

Exploring the role of car sharing in Perth



For the better



Introduction

Western Australia faces significant challenges in managing a growing population and increasing cost of living pressures. These challenges are already impacting on our ability to move around our community in a safe, accessible and sustainable manner. New opportunities to respond to our urban mobility challenges need to be explored.

Collaborative consumption, as part of the sharing economy, is becoming a global sensation. The premise behind this economic arrangement is the sharing of access to products or services, rather than having individual ownership. While behaviours such as borrowing, swapping, gifting, renting and sharing are not new, technology has reinvented the concept and enabled sharing in new ways.

! In relation to transport, examples of collaborative consumption (or sharing) include car sharing, bike sharing, ride sharing and shared parking.

Shared use mobility options have a role in helping to shape the future of our cities and towns, supporting different ways of living, and helping respond to our urban mobility challenges. As part of an integrated transport system they offer real potential to support an increasing desire for reduced car ownership and usage, particularly amongst Generation Y ('millennials') and Generation Z as they come of age (born after the year 2000).

This paper is concerned solely with car sharing as a possible mobility option for Perth. Over recent years RAC has been investigating the role of car share in helping to offset mobility, congestion and cost of living pressures in Perth. This has included assessing the impacts of car sharing on mobility trends, research into 'success factors' of services nationally and internationally and analysis of the Perth potential (comprising an identification of the geographical areas with the greatest potential based on the success factors and extensive market research examining the appeal of car sharing in identified areas).

About car sharing

Car sharing, which originated in Europe, provides members with short-term access to motor vehicles for personal and business uses. In so doing, it provides members with the benefits of private cars without the costs and responsibilities of ownership and operation.

! The average car is parked for around 96 per cent of the time¹. Drivers in WA typically use their vehicles to travel less than 14,000km per annum², yet the annual cost of running a car in WA is almost \$12,000³.

Whilst having access to a car offers convenience and peace-of-mind, for those who do not need to rely on a private vehicle for their day-to-day activities, owning a first or second car may therefore not be economically viable.

In addition to reducing personal travel costs, car sharing has a number of other benefits for individuals, communities and Government. It can support improved mobility by providing a new transport option, enhance the viability of public transport, and reduce the number of vehicles on our roads (and thus congestion and CO₂ emissions). Services can also support a shift to a more compact and connected city, which is the aspiration for Perth as set out in the State Government planning documents: *Directions 2031 and Beyond*, and the *Draft Perth and Peel @ 3.5million* publication released in May 2015.

Research has shown that one car share vehicle can remove nine to thirteen private cars from the road⁴! Based on the Carplus Annual Survey of car clubs 2014-15, across the UK, services removed 26,500 private cars from the roads in the 12 months prior to the survey⁵.

An economic appraisal undertaken by SGS Economics and Planning in 2012 also found that car sharing in the City of Sydney has:

- » resulted in a yearly net benefit of \$21 million for local residents (equating to \$2,100 per person per annum); and
- » that the benefits to residents and businesses outweigh the costs by a ratio of 19 to 1.

¹RAC Foundation, 2012. Keeping the Nation Moving. Facts on Parking.

²ABS 2013. 9208.0 - Survey of Motor Vehicle Use, Australia, 12 months ended 30 June 2012.

³RAC 2013 vehicle operating costs survey - this estimate is based on small, medium, SUV compact, SUV medium and 4WD UTE type vehicles which represent a reasonably large portion of the WA market.

⁴Martin, E., Shaheen, S. & Lidicker, J. (2010) Impact of carsharing on household vehicle holdings.

⁵Carplus, 'Carplus Annual Survey of Car Clubs 2014-15', <<http://www.carplus.org.uk/carplus-annual-survey-of-car-clubs-2014-15/>> accessed on 11/05/2015.

There are various models for car sharing, ranging from:

- > traditional car sharing (B2C – Business to Customer), whereby a car share operator provides a commercial service to customers;
- > fleet management (B2B – Business to Business), whereby a car share operator provides a commercial service to businesses catering for their fleet vehicle requirements; and
- > peer-to-peer (P2P), whereby existing car owners make their vehicles available for others to rent.

