

The economic impacts under future funding scenarios for Transport for London

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Contents

1	INTRODUCTION	2
2	SUMMARY OF KEY FINDINGS	3
3	THE VIRTUOUS CIRCLE OF PUBLIC TRANSPORT INVESTMENT AND DANGER OF A MANAGED DECLINE	6
4	QUANTITATIVE IMPACTS	10
5	INTERNATIONAL COMPARISONS.....	22

1 INTRODUCTION

- 1.1 Transport for London (TfL) has set out the direct consequences of a continued shortfall in capital investment and operational support, including an 18% reduction in bus services and a 9% reduction in London Underground services, a fall in reliability due to cancelled train fleet renewals, and deferred road infrastructure repairs leading to greater disruption and gridlock.
- 1.2 This paper provides a high-level economic appraisal of these severe service reductions and of a move to a 'Managed Decline' scenario such as that outlined in TfL's medium-term capital plan. These changes are assessed primarily against a Financially Constrained scenario which already reflects reductions in services and in planned capital investment compared to previous policy ambitions.
- 1.3 The main focus of the paper is on the loss of monetised welfare economic benefits as typically measured in transport appraisal, including loss of transport user benefits (e.g., impacts on travel time, congestion and reliability) and wider economic impacts (e.g., impacts on agglomeration economies, labour supply impacts and moves to more productive jobs). These losses are compared to the costs of investment under the scenarios above. The paper also provides monetary estimates of the cost of increase in CO₂ emissions of reduced funding for TfL.
- 1.4 By applying a different lens, the paper then provides some illustrative estimates on how a subset of these same impacts (i.e., loss of transport benefits to business and wider economic impacts) would affect GDP and the Exchequer over the same time horizon.
- 1.5 Finally, the paper also highlights impacts on new housing completions and associated land-value uplift, and socio-economic impacts.
- 1.6 The rest of the paper is organised as follows: Section 2 provides a summary of key findings, Section 3 looks at the virtuous circle of public transport investment, Section 4 presents the quantitative analysis and Section 5 compares support for TfL during the pandemic with support that has been provided to transport authorities in Paris and New York.

2 SUMMARY OF KEY FINDINGS

- 2.1 **Public transport users would experience an immediate loss of benefits if TfL were forced to pursue severe service level reductions beyond current plans. Furthermore, by severely constraining future capital investment, there would be a gradual but significant accumulation of additional negative impacts.**
- 2.2 Over a ten-year appraisal period, the lost transport and highway user benefits associated with severe service level reductions and a shift from the Financially Constrained to the Managed Decline capital scenario could be worth £7.3bn in present value terms (2019 prices).
- 2.3 There will also be wider economic impacts of the cuts in addition to the transport user impacts; we estimate these could be worth a further £4.5bn over ten years in present value terms.
- 2.4 TfL’s ambitious efforts to reduce carbon emissions from London’s transport sector would be significantly affected under a Managed Decline scenario. Based on government guidance for monetising carbon emission reductions, the present value of relatively higher emissions over the next decade to 2031 would equate to £0.3bn.
- 2.5 **Total economic welfare impacts to London associated with moving from a Financially Constrained scenario to a Managed Decline scenario could therefore be over £12bn over ten years** in present value terms when transport user disbenefits, wider economic impacts and carbon impacts are included (Table 2.1).
- 2.6 These economic welfare disbenefits are on top of those already foregone from TfL having had to move away from the Policy Consistent scenario to the Financially Constrained scenario. When the lost benefits from the Policy Consistent scenario are also included the loss in economic welfare is estimated to be almost £15bn over ten years in present value terms.

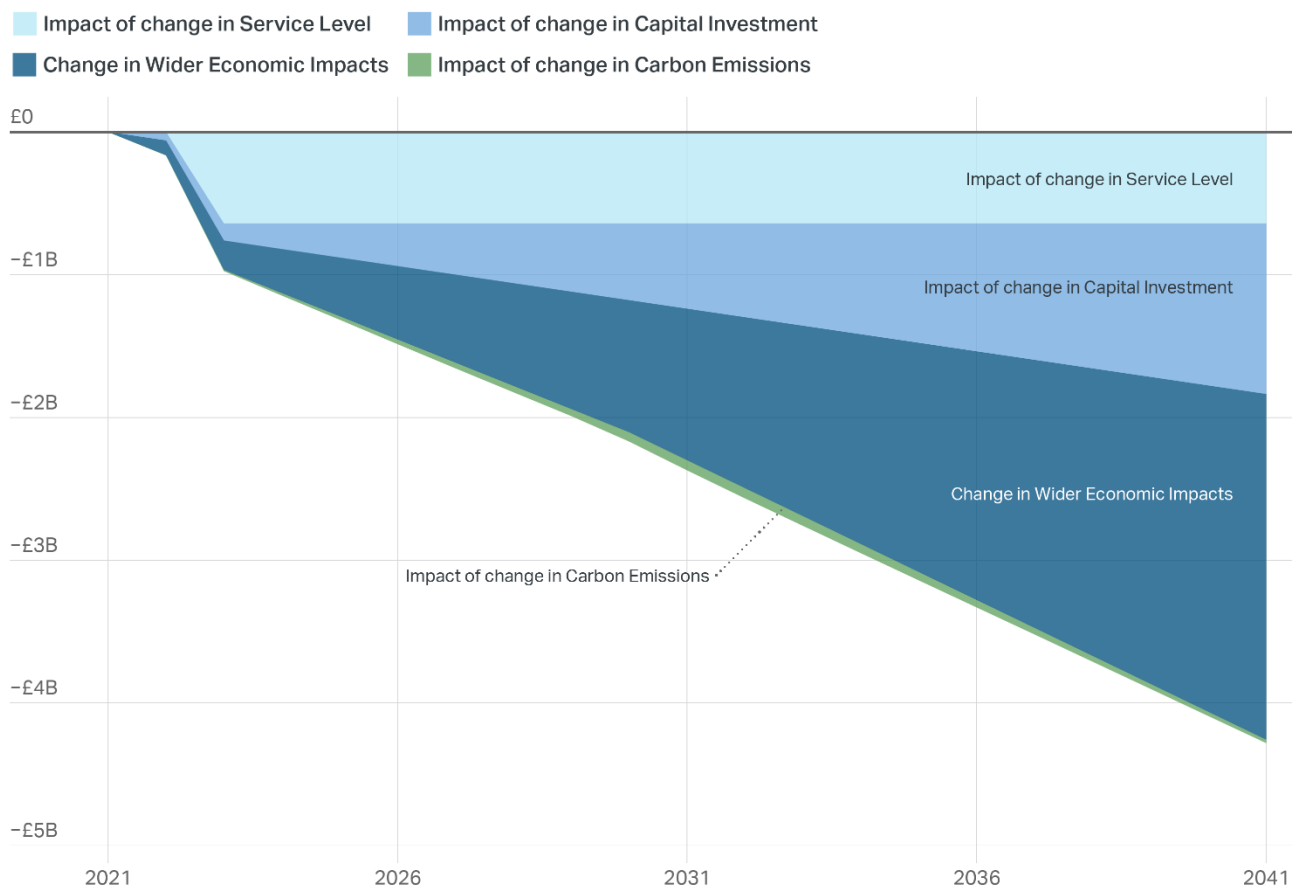
Table 2.1: Economic welfare impacts (present value in 2021 over a 10-year appraisal period, 2019 prices)

