to continue to increase capacity. Demand growth consistently outstrips increases in supply, and pre-pandemic forecasts showed the emergence of acute crowding on key parts of the network within the c. 5-10 year timescales typically required to develop significant infrastructure enhancements. Commentary on post-pandemic demand forecasts is detailed in question 2.

What influences public transport travel patterns?

There are many different factors that influence public transport usage. London is unique both in scale and, to an extent, provision and this is reflected in the relatively high public transport usage levels and mode share, compared to other UK urban areas. Urban structure and extent of service provision might therefore be thought of as key factors in determining the scale and nature of public transport use.

At a smaller scale, accessibility to public transport is known to be a major determinant of the propensity to use it. Figure 2 shows the relationship between Public Transport Access level (PTAL) in London, expressed as an accessibility index, with higher values reflecting greater availability of public transport locally, and trip rates by key mode for residents living in areas so categorised. The positive relationship with public transport trips, and negative relationship with car trips, is abundantly clear. Different transport modes have different degrees of transport accessibility. In London, the bus network is the most widely available mode, with more than 96% of Londoners living within 400 metres of a bus stop, and also the most commonly used mode of transport.

Figure 2 Average trip rates of London residents by public transport access level



Source: TfL Planning, Strategic Analysis

London’s experience also underscores the importance of factors such as affordability, quality and reliability of service, safety and security, physical accessibility and cross-system integration (e.g. through ticketing, in particular integration between rail operators) in making the public transport system available and attractive to all users.

How does the choice of public transport vary across different demographic groups?

TfL’s London Travel Demand Survey (LTDS) is an established travel diary survey that provides various socio-demographic breakdowns of public transport usage, alongside that of other modes (provided for comparison). The following tables explore several key dimensions of this for the most recent pre-pandemic year (2019/20 financial year). The data apply to Greater London Authority area residents only making trips that have at least one end on the GLA area. Trip rates refer to the average number of trips made by residents on an average (annual) day. A trip is a one-way movement from one place to another in order to accomplish a defined purpose (eg to go from home to work). A trip may involve several ‘journey stages’, for example walking from home to the station, train to central London, and a short bus trip to the office. The ‘main mode’ designated for the trip is based on the mode that accounts for the longest distance stage of the trip.

Looking first at age and gender (table 4), the public transport trip rate for adults falls with increasing age, females having a slightly higher trip rate than males.

Table 4 Average daily trip rates (7 days week) for principal modes. Differences by age and gender. GLA residents only, 2019-20 (pre pandemic)

| Males | Age (yrs) | | | | |
|---------------------------|------------------|------------|------------|------------|------------|
| | 05-16 | 17-24 | 25-44 | 45-64 | 65+ |
| Public Transport | 0.4 | 0.8 | 0.7 | 0.6 | 0.5 |
| Car | 0.7 | 0.3 | 0.6 | 0.9 | 0.8 |
| Other, inc. active travel | 0.9 | 0.6 | 1.0 | 1.0 | 0.9 |
| Total | 2.0 | 1.7 | 2.4 | 2.5 | 2.2 |
| | | | | | |
| Females | Age (yrs) | | | | |
| | 05-16 | 17-24 | 25-44 | 45-64 | 65+ |
| Public Transport | 0.4 | 0.9 | 0.8 | 0.6 | 0.5 |
| Car | 0.7 | 0.4 | 0.7 | 0.9 | 0.6 |
| Other | 0.8 | 0.7 | 1.1 | 0.9 | 0.7 |
| Total | 1.9 | 2.0 | 2.6 | 2.4 | 1.8 |

Table 5 Average daily trip rates (7 days week) for principal modes. Differences by inner/outer London residence and ethnicity. GLA residents only, 2019-20 (pre pandemic)

| Inner London residents (inc. Central) | White | Mixed, Other and Arab | Asian | Black | Refused to provide details of their ethnicity |
|--|--------------|------------------------------|--------------|--------------|--|
| PT | 0.79 | 0.83 | 0.65 | 0.80 | 0.77 |
| Car | 0.38 | 0.34 | 0.36 | 0.41 | 0.31 |
| Other, inc. active travel | 1.28 | 0.92 | 1.04 | 0.73 | 1.12 |
| Total | 2.45 | 2.10 | 2.05 | 1.95 | 2.20 |
| | | | | | |
| Outer London residents | White | Mixed, Other and Arab | Asian | Black | Refused |
| PT | 0.54 | 0.61 | 0.53 | 0.71 | 0.53 |
| Car | 0.96 | 0.86 | 0.90 | 0.67 | 0.57 |
| Other | 0.86 | 0.86 | 0.62 | 0.61 | 0.62 |
| Total | 2.36 | 2.32 | 2.04 | 1.99 | 1.72 |

In terms of people living in inner or outer London³ (table 5), public transport trip rates are higher for the former, although perhaps not dramatically so. In Inner London, Londoners identifying themselves as 'Mixed, Other and Arab' are more likely to travel by Public Transport than White, Asian and Black Londoners. In outer London, it is Black Londoners who are most likely to travel by public transport. . As illustrated in Table 6, disabled residents make around one third fewer public transport trips than non-disabled residents, whilst there are generally intuitive relationships between public transport trip making and working status (table 6).