Typical features of car share services, particularly the formal / commercial services with B2C and B2B offerings, would include:

- > 24/7 access to late model vehicles with good safety credentials;
- > choice of a range of vehicle types;
- > two-way rentals, whereby you return the vehicle to the same location you picked it up from⁶;
- > vehicles located in convenient and easily accessible locations (in dedicated on-street bays and car parks);
- > convenient self-service reservation, pickup, and return of vehicles (online and mobile phone app booking systems and smart vehicle access technology);
- > flexible rental periods (rental by the minute, by the hour, as well as by the day);
- > different membership packages based on level of usage; and
- > competitive rates which include insurance, cleaning, registration, servicing and fuel costs.

The car sharing industry in Europe, North America and more recently other Australian States has grown rapidly, and services are an integral component of the multi-modal transport systems in the cities where they operate.



It has been estimated the global market for car sharing will grow by 27 per cent per annum between 2014 and 2019⁷.

Car sharing ‘success factors’

Car sharing will not work everywhere. Many factors influence the success of car share services and it is important to understand what these are to maximise viability.

Extensive research has been undertaken in a number of countries to provide insight into the demographic, socio-economic and transport factors which are present in areas where services currently operate successfully. Areas in Perth that exhibit these typical ‘success factors’ would likely offer the greatest potential to support car sharing.

User characteristics

Car sharing services are attractive to people who make only occasional use of a vehicle, as well as others who would like occasional access to different vehicle types for either personal or business use. It is most appealing to people who do not drive daily or that drive less than 15,000km annually, as it is more cost effective than car ownership for this group.

Previous research from services in the UK and North America suggests that car sharing appeals most to people who tend to be:

- > under 35 years of age (typically between 25-34 years of age);
- > professionals earning slightly above the average income;
- > couples with no children in urban areas / families with children in more rural areas; and
- > aware of environmental issues, active in the local community and may have already reduced their car use.

Locational characteristics

It is generally accepted that the following tend to support successful car sharing services:

- > higher population density to ensure a reasonable number of potential customers within a walkable catchment of a car share vehicle;
- > mix of land uses to increase the type (e.g. residents, businesses and students), and thus number, of potential users thereby maximising the utilisation of each vehicle. Having access to a range of local services and amenities may also reduce the need for car ownership;
- > parking pressure, restrictions or controls which limit the availability of parking for general use or which make it expensive to park;
- > good alternative transport options (both in terms of access to public transport or opportunities for active travel) – integration of car sharing and public transport helps increase membership and utilisation; and
- > lower levels of car ownership and usage as this suggests less dependency on the car.

Redeveloped neighbourhoods and precincts, city living, and new developments all offer good opportunities for successful services.

The specific location of the vehicles and the density of the car share network are both essential considerations. Likewise, the extent to which local governments, developers and land owners are supportive of car share is also important.

⁶One-way, or point-to-point, services are currently only offered by one provider Car2Go in a number of North American cities. In May 2015, Australian car share operator GoGet announced it has developed a one-way car hire platform and is trialling this service at airports.

⁷IBISworld industry report: Car Sharing providers in Australia Sept 2013

The Perth potential

There are a number of pockets in Perth which have been identified as offering greater potential to support car sharing. While people residing in these areas currently tend to rely on their cars, there is a clear appetite to use more sustainable modes. Car sharing is appealing to many and, if a service were available in these areas, it could help to reduce the number of cars on the road.

RAC undertook its own analysis to identify areas in Perth which have the greatest potential to support car sharing. This analysis utilised ABS 2011 Census and Socio-Economic Indexes for Areas (SEIFA) datasets for all Statistical Area Level 1s⁸ in the central sub-region of metropolitan Perth, as well as publicly available Transperth spatial and timetable data, as proxies for the success factors identified through previous research.

A scoring system was used to determine the most suitable SAIs; scores of between -10 to +10 were allocated for each criterion where data was available based on how well the area performed (population density and car driver mode share were weighted double as these were considered to be the most important criteria). Where suitable data was not available to allow a quantitative assessment against a specific criterion, a qualitative assessment was undertaken.