	Financially Constrained (current plans) to Managed Decline (severe reductions)	Policy Consistent (no change) to Managed Decline (severe reductions)
Transport user disbenefits (business and non-business)	-£7.3bn	-£9.8bn
Lost wider economic impacts: (fixed and variable land use)	-£4.5bn	-£4.5bn
Value of additional carbon emissions	-£0.3bn	-£0.6bn
Total economic welfare impact (excluding wider economic impacts)	-£7.7bn	-£10.4bn
Total economic welfare impact including wider economic impacts	-£12.1bn	-£14.9bn

Note: figures may not sum due to rounding.

- 2.7 Up to the financial year 2031/32, the additional funding required by TfL is estimated to be just under £6.9bn¹ in present value terms and 2019 prices. This funding would limit service changes to moderate reductions reflecting new demand patterns and would mean that the Financially Constrained capital scenario could be pursued rather than the Managed Decline scenario.
- 2.8 **Based on this high-level analysis and over the period to 2031, economic welfare disbenefits are estimated to exceed the additional funding by £5.2bn in present value terms and the indicative Benefit-Cost Ratio² is 1.75.** This assessment considers only economic impacts that can be modelled at this stage, and there would be significant further benefits in areas such as housing delivery and avoiding risks to London’s competitiveness, so this estimated value for money benchmark should be regarded as conservative.
- 2.9 This appraisal is only to 2031. Unless funding is restored the disbenefits from reduced capital expenditure (and hence net losses of economic welfare) are expected to rapidly increase over a longer time horizon (Figure 2.1)

Figure 2.1 Stacked time profile of undiscounted impacts of moving from the Financially Constrained to the Managed Decline scenario by category of impacts



¹ In outturn (nominal) prices and undiscounted the extra funding required is estimated to be £11.8bn to financial year 2031/32.

² This is essentially the Benefit-Cost ratio of moving from severely reduced services and Managed Decline capital investment levels to a moderate reductions in services reflecting new demand patterns and Financially Constrained capital investment.

- 2.10 Transport investments are also critical to unlocking sites for housing development and generate significant uplift in land values. TfL's Medium Term Capital Plan indicates that **155,000 fewer homes would be unlocked by 2031 under the Managed Decline scenario. It is estimated that this could equate to a £6bn - £9bn loss in potential land value uplift.**
- 2.11 While not modelled explicitly here, it is also evident that **the economic impacts related to the Managed Decline scenario would fall unequally across society, with a disproportionate burden placed on disadvantaged groups.** A clear example is the anticipated 18% reduction in bus services. Buses are London's most inclusive and affordable public transport option and are disproportionately relied on by people from various protected characteristics.

3 THE VIRTUOUS CIRCLE OF PUBLIC TRANSPORT INVESTMENT AND DANGER OF A MANAGED DECLINE

How far we've come

- 3.1 It is critical to remember just how far London's public transit system has come since the nadir of the mid-1980s. Three decades of progress has masked the long-term depopulation and disinvestment in the capital which had prevailed up to that point since the War.
- 3.2 The decline into the 1980s had been characterised by stop-start investment, wasteful short-term spending, a disempowered and disconnected leadership and demoralised operational staff, a focus on the car rather than public transport and unawareness of climate change. As a consequence, London's public transport network in the 1980s was moved above ground by 1950s diesel buses and below ground by Tube trains (Victoria and Jubilee lines excepted) built between 1938 and 1967. Bus routes were forced into short running due to staff shortages, passengers waited in long queues to collect pasteboard tickets from coin-operated payment systems, and platforms and trains were strewn with graffiti and litter. There was no Overground, no Oyster cards, and no DLR or Jubilee line extension.
- 3.3 Thirty years on, the neglected state of the network and the low esteem in which it, and by extension London, was held in the 1980s is already a distant memory. The lessons of that era and the long struggle back to world-leading status through long-term settled funding and investment on TfL's watch are a powerful cautionary tale as we face the aftershocks of the coronavirus epidemic preceded by diminishing capital investment since 2012.

Thirty years of improvement

- 3.4 The improvement in London's transport system since the 1980s, and particularly since TfL was established in 2000, is remarkable. As an illustration, between 2003/04, when London Underground was brought under TfL's control, and 2018/19, the last full financial year before the pandemic, annual passenger journeys on the tube increased by 42% from 948 million to 1,348 million. Over the same period annual passenger journeys on London buses increased by 30% from 1,702 million to 2,220 million.
- 3.5 These figures are indicative of a considerable shift since 2000 in the share of trips made within London by different transport modes, with relatively fewer trips made by cars and more made on public transport and by active travel (Table 3.1). Without this modal shift London's population, employment and economic growth over the past two decades would have led to great congestion, degradation of the environment, poorer quality of life and greater inequality of access to transport.
- 3.6 In short, sustained investment in public transport and active modes over this period was key to enabling London's growth and will remain so if the capital is to continue to prosper and contribute to UK economic growth.