Table 6 Average daily trip rates (7 days week) for principal modes. Differences by disability and working status. GLA residents only, 2019-20 (pre pandemic)

| | Disabled residents | Non-disabled residents | | | |
|---------------------------|---------------------------|-------------------------------|----------------|-----------------|--------------------|
| PT | 0.41 | 0.67 | | | |
| Car | 0.49 | 0.70 | | | |
| Other | 0.61 | 0.94 | | | |
| Total | 1.51 | 2.31 | | | |
| | | | | | |
| | Full-time worker | Part-time worker | Student | Under 16 | Not working |
| PT | 0.80 | 0.63 | 0.87 | 0.40 | 0.43 |
| Car | 0.74 | 0.93 | 0.27 | 0.70 | 0.56 |
| Other, inc. active travel | 0.90 | 1.22 | 0.74 | 0.84 | 1.09 |
| Total | 2.44 | 2.77 | 1.89 | 1.93 | 2.09 |

Again, relatively intuitively, household car availability is strongly negatively correlated with public transport trip rates as shown in table 7 However, it is relatively constant across the range of household incomes, which is not the case for car trip rates.

³ Definition available: <https://content.tfl.gov.uk/travel-in-london-report-4.pdf> page 253

Table 7 Average daily trip rates (7 days week) for principal modes. Differences by household car availability and household income. GLA residents only, 2019-20 (pre pandemic)

| | No cars | One car | Two or more cars | | |
|--------------------------------|----------|-------------------|------------------|------------------|-----------|
| PT | 0.93 | 0.53 | 0.38 | | |
| Car | 0.07 | 0.91 | 1.32 | | |
| Other, inc. active travel | 1.08 | 0.92 | 0.61 | | |
| Total | 2.08 | 2.36 | 2.30 | | |
| Annual household income | | | | | |
| | <£20,000 | £20,000 - £49,999 | £50,000- £74,999 | £75,000- £99,999 | £100,000+ |
| PT | 0.65 | 0.66 | 0.62 | 0.63 | 0.66 |
| Car | 0.44 | 0.69 | 0.79 | 0.83 | 0.79 |
| Other, inc. active travel | 0.96 | 0.87 | 0.84 | 0.91 | 1.04 |
| Total | 2.04 | 2.22 | 2.24 | 2.37 | 2.49 |

These variations of course intersect and reflect the interplay of a wide diversity of factors at the individual level, and it is therefore difficult to meaningfully generalise. Clearly, however, the propensity of different groups to use public transport does vary considerably across the resident population, and there is therefore considerable scope to encourage further use, particularly in areas like outer London and in relation to new, integrated land use initiatives.

2. How might public transport travel patterns shift in the next 10 years? What impact could digitalisation and the COVID-19 pandemic have on travel patterns in the long term?

TfL’s general approach to demand forecasting

Prior to the pandemic, TfL and the GLA had an established view on the likely and preferred development of London’s public transport networks for the medium and longer-term future. These were described in our Business Plan forecasts⁴. The key prescription from these forecasts was the need to continue to develop public transport to underpin London’s future growth and prosperity, and to keep pace with demand growth such that public transport continued to provide an increasingly viable and attractive option, recognising the Mayor’s overall strategic priorities for transport and travel in London.

The current consensus view is that the pandemic will have temporarily set back these previously favourable trends and expectations, but that these will reassert themselves in the medium-long term. Some uncertainty remains about the

⁴ <https://content.tfl.gov.uk/tfl-business-plan-2019.pdf>

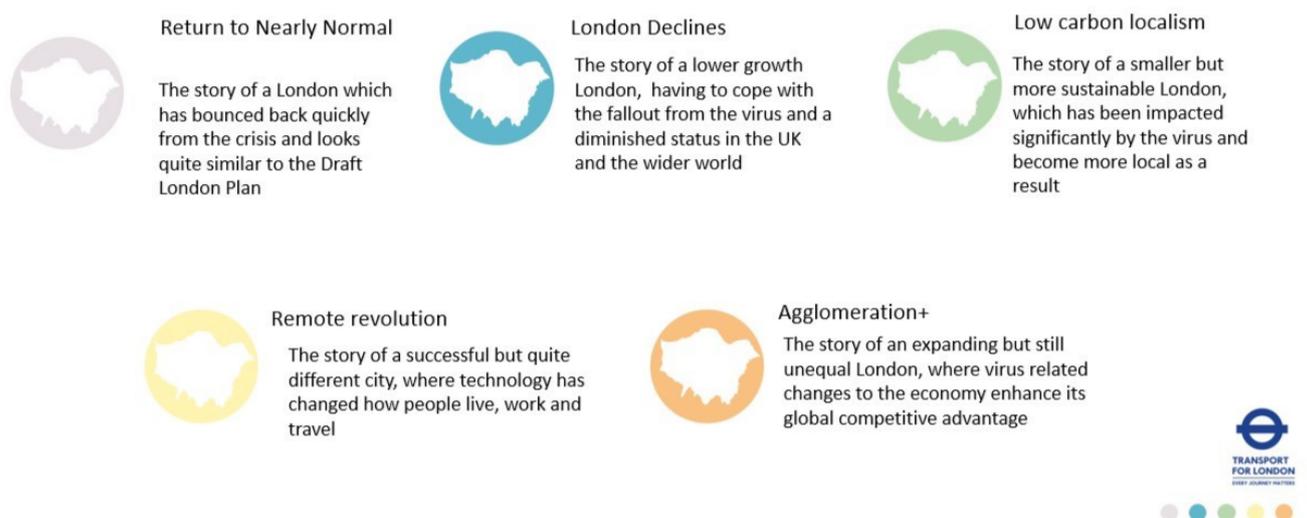
timescale over which this would happen at the aggregate level, and the extent and nature of any lasting 'structural' changes to established public transport demand patterns (e.g. the impact of remote working). Given these uncertainties, it is too early to make changes to public transport service levels.

