DECEMBER 2019

Inquiry into Expanding Melbourne's Free Tram Zone

Infrastructure Victoria Submission

INFRASTRUCTURE VICTORIA

About us

Infrastructure Victoria is an independent advisory body, which began operating on 1 October 2015 under the *Infrastructure Victoria Act 2015*.

Infrastructure Victoria has three main functions:

- preparing a 30-year infrastructure strategy for Victoria, which is refreshed every three to five years
- providing written advice to government on specific infrastructure matters
- publishing original research on infrastructure-related issues

Infrastructure Victoria also supports the development of sectoral infrastructure plans by government departments and agencies.

The aim of Infrastructure Victoria is to take a long-term, evidence-based view of infrastructure planning and raise the level of community debate about infrastructure provision.

Infrastructure Victoria does not directly oversee or fund infrastructure projects.

About this Submission:

This submission responds to the Legislative Council's Economy and Infrastructure Committee's Inquiry into Extending Melbourne's Free Tram Zone.

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1. Introduction

Infrastructure Victoria (IV) welcomes the Legislative Council's Economy and Infrastructure Committee's Inquiry into Extending Melbourne's Free Tram Zone. We thank the Committee Secretary for his invitation to submit to the Inquiry. IV continues to conduct research on pricing in Victoria's transport system as we work towards updating *Victoria's 30-year Infrastructure Strategy*.

IV's research finds appropriate pricing can make transport infrastructure more effective. We have published steps to improve Victoria's public transport system, and the road network's capacity to support growing use of electric and automated vehicles.

This submission responds to certain issues in the Inquiry's terms of reference. We begin by outlining the benefits of prices in managing the performance of the transport network. We consider the technological improvements in the transport system, the equity effects of free fares for seniors and students and expanding the free tram zone.

2. Pricing improves transport network performance

2.1 Pricing helps manage demand

Infrastructure Victoria has consistently recommended strategic, integrated approaches to improve pricing of Victoria's transport networks. We outline the benefits in our advice to the Victorian Government, including in *Victoria's 30-year infrastructure strategy,*[1] *The Road Ahead*[2] and the *Five Year Focus: Immediate actions to tackle congestion*.[3]

Changes to pricing can help Victoria get better use from our existing transport infrastructure, improving people's travel options while providing less congestion and faster journeys to valuable destinations. One of our guiding principles is to consider non-build solutions first. Pricing is one tool for better managing our existing transport system and getting the most out of existing assess, rather than relying solely on major construction projects to produce better outcomes.

Evidence shows that pricing can be one of the most effective tools for managing demand.[4] Prices can provide clear signals to people about the impact of their behaviour on other travellers and the transport network's performance.[5] When prices reflect the relative impact of additional trips, such as having higher prices when the network experiences congestion, people can change their behaviour to benefit themselves, the network and other travellers. For example, people can shift their transport use to less congested times, saving money and reducing congestion. Good pricing structures can also help provide more accurate information on the locations new infrastructure may be most needed.

Efficient transport networks allow people to travel at times, to places and by modes that provide the greatest benefits to society, relative to the costs. Economic efficiency is achieved when the right amount of a good or service is provided to the right people (allocative efficiency) and produced in the most cost-effective way (productive efficiency). Providing services at the lowest cost, to the people who can most benefit, can create the largest benefits for society.

From an overall social welfare perspective, the optimal public transport price is when the cost of adding an extra passenger is equal to the benefits of the extra journey. The costs can include expenditure on operating extra services, spending on extra infrastructure, or the detriment of crowding, while the benefits can include reduced road congestion, the value of journey for the passenger, and environmental benefits such as cleaner air and fewer greenhouse gas emissions.

If fares are too expensive, they can make society worse off through lost trips and increased road congestion. Public transport can reduce road congestion by discouraging people from driving on congested roads. Conversely, very low fares can make society worse off through unnecessary crowding and expensive over-investment in infrastructure to meet extra demand. Governments can provide too much public transport, at the wrong times, at too cheap a price, making society worse off. For example, if heavily subsidised public transport encourages people to reduce their walking and cycling trips, governments are paying heavily to displace cheaper, healthier journeys.

