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AECOM

AN AECOM BRILLIANT CITIES REPORT

TRANSPORT ON DEMAND

ACCELERATING AUSTRALIAN CITIES

Brilliant Cities_

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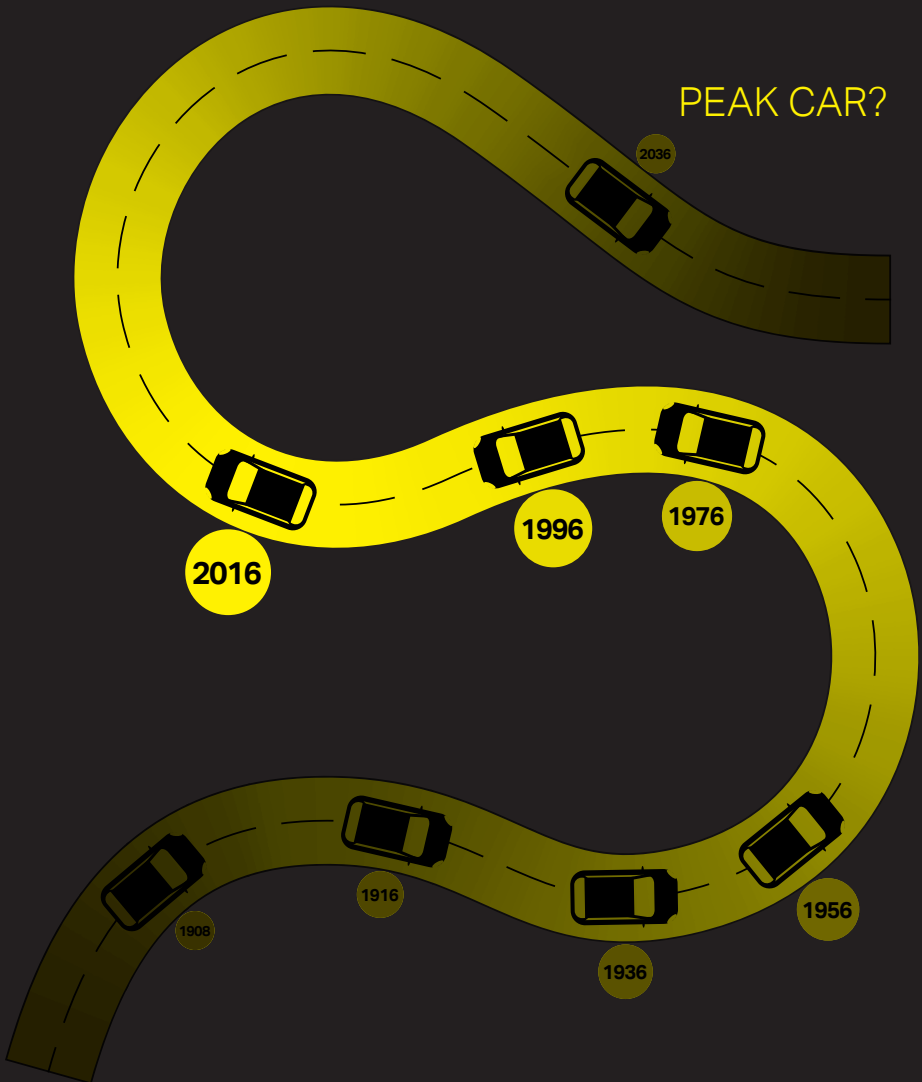
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THE WAY WE APPROACH TRANSPORT IN AUSTRALIAN CITIES IS CHANGING. ARE WE MOVING FAST ENOUGH TO MITIGATE THE COSTS OF CONGESTION CAUSED BY THE CONTINUED RAPID GROWTH IN OUR CITIES?



EXECUTIVE SUMMARY

The populations of our major cities will grow significantly over the next 15 years. By 2031, without new infrastructure and services, congestion is forecast to cost our economy more than \$50 billion a year.¹ Australia's metropolitan road networks and public transport networks are struggling to cope with this growing population, and while major infrastructure projects and new planned mass transit services will support continued urban growth, these are costly solutions to an efficiency problem.

What is certain is that we need to refocus our cities away from high car ownership and high numbers of single occupancy vehicle trips, especially in peak hours. One way to do this is by challenging traditional car ownership and utilisation models and to move our cities beyond 'peak car' – the point at which the number of privately owned cars and single occupancy vehicle trips on our roads stops increasing and starts to decline. By reprioritising our networks towards more efficient use of resources, we not only reduce congestion we can ensure our cities are for our people, by promoting healthy and vibrant communities.

At the current rate of private car ownership and single occupancy car use, peak car is not yet in sight. This makes it critical that we find additional solutions to speed up our attempts to encourage more people to leave their private vehicles at home, if only during the busiest times of the day.

The concept of 'transport on demand' could speed up Australia's journey towards peak car. It involves using phone apps to book shared vehicles, privately operated cars and mini-buses. It's also about using technology to better plan journeys that allow people to switch seamlessly between public transport, carsharing and multi-modal transport options.

By analysing the Sydney membership data of Australia's largest carsharing provider GoGet, our conservative estimate is that carsharing could result in 35,000 fewer privately owned vehicles. However, our modelling also shows that, based on current trends in Australia, that we will take 20 years to reach that point. This could free up hundreds of thousands of square metres of space in Sydney and result in tens of millions of fewer kilometres travelled.