Scenario based planning

To help address this uncertainty, TfL has developed a scenario-based approach to business planning. Traditionally we have used single Reference Case, a set of demand forecasts that enable us to understand how London will change and what this means for travel demand. The Reference Case is our best estimate of 'status quo' future demand based on projections of key trends, such as expected population growth. They are generated periodically through our strategic models and include detailed demand projections for each of the principal networks for several future time horizons.

Before the pandemic we had started to explore the concept of plausible variations to the Reference Case, reflecting what was then recognised as uncertainty in these projections. The pandemic has amplified this uncertainty and therefore we developed five scenarios (Figure 3) reflecting the different directions that London's recovery could take up to 2031. These five scenarios were developed with insights from experts on topics such as population, economy, transport, innovation, business and equality. Scenarios are 'stories' that reflect a variety of potential futures, and not expectations or forecasts. They conceptually 'bound the envelope of uncertainty' and thereby allow our plans to be assessed against a range of possible outcomes.

Figure 3 TfL's five post-pandemic scenarios

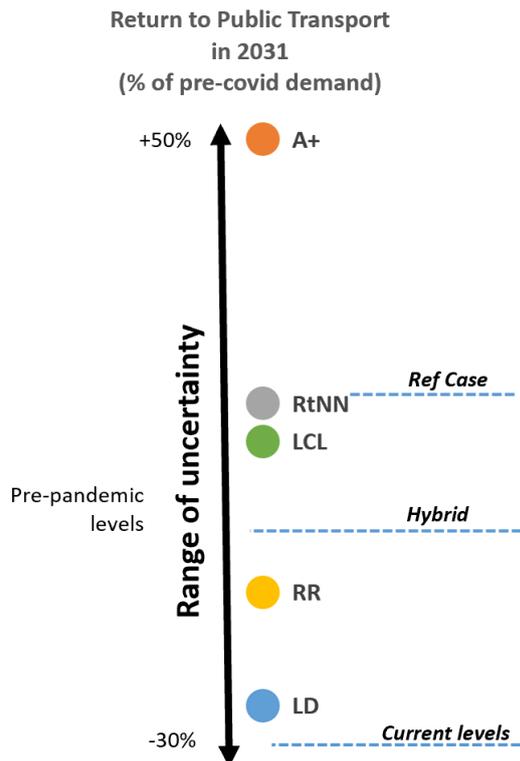


Source: TfL City Planning

The pandemic demonstrated that it was no longer appropriate to continue solely with a Reference Case-based approach. We have therefore developed a Hybrid

Forecast, which sits and is to be used alongside the Reference Case. Conceptually, the Hybrid Forecast reflects the 'centre of gravity' of the envelope of uncertainty described by the five scenarios. The intention is to update this periodically (nominally annually), to reflect emerging evidence of what is likely to be a definitive transport recovery in the aftermath of the pandemic. Figure 4 shows where the updated forecasts currently lie in relation to the full range of uncertainty of the scenarios.

Figure 4 Relative position of current demand, Reference Case and Hybrid Forecast within the 'envelope of uncertainty' defined by our scenarios



Source: TfL City Planning

Note: A+: Agglomeration Plus, RtNN: Return to Nearly Normal, LCL: Low Carbon Localism, RR: Remote Revolution, LD: London Declines, as shown in figure 3.

Travel in London report 14 gives a full description of the derivation of these scenarios and our Hybrid Forecast. The five scenarios cover a wide range of possible outcomes reflecting potential change in the factors affecting travel demand, which can be broadly grouped as: London's population and employment, working from home, propensity to use sustainable modes, car ownership, shopping and leisure activity/travel behaviour.

Importantly reflecting a pre-Omicron late 2021 view, and recognising the current rapid pace of change as we emerge from the pandemic, across both forecasts there was a strong rebound in travel demand by all modes from the pandemic affected levels of autumn 2021, reflecting the resilience and attractiveness of London as a place to live and do business. Projecting forward, the Reference Case is consistently above pre-pandemic levels and the Hybrid Forecast, albeit

for a lower level of demand to the Reference Case, reaches at least 96 per cent of pre-pandemic (total) travel demand by the first forecast year of 2026.

However, the lower relative growth in demand in the Hybrid Forecast compared to the Reference Case is felt more by sustainable modes than car trips, with those used more heavily for commuting, such as rail and cycling, seeing a reduction of 18 and 17 per cent respectively against the Reference Case in 2031. At this point the Reference Case estimates a 20 per cent increase on pre-pandemic levels by 2031.

It must be emphasised again that the role of the Hybrid Forecast is to challenge the Reference Case for our business planning, and does not reflect outcomes that are definitively expected.

