

Equitable public transport in a hybrid working world



Foreword

In our rapidly evolving urban landscapes, transport isn't just about movement—it's about opportunity, connection, and inclusivity. As the Global Transport Consulting Leader at Arup, I've had the privilege of witnessing and influencing the transformative power of transport systems in shaping the destinies of cities and their inhabitants.

The essence of Arup's transport planning philosophy is the belief that transport is more than just a means of movement; it's a bridge to opportunities, a catalyst for economic growth, and a cornerstone for building inclusive communities. This report delves into the nuanced challenges and opportunities presented by the rise of hybrid working models and their implications for public transport.

In the wake of the Covid-19 pandemic, the world witnessed unprecedented shifts in work and lifestyle patterns. While these shifts immediately brought forth a plethora of challenges, they also illuminated the potential for reimagining and reshaping our transport systems to capitalise on the longer-term rise of hybrid working.

At Arup, we've always championed the cause of connected and accessible cities, recognising that the true measure of a city's greatness lies not just in its infrastructure, but in its ability to offer equitable access to all its residents. As you navigate through the pages of this report, I invite you to join us in envisioning a future where transport systems are planned not just as infrastructure, but as a lifeline for every city dweller.

Jonathan Kinghorn, Global Transport Consulting Leader, Arup

Introduction

The way we work has likely permanently changed

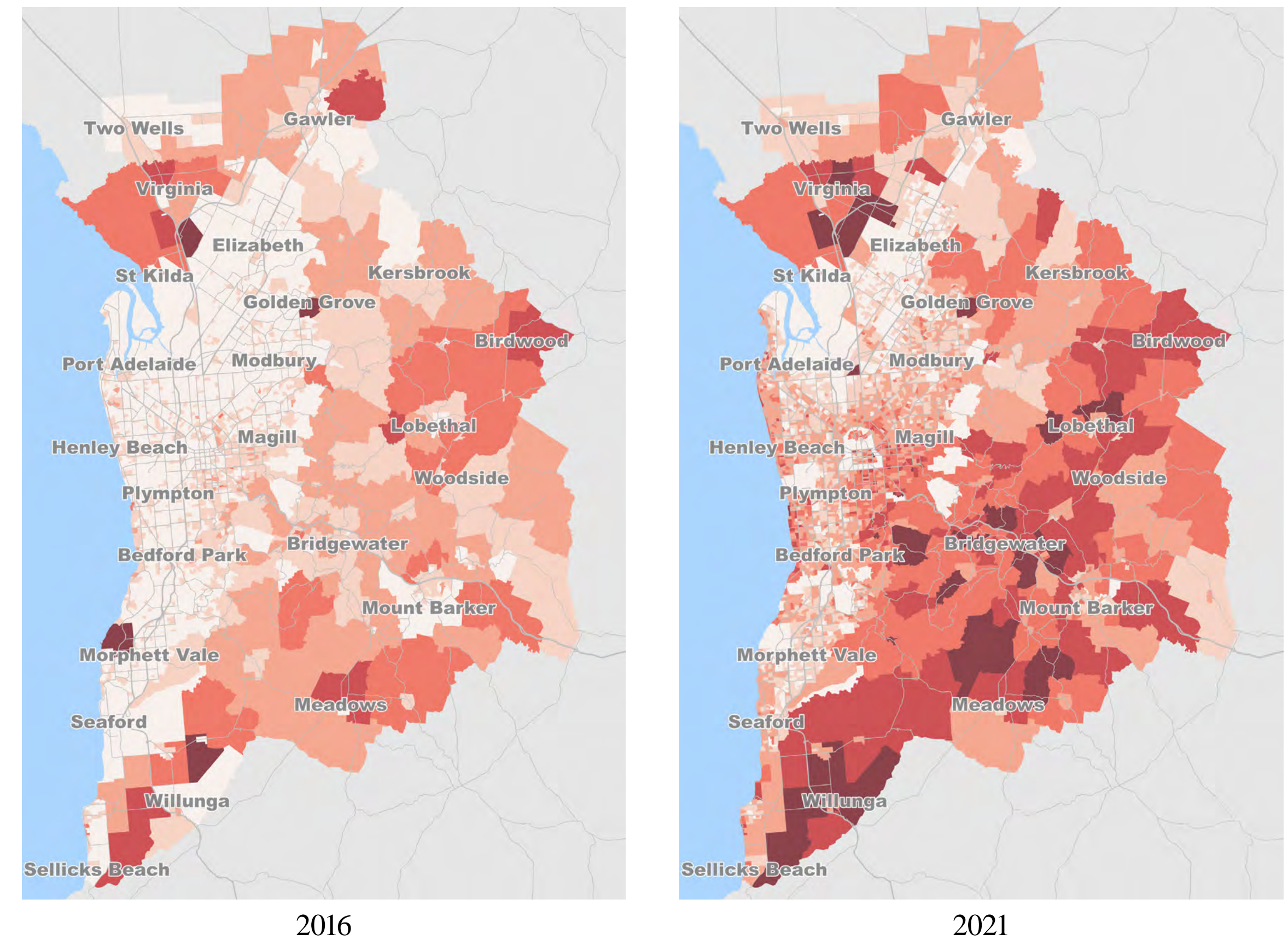
During the 2021 Census, Adelaide and Perth existed in stable, near Covid-normal conditions, providing the opportunity to delve into the likely long-term future of working from home through select analysis and case studies.

Working from home

The reported rate of working from home across Greater Adelaide and Perth approximately doubled between the 2016 and 2021 census.



