



REVISED 31 JULY 2015

# TTF – L.E.K. CONSULTING PUBLIC TRANSPORT BAROMETER

A review of key public transport indicators for Australia

JULY 2015



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## ABOUT

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### TOURISM & TRANSPORT FORUM

Tourism & Transport Forum (TTF) is a national, member-funded CEO forum, advocating the public policy interests of leading corporations and institutions in Australian tourism, transport and aviation.

TTF is one of Australia's leading CEO networks and represents over 460,000 employees. In addition to strong policy advocacy for its member sectors, TTF works at many levels to provide influence, access and value to member businesses.

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# In this issue

**The TTF – L.E.K. Consulting Transport Barometer has been developed to provide an up-to-date insight into the performance of major metropolitan public transport networks in Australia. Each edition will monitor and explore specific challenges and opportunities facing service providers. The Barometer will promote the role of public transport in our capital cities and look at how operators are achieving improvements in customer service nationwide.**

In this first edition we observe how public transport patronage across Australia has continued to grow for most modes compared to a year ago. We can also see how our measures of punctuality show a range of variability across different modes and cities. However punctuality is generally continuing to improve showing a multi-year trend (in particular Melbourne's rail system). Historically, the number of public transport trips in Australia has grown faster than population growth and at an even faster rate when compared to private transport (e.g., car). We expect this modal shift to continue.

In each issue of the *Barometer*, we will examine a specific issue affecting the public transport industry today and put this 'In the Spotlight'. In this issue, we explore the 'the gap' between cost and actual revenue in Australia's public transport system, and look specifically at measures that generate both additional revenue and cost savings to promote financial sustainability and better service to customers.

L.E.K. Consulting and Tourism & Transport Forum (TTF) are delighted to partner together to present this inaugural edition of the *Transport Barometer*.



**SIMON BARRETT**

Senior Partner &  
Chairman, L.E.K. Australia



**MARGY OSMOND**

Chief Executive Officer,  
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# 1. PATRONAGE – AN OVERVIEW

Patronage is a key indicator in determining the utilisation of our public transport system. By comparing this to population and GDP per capita growth, we can have a true sense of growth and performance.

Of all Australia's capital cities, Sydney has performed best in terms of patronage with strong growth in rail and ferry over the past three years (despite no growth in the bus network). Sydney's transport services have been subject to major reforms including the franchising of Sydney Ferries and the demerger of Sydney Trains and NSW Trains. This train demerger also saw new timetables and the introduction of crucial customer service improvements such as the introduction of the Opal card and real time information apps.

NSW is also seeing improvements and high levels of customer satisfaction in their bus networks, in particular those that are operated by the private sector.<sup>1</sup> This provides a strong argument for the NSW government to pursue the franchising of State Transit Authority (STA) buses.

Over the last decade, Melbourne public transport patronage has grown rapidly on all modes of transport but this growth has slowed over the past three years. TTF believes that in order to recapture this strong growth, infrastructure upgrades will be required to increase rail and tram patronage. This could be achieved by a new CBD rail line to relieve the existing rail network that is near capacity and this would also benefit the tram network by alleviating traffic congestion. Furthermore, improvements to tram services by way of speed and reliability can be achieved through better priority and segregation.

Brisbane's public transport network experienced significant disruption during the 2011 floods. While ferry patronage has rebounded, there has been limited growth in bus. Rail patronage has softened due to some combination of fare increases and a slowing economy.

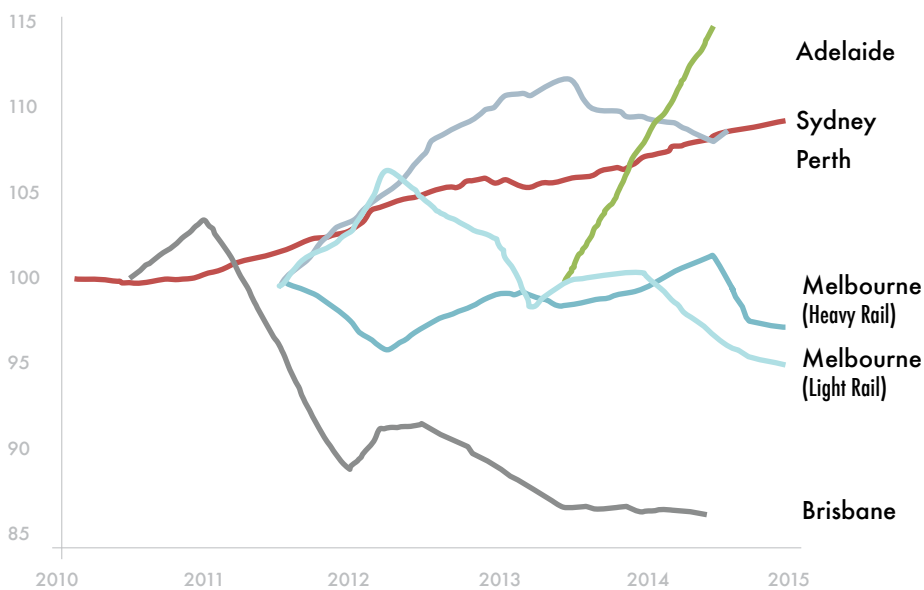
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<sup>1</sup> Transport for NSW, Customer Satisfaction Index, May 2014



## 1.1 Rail Patronage

**Figure 1: Rail patronage, rolling annual total**  
(Jan 2010 - Dec 14)  
Index (earliest available data =100)



Rail patronage shows variability across different cities (Figure 1). In Sydney and Melbourne, rail accounts for the bulk of public transport patronage and both cities have experienced strong growth since 2012. Sydney Trains has experienced an average annual growth of 2.2% p.a. over three years, whilst Melbourne's rail patronage has been growing rapidly over the past decade but experienced growth of only 0.4% p.a over the last 3 years due to a significant drop in late 2011 (Figure 2).

Brisbane's rail patronage dropped during the 2011 floods but has not yet returned to its previous peaks.

Transperth Trains' patronage increased rapidly between 2011 and mid-2013 but has been declining ever since. However, Perth's patronage growth over three years remains positive at a rate of 2.6% p.a.

**Figure 2: Rail patronage: Year on year change**

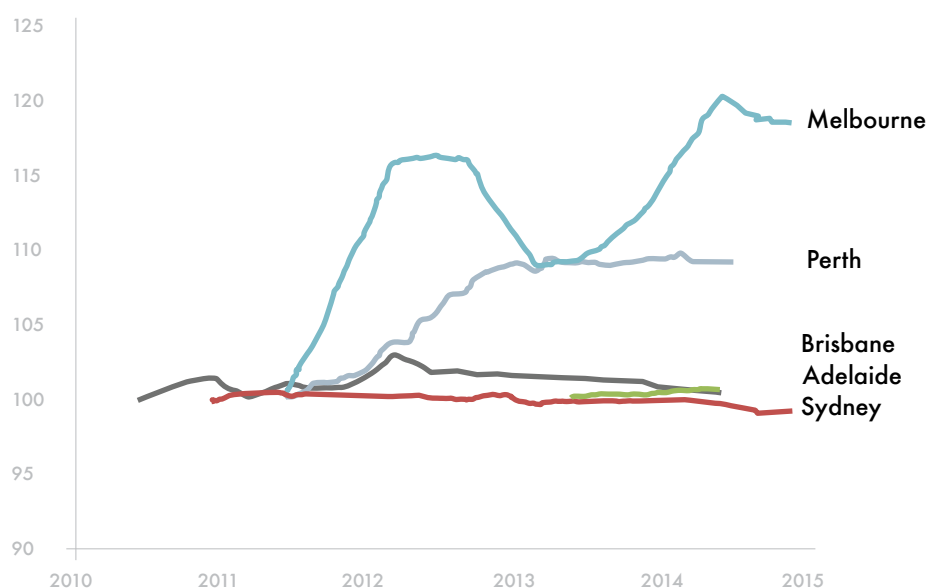
	Patronage growth			Patronage $\Delta$ 2011-14 <sup>^</sup>	Population $\Delta$ 2011-14	GDP / capita $\Delta$ 2011-14
	Jun 2011-12	Jun 2012-13	Jun 2013-14			
Sydney	+3.1%	+0.9%	+2.6%	+2.2%	+1.7%	+0.8%
Melbourne (Heavy rail)	-3.0%	+1.6%	+2.9%	+0.4%	+2.1%	+0.4%
Melbourne (Light rail)	+4.9%	-4.6%	-3.2%	-1.1%	+2.1%	+0.4%
Brisbane	-5.1%	-5.3%	-0.4%	-3.6%	+3.1%	+1.5%
Perth	+7.1%	+4.2%	-3.4%	+2.6%	+1.9%	+2.6%
Adelaide	n/a	n/a	+14.6%	n/a	+1.1%	+0.3%

Note: <sup>^</sup> Data from Jun 2011 TTM – Jun 2014 TTM, with the exception of Adelaide (June 2013TTM - June 2014TTM)



## 1.2 Bus

**Figure 3: Bus patronage, rolling annual total**  
(Jun 2010 - Dec 14)  
Index (earliest available data =100)



Bus networks across Australian capital cities appear to be performing positively overall (Figure 3). Melbourne's bus patronage has grown significantly over the last three years despite a temporary decline in 2012-13 (-6.1%). However, this was compensated by +10.3% growth in 2013-2014 (Figure 4) attributable to additional routes and more frequent services. Perth bus patronage also experienced steady growth between 2011 and 2013 but later slowed in 2013-2014.

