

ICE discussion paper: Public transport funding post-Covid

June 2021

Executive summary

Since the onset of the Covid-19 pandemic, countries and cities around the world have made changes to public transport services to restrict the spread of the disease and ensure the safe transport of essential workers.

However, when lockdown restrictions were put in place, the entire public transport sector became effectively unviable – it has survived through governments offering emergency funding to pay for services that are no longer being used to the extent they were planned for.

While there is a large degree of uncertainty as to the extent public transport use will bounce back as vaccine roll-outs continue and restrictions lift, the shifts in where and how people live and work that have been witnessed over the past year are likely to drive lasting, structural change in travel patterns.

This has major implications for governments and public transport authorities, which have built substantial parts of their infrastructure, services and revenue models around transporting commuters during peak hours on a consistent basis.

Funding models which focus on transport systems covering their operating costs should therefore be a very important concern. While there will undoubtedly be a need for government subsidies to continue on a short- or even medium-term basis, a continuing operating subsidy may be an unpalatable option to taxpayers, a route to a declining service and an unsustainable option given the size of public sector net debt.

It is crucial that governments and operators take these decisions soon. The costs of uncertain, short-term bailout packages without a clear transition plan could begin a spiral of decline and cuts to both public transport services and capital projects that would take years to recover from.

ICE's previous work on Covid-19 and the new normal identified that long-term infrastructure planning should still be driven by existing long-term challenges, including population growth, meeting the carbon emission reduction targets and the UN Sustainable Development Goals (SDGs).

Affordable and accessible public transport is vital to addressing these challenges. Getting more people onto public transport and implementing policies that support greater take-up of active travel will reduce carbon emissions and improve air quality, while reducing congestion.

A shift away from the customary 9–5 day will require public transport operators to adjust service scheduling, pricing and ticketing options, as well as to appeal to wider markets. It will also be necessary to make best use of data to provide commuters with information on their travel options.

Operators and authorities will need to think about new funding models, including policies like road user charging and land value capture, how to fund and finance services on a systems basis, and more diversified revenue sources.

On top of this, intelligent use of scenario planning and constant data monitoring is essential. Operators will need to start from new baseline assumptions about how people will use and move through transport systems, including when they will travel, how they will travel and in what numbers.

As the world moves towards recovery, there is an opportunity to do things differently. The policy choices made regarding spending and investments on public transport during recovery and beyond will determine countries' ability to reach sustainable development goals and national strategic objectives.

While there is no one-size-fits-all approach to ensuring sustainable funding for public transport going forward, there are certain principles that an effective transportation funding mechanism should be built on:

1. The funding model requires a reasonable amount of stability and resilience. Indeed, this is one reason why the pandemic has impacted hard on UK public transport in particular, as the heavy reliance on farebox revenue left operators vulnerable.
2. The funding model must be flexible enough to scale with demand for public transport in times when there is significant growth in demand. This includes close alignment between timetables and accessibility of different modes in order to 'right-size' the system.
3. The funding model requires a diverse array of revenue sources. While the exact mix of funding will depend on local requirements, there is a need for a mix of general taxpayer revenues, farebox and some specific tax revenues. This can include road user or congestion charging, workplace parking levies or looking to adopt funding models that incorporate property portfolios.
4. The funding model must be accepted by the public. There is a need for public transport to be safe, affordable, accessible and reliable, without government support for it vastly increasing the size of public sector net debt. It is important that the public do clearly recognise the value of public transport and its importance to meeting national goals, but the extent to which they are willing to pay for it needs to be a key consideration.

What has actually changed?

Before the Covid-19 pandemic, passenger journeys on Britain's rail network were at an all-time high, having doubled over the past 20 years to almost 1.8 billion.¹ Investments were targeted at relieving congestion and pinch-points, while improving capacity both on the existing network, through improvements and new rolling stock, and by creating new lines.