Adelaide Share of population working from home



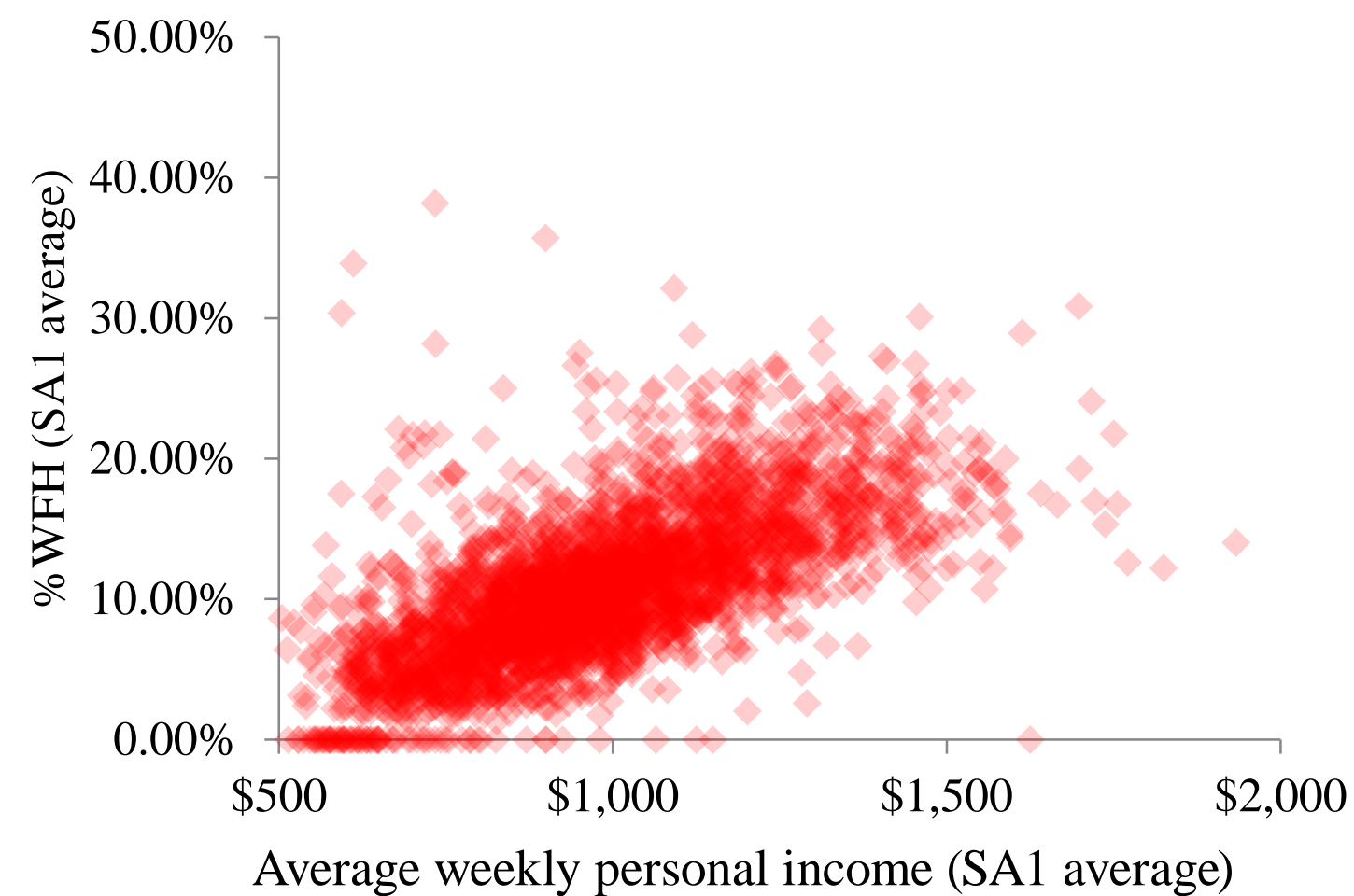
This change has not been even across society

Occupation type, income and relative social advantage all strongly relate to the ability to work from home.

