Have Transport Costs Fuelled Congestion in Perth?

In July this year, Australian petrol prices recorded their fastest jump in four years. In Perth, that rise, attributed to a combination of both rising oil prices and a weakened Australian dollar, saw the price at the pump hit 156.3 cents per litre, highest average price in Perth since June 2008 when the average price topped 157 cents per litre¹.

Today the average price for unleaded petrol in Perth has gone down to a slightly more palatable 147.50 cents per litre², yet when compared to the price Perth residents paid at the pump ten years ago, it is still a frightening sum. In October 2003 the average price of unleaded petrol in Perth was 88.8 cents per litre, meaning that at that time the cost of filling a 60 litre tank was $53. At today’s prices the same car costs $88.50 to fill with fuel.

Given these price hikes, it will be of little surprise to many to learn that earlier this year a survey by Deutsche Bank ranked Australia as one of the most costly nations in the world in which to buy petrol³.

The same survey also identified Australia as a more expensive place to buy a car. For example, at that time the cost of a new Volkswagen Golf in Australia at $38,292 was about $8,000 more than its price in the UK and more than $10,200 more expensive than buying the same model in New York⁴.

The costs of running a car have also risen and it currently costs an average of $227.83 per week to run a medium sized car in WA (including depreciation)⁵ – a very significant cost, particularly when compared to WA’s average mortgage repayment of $500 per week.

As a result of these costs, as well as the growing inconvenience and costs of congestion, it could well be expected that more people in Perth would be voting with their feet, getting out of their cars and walking, cycling and using public transport. But, while public transport patronage has increased very substantially – so has the number of cars on our roads.

According to the ABS, while the real costs of fuel and lubricants have gone up over the past decade, average wages have grown faster. As a result, proportional household spending on transport has changed little in the past thirty years⁶.

For example, while average weekly household expenditure on transport in Western Australia rose from $142.50 in 2003-04, to $192.50 in 2009-10⁷, WA’s Average Weekly Ordinary Time Earnings increased by more than 50% over the same period⁸.

In addition, recent years have seen car affordability reach its best level since the 1970s. This can be attributed in part to the strong Australian dollar and wage growth, but also to tariff reductions, improved technology and competition between car manufacturers⁹.

Furthermore, not only are cars more affordable, car buyers today get significantly more features for their money like automatic windows/doors, iPod connectivity, DVD players, GPS, parking sensors/cameras and a multitude of air bags, making cars even more attractive to consumers¹⁰.

As a result, while Perth residents are very concerned about congestion and rising daily transport costs¹¹, we are still buying and using cars. Not only does the number of cars on our roads continue to increase, ABS statistics indicate that as a nation we are taking longer trips, attending more cultural outings and gaining employment further afield, turning cars into the ultimate in personal mobility, flexibility and convenience¹².

This article aims to identify some of the drivers of increasing car ownership in Perth and the role of cost in our transport choices.

³ Deutsche Bank, 2013, The Random Walk, Mapping the World’s Prices 2013, Deutsche Bank AG/Hong Kong
⁴ Deutsche Bank, 2013, The Random Walk, Mapping the World’s Prices 2013, Deutsche Bank AG/Hong Kong
⁶ Economy Wide Modelling of Impacts of CO2G
⁹ Submission to the State Wage Case May 2013 (pp. 5), www.wacoss.org.au
Growth in Vehicle Numbers in WA

In 2013 there are 13.0 million passenger vehicles registered in Australia – about 0.6 vehicles for each person, compared to the 1.4 million passenger vehicles registered in Australia in 1955 or 0.15 vehicles per person\(^1\).

**Number of Passenger Vehicles Per 1,000 People (a)**\(^1\)\(^5\)

(a) 1955 Motor Vehicle Census data are at 31 December, Population data are at 30 June 1954. 2013 Motor Vehicle Census data are at 31 January and Estimated Resident Population data for 2013 are at 31 December 2012 and re-based on 2011 Census of Population and Housing (Australian Demographic Statistics 3101.0 Dec 2012).

Growth in the number of registered passenger vehicles has therefore far outstripped population growth over the same period, and in Western Australia the picture is very similar. In WA there are 2,048,388 registered vehicles and 2,497,500 people. That is 0.82 registered vehicles per person in the state\(^1\)\(^6\).