Sydney and Brisbane bus patronage figures appear to show little or no growth over the last 5 years.

**Figure 4: Bus patronage: Year on year change**

	Patronage growth			Patronage $\Delta$ 2011-14 <sup>^</sup>	Population $\Delta$ 2011-14	GDP / capita $\Delta$ 2011-14
	Jun 2011-12	Jun 2012-13	Jun 2013-14			
Sydney	-0.3%	-0.3%	-0.1%	-0.2%	+1.7%	+0.8%
Melbourne	+16.1%	-6.1%	+10.3%	+6.3%	+2.1%	+0.4%
Brisbane	+1.0%	-0.4%	-0.9%	+0.01%	+3.1%	+1.5%
Perth	+5.2%	+3.6%	+0.2%	+3.0%	+1.9%	+2.6%
Adelaide	n/a	n/a	+0.7%	n/a	+1.1%	+0.3%

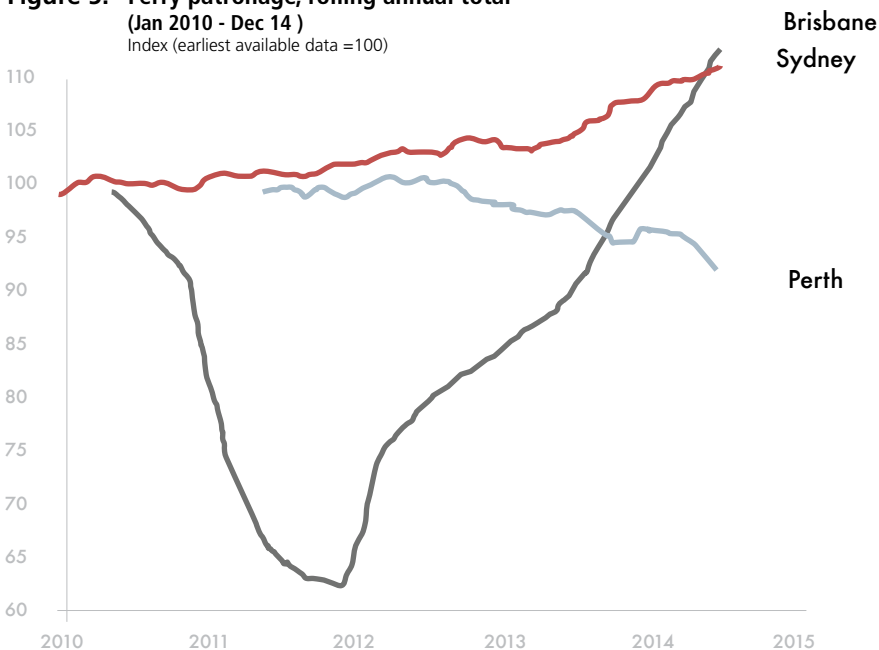
Note: <sup>^</sup> Data from Jun 2011 TTM – Jun 2014 TTM





## 1.3 Ferry Patronage

**Figure 5: Ferry patronage, rolling annual total**  
(Jan 2010 - Dec 14)  
Index (earliest available data = 100)



Ferry patronage varies greatly across Sydney, Perth and Brisbane (Figure 5). In particular, Sydney Ferries is experiencing a steady growth in patronage (+3.3% pa over three years). This follows a period of slow growth between 2010 and 2012. Patronage appears to have increased rapidly following the franchising of Sydney Ferries in 2012, and the resumption of previously withdrawn services and wharf upgrades.

Ferry patronage in Brisbane is climbing back to normal after a fall due to Brisbane's 2011 floods while Perth patronage has been decreasing since mid-2012.

**Figure 6: Ferry patronage: Year on year change**

	Patronage growth			Patronage $\Delta$ 2011-14 <sup>^</sup>	Population $\Delta$ 2011-14	GDP / capita $\Delta$ 2011-14
	Jun 2011-12	Jun 2012-13	Jun 2013-14			
Sydney	+1.8%	+1.2%	+6.9%	+3.3%	+1.7%	+0.8%
Brisbane	+18.7%	+13.1%	+26.3	+19.2	+3.1%	+1.5%
Perth	+0.7%	-2.1%	-6.4%	-2.6%	+1.9%	+2.6%

Note: <sup>^</sup> Data from Jun 2011 TTM – Jun 2014 TTM



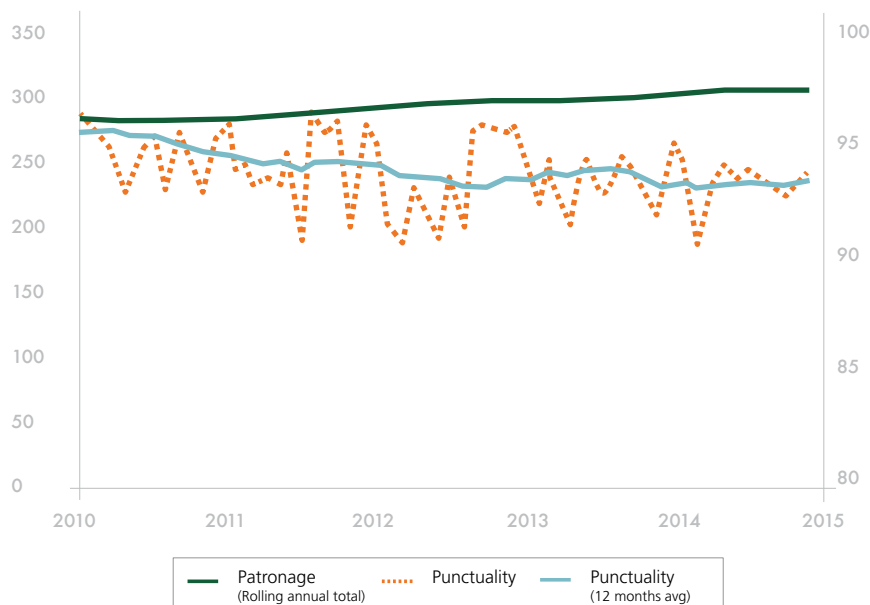
## 2. SYDNEY

### Rail

#### Sydney Rail performance metrics time series

Patronage, 12 months to date  
(Jan 10 - Dec 14)  
Millions of travellers

Punctuality  
(Jan 10 - Dec 14, monthly)  
Percent on time



	Latest data	1 year change <sup>1</sup>	3 year annual % change
Patronage	316.0m (Dec 14)	+1.9%	+1.8%
Punctuality	93.8% (Dec 14)	+0.3%	-0.8%
Reliability	99.5% (Nov 13)	-0.2%	-0.1%

- Sydney rail patronage growth has been slightly above population growth of 1.7% per annum.
- Punctuality remains stable



## Bus

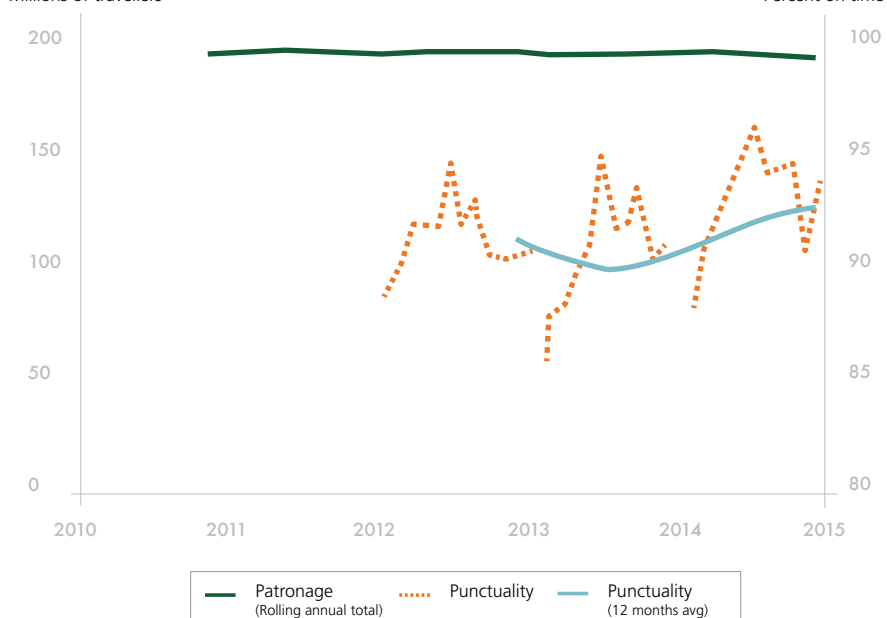
### Sydney Bus performance metrics time series

