

Benchmarking Public Transport in Melbourne

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Institute of Transport Studies (Monash)

The Australian Research Council Key Centre in Transport Management



Introduction

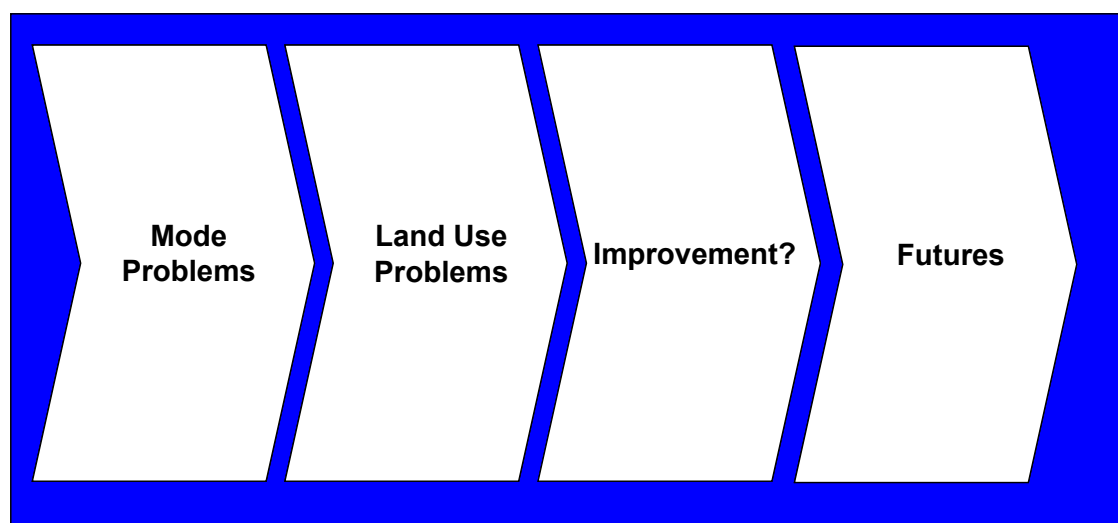
Modal Problems

Land Use Problems

Improvement?

Futures





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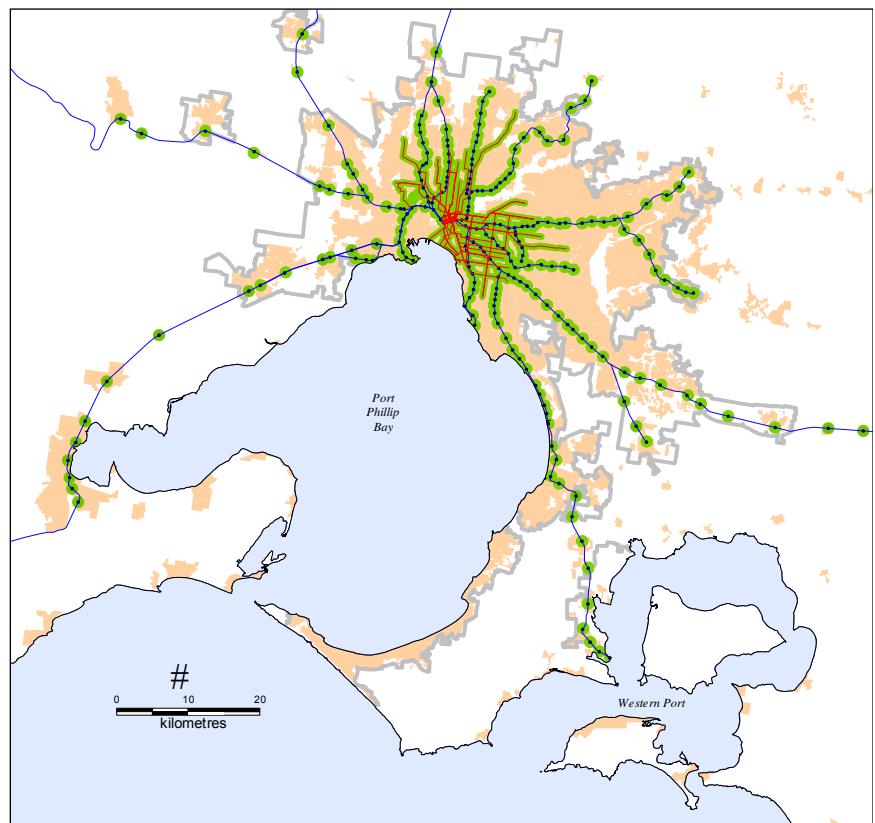
Improvement?

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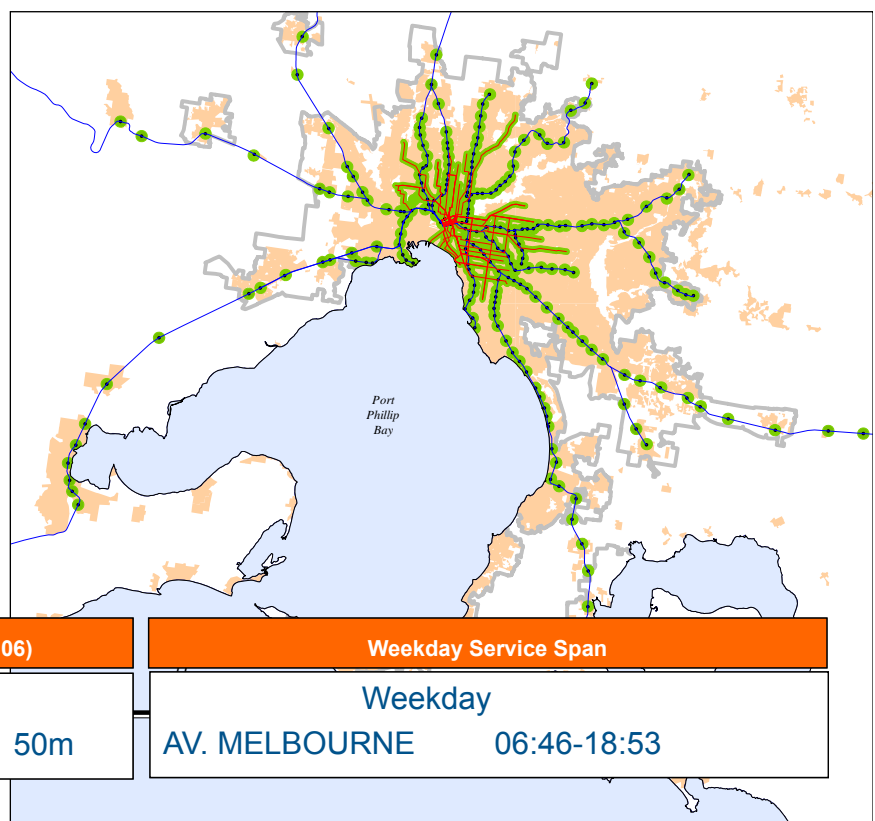
Buses **ARE** Melbourne's public transport for most residents, which is a problem....