The number of registered vehicles has, like the state’s population, grown very significantly in recent years. From 2008 to 2013, the number of registered vehicles in WA grew by approximately 17%, or 3.4% per annum – roughly the same rate as population growth – and the number of passenger vehicles grew by 14% to 0.6 vehicles per person\(^1\)\(^7\).

It can therefore be estimated that Perth’s roads are currently servicing more than 1.55 million vehicles, of which more than 1.14 million are passenger vehicles\(^1\)\(^8\). Based on the population profile at the time of the 2011 Census, that amounts to an estimated 1.1 vehicles in total per person aged over 18 years in the region and an estimated 0.79 passenger vehicles per person aged over 18 years.

While population growth is currently the main driver for growth in vehicle numbers, there is also evidence that households in Perth own more cars on average than they did five years ago. For example, of the roughly 627,000 households counted in the Greater Perth region at the time of the 2011 Census, about 58%, compared to 52% in 2006\(^1\)\(^9\).

\(^{1,5}\)Ibid
\(^{1,7}\)Ibid
\(^{1,9}\)Figures extrapolated from 2012 ABS Estimated Population data
\(^{3}\)Public Transport Authority, 2013, unpublished data

Can we reduce transport spending by using public transport?

Over the past six years overall public transport passenger fares have increased approximately 4% per annum\(^20\) – a slower rate than income growth.

According to the Department of Transport, public transport users save between $700 and $1,500 per annum or $14 to $30 per week for a 5 to 25 kilometre journey to work compared to the driver of a medium sized car. They also help save the region from 400 to 2,000 kilograms of CO\(_2\) emissions\(^21\).

However it is noted that these individual savings come at a cost to the taxpayer, with public transport fare revenue currently recouping only about 31% of public transport operating costs\(^22\).

It is therefore evident that while individual Perth residents can save money by catching public transport, most people still choose, or need, to drive to access their place of work or study.

Census data tells us that 67% of people in Perth travel to work by private car – either as a driver or passenger, and 10.6% take public transport\(^23\).

ABS statistics also indicate that people aged 55-64 years are the most likely to drive to work or full-time study, while young people aged 18-24 years are least likely to drive. Young people are also the most likely to take public transport to work or study\(^24\).

Women are also more likely to drive private passenger vehicles to work than men (as opposed to other types of vehicles such as trucks or motorcycles) and more likely to take public transport (19% compared with 13%), although public transport usage by women declines significantly as they age\(^25\). Approximately 80% of women aged between 35 and 55 drive to work\(^26\), perhaps reflecting the fact that a high proportion of women in this age group are likely to have dependent children and work part time.

However in addition to behaviour and lifestyle groups, the biggest factors affecting both car ownership and car use is not cost but the location of place of residence and work how well connected it is to public transport.

If people cannot access their place of work or study via public transport, then they have no choice but to drive.

\(^{20}\)Public Transport Authority, 2013, unpublished data
\(^{24}\)Ibid

Not being able to access public transport is one of the main reasons for people in Australia to use passenger vehicles to get to work or study. In 2012, over half (53%) of adults nationwide who travelled by passenger vehicle to work or study stated that a lack of public transport services or a lack of services at a convenient time was one of the main reasons that they do not travel by public transport. Over a quarter (28%) also preferred the convenience, comfort or privacy a private vehicle provided in comparison to public transport\(^17\).
A very similar pattern is apparent when examining public transport usage for journeys to work.

Workers in the inner and middle local authorities of Perth, Subiaco, Victoria Park, Vincent, Mosman Park and Cottesloe are more likely to use public transport for their journey to work, while people in Mundaring, Serpentine-Jarrahdale, Kalamunda, Swan, Cockburn and Armadale are most likely to drive.

Significantly, suburbs where public transport ridership is highest are those that are both close to the Perth central area and which have public transport mode choice – that is they are well serviced by both bus and rail.

These areas are also likely to have higher proportions of people who walk and cycle to work. In middle and outer suburbs higher public transport ridership rates are found in areas that are served by rail (such as Glendalough where 21% of travel to work is by rail, or bus and rail) and 26% of people take public transport to work.

Areas with high public transport use also tend to have high proportions of people who work in the City of Perth. For example 54% of people who live in the City of Perth also work within the City of Perth, and 30% of people living in the City of Subiaco work in the City of Perth.

This is also apparent when comparing car ownership and public transport use in Perth’s most advantaged and disadvantaged areas.