We must accelerate the policy agenda towards carsharing to ensure the sharing economy has a noticeable impact on the urban landscape in the near future.

By combining AECOM's primary research with that of others – including insights drawn from interviews with universities, carshare companies and Transport for New South Wales – this paper explains how governments and developers can facilitate and encourage the move towards carsharing and ridesharing. The first steps are to help the public understand the benefits of carsharing and ridesharing, create shared mobility strategies, connect carsharing and ridesharing with public transport and prepare for multi-hire autonomous vehicles.

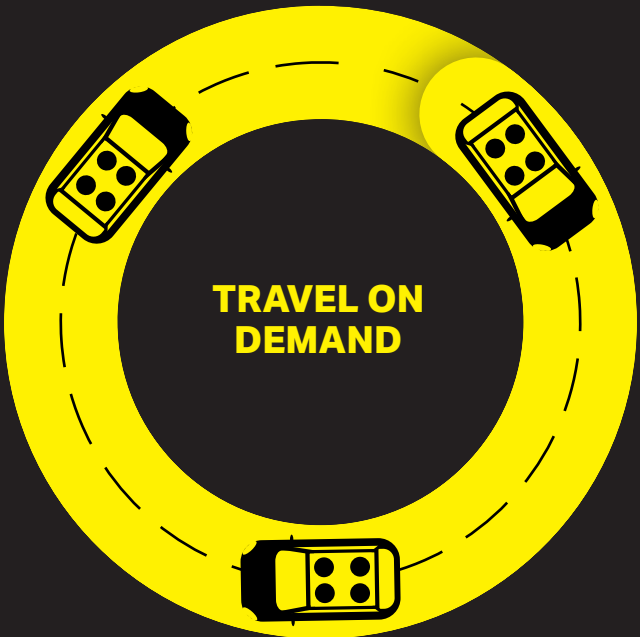
TOWARD TRANSPORT ON DEMAND



A relatively new, emerging transport model, carshare, has the potential to contribute significantly to helping manage congestion and change the way we think about car ownership in Australian cities. Carshare is an example of a suite of transport services deemed 'transport on-demand' or 'Mobility as a Service', these services are designed to be readily available to the user, through modern technology and mobile phone applications providing services on request and proximate to the users location. The role of on-demand services helps fill the mobility gap between scheduled mass public transport services, such as trains and buses, and provides an alternative to private vehicle use or walking and cycling.

Taxis operate in the similar spectrum, but they are relatively expensive for everyday usage. Carsharing and ridesharing are cheaper and as, if not more convenient; accelerating their use won't necessarily require significant investment, especially in terms of limited public expenditure. The first building blocks are already in place in the form of GoGet for carsharing and Uber and GoCatch for ridesharing. Both of these services blur the boundaries between private and public transport in terms of ownership and use.

What impact could carsharing have on Australian capital cities?



To answer this question, AECOM has used usage data from GoGet – the largest carshare company in Australia – to estimate how big the carshare market could be in Sydney. Our conservative estimates are that there could be 3,500 carshare vehicles in Sydney by 2036 and as many as 9,000, if the public are encouraged to embrace carsharing and city leaders provide the necessary support.

How would this affect car ownership? Each carshare vehicle removes up to 10 private cars from the road.² So, 3,500 carshare vehicles could remove 35,000 private cars from Sydney's roads. If the carshare fleet grew to 9,000 vehicles, that would be 90,000 fewer private cars, equating to around 2 percent of all cars in Sydney.

While that may be a fraction of total car use, removing even a small percentage of cars from the road could make a significant difference to congestion. For example,

during school holiday periods an estimated 5 percent reduction in traffic is experienced on Sydney's roads³, which makes a noticeable improvement on congestion during peak periods.

This many Sydney carshare users would drive 180 million fewer kilometres per year than if they owned cars and would free up more than 1.2 million square metres of street space for other purposes, like bicycle lanes, street markets and pocket-size parks. We could devote more valuable space to living instead of car parking.

On current projections, however, we won't see these outcomes for another 20 years. By then, we will have around 1 million more private cars in Sydney, with the private cars increasing from 2.9 million in 2016 to about 4 million by 2036⁴. We are still a long way away from peak car – the point at which the number of private cars begins to fall.

This is why we need to accelerate shared mobility. To remove far more cars from the road, carsharing and ridesharing must be used more frequently for ad hoc trips to the doctor or shops, or to drive kids to sport.

Carsharing and ridesharing must ultimately be part of a broader set of changes if we are to transform the way we move in cities. The shared economy is one of these changes, but more sophisticated transport apps, big data and sensors to monitor traffic are some of the others that must come together to make it all possible. This report outlines these steps.

RESEARCH METHODOLOGY

AECOM undertook an international literature review to identify the typical characteristics of carshare users, and benchmarked these against empirical data on carshare use in Australian capital cities, supplied by GoGet. A predictive model was developed based on these characteristics to estimate the medium term future potential for carshare. AECOM's model uses census data and internal projections of the six typical characteristics of carshare users to map the census zones which meet those criteria. By estimating how many people live in these zones, we were able to estimate the potential market for carshare users and make assumptions about how many of these people would join a carshare scheme.

We forecast the number of privately owned cars in Sydney, using data from the Bureau of Transport Statistics and Roads and Maritime Services, to provide a benchmark.