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[1] *Victoria's 30 Year Infrastructure Strategy, Infrastructure Victoria, 2019* https://www.infrastructurevictoria.com.au/wp-content/uploads/2019/03/IV_30_Year_Strategy_WEB_V2.pdf

[2] *The Road Ahead: How an efficient, fair and sustainable pricing regime can help tackle congestion, Infrastructure Victoria 2016* https://www.infrastructurevictoria.com.au/wp-content/uploads/2019/04/The-road-ahead-final-web.pdf

[3] *Five year Focus: Immediate actions to tackle congestion, Infrastructure Victoria 2018* https://www.infrastructurevictoria.com.au/wp-content/uploads/2019/04/Five-year-focus-Immediate-actions-to-tackle-congestion-April-2018.pdf

[4] *Austroads (1994), Travel Demand Management Guidelines. Grattan (2019), Why it's time for congestion charging. McMillan (2003), Rethinking the bazaar. Infrastructure Victoria (2016), The Road Ahead.*

[5] *The Road Ahead: How an efficient, fair and sustainable pricing regime can help tackle congestion, page 37*

2.2 The costs and benefits of public transport vary by time and mode

Once a public transport service is at capacity, such as on a train line, running extra services can be very expensive, requiring large investments in new infrastructure. This usually first occurs in peak periods. In this way, peak hour services can be the most expensive to expand. At the same time, encouraging public transport use during peak periods most reduces road congestion. Public transport benefits and costs can also vary by transport mode.

Good pricing can help balance these costs and benefits. On average, trains can provide the highest benefits at high costs, while trams and buses provide lower benefits at lower costs.[6]

A fare system capturing this information would likely include different peak and off-peak train and tram fares,[7] while potentially providing lower tram and bus fares, due to their lower costs and shorter trip distances.

At the right price, every passenger is incentivised to make trips whose total benefits meet or exceed their total costs, maximising benefits to everyone.

For example, our modelling in *Five Year Focus* demonstrated lower off-peak fares shift travellers from peak to off-peak times, and from cars to public transport.[8] Without different peak and off-peak prices, people will tend to crowd onto peak services, leaving spare capacity in off-peak periods. This increases public transport costs, crowding, and congestion. It can also reduce service reliability as it strains to cope with crowding during peak periods.

2.3 Public transport pricing should be transparent

Governments seek to achieve multiple objectives when setting public transport fares. These can include managing demand, equity and affordability, and cost recovery. In Victoria, our research has found fare-setting objectives are not clearly articulated.[9] Victoria's fare setting can be more transparent and consultative, and better align with other government frameworks and guidelines. We believe New South Wales has a more transparent and evidence-based approach, as an independent pricing regulator determines maximum fare increases and regulates prices charged for access to rail infrastructure.[10]

IV plans on undertaking further research into pricing reform to inform the update *of Victoria's 30-year infrastructure strategy*.

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[6] *NSW Independent Pricing and Regulatory Tribunal - marginal benefits, Review of external benefits of public transport, 2014, page 8* https://www.ipart.nsw.gov.au/files/sharedassets/website/trimholdingbay/review_of_external_benefits_of_public_transport_-_december_2014.pdf *and External benefits and costs, Draft Information Paper 8, 2014* https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/pricing-reviews-transport-services-publications-review-of-public-transport-fares-in-sydney-from-july-2016/external_benefits_and_costs_-_public_transport_fares_draft_report_-_ip_8.pdf

Marginal costs: Medium-run marginal financial costs (MFC), Final Report –Information Paper 5, 2016 https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/pricing-reviews-transport-services-publications-review-of-public-transport-fares-in-sydney-from-july-2016/medium-run_marginal_financial_costs_-_public_transport_fares_final_report_ip_5.pdf, *and Long run marginal social cost for public transport, Draft Information Paper 9, 2016* https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/pricing-reviews-transport-services-publications-review-of-public-transport-fares-in-sydney-from-july-2016/long-run_marginal_social_costs_-_public_transport_fares_draft_report_-_ip_9.pdf

[7] *as recommended in Five year Focus: Immediate actions to tackle congestion*

[8] *Five year Focus: Immediate actions to tackle congestion, page 30*

[9] *Ibid, page 6*

[10] *Ibid, page 46.*

2.4 Pricing affects investment

Pricing also affects investment decisions. If prices do not help people choose travel patterns that maximise the best use of the overall transport system, then crowded services may magnify demands for earlier and larger infrastructure construction than otherwise necessary. By encouraging people to use the network's full capacity, pressure to build unnecessary infrastructure can be eased. With good prices, gathering public transport demand data can provide stronger evidence for further investment, helping identify necessary infrastructure in appropriate timeframes.