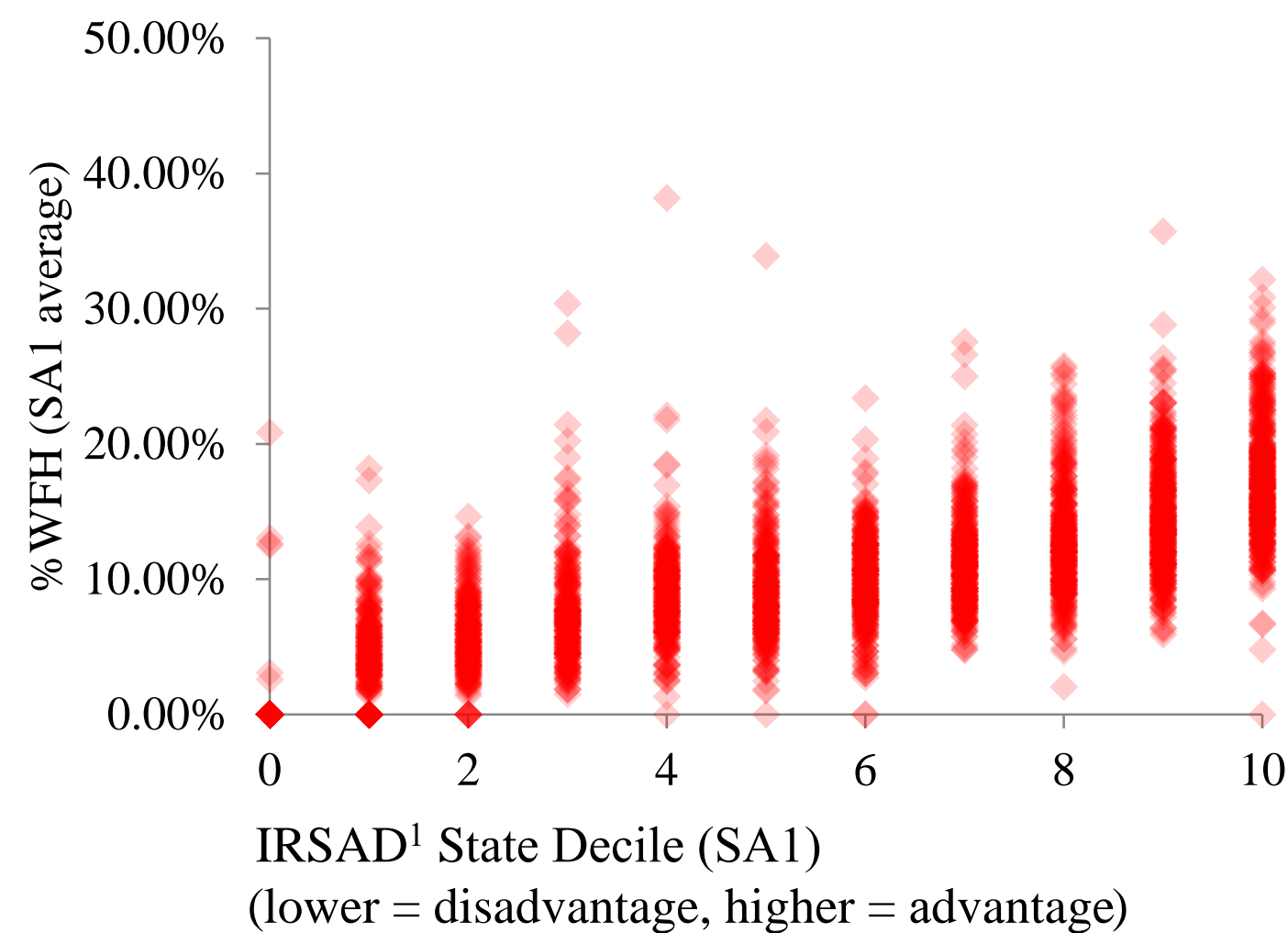


2021 work from home across Greater Adelaide vs:

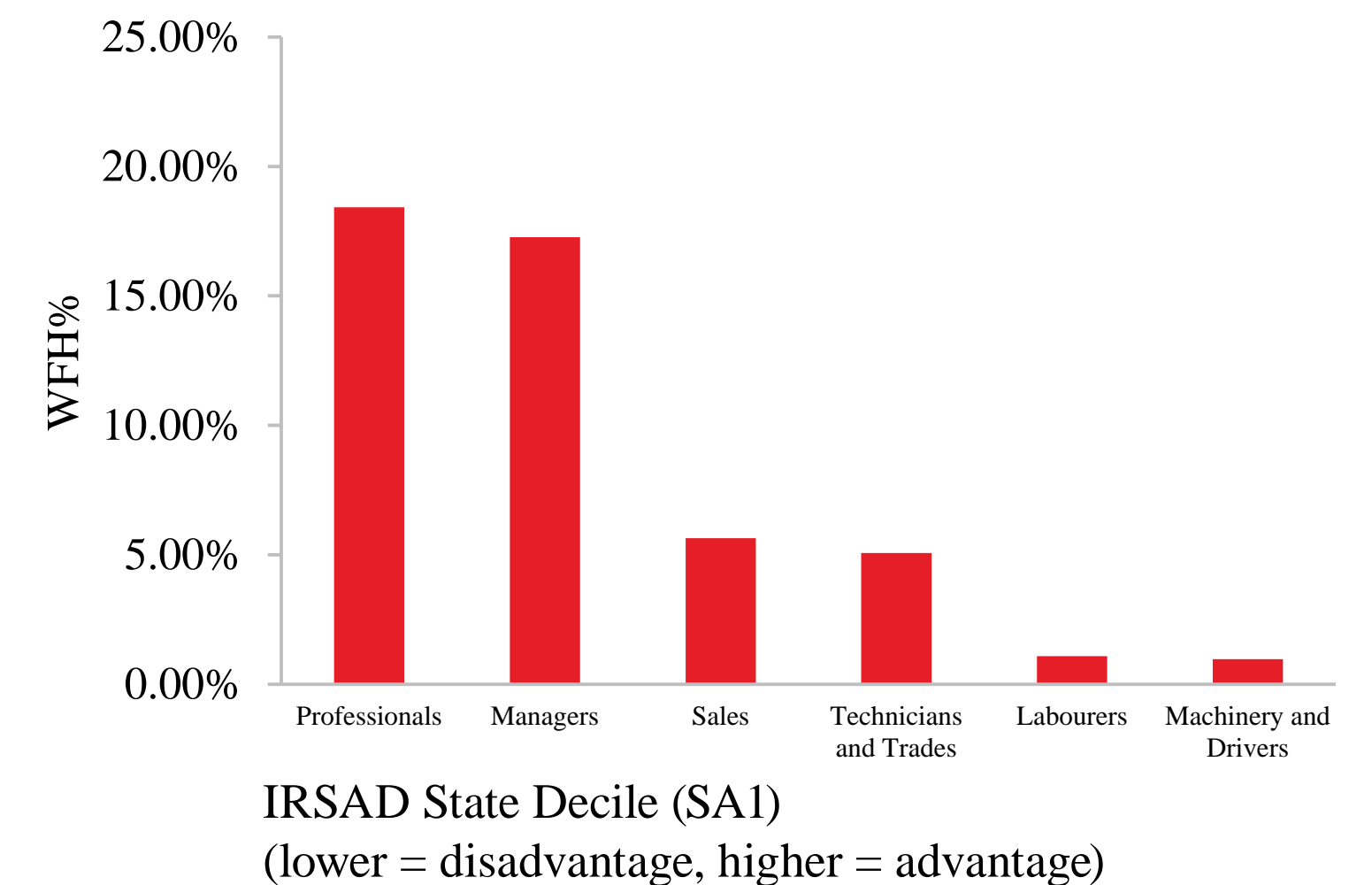
Income



Advantage and disadvantage



Occupation type



Higher income, more socially advantaged workers in white collar occupations are far more likely to have the option of working from home.