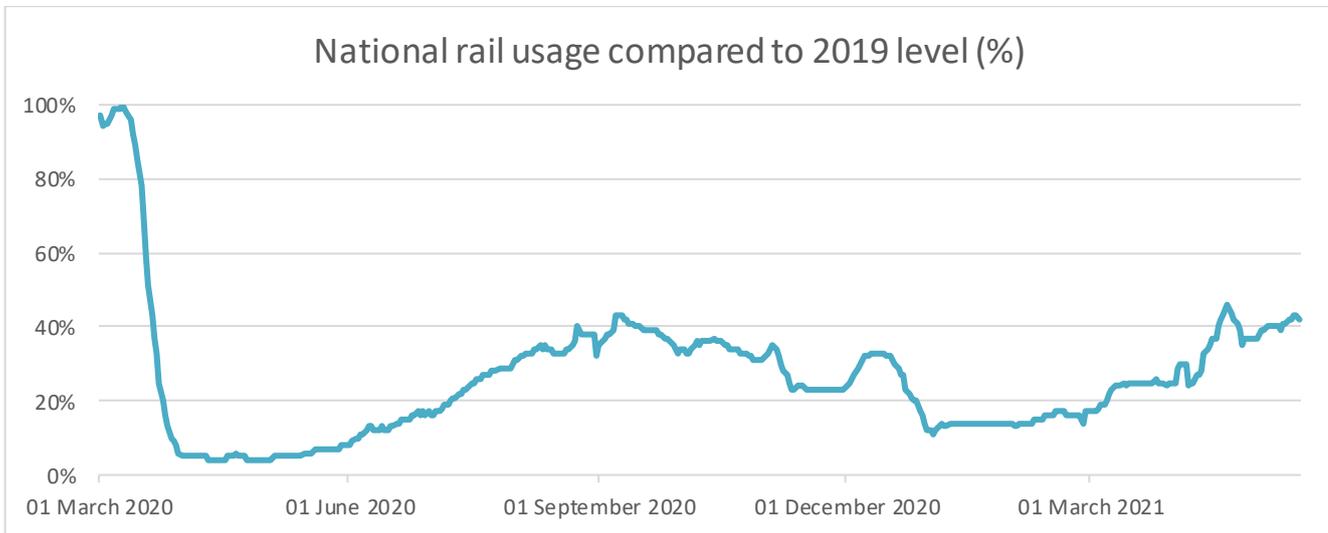
In 2018/19, 4.8 billion bus journeys were made in Britain, greater than the number of journeys made on the national rail network and London Underground combined.² A further 300 million journeys were made by tram and light rail.³

The Covid-19 pandemic and associated restrictions have had significant and dramatic impacts on public transport use. Following the announcement of the initial lockdown in March 2020, public transport use fell by 80 to 95% for different modes and, as of May 2021, is still only seeing between 30 to 50% of normal use for rail and around 50 to 60% of normal use for buses.⁴

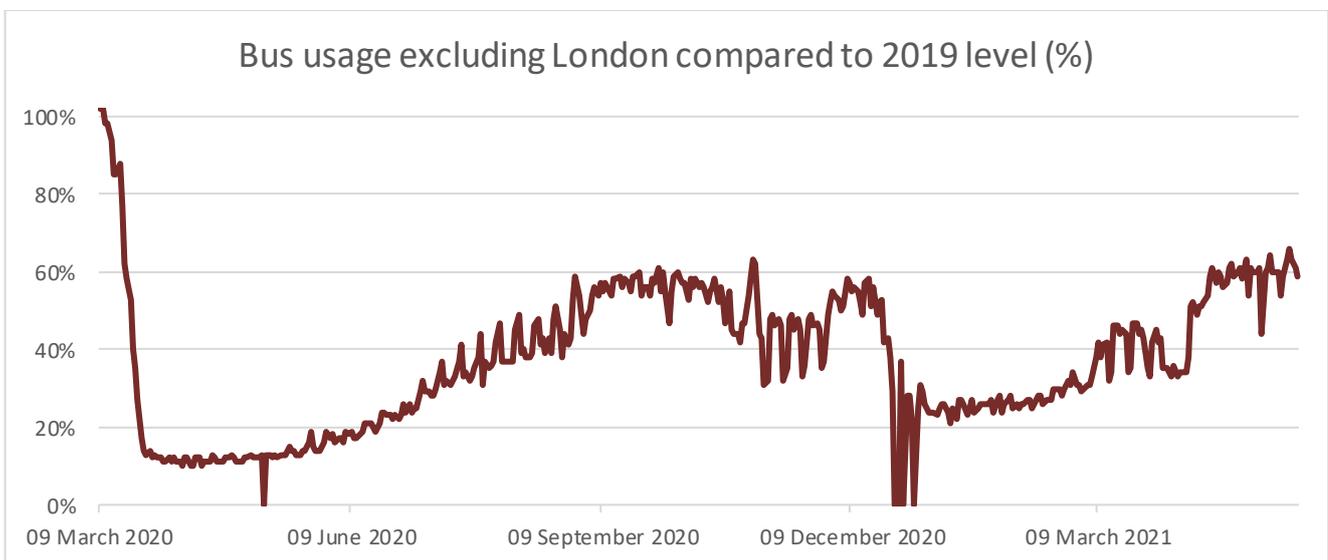
¹ Department for Transport (2019) [Rail Factsheet](#)