In October 2013, RAC undertook a survey to test receptiveness to the concept of car sharing amongst RAC Members. Following this, RAC commissioned in-depth independent research to determine the market potential and anticipated use should such a car share service be available in Perth.

This research, which was completed in April 2014, was conducted by Painted Dog Research and involved an online

survey of over 800 RAC members and non-members residing in identified locations⁹. These locations were postcode areas which contained the pockets of greatest potential, identified through RAC's own analysis. These were within the Cities of Belmont, Fremantle, Perth, South Perth, Stirling, Subiaco and Vincent, and the Towns of Cambridge and Victoria Park.

Current car ownership and travel behaviours

It is apparent from the survey that car ownership and usage in the identified areas is relatively high but there is however an appetite to use more sustainable modes.

A majority of households have at least two licensed drivers and almost all have at least one registered privately-owned vehicle. The proportion of multiple car households typically increases with the age of respondents, with those classed as Gen Y / Z and Gen X having significantly fewer vehicles in their households (45 per cent and 49 per cent one car households compared to 32 per cent and 38 per cent for Boomers and Builders respectively).

Most households have the same number of vehicles as licence holders (61 per cent), however there are around one in four (29 per cent) with fewer registered vehicles than licensed drivers.

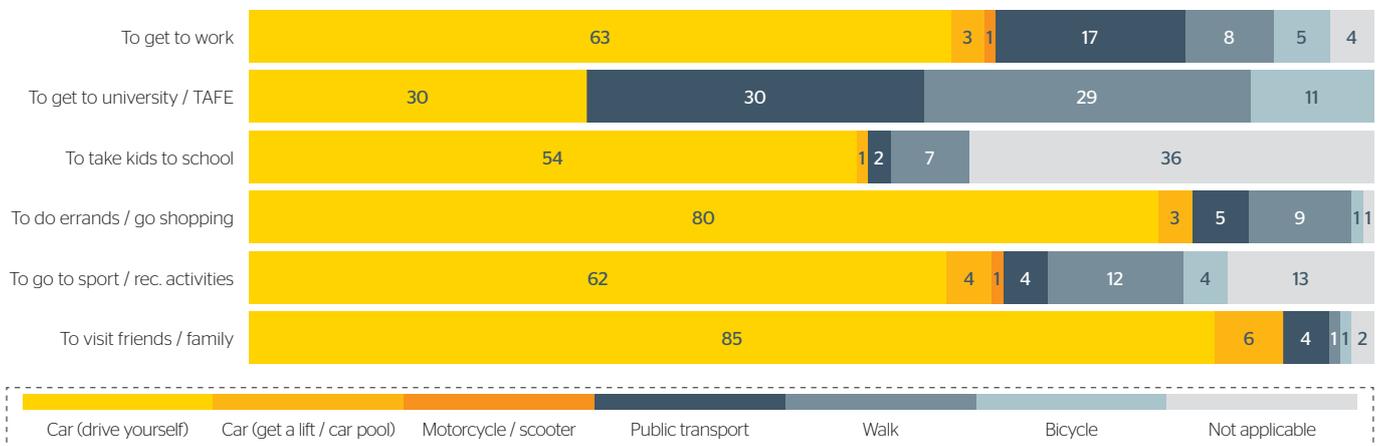


Figure 1: Current mode split (typical mode of travel) by journey purpose (percentage)

⁸SAIs are the smallest Census areas.

⁹The sample provides a robust base with a small margin of error (+/- 3.46 per cent at a total population level). General public sample has been weighted by age and gender based on 2011 ABS Census data to make it representative and the RAC member sample has been weighted by age and gender according to the profile of members within the area.

A majority of respondents do not travel long distances to work, with 60 per cent commuting less than 10km each way per day (over half of which travel 5km or less). Despite this, car as driver mode share for journeys to work is 63 per cent (this decreases to 30 per cent for respondents travelling to university / TAFE) - refer to Figure 1.

When asked whether they would like to change anything about their current travel situation, almost half of respondents indicated that they would like to use public transport (26 per cent), cycle (10 per cent) or walk (10 per cent) more often. However, half of respondents feel that public transport is overcrowded during peak hours, and two in five feel it is inconvenient and they cannot rely on it to get to where they need to go.