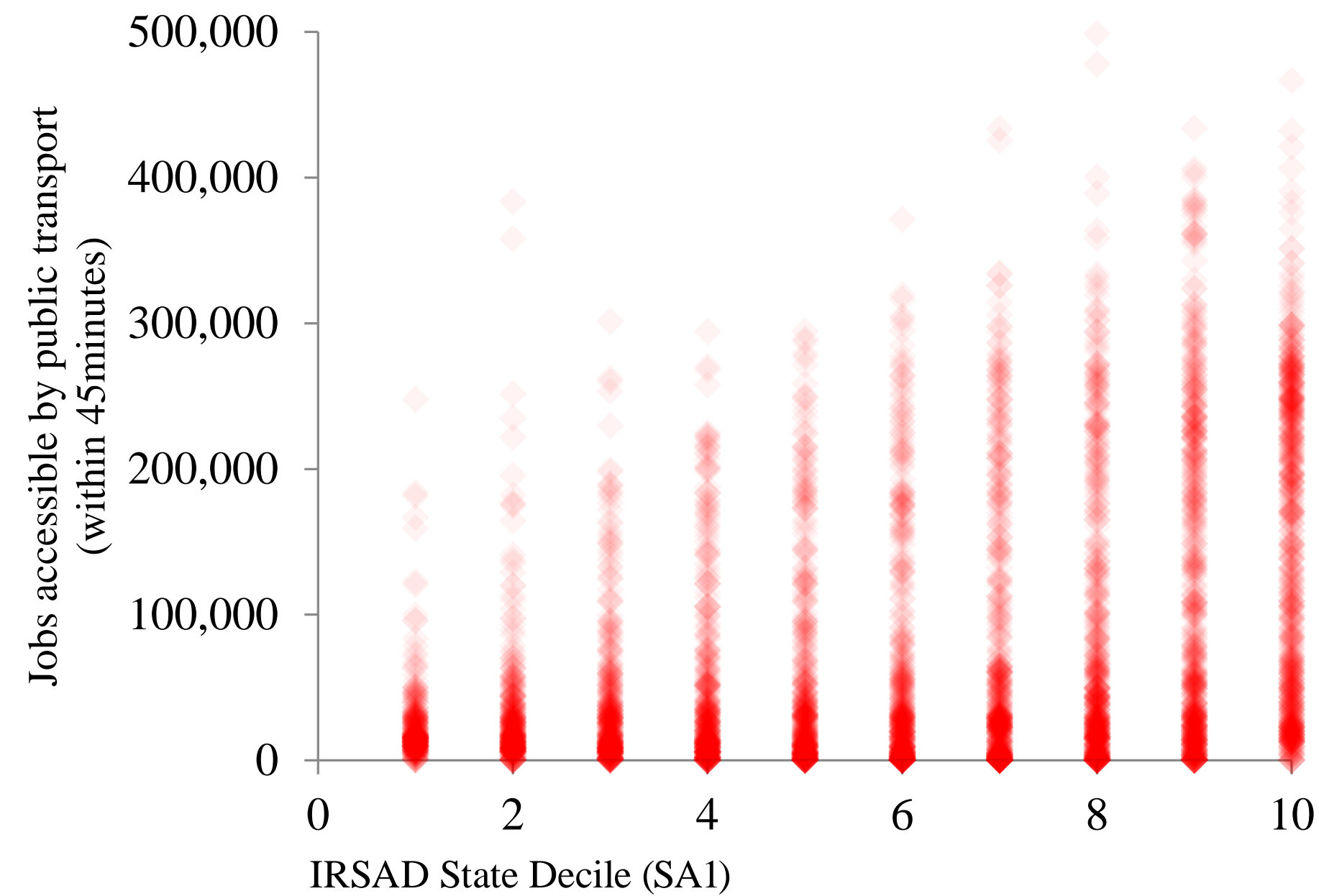
¹ The Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) is a geographical index published by the Australian Bureau of Statistics that ranks areas in Australia by socio-economic factors.

The quality of public transport is uneven

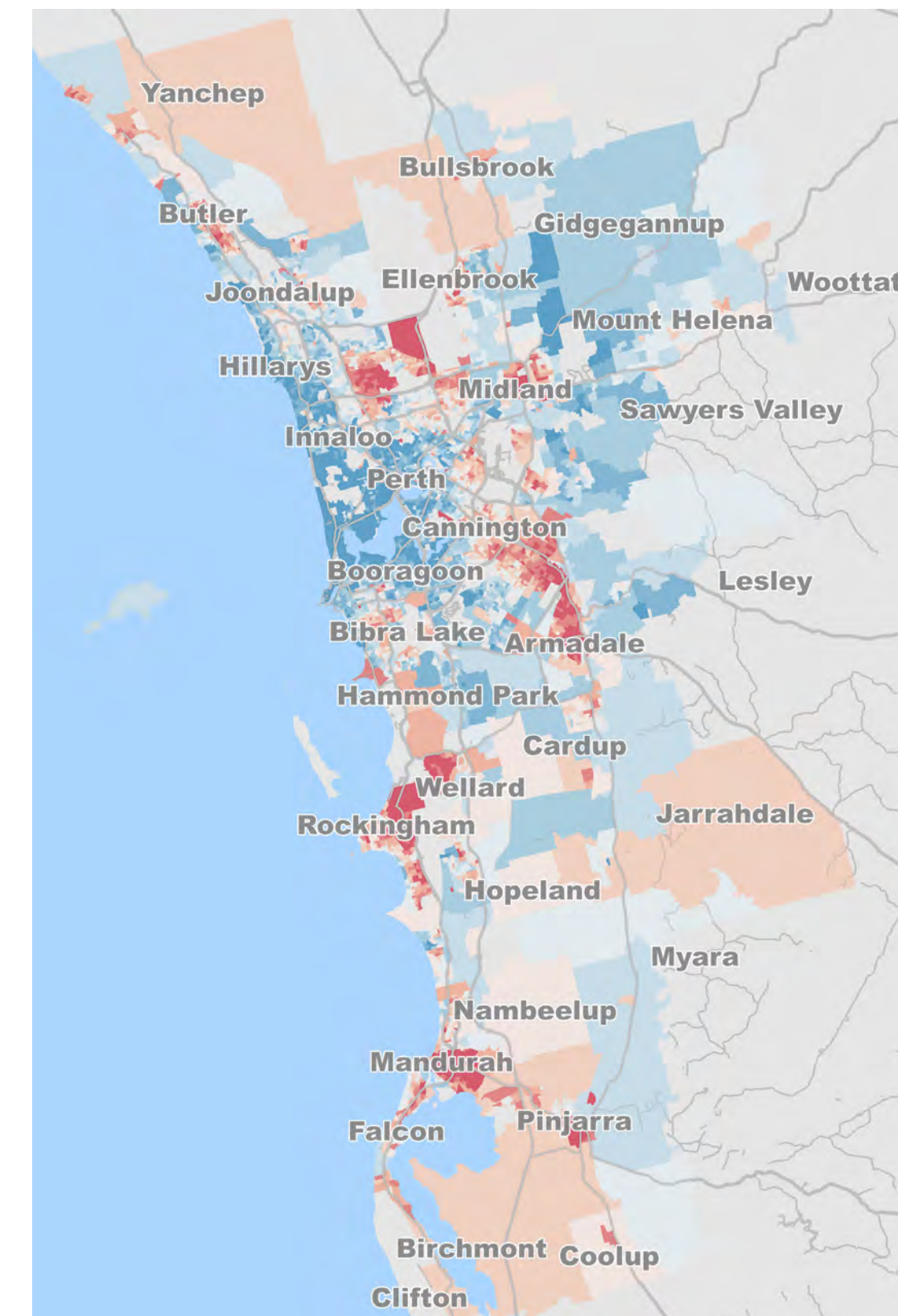
Public transport provides more access in socially advantaged areas

