One Less Car

Shifting to a sustainable transport future

Uber

Uber's mission is to create opportunity through movement. We started in 2010 to solve a simple problem: how do you get access to a ride at the touch of a button? More than 36 billion trips later, we're building products to get people closer to where they want to be. By changing how people, food, and things move through cities, Uber is a platform that opens up the world to new possibilities.

Lime

Lime's mission is to build a future where transport is shared, affordable, and carbon-free, and we are proud to join Uber in envisioning a car-light future for Australian cities. The One Less Car trial showcases the positive impacts and vital role that micromobility plays when going car-light - the findings show that bicycles were a 'MVP' for participants in the study. Participants adapted to a car-free or car-light life for a full month by relying on a bundle of shared mobility options, including Lime, Uber, public transit, and carsharing. Lime strongly supports efforts to shift Australians from cars to micromobility and other shared mobility options, and we look forward to continuing to partner with Uber to help cities build sustainable transport networks across Australia.

Lug+Carrie

At Lug+Carrie we want to get people out of cars for short trips by providing no commitment, and flexible subscriptions to market-leading eBikes. We were excited to partner with Uber in the One Less Car trial and see the significant role of eBikes as one of the trial's 'MVPs'. We know micromobility can help people reduce their reliance on the private car and make getting around our busy cities more sustainable and time efficient. We look forward to continue playing a key role as Australia shifts away from private car dependence to urban mobility that is smart, green and fun.

Uber Carshare

At Uber Carshare we want to challenge the 'one person, one car' mentality and make sharing cars a simple, great experience for everyone. We were proud to be part of the One Less Car trial and see participants increase their carshare use 180%. Tackling the private car challenge means solving for different transport use cases, whether people need a rideshare for a night out or borrowing a local van to move house. The trial shows that carshare is a critical part of the urban mobility mix as we move to a more sustainable transport future.

THE BEHAVIOURAL ARCHITECTS

The Behavioural Architects were proud to work with Uber and other partners on the One Less Car trial. Reducing private car dependence will be one of the greatest challenges facing our cities in the coming decades as we work to create more liveable and green environments. Viewing this challenge through the lens of behavioural science was critical to understand the nuances in barriers that exist today to reduce private car use as well as the opportunities.

Foreword

It's hard to imagine modern cities without private cars. They are deeply ingrained into how our cities are planned and function, and how we as citizens live our lives: getting to the shops, commuting or taking a weekend road trip. While it's difficult to imagine our cities without cars, their rise only began in the 1950s. For the last seven decades, our dependence on cars has grown - with cars supporting Australia's urban sprawl.

As we look to the future, in particular as we race to reach net zero, we must ask whether our current reliance on private cars is sustainable. To date, much of the focus of sustainable transport has been on electrification and removal of fossil fuel powered vehicles. Uber supports this and has committed to being a fully electric, zero-emission platform globally by 2040, but we understand that to keep global warming below 1.5 degrees, it's not just how our vehicles are powered that needs to be addressed[1]. In tandem to going electric, we need a shift from the 'one person, one car mentality' to a transport mix of walking, cycling, vehicle sharing and public transport.

The electrification challenge is significant but arguably the mode shift challenge is even greater given how deeply ingrained private cars are in our daily lives. That said, the One Less Car trial gives me hope. Even today when we know there are gaps in our broader transport network and issues to address, 58 Australians were successfully able to give up one of their cars for 4 weeks and still live their lives. They also saw the benefits; improved health and wellbeing outcomes, less time in congestion, connection with their communities and financial savings.

I know the (shared, electric and automated) road ahead will not be without its challenges. There are many barriers to address and opportunities to take advantage of, some of which this trial identifies. It will be a multi-decade effort and require strong partnerships between governments, academia and industry. We're up for the challenge because we know getting to a car-light future is essential for our communities, our cities and our planet.

Dom Taylor
General Manager - Australia
and New Zealand, Uber

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Executive Summary

Australians have a unique relationship with the private car

Private cars present many challenges at an individual level, such as traffic and parking stress; in addition to broader societal costs of pollution, emissions, congestion, health and housing affordability. Despite this, they remain the dominant mode of transport, making up 7 in 10 trips[2]; and Australia has some of the highest rates of ownership in the world[3].

It is also important to acknowledge the strong emotional attachment many Australians have to their cars. Cars provide their owners with a sense of freedom and spontaneity and there is a special Aussie nostalgia when it comes to buying your first car or summer road trips to the beach. But as we look to the future, and the pressing need to create economically vibrant, liveable and greener cities, our current trajectory of car ownership and use is not sustainable.

58 Australians successfully reduced their car dependency in the One Less Car trial

It is difficult to imagine a life in Australia with 'one less car', but this year 58 Australians did just that. Uber announced the launch of the One Less Car trial in March 2023 and received over 3000 applications. We chose 58 Australians from a mix of cities (Adelaide, Brisbane, Canberra, Melbourne and Sydney), life stages (families, empty nesters and younger people living without children) and car ownership structures (zero, one or two+ cars).

They were asked to give up one of their cars, going from one to zero (complete deprivation) or two+ to one+ (partial deprivation). We also included six participants who already lived without a car to see if their behaviour differed and what we could learn from them. Participants were given an alternative

transport package valued at AUD $1,350, which is roughly equivalent to the amount Australians spend on a private car in a month. The transport package included credits for their local public transport system, Uber rideshare and delivery, Uber Carshare, Lime e-bikes (Sydney, Melbourne and Brisbane only) and a Lug + Carrie cargo e-bike subscription (Sydney, Melbourne, Brisbane only). We also gave participants a fitBit ($150) to monitor changes in step count.

The trial ran over five weeks with the first week establishing a baseline where we asked participants to continue their normal routine. In weeks 2-5 participants stopped using one of their cars. The trial design was made up of pre and post trial surveys, daily travel logs and weekly video journaling.