2.5 Combining pricing with new technology can improve network performance

In *Victoria's 30-year infrastructure strategy,* IV recommended upgrading and expanding advanced traffic management systems,[11] and re-allocating road space to more efficient uses.[12] We can improve the operation of our existing transport network by using technology to manage flows on transport network, including tools such as lane use management, access ramp signalling, close-circuit television (CCTV), variable messaging signs and mode priority.

Getting the best use of our transport network relies on making good decisions on the priority use of road space, including balancing private vehicle traffic flow with priority for buses and trams, active transport and parking.

Dynamic pricing is pricing that changes in real time as transport network conditions change. They can significantly improve efficiency in transport networks, including public transport. Dynamic pricing is already used extensively in non-government transport services such as air travel and commercial passenger vehicle services. For example, ride-sourcing company Uber monitors demand in real time and changes prices accordingly, often known as surge pricing. It is also used to manage road congestion internationally on tollways.[13] Dynamic pricing means people can make informed decisions about their transport options and costs, while congestion can be actively managed on the network by reducing demand in real time.

However, implementing dynamic pricing for public transport faces some barriers, including public acceptance and technology. Dynamic pricing can be popular in periods of low demand when prices are inexpensive, and people feel they have received a discount or bargain. However, at times of high demand with high prices, people can feel exploited, especially if their travel is urgent and they have few other travel options, or they planned their trip earlier believing prices would not increase.

While dynamic pricing is efficient economically, many people have advocated limiting the practice.[14] People have historically faced set fares for government-provided public transport trips, and changing their expectations to accept less predictable, real-time fare pricing may be difficult. Sourcing and delivering the technology for dynamic pricing would also require significant investment.

The Victorian Government can deliver many of the advantages from dynamic pricing by using its underlying principles, such as fares that vary according to typical daily demand in public transport use. While technically not dynamic pricing, this similarly manages crowding, while still providing price certainty, and needs less expensive new technology. Different fares at different times of day can prepare people to understand dynamic pricing's benefits, as it becomes more technologically feasible in the future.

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[11] *Victoria's 30 Year Infrastructure Strategy, Infrastructure Victoria, 2019, Recommendation 10.6.2, page 126*

[12] *Ibid. Recommendation 10.6.3, page 126*

[13] *Responses to complex pricing signals: Theory, evidence and implications for road pricing P. Bonsall et al. / Transportation Research Part A 41 (2007), pages 675–676*

[14] *https://www.abc.net.au/news/2017-07-18/victorian-government-to-ban-uber-surge-pricing/8719700*

2.6 For maximum benefits, the whole transport system needs to be considered

More broadly, IV's research shows changing what we pay for transport offers the best prospect of reducing congestion and broadening people's travel choices.[15] Public transport fares are one element of this. We recommend pricing other parts of the transport network too, like roads.[16] Transport pricing would help ensure investment in transport infrastructure provides the greatest benefits to the most Victorians. Our research has consistently argued that the most effective action government can take would be to implement an integrated pricing system for the entire transport network (roads, public transport and parking) that is comprehensive, efficient and equitable.[17]

[15] *Community Panel Background Paper, Infrastructure Victoria February 2019, page 22* https://www.infrastructurevictoria.com.au/wp-content/uploads/2019/04/Infrastructure-Victoria-Community-Panel-Background-Report-February-2019.pdf

[16] *Victoria's 30 Year Infrastructure Strategy, Infrastructure Victoria, 2019 Recommendations 10.2.2, 11.2.2 and 13.1.2*

[17] *Ibid.*

3. Transport pricing and access affect equity

3.1 Targeted concessions can improve equity

In setting public transport fares, governments need to balance the network efficiency with its social equity consequences. IV believes the primary objective of transport pricing should be to manage demand, rather than to recover costs. Efficient pricing should also minimise transport disadvantage.[18] Public transport pricing can support both social equity and more effective transport network use.

Our community research found Victorians believe social equity is an important goal for transport pricing. In early 2019, IV convened a community panel to consider the conditions under which Victorians would accept transport pricing changes. The panel emphasised people should not be disadvantage by location, and pricing should be simple, transparent and provide options. They specified a safety net should exist for concession holders, for those with limited ability to pay for reasons substantially outside of their control, and for Victorians living in regional and rural areas. Panellists also emphasised the importance of ensuring accessibility for all members of the Victorian community.[19]

Well targeted concessions can effectively improve equity. Victoria already provides concession fares to Health Care Card holders, students, pensioners and Seniors Card holders, as well as to other low-income travellers such as people with a disability, carers, children, veterans, and asylum seekers. Some of these people can also be eligible for a free travel pass.