Car sharing appeal and potential usage

Whilst the survey confirms that car sharing is a new concept for most people (with 57 per cent never having heard of it and only 8 per cent having had personal experience of it), it also demonstrates clear evidence of not only the appeal of the concept of car sharing, but also that there would be demand for such a service if one were available in these areas.

Almost half of respondents find the concept of car sharing at least moderately appealing (with 21 per cent finding it very or extremely appealing). When asked if they would actually use car share, one in four respondents said they would likely use a service (a further 31 per cent were undecided) - refer to Figure 2. Likely usage is highest amongst those who are classified as being Generation Y / Z, Single Income No Kids (SINKS), Double Income No Kids (DINKS), young families, males, those with previous car share experience, a tertiary education, those with negative attitudes towards their car and / or who have changed their travel behaviour in the past 12 months. This reinforces RAC's broader analysis around success factors and the potential for car sharing in Perth.

The top reasons for intended usage are:

- > to save money / reduce costs of owning a vehicle (45 per cent of those who said they would use a service);
- > to reduce number of cars / alternative to ownership (16 per cent);
- > convenience / ease (14 per cent);
- > sometimes need a car / second car (12 per cent); and
- > don't need a car all the time / don't use it much (11 per cent).

Above average interest was expressed by residents in a number of areas, with the East Perth, Bentley and Northbridge / Highgate postcode areas being the top three - refer to Figure 4.

Based on the level of interest expressed by respondents in each area surveyed and the total residential population of those areas (obtained from the most recent Census), the findings are an indicator of the potential for car sharing to attract around 40,000 members in these areas alone.

Potential impacts on car ownership and usage

When considering the potential impacts of car sharing on private vehicle ownership and driving behaviours, there is evidence from the survey to suggest that if such a service were available in Perth it could help to reduce the number of cars on the road and provide a viable alternative to car ownership for some.

While just over one in two (53 per cent) respondents currently has two or more cars in their household, having more than one car was only considered a necessity for half of these respondents. Interestingly, 29 per cent of multiple car households feel their additional vehicle(s) is just nice to have and a further 20 per cent feel they would be open to reducing the number of cars in their household if suitable alternatives were available.



Figure 2: Likelihood of using a car sharing service (percentage)

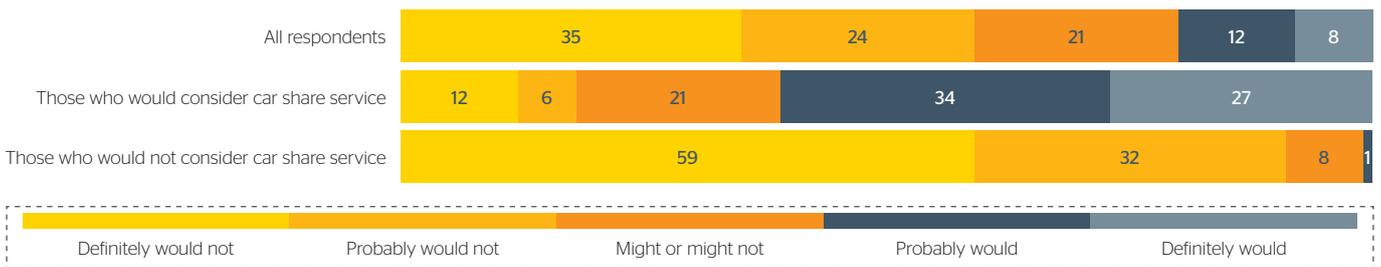


Figure 3: Likelihood of reducing car ownership (percentage)