The trial found there are three major barriers to reducing private car use; access, quality and value perception

Over the course of the trial, there were many barriers and opportunities identified to reduce car dependency. We need to remove the barriers and amplify the opportunities which currently exist to create cities which prioritise people over movement. The three main barriers identified were:

■ Access to transport alternatives

Participants required access to at least four different modes to meet their transport needs. Mode mix was different for different cohorts but on average, the MVPs (Most Valuable Player) were walking, cycling and rideshare. Walking was the most popular mode while cycling and rideshare received the biggest increases of 4-5X. Public transport is the mobility backbone of cities and was important for commuting trips and long distances. Car share trips almost tripled and fulfilled a unique use case (e.g. weekend to the country) that other modes couldn't replicate.

Figure 1: Average number of modes used per week

Legend: 0 Cars, 1 Car, 2+ Cars

	Week 1	Week 2	Week 3	Week 4	Week 5
0 Cars	4.0	4.1	4.4	4.6	4.3
1 Car	3.0	4.0	4.8	4.2	3.9
2+ Cars	2.6	4.6	5.0	4.6	4.3

Significantly higher / lower than Status quo week

Figure 2: Transport alternatives W1 vs. W2-5 average; car owners only

	W1	W2-5 avg	% Shift
Personal Car	737	85	-88%
Walking	159	279	+75%
NET: Other	39	68	+74%
Bus	35	65	+86%
Train	34	87	+156%
Electric Bike + Bicycle	32	135	**+322%**
Car Share	22	62	**+182%**
Rideshare	16	89	**+456%**
Carpool	0	85	

Quality, convenience and reliability

It is difficult for alternative modes to compete with the convenience and reliability of the private car. Comfort perceptions of different modes both before and after the trial remain highest for the private car. Participants also valued 'ease and convenience' as one of the highest priorities when choosing any mode, above environment or price. The private car excels at this, providing constant, ready availability while allowing for spontaneous trips and flexibility. Traffic and congestion associated with private car travel did help reduce perceived 'ease and convenience' for some trip purposes with some participants preferring public transport to commute to and from work.

Trying a new mode for the first time was difficult and participants found the existing trip planning tools challenging and difficult to modify. While cycling was one of the most used modes in the trial, road safety concerns were highest for this mode. Finally, we saw participants' average daily step count increased from 7,509 in week 1 to 8,253 in weeks 2-5. The additional health benefits of living car free also corresponded with increases in overall satisfaction with their community. While positive, these benefits were only realised after reducing car use so would be somewhat limited in their effectiveness to trigger behaviour change.

High perceived value and affordability

Private cars have many functional and emotionally-based benefits which are valuable to the participants. Participants valued their car's constant, ready availability. Even if they are not used often, cars in Australia sit idle 95% of the time[4], they are not seen by their owners as financially irrational. Value perception is not helped by the fact that participants also underestimated the cost of their cars, particularly invisible costs such as depreciation. In addition, the cost of alternative transport modes is more salient with higher frequency and in-the-moment nature of payment.

Making four the norm; Big Moves for city leaders

Accelerating the transition to a car light future requires all city leaders, across government, industry and academia, to push together to make four the norm. A key finding of our research and analysis has been that people need access to at least four alternative modes of transport to reduce their car dependence. There are Big Moves underpinned by tangible actions that city leaders need to take now to make four the norm. Executing these Big Moves will make an impact now, while also laying the groundwork for a lasting impact towards a car light future.

The Big Moves have been devised through reflecting on the findings of the One Less Car trial as well as learnings from global best practice. We saw during the covid lockdowns how the increase in availability of walking, riding and scooting space in many cities, such as Sydney and New York, led to increases in active travel trips. We can also learn from cities such as Utrecht which have reallocated road space away from private cars and have experienced an increase in cycling and walking trips as a result.

It is clear that there is no one silver bullet to realise change. The Big Moves have been devised to work together to maximise impact. People need affordable, quality, reliable and convenient alternatives to consider replacing the private car for a particular trip. That means having the right infrastructure and services in place as well as a bit of a nudge to try something new. But for a lasting impact, the government's strategies, plans, policies and infrastructure funding need to push in the same direction. Making four the norm must be the target to achieve change and a car light future.

> "I usually have a highly predictable routine and travel movements, and there is a substitute for most of those. So I resolved that I'm going to sell my car sometime soon in about four to six weeks."
>
> - Male, 66, Sydney, 2+ cars

Target: Make four the norm

IMPACT NOW

Big move 1: Invest in infrastructure to increase access for all

Big move 2: Improve the reliability & convenience of every trip

Big move 3: Raise awareness of travel choices and emphasise the benefits

Big move 4: Target ready-to-shifters and scale up what works

LASTING IMPACT

Big move 5: Enabling plans and strategies

Big move 6: Policy reform towards one less car

Big move 7: Bet on big mass transit projetcs

Shifting to a car-light future

Reducing overreliance on private cars has great potential to alleviate economic, societal and environmental burdens imposed on our communities. Global cities that are taking action on this, such as Utrecht, London and New York, are enabling greener, vibrant and more liveable spaces to live, work and play in. We know cities need to be re-oriented away from single-occupancy car trips and toward reliable, shared, electric and multimodal solutions. While this trial identifies some of the barriers that currently exist to a car-light future, it also highlights the opportunities. When provided with transport alternatives, 58 Australians were able to reduce their car use without any (apparent) major barriers. They adapted their lives,

tried different modes and realised many of the benefits including greater connection with their communities, families as well as health benefits. By the end of the trial, many participants stated they would continue to use alternative transport modes more, with three participants indicating they planned to sell one of their cars in the near future, or make their car available on Uber Carshare. While this gives hope for the future it also demonstrates that there is more work to be done to create cities where people are ready to use 'one less car'. Private car use has been deeply embedded in urban design, policies and culture for the last 70 years and shifting to an alternative transport future is a significant challenge. City Leaders from across government, industry and academia will need to take steps today as well as strategic Big Moves to plan for the future.

"It's surprised me how easy this has been, how unstuck I've felt, and how many positives have come out of it'"

– Female, 36, Adelaide, 1 car

Introduction
The role of cars in our transport network

Australia's transport network relies heavily on the private car making up the majority of trips. Indeed, many Australian cities were and continue to be designed with the private car in mind. Our cities grew and prospered during the 1950s[5], when car ownership was becoming affordable and jobs in the manufacturing industries were located in the outer suburbs. As such, Australia's cities grew out, not up, and our dependence on the private car began.