We expect to update the forecasts, to reflect the latest empirical evidence, over the course of summer 2022.

Perspectives from our scenarios on potential shifts in public transport demand patterns over the next ten years reflecting digitisation and the pandemic

Within the overall context of considerable uncertainty about the future, there are many trends and developments that could have either positive or negative impacts on overall public transport demand over the next decade or two. Digitisation is certainly one of these, but at this point it is not possible to objectively say that it will be one of the more important. This is because the pre-pandemic evidence is not definitive (as described in Travel in London reports), and because the post pandemic 'settled state' has yet to become established.

Cities exist because people derive benefits from agglomeration, and the broad conclusion that might be drawn from the evidence above is that digitisation to date (which has been going on at some level for the last 20-30 years) has led to a substitution of one form of travel for another, rather than acting as a drag on overall or per capita travel demand. This substitution might be interpreted as a consumption or internalisation of the benefits of digitisation, contributing to an increased level of productivity and personal well-being overall. Despite the pandemic, it seems reasonable to start from the assumption that these fundamentals are likely to continue for the foreseeable future.

Having said that, the pandemic has thrown into sharp relief the 'benefits' that can be derived from more flexible working (and indeed, shopping and leisure), albeit borne of necessity, and policymakers and society as a whole faces a period of adaptation whilst these opportunities are captured and consolidated, whilst minimising the adverse impacts, as the imperatives of the pandemic recede.

Globally, the pandemic has brought into sharp focus the concept of the '15-minute city'. In support of this concept, the Mayor of London and Chair of the TfL Board, Sadiq Khan, has launched 'High Streets for all'⁵ which aims to create thriving, inclusive and resilient high streets and town centres, within easy reach

⁵ <https://www.london.gov.uk/coronavirus/londons-recovery-coronavirus-crisis/recovery-context/high-streets-all>

of all Londoners. This includes promoting local employment and near home working, protecting existing community and cultural spaces and introducing new types of businesses and civic organisations. It is still too early to determine how this global context of more local working, education, and amenities near to one's home may impact longer-term travel patterns.

While Travel in London report 14 considers many statistics about the contemporary prevalence of remote working and shopping, and expressed future intentions, these reflect exceptional circumstances over what will historically be viewed as a short period. Furthermore, on the debit side, the pandemic has clearly shown that remote activity is not possible or desirable for everyone, or good for some elements of the wider economy. A clear challenge for planners, therefore, is to ensure that the public transport offer is responsive to societal change as a way of capturing and capitalising upon the benefits, but also retains its 'core focus' in London of providing for the city (and therefore the nation's) future growth and prosperity in the most sustainable way.

3. What can be done to improve connectivity across public transport modes? How could better integration be delivered in urban areas outside London?

Over the last 20 years London has benefitted from having a Mayor that has oversight over Transport for London, as well as having an integrated authority, which means it is able to act all major issues related to the costs and revenues associated with London's transport. This is a lesson that could be applied to ensure better integration outside London. This political alignment and leadership have led to much better synergy between key strategic policy guidance in documents such as the London Plan and the Mayor's Transport Strategy, and ultimately what gets implemented on the ground.

London has also benefitted from well engrained multi-modal ticketing and service planning across the modes. TfL being an integrated transport authority has also helped with the difficult challenges around road space allocation and the choices that it needs to make in providing adequate provision for all modes while influencing mode shift towards more walking, cycling and public transport while improving air quality and road safety.

In terms of connectivity between modes in London, TfL in 2021 published the revised [Interchange best practice guidance](#). TfL is using this document to guide and ensure best practice on the development of interchanges and thus providing better transport connectivity across London. It gives advice from project inception to ensure any interchange developments respond to our communities and transport in a positive way. We recommend that interchanges should be looked at with four key design themes and principles:

1. Efficiency - Helping to provide a seamless experience for passengers as they move between public transport services, complete their journey by a feeder mode, or take advantage of the facilities on offer within the interchange area
2. Inclusive design - Ensuring that the location is accessible, has good legibility/wayfinding and is permeable
3. Quality - Providing a high-quality interchange facility and environment will improve all aspects of users' whole journey experience. It is important that all

interchanges provide excellent customer experience, design, provide a sense of place and good quality urban design

4. Planning and funding – Ensuring that the interchange has all the relevant Powers and is in line with Planning requirements, as well as maximising all the available potential funding opportunities.

4. What are the likely areas of innovation in urban public transport over the next 10 years? How should public policy be shaped considering both incremental and transformational innovations? How could data help transport services meet consumer demand?

We have already seen progress in terms of different vehicle types and technologies being trialled in London. For example, trials of autonomous vehicles and electric scooters are under way, and the markets for these types of vehicle may be opened up by future changes to legislation, and by major advances in products. Automated vehicles might provide new mobility options and enhance road safety but may also increase congestion and introduce zero-occupancy vehicles. Electric scooters could prove to be a viable alternative to the car but may also introduce new safety risks. Cities need to remain engaged as these and other transport options are developed to consider their role in delivering city goals, and the Government will need to ensure that legislative shifts empower cities to be able to tailor policy approaches and resultant services to their local circumstances and requirements, based on existing travel demand patterns, transport networks and infrastructure.