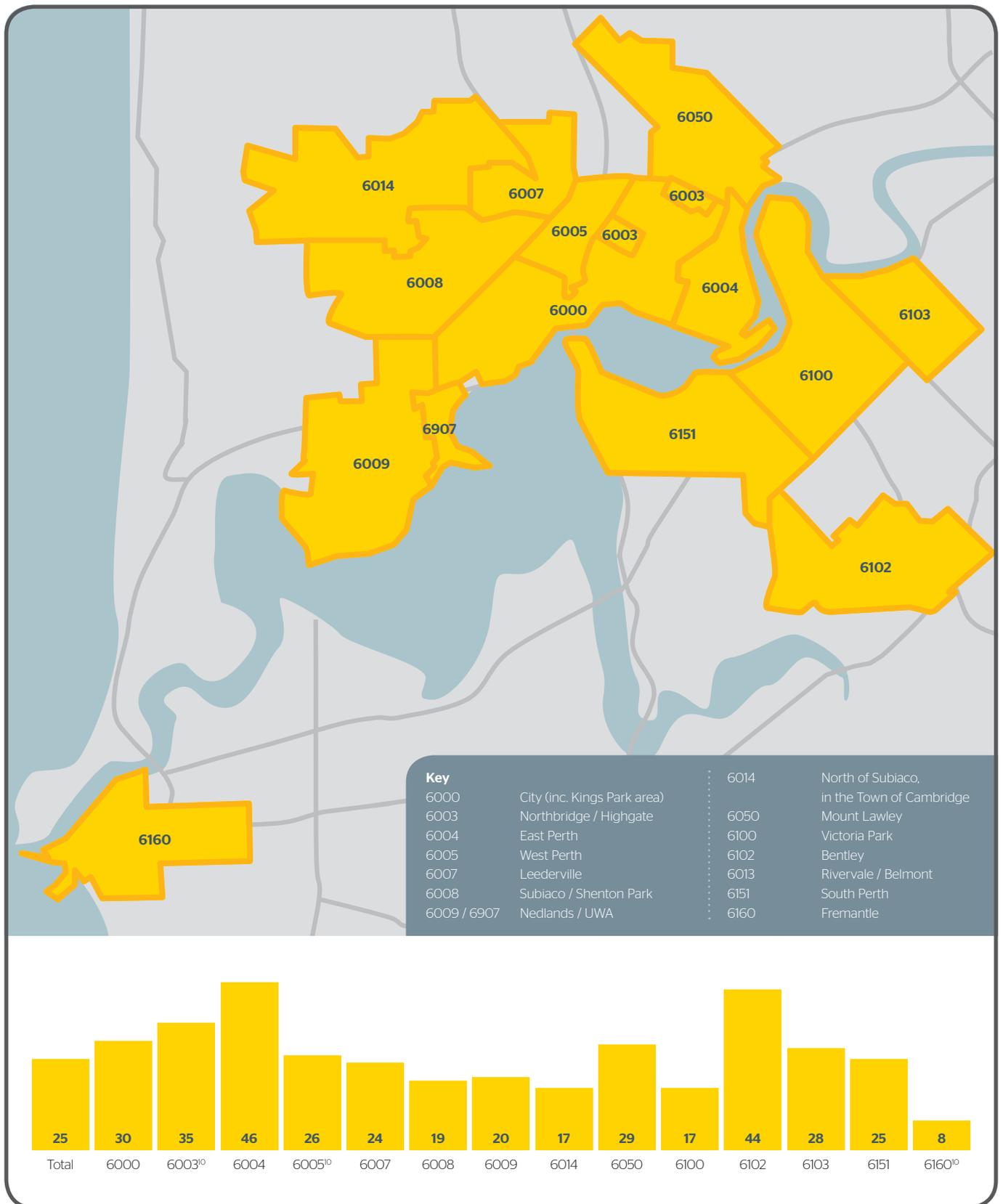


Figure 4: Likelihood of using a car sharing service by postcode area (percentage)

^oCaution small sample size.

When considering just those who would be interested in joining a car sharing service, there was stronger interest in reducing the number of vehicles in their household (61 per cent) - refer to Figure 3.

“We don’t really need two cars. We both work within 2km of home, our 3 kids study / have day-care in same vicinity so we could be a lot smarter about vehicle usage.”

“My car just sits there doing nothing and costing in maintenance and requires cleaning. This would allow me to get rid of the car...”

A substantial proportion (35 per cent of those who were interested in car sharing) also believe they would drive less often because they would sell a vehicle and use alternative modes of travel after joining.