- Over two thirds of Melbourne can only be serviced by bus services since rail and tram services lie considerable distances from where people live or where they want to travel to
- In 1996 the Metropolitan strategy team identified that 2.16M Melbournians lived in areas where buses were the only means of access to public transport. 0.98M lived within access distance of rail services



...because there aren't many

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- In 1996 the Metropolitan strategy team identified that 2.16M Melbournians lived in areas where buses were the only means of access to public transport. 0.98M



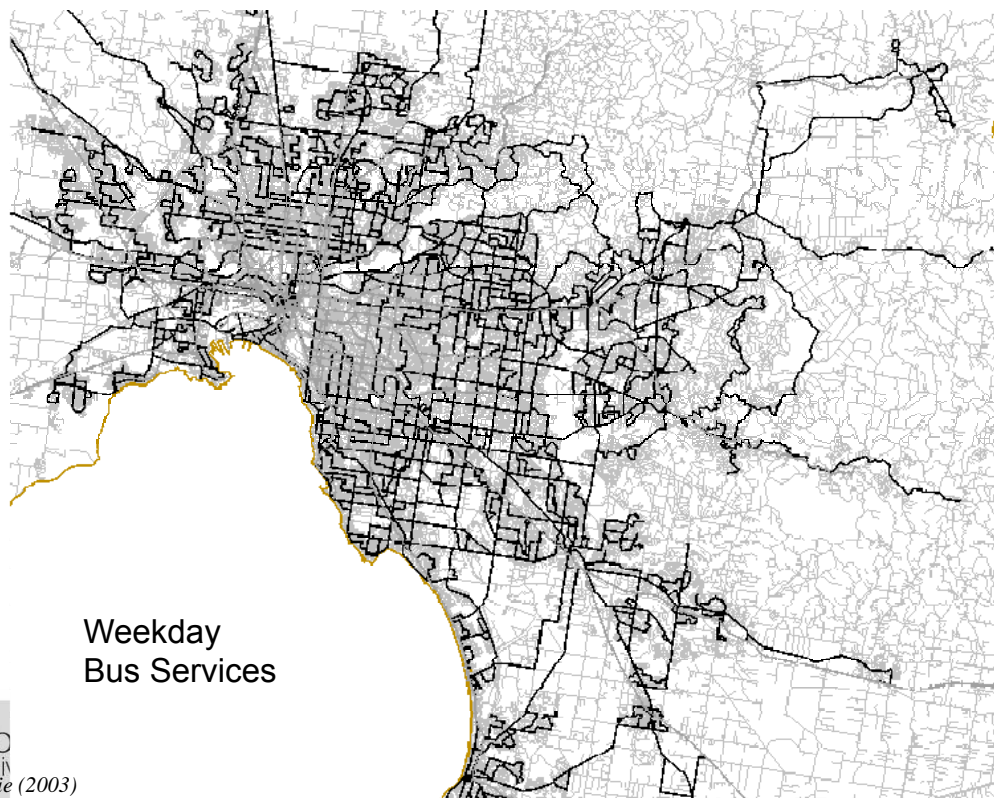
Weekday Service Frequency (2006)

	Peak	Off Peak
AV. MELBOURNE	40m	50m

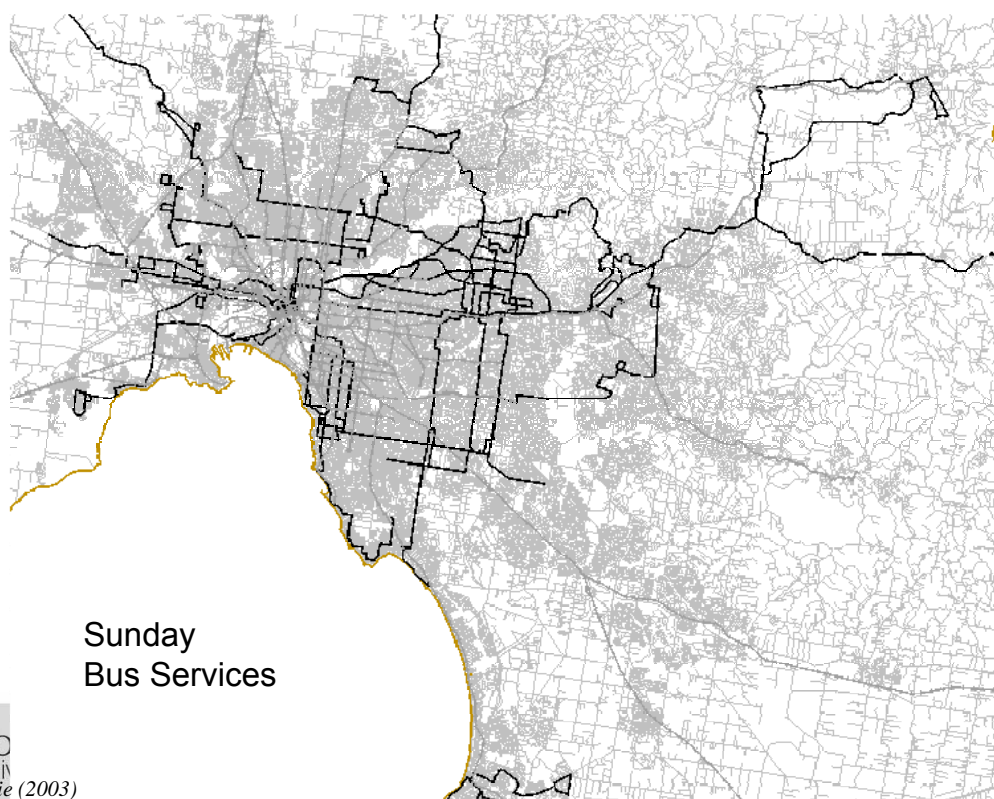
Weekday Service Span

	Weekday
AV. MELBOURNE	06:46-18:53

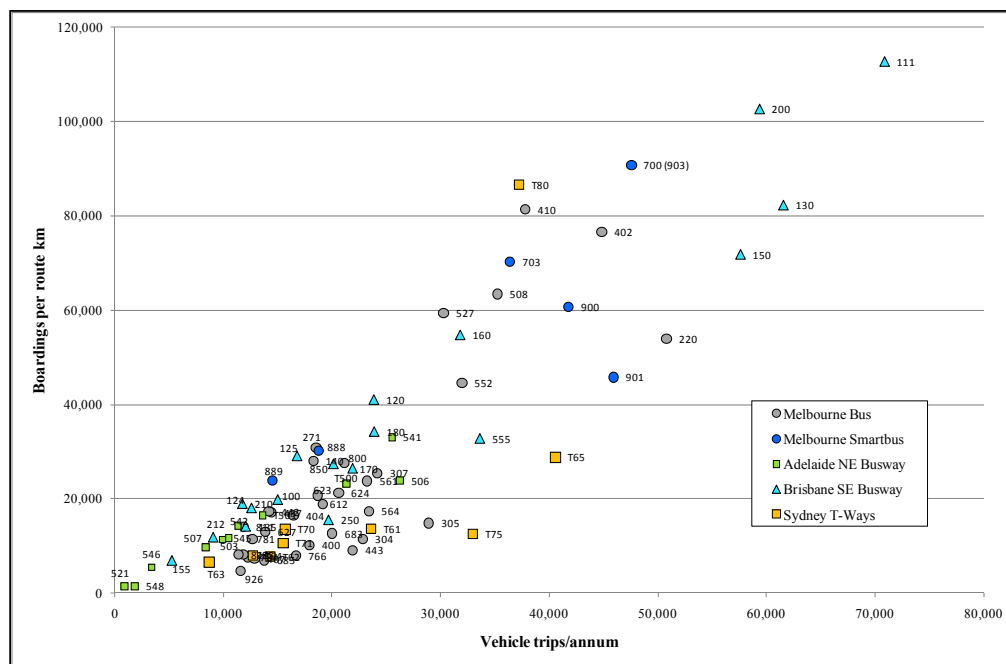
The bus network on weekdays...