Table 3.1: Modal shift in London from 2000 to 2019

Year	Share of trips		
	Car	Public transport	Active
2000	48%	27%	25%
2019	37%	36%	27%

Source: TfL, 2021, *Transport in London report*

3.7 These recent improvements are a clear validation of the added value provided by an integrated transport authority with a remit for long-term strategic planning and investment. They demonstrate the virtuous circle illustrated in Figure 3.1 by which investment in sustainable transport infrastructure, allied with supporting spatial development policies, results in a self-reinforcing cycle of sustainable growth and behaviour change that in turn strengthens the public transport authority’s financial sustainability, allowing it to continue investing in the network over the long term.

Figure 3.1: The virtuous cycle of public transport investment and sustainable growth



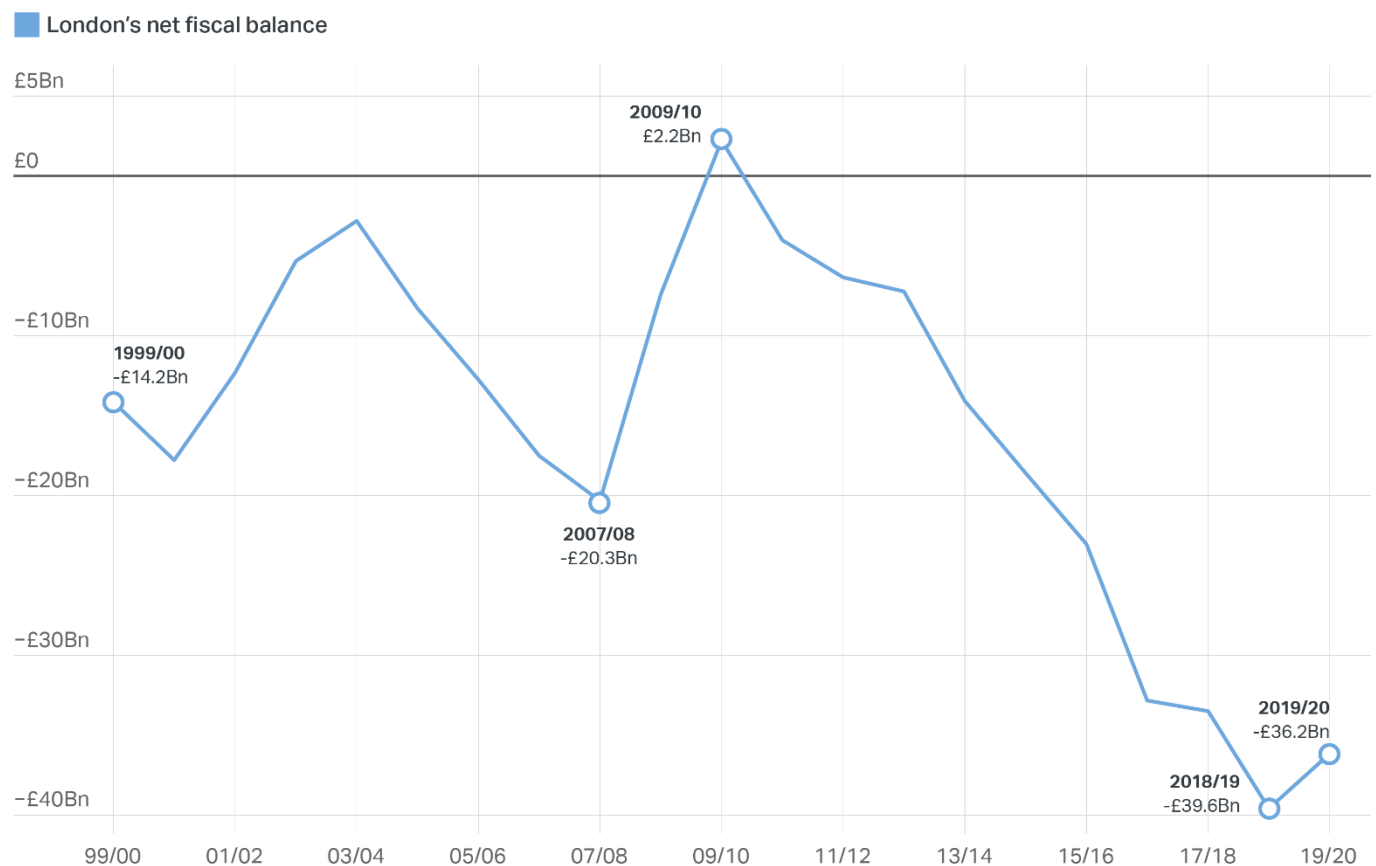
3.8 TfL’s broader value to the economy can be estimated in a number of ways:

3.8.1 **Agglomeration benefits** - London’s public transport network enables high employment density, which enhances business productivity. As an example, internal estimates suggest that London GVA per filled job was £79,586 in 2018. A simple average of other city regions was £49,349. If London

jobs were only as productive as those in the average UK city region, the UK would lose £172bn in output per year. It can be argued that TfL is essential for this level of agglomeration benefits.

3.8.2 **Surplus tax revenue for the UK** – the benefits of agglomeration flow back into the UK Treasury through tax revenue. The Office for National Statistics estimates that London creates an annual surplus of £36.2bn in tax revenue for the exchequer, in major part through jobs located in the Central Activity Zone.³ Figure 3.2 illustrates how this surplus contribution to the Exchequer has evolved over the past two decades (negative values indicate a surplus) and how London has been a net contributor in each year since the financial crisis. Earlier analysis on Crossrail 2 suggested that for every £1 raised in public transport revenue for the scheme, £2.50 would return to UK Government in other taxes.

Figure 3.2: London’s net fiscal balance over time, £bn



Note: Negative fiscal balances indicate a surplus, i.e. a net contribution from London to the Exchequer
Source: ONS, Country and regional public sector finances

3.8.3 **Other benefits** – public transport benefits accrue to a mix of users and the wider economy. Using Crossrail 2 as an illustrative example, TfL looked at a simplified test around central London journey

³ ONS. 2020. Country and regional public sector finances: financial year ending 2020.

times to see how benefits might be attributed. In both cases around 70% of benefits could be wider economic benefits to the UK economy.