Table 2: Expected change in driving frequency¹¹

I would drive more often as I would have access to a car	8%
I would drive the same amount	47%
I would drive less often as I would sell a vehicle and use alternative modes of travel	35%
Don't know	9%

In terms of the journeys that could potentially be made by car sharing, these could be expected to be short and infrequent journeys for grocery shopping / special occasions / to pick something up (38 per cent each), to run errands / visit friends / family (33 per cent each) and for fun / leisure (32 per

cent). This seems reasonable given that car sharing services are intended to provide members with short-term and casual access to vehicles (rather than being relied upon for commuting purposes).

Potential barriers to car sharing

It is no surprise the car is highly valued, particularly in terms of freedom and convenience (44 per cent and 27 per cent of respondents respectively feel these are the best things about owning a car). This reinforces the importance of targeting certain areas for car sharing, and focusing on the “near-market” or those people who are already open to the idea of car sharing.

However, it is also apparent that the cost of vehicle ownership is unappealing to respondents and this is despite the fact that the true cost of car ownership is significantly underestimated (only 4 per cent of respondents estimated the costs to be more than \$10,000 per annum).

For those who feel they are unlikely to / unsure if they would use a car sharing service, the following could increase the likelihood of them doing so:

- > cost - it needs to be cheaper than owning a car (18 per cent);
- > vehicle locations - it is essential that vehicle(s) are close by / convenient to access (11 per cent); and
- > vehicle availability - the vehicle fleet needs to be of a sufficient size to ensure vehicles are available at all times, particularly in case of emergencies (8 per cent).

It is therefore apparent that the scale of the service(s), availability of vehicles and raising awareness about the true cost of vehicle ownership could help to make car sharing a more attractive proposition.

8 in 10 survey respondents perceived the annual cost of vehicle ownership to be **\$5,000** or less

The average cost of owning and running a car in WA in 2013 was approximately **\$12,000** per annum*

Only 4% of survey respondents perceived the annual cost of vehicle ownership to be more than \$10,000

*Based on RAC's car operating cost survey.

¹¹Based on those who expressed an interest in joining such a service.

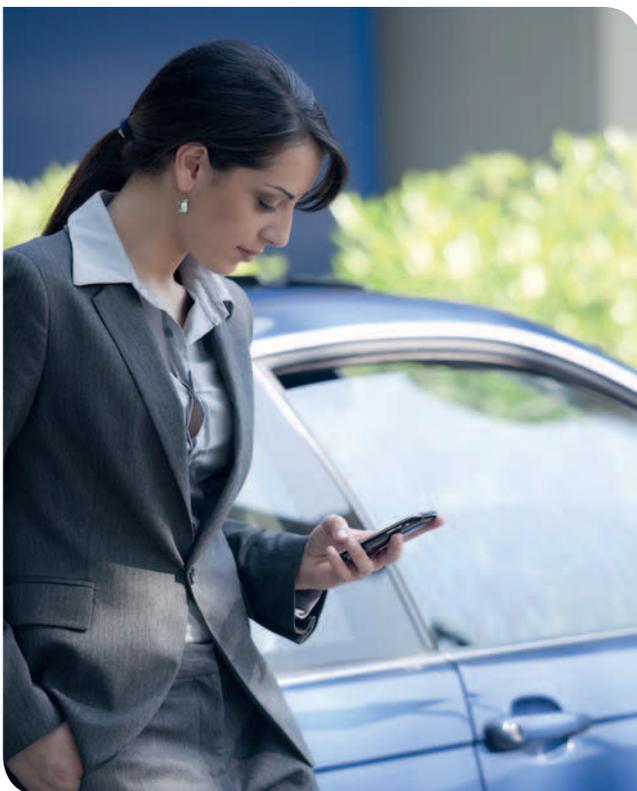
Supporting car sharing

While locations may exhibit the characteristics (or 'success factors') for car sharing, supportive partners and stakeholders are crucial to creating the right conditions to facilitate car sharing, and the establishment of a successful network.