...contrasts somewhat with weekends

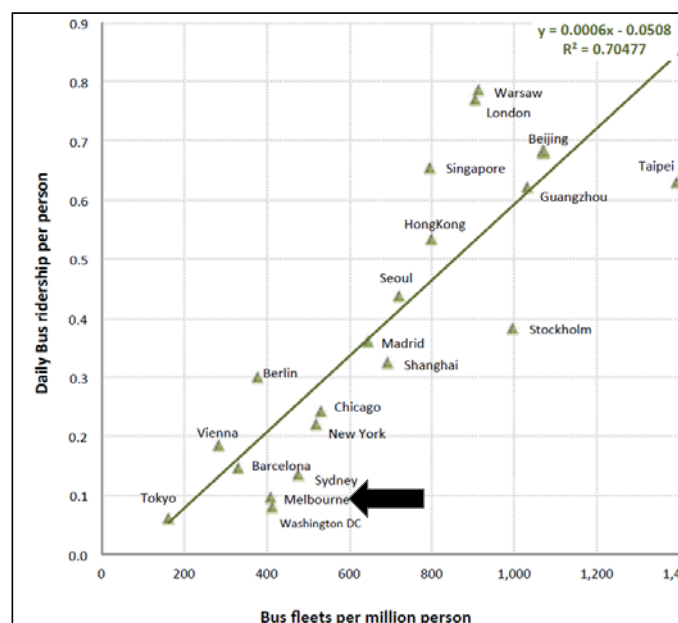


Frequency drives Australian ridership performance



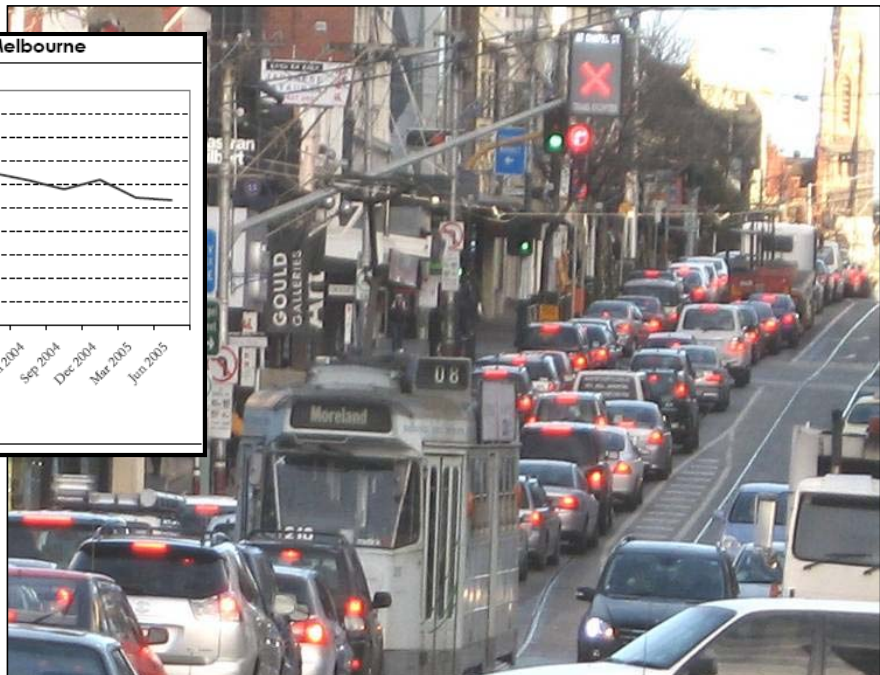
Source: Currie, G. and Delbosc, A (2011) 'Understanding bus rapid transit route ridership drivers: An empirical study of Australian BRT systems' TRANSPORT POLICY Volume 18, Issue 5, September 2011, Pages 755-764

In general our bus service level is poor compared to world practice

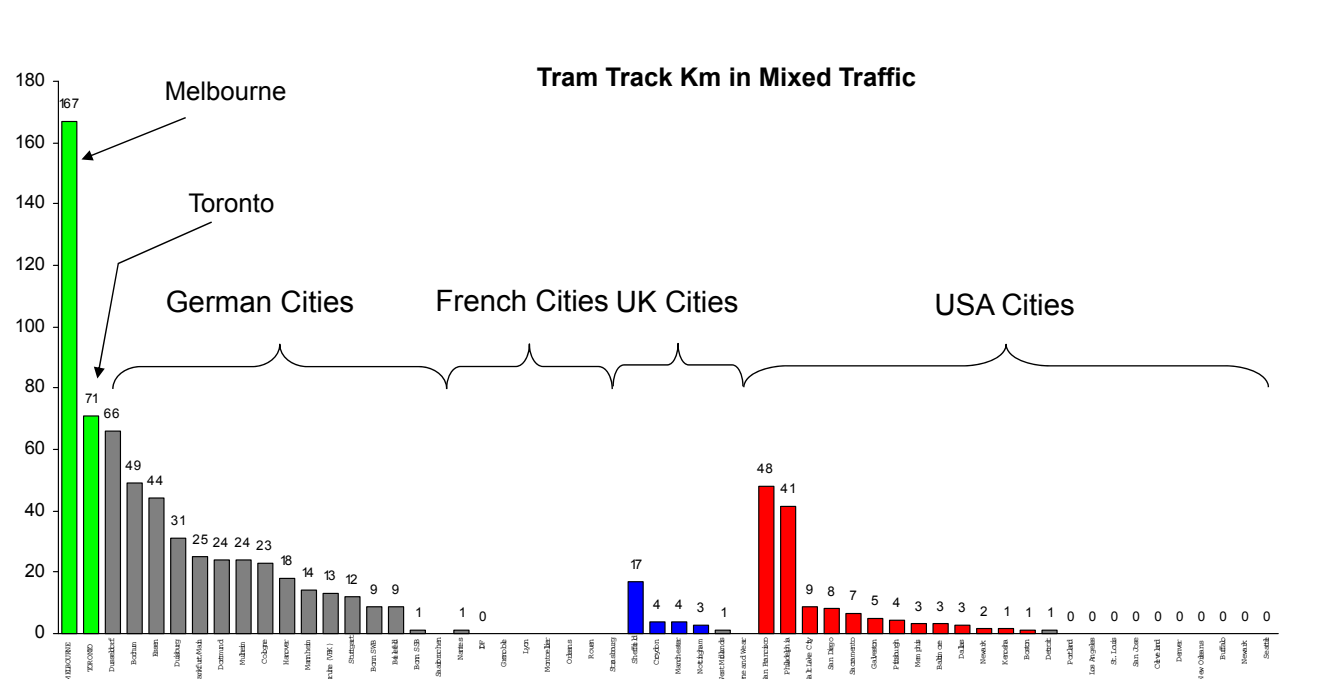


Source: Pan D (2013) 'Key Transport Statistics of World Cities' Journeys Sept 2013

Tram services are struggling in growing traffic congestion



Melbourne is the worlds biggest "streetcar" system

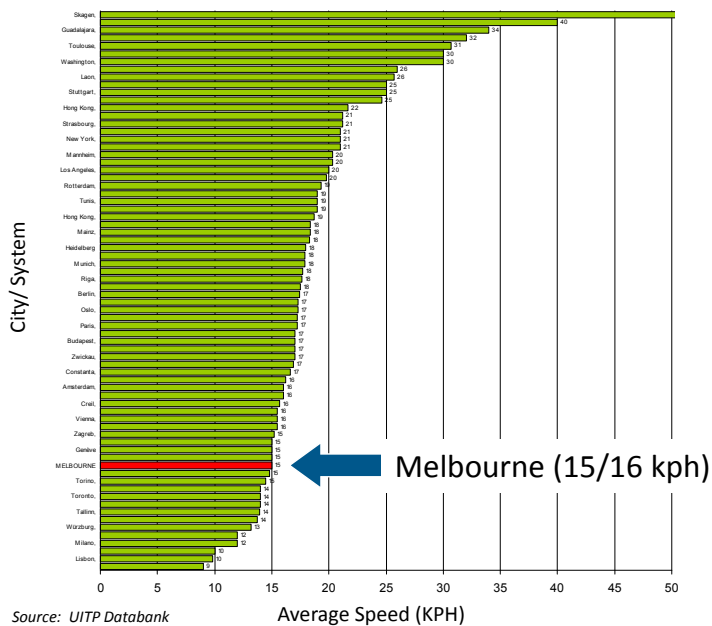


Source: Currie G and Shalaby A (2007) 'Success and Challenges in Modernising Streetcar Systems – Experience in Melbourne and Toronto' Transportation Research Record No 2006 Transportation Research Board Washington DC ISSN 0361-1981 pp 31-39 2007