Research by Phillip Boyle & Associates⁵ was used to estimate benefits, such as how many vehicles carsharing companies provide for each carshare user (0.03); the number of private cars each carshare vehicle removes from the road (10); the space required to park each private car (13.5 square metres); the number of fewer kilometres driven each year by car-share users (2,000 kilometres).

TYPICAL CAR SHARE USER

IN A FAIRLY DENSE AREA

7,700
people
per sq.km

Between
25-44
years old

Lives in a
residence with
3 or less
people



An income
between
\$50,000 and
\$100,000

Is more likely
to have a
university
degree

Lives in a
property
with 1 or
no cars



**INTERNATIONAL
EVIDENCE SHOWS
COMMON TRAITS
FOR PEOPLE WHO
CHOOSE TO USE
CARSHARE CLUBS**

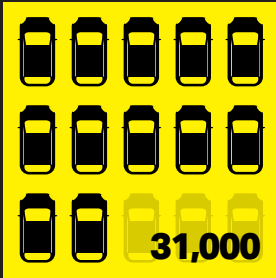
SYDNEY 2036: LESS CARS, MORE SPACE

2011

2016

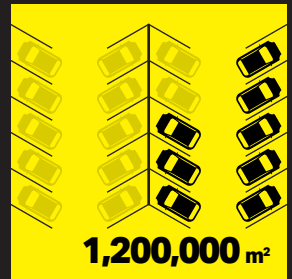
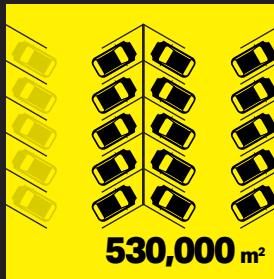
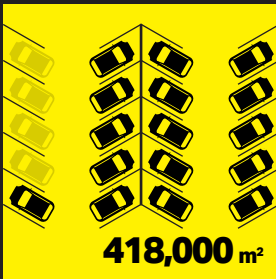
2036

ONE CARSHARE VEHICLE REMOVES 10 PRIVATE CARS FROM OUR STREETS



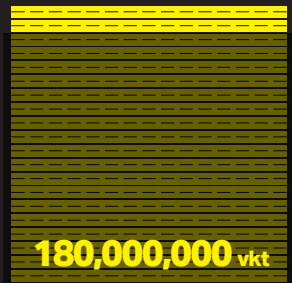
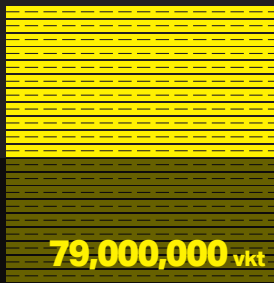
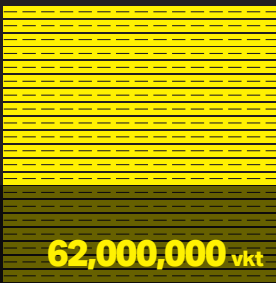
= 10,000 Private cars

EVERY PRIVATE CAR THAT DOESN'T REQUIRE PARKING FREES UP 13.5 SQM OF STREET SPACE



= 100,000 m²

AND CARSHARERS DRIVE 2,000 KM LESS THAN PRIVATE CAR OWNERS EACH YEAR



= 10,000,000 vkt (Vehicle KMs Travelled)

This analysis uses Census data and assumptions about how people might choose to travel in the future. These are optimistic outcomes that could be possible if stakeholders support carshare schemes across the Sydney metropolitan area.

Sources: AECOM analysis supplemented by data from Philip Boyle & Associates, 2016

KEY STEPS FOR ACCELERATING MOBILITY IN AUSTRALIAN CITIES

GOVERNMENTS AND DEVELOPERS CAN ACCELERATE SHARED MOBILITY IN THE FOLLOWING WAYS

1

HELP THE PUBLIC UNDERSTAND THE BENEFITS OF SHARED MOBILITY

Promote life without the financial burden of car ownership.

2

CREATE LOCAL GOVERNMENT AND DEVELOPER SHARED MOBILITY STRATEGIES

Treat shared mobility as an essential service.

3

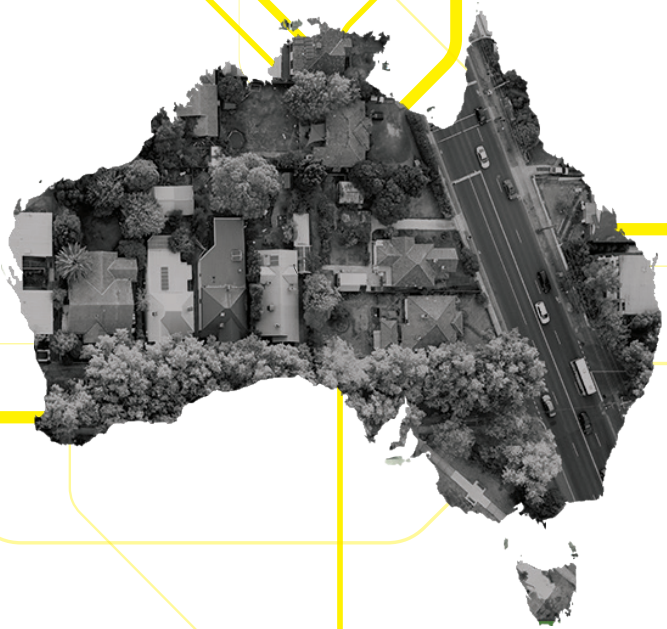
CONNECT SHARED MOBILITY WITH PUBLIC TRANSPORT

Connect carsharing and ridesharing buses and trains seamlessly.