Patronage, 12 months to date  
(Dec 10 - Dec 14)

Millions of travellers

Punctuality  
(Feb 12 - Dec 14, monthly)

Percent on time



	Latest data	1 year change <sup>1</sup>	3 year annual % change
Patronage	189.5m (Dec 14)	-0.6%	-0.4%
Punctuality	92.5% (Dec 14)	+2.3%	n/a
Reliability	99.8% (Mar 14)	-0.1%	-0.1%

- Bus patronage has been relatively flat in recent years
- Punctuality data is incomplete and appears volatile

**Note:** Data is for government owned services only operated by STA which includes inner Sydney and Newcastle. (excludes all private bus services)

## Ferry

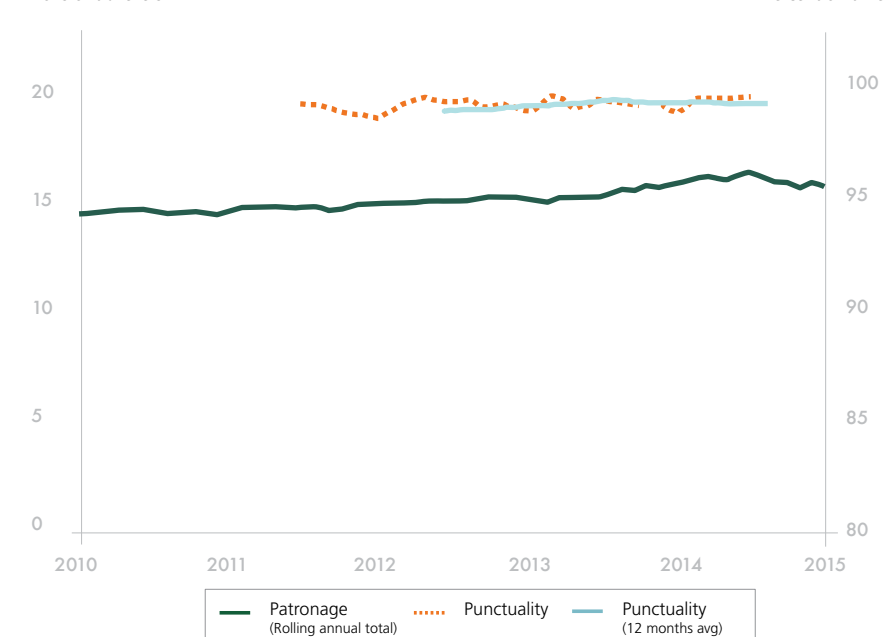
### Sydney Ferry performance metrics time series

Patronage, 12 months to date  
(Jan 10 - Dec 14)

Millions of travellers

Punctuality  
(Jan 11 - Jun 14, monthly)

Percent on time



	Latest data	1 year change <sup>1</sup>	3 year annual % change
Patronage	15.4m (Dec 14)	-0.5%	+1.9%
Punctuality	99.1% (Jun 14)	0.0%	n/a
Reliability	99.9% (Jun 14)	0.0%	n/a

- Sydney ferry patronage growth has been slightly above population growth at 1.9% per annum
- Reliability and punctuality of ferry service remains strong and stable

**Note:** All patronage data is sum of 12 months to date and punctuality and reliability data is based on average of 12 months to date (unless otherwise stated); <sup>1</sup>Compared to 12 month data ending in the last quarter

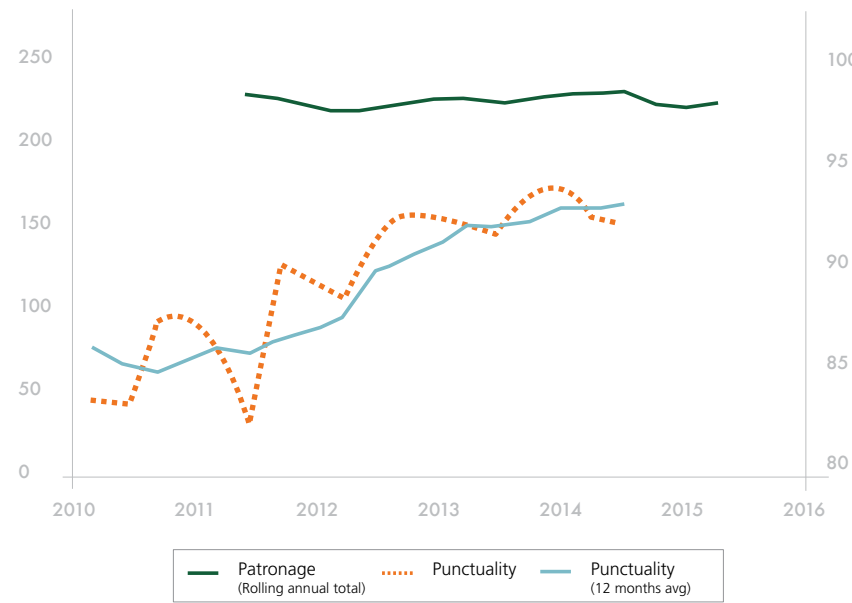


Rail

Melbourne Rail performance metrics time series

Patronage, 12 months to date  
(Jun 11 - Mar 15)  
Millions of travellers

Punctuality  
(Mar 10 - Jun 14, quarterly)  
Percent on time



	Latest data	1 year change <sup>1</sup>	3 year annual % change
Patronage	224.5m (Mar 15)	-2.2%	+0.8%
Punctuality	93.1% (Jun 14)	+1.0%	+7.2%
Reliability	98.9% (Jun 14)	+0.5%	+0.2%

- Patronage has remained steady in recent years
- Punctuality has seen substantial improvement, up 7.2 in the last three years of data

## Light Rail

### Melbourne Tram performance metrics time series

Patronage, 12 months to date

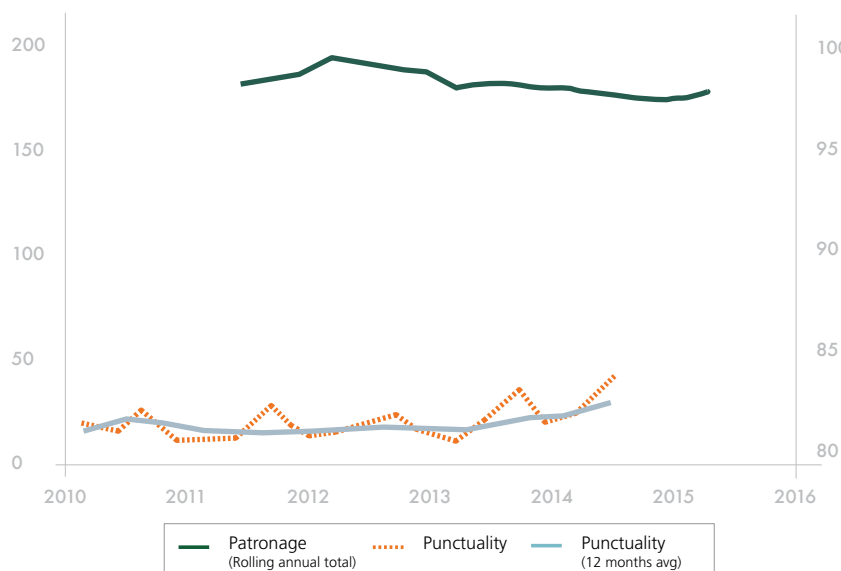
(Jan 11 - Mar 15)

Millions of travellers

Punctuality

(Mar 10 - Jun 14, monthly)

Percent on time



	Latest data	1 year change <sup>1</sup>	3 year annual % change
Patronage	177.8m (Mar 15)	-5.4%	-2.9%
Punctuality	82.9% (Jun 14)	+1.2%	+1.5%
Reliability	98.9% (Jun 14)	-0.1%	-0.3%