² Department for Transport (2019) [Transport Statistics Great Britain 2019](#)

³ Ibid



Source: Department for Transport⁵



Source: Department for Transport⁶ (days of 0% usage are where data is not available)

Working from home has increased. A survey for the Campaign for Better Transport found that 65% of UK adults in employment were working entirely from their place of work before the pandemic, whereas just 53% plan to do so when restrictions begin to ease.⁷

⁴ Department for Transport (2021) [Transport Use During the Coronavirus Pandemic](#)

⁵ Ibid

⁶ Ibid

⁷ Campaign for Better Transport (2021) [Survey Reveals Public's Travel Plans Post Covid](#)

However, even before Covid-19, the regular five-day commute was in slow decline due to increases in flexible working patterns. The proportion of people who primarily worked from home stood at 6% in early 2020 (pre-pandemic), while it is estimated that up to 25% of UK workers occasionally worked from home.⁸

This trend has accelerated; just two months into the first lockdown, almost 50% of UK adults in employment reported they were working from home.⁹ This was a pattern repeated across the Western world; in the United States, approximately 48% of the workforce worked from home, and 42% in the European Union.¹⁰

Even when restrictions were temporarily lifted in the UK during summer 2020, only a third of UK office workers returned to their normal place of work.¹¹ One expert interviewed for this paper stated that flexible working trends that would have likely occurred over the course of the next decade have instead happened in one year.

Many of those who do return to the office are unlikely to adopt the same travel patterns as before. Just 12% of UK commuters plan to travel to work five days a week after the pandemic.¹² This is a pattern repeated globally – a study by Deloitte Switzerland found that 23% of Swiss adults would decrease their use of public transport long term in response to the pandemic.¹³

Analysis from the CBI has shown that 76% of UK businesses expect flexible working to become more widespread in their organisation post-pandemic, and 47% expect most of their workforce to adopt hybrid working from office and home beyond 2021.¹⁴

The lockdowns also saw the focus shift to accelerating other forms of transport, particularly funding and temporary measures to encourage active travel.¹⁵ Between May and September 2020 in the UK, 34% of cyclists reported that they cycled more than before the pandemic, while 38% of those who walk reported they walked more than before.¹⁶

Social distancing restrictions and overall personal hygiene regimes through the pandemic have made people more aware of personal space and the cleanliness of their environments.¹⁷ In addition to introducing limits on passenger numbers, public transport authorities have provided hygiene measures at stations, as well as more frequent and enhanced cleaning of vehicles and rolling stock.

Private car use, despite an initial drop at the beginning of lockdown restrictions, has returned to pre-pandemic levels.¹⁸ However, there is no evidence of increased car ownership.¹⁹

There have also been changes in where people live, both in the UK and globally. It has been estimated that up to 700,000 people exited London during the pandemic, some perhaps permanently, with people also leaving major cities such as New York.²⁰

⁸ Felstead, A and Reuschke, D, Wales Institute of Social and Economic Research (2020) [Homeworking in the UK: Before and During the 2020 Lockdown](#)

⁹ Ibid

¹⁰ International Transport Forum (2021) [Transport Outlook 2021](#)

¹¹ Ibid

¹² Transport Focus (2021) [Flexi-Season Tickets – The Future for Rail Commuting?](#)

¹³ Deloitte Switzerland (2020) [Mobility After Coronavirus Crisis – From Public to Private](#)

¹⁴ CBI (2020) [No Turning Back](#)

¹⁵ International Transport Forum (2021) [Transport Outlook 2021](#)

¹⁶ Department for Transport (2021) [National Travel Attitudes Study: Wave 4 \(Final\)](#)

¹⁷ Mintel (2021) [Beyond Theatre: The Demand for Cleanliness Post-Covid-19](#)

¹⁸ National Infrastructure Commission (2021) [Behaviour Change and Infrastructure Beyond Covid-19](#)

¹⁹ Ibid

What has remained constant?

Public transport systems are a significant enabler of economic, environmental and social prosperity. Their continual development requires strong stewardship, ensuring the correct interventions are made at the right time for the public benefit.

As mentioned earlier, ICE's work on Covid-19 and the new normal identified that long-term infrastructure planning should still be driven by existing long-term challenges, including population growth, meeting the carbon emission reduction targets and the UN SDGs.

Even after Covid-19, the long-term drivers for infrastructure have not changed and should remain the driving force behind major transport system interventions.