To produce good social equity outcomes, a well-designed concession scheme closely matches concessions with a person's ability to pay. It will try to carefully target those with less ability to pay for transport, while not extending to people who can afford to pay full fares. Concessions can negatively affect equity if poorly targeted. For example, when concessions are granted to groups with a mixture of high and low incomes, while excluding other people living on low incomes.

In isolation, free transport for seniors and students is potentially poorly targeted. HILDA data demonstrate that this method of targeting concessions reaches less than 60% of the lowest income Victorians (the bottom fifth by income). The remaining 42% would still be required to pay for their public transport trips (Figure 1).

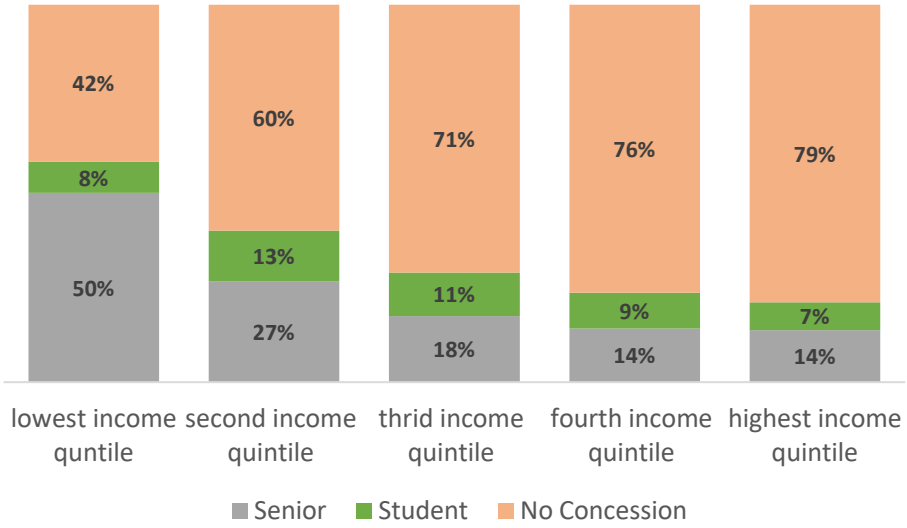
While students and seniors are typically on lower incomes, some have quite high incomes. Free travel would be awarded to the 11% of seniors earning more than $80,000 each year (approximately the median national income), and 37% of seniors are in the upper three income quintiles.

The data demonstrates large numbers of people on low incomes are excluded from the proposed free fare. This means many people living on low incomes cannot access free fares (such as the unemployed, or those with a disability), while many people with higher incomes can travel for free.

[18] *Five year Focus: Immediate actions to tackle congestion, Infrastructure Victoria 2018, Page 47*

[19] *Community Panel Background Paper, Infrastructure Victoria February 2019, and Community Panel Final Report, Infrastructure Victoria March 2019, https://www.infrastructurevictoria.com.au/wp-content/uploads/2019/04/IV-Transport-Network-Pricing-Community-Panel-Report.pdf*

Figure 1: Free travel access by equivalised household income quintiles (individuals aged 15 years +)



Source: Household, Income and Labour Dynamics in Australia (HILDA) data analysis by Infrastructure Victoria