- 3.9 Transport investment in London directly benefits communities across the country. A large economic chain, predominantly in the UK, is supported through TfL's operational and investment activity and would be vulnerable to its disruption. In London Underground alone, TfL supports 43,000 jobs, 68% of which are outside London. For example, new Elizabeth Line and London Overground trains support jobs in Derby; a £200 million new Piccadilly line train manufacturing facility is generating 700 skilled jobs in Goole in East Yorkshire; new railway track supports jobs in Scunthorpe; and Birmingham's precision engineers overhaul motors for LU. From every £1 spent on the LU investment programme, 55p goes to workers outside London. TfL's drive to deliver an entirely zero emission bus fleet by 2034, meanwhile, is supporting manufacturing jobs in Falkirk, Leeds and Ballymena.

Consequences of a Managed Decline

- 3.10 If adequate and long-term support is not provided it is inevitable that London's transport system will fall into a Managed Decline where the considerable progress achieved since TfL was established in 2000 would be gradually undone.
- 3.11 In this scenario, London would be likely to experience a car-led recovery with all the negative consequences that would entail for carbon emissions, air quality, risks to road users, congestion and other negative effects on the city's economy and quality of life. The reliability of our public transport services would decline, and this would directly work against the need to encourage passengers to return to public transport and support a vibrant office environment in central London. This is essential not only to support the London economy and TfL's finances but also to protect taxation receipts from London.

4 QUANTITATIVE IMPACTS

- 4.1 We have undertaken a high-level assessment of the economic welfare impacts of moving between three different scenarios outlined in TfL's Medium Term Capital Plan:
- **Policy Consistent** – this scenario assumes a level of capital investment required to align with national and regional policy. It is similar to the Mayor's Transport Strategy but defers some major schemes such as the Bakerloo line extension and Crossrail 2 into the 2030s and 2040s respectively. For the purposes of this analysis, public transport service levels in this scenario are assumed to be maintained at pre-pandemic levels.
 - **Financially Constrained** – this scenario broadly maintains recent levels of progress on enhancements, while meeting the basic long-term need to keep assets in a stable condition. This is not sufficient to meet the aspirations of regional or national policy, but this scenario would provide some limited improvements from current conditions. Public transport service levels are assumed to be reduced moderately to reflect new demand patterns, as outlined in TfL's Financial Sustainability Plan.
 - **Managed Decline** – TfL would be forced to retrench activities to focus almost exclusively on maintaining existing assets in a safe and operable state. Deep cuts to public transport service levels are assumed to take place
- 4.2 This assessment combines an analysis of the immediate impacts of the cuts to public transport service levels that would be required under Managed Decline with estimates of the impacts over time from highly constrained capital investment levels on both the public transport and highway network.
- 4.3 All the scenarios have been modelled on, or adjusted on the basis of, TfL's 'Hybrid' future year forecast (Box 4.1). This demand forecast accounts for long-term travel behaviour changes resulting from the pandemic, so that demand, while still growing over time, will be somewhat below pre-pandemic projections.

Box 4.1: TfL's Hybrid forecast

1 Explaining the Hybrid forecast

TfL undertook a scenario planning exercise that identified five scenarios to represent TfL's view of the range of future travel demand uncertainty. The Hybrid forecast reflects elements of these scenarios that appeared most plausible following a review of trends and evidence in early autumn 2021. Travel behaviour and trends continue to evolve rapidly, uncertainty remains high and the Hybrid forecast will be regularly updated. Some key features of the Hybrid 2031 forecast include:

- A London population growing to 9.5million (more than 9m estimated in 2019 but less than 10million projected for the London Plan)
- Commute trips rates fall by around 20% compared to pre-pandemic
- As a result of fewer commute trips, there are fewer shopping and leisure trips that don't start at home.

In the Hybrid forecast demand for travel increases well beyond levels currently seen so far in the recovery with total travel demand approaching pre-pandemic levels by 2031.

2 Weighting of previous analyses of reduced funding levels to reflect a Hybrid forecast

The forecasts that inform the economic assessment include some undertaken on the basis of the Hybrid demand forecast and some on the basis of pre-pandemic assumptions. An adjustment factor of 0.79 was applied to data based on pre-pandemic assumptions. This was derived by comparing the magnitude of generalised journey time impacts on public transport users of moving to a Managed Decline from a Financially Constrained scenarios (modelled on a fixed demand basis) using both Hybrid and pre-pandemic assumptions. E.g. $0.79 = \text{public transport user impact on Hybrid basis} / \text{public transport user impact on a pre-pandemic basis}$.

Impact of change in service levels

- 4.4 Table 4.1 shows the assessed impact of different degrees of short-term service level cuts. Service changes are expected to impact significantly from 2023 onwards.

Table 4.1: Economic welfare impacts of change in service levels in 2023 (Undiscounted, 2019 prices)

	Financially Constrained (current plans) to Managed Decline (severe reductions)	Policy Consistent (no change) to Managed Decline (severe reductions)
Transport user disbenefits (Business)	-£64m	-£70m
Transport user disbenefits (Non-Business)	-£577m	-£626m
Total economic welfare impact	-£641 m	-£695m

Note: figures may not sum due to rounding

- 4.5 The Financially Constrained package of service levels has been designed to reflect new demand trends and deliver necessary savings at a moderate level of impact to the economy and Londoners. By contrast, moving to the most severe level of service reductions would have a far bigger impact.
- 4.6 **Our modelling suggests that moving from the Financially Constrained to the Managed Decline scenario could lead to a loss of £641m in transport user benefits each year from 2023 (undiscounted).** This does not take account of the knock-on impact of increases in congestion on the highway network as a result of mode shift away from sustainable modes.
- 4.7 When added to the transport user benefits already foregone from moving away from Policy Consistent service levels, the annual disbenefits are close to £700m per annum (undiscounted) in 2023.

Impact of capital scenarios

- 4.8 Table 4.2 shows the assessed impact of the capital scenarios in TfL’s medium term capital plan. The impact grows over time as capital investment backlog affects TfL’s services. The annual impact is given for 2031.

Table 4.2: Economic welfare impacts of capital scenarios in 2031 (Undiscounted, 2019 prices)

	Financially Constrained (current plans) to Managed Decline (severe reductions)	Policy Consistent (no change) to Managed Decline (severe reductions)
Transport user disbenefits	-£598m	-£1,072m
Lost wider economic impacts: fixed land use	-£887m	-£887m ^(*)
Lost wider economic impacts: variable land use	-£1,061m	-£1,061m
Total economic welfare impact with variable land use	-£1,659m	-£2,133m

Note: figures may not sum due to rounding.