On decarbonisation and achieving net zero, transport is critical. There is no path to delivering net zero by 2050 that does not run through decarbonising transport, which in the UK represents the largest source of carbon emissions.²¹ Many cities around the world continue to have poor levels of air quality, the health problems of which are intensified by inactive lifestyles.²²

Public transport networks must provide more journeys and carry more passengers in the years ahead if we are going to tackle these systemic issues. Those choosing not to or unable to cycle or walk are more likely to revert to the private car if public transport cannot deliver an acceptable, affordable option. ICE has called for investment in active travel options in the immediate recovery from Covid-19 in order to maintain positive shifts to those modes.²³

Funding of mass transit schemes in the UK is still likely to persist in terms of the government's 'levelling-up' agenda. Indeed, the National Infrastructure Strategy in November 2020 confirmed that investment is being directed to improve public transport networks in regional cities.²⁴ However, this is not to the extent as recommended by the National Infrastructure Commission (NIC) in its National Infrastructure Assessment – the government did not fully endorse the NIC's recommendations in areas of funding and empowering local and regional leaders to make decisions on transport, meaning policy gaps still remain.²⁵

What do these changes mean?

Such a dramatic change to the way millions of people work presents a major challenge for public transport networks, which have built large parts of their infrastructure, services and revenue models around carrying commuters during peak hours.

The accelerated adoption of digital collaboration tools in work and learning environments could have potentially permanent effects and drive lasting, structural changes in travel patterns. While these shifts may not ultimately change the amount of time people spend travelling, they will indicate a change in the type, destination and possibly timing of trips they take.

²⁰ Economic Statistics Centre of Excellence (2021) [Estimating the UK Population During the Pandemic](#); United States Census Bureau (2020) [July 1 2020 Estimates of Population and Housing Units](#)

²¹ ICE (2020) [A Plan for Transitioning Infrastructure to Net Zero](#)

²² World Health Organization (2016) [Global Urban Ambient Air Pollution Database](#)

²³ ICE (2020) [Covid-19 and the New Normal for Infrastructure Systems – Next Steps](#)

²⁴ HM Treasury (2020) [National Infrastructure Strategy](#)

²⁵ HM Treasury (2020) [Response to the National Infrastructure Assessment](#)

Continued patterns of working from home will result in fewer commutes into cities. The increase in flexible working options could change where people live, resulting in increased population levels in smaller towns and rural areas, which are not as well served by public transport as larger towns and cities. This could increase people's reliance on private car use, and raises questions about how the infrastructure system will cope with the changing demands.

In terms of future trends, UK adults largely expect to choose to travel as they did before the pandemic, with private cars remaining the dominant form of transport for around half for shopping, leisure and personal matters.²⁶ Walking and cycling, however, are likely to become more frequent modes of travel as the public recognises how much they value being able to easily get around cities and communities without having to drive.²⁷ In polling conducted by YouGov on behalf of ICE, 72% of British adults said they would be likely to use their private car to carry out their day-to-day activities when Covid-19 restrictions begin to lift, with 27% likely to use the bus and 21% likely to use the train.²⁸

In the NIC's longer-term scenario analysis work on infrastructure and behavioural change, four out of five scenarios would see a reduction in annual trips on public transport by the year 2055.²⁹ The analysis illustrates that even limited changes in public behaviour can lead to changes in overall demand or distributional patterns.

However, as the NIC has stated, it is too early to assume that behavioural change will lead to completely different patterns of infrastructure use long term.³⁰ As outlined earlier, the UK's population will continue to grow and there is political impetus to invest in public transport infrastructure to meet national objectives. Intelligent use of scenario planning will therefore be vital, with operators taking a more adaptive approach and making the best use of data gathering and analysis on which to base their decisions.

But while there is uncertainty in this space about the extent to which people will return to using public transport long term, an immediate return to pre-Covid levels of use is unlikely.

Data from the Department for Transport and Ipsos MORI from February/March 2021 indicated that passengers reported low levels of comfort when using public transport, with 58% supporting the retention of social distancing measures even after all adults have been offered both vaccine doses.³¹ Allied with ICE's findings from *Covid-19 and the New Normal*, this may indicate that transport provision in the future should continue with measures designed to limit the spread of airborne diseases.³² If people remain less comfortable about travelling on public transport, private car use may increase, which has implications for carbon emissions, congestion and air quality.³³

It is also possible that the public will demand a different offering from public transport networks. Rail may support longer, less frequent journeys for commuting, and shorter, more frequent journeys for shopping and socialising. There are opportunities also for rail to become more dominant as a transport option for leisure purposes, potentially aligned with behavioural changes driven by factors such as net zero (i.e. fewer flights and lower levels of private car use). If more people choose this approach, it is likely that they will demand a more comfortable journey and better services to suit their needs.