It will be vital that public sector authorities are able to access trip data from private operators as they launch and grow, in order to ensure they can plan, deliver or enable transport services that best serve the city.

During Covid, the immediate and temporary reallocation of road space to enable more people to walk and cycle safely during the pandemic was an innovation out of necessity and is resulting in new ways of thinking about London's road network in the longer-term to meet the Mayor of London's Transport Strategy target of 80 per cent of all journeys to be walked, cycled, or made by public transport by 2041 and to move towards the Government's ambition to decarbonise transport.

The Streetspace for London programme delivered a network of temporary cycle routes, Low Traffic Neighbourhoods (LTNs), additional space for people walking in town centres and School Street schemes. This accelerated the delivery of active travel programmes as set out in the Mayor's Transport Strategy. Programme highlights included: 101km trial cycle lanes; 89 LTNs; 322 School Streets; and 84km of TLRN bus lanes converted to operate 24/7 Monday to Sunday.

According to our Travel in London report, levels of cycling and walking in London reached 42 per cent of all journeys in 2021, with record usage of London cycle hire schemes, plus rapid people-friendly changes to hundreds of kilometres of streets, including new and improved cycle lanes. During the pandemic cycling and walking were up to 46.4 per cent of all trips in the city in April-June 2020, compared with 27.4 per cent in 2019. Since the pandemic active travel levels

remained at more than one third of all trips, to July-September 2021, when the latest figures exist. The latest Travel in London report can be accessed here⁶.

Additionally, the early stages of recovery indicate a more flexible workforce that can work remotely (approximately 40 per cent of the workforce in London) choosing to travel differently than before the pandemic. We are currently seeing longer, flatter peaks; not all weekdays as busy; and higher traffic on weekends for leisure. It is too early to determine whether this behaviour will influence longer-term trends and/or how to leverage this opportunity to smooth the peaks on transport networks, offering a better, less crowded customer experience and more efficient operations.

Sixty-two percent of all journeys in outer London could be walked, with the majority in less than 10 minutes (2017 TfL study). If every Londoner walked 20 minutes every day, £1.6bn could be saved in NHS treatment costs; 1 in 6 early deaths could be prevented; and 10 per cent of strokes and heart disease could be prevented; and 20 to 30 per cent of cases with depression could be prevented. In addition, if every young person in London walked one mile to school and back instead of being driven, 57kg of carbon would be saved per year.

In addition to the above, it is important to consider what else is going on in the private sector transport market, and what may be forthcoming in the next decade. We are likely to see new vehicle types develop, including different micro mobility devices. It is likely that new business models may develop. As well as regulatory agility, these technologies may be most beneficial if they are integrated into existing transport networks. Whether, when, where and how this happens is likely to vary, but it is vital that city authorities remain engaged with market developments in order to shape policy in such a way that opportunities can be capitalised on, especially as regulatory environments shift.

It will be important to continue to prioritise the goals of the city in question, which in most cases are likely to continue to include safety and social, economic, and environmental benefits. Specific to this is understanding how transport can help cities like London mitigate and adapt to a changing climate which has direct impacts on how people travel.

How could data help transport services meet consumer demand?

TfL has recently updated its free TfL Go travel app to provide real-time information on how busy London Underground stations are throughout the day. This will help customers choose quieter times to travel around the city and will further help build confidence as more people continue to return to public transport.

The update, available on both the iOS and Android versions of the app, uses aggregated and depersonalised data from TfL's Wi-Fi network to provide customers with real-time information on how busy Tube stations are at any particular point of the day. Historically, TfL has used ticketing data to understand travel patterns on the network, with quiet times data in TfL Go based largely on data from TfL's Oyster and contactless ticketing system which records entry and

⁶ <https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>

exits at stations. This innovative update now allows TfL to factor in how busy platforms and interchange points are to overall crowding within a station.

Launched in 2020, TfL Go provides real-time train times and information in a mobile-friendly way to enable customers travelling on Tube, bus and rail services across London, including the quieter times to travel. It also suggests alternative routes and walking and cycling options. The app has regularly updated accessibility information available through a 'step-free' mode which provides an easy to navigate view of all stations that are step-free to platform or train.

The app was designed and built in-house by TfL and uses the open data feeds freely provided to third party app developers and others, including the latest 'real-time' data showing the relative busyness of stations. It can be downloaded at www.tfl.gov.uk/go

TfL also has a tool called ODX that combines ticketing data of where customers use an Oyster or payment card on the tube, combined with bus location data to infer how customers travel across our network. This is particularly helpful for our bus network since customers do not need to tap off on alighting a bus. We use this for bus network planning. We have also used it when we were redesigning road junctions to understand how customers were likely to walk for interchanging between bus to bus and bus to tube.

5. Are local authorities well equipped with appropriate funding and powers to deliver high-quality public transport services? Would further devolution of transport policy contribute to better outcomes?

Transport for London (TfL) was created just over 20 years ago as the city's integrated transport authority with devolved powers to develop and apply policies via the Mayor's Transport Strategy and to promote and encourage safe, integrated, efficient and economic transport facilities and services to, from and within London. TfL have also run the day-to-day operators run most of the city's bus, rail and underground public transport services for approaching 20 years. In that time, TfL has become a world-leading integrated transport network.