Mixed Traffic service impedes performance

Average Operating Speeds – World Tram/Light Rail Systems

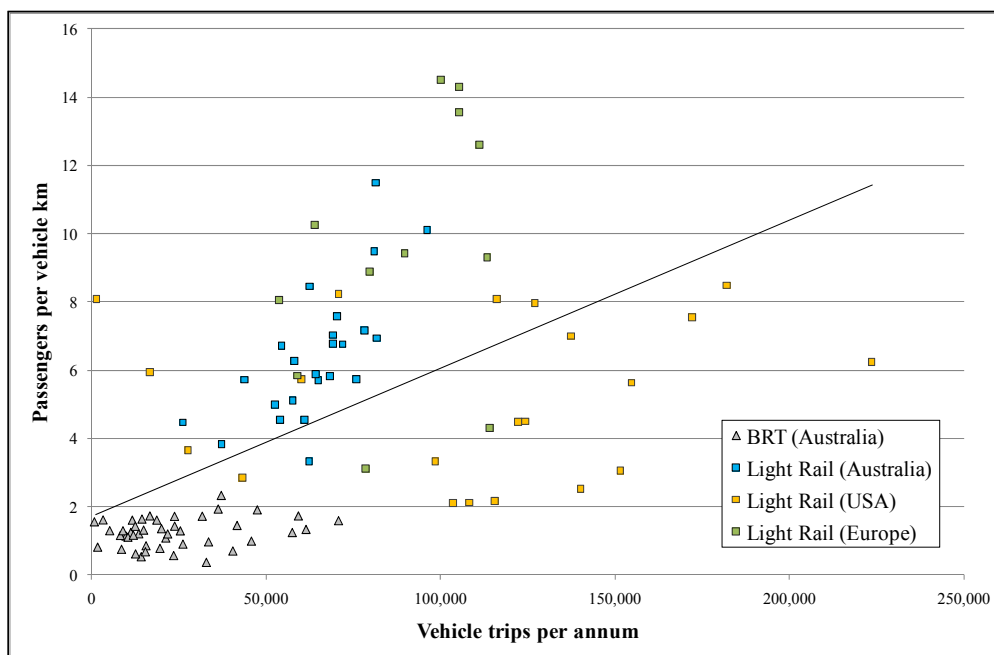


Melbourne Tram Reliability

- 33% of services are considered to be NOT running on time
- On time defined as arriving more than 1 min early of more than 6 mins late

Source: Track Record

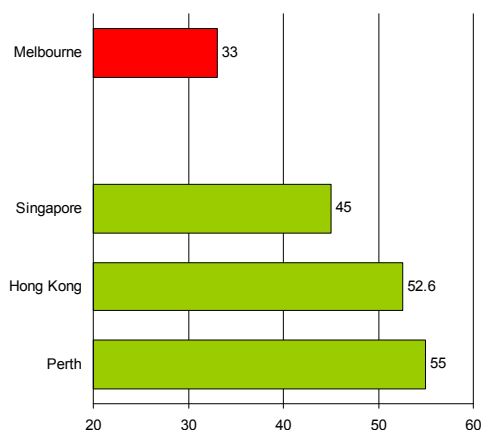
Melbourne tram ridership is low compared to overseas systems; due to low relative frequency



Source: Currie G and Delbosc A (2013) 'Exploring Comparative Ridership Drivers of Bus Rapid Transit and Light Rail Transit Routes' JOURNAL OF PUBLIC TRANSPORTATION Journal of Public Transportation, Vol. 16, No. 2, 2013 pp47-65

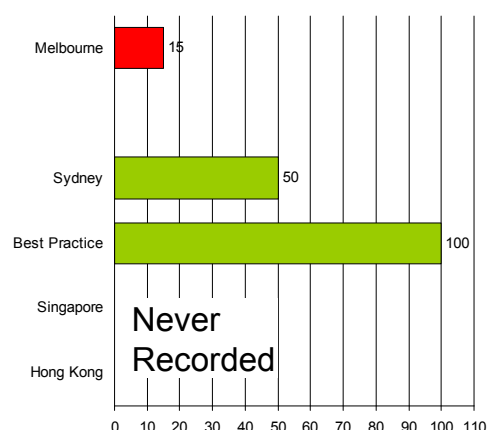
Better performing railways are built on new not old infrastructure and strong resilience/reliability

Average Speed (Kph)



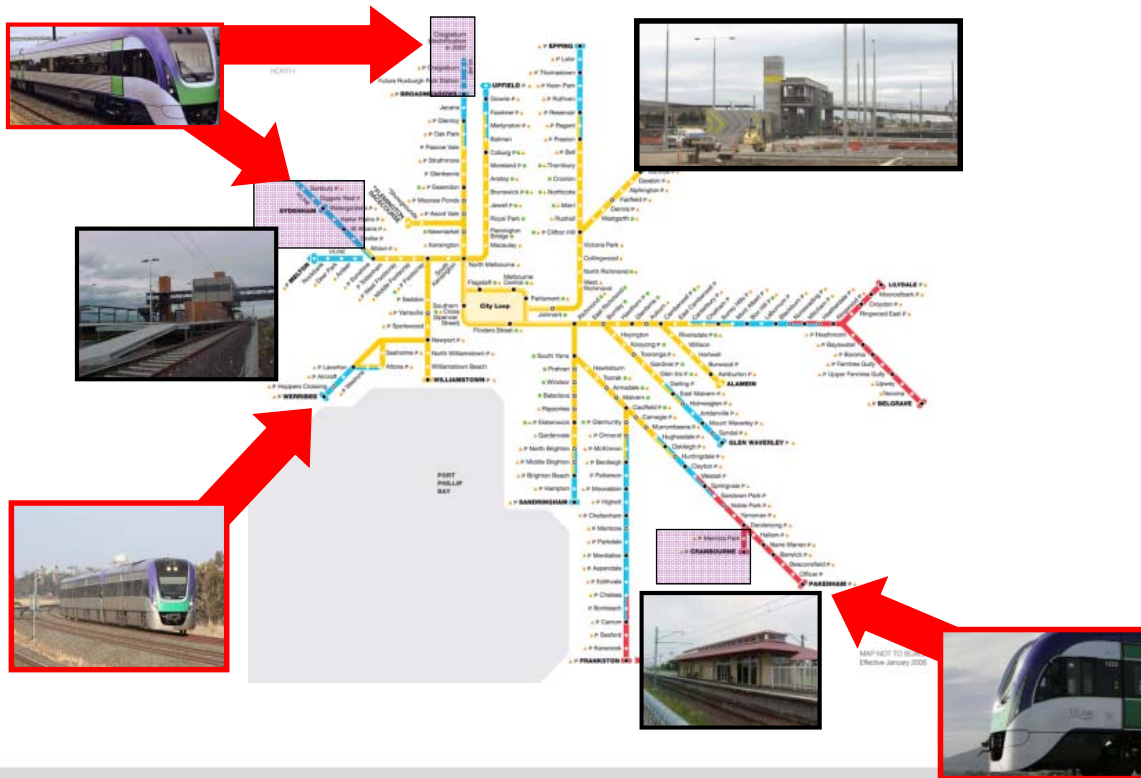
Av. Speed (Kph)