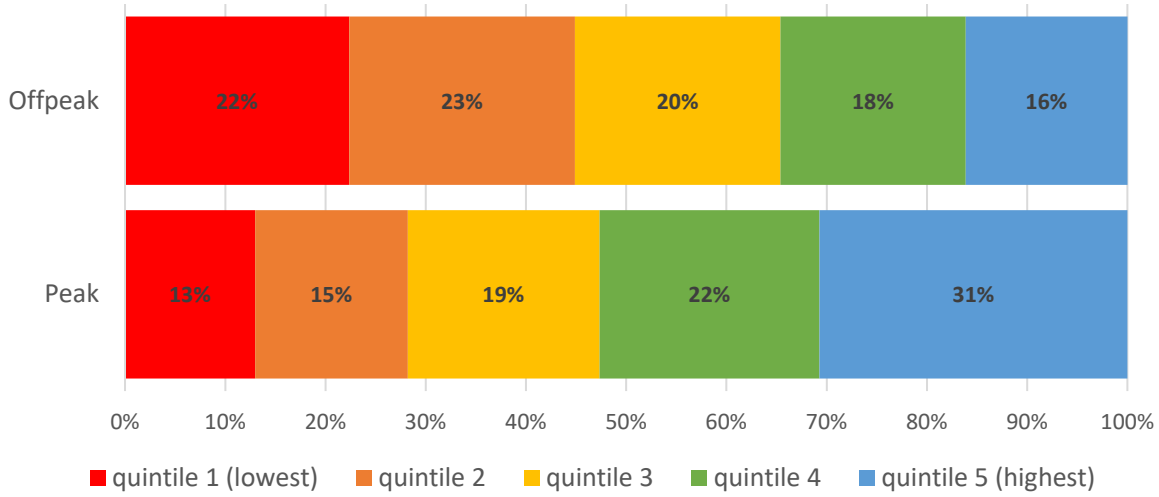
3.2 Free fares make crowding worse

Free fares can reduce the efficiency and performance of the public transport network. Because people face no financial cost for using public transport, they have no financial incentive to make sure they are using it for valuable journeys or consider costs imposed on other people. For example, costs imposed on taxpayers who ultimately pay for public transport services, or by contributing to crowding, affecting other people's travel options. In this way, free fares can increase congestion on public transport networks, by attracting extra people onto public transport for low-value trips.

Certain people have more ability to change their time of travel to help maximise the performance of the transport network. For example, students and seniors, on average, work less than other adults, meaning they may have more flexibility to travel outside peak periods. However, providing all-day free fares to this group may reduce the reward for travelling in off-peak periods, as they don't receive any financial benefit from moving their trip outside the peak hour.

In other words, free fares for students and seniors removes financial incentives from precisely the people who may be most able to help manage crowding on the public transport network.

Figure 2: Public transport use in the peak and off-peak by equivalised household income



Source: VISTA data analysis by Infrastructure Victoria

People on lower incomes are more likely to use the public transport system during off-peak periods. This may indicate that more people on low incomes may have some flexibility to organise their travel during off-peaks than others.

3.3 Equity includes access

The social equity implications of public transport extend beyond prices. People living near good public transport services can get more benefit from public transport than those living far away, or with limited services. Every Victorian pays for the public transport network to some degree through taxes and fares, but some enjoy better access due to where they live or their physical ability.

In Melbourne, those in or close to the city centre have greatest choice in public transport mode – trams, trains and buses – and typically more frequent services. This is also the area in which the Free Tram Zone is located. By contrast, residents in outer suburbs and new growth areas have access to fewer options and less frequent services,[20] and remain highly car-dependent.[21] Residents of regional Victoria have even fewer options. People living near central Melbourne have higher incomes, on average, than those living further away.[22]

Considering mode choice, Victorian Government data shows people travelling on trams and trains typically have higher incomes than people who catch buses (Figure 3). Australian Bureau of Infrastructure, Transport and Regional Economics (BITRE) reached similar conclusions by examining census journey-to-work data.[23]

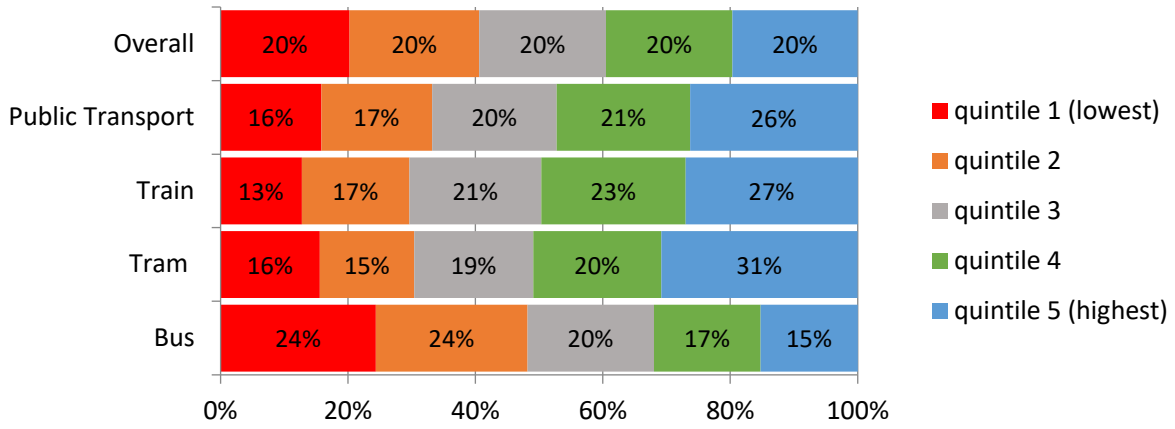
[20] *SGS Economics & Planning, Economic Social & Environmental Profile: Metropolitan Inter-Regional Report (2019), p.39*