4

PREPARE FOR MULTI-HIRE AUTONOMOUS VEHICLES

Lay the groundwork for even cheaper ridesharing.




An aerial photograph of a busy city intersection with many pedestrians crossing the street. A large, bright yellow number '1' is overlaid on the image, positioned to the left of the main text. The background is a dark grey semi-transparent rectangle that contains the text and the number. The overall scene is a high-angle view of a city street with white zebra crossings and yellow curb markings.

1

HELP THE PUBLIC UNDERSTAND THE BENEFITS OF SHARED MOBILITY

Promote life without the financial burden of car ownership.



"IN EVERY PART OF OUR LIVES, PEOPLE ARE INCREASINGLY VALUING ACCESS AND EXPERIENCE OVER OWNERSHIP."

CHRIS CHOA, DIRECTOR CITIES AND URBAN DEVELOPMENT, AECOM

PROMOTE THE BENEFITS

Governments and developers are increasingly playing a role in promoting the benefits of carsharing. For example, the City of Port Phillip in Melbourne states in its carsharing policy that carsharing will help create a vibrant and healthy place to live. Its transport policy aims to make the city connected and liveable, providing convenience and safety for residents and workers. Its carsharing policy also touts reductions in greenhouse gas emissions.

In some US cities, governments are partnering with universities and ridesharing companies to study the benefits of ridesharing. For example, the San Francisco government worked with ridesharing provider Uber and the University of California Berkeley to analyse the environmental impact of Uber. It found that wait times for ridesharing were markedly shorter than for taxis, while users were often younger.

Many cities are also introducing regular car-free days on major vehicle thoroughfares, allowing residents to experience what a world after peak car might look like. In Paris, the government has even voted to remove cars from beside part of the River Seine, and in the year 2000, residents of Bogota voted to have an annual car free day across their entire city, this initiative is still alive and well.

“NOBODY IS PAYING THEIR WAY. AS A RESULT, WE ARE OVERUSING OUR ROADS.”

**GARRY GLAZEBROOK, ASSOCIATE PROFESSOR
TRANSPORT AND URBAN PLANNER,
UNIVERSITY OF TECHNOLOGY SYDNEY**

RE-EVALUATE CHARGES FOR CAR OWNERS

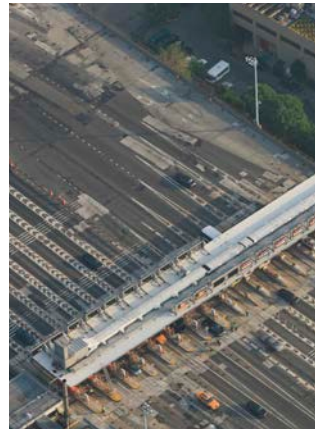
Carsharing might look a lot more attractive when the true cost of owning a car is more obvious. A road pricing scheme could achieve this by charging car owners based on the distance they have travelled. This would more fairly distribute the financial burden of paying for road networks and also help fund roads as hybrid vehicles eventually begin to disrupt fuel excise schemes.

These charges could be displayed on the dashboard, like in a taxi, suggests University of Technology Sydney Associate Professor, and transport and urban planner Garry Glazebrook. He says an on-board computer could calculate charges based on where a vehicle is driven, in which direction, at what time and for how many kilometres.

Charges could also vary depending on the type of vehicle, which transit lane it is using and whether commercial vehicles are part of an efficient logistics network. “Attitudes and behaviour will change if people can see the cost. It’s all hidden at the moment,” says Professor Glazebrook.

Technology is going to make this possible. For example, Singapore is preparing to move from a road pricing system that relies on short-wave radio equipment installed on the roadside, to one that uses satellites. By using the Global Navigation Satellite System (GNSS) Singapore hopes to charge road users based on the distance they travel. The government of Singapore argues that this will be a fairer way of charging motorists.⁶

Congestion-based pricing could also be applied to parking. This is being done in San Francisco, where smart-parking meters measure demand and adjust parking prices accordingly.





"IT'S THE FUTURE. THERE'S A STRONG DEMAND FOR PEOPLE WHO WANT TO RENT UNITS THAT ARE EFFICIENT."

JONATHAN SEGAL, US PROPERTY DEVELOPER – COMMENTING ON HIS CAR-FREE RESIDENTIAL PROPERTY PROJECT⁹

REVIEW CAR PARKING POLICIES

The idea of voluntarily building residential complexes without car parking might be met with derision by some developers and residents. But will that idea really be so strange in a world where carsharing is more common? One of the car-parking reforms being considered in San Francisco, for example, is to make some new buildings

ineligible for parking permits; City of Sydney, a leader in this space, introduced this reform a number of years ago.

Some apartment developers are using car-free housing as a selling point, whether or not potential buyers see this as desirable yet. In Melbourne, Nightingale Housing made headlines after its planning permit

for a 20-unit residential development with no car parking was turned down on appeal. The organisation promotes apartments that support "well-being, community and liveability"⁷. Sustainable transport is one of its key focuses. Another residential property developer made headlines by asking residents to sign a car-free pledge.⁸

An aerial, black and white photograph of a residential neighborhood. A central road runs vertically through the middle. The houses are densely packed with trees. Yellow graphic lines, resembling circuit traces, cross the image diagonally and vertically, framing the central text area.