Breakdowns in Service (000 kms)

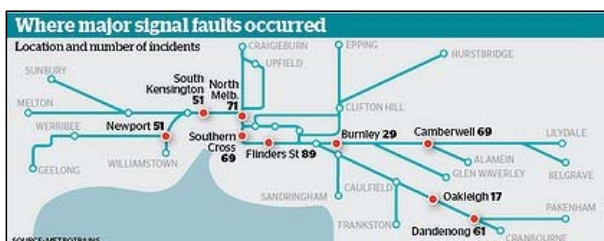


Av. Speed (Kph)

...yet expanding rail, thus making it more complex, has been our approach to mass transit expansion



Unplanned disruptions are common; e.g. reported signal faults; 1,900 p.a. (5+/day)



Reported Signaling Disruptions

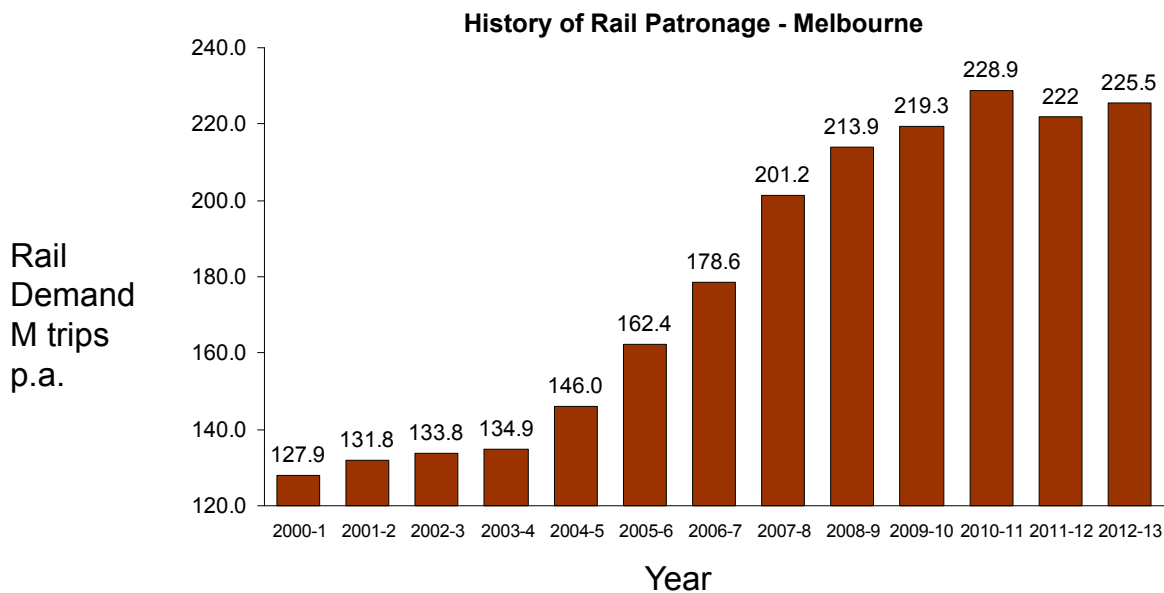
- 1,900 signal failures p.a. (12 months to August 2013)
- 5.2 per day
- Biggest Locations:
 - Flinders Street Station 89
 - North Melbourne 71
 - Newport 51

Metro Trains

"We are installing advanced computer technology which improves control of the signalling system, but our field equipment is outdated and requires replacing,"

Source: Adam Carey, The Age, 'Signal failures are causing chronic rail delays' 23/10/2013