There have been some false starts in introducing car sharing in Perth. While there are likely to be many reasons, issues around scalability, having the right operating systems to provide a seamless and attractive service, lack of political support and policy instruments, and public receptiveness will likely have been amongst the potential stumbling blocks.

Nevertheless, a Student Car Share program was recently launched (in June 2015), providing six cars for the exclusive use of students residing at a number of the University of Western Australia's colleges. In addition, other established commercial operators and startups alike continue to show an interest in Perth as a market for car sharing.

Readying Perth to facilitate car sharing as a new mobility option, and unlocking its full benefits, would require action from local and State Government, advocacy organisations, land owners and developers, strata property management and major employers.



The future of traditional car sharing

Emerging technologies have the potential to disrupt traditional car sharing but they also present an opportunity for the industry to adapt and evolve to provide an enhanced offering. This would have implications for what this mobility option might look like in Perth in the longer term.

Technology is already making informal, or peer-to-peer, arrangements and ride-sharing services easier and more convenient.

The biggest disruption however could possibly come from autonomous (or driverless) vehicles, which may seem like a radical shift to some but one thing is certain – the technology is on its way so it's not a matter of 'if' but 'when'. Current forecasts assume a high level of self-driving (level 2-3 automation, which would still require a driver to be present to override the system), with vehicles becoming more common and affordable, within the 10 to 20 year horizon.

The direction for driverless vehicles is still uncertain but a focus on private vehicles (i.e. a vehicle owned by an individual) would reduce car dependency, sole occupancy trips and number of vehicles on the road to a lesser extent. Providing personal (a vehicle which is for use by an individual but not owned by the individual) or potentially even shared (for used by multiple occupants at the same time) driverless vehicle options would help harness this opportunity and better respond to our urban mobility challenges. According to research published by the International Transport Forum (ITF) in April 2015, fleets of 'TaxiBots' (shared demand-responsive transport) and 'AutoVots' (serving individual passengers), combined with high capacity public transport, could make up to 90% of conventional cars in mid-sized cities superfluous, although VKT would increase due to transfers from buses, pick-ups, drop-offs and re-positioning¹².

The car sharing industry is no doubt exploring ways to integrate the technology and evolve the offering to maintain relevance.

¹²International Transport Forum, 2015. Urban Mobility System Upgrade. How shared self-driving cars could change city traffic.

What could be done?

There are a number of actions which could be progressed by both the public and private sector to support car sharing, particularly car sharing services with B2C and B2B offerings.

Strategic leadership

Political backing and strategic leadership from Government can help to create conditions which would attract car share operators to the Perth market, and facilitate the successful roll out and operation of car sharing.

- > Government could help to shape the direction of car sharing in WA. This would require a proactive approach to monitoring trends and developments in the industry and the implications should car sharing operate locally.
- > Government could also support and promote car sharing through policy and strategy (such as State transport plans, Local Planning Strategies and Town Planning Schemes, Integrated Transport Plans, Parking Plans and even the development of dedicated car share policy and strategy, etc.) and also through existing programs (such as TravelSmart) or at community events.

The City of Fremantle and City of Vincent have both recently drafted policies to facilitate car sharing within their jurisdictions. These policies set out the respective Council's approach to car sharing, including proposed support (for example in relation to the allocation of parking and marketing to supplement activities undertaken by the car share operator) and their expectations and requirements in relation to the establishment and operation of car sharing services. Local government partnerships and support are recognised as being integral to the successful development, and operation, of car sharing. Such policies not only signal a Council's commitment to supporting car sharing but will be instrumental in helping to facilitate services in Perth in the near future.

Public parking provision

The location of vehicles can significantly influence the likelihood of usage and thus the viability of a service. Dedicated car share bays, whether on or off-street, should be positioned in high profile / prominent, convenient and secure locations which have a large pool of potential members within a reasonable walking distance.

- > Local governments could allow the reallocation of on-street parking spaces and bays in Council-owned public car parks to provide dedicated car share bays. Consideration could

be given to minimising the fees and charges imposed on operators, for example waiving the lost revenue which would have been generated from any parking charges, even if just for an initial start-up period.