- Light rail patronage decreased by around 5% in the last year of data
- There was a slight uplift in punctuality, whilst reliability has remained fairly flat

## Bus

### Melbourne Bus performance metrics time series

Patronage, 12 months to date

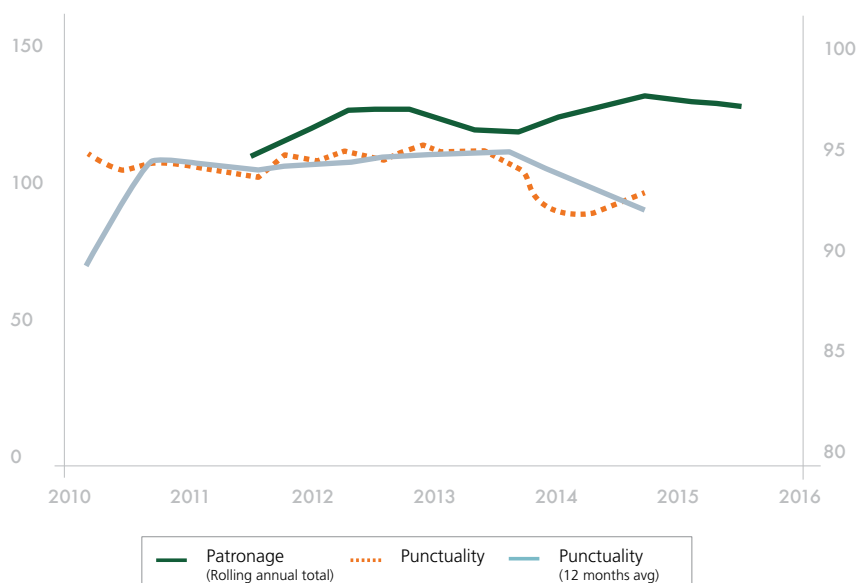
(Jun 11 - Mar 15)

Millions of travellers

Punctuality

(Mar 10 - Jun 14, monthly)

Percent on time



	Latest data	1 year change <sup>1</sup>	3 year annual % change
Patronage	123.6m (Mar 15)	-5.3%	+0.3%
Punctuality	91.8% (Jun 14)	-2.6%	-1.8%
Reliability	99.9% (Jun 14)	0.0%	0.0%

- Bus patronage has grown strongly over the last 5 years, but decreased by around 5% in the last year of data
- Reliability of bus services remains very strong, whilst punctuality has declined

**Note:** All patronage data is sum of 12 months to date and punctuality and reliability data is based on average of 12 months to date (unless otherwise stated); <sup>1</sup>Compared to 12 month data ending in the last quarter. Patronage data for 12 months to Dec 14.





# 4. BRISBANE

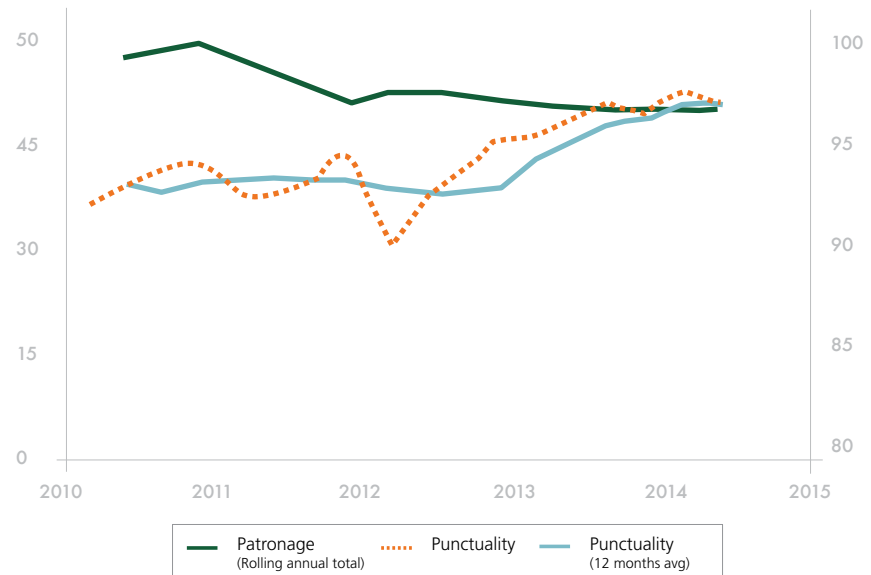
The decision of the Queensland Government to discontinue in 2012 the TranksLink Tracker quarterly reporting of key indicators has affected the ease with which data can be accessed.

## Rail

### Brisbane Rail performance metrics time series

Patronage, 12 months to date  
(Jun 10 - Jun 14)  
Millions of travellers

Punctuality  
(Mar 10 - Jun 14, quarterly)  
Percent on time



	Latest data	1 year change <sup>1</sup>	3 year annual % change
Patronage	49.8m (Jun 14)	-0.4%	-3.6%
Punctuality	97% (Jun 14)	-0.9%	-1.5%
Reliability	99.8% (Jun 12)	-0.1%	0.0%

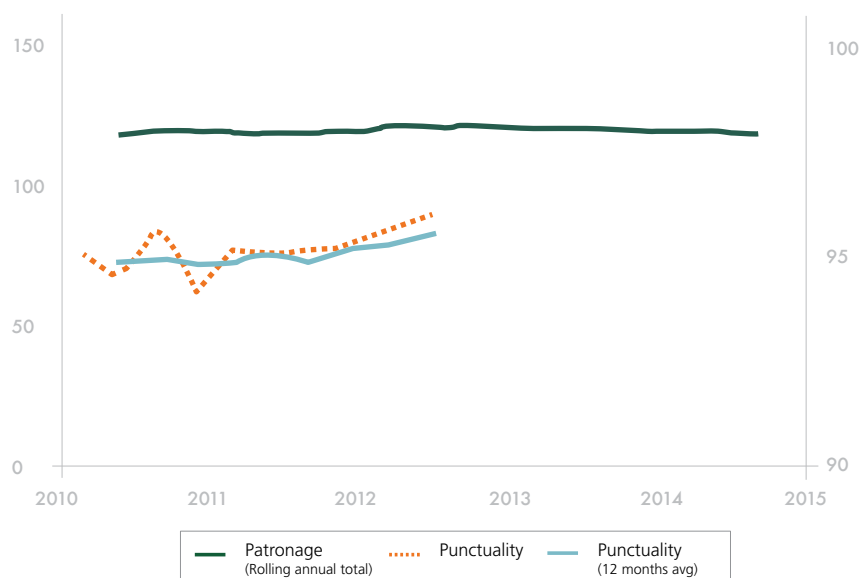
- Brisbane rail patronage has continued to soften since 2011, despite population increasing slightly
- Punctuality has materially improved in the last two years
- The roll out of go card has increased the reliability of rail patronage data

## Bus

### Brisbane Bus performance metrics time series

**Patronage, 12 months to date**  
(Jun 10 - Jun 14)  
Millions of travellers

**Punctuality**  
(Mar 10 - Jun 12, quarterly)  
Percent on time



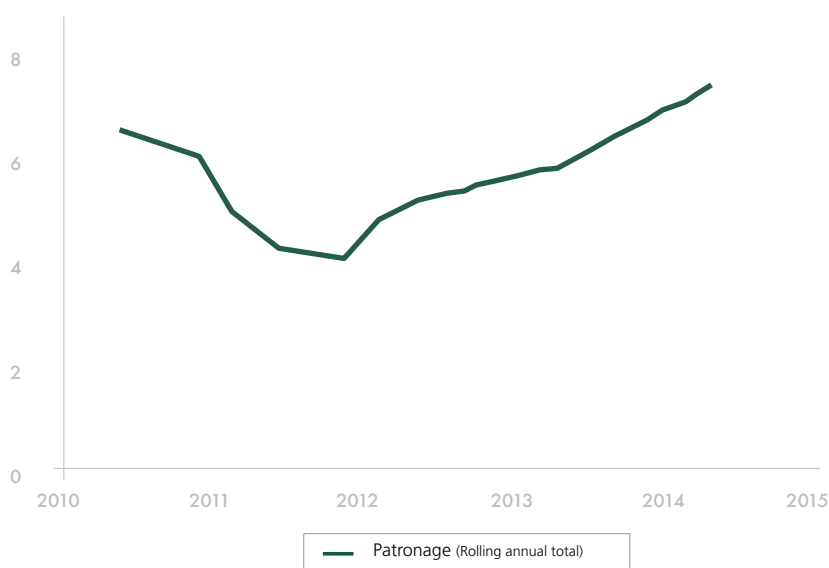
	Latest data	1 year change <sup>1</sup>	3 year annual % change
Patronage	118.7m (Jun 14)	-0.9%	+0.1%
Punctuality	95.6% (Jun 12)	+0.5%	+0.1%
Reliability	100.0% (Jun 12)	0.0%	0.0%