Accessibility to employment using public transport is often substantially better in socially advantaged areas.

Accessible jobs

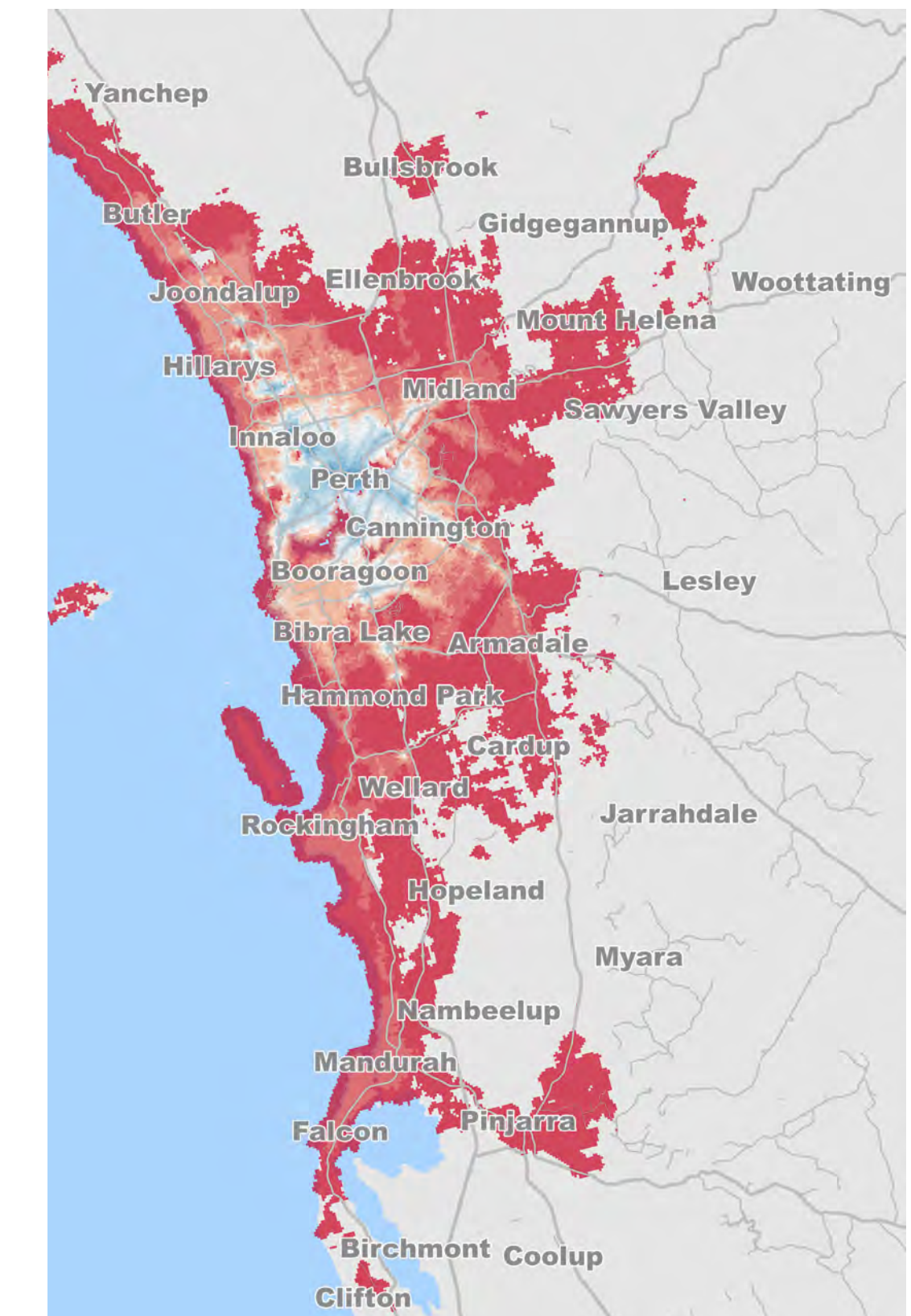


Perth The Index of Relative Socio-Economic disadvantage and advantage



Disadvantage and Advantage

Jobs accessible by Public Transport within peak period 45-minute journey



Low and High

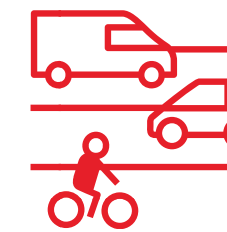
Work from home has impacted transport inequality

Hybrid working has created another commuting option for the socially advantaged, whilst the disadvantaged continue to be comparatively poorly served by public transport.