Cars are growing faster than the population

Each year, Australians purchase in excess of 750,000 new passenger cars and SUVs combined, with 52% of Australian households owning two or more cars[6]. Today there are 15.1 million private cars on the road and Australia has some of the highest rates of car ownership per capita, in the world. Car ownership is +38% and +20% higher than the United Kingdom and Germany respectively[7].

Over the two decades between 2001 and 2021, Australian passenger car registrations increased by 51%, whilst the population grew by just 37% in that time[89] This means that over the last two decades, car registrations have grown 14 percentage points faster than the population, and the rate of private car ownership per capita has increased by 10%[10].

The rise of the 'underutilised' car'

In contrast, whilst rates of car ownership have steadily increased, the distance travelled by each car on average has fallen by 25% between 2002 and 2021[11]. Australians are buying more cars and driving them less every year. Despite the downward trend in vehicle utilisation, driver licensing as a share of the population trended upward in Australia in the 2010s[12].

Figure 3: Number of private cars and distance travelled per car in Australia (2000 – 2021)

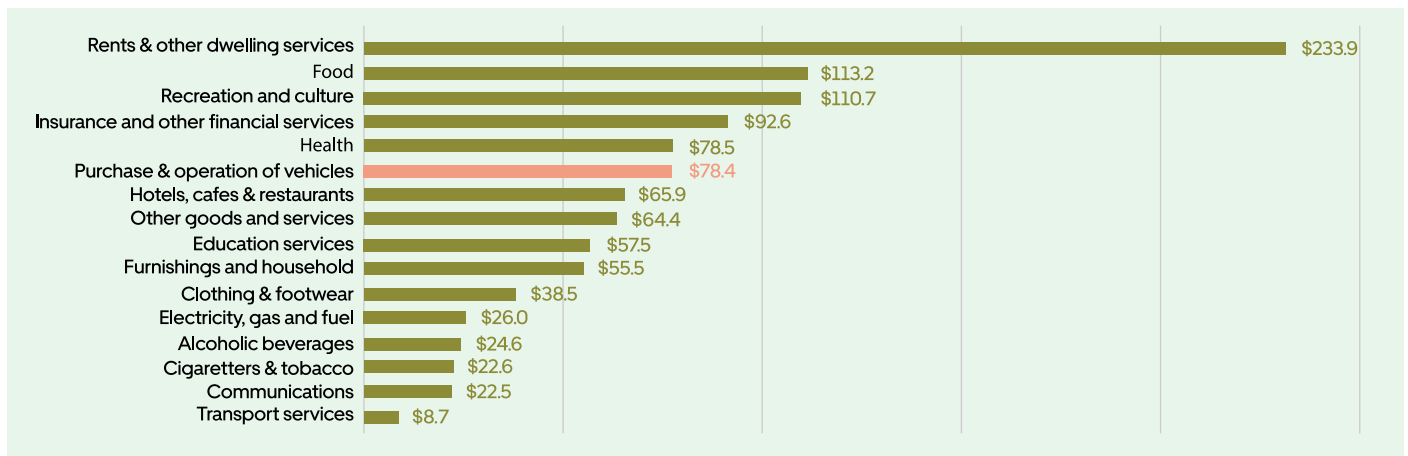Registered private cars (millions)　　Average Kms per car (Australia)
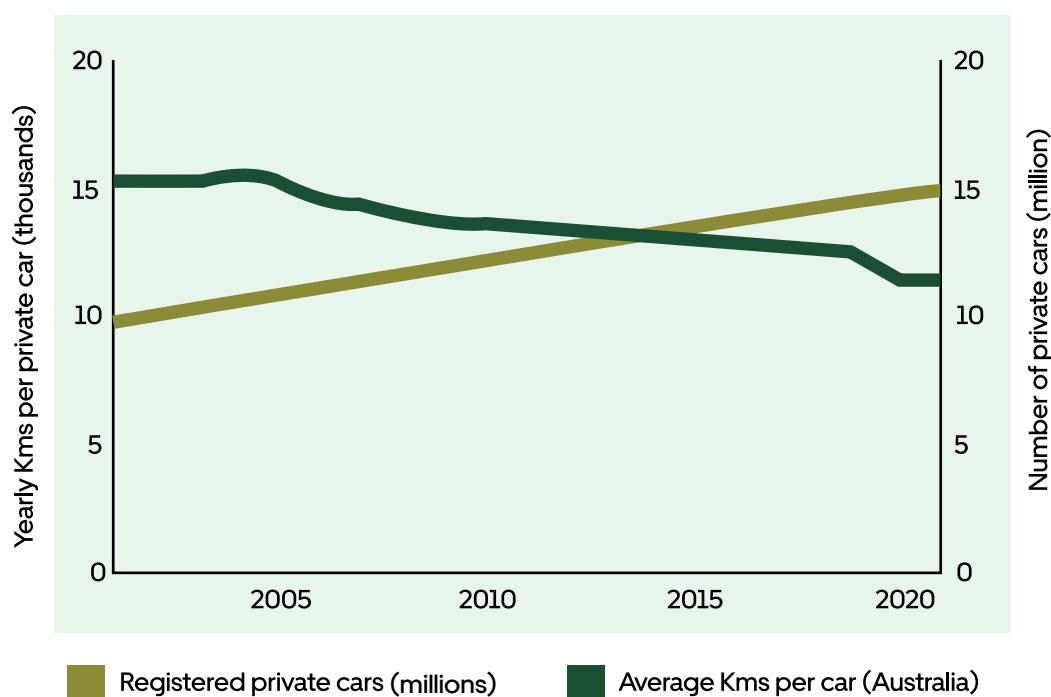
Opportunities of reducing car dependency

Reducing costs for individuals and households

As cost of living pressures continue to rise in Australia, reducing our reliance on private car use could help reduce household expenses considering cars are one of the most significant household expenditure items. At least $78 billion is spent on owning and operating cars by individuals and households in Australia annually[13]. This compares to $79 billion spent on health, and $113 billion on food[14]. The average two-car Australian household spends approximately $325 per week owning and operating vehicles, excluding incremental property costs associated with parking and garaging[15], which can be quite significant on their own. However, a lack of alternative transport options, particularly outside the urban centres of major cities, makes private car ownership an even more expensive proposition for underserved communities.