While car ownership rates do not appear to differ significantly by socio-economic status, people living in the region’s most advantaged areas are slightly more likely to catch public transport to work than people in Perth’s more disadvantaged areas – most simply because Perth’s most advantaged areas tend to be located closer the Perth central area, more accessible by public transport, and a have a higher proportion of the population who work in the City of Perth.

Local Government Areas with the Most and Least Vehicles Per Household

<table>
<thead>
<tr>
<th>Most vehicles per household</th>
<th>Least vehicles per household</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Serpentine-Jarrahdale (2.5)</td>
<td>1. Perth (1.3)</td>
</tr>
<tr>
<td>2. Mundaring (2.3)</td>
<td>2. Subiaco (1.4)</td>
</tr>
<tr>
<td>3. Kalamunda (2.1)</td>
<td>3. Vincent (1.5)</td>
</tr>
<tr>
<td>4. Peppermint Grove (2.1)</td>
<td>4. Victoria Park (1.5)</td>
</tr>
<tr>
<td>5. Joondalup/Wanneroo/Swan (2)</td>
<td>5. Fremantle (1.5)</td>
</tr>
</tbody>
</table>

Local Government Areas with Highest and Lowest Rates of Public Transport Use

<table>
<thead>
<tr>
<th>Most likely to use public transport for journey to work</th>
<th>Most likely to drive to work</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Perth</td>
<td>1. Mundaring</td>
</tr>
<tr>
<td>2. Subiaco</td>
<td>2. Serpentine-Jarrahdale</td>
</tr>
<tr>
<td>4. Vincent</td>
<td>4. Swan</td>
</tr>
<tr>
<td>5. Mosman</td>
<td>5. Cockburn</td>
</tr>
</tbody>
</table>

(a) Public transport as method of travel to work or full time study

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Selected Reasons (a) for Not Using Public Transport (b) to Work or Full-Time Study

(a) A person may report more than one reason for not using public transport.
(b) For people who drove to work or study, as a driver or passenger.

There is strong evidence to suggest that the picture is similar in Perth. That is that one of the main reasons that people in Perth drive to work rather than use public transport are not cost related but are a direct reflection of access to public transport services.

Census statistics indicate that there are strong correlations between rates of vehicle ownership and public transport use, and the public transport accessibility of the area in which we live to the place that we work.

For example, households in Perth’s fringe suburbs typically own significantly more cars than households in inner and middle suburbs.

For example, households in the outer local government areas of Wanneroo, Swan, Serpentine-Jarrahdale, Kalamunda, Mundaring and Armadale have 2 to 2.5 vehicles per household, at a cost of between $456 and $570 per week.

By comparison, inner and middle local authority areas tend to have lower car ownership rates (with the exception of highly affluent areas such as Peppermint Grove, which has an average of 2.1 cars per households). For example the cities of Perth, Subiaco, Vincent, Victoria Park, Stirling and Fremantle have between 1.3 and 1.7 cars per household – costing an estimated $296 to $387 per week.

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30 Ibid
32 Ibid

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## Perth’s Most Disadvantaged LG Areas by Motor Vehicle Ownership, Public Transport Usage and Place of Work

<table>
<thead>
<tr>
<th>Most disadvantaged</th>
<th>Proportion of household with one car or no cars</th>
<th>% Public Transport to Work or Study</th>
<th>% Work in Perth CBD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Kwinana</td>
<td>35%</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td>2. Mandurah</td>
<td>33.5%</td>
<td>7%</td>
<td>4%</td>
</tr>
<tr>
<td>3. Belmont</td>
<td>41%</td>
<td>11%</td>
<td>16%</td>
</tr>
<tr>
<td>4. Armadale</td>
<td>32%</td>
<td>8.5%</td>
<td>8%</td>
</tr>
<tr>
<td>5. Gosnells</td>
<td>33%</td>
<td>10%</td>
<td>10.4%</td>
</tr>
</tbody>
</table>

## Perth’s Most Advantaged LG Areas by Motor Vehicle Ownership, Public Transport Usage and Place of Work

<table>
<thead>
<tr>
<th>Most Advantaged</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1. Peppermint Grove</td>
<td>23%</td>
<td>11%</td>
<td>26%</td>
</tr>
<tr>
<td>2. Cambridge</td>
<td>33%</td>
<td>11%</td>
<td>25%</td>
</tr>
<tr>
<td>3. Cottesloe</td>
<td>31%</td>
<td>14%</td>
<td>26%</td>
</tr>
<tr>
<td>4. Nedlands</td>
<td>30%</td>
<td>10%</td>
<td>25%</td>
</tr>
<tr>
<td>5. Claremont</td>
<td>39%</td>
<td>14%</td>
<td>25%</td>
</tr>
</tbody>
</table>