Prior the pandemic, TfL was on track to reach a net operating surplus; however, TfL's reliance on fares revenue and lack of long-term sustained funding, has significantly impacted its finances. Other cities in the UK aspire for a 'London-style' public transport network but without proper funding, there is a risk that even London won't have a 'London-style' transport system.

TfL can continue to build on the successes of the last two decades with the right funding and further devolved powers. There has been support from successive Mayors of London, and from TfL, for further devolution of transport policy and funding. Two reports by the London Finance Commission set out the arguments well for further devolution⁷.

TfL is set up as a local authority, linked to the wider GLA group under the political control of the Mayor of London. A large proportion of its funding in normal times comes from fares, congestion charging and other revenues – over

⁷ https://www.london.gov.uk/sites/default/files/devolution_-_a_capital_idea_lfc_2017.pdf

70 per cent of operating costs come from these sources compared to less than 50 per cent in many other world cities. The remainder of its funding comes from retained business rates and government grants, with the gap covered by growing borrowing from 2005 onwards. During the pandemic, the Government has paid significant amounts of extraordinary grant to support TfL, but with detailed conditions.

The Government has tasked TfL to become financially sustainable by April 2023. The Independent Panel report for the Mayor in December 2020^[21] noted the need for further fiscal devolution to allow the Mayor to support TfL and its investment programme, as part of a package of measures including funding from council tax and road users.

The development in London of an integrated transport authority, with powers over public transport and roads and traffic, should be viewed as a success. There are various opportunities for further rail devolution for local stopping services in London, which are discussed further in question 6 under 'devolution'.

6. Could better policy coordination across government departments, and between central and local government, improve public transport outcomes? If so, how can this be achieved?

Integration of transport and land use policy, and levelling up

Land use and transport integration has been a strength in London with the alignment (under the Mayor of London) between the city's spatial strategy, the London Plan, and the Mayor's Transport Strategy. It has enabled a focus on sustainable development and regeneration through investment in good public transport and active travel, and is a key part of London's net-zero ambitions.

There is lots of evidence for the important links between transport connectivity improvements and sustainable development. Travel in London Report 12⁸ showcased some TfL analysis around housing delivery and transport provision. For example, most new housing has been delivered within one kilometre of a rail or tube station (89 per cent of all new units from 2006 to 2018). This reflects the fact that good public transport access increases the attractiveness of housing to residents and developers.

One way this has been embedded within TfL is through the transport principles of good growth set out in the Mayor's Transport Strategy. These are:

- Good access to safe walking and cycling routes and public transport
- High-density, mixed-use developments
- Car-free and car-lite places to walk
- Inclusive, accessible design

This approach requires close alignment between planning and transport authorities and developers. Within Government, this would suggest the benefits of further policy coordination between the DfT and the Department for Levelling Up, Housing and Communities (DLUHC), working closely with local authorities. In

⁸ <https://content.tfl.gov.uk/travel-in-london-report-12.pdf>

particular, there appears to be an opportunity to embed this policy approach as part of the establishment of Great British Railways.

Public transport outcomes in London can be achieved through the Government's 'levelling up' agenda. Of every £1 invested in London's infrastructure, 55p is spent outside of London, often on high-skilled green manufacturing jobs, such as new trains in Yorkshire and new electric buses in Northern Ireland.

Coordination successes and failures

The Government's Housing Infrastructure Fund was a positive example of cross-departmental working which recognised the need for transport infrastructure to unlock significant housing delivery. London was successful with several bids and continues to work with DLUHC on their implementation.

The Levelling up Fund is another opportunity to fund transport projects with a view to achieving wider social, regeneration aims in local communities across the country. While this is welcome, the fund provided very little role for the GLA or Mayoral Combined Authorities with most funding awarded directly to local authorities. In London, TfL is responsible for many aspects of the transport system including, for example, Traffic Management Act duties for the strategic road network in London and responsibilities for traffic signals and bus services. This means that there is a need for engagement and in some cases approvals for schemes developed by London boroughs. TfL would welcome more consultation on transport bids.

TfL has a standalone property company to increase revenue for TfL and deliver more housing on TfL and GLA land. TfL has already secured planning permission for thousands of homes, including affordable homes, and tackling London's housing crisis. One aspect of this approach involves building high-density developments close to stations which have excellent connectivity. Sometimes this has involved building over station car parks, which is in line with the aspirations to reduce car use, as set out in the Mayor's Transport Strategy. The DfT has written confirming the Secretary of State for Transport's decision to refuse a recent application on the basis that he is 'concerned that the parking provision at the station will be inadequate following the proposed development'. Decisions like these constrain TfL's ability to deliver on national, regional and local ambitions on housing and net-zero.

The scale and pace of the required transition of our built environment to decarbonise and ensure we are resilient to the impacts of climate change, including, but not limited to, buildings, energy, transport and water management systems, means that a huge retrofitting and upgrading effort on the scale never seen before is required. This cannot be delivered by a handful of initiatives within sectors and pace is currently too slow and will never be sufficient if we rely entirely on the natural turn-over of buildings and infrastructure. The integrated nature of our built environment requires a coherent "place-based" plan that public and private sector operating in regions can work together to develop and deliver. This will bring about efficiencies, reduce disruption and reduce risk of mal-adaptation.