[21] *SGS Economics & Planning, Economic Social & Environmental Profile: Metropolitan Inter-Regional Report (2019), pp.29-39*

[22] *Regional patterns of Australia's economy and Population, Grattan, 2017 https://grattan.edu.au/wp-content/uploads/2017/08/890-Regional-patterns.pdf*

[23] *Relationship between transport use and income in Australia, BITRE, July 2019 http://www.bitre.gov.au/publications/2019/relationship_between_transport_use_and_income_in_australia*

Figure 3: Public transport use by equivalised household income



Some Victorians find it more physically difficult to access public transport, whether due to age, disability or ill health. The *Australian Infrastructure Audit 2019*, recently published by Infrastructure Australia, found that 4 in 5 of Melbourne's tram stops are not accessible to customers with a disability, and that nationally legislated accessibility targets are unlikely to be reached without new funding.[24] Victoria's 30 year Infrastructure Strategy recommended accelerating the retrofitting of public transport assets, as required by the *Disability Standards for Accessible Public Transport 2002*.[25]

From these perspectives, granting free travel for trams in central Melbourne does not target either the location or transport mode of people who might gain the greatest benefit from free travel. People living near the free tram zone are likely to have higher incomes than other Victorians, and people travelling by tram are likely to have higher incomes than those travelling by bus.

[24] *IV notes the Victorian Auditor General's Office has indicated it will examine action to meeting the Disability Standards for Accessible Public Transport 2002 requirements for tram services, to determine if the needs of passengers with mobility challenges are being met*

[25] *Victoria's 30 Year Infrastructure Strategy, Infrastructure Victoria, 2019 Recommendation 6.1.3, page 95*

4. Expanding the free tram zone will lower network performance and reduce equity

This submission has identified evidence demonstrating a good pricing structure, accompanied by well-targeted concessions, can contribute to equitable and efficient public transport network. By applying these ideas, we conclude extending the free tram zone will lower network performance and reduce social equity.

A free fare encourages people to use public transport for trips they place little value on. For example, they may catch a free public transport for short trips they could otherwise easily walk. Overall, these types of trips may cost governments more to provide than any benefits received. From an economic perspective, fares should only be free when the external (non-personal) benefits of a trip are greater than the social cost of providing it, including any necessary new investment from the greater demand induced. IV is not aware of any evidence to suggest that this is the case for the extended free tram zone area. Before pursuing any extension to the free tram zone, the Department of Transport should specifically evaluate whether there are sufficient benefits to justify free fares.

Melbourne's Central Business District is already quite difficult for motorists to move through and parking is more expensive than other parts of Melbourne. This means many disincentives to driving are already present here. These existing disincentives may limit any congestion reduction effects of extending the free tram zone, the main external benefit for public transport.

Conversely, extending the free tram zone may encourage people to substitute tram trips instead of using active transport, such as walking or cycling. Given the health benefits of active transport, and the much higher cost of providing public transport compared to walking and cycling it may also encourage people to switch public transport modes and catch free trams instead of paying fares for buses or trains.

Given the health benefits of active transport and additional capacity available on other public transport services in the off-peak period, this may lead to an overall negative effect.

Investment typically goes to the services that experience the greatest demand. The free tram zone is already highly congested and requires ongoing investment to improve services. The extension of the free tram zone will only increase this demand and the need for further investment.

However, investing in greater active transport infrastructure, or in better train and bus services may be more effective at improving transport network performance. Making free tram services available reduces demand for these alternative options, skewing investment decisions towards more trams. More expensive subsidies for the free trams mean less available resources for investment elsewhere.

Any increased demand from extending the free tram zone will cause further overcrowding, reducing the comfort of existing users. Overcrowding is particularly discouraging for the elderly, people with disability, pregnant women and parents with prams and young children. These people gain the greatest benefit from avoiding alternatives such as active transport (due to limited mobility) or the city loop (which has poor accessibility). They are likely to be most uncomfortable in increasingly crowded and congested spaces, or unable to board at all.

Fares for the extended free tram zone will be free for passengers, the cost is borne by the taxpayer. Many tax payers have no access (or only occasionally) to the free tram service.

Extending free tram services to hospitals and other services will only be free for people whose journeys start in the free tram zone. Most people travelling to services and employment live outside the free tram zone. The free tram zone has little financial benefit for these people, particularly for people who already benefit from the daily myki fare cap. This leads to an arbitrary divide in the cost of services provided to citizens solely based on where they live.

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