Melbourne rail demand growth has been impressive by any standard

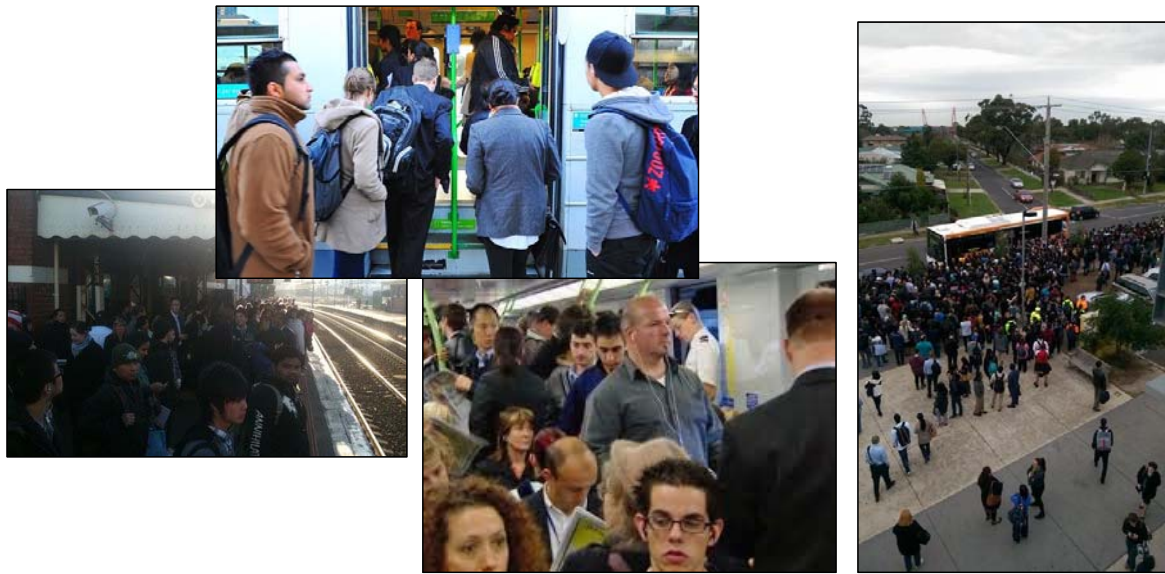


Source: Department of Transport/ Public Transport Victoria Annual Reports

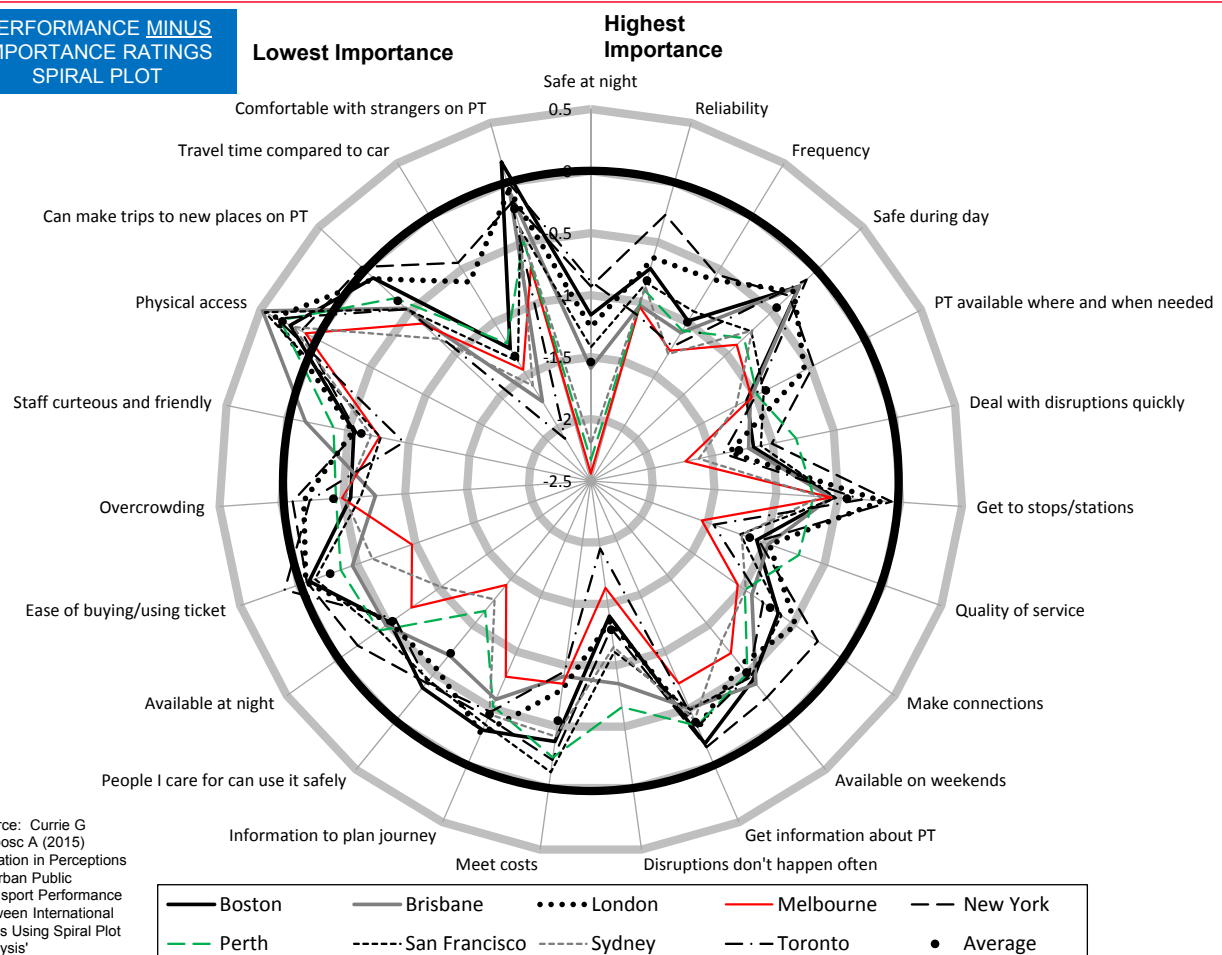
However the rail network has reached capacity



So what do passengers think about these issues?



PERFORMANCE MINUS IMPORTANCE RATINGS SPIRAL PLOT



Source: Currie G
Delbosc A (2015)
Variation in Perceptions
of Urban Public
Transport Performance
Between International
Cities Using Spiral Plot
Analysis'
TRANSPORTATION
RESEARCH RECORD

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The Transit Orientation of Development

Density

– the concentration and compactness of development within geographic space

Diversity

– the land use mix including the balance and compatability of users with each other (and transit)

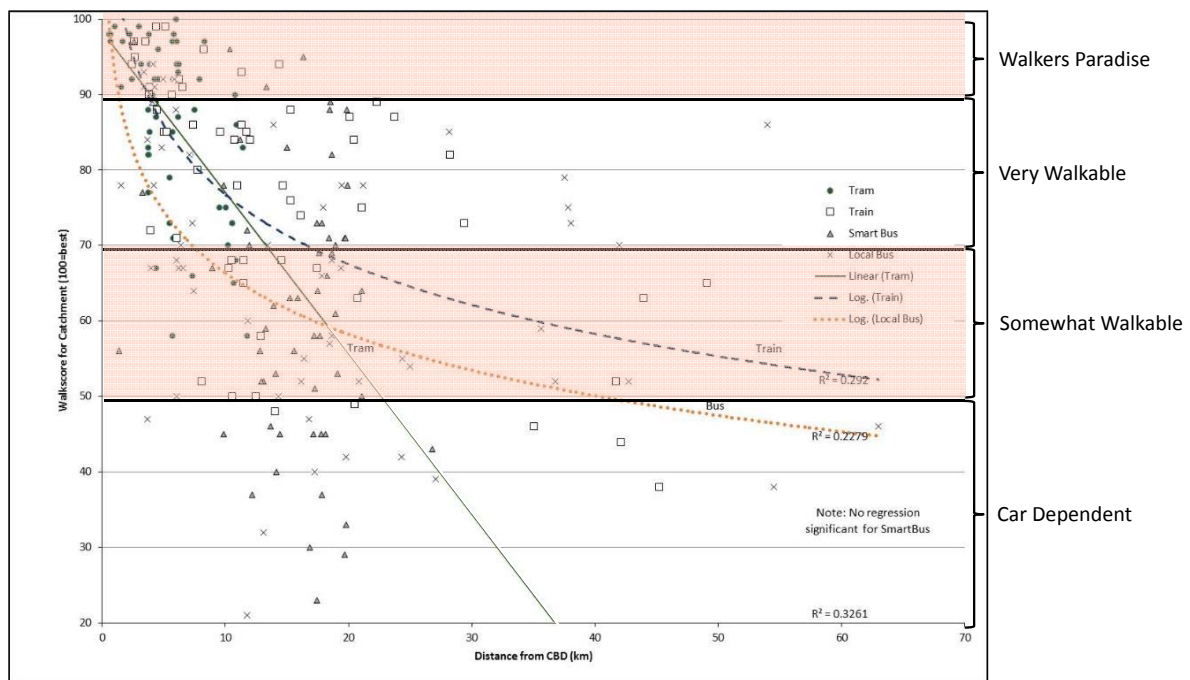
Design

– which relates how the various land uses are combined, linked and presented in terms of ease of access and attractiveness



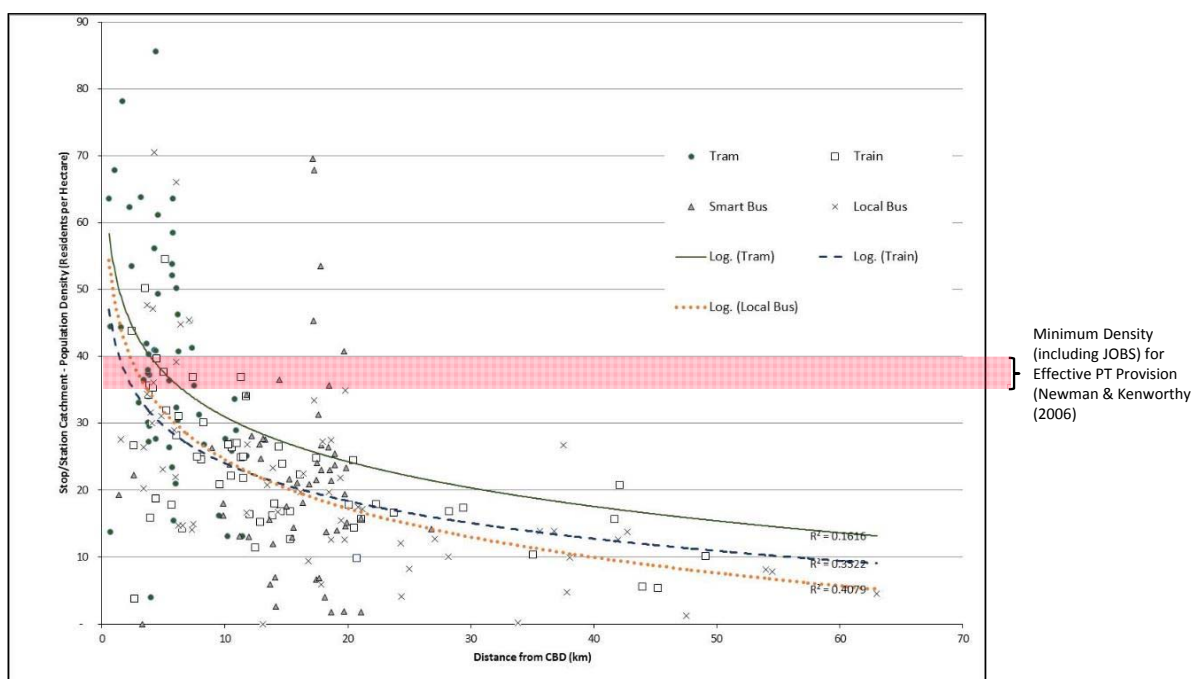
Source: Cervero and Kockleman (1997)