2

CREATE LOCAL GOVERNMENT AND DEVELOPER SHARED MOBILITY STRATEGIES

Treat shared mobility as
an essential service.



"THE BIGGEST THING GOVERNMENTS CAN DO [TO PROMOTE CARSHARING] IS ENSURE CARSHARE IS TREATED AS PART OF THE PUBLIC TRANSPORT INFRASTRUCTURE."

CHRISTOPHER VANNESTE, HEAD OF LOCATIONS, GOGET

RESERVE MORE SPACE FOR SHARED VEHICLES

By paying close attention to the placement of shared car-parking spaces, local councils can increase the likelihood the cars will be used. For example, GoGet believes the maximum distance residents will walk to use a shared car is 250 metres. By taking this into account, local governments can maximise the number of residents using these shared cars.

In outlying suburbs where population density is lower, it might not make economic sense for carsharing companies to supply vehicles everywhere. Here, these companies are beginning to work strategically with local governments to provide cars in future growth areas. For example, GoGet has agreed to provide vehicles in areas of Western Sydney where land has been re-zoned for future development.

Shopping centre car parks are another source of valuable parking space for shared vehicles. These car parks go unused approximately 40 percent of the time, estimates Vinayak Dixit, Associate Professor in the School of Civil and Environmental Engineering at the University of New South Wales. He suggests that car park owners offer the space to carsharing providers during off-peak periods. In the long term, autonomous vehicles could use these spaces as a home base to park in overnight.

OFFER INCENTIVES TO USE SHARED MOBILITY SERVICES

Residential property developers are also partnering with ridesharing providers. For example, the owner of an apartment complex in San Francisco has partnered with a ridesharing company to offer a monthly US\$100 transportation 'credit' for residents taking part in the apartment's 'car-free' program.¹⁰ The credit can be used for public transport as well as ridesharing services. Residents also receive US\$5 trips to the city if they use multi-hire ridesharing service, which allows several people to share one vehicle.

This developer describes its apartments as the "first large-scale, sustainable community" in the city. Ridesharing is only one part of its transport strategy, which also includes 13 electric vehicle charging stations and bicycle storage. The owner is championing this as a model for developments across the US and globally. GoGet already offers discounted carshare membership packages for residents of integrated developments.

SET PUBLIC GOALS FOR CARSHARING

Goal-setting was essential to bringing out change in transport policy in San Francisco, according to Timothy Papandreou, the former Director of the Office of Innovation at the San Francisco Municipal Transportation Agency. In 2012, the agency set a goal that residents would take 50 per cent of trips by methods other than their own cars. Making this target public allowed champions of multi-mode transport policy, such as Papandreou, to keep pressure on officials to make room for carsharing. Not only did the agency reach its goal, but it did so in 2015, three years earlier than planned and

since 2000, 88% of new households that moved into the new developments with the new standards have not brought or bought their cars.

The City of Port Phillip in Melbourne is among the local councils leading the way in Australia in this regard. The city approved its carsharing policy in 2016, which aims to reduce the number of privately owned vehicles.¹¹ Its goal is to see the number of carshare vehicles in the area more than triple between 2016 and 2021. Its policy aims for 10 per cent of residents to be members of carshare schemes by 2021.

3

CONNECT SHARED MOBILITY WITH PUBLIC TRANSPORT

Connect carsharing, ridesharing, buses and trains seamlessly.

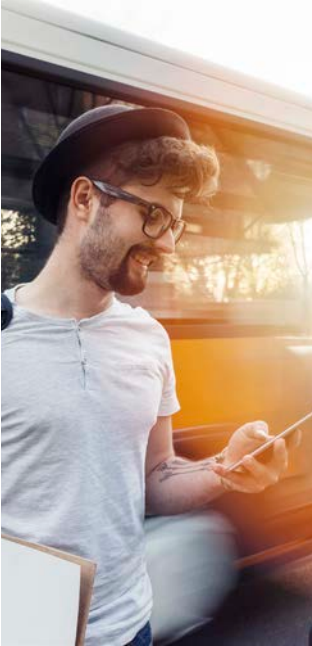


INTEGRATE CARSHARING WITH PUBLIC TRANSPORT APPS

Rather than replacing public transport, carsharing and ridesharing is more likely to bridge the last few kilometres between train and bus stations and commuters' homes. For example, technology for autonomous trucks could one day be used for autonomous mini-buses that ferry groups to and from stations. However, it makes more sense if commuters can plan their entire trip using the one tool. In fact, when AECOM surveyed its own employees in Australia and overseas, more picked 'better integrated public transport' as a factor that would reduce their use of private cars than any other factor.

Another factor that would influence the use of private cars is integrated transport apps. This technology already exists. For example, the Go Denver app allows residents of Colorado to plan routes that include public buses, ridesharing services such as Lyft, and bicycling. The app also allows users to choose whether they'd prefer a faster, cheaper or greener route. It even tells them how many kilograms of CO₂ each mode of transport for the particular route will produce. As with many of the examples in this paper, a public-private partnership in this instance between the City and County of Denver and Xerox – made this vision a reality.¹²

Eventually, carsharing and ridesharing must become two of a myriad of transport options available via a phone app. A hospital might operate a specially-equipped mini bus to pick up groups of patients for appointments with a specialist. Hospital shift-workers might use the same vehicle for commuting late at night. Retail workers might dial up delivery vans, and a business park might have on-demand shuttles for transferring groups of workers to and from the airport. Carsharing and ridesharing are just two of many transport options under this 'Mobility-as-a-Service' framework.