²⁶ Campaign for Better Transport (2021) [Survey Reveals Public's Travel Plans Post Covid](#)

²⁷ ICE (2020) [Covid-19 and the New Normal for Infrastructure Systems – Next Steps](#)

²⁸ All figures, unless otherwise stated, are from YouGov Plc. Total sample size was 7,000 adults. Fieldwork was undertaken between 8th - 11th March 2021. The survey was carried out online. The figures have been weighted and are representative of all GB adults (aged 18+).

²⁹ National Infrastructure Commission (2021) [Behaviour Change and Infrastructure Beyond Covid-19](#)

³⁰ Ibid

³¹ Department for Transport (2021) [All Change? Travel Tracker – Wave 4 Report](#)

³² ICE (2020) [Covid-19 and the New Normal for Infrastructure Systems – Next Steps](#)

³³ World Economic Forum (2020) [Here's How to Make Public Transport Safer During Covid-19](#)

Key considerations for funding public transport

Governments globally have had to respond quickly to changing demand and subsequent reductions in revenue, subsidising public transport to significant extents and, in some cases, nationalising provision. Regardless of whether these operators are fully in the public sector, franchised or fully private, they have needed financial support to maintain at least a basic level of service to keep economies running, notably for key workers.

In 2020, transit operations in Spain lost €250 million per month, while New York's Metropolitan Transportation Agency (MTA) estimates an \$8 billion deficit in 2021.³⁴ In Canada, transport agencies faced a financial shortfall of CA\$400 million per month in the immediate aftermath of the country's first lockdown as passenger numbers collapsed by up to 90%.³⁵

It has become increasingly clear that in many cases this is not a question of short-term support to tide operators over through a difficult year, but that there are likely to be long-term changes to commuting patterns and the desire to travel in and to cities.

The need to provide public funds to keep operators afloat raises further questions about the long-term viability of such operators. In addition, the short-term nature of the funding packages that have been provided makes long-term planning challenging.

For some public transport services, a small reduction in passengers could lead to a downward spiral in revenues, possibly leading some services to be reduced or even discontinued. A deterioration in the quality of the transport networks would impact directly on economic recovery post-Covid and significantly reduce the ability to deliver on long-term objectives such as net zero.

Public transport provides positive economic, social and environmental benefits. This is why supporting growth in public transport networks – including bus, rail and tram/light rail – is a focus of central and local government transport policy and capital programmes.

If public transport services are run well, they support the achievement of wider national goals such as net zero, climate change resilience and reducing air pollution.

As a result of the wider benefits, public transport received high levels of government support even before the pandemic. In the UK, central government provided between £3 billion and £7 billion per year in revenue support across the rail sector, with fare revenue in 2018/19 accounting for 49% of rail industry income.³⁶ In the same year, 40% of the bus industry's revenue came from central government and 60% from fares and very few other sources.³⁷

Crucially, operators do not know what they are forecasting for. Until a clearer picture emerges, there will be a need for resilient commercial models, constant data gathering and monitoring, alongside certainty and backing from government.

³⁴ New York Times (2021) [N.Y.C. Staves Off Cuts to Public Transit, Despite Dire Warnings](#)

³⁵ Deloitte Canada (2020) [Tackling Public Transit's Funding Gap During the Recovery](#)

³⁶ Office of Road and Rail (2020) [UK Rail Industry Financial Information 2018–19](#)

³⁷ Department for Transport (2019) [Annual Bus Statistics: England 2018/19](#)

Transport for London

In May 2020, the government granted Transport for London (TfL) a £1.6 billion grant to keep services running, after passenger numbers dropped by 90%. This was later extended in October 2020 and then again in March and June 2021. In total, government support for TfL amounts to more than £4 billion since March 2020.

In a London context, 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 world of around 61% in 2019/20.³⁸ This ratio is typically unheard of in world transport, with the norm around 40 to 45%.

Estimates from London First suggest that rail revenues may be down by between 18 and 26% compared to TfL's current five-year business plan for 2024/25.³⁹ Combined with other factors, TfL's funding gap is estimated to be between £500 million and £2 billion by 2024/25.⁴⁰

This aligns with the Mayor of London's independent review commission for Transport for London, which suggests a gap of £1.5 to £2 billion.⁴¹

Impact on future transport projects

ICE's work on Covid-19 and infrastructure highlighted that changes to work and travel habits put question marks over the appropriateness of some infrastructure investments.⁴² Transport system interventions are typically initiated to support passenger growth or provide new connections on a 'predict and provide' model. This model currently cannot be used in the same way as a year or so ago, so it is clear that future infrastructure forecasting should use scenarios to navigate the current period of uncertainty.