Public transport networks in Adelaide and Perth are

~3x



Better at connecting socially advantaged residents to employment

Socially disadvantaged workers are more likely to be employed in occupations that cannot be done from home². Our accessibility modelling shows they are also less likely to have the option of using public transport to commute to work.



Change is needed



A lack of access entrenches inequality

A lack of access to transport options can create a 'poverty trap'³, where limited access to employment, education, health services and social opportunities ultimately entrenches long term inequality.



Forced car ownership comes at a high price

The typical Australian household spends 15% of their income on transportation, 94% of this going to operating private vehicles⁴. For low-income households, who are more likely to have poor access to public transport, needing to own and operate multiple cars can create significant financial pressure.



Public transport in growth areas delivers strong benefits

The RMIT Centre for Urban Research estimated a financial benefit of \$37B stemming from \$9B of investment in the early delivery of public transport to outlying residential growth areas⁵.

³ Lucas et. al. 2016

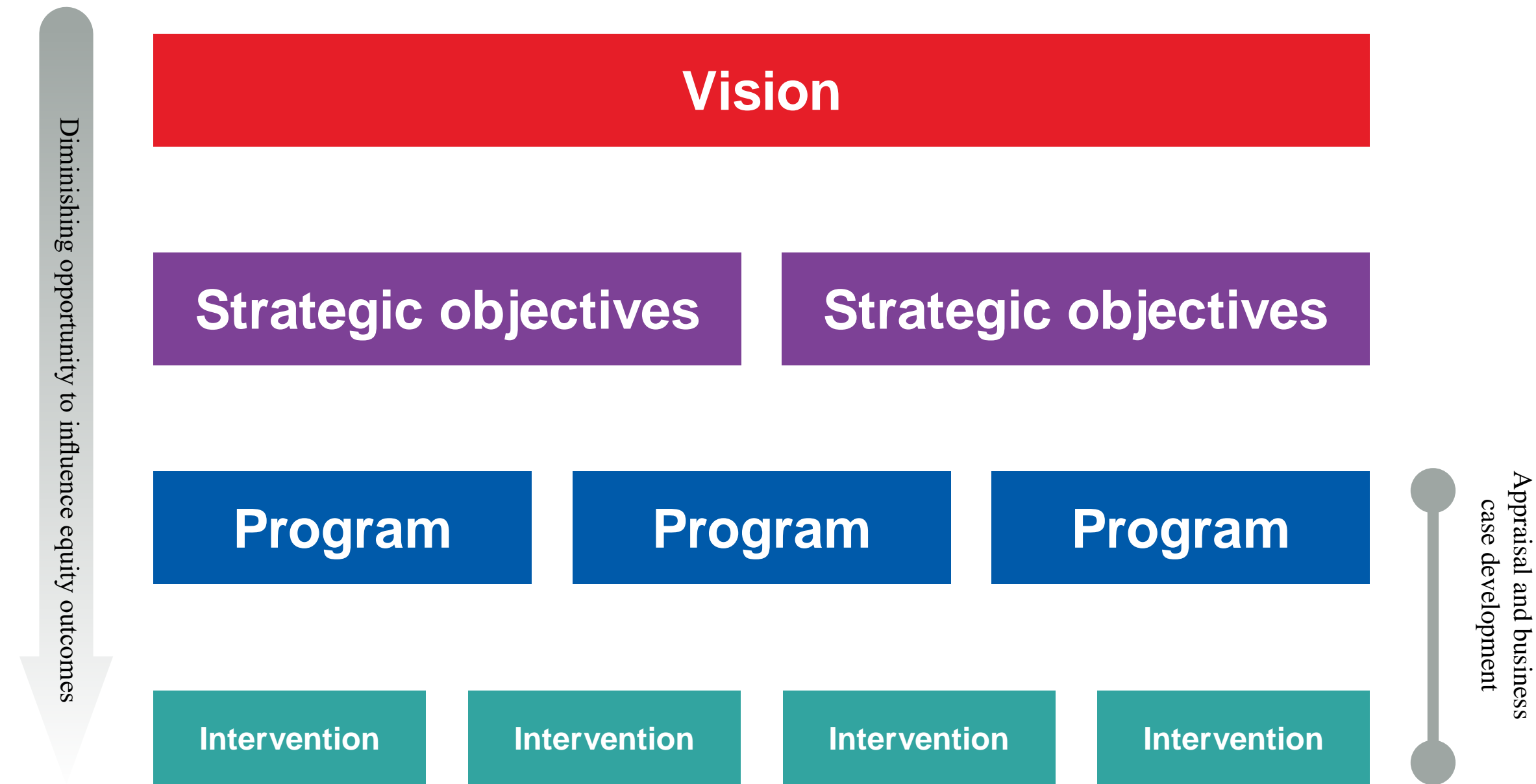
⁴ Australian Automobile Association, 2022

⁵ Kroen et al. 2021

Recommendations

Recommendation 1 **Align vision and objectives early**

Guiding investment towards equitable outcomes requires an early strategic focus. The planning and appraisal processes for transport infrastructure and service investment ultimately determines how investment is made. This process is highly path dependent. To achieve impactful outcomes in addressing inclusiveness and inequality, a decision must be made early to focus in this area.