^(*) The wider economic impacts of policy consistent to managed decline have not been directly assessed and so this is a minimum figure. Work has been done to assess the loss of wider economic impacts from schemes that would form part of policy consistent scenario and these are given as an indication in table 4.7.

- 4.9 Moving from the Financially Constrained to the Managed Decline capital scenario is estimated to result in a loss of £598m in annual transport user disbenefits in 2031 – including business and non-business public transport and highway users. This impact would grow beyond 2031 as the backlog of capital expenditure affects service provision.
- 4.10 Transport has wider economic impacts on London’s economy. TfL has undertaken an indicative assessment using land use interaction modelling to assess the scale of impacts associated with degrading London’s transport network. This scenario is estimated to result in an additional £887m of wider economic impacts under the assumption of fixed land use, and £1,061m of wider economic impacts under the assumption of variable land use.
- 4.11 **The total economic welfare impacts of moving from the Financially Constrained to Managed Decline capital scenario in terms of lost transport user benefits and wider economic impacts could therefore be almost £1.7bn per annum in 2031.**
- 4.12 If the transport user disbenefits of moving away from the Policy Consistent scenario are included then the total economic welfare loss is estimated to be in excess of £2bn per annum by 2031 and would be expected to grow every year beyond that.
- 4.13 Even if the Managed Decline scenario is only pursued for a relatively short number of years, it would be extremely challenging to regain the levels of benefits provided by London’s transport system today. This is because the shortfall of funding in the preceding years would create a backlog of urgent repairs, renewals and upgrades that would drive considerable additional costs and inefficiencies.

Carbon impacts

- 4.14 TfL has also modelled the increases in carbon emissions that could arise from being unable to implement decarbonisation and other policies in the Mayor’s Transport Strategy.
- 4.15 Modelling in the Medium Term Capital Plan indicates that carbon emissions associated with road transport in London and TfL’s operations are c.250 ktonnes CO₂ equivalent (CO₂e) per annum, or 20%, lower in the Policy Consistent scenario in 2041 than in the Managed Decline scenario. This reduction is due to faster transition of TfL’s bus fleet to zero emission, increased action to decarbonise TfL’s rail services and increased mode shift from private car use to active, efficient and sustainable modes of transport.

Table 4.3: Carbon benefits by scenario to 2041

Assessment year	Scenario	Annual carbon emissions / tonnes CO ₂ equivalent	
		TfL operations	Private vehicles in London
2021		792,000	5,300,000
2025	Managed Decline	634,000	4,490,000
	Financially Constrained	535,000	4,480,000
	Policy Consistent	526,000	4,390,000
2030	Managed Decline	455,000	3,450,000
	Financially Constrained	161,000	3,410,000
	Policy Consistent	81,000	3,230,000
2041	Managed Decline	138,000	1,140,000
	Financially Constrained	24,000	1,100,000
	Policy Consistent	24,000	1,000,000

Source: TfL Medium Term Capital Plan Annex

- 4.16 The Policy Consistent Scenario delivers significant cumulative carbon reduction benefits in comparison to the Managed Decline scenario. The Financially Constrained scenario also delivers

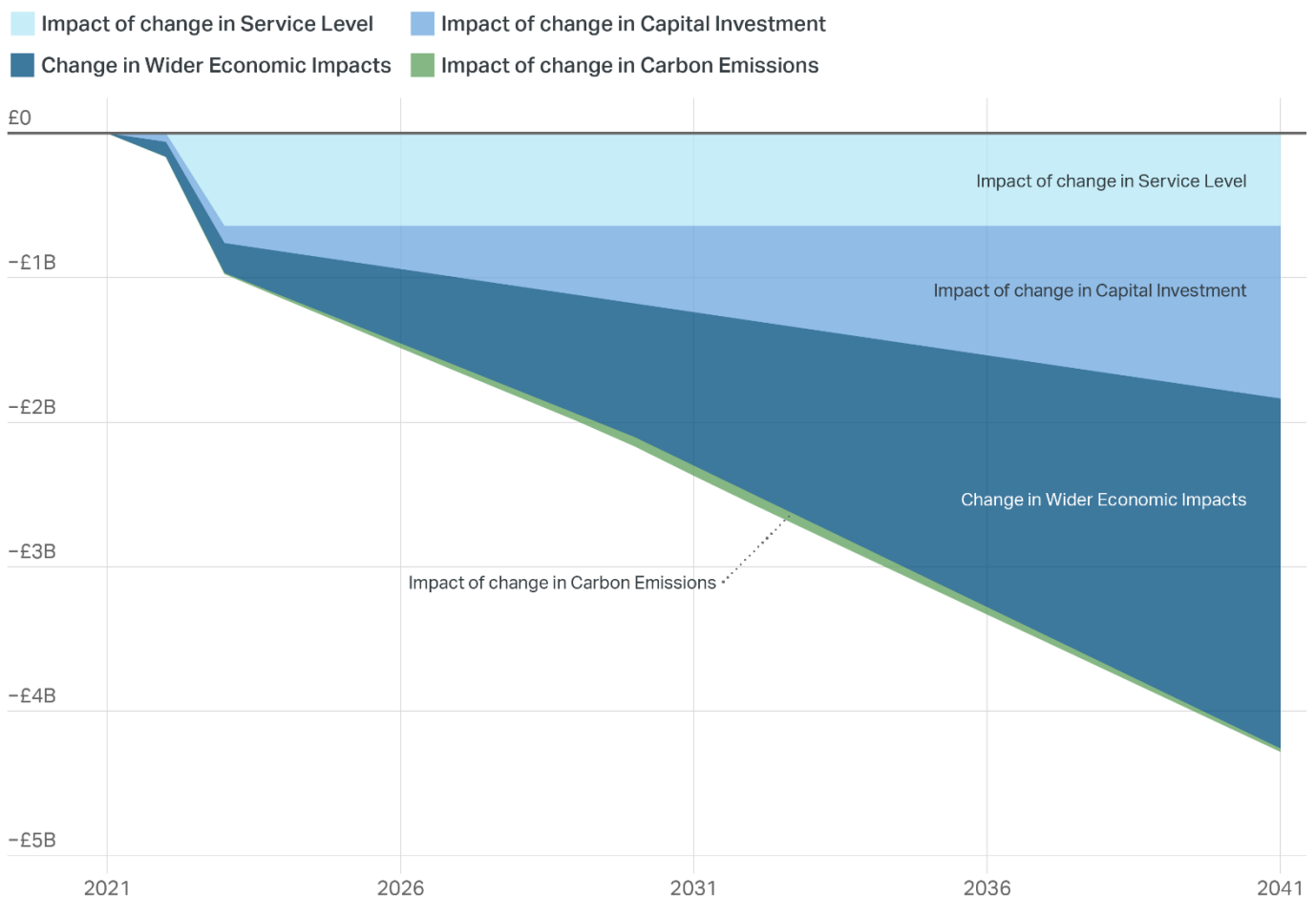
carbon reduction from transition to a zero emission bus fleet, but limited emissions benefits from modal shift.