Furthermore, in order to deliver the massive retrofit and upgrade programme, we must build confidence and take residents, business and organisations situated within regions with us. This requires building trust, long-term commitment, equitable and affordable cost impacts and compelling evidence of the benefits to safety, health, well-being, equality and environmental and economic sustainability. The current policy and regulatory framework is insufficient to create the imperative and desire for regions to develop a sufficiently detailed plan to deliver at pace.

A requirement and support from government to develop regional detailed climate change plans that are independently audited could play an important role. The low take-up of Local Area Energy Planning is evidence that the current policy and tools are not delivering. By developing these place-based plans to sufficient detail, we will be able to greatly increase and accelerate the identification of investible projects to help attract private sector investment to deliver the plans, reducing the demand on public funding. Using blended-finance and cross-financing models we can increase the reach of private sector investment to avoid only high-return measures being “cherry-picked” and the difficult, but essential measure left undelivered. To succeed this approach requires support from government in the form of resources, guidance, tools to maximise the attractiveness of place-based plans for public and private investment.

Devolution

Responsibility for the national rail network in London is split between local and national Government. Through the success of London Overground, TfL has demonstrated that it can significantly improve customer service through improved responsiveness to local communities, and through the local accountability of TfL-concessed railways.

There are various opportunities for further rail devolution for local stopping services in London in the interest of providing improved customer services more efficiently and more quickly, and to enable better integration with London’s wider transport system. More information is available in the Mayor’s Transport Strategy under proposal 66. Devolution would enable the Mayor to put in place the same reliability standards as London Overground, with integrated information, planning, fares and accessibility standards.

Even without further devolution there are opportunities to better align transport provision and services as we emerge from the pandemic. There is significant uncertainty in future service planning as operators and DfT make adjustments to rail capacity post-pandemic. TfL is going through a similar process, but believes it is too early to make significant changes to service levels. TfL is also not well well-sighted on some of these changes proposed by the DfT and services which means there is potential for poorer customer outcomes. A more holistic view could help, and this could apply to other cities/regions with responsibility for urban rail and bus travel. Residents in south London depend on national rail services far more than other Londoners. Notwithstanding the opportunities for devolution discussed above, better co-ordination and information sharing could help to ensure ‘metro’ levels of service levels on commuter railways in London.

TfL has traditionally had a strength in this area because we are able to consider complimentary and competing bus and rail services and walking and cycling provision in our plans. An example of this is the changes to bus services linked to the introduction of the Elizabeth line and the complimentary measures required at street level to accommodate increased levels of footfall. The current structure makes it more challenging to consider national rail changes.

The locally managed railways

The Urban Transport Group has set out the case for the locally managed railway. Partnerships between local and national agencies are a means of levelling up which could usefully have at least some influence over:

- Strategic planning, beyond the High Level Output Specification and Statement of Funds Available processes and the influence of the Whole Industry Strategic Plan in London and the wider southeast
- Housing and economic growth and the environment
- Train service planning where there is a joint interest – e.g. coordination of pandemic-related changes
- Coordination of freight and passenger strategies, priorities and issues
- Enhancement priorities for investment, including Rail Network Enhancement Programme through the expression of its view on which investments it considers carry the greatest benefit for customers and businesses – e.g. providing a coherent perspective on projects such as Crossrail 2 – rather than deciding if they should proceed.
- Contract specification, procurement and management, including bringing focus and coordination to the consultation on these
- Coordinating the scope for increments and detriments
- Consistency and quality of passenger experience, including customer information, and 'place making' and integration opportunities
- Closures and the coordination of engineering work
- A channel of communications, including knowing who to call in order to seek assistance from other organisations

7. What are the barriers to improving urban public transport, in terms of delivering the necessary infrastructure, increasing connectivity and improving the consumer experience?

Financial barriers

There is a crucial need to achieve financial sustainability for public transport in London and across the country.. As well as working towards financial sustainability, it is essential that the Government provides longer term capital support for TfL. This is crucial for the coming years if a period of the 'managed decline' of London's transport network is to be avoided.

The financial sustainability of public transport in towns and cities will be heavily influenced by the recovery of passenger demand, and therefore revenue, following the pandemic. This cannot be predicted with certainty, and scenario planning will be essential to allow the industry to prepare for the full range of

plausible outcomes. In the face of this uncertainty, Government and the industry have important roles to make public transport, walking and cycling the modes of choice in towns and cities and not to overreact to short term lower demand. A well-funded and high quality public transport offer is an essential ingredient of reducing the carbon intensity of transport in towns and cities.

In the medium and long-term, rail in particular is on course to face significant competitive pressures relative to driving. With greater electrification of the vehicle fleet, and in the absence of reform of fuel duty, the marginal cost per mile of driving over time has the potential to reduce significantly. This would affect the competitiveness of rail compared to road for a range of journeys, although congestion impacts would remain. Addressing this will require both maintaining a competitive rail offering (including avoiding significant service reductions) but also broader consideration across government of how to reform fuel duty to ensure the correct incentives exist for future mode choice.