Figure 4: Australian Domestic Household Spending by Category (2021)

Category	Value
Rents & other dwelling services	$233.9
Food	$113.2
Recreation and culture	$110.7
Insurance and other financial services	$92.6
Health	$78.5
Purchase & operation of vehicles	$78.4
Hotels, cafes & restaurants	$65.9
Other goods and services	$64.4
Education services	$57.5
Furnishings and household	$55.5
Clothing & footwear	$38.5
Electricity, gas and fuel	$26.0
Alcoholic beverages	$24.6
Cigaretters & tobacco	$22.6
Communications	$22.5
Transport services	$8.7

## Reducing transport emissions and local pollution

Transport accounts for around a quarter of global emissions and is the only sector with growing emissions in OECD countries, having grown 1.3x since 1990[16]. Road transport, including road passengers and freight, is accountable for 15% of total CO2 global emissions.

In Australia, cars and light vehicles are responsible for approximately 62% of total transport emissions[17]. On a per capita basis, transport emissions are 45% higher in Australia than the OECD average[18]. This is in part due to the dominance of high-emission cars as a result of a lack of fuel efficiency standards. On average, a private vehicle trip will result in at least 8.4X more carbon emissions than if that same trip were taken on a bus or train[19].

Reduced air quality from private car emissions has a negative impact on local health, with more deaths from the exhaust fumes of internal combustion engines than road fatalities occurring every year in Australia[20]. Pollution from vehicles is linked to more than 12,000 people being hospitalised with cardiovascular issues, more than 6,800 people being hospitalised with respiratory issues and 66,000 cases of childhood asthma each year.[21]

Electrification is a key strategy to reducing local emissions as today the vast majority come from the tailpipe, 60-65% for internal combustion engine (ICE) vehicles[22]. However, there is a growing body of research that this is only one part of the solution. To keep the planet below 1.5 degrees of warming, we also need to also reduce overall private car use and promote walking, cycling and public transport[23].

Figure 5: Annual emissions scenarios relative to 2015[24]
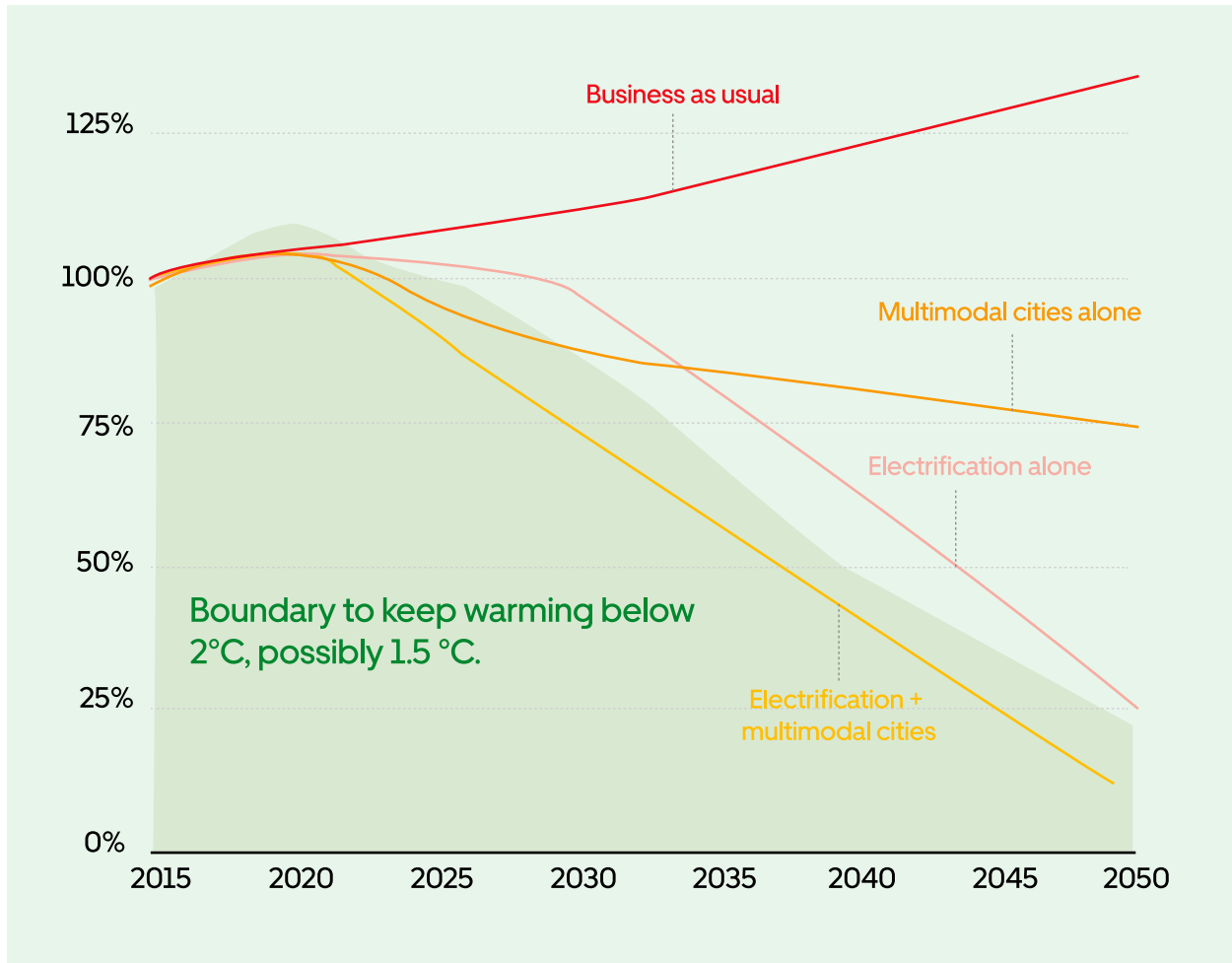
Improving road congestion

Supporting the cultural transition to shared and multimodal transport is critical to avoid worsening congestion, which is exacerbated by high levels of private car ownership and use. Road congestion and delays cost Australia in excess of $17 billion a year, and this is expected to increase to $30 billion by 2030[25]. The average Sydneysider spends the equivalent of 2.7 full days each year stuck in traffic[26]. Congestion also means that cars spend more time on the road, leading to higher emissions. Many petrol–powered cars emit higher volumes of pollutants when travelling in stop-and-go traffic than when travelling at higher, free-flow speeds.