“WE BELIEVE THAT WHEN CITY RESIDENTS HAVE THE OPTION OF PUSHING A BUTTON AND GETTING A RIDE, THEY ARE MORE LIKELY TO USE PUBLIC TRANSIT, OWN FEWER CARS AND SPEND LESS ON TRANSPORTATION OVERALL.”

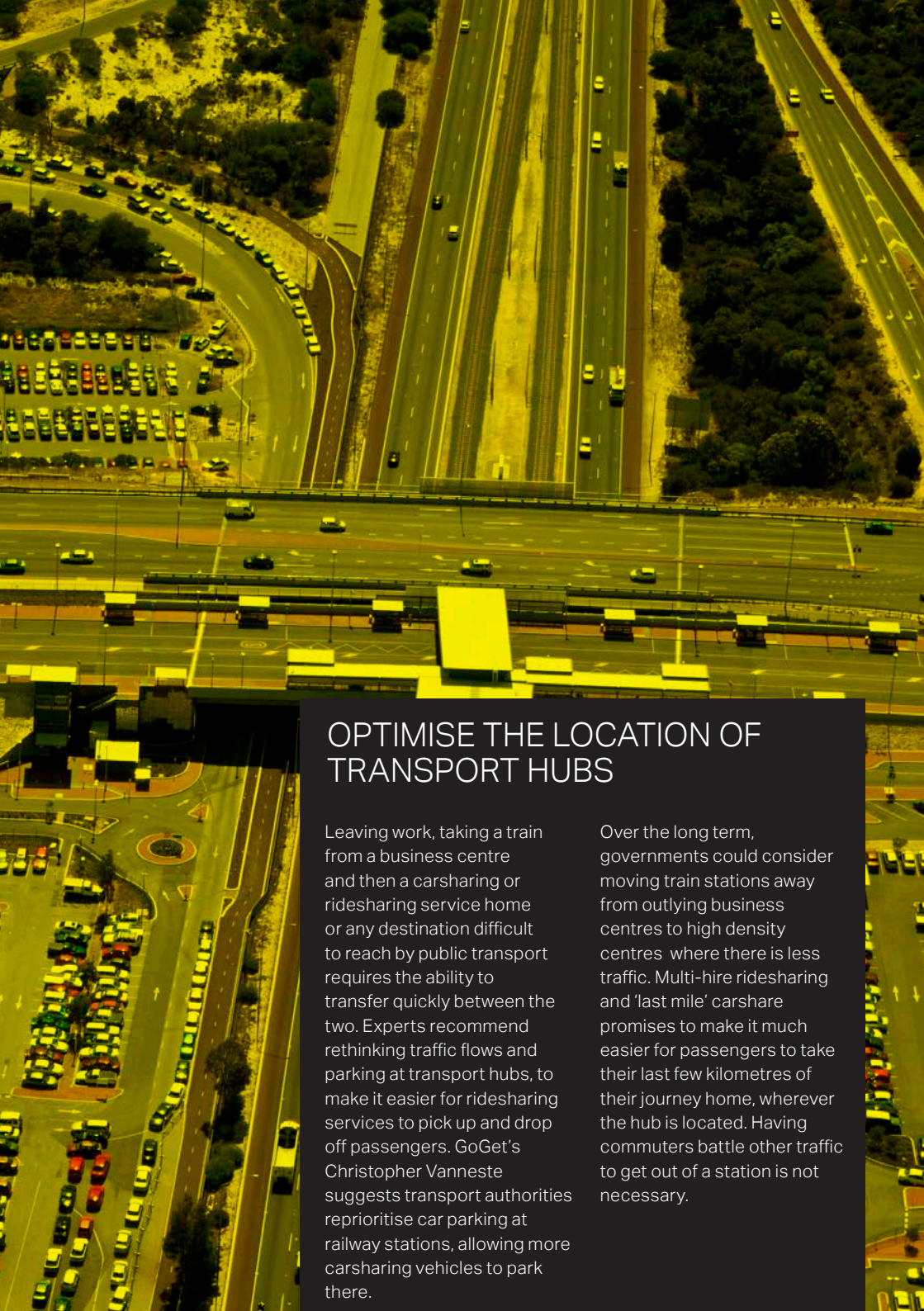
ANDREW SALZBERG, HEAD OF MOBILITY, UBER¹³

OFFER A SINGLE WAY OF PAYING

An integrated transport network also requires a universal method of paying for trips. Governments can start planning for this by preparing a list of requirements well in advance of future upgrades to public transport smart card systems.

Once again, private industry is championing solutions. In some US and German cities, it is already possible to use a smartphone to

pay for ridesharing and train journeys, using apps released by the company Moovel. The app allows transit and ridesharing companies to list their services. As well as allowing commuters to top up their public transport accounts using their phone, the app allows phones with near-field communication chips to tap and pay.



OPTIMISE THE LOCATION OF TRANSPORT HUBS

Leaving work, taking a train from a business centre and then a carsharing or ridesharing service home or any destination difficult to reach by public transport requires the ability to transfer quickly between the two. Experts recommend rethinking traffic flows and parking at transport hubs, to make it easier for ridesharing services to pick up and drop off passengers. GoGet's Christopher Vanneste suggests transport authorities reprioritise car parking at railway stations, allowing more carsharing vehicles to park there.