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34 Ibid
Yet, despite being more likely to live in inner and middle areas that are more accessible by public transport, household expenditure statistics show that the highest income and net worth households in WA spend a larger proportion of their income on transport costs on average than lower income households, presumably due to preferences for more costly vehicles and undertaking significantly more discretionary travel than households in lower income and net worth quintiles.

However it can also be assumed that for households on Perth’s fringe, having access to two or more vehicles is a virtual necessity, while in accessible, inner and middle locations, owning more than one car is more likely linked to personal needs, preference and socio-economic status.

This means that for many fringe households, the cost of running two or more cars is an essential one, and unless viable alternative transport solutions are made available, the increasing costs of car ownership and use will not impact on transport choices for households in these areas – because they have little choice.

Rather, modified behaviour in response to increasing costs of car ownership is more likely to occur in Perth’s more accessible inner and middle suburbs.

Given that recent State Government funded research has demonstrated that the majority of people living in fringe locations are doing so for reasons of affordability the need to travel by car to work, shops, school, study or essential services in these areas is likely to significantly reduce the perceived economic benefits of fringe living.

**Summary and Recommendations**

Australia remains a comparatively expensive place to buy and run a vehicle, and while some transport costs (particularly the cost of fuel) have risen, costs have not gone up in proportion to income growth and for most households car ownership is more affordable than it has been in decades.

Therefore, while Perth residents are concerned about the cost of transport and the impacts of congestion, transport costs have had no apparent impact on rates of car ownership in Perth.

While public transport use has increased substantially, the number of registered cars on WA’s roads has also risen, and over the past sixty years increases in the number of registered vehicles has far exceeded population growth.

In 2011, households in Perth owned more vehicles than they did in 2006, and it is estimated there are more vehicles in the Perth region than there are people aged over 18.

This is reflected in the fact that most people in Perth continue to drive to work and rates of public transport use vary significantly across the region, with rates of public transport use primarily influenced by:

- Distance from the Perth central area.
- Access to multi-modal public transport options.
- Access to rail.
- Proportion of workers who work in the City of Perth.

This research therefore confirms that inner city, inner suburban and middle suburban areas that have access to high quality public transport, including rail services are more sustainable in transportation terms than fringe areas.

It also confirms that car ownership in inner and middle areas is significantly lower than on the fringe, suggesting that households in fringe areas are more car dependent and bear higher essential transport costs than those in inner and middle locations.

It is also makes it evident that reducing congestion and the number of cars on Perth roads will require integrated and strategic action including:

- Increasing the proportion of growth occurring in inner and middle suburban areas that are already highly accessible by public transport.
- Increasing the public transport accessibility of key employment and study areas outside the City of Perth.
- Encouraging more people who live and work in areas that are accessible by public transport to use public transport.
- Continually improving public transport, walking and cycling infrastructure particularly in and around key employment centres.
- Discouraging continued growth in passenger vehicle ownership rates.

The Committee for Perth report *Towards a Bright Future for Perth* project also makes a number of recommendations which aim to reduce congestion by increasing public transport use and walking and cycling in Perth by:

- Moving to an integrated land use and transportation network as a strategic priority for the region (that is co-ordinating public transport planning with land use planning to stimulate urban growth, infill development and regeneration in strategic locations and provide connections between major activity generating land uses).
- Ensuring the public transport system includes light rail and facilitates transit-oriented development (because research indicates that light rail, like rail, is more attractive to users than buses and more likely to stimulate infill development opportunities).
- Facilitating the development of more affordable housing in the region including more affordable housing that is accessible by public transport.
- Continuing to provide more diverse housing opportunities throughout the region, including the continued delivery of new higher density lifestyle options in the Perth central area.
- Without these types of initiatives the number of cars on Perth roads will inevitably continue to grow and life in Perth will be marred by the ever expanding economic, productivity, environmental, health and lifestyle costs of congestion.

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3Department of Planning and Infrastructure, The Housing We’d Choose A Study for Perth and Peel, www.planning.wa.gov.au