Returning urban space to communities and improving housing affordability

Australia's planning policies to date have supported a generous supply of both on-street and off-street parking in our cities and residences. This has encouraged private car use as the primary mode of transport and urban sprawl.

One of the most pernicious problems with a personal car dominated landscape is the urban space consumed by on-street parking. This is all the more inefficient when you consider the average car sits idle 95% of the time[27]. In December 2020, Uber partnered with WSP to release the [Future Ready Kerbside](#) report. In parts of central Sydney, the report found that up to 70% of the kerb is dedicated to private parking[28]. The report found that, whilst the private car is the least productive use of kerbside, in terms of passenger movements, it remains the most dominant. Repurposing the space dedicated to on-street parking provides communities with an opportunity to introduce alternative uses such as alfresco dining, cycling infrastructure, public transit stops or create pedestrian friendly streets.

Policies which encourage off-street parking, such as mandatory parking minimums, contribute to the housing affordability challenge, forcing people who buy or rent homes to pay for a parking space regardless of their needs[29]. A recent City of Melbourne study found that in new apartment buildings, between 26 - 41% of parking spaces are empty. This means that many are paying for parking spaces that are not required, adding to their own cost of living whilst preventing that land from being used for an alternative purpose[30]. The Victorian Transport Policy Institute found that one parking space per unit typically increases moderate-priced housing costs approximately 12%, and two parking spaces increases lower-priced housing costs by 25%[31].

Methodology
One Less Car trial

There are clear benefits at both an individual and city-wide level in reducing private car use. However, Australia continues to have some of the highest rates of private car ownership and despite falling vehicle kilometres travelled, these ownership rates continue to rise.

To understand why this is, in 2023 Uber announced the One Less Car trial. Working with behavioural scientists from the agency, **The Behavioural Architects**, we put out an expression of interest for Australians to give up one of their cars for a month. Over 3,000 Australians responded. The objectives of the trial were to understand:

- What barriers currently exist to reducing car dependence

- Conversely, what are the enablers which support a car-light lifestyle

- Is there any 'low hanging fruit' we can target today to begin the transition to a car-light future?

58 people and their households participated in the five week trial from Sydney, Melbourne, Brisbane, Adelaide and Canberra. These cities were chosen because, while they vary in population size, and quality and quantity of alternate transport infrastructure, they had a good baseline of infrastructure provision which would support reduced car use. The 58 participants were recruited from the expressions of interest, in conjunction with a market research panel; and were screened to ensure we had a diverse mix of different cities, life stages, household structures, gender and car ownership structures.

The participants came from a mix of household structures falling into three main categories:

- **SINKs/DINKs** (Single Income No Kids and Double Income No Kids) - younger people living without children with or without partners

- **Families** - Couples and lone parents living with children

- **Empty nesters** - older people without children or whose children have left home

We included participants who lived varying distances from their city centres, grouping into people who lived less than 10km and more than 10km to understand the differences between inner and outer suburban transport behaviour. Finally, the participants also had a mix of car ownership structures including households who only had one car, as well as households with two or more cars. We also included six participants who already lived without a car to understand how they had successfully achieved this. We were able to observe whether their behaviour differed from participants who were giving up a car only as part of the trial.

Figure 6: One Less Car trial participants (Note: *Other excluded from ongoing life stage analysis)

Groups	SINKs/ DINKs	Families	Empty Nesters	Other*	Total
0 cars	6	0	0	0	6
1 car Complete deprivation	13	4	3	1	21
2+ car Partial Deprivation	7	12	10	2	31
Total	26	16	13	3	58

All participants received an alternative transportation package valued at around AUD $1,350. This amount was chosen to reflect the average yearly spend of ~$16,000[32] of owning a private car. The transport package included credits for their local public transport network, Uber rideshare and delivery, Uber Carshare, Lime e-bikes (Sydney, Melbourne and Brisbane only) and a Lug + Carrie e-bike subscription (Sydney, Melbourne, Brisbane only). In addition to the package, we also gave participants a fitBit ($150) to monitor changes in step count.

The trial was designed as a qualitative longitudinal study and included pre and post trial surveys, daily travel logs and weekly video (see figure 7). The trial ran over five weeks with the first week establishing a baseline where we asked participants to continue their normal routine. In weeks 2-5 participants stopped using one of their cars, either going from one car to none (complete deprivation) or two+ cars to one+ (partial deprivation).

Figure 7: One Less Car trial research design

	What is it?	What does it provide?
Pre & Post trial survey	10-15 min survey conducted at beginning and end of trial	Attitudinal, behavioural and wellbeing measures to compare changes pre and post-trial
Daily travel log survey	5 minute survey log of each trip taken daily	Daily trip data on trip purpose, modes used, triggers & barriers
Weekly video log	Qualitative video log (4 mins) of one trip each week	Understanding of trip-specific triggers and barriers
Weekly reflection log	Qualitative reflection video (4 mins) on the week's success / difficulties	Capturing peak-end impression of living with one less private car
Reunion groups	2 x 90-minute group discussions held 2-weeks post trial	Understand whether car free behaviours sustained

Baseline findings
Week One

The trial ran over 5 weeks with the first week establishing a baseline where we asked participants to continue their normal routine. In particular, participants provided insight on their baseline volume of trips, trip use cases, modes of transit, and motivators and blockers to going car free.

People take on average 21 trips per week - or three per day, and travel 6 days per week

Across life stages, families took the most trips, averaging 27 trips per week, exceeding the SINKs/DINKs and Empty Nester cohorts by +8 and +9 trips per week, respectively. The additional trips taken by families were nearly entirely explained by more weekday trips, with families averaging 4.4 trips per day during the weekday; this was roughly +1.5 trips/day more than the other cohorts. Moreover, families were the only cohort that took more trips during the week than weekend, with other cohorts having a roughly even split between weekday and weekend trip volume.