Over the long term, governments could consider moving train stations away from outlying business centres to high density centres where there is less traffic. Multi-hire ridesharing and 'last mile' carshare promises to make it much easier for passengers to take their last few kilometres of their journey home, wherever the hub is located. Having commuters battle other traffic to get out of a station is not necessary.

4

PREPARE FOR MULTI-HIRE AUTONOMOUS VEHICLES

Lay the groundwork
for even cheaper
ridesharing.

LAY THE GROUNDWORK FOR EVEN CHEAPER RIDESHARING.

FOSTER COLLABORATION WITH AUTONOMOUS CAR COMPANIES

In many cases, autonomous vehicle testing has been the result of public–private partnerships. In the US, these vehicles are test-driving along some public streets (with technicians in the front seat for safety) and even taking passengers. In some cases, universities have partnered with ridesharing companies to develop the technology.¹⁴

Governments in Australia also have the opportunity to foster these types of relationships. The Victorian Government has already done so by partnering with Bosch, which has developed an autonomous vehicle in Australia. Trials will help improve the safety regulations and road systems needed to introduce autonomous cars in Australia.

“SAFER, MORE ACCESSIBLE DRIVING. LESS CONGESTED, LESS POLLUTED ROADS. THAT’S WHAT HARNESSING TECHNOLOGY FOR GOOD CAN LOOK LIKE.”¹⁵

US PRESIDENT, BARACK OBAMA

ACCELERATE LICENSING AND SAFETY REGULATIONS

The “quickest way to slam the brakes on innovation is for the public to lose confidence in the safety of new technologies,” US President Barack Obama has stated. With that in mind, the US government announced its Federal Automated Vehicles Policy in September 2016. The policy is “laying a path” for the safe testing and deployment of automated vehicles by setting out a 15-point safety assessment for manufacturers.





"SHARING OF AUTOMATED VEHICLES WILL BE THE CORE REASON FOR THEIR SUCCESS."

CHRISTOPHER VANNESTE, HEAD OF LOCATIONS, GOGET

CREATE A DATA ECOSYSTEM

The cities most suitable for autonomous cars will require a data layer serving two fundamental purposes: to monitor traffic and help the vehicles to navigate the streets. While the likes of Google and Volvo build the cars, governments can begin building the networks of sensors, traffic routing systems, signalling and wireless transmitters.

With this in place, autonomous cars will be able to move faster and more

safely. Traffic signals could broadcast the timing of green lights via vehicle-to-infrastructure (V2I) services so cars could make routing decisions. Those same traffic signals could also prioritise green lights for automated cars, where appropriate. In Singapore, parking guidance systems also communicate with cars, telling them the location of parking. Sensors could detect queue length at intersections, or warn about hazards.

“IN THE FUTURE A VEHICLE WILL INCREASINGLY BE A DATA PLATFORM THAT IS MOTORISED RATHER THAN A CONVENTIONAL VEHICLE THAT HAS INTELLIGENT FEATURES. BUT THE GREATEST CHANGES WILL OCCUR WHEN A MAJORITY OF VEHICLES ARE NETWORKED - WHEN THEY COMMUNICATE AND RESPOND WITH EACH OTHER.”

CHRIS CHOA, DIRECTOR CITIES AND URBAN DEVELOPMENT, AECOM

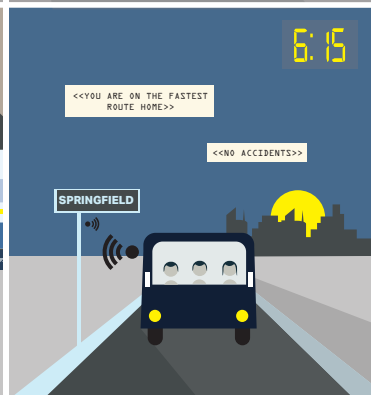
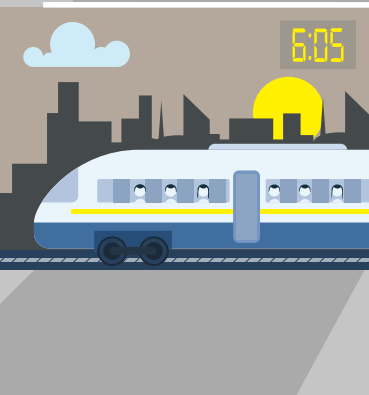
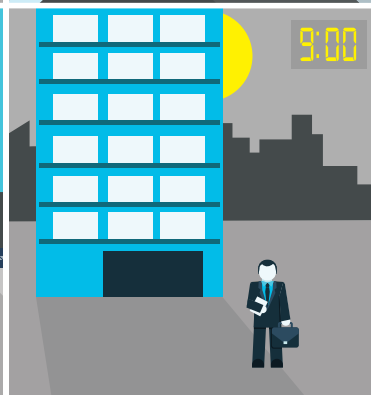
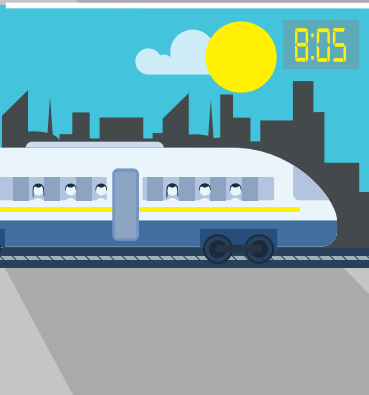
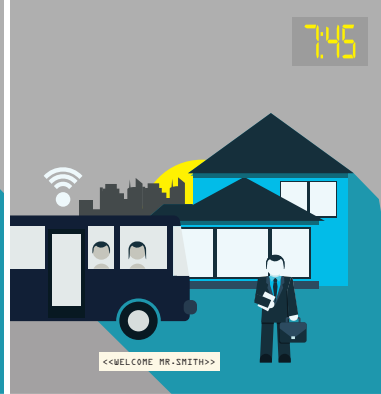
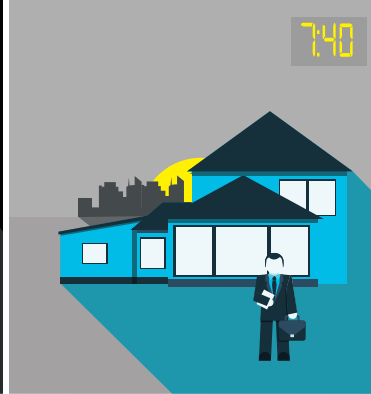
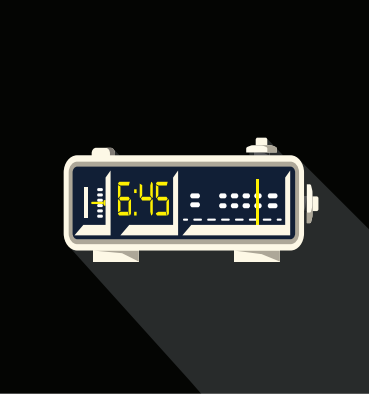
HOW WILL WE GET TO WORK IN 2036?