- Brisbane bus patronage has been largely static over the last five years.
- Punctuality is high and stable, averaging approx. 96% on-time services for the past two years of data

## Ferry

### Brisbane Ferry performance metrics time series

**Patronage, 12 months to date**  
(Jun 10 - Jun 14)  
Millions of travellers



	Latest data	1 year change <sup>1</sup>	3 year annual % change
Patronage	7.4m (Jun 14)	+26.3%	+19.2%
Punctuality	n/a	n/a	n/a
Reliability	n/a	n/a	n/a

- Brisbane ferry patronage was heavily impacted by reduced services running in Q1 2011 (as a result of 2011 Brisbane floods)
- Over the last three years patronage has rebounded strongly exceeding previous levels

**Note:** All patronage data is sum of 12 months to date and punctuality and reliability data is based on average of 12 months to date (unless otherwise stated); <sup>1</sup> Compared to 12 month data ending in the last quarter

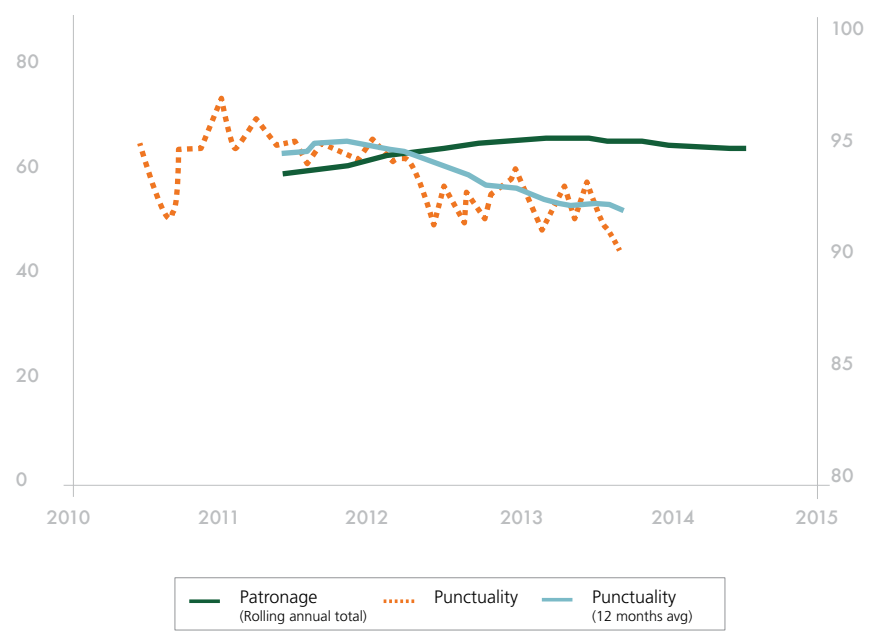


# Rail

## Perth Rail performance metrics time series

Patronage, 12 months to date  
(Jun 11 - Jul 14)  
Millions of travellers

Punctuality  
(Jul 10 - Sep 13, monthly)  
Percent on time



	Latest data	1 year change <sup>1</sup>	3 year annual % change
Patronage	63.9m (Jul 14)	-1.8%	+2.7%
Punctuality	92.8% (Sep 13)	-1.8%	n/a
Reliability	n/a	n/a	n/a

- Despite a decline in the last year, Perth rail patronage has grown largely in line with population growth, since 2011
- Punctuality has declined over the same period



## Bus

### Perth Bus performance metrics time series

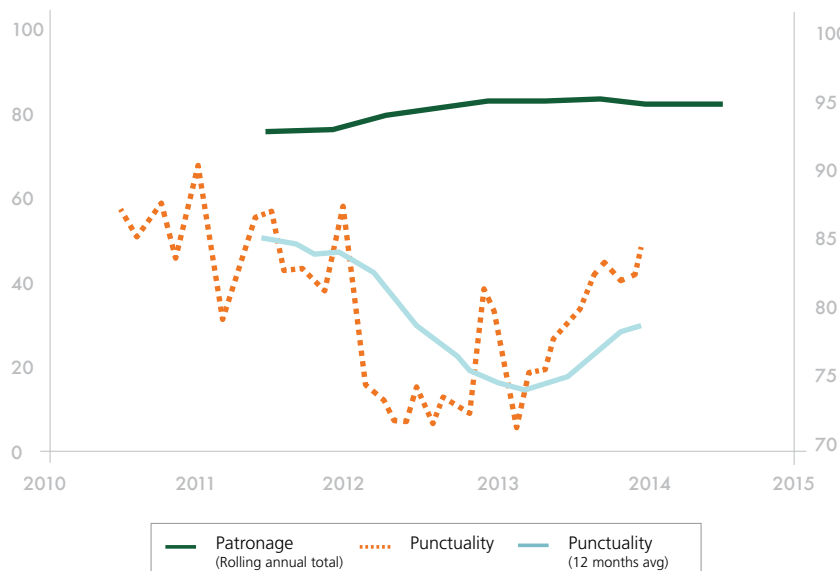
Patronage, 12 months to date

(Jun 11 - Jul 14)

Millions of travellers

Punctuality  
(Jul 10 - Jan 14, monthly)

Percent on time



	Latest data	1 year change <sup>1</sup>	3 year annual % change
Patronage	83.6m (Jul 14)	0.0%	+3.0%
Punctuality	78.8% (Sep 13)	+4.3%	n/a
Reliability	n/a	n/a	n/a

- Perth bus patronage has also seen strong growth in the last three years of data
- Punctuality performance has improved from a low base over the last year of available data

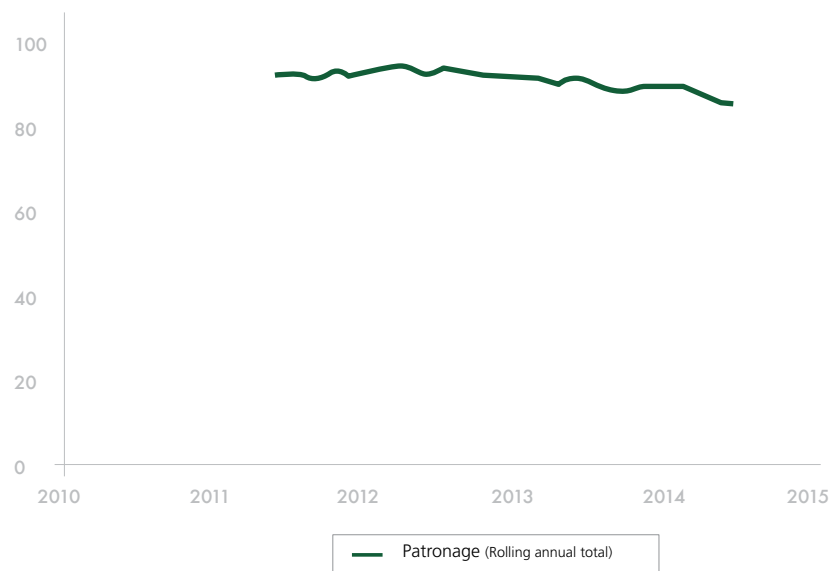
## Ferry

### Perth Ferry performance metrics time series

Patronage, 12 months to date

(Jun 11 - Jul 14)

Percent on time



	Latest data	1 year change <sup>1</sup>	3 year annual % change
Patronage	0.43m (Jul 14)	-6.0%	-3.0%
Punctuality	n/a	n/a	n/a
Reliability	n/a	n/a	n/a

- Perth ferry has experienced a significant decrease in the patronage over the last year of available data

**Note:** All patronage data is sum of 12 months to date and punctuality and reliability data is based on average of 12 months to date (unless otherwise stated); <sup>1</sup>Compared to 12 month data ending in the last quarter



# 6. ADELAIDE

## Rail

### Adelaide Rail performance metrics time series

Patronage, 12 months to date  
(Jun 13 – Jun 14)  
Millions of travellers



Punctuality  
(Jun 12 - Jun 14 quarterly)  
Percent on time

	Latest data	1 year change <sup>1</sup>	3 year annual % change
Patronage	10.4m (Jun 14)	+14.6%	n/a
Punctuality	86.2% (Jun 14)	-3.0%	n/a
Reliability	100% (Jun 14)	0.0%	n/a