The Transit Orientation of Development – Design (Walkability) in Melbourne



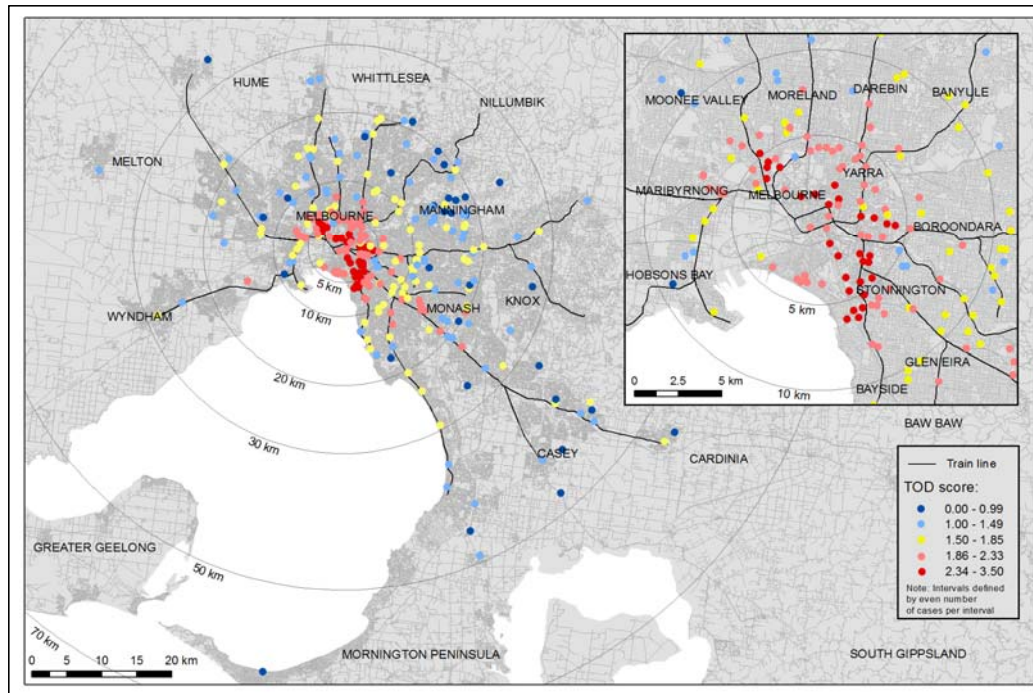
Source: Aston L, Currie G and K Pavkova (2016) 'Does Transit Mode Influence the Transit-Oriented Urban Development? - An Empirical Study' JOURNAL OF TRANSPORT GEOGRAPHY Vol 55 (2016) pp83-91

The Transit Orientation of Development – Density in Melbourne



Source: Aston L, Currie G and K Pavkova (2016) 'Does Transit Mode Influence the Transit-Oriented Urban Development? - An Empirical Study' JOURNAL OF TRANSPORT GEOGRAPHY Vol 55 (2016) pp83-91

The Transit Orientation of Development – OVERALL Melbourne – only in central areas



Source: Aston L, Currie G and K Pavkova (2016) 'Does Transit Mode Influence the Transit-Oriented Urban Development? - An Empirical Study' JOURNAL OF TRANSPORT GEOGRAPHY Vol 55 (2016) pp83-91

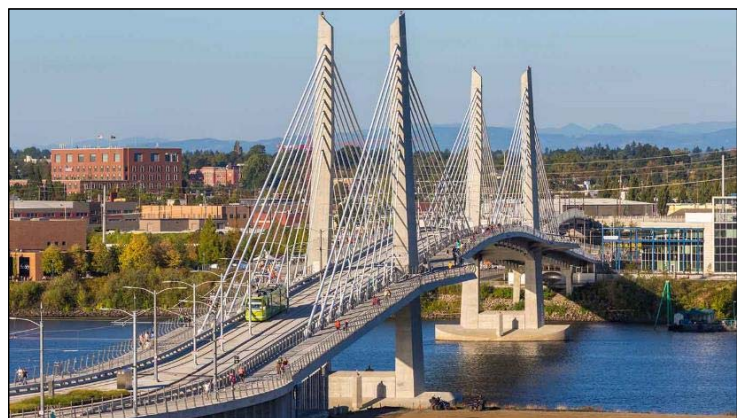
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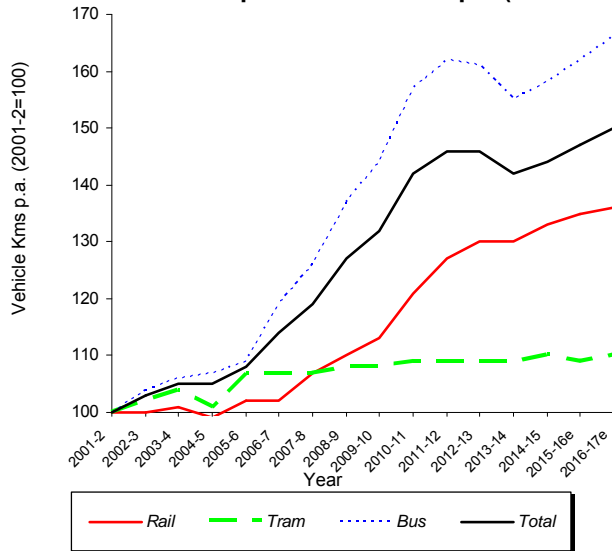
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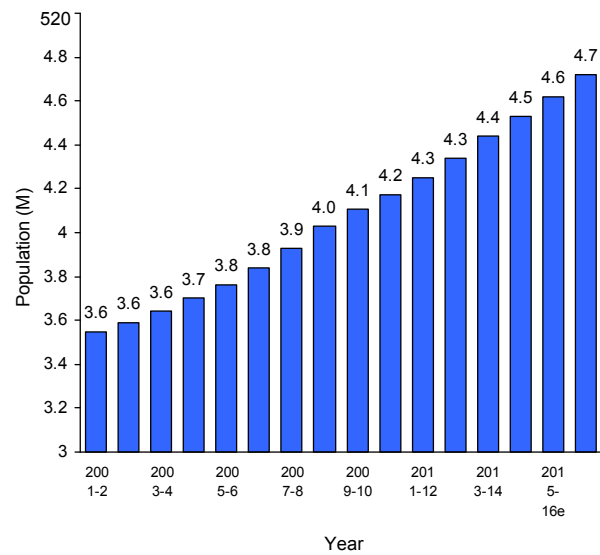
Since 2001 PT service increased 63% (66% bus/ 36% rail, 10% tram) but - but population growth continues at a faster pace...