- > State Government could give consideration to waiving the Perth Parking Levy and parking charges at train stations for bays where such charges apply.
- > Government should be proactive in addressing any enforcement issues which may impact the ability of car share users to access (public) dedicated car share bays.

Integration with new developments

Integrating car sharing during the early stages of new developments provides a significant opportunity to influence travel behaviours from the outset, before routines become established, maximising the value of on-site vehicles and ensuring lasting benefits for site users.

- > It is important that all parties understand the benefits of incorporating car sharing into new land use developments, and how to maximise these to ensure viability; early engagement between private developers, Government and car share operators can help. These discussions could commence in the master planning / structure planning stage to allow early negotiation around discounted parking requirements, plot ratio bonuses, etc.
- > Private developers could 'design-in' dedicated car share bays to ensure vehicles are positioned in the best possible locations. Ideally, vehicles should be located where they are accessible to the broader community and this is easier to do during the design stage.
- > Government could consider allowing car share bays to replace an agreed amount of conventional car parking spaces in new developments and negotiate with / require developers of major sites to provide car share bays. This could be incorporated in policy.

Integration with public transport

Car sharing should complement, rather than compete with, public transport. In fact, integration with other modes can support increased uptake of car sharing services. Physical (in the form of parking at stations) or technological (through integrated ticketing) integration with public transport is therefore highly desirable.

- > State Government could allow the reallocation of parking bays at train stations and consider forfeiting the revenue which would have been generated from any parking charges, even if just for an initial start-up period.
- > State Government could explore options for integration with the SmartRider ticketing system.

In some cities in Europe and North America car sharing services are integrated into existing public transport networks. In 2012, Brisbane became the first Australian city to integrate car sharing into its public transport network. Car share vehicles can be accessed via the City's existing Translink electronic ticket, called a 'go' card, making multi-modal transport trips more convenient for car share members.

Encouraging business use

Car share vehicles are usually well used by individuals to make trips in the evenings and weekends, outside of typical working hours. Encouraging use by businesses, in place of pool / fleet cars, can increase vehicle utilisation throughout the day and also reduce fleet vehicle costs for the organisations.



In Sydney, car sharing membership exceeded 10,000 users in 2012 and businesses accounted for approximately 25 per cent of the membership. By November 2014, over 21,700 residents and businesses had become car share members in Sydney, with businesses accounting for approximately 28 per cent.¹³

- > Government and other organisations (such as major employers) could become corporate members. It may be possible to negotiate discounted memberships / usage charges with car sharing operators.

Financial and in-kind support

There is a range of ways Government and the private sector could provide financial and in-kind support to help overcome some of the potential barriers to uptake of car sharing and maximise the potential for success.

- > Car sharing can be a valuable additional service for site users and promoting it in marketing materials for a new residential or office development will not only improve the attractiveness / marketability of the development (particularly residential developments) but it will also help to promote the service to prospective future users improving its viability.
- > Private developers could consider offering free memberships for future residents, to encourage initial uptake in the first year.
- > Strata Property Management (Strata Company or Council of Owners) could take a proactive role in promoting and supporting an on-site, and / or nearby, service following occupation of a new development. They should be engaged as early as possible to help establish a sense of ownership.
- > Government could consider providing start-up funding to support car sharing in locations which may be less attractive / viable in the short-term but which are aligned with other Government priorities such as addressing social exclusion for example.
- > Government and advocacy organisations could promote the benefits of car sharing to the wider WA community, helping to overcome some of the common misconceptions and perceived barriers to car sharing, and also the sharing economy more broadly in the context of transport and mobility.

RAC, as the leading advocate on the mobility issues and challenges facing our State, is committed to ensuring safe, accessible and sustainable transport options for its 800,000 members.

The establishment of a successful car share network could have an important role in helping to offset congestion, as well as cost of living pressures in Perth. In noting the support of RAC members for this mobility option, RAC looks forward to identifying further opportunities to facilitate car sharing in Perth.

¹³City of Sydney, "Car sharing", <<http://www.cityofsydney.nsw.gov.au/live/residents/car-sharing>> accessed on 20/05/2015.

For further information please
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