The November 2020 changes to the Green Book could also impact on making the case for future investments. Business cases for transport have typically been based on maximising capacity and decreasing journey times.⁴³ With the 2020 reforms to the Green Book that mean the strategic case now has to better align to local objectives, there could be changes in how public transport projects are appraised and prioritised, particularly in light of the impacts from the pandemic.

What are the options for future funding models?

Policies aimed at growing the economy and strengthening the resilience of transport networks can at the same time address longstanding environmental challenges and social inequalities, if they are designed and implemented well.

Regaining pre-pandemic levels of public transport passenger numbers will be difficult. If a lack of funding forces operators to cut services or increase fares, public transport becomes both less attractive and less affordable. This would undo the years of progress in improving passenger numbers, reliability and journey satisfaction.

³⁸ Moody's (2021) [Structural Fall in Ridership Post Pandemic Opens Substantial Funding Shortfall](#)

³⁹ London First (2021) [Transport in London: New Solutions for a Changing City](#)

⁴⁰ Ibid

⁴¹ Transport for London (2020) [TfL Independent Review](#)

⁴² ICE (2020) [Covid-19 and the New Normal for Infrastructure Systems](#)

⁴³ ICE (2020) [Reforming the Green Book to Achieve Better Outcomes from Infrastructure Investment: ICE Discussion Paper](#)

If public transport is not effectively funded, there is a risk of causing a spiral of decline in which poor-quality services lead to lower passenger numbers and therefore lower revenues which, in turn, lead to further cuts. This situation must be avoided if there is any likelihood of achieving net-zero emissions by 2050, and the UN SDGs by 2030. Affordable, accessible, low-carbon public transport is vital to addressing these challenges, through reducing carbon emissions, improving air quality and reducing congestion, as well as a host of wider social benefits.⁴⁴

Given the immediate and longer-term challenges facing public transport, there are likely to be changes in where revenue comes from, whether that is through continued support, higher fares, diversified funding streams or new/devolved taxation powers.

The principles for future funding

While there is no one-size-fits-all approach to ensuring sustainable funding for public transport going forward, there are certain principles that an effective transportation funding mechanism should be built on.

1. The funding model requires a reasonable amount of stability and resilience. Indeed, this is one reason why the pandemic has impacted hard on UK public transport in particular, as the heavy reliance on farebox revenue left operators vulnerable.
2. The funding model must be flexible enough to scale with demand for public transport in times when there is significant growth in demand. This includes close alignment between timetables and accessibility of different modes in order to 'right-size' the system.
3. The funding model requires a diverse array of revenue sources. While the exact mix of funding will depend on local requirements, there is a need for a mix of general taxpayer revenues, farebox and some specific tax revenues. This can include road user or congestion charging, workplace parking levies or looking to adopt funding models that incorporate property portfolios.
4. The funding model must be accepted by the public. There is a need for public transport to be safe, affordable, accessible and reliable, without government support for it vastly increasing the size of public sector net debt. It is important that the public do clearly recognise the value of public transport and its importance to meeting national goals, but the extent to which they are willing to pay for it needs to be a key consideration.

⁴⁴ United Nations (2021) [Sustainable Transport](#)

Policy options

Negative	Neutral	Positive
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	Stability and resilience	Scaling with demand	Diversified funding sources	Public acceptability
Maintaining government support	Positive	Neutral	Neutral	Neutral
Raising fares	Negative	Positive	Negative	Negative
Cutting back services	Negative	Negative	Negative	Negative
Introducing road user charging	Neutral	Neutral	Positive	Neutral
Land value capture	Positive	Neutral	Positive	Neutral
Low-fare/fare-free public transport	Negative	Negative	Negative	Positive

Table 1: Potential impacts of different policy options on the principles for future funding

Maintaining government support

With the enormous impacts on public transport fare revenue resulting from Covid-19, the question should perhaps not be whether support is needed, but what structure and shape that support should take.

The most straightforward long-term solution is a stable agreement between the government and public transport operators to fund the gap, recognising the contribution that public transport makes to achieving wider societal goals.

However, such an approach could be expected to meet with public and political opposition, particularly if passenger numbers do not significantly increase. In the post-pandemic recovery, there is likely to be an increase in competition for funding and investment across other government departments and parts of the economy, with people and politicians demanding that taxpayer money is directed towards other concerns.