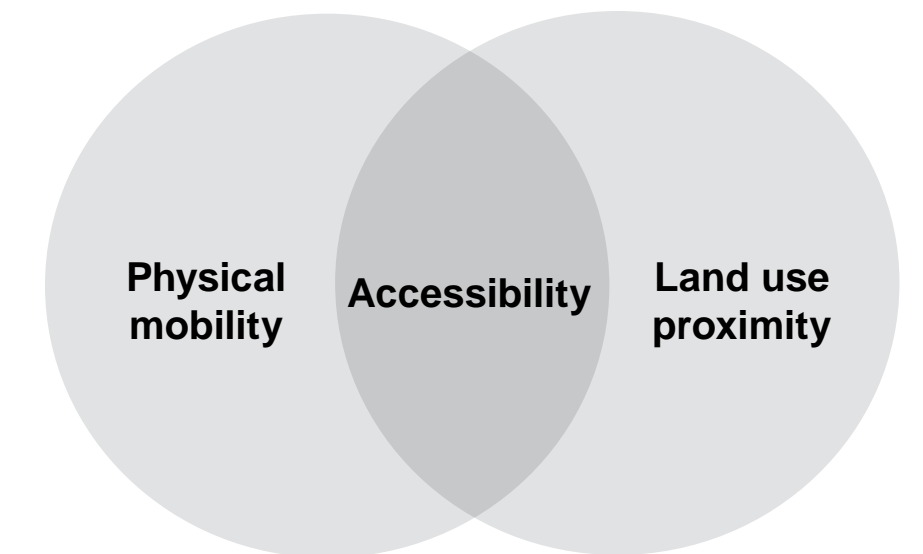
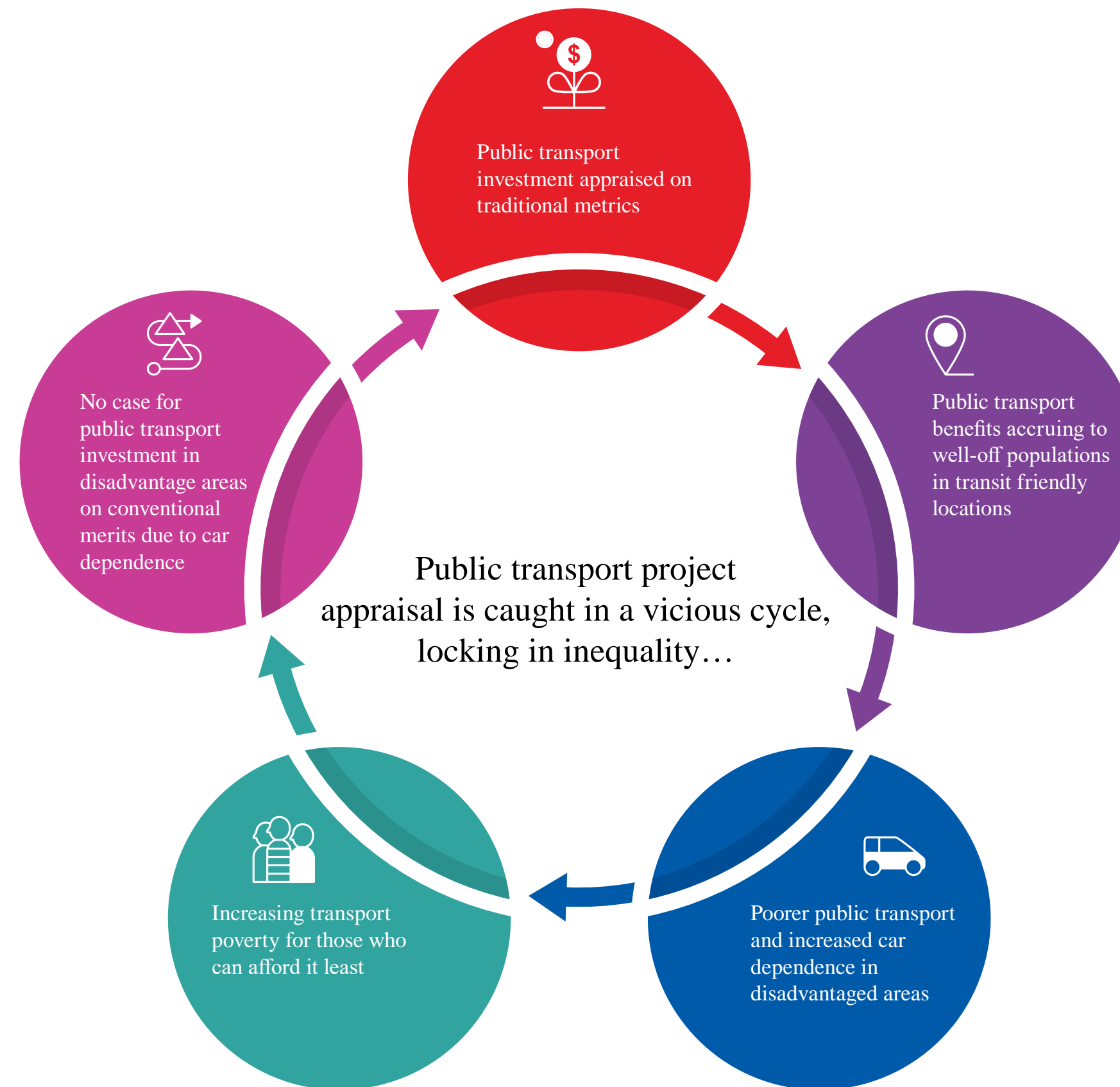


Recommendation 2 Value what matters

Traditional appraisal methods can lock in a vicious cycle of inequality. Changing how we measure project impact to better capture equality can help address this.

Traditional transportation business case and design evaluation focusses on easily monetisable measures such as patronage, travel time savings and congestion reduction and therefore favours making public transport investments in inner city, denser, mixed use and more walkable suburbs. In most Australian cities, these suburbs are more likely to be home to socially advantaged populations.

Putting higher importance on more holistic (but difficult to monetise) measures alongside traditional economic measures, including accessibility to employment and everyday destinations, would better highlight the need to act in disadvantaged locations with high car dependence.



...Shifting priority from improving mobility to accessibility could help break this cycle

Recommendations

Recommendation 3 Act early in growth areas



Early implementation of public transport service and infrastructure can prevent entrenchment of car dependence and deliver significant benefits.

Outer suburban residential growth areas offer affordable housing options for many families. However, these areas are often some of the most car dependent, forcing high private transportation costs and long, congested commutes on their residents⁶.

Acting early to provide high quality public transportation infrastructure and service in these areas can help avoid entrenching car dependence, while delivering significant health and productivity benefits outweighing the cost of initial investment⁷ and establish more equitable outcomes from the start.