In a world where carsharing and ridesharing is widespread, commuting to work will look very different to today. Leaving the house in the outer suburbs, a commuter will step immediately into an autonomous six-seat mini-bus. The bus will be scheduled to arrive every weekday at the same time. If a commuter's schedule changes, another bus will change its route to pick them up. The commuter can also use an app to choose from a variety of other transport types, including small autonomous cars. The app shows the cost of each type of journey.

Stepping into the mini-bus, the commuter will join five commuters, who pay a smaller fee by sharing the ride. The bus has no driver, using a combination of radar, GPS and other sensors to navigate.

Along the route, the bus constantly communicates with roadside signs, traffic lights and sensors using V2I technology, learning the location of traffic accidents while being given priority ahead of private cars by traffic lights at intersections. That data will allow it to calculate the optimum route to the nearby train station.

Arriving at the station, the bus will pull up in a drop-off lane, not unlike the departure drop-off at an airport. The commuter will step out and the vehicle will move off to another booking. When it is no longer required, the vehicle will then find a quiet back street to park, away from congested areas, or even more likely will optimise a route to its next pickup, realising the ideal of maximum vehicle utilisation.



We don't need to imagine peak car, because we already see glimpses of it. Four times a year during the school holiday period, commuters suddenly find that driving to the train station or to the office is faster.

Now imagine if the roads were like that all the time. Imagine how much easier it would be to get to work, or to the supermarket, or to sport on the weekend.

If people are the lifeblood of our communities, efficient transport is the circulatory system that allows them to connect with work, entertainment, friends and sport. Relying on a limited number of major public arteries isn't enough – a true network has fast, affordable links in all directions, allowing real freedom of movement. Our roads already provide those links. Carsharing and ridesharing presents an opportunity to reduce congestion so they can be used effectively.

The good news is that the initial infrastructure we need to make this happen – our roads – is already in place. We just need to change the way we use it.

This change is already beginning as car owners take more trips using carsharing and ridesharing services, removing cars from the road.

To see noticeable change, shared mobility must become part of our transport network. Governments and developers can accelerate this by partnering to promote the benefits of carsharing and ridesharing, providing space for shared vehicles and connected trip planning.

This won't all be smooth sailing, with challenges like creating a universal payment system still to be resolved here. But with the number of carshare users growing in cities such as Sydney, Australian governments have an opportunity to lead the region, if not the world, in the creation of a ground-breaking transport network.

This network will support thriving communities like Sydney's Central Park – an urban village boasting one of Australia's largest fleets of carsharing vehicles, sustainability features and space for 8,000 residents in a small pocket of the city.

This is what cities will look like for governments and developers with ambition.

NEXT STEPS

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He has 25 years' experience planning cities and is excited about making cities better through integrating technology, innovative funding, and effective infrastructure delivery.

Solving these challenges will create great cities that people love living in.

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Cities have never been more important, nor the competition among them more intense. At AECOM, we have acknowledged this and have a team of dedicated specialists who connect the best ideas and insights from across the globe and professional backgrounds to help cities overcome their challenges and build brilliant futures. James Rosenwax leads this team across Australia and New Zealand as the Market Sector Director – Cities.

James' philosophy is rooted in his desire to reframe the questions arising when solving the most complex challenges faced by our urban metropolises.

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ABOUT AECOM

Whether it is helping cities to prioritise capital asset reliability, plan for climate adaptation, protect assets or provide for sustainable economic development, we see the opportunity to not just build resilience but achieve brilliance.

We believe that cities positioned to excel in this time of global change are pursuing broad, integrated strategies to tap hidden value, celebrate ecology and culture, attract people and investment, and overcome financial and operational inefficiencies. These are brilliant cities. Brilliant cities aren't just smart. They are visibly vibrant and delightful. They shine.

SPECIAL THANKS

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