SINK/DINK
19 trips per week
n=26

One day a week no trips

Weekday: 3.1
Weekend: 3.4

Families
27 trips per week
n=16

One day every two weeks no trips

Weekday: 4.4
Weekend: 3.3

Empty Nesters
18 trips per week
n=13

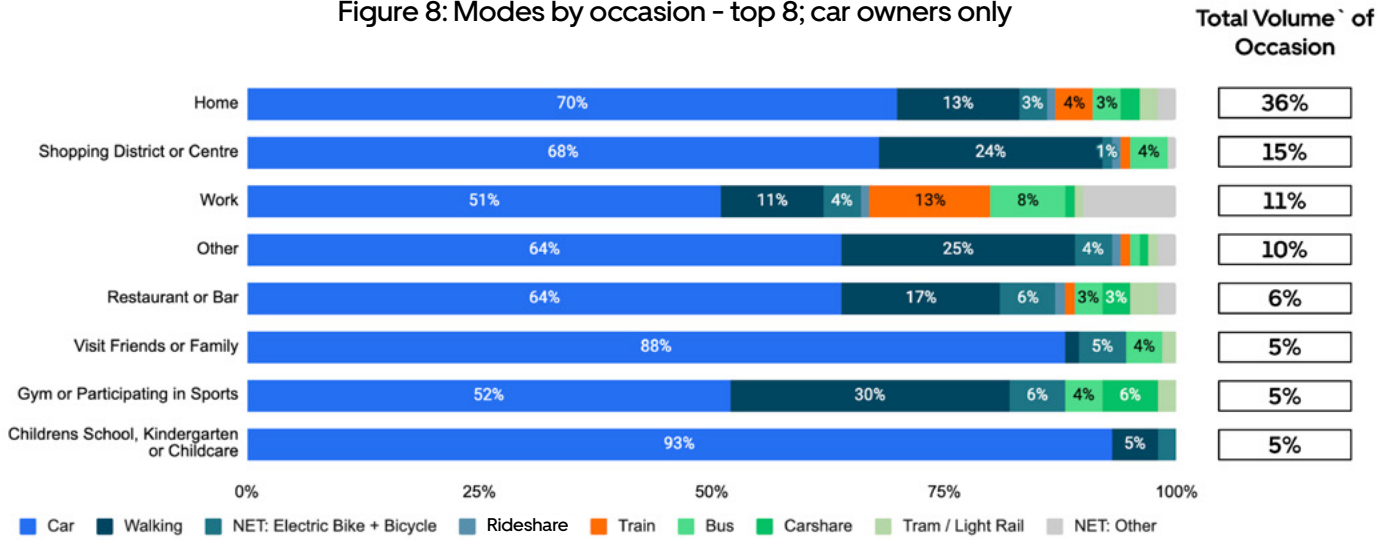One day a week no trips

Weekday: 2.6
Weekend: 3.2

Furthermore, participants with more cars tended to take more trips per week. Those with 2+ cars took 22 trips/week, with this figure falling to 20 trips/week for participants with 1 car, and 19 trips/week for those with no car.

During the baseline week, the private car was the dominant form of transport across trip types

Across all trip purposes, personal vehicles were the most popular form of transport, followed by walking (figure 8). In total, personal vehicles comprised 62% of all trips, with walking representing 14% of trips. The most frequent trip purpose - going home - which represented 36% of all trip volume, illustrated the ubiquity of personal vehicles, which made up 70% of this use case. Barring commuting to work, participants also did not make extensive use of public transport (trains, buses, and tram) as the combination of these modes rarely represented >10% of the trips within a use case.

Total Volume` of Occasion

Occasion	Car	Walking	NET: Electric Bike + Bicycle	Rideshare	Train	Bus	Carshare	Tram / Light Rail	NET: Other	Total Volume
Home	70%	13%	3%		4%	3%				36%
Shopping District or Centre	68%	24%		1%		4%				15%
Work	51%	11%	4%		13%	8%				11%
Other	64%	25%		4%						10%
Restaurant or Bar	64%	17%	6%			3%	3%			6%
Visit Friends or Family	88%			5%		4%				5%
Gym or Participating in Sports	52%	30%	6%		4%	6%				5%
Childrens School, Kindergarten or Childcare	93%	5%								5%

Legend: ■ Car ■ Walking ■ NET: Electric Bike + Bicycle ■ Rideshare ■ Train ■ Bus ■ Carshare ■ Tram / Light Rail ■ NET: Other

Intuitively, participants with more personal cars tended to rely on their vehicles more heavily, taking fewer alternate modes of transport. Looking at the top modes and the share of trips contributed across participants with various levels of car ownership, we saw:

■ Participants with 2+ cars: Cars represented 72% of their trips, followed by walking at 13% of trips

■ Participants with 1 car: Cars represented 63% of their trips, followed by walking at 18% of trips

■ Participants with no car: Walking represented 45% of their trips, followed by a combination of train and tram at 27% of trips