The changing climate requires changes in how the railway is maintained and renewed to support resilience in the face of, for example, higher temperatures, extreme weather events, and greater flooding risk. The GLA and TfL have recently provided evidence to The Second National Infrastructure Assessment (NIA): Baseline Report, outlining our support for the strategic themes underpinning the NIA. While some changes (such as improved drainage and green infrastructure) may be possible to integrate into renewal programmes, specific adaptation investments to structures and materials themselves are likely to be required over time and the pressure this will place on capital investment budgets is yet unknown. TfL's final submission under Defra's Adaptation Reporting Power, which will include an asset climate risk assessment, will be available on the TfL [website](#) at the end of April.

Delivering infrastructure and connectivity

The London Plan sets out how development in London should be sustainable and come forward in line with 'Good Growth' principles. This includes high quality, high-density mixed-use developments without significant car ownership and use. Connectivity improvements are an essential part of unlocking land for development in London, because the majority of people who will live in these developments will not own cars and will rely on public transport, walking and cycling to access jobs, essential services and leisure activities. This approach to development in London is leading to lower carbon footprint and a shift away from personal car use.

Rail and bus improvements have anchored major private sector developments and regeneration in London, some of which have contributed towards the cost of the infrastructure to improve transport provision and accessibility. Examples include: Battersea Power station (Northern Line Extension), Canary Wharf (DLR, Jubilee Line Extension, Crossrail), King's Cross, Stratford Olympic Park, Knightsbridge, Barking Riverside, Upper Lea Valley (Tottenham Hale). Investment in the Victoria line, London Overground and TfL rail has enabled regeneration of some outer London town centres (e.g. Walthamstow, Ilford) and thriving businesses.

Despite London's extensive and efficient public transport network, there remain sections of outer London where lack of rail connectivity constrains opportunities, such as Thamesmead, where:

- reliance on buses to reach rail services on the North Kent Line from Thamesmead town centre results in longer journey times for public transport users
- Central London and the Isle of Dogs lie in excess of a 45-minute public transport journey
- Longer journey times limit access to employment, as well as social and education opportunities in comparison to locations that are connected to the rail network

Improving accessibility of the rail network is also important for people with reduced mobility and for wider democratisation of public transport. When fully open the Elizabeth line will add 10 per cent capacity to central London's rail network, bringing an extra 1.5 million people to within 45 minutes of central London.

There are various opportunities for further rail devolution for local stopping services in London in the interest of providing improved customer services more efficiently and more quickly, and to enable better integration with London's wider transport system.

The cost of capital investment is a very significant contributor to the financial support required by the rail industry in particular. TfL recognises the need to reduce capital costs on our own projects, and to support this, in 2021 we produced a Capital Efficiency Plan. This was informed by our own experience as well as engagement with many other infrastructure organisations, including Network Rail. Key workstreams within the plan include improving project controls, investment planning, commercial strategy, engineering access to the railway, reviewing standards, resource management and improving our use of benchmarking.

Customer experience

TfL's Customer Insight team has established, through surveys and other data collection tools, 'core truths and emerging issues about everyday rail passenger frustrations to inform the priorities for improving public transport in London. These include:

- Safety and cleanliness: increasingly shifting from an unspoken 'hygiene need' to something that is critically assessed by customers
- Reliability: the key driver for customer satisfaction, especially for infrequent routes where the customer impact is even greater. Focus on delivering the basics - i.e., reliability, punctuality - brilliantly and consistently
- Customer information during disruption: satisfaction during disruption hinges on timely, consistent, and useful information that helps customers to take back control of their journeys

- Crowding: a persistent 'pain point' that is frequently exacerbated by reliability and frequency levels, but more recently is being re-prioritised as a key factor in the decision to travel
- Ambience of built environments, in other words a welcoming, pleasant, orderly and reassuring atmosphere: critical for increasing perceptions of safety and comfort. Trains themselves, where customers potentially spend hours on long-distance journeys, need to feel ambient, and customers need to feel in touch with a human presence
- Perception of the rail fares system: value for money (especially in direct comparison with the perception of costs associated with private car use) and fairness are top of mind. This may become more acute as pandemic related behaviour change (for example, more home working) further increases demand for flexible ticketing
- Accessibility: poor accessibility is a barrier to use for many people. Making the public transport system more accessible and inclusive is critical to delivering a better whole journey experience for disabled people, the growing number of older people and those with buggies, luggage and bikes. Delivering accessibility must also include good customer service, information and communication
- Integration: efficient connections with other public transport modes, and active travel options, enables customers to achieve best value for money, unlocks harder to reach areas, and helps them to achieve end to end journey options. 'Whole journey thinking' is needed from the rail industry, as customers don't differentiate between modes/services.

These will continue to be priority areas for improvement to drive improvements in customer satisfaction. We can however expect more rapid change in expectations around technology and information we provide to customer in various formats, and this is a little harder to predict. The pace of change with technology solutions is only likely to increase over the next 5-10 years and beyond, but already customers are telling us they are frustrated with the lack of a seamless 'one single source solution'. It is still commonplace for a customer to get journey times from one place, ticketing solutions from another and then request refunds via yet another platform. Third party providers such as trainline already provide most of these needs in the one place yet the industry is not there yet in a lot of cases. This experience is also commonplace for buses in other cities and towns which have privatised bus operations.

Whilst these experiences specifically talk to rail travel, improving customer experience is key to drawing more people to public transport.

March 2022