- While punctuality has declined by 3% over the past year of data, Adelaide trains consistently deliver 100% of their services
- Train patronage is continuing to rebound strongly from 2012 lows as rail upgrades finish and lines continues to open

## Bus

### Adelaide Bus performance metrics time series

**Patronage, 12 months to date**  
(Jun 13 - Jun 14)  
Millions of travellers

**Punctuality**  
(Mar 12 – Jun 14, quarterly)  
Percent on time



	Latest data	1 year change <sup>1</sup>	3 year annual % change
Patronage	50.3m (Jun 2014)	+0.7%	n/a
Punctuality	84.9% (Jun 14)	+1.6%	n/a
Reliability	99.9% (Jun 14)	+0.1%	n/a

- Adelaide bus punctuality has increased by 1.6% over the past year
- Adelaide buses consistently deliver close to 100% of their services

## Light Rail

### Adelaide Light Rail performance metrics time series

**Patronage, 12 months to date**  
(Jun 13 – Jun 14)  
Millions of travellers

**Punctuality**  
(Mar 12 – Jun 14, quarterly)  
Percent on time



	Latest data	1 year change <sup>1</sup>	2 year annual % change
Patronage	2.6m (Jun 2014)	-0.3%	n/a
Punctuality	90.1% (Jun 14)	+0.3%	n/a
Reliability	100% (Jun 14)	0.0%	n/a

- Punctuality has remained consistently high and fluctuates slightly around the 90% on-time mark
- Adelaide light rail consistently deliver 100% of their timetabled services

**Note:** All patronage data is sum of 12 months to date and punctuality and reliability data is based on average of 12 months to date (unless otherwise stated); <sup>1</sup> Compared to 12 month data ending in the last quarter



# 7. IN THE SPOTLIGHT

## The Gap – Making Australian Public Transport Financially Sustainable

Public transport in Australia is provided to the community as a heavily subsidised service. This reflects the view of government and the community that public transport provides substantial benefits to the broader community, not just individual commuters.

The balance between cost recovery through ticket sales, known as farebox revenue, and public subsidisation is determined by governments taking into account a range of political, operational and patronage factors. In Australia, farebox revenue only accounts for between one-quarter and one-third of the cost.

While very few countries in the world operate public transport at 100 per cent cost recovery, or at a profit, most do however raise more

farebox revenue as a percentage of operating costs than Australian jurisdictions (see Figure 2). This reflects relatively lower fares in Australia and, in many cases, higher operational costs.

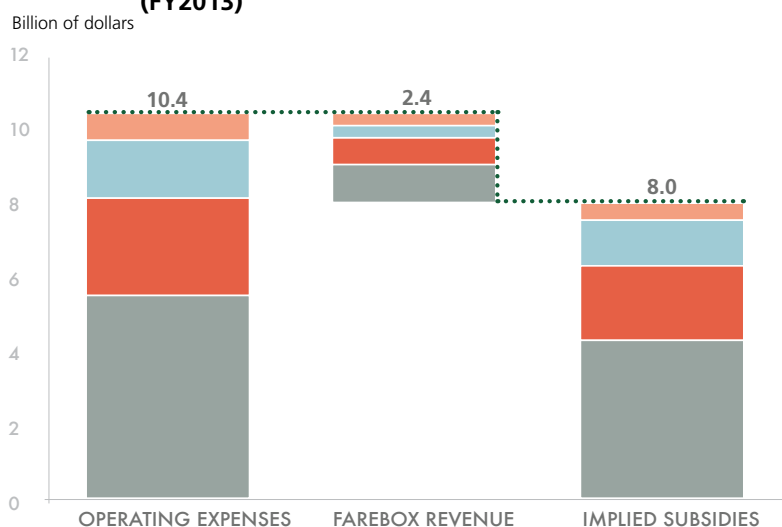
The Australian community accepts that public transport should not operate at full cost recovery. However, in a time of constrained state and territory budgets, increasing revenue and reducing costs would allow public transport to become more sustainable and grow to meet anticipated increases in population, employment and economic activity.

This will become more critical as new infrastructure is completed, which will mean that additional operational costs will have to be funded from constrained state budgets.

For transport agencies this involves balancing fare increases against impacts on patronage and community expectations, while searching for new ways to raise revenue and reduce costs.

The largest public transport systems are the most subsidised. For example the shortfall between costs and fare revenue totals \$4.3 billion, in New South Wales.<sup>2</sup> Overall its cost recovery is just 22%, brought down by the big shortfall in its rail network. Victoria's recovery rate is similarly poor at 22%, with a shortfall totalling \$2.1 billion.<sup>3</sup> In Queensland, where Queensland Rail accounts for the bulk of operating costs, the 23% cost recovery rate leaves more than \$1 billion to be funded by tax payers<sup>4</sup> (Figure 1).

**Figure 1: Australia's public transport cost recovery\* (estimated) (FY2013)**



Source: NSW Auditor-General's Report. The Age; TransLink annual report; Public Transport Authority of Western Australia annual report, L.E.K. research and analysis

Note: \*South Australia excluded due to insufficient data; ^ 1H FY2013 annualised

### Cost recovery rate (estimated)

Total	23%
WA	30%
QLD	23%
VIC	22%
NSW	22%

<sup>2</sup> NSW Auditor-General's Report Volume Eight (2013)

<sup>3</sup> The Age; Public Transport Victoria Annual Report (2012-13)

<sup>4</sup> TransLink Transit Authority Final Report (July 2012-December 2013)

As Australia's population grows notably to denser urban areas and the modal shift away from cars continues, the demand for public transport continues to increase. That's a positive development: a well-utilised and efficient public transport system plays a vital role in our community. It brings economic gains, through cost savings from reduced congestion, as well as improved job creation and competitiveness. It also brings environmental benefits, through lower greenhouse gas emissions and a lesser

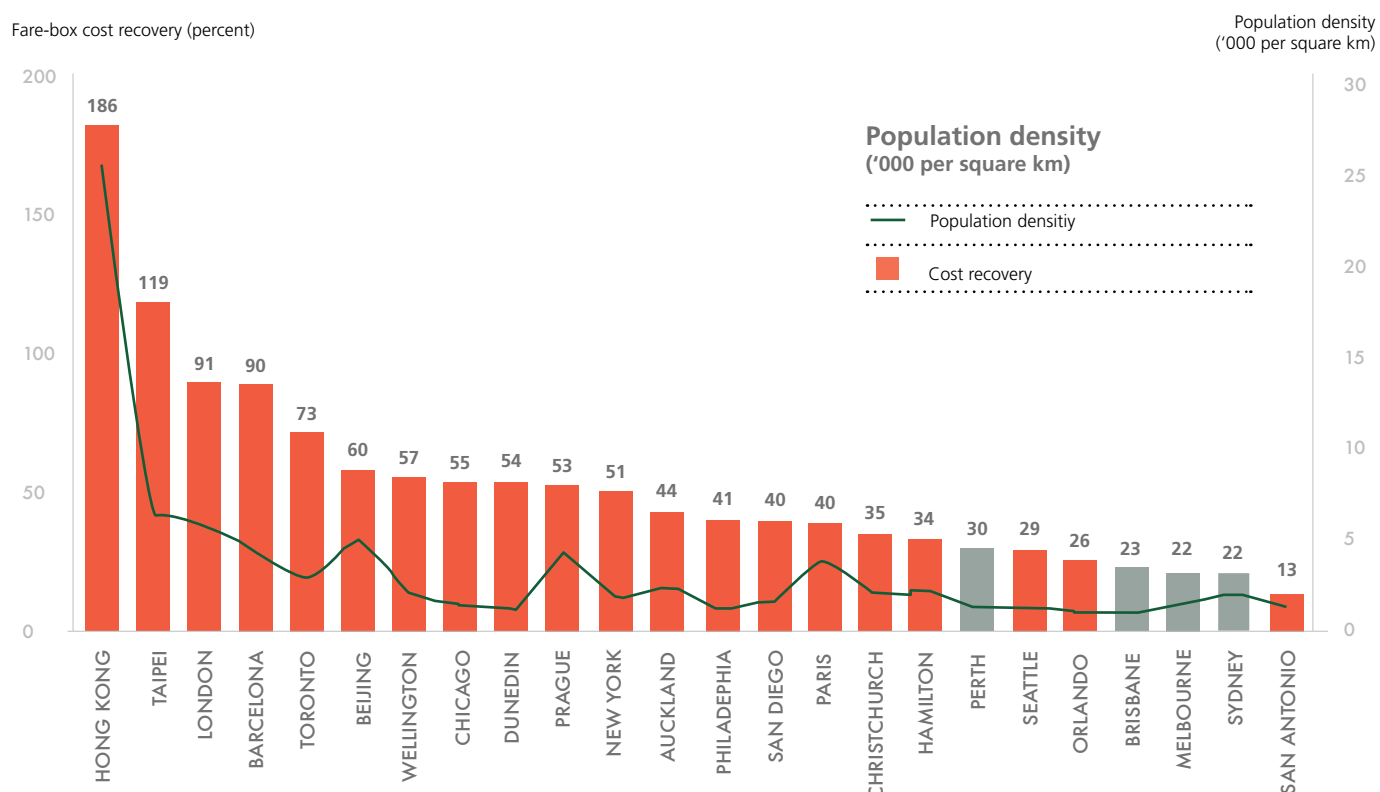
dependence on oil and other fossil fuels. Socially, it connects communities and enables equitable access to jobs and services.