0 cars
4 modes per week

45% Walking
19% Tram / light rail
8% Train
7% Rideshare
6% Bus

1 car
3 modes per week

63% Car
18% Walking
5% Electric bike / bike

2+ cars
2.6 modes per week

72% Car
13% Walking
2% Electric bike and bicycle
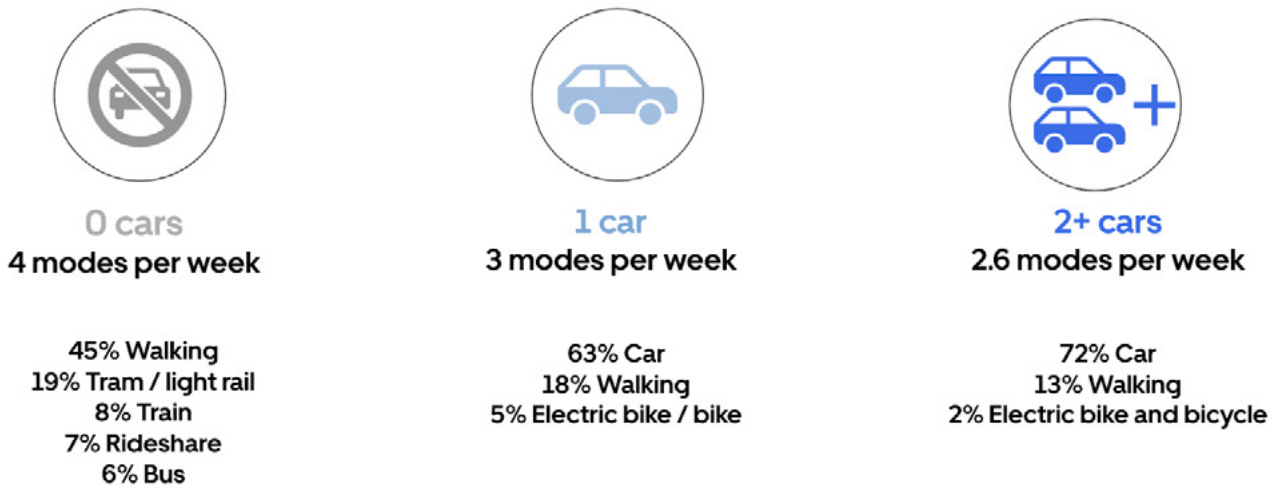
Prior to the experiment starting, a loss of flexibility was one of the most top of mind barriers for participants going car free, whereas top of mind motivators were health and financial benefits

In the first week of the trial, participants were asked what they perceived to be the biggest blockers and motivators to going car free, as well as perceived tradeoffs between personal cars and alternate modes of transit. Overwhelmingly, participants anticipated the largest barriers to going car free would include a loss of flexibility, including the perceived inconvenience or lack of alternative modes for transport, followed by a loss of spontaneity.

Figure 9: Top barriers to going car free (survey responses N=44[1])

Category	Count	Quote
Flexibility — Incl. Inconvenience of other options	37	"I have a 35km commute.. public transit takes 2 hours"
Spontaneity — Ability to travel on a moment's notice	9	"I have kids who can prompt emergencies that require immediate transport"
Perceived Cost — Cost of alternate transit exceeding cars	5	"I'd be happy to live with one less car if it made financial sense"
Joy — Emotional benefit from personal car	3	"I love driving; I find it fun and relaxing"

Notes: (1) There were 52 total responses, of which 8 lacked sufficient detail or prompt adherence to be included in this figure

Conversely, many of the benefits of reducing car use were not salient with participants not recognising the health, financial benefits or even time savings. When weighing the benefits and tradeoffs of cars relative to other modes of transit, participants viewed the top benefits of cars as the convenience in being able to jump in and go, as well as the ability to store more things easily. The main downsides of cars relative to other modes of transit were inconvenience and cost of parking, as well as traffic delays.

"Taking my personal car out today, the benefits of this is the ease and convenience of being able to duck out whenever appropriate... We usually go to one or two different grocery stores to get our stuff so it makes it a bit easier. The only thing that can be an issue is the parking, especially on a Saturday."

- Male, 34, Sydney, 1 car

"I'm about to head off to uni, about to drive myself there. The benefits of using my car is that I've got privacy, great speakers, it's comfortable and I don't have to deal with service delays. I'm probably heading back at night so I don't have to be cold waiting for transit. That's why my car is perfect for this trip."

- Female, 28, Sydney, 2+ cars

Findings

Barriers to a car-light lifestyle (Weeks 2 to 5)

The trial demonstrated the enormity of the challenge ahead to reduce private car use. While many participants came to understand the benefits and possibilities of alternative modes of transport, it was generally acknowledged that private cars are difficult to compete with. The three major barriers to reducing private car use, that this chapter will explore in detail are:
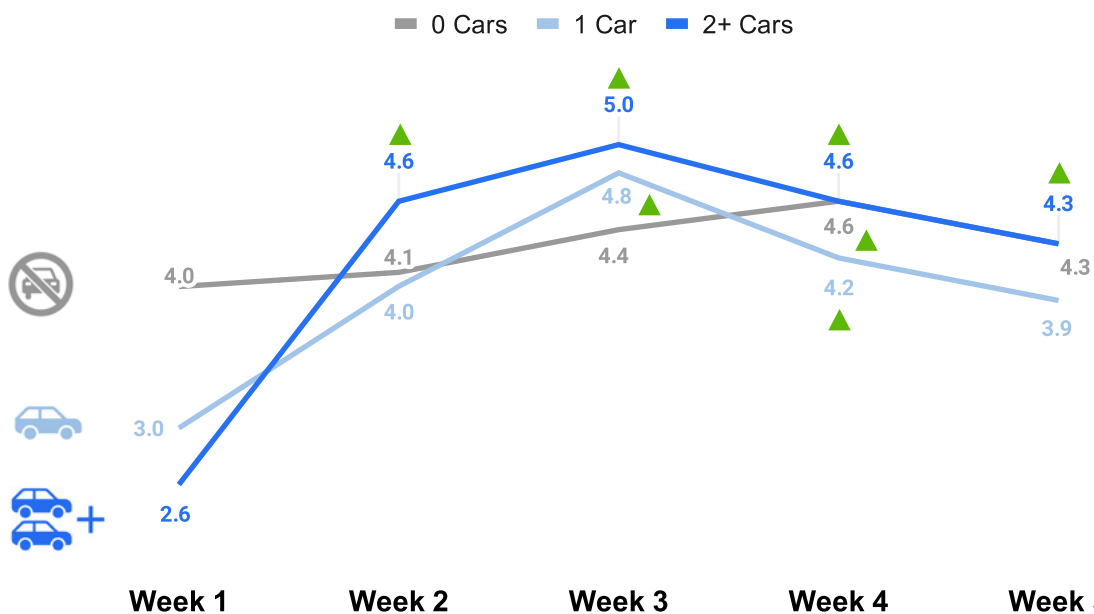
1. Access to transport alternatives
2. Quality, convenience and reliability
3. High perceived value and affordability

Access to transport alternatives

People need access to at least four alternative modes of transport

Trip numbers during the trial dropped from an average of 21 trips per week in week 1, to 19 trips per week (wks 2-5) aligning with the zero-car cohort. This drop was driven by a decrease in shopping and 'other' trips. Participants stated they had less spontaneous shopping trips and needed to be more organised. While trip numbers decreased, over the same period the number of modes used increased. We saw that no one mode was able to replace the private car but when at least four modes were used in combination, people were able to support a car-free or car-light life.