There are also risks that short-term funding agreements lead to the suspension or cancellation of planned longer-term projects. TfL, for example, may be forced to scrap major capital projects in order to find savings and efficiencies as part of the conditions stipulated in government funding.⁴⁵

Above all, if government funding is to continue, it should support the transport sector's ability to pursue a transition to a sustainable future. There are holistic solutions that can be used. For example, capital funding could come with conditions that stipulate transport authorities produce plans to reshape their networks with greater levels of active travel, shared and public transport. Future funding could then be linked to these plans.

Raising fares

In the UK, the trend since the 1990s has been for the largest burden to fall on the user of a service. In public transport terms, this means rail fares have remained relatively high and utilise peak-load pricing.

There are two potential outcomes from changes in demand:

- a reduction in overall demand while peak demand stays the same
- a reduction in peak demand while there is still demand for regular services.

Either scenario would require public transport networks to operate similar levels of service as they did pre-pandemic, but with lower income from fares. Essentially, capacity will need to remain at a network level, but for fewer passengers.

If passenger numbers remain low or take a long time to return to previous levels, a model that relies on passenger revenues for large parts of funding is unsustainable. In the case of TfL, there are estimates that a 20% permanent drop in passenger numbers could lead to an approximate average 12% loss of operating revenue.⁴⁶ In the case of operators that rely less on farebox revenue, the impact would be lower but still significant – the New York MTA, Vancouver's TransLink and Île-de-France Mobilités, which covers Paris and the surrounding region, would experience an approximate 8% loss of operating revenue with a similar 20% drop in passenger numbers.⁴⁷

With fewer passengers but similar levels of capacity under the existing system, fares would have to rise – perhaps significantly – or concessionary travel schemes would need reconsideration. While this option would lead to more fare revenue, it does not improve the long-term sustainability or resilience of the model. In addition, raising fares could make public transport both less accessible and less attractive for the wider public, which puts at risk the achievement of wider economic, environmental and social prosperity.

Cutting back services

Another option is for operators to cut services to try to reduce costs. However, most operators have been under strong political and social pressure to maintain full or near-full service levels to support essential workers and, latterly, to encourage people back onto public transport as pandemic-related restrictions lift.

Initial service cuts may weaken revenue and reduce overall public support if passengers permanently shift to alternative modes of transport in response to service reductions. In the long term, underinvestment in the quality and capacity of

⁴⁵ New Civil Engineer (2021) [TfL May be Forced to Mothball More Capital Projects Following £1bn Funding Deal](#)

⁴⁶ Moody's (2021) [Structural Fall in Ridership Post Pandemic Opens Substantial Funding Shortfall](#)

⁴⁷ Ibid

services is likely to make public transport a less attractive option, leading to a slower recovery in passenger numbers and increasing the risk of not meeting national strategic goals.

Introducing road user charging

Most large cities have witnessed year-on-year reductions in the use of private vehicles. However, with private cars deemed safer to use during the pandemic than public transport, this trend has slowed, with other factors such as the rapid growth in the number of delivery vehicles contributing to congestion.

Some urban areas already have a road charging system in place where drivers pay to access some parts of cities, such as the Congestion Charge in London and Clean Air Zone in Birmingham.

Recent polling from Ipsos MORI shows that support for road user charging in the UK has increased significantly since 2007. In 2007, support for road user charging was about 33%; it is now up to 62%.⁴⁸ Support increases further if the revenues are then used to improve public transport or to tackle climate change or air pollution. Public support is particularly strong if the cost is higher for the most polluting vehicles.

ICE has previously explored the practicalities of a 'pay as you go' (PAYG) system on the UK's Strategic Road Network, though not at city level, and found that there was public support for road user charging if it was used as a replacement for both Vehicle Excise Duty (VED) and Fuel Duty.⁴⁹

Road user charging as a means to solely obtain more funding is a difficult and thorny issue, and one unlikely to be accepted by the wider public. At a city level, this mechanism could be counterproductive to fund transport measures when one of the overarching objectives for transport in most urban areas is to reduce car use. There are other risks associated with introducing local schemes, notably displacement effects. If only one authority in an area introduces it, economic activity could be displaced to another authority.

In Singapore, road user charging is not seen as a revenue-generating exercise. Instead, it is understood by the public that the benefits are reduced congestion and better air quality.⁵⁰ Indeed, distance-based road user charging must be about delivering outcomes that benefit society, including cleaner air, better journeys and improved public transport accessibility. As ICE outlined in a set of principles for PAYG roads, it must be ensured that any system is fair and transparent so that it cannot be challenged in terms of its pricing method and integrity.⁵¹

There is therefore a need to think strategically and holistically when considering potential road user charging solutions. Implementing them in order to generate revenue lost as a result of an unprecedented crisis is not a decision that should be taken lightly.