The growing pressure on governments to reduce spending is putting pressure on public transport systems in Australia to become more financially sustainable. On an international scale, Australian cities are not even close to competing with Hong Kong and Taipei, where fare-box revenue actually exceeds the total operating costs of public transport. In Chicago, Toronto, London,

Barcelona and Beijing, fares cover well over half of operating costs.

Figure 2 indicates that this is not just a function of higher population density. For example, Wellington, Dunedin and Chicago have a higher cost recovery rate despite having a similar population density to Melbourne and Sydney. Even within Australia, the highest rate of cost recovery is in Perth (30%), compared to dense metropolitan areas of Sydney (22%) and Melbourne (23%).<sup>5</sup>

**Figure 2: Estimated international public transport cost recovery rates (2012- 13)**



Source: City transport today annual reports; Demographia World Urban Areas 2014; L.E.K. research and analysis

Note: \*Adelaide information unavailable

<sup>5</sup> NSW Auditor-General's Report Volume Eight (2013); The Age; Public Transport Victoria Annual Report (2012-13); Public Transport Authority of Western Australia Annual Report (2012-13)

## Bridging the Gap - Funding the shortfall

Improving the cost position of public transport in Australia will require measures that both generate additional revenue and save costs. These strategies have been implemented to varying degrees in Australian and international cities and have proven to be effective. They have a positive impact financially and help to achieve broader economic, environmental and social objectives.<sup>6</sup>

### Reducing costs

Cost reduction strategies may be particularly effective at reducing 'the gap' as costs are approximately three times the size of revenue raised by

Australian public transport systems. A 1% decrease in costs will thus have three times the impact of a 1% increase in revenue. While there is no 'one-size-fits-all' approach to cost reduction, potential initiatives include:

- **Improving asset productivity:** for example, the use of Automatic Train Protection (ATP) in the Channel Tunnel between the U.K. and France, effectively automate signalling systems, removing a major source of network delays.
- **Improving workforce productivity and reforming Enterprise Agreements (EA):** head office functions can be integrated across different transport modes, as has been done in London, Melbourne and Sydney. Reforming EAs can see the removal of out-dated work practices that do not match current industry standards and also reduce the competitiveness of the service.
- **Network optimisation:** for example, the use in Zurich of "pulse timetabling," whereby passengers can expect trains to arrive at certain times every hour, improves inter-modal connections.
- **Franchising:** TTF and L.E.K. Consulting identified significant benefits that can be achieved through the franchising of public transport services in their landmark 2013 report, *Public Transport*

## Spotlight highlight: Cracking Down on Fare Evasion in London

A November 2012 survey of public transport in Sydney suggested that more than one in ten passengers dodged fares, at an estimated cost of about \$120 million per year.<sup>7</sup> Fare evaders may be:

- **Opportunistic Evaders** – taking advantage of lax enforcement mechanisms
- **Economic 'game players'** – taking advantage of low risk and high rewards for evasion
- **Inadvertent Evaders** – unaware they have the wrong type of ticket

Regardless of their profile, fare evaders represent a drain on Australian public transport systems in terms of uncollected revenue.

London has been particularly effective at maintaining low levels of fare evasion, despite having a large and complicated transport system. In August 2013 estimated

levels of fare evasion on London's bus network had stabilised at 1.3% (down from a recent peak of 3.5% in 2007).<sup>8</sup> This was despite large increases in passenger numbers, rising costs of living and a 20% reduction in the number of revenue protection staff since 2010.<sup>9</sup>

There are a number of reasons for this success. Firstly, the high adoption of Oyster cards has meant fewer opportunities for ticket fraud and easier identification of offenders by inspectors.

Transport for London has also implemented 'intelligence led' strategies, where they combine high visibility deployment of inspectors to deter fare evasion, and targeted operations to detect high levels of fare evasion. One specific initiative included the use of plain-clothes inspectors, combined with high-profile advertising campaigns to alert commuters of the increased risk of getting caught.

<sup>6</sup> TTF and L.E.K. Consulting report, MEETING THE FUNDING CHALLENGES OF PUBLIC TRANSPORT

<sup>7</sup> Sydney Morning Herald

<sup>8</sup> Transport for London Surface Transport Panel (2013)

<sup>9</sup> Ibid.



**Private Operators.** The three main beneficiaries of franchising are customers (e.g. improved experience and satisfaction), government and taxpayers (e.g. reduced public subsidies enabling reinvestment into services) and employees (e.g. increased career development opportunities). Some examples of franchised rail services include Sweden, London and Melbourne.

### Increasing revenues

Real revenue growth can be achieved through direct increases in fares above the inflation rate or through higher fares during peak periods. However direct fare increases are generally unpopular and, if demand is sufficiently elastic, could deter commuters from using public transport. There are a number of alternatives to direct fare increases, such as:

- **Optimising fare structures:** Charging higher fares on main routes with relatively inelastic demand, while reducing them on routes with relatively elastic demand.
- **Implementing optimal fare evasion strategies:** For example, London's 'intelligence led' strategies combined with the high adoption of the Oyster card have proved effective.
- **Transport oriented development:** in Hong Kong, for example, private railway operators have developed retail and commercial spaces around railway stations to increase revenue.
- **Increasing other non-fare revenue sources:** this can be achieved through the creative use

of advertising on public transport, such as the creation of 'virtual stores' on the walls of Korea's subway.

- **Increasing patronage:** this can be achieved through improved serviced levels, reliability and marketing.

### Spotlight highlight: Improving asset productivity through Automatic Train Operation (ATO)

Some of the major impediments to cost reductions in Australian rail networks are signalling systems and the need for drivers to mitigate human error by setting train speed conservatively. This slows running time. Increasing signalling technology, primarily through increasing automation, offers the potential for increasing asset productivity, reliability and safety. There are a number of levels of automation:

- **Driver Only Operations:** Greater efficiency has been achieved in several jurisdictions by using technology and training that allows a train driver to undertake the functions of train guards and some platform staff. This approach is used in Melbourne and Perth and in the United Kingdom without a reduction in customer service levels.
- **Automatic Train Protection systems (ATP):** these are designed to prevent collisions caused by a driver's failure to observe a signal or speed restriction.
- **Automatic Train Operation systems (ATO):** more commonly referred to as 'driverless trains'.<sup>10</sup>

In 2002 Copenhagen opened an extensive metro system capable of operating entirely without drivers. All movements and track switches are run from a single control room, with barriers on platforms and laser sensors to reduce the risk of collision.<sup>11</sup> Full automation means trains can travel routes faster than human drivers, while maintaining lower energy consumption and more consistent speeds.<sup>12</sup> In 2013 Copenhagen Metro's punctuality was 98.4% (compared to Sydney Trains' peak punctuality of 94.1%), with 96% of passengers surveyed satisfied with the service.<sup>13</sup> Driverless trains are now being implemented in cities around the world, including London, Seoul, Dubai, New York and Paris.

Australia needs to move towards a more sustainable public transport system to ensure that it can realise its economic and population growth aspirations. Our metropolitan public transport systems lag behind the rest of the world when it comes to cost recovery. While closing the gap is not necessarily straightforward, it's possible through an optimal combination of revenue increases and cost reduction strategies.

<sup>10</sup> Some ATO trains may have staff on-board to supervise computer systems, or perform limited functions, such as opening and closing doors.