4.17 The carbon reduction benefits have been monetised using latest Government values of the monetary value of one tonne of carbon dioxide equivalent (£/tCO₂e). **Moving from the Financially Constrained scenario to Managed Decline scenario is estimated to lead to a loss of £0.8bn of carbon benefits** over 20 years to 2041 in present value terms and 2019 prices. If the carbon benefits foregone by moving away from the Policy Consistent scenario are also included, then the loss is higher at almost £1.4bn over the same period and in present value terms.

Overall economic welfare impacts

4.18 Figure 4.1 shows the time profile of economic welfare impacts when moving from the Financially Constrained to the Managed Decline scenario and is consistent with the tables above. The impacts are for all user categories (business and non-business), that the impact of change in capital expenditure reflects public transport and highways impacts and that wider economic impacts are inclusive of variable land-use impacts.

Figure 4.1 Stacked time profile of undiscounted impacts of moving from the Financially Constrained to the Managed Decline scenario by category of impacts



- 4.19 It shows the immediate loss of benefits associated with service level reductions that tend to dominate the total loss of benefits until the mid-2020s, although the other impacts ramp up rather quickly and by 2025 onwards the sum total of loss of benefits from reduced capital expenditure and the (associated) loss of wider economic benefits exceeds the loss of benefits from service level reduction. By 2041 loss of benefits from investment in capital expenditure and loss of wider economic benefits dwarf the loss from service-level reductions with an annual undiscounted impact of more than £4bn per annum.
- 4.20 Tables 4.4 and 4.5 show the impact of the service and capital scenarios over a 10-year appraisal period (2021-2031) in present value terms discounted using the Treasury's standard rate of 3.5% and in 2019 prices.

Table 4.4: Economic welfare impacts (Present value in 2021 over a 10-year appraisal period, 2019 prices)

	Financially Constrained (current plans) to Managed Decline (severe reductions)	Policy Consistent (no change) to Managed Decline (severe reductions)
Transport user disbenefits	-£7.3bn	-£9.8bn
Lost wider economic impacts: fixed land use	-£3.7bn	-£3.7bn
Lost wider economic impacts: variable land use	-£4.5bn	-£4.5bn
Value of additional carbon emissions	-£0.3bn	-£0.6bn
Total economic welfare impact (excluding wider economic impacts)	-£7.7bn	-£10.4bn
Total economic welfare impact with fixed land use	-£11.4bn	-£14.1bn
Total economic welfare impact with variable land use	-£12.1bn	-£14.9bn

Note: figures may not sum due to rounding.

- 4.21 Moving from the Financially Constrained to the Managed Decline capital scenario combined with severe reductions in service levels is estimated to result in a loss of £7.3bn in transport user benefits.
- 4.22 In the Managed Decline scenario we have also modelled the potential wider economic impacts with either fixed or variable land use. With fixed land use, the effects largely relate to static agglomeration benefits that would be lost from minimal capital investment. These lost static agglomeration benefits are estimated to amount to £3.7bn.
- 4.23 With variable land use, dynamic agglomeration benefits also occur in the modelling, allowing for the effect of firms clustering together due to improved transport. Taken together both static and dynamic agglomeration impacts lost could amount to £4.5bn in the Managed Decline scenario.
- 4.24 Bringing the analysis above together (and also allowing for the costs of increased CO₂ emissions set out in the relevant section below), **the total economic welfare impacts to London from moving from a Financially Constrained to a Managed Decline scenario could be over £12bn over ten years in present value terms when transport user disbenefits, wider economic impacts and carbon impacts are included.**
- 4.25 If the losses from moving away from the Policy Consistent scenario are also included in the analysis then the total economic welfare impact is almost £15bn over ten years in present value terms.

Comparison of welfare impacts and funding requirement

- 4.26 The additional funding required in the Financially Constrained scenario over the Managed Decline scenario is estimated to be £11.8bn in outturn prices and undiscounted to financial year 2031/32, This covers gross capex increase between scenarios, third party funding and maintenance impacts to be netted off against the gross capex, additional opex from bus electrification, and the net impact of service levels. When discounted and put in 2019 prices the funding requirement between the two scenarios is £6.9bn.
- 4.27 **Based on this high-level analysis and over the period to 2031, economic welfare disbenefits including wider economic impacts are estimated to exceed the additional funding by £5.2bn in present value terms and the indicative Benefit-Cost Ratio is 1.75.**
- 4.28 It should be noted that these estimates do not assume any revenue benefit of the capex, as these cannot be estimated with confidence at this stage. Net revenue impacts are in any case regarded to be unlikely to be large enough to make a substantial difference over the period to 2031.
- 4.29 This appraisal is only to 2031. Unless funding is restored the disbenefits from reduced capital expenditure (and hence net losses of economic welfare) are expected to rapidly increase over a longer time horizon (Figure 4.1).

GDP and fiscal impacts

Table 4.5: Illustrative GDP and fiscal impacts (Present value in 2021 over a 10-year appraisal period, 2019 prices)

	Financially Constrained (current plans) to Managed Decline (severe reductions)		Policy Consistent (no change) to Managed Decline (severe reductions)	
	GDP loss	Tax loss	GDP loss	Tax loss
Business user impacts	-£0.9bn	-£0.3bn	-£1.8bn	-£0.6bn
Business user + Wider economic impacts (fixed land use)	-£4.6bn	-£1.6bn	-£5.6bn	-£1.9bn
Business user + Wider economic impacts (variable land use)	-£5.4bn	-£1.8bn	-£6.3bn	-£2.1bn

Note: figures may not sum due to rounding.