However, the clock is ticking, with UK government policy for the sale of all new cars and vans to be effectively zero emission by 2030. An increasing number of vehicles exempt from Fuel Duty and VED, alongside a continuation of the Fuel Duty escalator freeze, will mean that these mechanisms will raise significantly less than they do at present by the end of the next decade, and it is clear that some form of road user charging policy will be required in order to avoid a so-called 'carbon fuel crunch'.

⁴⁸ Ipsos MORI (2020) [Public Support Charging Motorists to Use Roads, But Want it to be Done for the Right Reasons](#)

⁴⁹ ICE (2019) [Pay As You Go – Achieving Sustainable Roads Funding in England](#)

⁵⁰ Transport Committee evidence transcript (2021) [Reforming Public Transport after the Pandemic](#)

⁵¹ ICE (2019) [Pay As You Go – Achieving Sustainable Roads Funding in England](#)

Land value capture

Land value capture provides a potential mechanism for public transport authorities to generate revenue. It seeks to monetise the gains landowners can realise from land in proximity to newly developed public transport and to use it to pay for the network.

The 'Rail Plus Property' model used by Hong Kong's Mass Transit Railway (MTR) Corporation allows Hong Kong's public transport company to be self-financing – unlike many transport authorities in the world.⁵²

The model sees MTR construct new rail lines and tender for private developers to build residential and commercial properties above its stations, then take a share of the resulting sale or rental income. This provides the capital for operations and maintenance as well as for funding new projects.

It effectively captures the increase in the land's value resulting from a new metro station via the deals it extracts from developers of new housing, offices and retail space over and around the line. Developments are also carefully managed to ensure the mix of services that customers want. The result is developments that feed the railway in exchange for a railway that maximizes the value of developments.

London has a similarly dense population and so could apply this model, and it has been used to an extent to fund Crossrail through a revenue-limited Community Infrastructure Levy (CIL). Studies have found, however, that there is an estimated land value uplift of £5.5 billion within 1km of a Crossrail station, with the CIL capturing only just over 10% of that value.⁵³

There are, however, concerns that land value capture in this way would only be suitable for densely populated urban areas – it is one potential solution as part of a wider toolkit of available policy options.⁵⁴

Low-fare/fare-free public transport

While unlikely to be politically acceptable in the UK, it is worth noting that some cities around the world have adopted a model centred around low-fare or fare-free public transport. Cities and towns have been experimenting with these policies since the 1960s, with Luxembourg introducing fare-free public transport nationwide in 2020.⁵⁵

It is of little surprise that introducing low-cost public transport increases passenger numbers. Strong passenger growth has been reported everywhere free public transport has been introduced, with the impacts more evident several years after implementation.⁵⁶

The most successful schemes are those whose goal is to grow passenger numbers, primarily in areas where public transport use has been historically low.⁵⁷ There is limited evidence that fare-free schemes as a means to meet environmental or social objectives are effective. Indeed, some fare-free schemes have actually had a damaging impact on achieving wider goals such as increasing active travel uptake, as people have shifted modes from active travel to public transport.⁵⁸

⁵² McKinsey & Company (2016) [The 'Rail Plus Property' Model: Hong Kong's Successful Self-financing Formula](#)

⁵³ ICE (2018) [State of the Nation 2018: Infrastructure Investment](#)

⁵⁴ Ibid

⁵⁵ Mobilitéitszentral (2020) [Free Transport](#)

⁵⁶ Feamley, N, *International Journal of Transportation* (2013) [Free Fares Policies: Impact on Public Transport Mode Share and Other Transport Policy Goals](#)

⁵⁷ Ibid

⁵⁸ Feamley, N, *International Journal of Transportation* (2013) [Free Fares Policies: Impact on Public Transport Mode Share and Other Transport Policy Goals](#)

Most notably, with low or free fares, increased demand is not associated with a similar increase in revenues. The costs of running the network will further rise as demand increases. If public transport operators are to encourage passengers back onto their networks post-pandemic, fare-free or concessionary rates could be considered as an incentive, but would most likely need to be used in conjunction with revenue-raising measures to sustainably cover the costs of operations.

About ICE

Established in 1818 and with over 95,000 members worldwide, the Institution of Civil Engineers exists to deliver insights on infrastructure for societal benefit, using the professional engineering knowledge of our global membership.

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