<sup>11</sup> Copenhagen Metro (2009)

<sup>12</sup> Institute of Railway Signal Engineers (2012)

<sup>13</sup> Copenhagen Metro Service Quality Performance Report (2013); Sydney Trains media release (July 2014)

## 8. METHODOLOGY & SOURCES

The key sources used in this report are summarised in the table below, however to note a few general points:

- Where Punctuality and Reliability metrics have been reported as a monthly percentage, the straight average of three months data has been assumed to represent the average across the whole quarter
- Tables refer to the quarterly or yearly change as a percentage point change

Sources:

CITY	MODE	METRIC	SOURCE	DATA AVAILABILITY	DEFINITION
SYDNEY	Rail	Peak Punctuality	Sydney Trains Performance Data	Monthly Jan 2002 – Dec 2014	<ul style="list-style-type: none"> <li>Suburban and intercity peak trains (arriving in the CBD 6-10am, or departing CBD 3-7pm, Monday to Friday)</li> <li>Percent on-time running</li> <li>Based on services arriving within 5 minutes of scheduled arrival time</li> <li>Not adjusted for force majeure</li> </ul>
		Peak Reliability	Sydney Trains Performance Data	Monthly Jan 2002 – Nov 2013	<ul style="list-style-type: none"> <li>Suburban and intercity peak trains (arriving in the CBD 6-10am, or departing CBD 3-7pm, Monday to Friday)</li> <li>Percent of timetable services delivered</li> </ul>
		Patronage	NSW Bureau of Transport Statistics	Monthly Jul 2000 – Dec 2014	<ul style="list-style-type: none"> <li>All boardings, paid and unpaid</li> </ul>
	Bus	Punctuality	State Transit	Monthly Mar 2011 – Dec 2014 (Except for Jan 2013 and Jan 2014)	<ul style="list-style-type: none"> <li>Percent on-time running</li> <li>Based on services arriving within 2 minutes and departing within 6 minutes of scheduled arrival time</li> <li>Not adjusted for force majeure</li> <li>Average (not weighted) of punctuality rates of Region 6-9, morning peak services (6-10am) only</li> </ul>
		Reliability	State Transit	Monthly Mar 2011 – Mar 2014	<ul style="list-style-type: none"> <li>Percent of timetable services delivered</li> </ul>
		Patronage	State Transit	Monthly Mar 2011 – Dec 2014	<ul style="list-style-type: none"> <li>All boardings, paid and unpaid</li> </ul>
	Ferry	Punctuality	Transport for NSW	Monthly Jan 2011 – Dec 2014	<ul style="list-style-type: none"> <li>Percent on-time running</li> <li>Based on services arriving within 5 minutes of scheduled arrival time</li> <li>Adjusted for force majeure</li> </ul>
		Reliability	Transport for NSW	Monthly Jan 2011 – Jun 2014	<ul style="list-style-type: none"> <li>Percent of timetable services delivered</li> <li>Adjusted for force majeure and exempt service</li> </ul>
		Patronage	NSW Bureau of Transport Statistics	Monthly Jul 2007 – Jun 2014	<ul style="list-style-type: none"> <li>All boardings, paid and unpaid</li> </ul>
MELBOURNE	Train	Punctuality	Public Transport of Vic Track Record	Quarterly Q1 2009 – Q1 2015	<ul style="list-style-type: none"> <li>Percent on-time running</li> <li>Based on services arriving within 5 minutes of scheduled arrival time</li> <li>Metro train services only</li> <li>Not adjusted for force majeure</li> </ul>
		Reliability	Public Transport of Vic Track Record	Quarterly Q1 2009 – Q2 2014	<ul style="list-style-type: none"> <li>Percent of timetable services delivered</li> <li>Metro train services only</li> <li>Data prior to June 2011 is inverse of services not cancelled, after which timetables services delivered is reported</li> </ul>
		Patronage	Public Transport of Vic Track Record	Quarterly Q2 2011 – Q2 2014	<ul style="list-style-type: none"> <li>All boardings, paid and unpaid</li> </ul>
	Light rail	Punctuality	Public Transport of Vic Track Record	Quarterly Q1 2009 – Q2 2014	<ul style="list-style-type: none"> <li>Percent on-time running</li> <li>Based on services arriving within 5 minutes of scheduled arrival time</li> <li>Not adjusted for force majeure</li> </ul>
		Reliability	Public Transport of Vic Track Record	Quarterly Q1 2009 – Q2 2014	<ul style="list-style-type: none"> <li>Percent of timetable services delivered</li> <li>Data prior to June 2011 is inverse of services not cancelled, after which timetables services delivered is reported</li> </ul>
		Patronage	Public Transport of Vic Track Record	Quarterly Q2 2011 – Q1 2015	<ul style="list-style-type: none"> <li>All boardings, paid and unpaid</li> </ul>

CITY	MODE	METRIC	SOURCE	DATA AVAILABILITY	DEFINITION
MELBOURNE	Bus	Punctuality	Public Transport of Vic Track Record	Quarterly Q1 2009 – Q2 2014	<ul style="list-style-type: none"> <li>Percent on-time running</li> <li>Based on services arriving within 5 minutes of scheduled arrival time</li> <li>Not adjusted for force majeure</li> </ul>
		Reliability	Public Transport of Vic Track Record	Quarterly Q1 2009 – Q2 2014	<ul style="list-style-type: none"> <li>Percent of timetable services delivered</li> <li>Data prior to June 2011 is inverse of services not cancelled, after which timetables services delivered is reported</li> </ul>
		Patronage	Public Transport of Vic Track Record	Quarterly Q2 2011 – Q1 2015	<ul style="list-style-type: none"> <li>All boardings, paid and unpaid</li> </ul>
PERTH	Rail	Patronage	Public Transport Authority of WA	Monthly Jan 2010 – Jul 2014	<ul style="list-style-type: none"> <li>All boardings, paid and unpaid</li> </ul>
		Punctuality	Transperth	Monthly Jul 2004 – Sep 2013	<ul style="list-style-type: none"> <li>Percent on time running</li> <li>Based on services arriving and departing within 4 minutes of scheduled arrival time</li> </ul>
	Bus	Patronage	Public Transport Authority of WA	Monthly Jan 2010 – Jul 2014	<ul style="list-style-type: none"> <li>All boardings, paid and unpaid</li> </ul>
		Punctuality	Transperth	Monthly Jul 2002 – Jul 2014	<ul style="list-style-type: none"> <li>Percent on time running</li> <li>Based on services arriving and departing within 4 minutes of scheduled arrival time</li> </ul>
	Ferry	Patronage	Public Transport Authority of WA	Monthly Jan 2010 – Jul 2014	<ul style="list-style-type: none"> <li>All boardings, paid and unpaid</li> </ul>
BRISBANE	Bus, Rail	Patronage	Translink, DTMR Annual Reports	Quarterly (Fiscal) Q1 09/10 – Q4 11/12  Yearly FY 12/13 – FY13/14	<ul style="list-style-type: none"> <li>All boardings, paid and unpaid</li> </ul>
		Punctuality	Translink, Queensland Rail	Quarterly (Fiscal) Q1 09/10 – Q4 13/14	<ul style="list-style-type: none"> <li>Percent on-time running</li> <li>Train: based on services arriving less than 4 minutes (before or after) the scheduled arrival times</li> <li>Bus: based on services arriving within 6 minutes after or 2 minutes before the scheduled arrival time</li> </ul>
		Reliability	Translink	Quarterly (Fiscal) Q1 09/10 – Q4 11/12	<ul style="list-style-type: none"> <li>Percent of timetable service delivered</li> </ul>
	Ferry	Patronage	Translink, DTMR Annual Reports	Quarterly (Fiscal) Q1 09/10 – Q4 11/12  Yearly FY 12/13 – FY13/14	<ul style="list-style-type: none"> <li>All boardings, paid and unpaid</li> </ul>
ADELAIDE	Bus, Train, Light rail	Punctuality	Adelaide Metro	Quarterly Q2 2012 - Q1 2014	<ul style="list-style-type: none"> <li>Percent on-time running</li> <li>Bus: based on services arriving within 59 seconds before and 4 minutes and 59 seconds after scheduled arrival time</li> <li>Train, Light rail: based on services arriving within 1 minute before and 5 minutes and 59 seconds after scheduled arrival time</li> </ul>
		Reliability	Adelaide Metro	Quarterly Q2 2012 - Q1 2014	<ul style="list-style-type: none"> <li>Percent of timetable service delivered</li> </ul>
		Patronage	Adelaide Metro	Yearly Jun 2013 - Jun 2014	<ul style="list-style-type: none"> <li>All boardings, paid and unpaid</li> </ul>
ALL CITIES		Population and GDP / capita	ABS		<ul style="list-style-type: none"> <li>GDP per capita available at a state level only</li> </ul>



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