- 4.30 In addition to estimating the welfare economic impacts, illustrative GDP impacts have been derived on the basis that the value of the time savings to business users is equivalent to losses in productivity and output. To these are added the wider economic impacts assumed to be lost with either fixed land use or variable land use in the Managed Decline scenario.
- 4.31 An illustrative estimate of the loss in tax revenues for alternative scenarios is also provided based on the ratio of tax revenue to GDP in the UK². As with the economic welfare impacts, both sets of estimates are being presented in present value terms over a 10-year appraisal time horizon (Table 4.5).
- 4.32 **Moving from the Financially Constrained to Managed Decline scenario is estimated to result in a loss of £0.9bn in GDP from business users, growing to £4.6bn when wider economic impacts with fixed land use are included and to £5.4bn when variable land uses are included. The loss in tax revenues could be up to £1.8bn in this scenario.**
- 4.33 If the losses from moving away from the Policy Consistent scenario are included then the GDP loss is estimated to be £1.8bn, growing to £5.6bn when considering fixed land use effects and £6.3bn with variable land use impacts. Tax revenues lost from moving from Policy Consistent to Managed Decline could be as high as £2.1bn.

Housing impacts

- 4.34 The worsening shortage of housing in London has resulted in prices and rents rising rapidly, with more than a quarter of Londoners including 38% of children in London living in poverty once housing costs are taken into account. In 2016, the average private rent for a one-bedroom home in London was more than the average for a three-bedroom home in every other English region.
- 4.35 Rising housing costs also risk deterring talented incomers and pricing out existing workers. A survey by Fifty Thousand Homes and Grant Thornton found that 84% of businesses in London believe that its high housing costs and housing shortage pose a risk to its economic growth, while 72% are concerned about the impact on their staff recruitment and retention and 21% are so concerned that they think they might need to relocate their business to cope with these pressures. According to the London Chamber of Commerce, 59% of London businesses report high housing costs leading to greater pressure to increase wages.
- 4.36 TfL’s Medium Term Capital Plan identified the potential impact on housing delivery associated with different capital scenarios. Table 4.6 shows that the potential number of homes over the next five years would reduce by 37,000 moving from the Financially Constrained to the Managed Decline scenario and by up to 155,000, comparing the Policy Consistent scenario in 2031 to Managed Decline.

Table 4.6: Development support potential from TfL Growth Fund and Housing Infrastructure Fund schemes by scenario

Scenario	Development unlocking potential to 2026 (homes)	Development unlocking potential to 2031 (homes)
Managed Decline	18,000	18,000
Financially Constrained	55,000	123,000
Policy Consistent	55,000	173,000

- 4.37 Indicative land value uplift analysis was available for a representative major project in East London. Initial estimates from the East London project suggest £1.8bn of net discounted land value uplift for 28,000 gross/ 20,000 net additional dwellings and some related employment space. (Source AECOM 2021). Taking a rounded down figure of around £60,000⁴ per home, indicates around £6-9bn of lost land value uplift associated with not progressing these schemes.
- 4.38 These figures are so large because transport is crucial to unlocking sites in London and TfL’s contributions to transport improvements are often match funded by developers, leading to an

⁴ Values of land in this part of London are likely to be at the lower end of the market so this could be considered a conservative estimate.

oversized economic impact. Substantial potential contributions from developers and other stakeholders will be lost if TfL is unable to commit to its share of scheme funding.

Longer-term impacts: foregone benefits from cancelled major capital schemes

- 4.39 In the Managed Decline scenario TfL would also not be able to proceed with a range of proposed major capital investment schemes designed to improve transport connectivity and unlock much needed housing in the long-term.
- 4.40 TfL’s medium term capital plan has identified impacts on four schemes in particular which have had recent economic assessments. This is a non-exhaustive list of some of the major schemes that would be unlikely to proceed under Managed Decline. The Bakerloo line extension and Crossrail 2 would not happen at all within the time horizon of the plan, being considered later in 2030s and 2040s respectively if money were available. This would also be the case in a Financially Constrained scenario. The West London orbital would also not be developed until at least the 2030s. The Piccadilly line upgrade would also not go ahead under Managed Decline.
- 4.41 Table 4.7 summarises the scale of welfare economic benefits anticipated to be foregone if these schemes are not delivered. These schemes were assessed within a Policy Consistent Scenario but assumed to be implemented by 2041.

Table 4.7: Welfare economic benefits foregone from cancelled major capital schemes (adjusted to 2019 prices)

Scheme	Time horizon	Net present value (excluding wider economic impacts)	Net present value (including fixed land use (Level 2 wider economic impacts))
West London Orbital	60 years	£153m – 517m	£804m - £1,043m
Bakerloo Line extension to Lewisham	40 years	£2,484m - £5,418m	£3,912m - £6,845m
Piccadilly Line signalling (inc. Holborn station upgrade)	40 years	£2,880m - £4,593m	£6,572m - £9,516m
Crossrail 2	60 years after opening	£5,648m	£17,771m

Socioeconomic impacts

- 4.42 An affordable and reliable public transport network is essential to provide disadvantaged households with connectivity and opportunities. In addition to the economic impacts detailed above

the proposed severe service level cuts and Managed Decline investment scenario would result in a less inclusive public transport network, with the burden of reduced investment sitting disproportionately on disadvantaged groups. The negative consequences of this scenario work against aspirations for better social inclusion identified in the Mayor's Transport Strategy and elsewhere including the National Disability Strategy.