Index of Public Transport Service Kms p.a (2001-2=100)



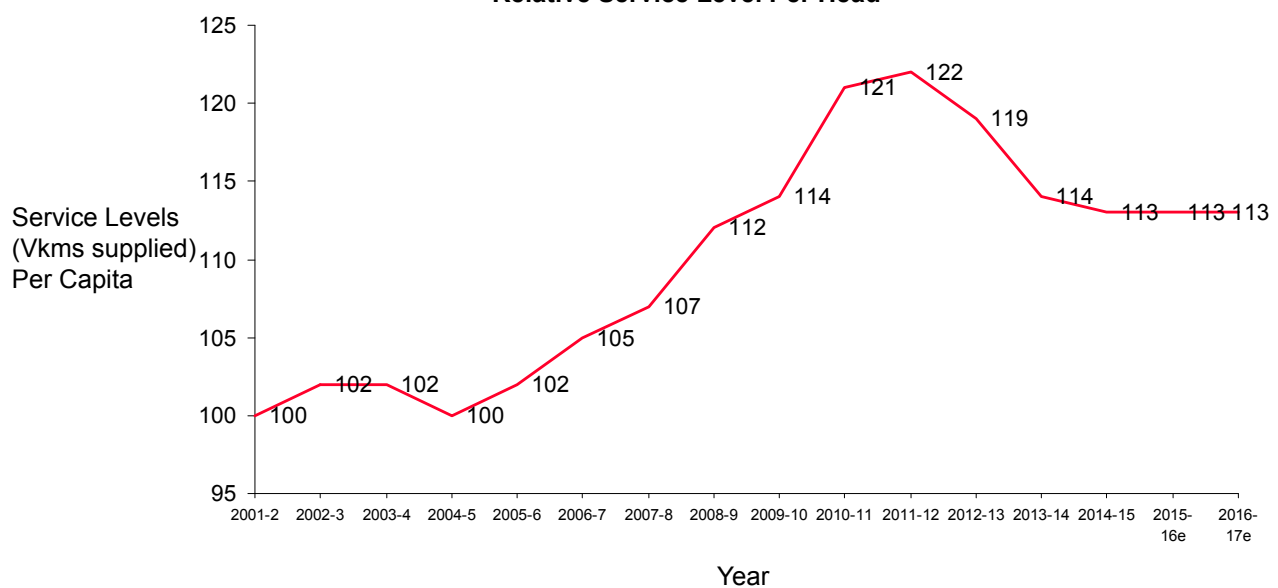
Source: Department of Transport/ Public Transport Victoria Annual Reports

Population Growth (M)



...in last 10 years, per capita service increased to 22% but declined since 2011 (we have gone down by 9% points); recent trend is flat

Relative Service Level Per Head



Source: Department of Transport/ Public Transport Victoria Annual Reports

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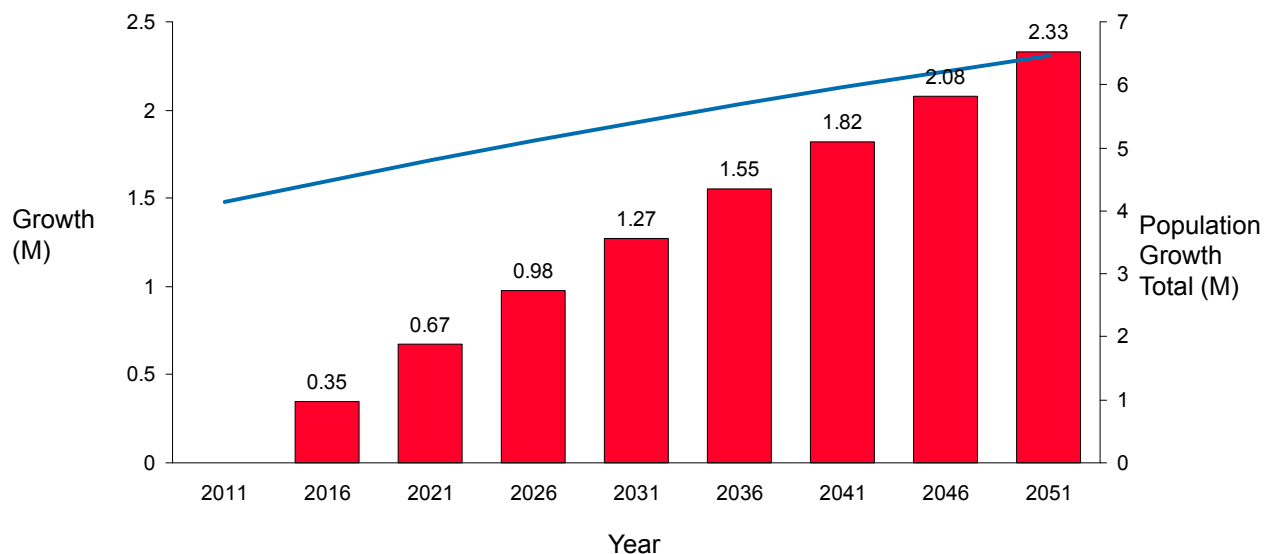
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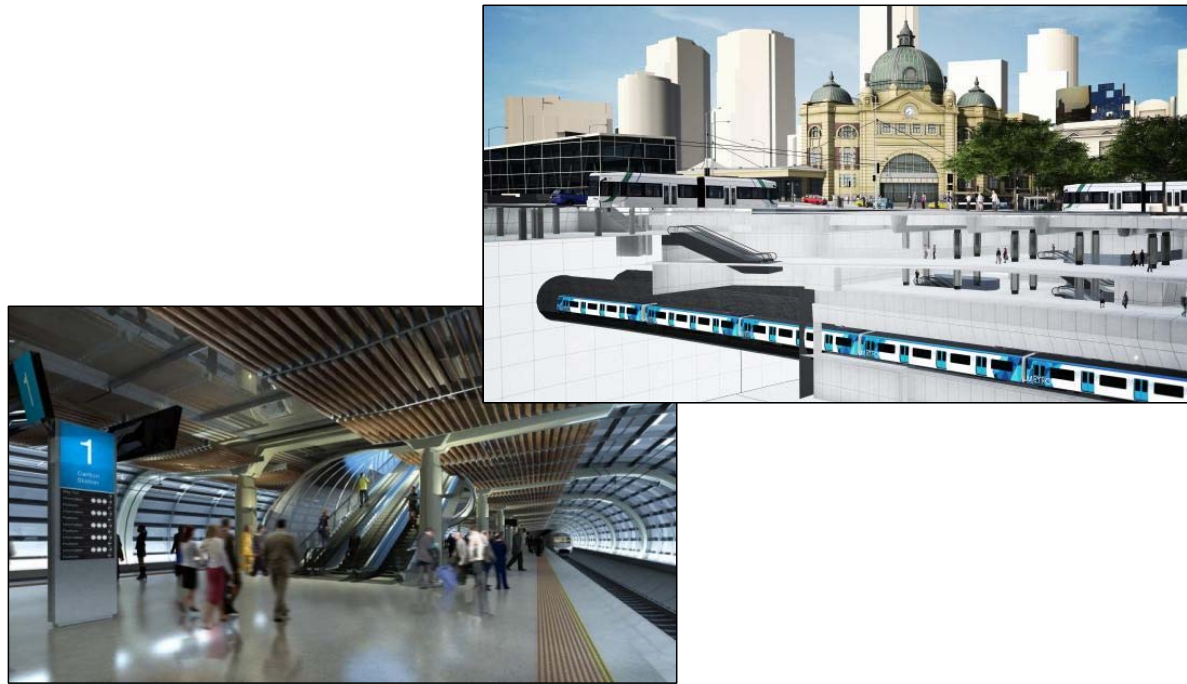
Melbourne is expected to increase in size by another 1-2M people in 20-30 years

Forecast Melbourne Population Growth



Source: Victoria in Future (2012)

Melbourne Metro; exciting but capacity upgrade is long overdue now – current start date is 2026!




Melbourne rail grade separations; exciting some capacity relief but not an increase in service



Where is tram and bus priority? – SmartBus; downgraded?





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Preparing for the world wide web.

The **Public Transport Research Group** is the name for researchers at the Institute of Transport Studies, Monash University who are engaged in research on public transport systems. The group is run by Professor Graham Currie, the Chair in Public Transport at Monash University. Research interests of the group are varied but loosely focus on research associated with public transport and strategic planning, travel demand management, travel behaviour, transport economics, land use and transit, travel modelling, operations modelling and planning for major special events.

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