⁶ Congestion and a lack of transportation options in developing outer suburbs is frequently reported by the media: <https://www.abc.net.au/news/2022-10-31/Victoria-roads-traffic-kalkallo-Melbourne-outer-suburbs/101585202>

⁷ Kroen et al. 2021

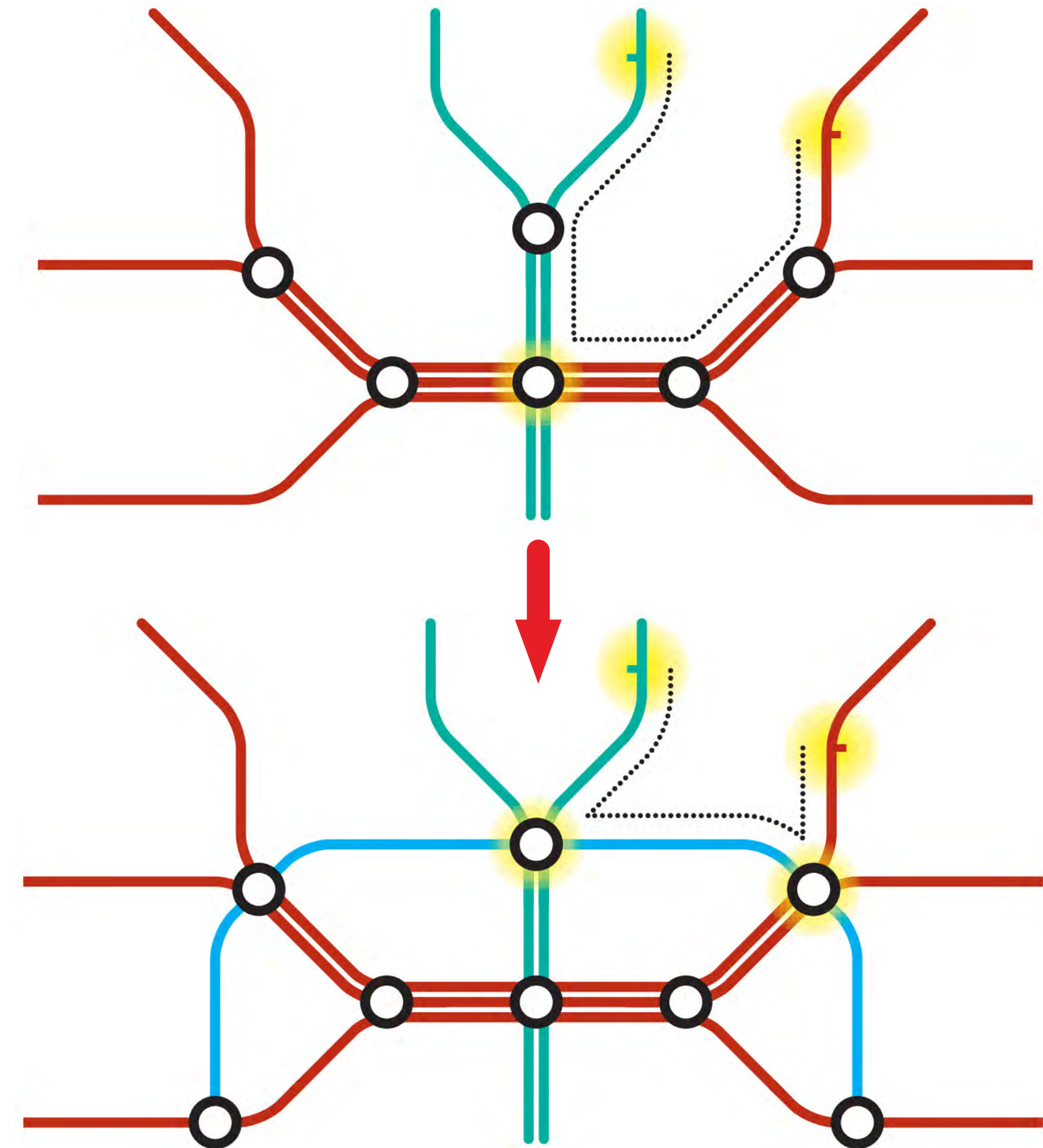
Recommendations

Recommendation 4 Provide decentralised access

Enhancing public transport connectivity to and between suburban activity centres can substantially improve accessibility to those who need it most.

Public transport networks in Australia have traditionally been efficient in facilitating radial journeys for suburban commuters. However, not all travel demand is radial, and there is a broad demographic of people who need to access jobs and everyday services at suburban locations, but are often unable to do so using public transport, making car ownership mandatory.

Investing in a fast and frequent orbital service linking together major suburban centres is an efficient strategy to begin to address this gap in access. However, making the case for investment in this style of service from a revenue and patronage perspective is often a challenge for public transport authorities. This further highlights the need for investment success metrics to be re-shaped, to better recognise the importance of accessibility to everyday essential destinations for a broader cross section of society.



Case study

Byford Rail Extension, Perth

Positive outcomes through early investment

Perth has a history of generating positive outcomes through early investment in passenger rail. The Byford Rail extension is a strong example of the Western Australian Government valuing achievement of broader strategic aims over traditional business case metrics.

When appraised on traditional metrics, the Byford Rail extension project in the outer southeast of Perth appeared to make little investment sense. The business case estimated a benefits to cost ratio of just 0.45, substantially worse than an alternative bus priority solution.

Despite this, the Western Australian Government elected to proceed with the project and the reasons for doing so are a strong example of the recommendations made here:

A strong vision: The *Perth and Peel @ 3.5 million* framework provides a strong vision for Perth into the future; recognising the importance of affordable housing and land use integration with public transport

Clear strategic objectives: Armadale and Byford serve as hubs for local services catering to a dispersed, disadvantaged and rapidly growing population. Early action to enhance connectivity was needed to manage growth, maintain liveability and support the land use vision

Valuing what matters: Despite the low quantified benefits, it was clear that only a rail solution could meet the strategic objectives and enable the broader vision for Perth. This is what mattered most to the Western Australian Government and drove the decision making.



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