- 4.43 The clearest example of this is in the likely impacts on the bus network. Buses are our most inclusive public transport mode – affordable, accessible and used by all types of Londoners. 59% overall of Londoners travelled by bus at least once a week pre-pandemic, and these figures were higher for people on low incomes and all protected characteristics for which we have data, except people who are disabled. Buses are crucial in providing connectivity (for example children getting to school, and residents to local amenities), provide capacity particularly on thousands of links including where there isn't a rail alternative, as well as providing interchange with the wider network.
- 4.44 Under the Managed Decline scenario bus service levels would be cut by 18%, with potentially over 100 routes withdrawn entirely. In addition, TfL would be forced into a reactive-only approach to safety spending and asset renewals, poorer road conditions and more car trips would lead to longer bus journey times, and there would be no acceleration in the switch to zero emission buses. These factors would combine to make buses a less attractive and practical option for Londoners, with particular impacts on those disadvantaged groups who rely on them the most.
- 4.45 Managed Decline capital expenditure would directly impact the accessibility of the public transport network to disabled Londoners, 84% of whom report that their disability limits their ability to travel. TfL's work to increase the proportion of its network that can be accessed step-free would completely cease, while reduced renewals would result in a higher frequency of the lift and escalator failures that can often prevent those who depend on them from travelling at all.
- 4.46 Moving to Managed Decline capital expenditure would stop all investment on active travel, including making junctions safer for vulnerable users and improving conditions for walking. This would help to lock-in a car-based recovery that would exclude groups who are less likely or able to have a driving licence and own a car. The combination of busier roads, more hostile walking environments, and fewer public transport options to shift to would likely result in higher rates of social exclusion.
- 4.47 Overcrowded services are a further deterrent to travel. Reducing public transport service in a way that increases crowding beyond tolerable levels would disproportionately affect those with disabilities or elevated vulnerability to viral infection.

5 INTERNATIONAL COMPARISONS

- 5.1 Among transport authorities of global cities, TfL is uniquely reliant upon fares revenues to support its operations and capital investment (see Table 5.1). In addition to restricting necessary investments in the network, this lack of alternative funding sources meant that TfL’s finances were particularly vulnerable when ridership was decimated during the pandemic.
- 5.2 The case studies below illustrate how the funding arrangements for the transport authorities of Paris and New York, and in particular their ability to draw funding from dedicated tax revenues and cross-subsidies, make them less dependent than TfL in normal times on ongoing government support.
- 5.3 Nevertheless, both authorities required emergency support as their ridership plummeted during the pandemic and we can draw lessons from the form and quantity in which this support was provided. In particular, the \$10.4 billion in grant funding that New York City’s MTA expects to receive in total from the US federal government means that it now has medium-term certainty with which to plan and can forego a previously anticipated fares increase at a delicate point in the city’s recovery from the pandemic.
- 5.4 In contrast, Paris’ IDFM received emergency support in the form of a 15-year loan, which creates an additional burden on the authority’s long-term financial sustainability.

Table 5.1: Summary of IDFM, MTA and TfL funding structures, covering both operating and capital accounts

	Paris (IDFM)	New York City (MTA)	London (TfL)
Annual budget (2019)	€10.5 bn (£9.2 bn)	\$16.7 bn (£13.1bn)	£9.8 bn
Funding	Fares income (37%) Regional grant funding (16%) Employment tax (43%) Other income (4%)	Fares income (38%) State & Local subsidies (8%) Toll revenue (12%) Dedicated taxes (36%) Other revenues (7%)	Fares income (49%) Grants (23%) Other income (19%) Borrowing/cash reserves (8%)
Borrowing	c€3.5 bn	c\$45 bn	£11.7 bn

PARIS: ÎLE-DE-FRANCE MOBILITÉS (IDFM)

Summary

IDFM is the public transport authority that controls and coordinates public transport operators in the Paris area and in the rest of the Île-de-France region. IDFM sets fares and level of subsidies and pays operators for the provision of services. National Government transferred its powers to the Ile-de-France authorities in 2004. IDFM reports to the IDFM regional authority and has weak links with the Mayor of Paris.

To date, IDFM has been able to secure short-term funding support from the French Government to cover revenue losses resulting from the COVID pandemic in the form of repayable loans. This was provided by the Government after IDFM suspended its payments to state-owned operating companies RATP and SNCF due to lack of funds.

While IDFM has required emergency support as a result of the pandemic, its ability to draw funding from a dedicated tax revenue (*versement mobilité* - employment tax) means that IDFM is otherwise relatively independent of central Government funding. The provision of short-term COVID-related funding support in the form of a loan is highly undesirable as it puts the long-term financial sustainability of the public transit authority at risk.

COVID support

- As at September 2021 public transport demand had plateaued at 80% of pre-COVID levels, while car traffic was above pre-COVID levels
- Projected fares income loss as a result of COVID for 2020 was €1.2-1.6 billion. IDFM sought central Government support and secured a funding deal in September 2020 for €1.5bn subsidy repayable over 16 years to cover revenue losses, including from *versement mobilité*. IDFM Secured €1.074bn in Government loans in September 2021 as compensation for revenue losses in 2021.
- While there was tension between regional and national Government over the terms of the bail-out package, there was clear joint support for long term investment.

NEW YORK CITY: METROPOLITAN TRANSPORTATION AUTHORITY (MTA)

Summary

MTA is the public transport authority for the New York City metropolitan area. It was established in 1965 under the New York Public Authorities Law. MTA is a public benefit corporation and a component unit of the State of New York reporting to the Governor. It sets and collects fares.

MTA receives a share of local taxes levied by both NY city and state in addition to receiving a cross subsidy from tolls on road tunnels. The ability to draw funding from dedicated tax revenues means that MTA is relatively independent of federal Government funding, unless in an emergency.

The MTA is an example of a public transport authority that found a medium-term solution to the funding issues created by the COVID-19 pandemic. A significant federal support programme has provided grant funds to replace lost revenues, with certainty through to 2024. This reflected an understanding at federal level of the funding needed to support MTA during any emergency (precedents exist, e.g. post-9/11 and post Storm Sandy).

COVID support

- According to McKinsey, fares income loss as a result of COVID was \$8.9 billion to end 2021. Further loss of \$1.6 billion through fall in revenue from tax receipts.
- MTA secured \$6.5 billion of federal funding in March 2021 through the American Rescue Plan Act (ARPA). In total MTA is expecting to secure \$10.5 billion from the federal government and the funding will last to 2024, thus providing medium-term certainty. As a result, MTA is also able to forego a fares increase in 2021.
- Very few oversight conditions attached to funding because COVID-related support is seen as priority.
- Funding needs were identified using a mixture of simple financial analysis of the gap between O&M costs and fares due to COVID-19. Main conditions attached to the funding were: retention of staff (key issue), prioritising of spend on staff costs, additional cleaning/safety investment and information provision. The main funding oversight condition is self-audit to meet overall objectives and priorities of the CARES/ARP Acts.

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