Figure 10: Average number of modes used per week

Legend: 0 Cars | 1 Car | 2+ Cars

	Week 1	Week 2	Week 3	Week 4	Week 5
0 Cars	4.0	4.1	4.4	4.6	4.3
1 Car	3.0	4.0	4.8	4.2	3.9
2+ Cars	2.6	4.6	5.0	4.6	4.3

Source: Q1. How many trips have you taken today? Q1a. What mode of transport did you use? Base sizes: 0 cars n=130; 1 car n=418; 2+ cars n=656

Significantly higher / lower than Status quo week

During weeks 2-3 of the trial the one car and two car households used more modes as they were in an exploratory phase and determining what different modes worked best for them. However this plateaued in weeks 4-5 to align with the no car baseline group which routinely uses around four different modes a week.

Different user groups used a slightly different combination of four modes (see figure 10). E-bikes and public transport was more popular with SINKs/DINKs and Families than Empty Nesters. Participants had an easier time switching modes for shorter trips than longer ones, generally favouring participants living within 10km of their city centre.

Figure 11: Top four mode mix by cohort

	SINKs/DINKs	Families	Empty nesters
Mode 1	Walking (30%)	Walking (33%)	Walking (29%)
Mode 2	E-bike (14%)	Train (15%)	Personal car (18%)
Mode 3	Train (10%)	E-bike (15%)	Rideshare (16%)
Mode 4	Rideshare (9%)	Rideshare (13%)	Carpool (11%)

"I didn't really need a car for my lifestyle because I never leave the city (Melbourne CBD) - so I sold my car and rely on walking, trams and Uber"

- Male, 25, Melbourne, 0 cars

"There are times where I miss the car - particularly on the weekends - I am doing less stuff, and would normally make more spontaneous trips."
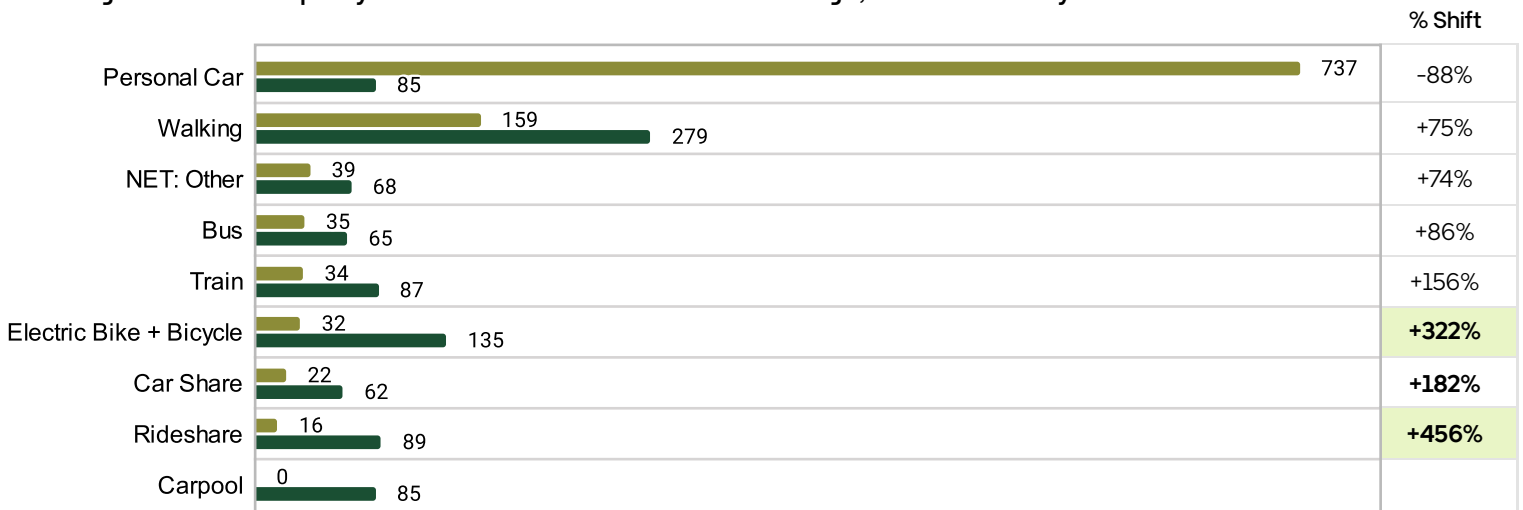
- Female, 41, Melbourne, 1 car

The MVPs: walking, cycling and rideshare

Walking is the biggest replacement for personal car use (see figure 11), and was the most popular mode across all user groups making up a third of the trip mix. This is likely because most trips include a walking component at the beginning or end, particularly when combined with hub-to-hub transport like public transport or car share.

E-bikes and rideshare were the second and third-most used modes in weeks 2 to 5, and these modes also had the biggest proportional gains. It is important to note that the trial design encouraged this, with all participants given Uber rideshare and Lime credits, in addition to e-bike Lug +Carrie subscriptions in Sydney, Melbourne and Brisbane. However we saw participants grow to rely particularly on e-bikes and found they were a useful mode for shopping trips as they provided greater storage ability than other modes.

Rideshare was used by all cohort groups with Empty Nesters in particular relying on it. In general, Empty Nesters were more likely than SINKs/DINKs and Families to use car-based modes such as car pooling and rideshare. We also saw that during the trial rideshare trips were often 'one way' and used for 'return home' journeys. This is consistent with broader Uber data where we see people often will get alternative modes such as public transport to their destination, but will use Uber to get home.

Figure 12: Total Trips by Mode Week 1 vs. Rest of Trial Average; car owners only

Mode		% Shift
Personal Car	737 / 85	-88%
Walking	159 / 279	+75%
NET: Other	39 / 68	+74%
Bus	35 / 65	+86%
Train	34 / 87	+156%
Electric Bike + Bicycle	32 / 135	+322%
Car Share	22 / 62	+182%
Rideshare	16 / 89	+456%
Carpool	0 / 85	

"I continue to increase my walking on a daily basis, I have one very happy dog... I'm continuing to see the value of not having a second car."

- Male, 66, Adelaide, 2+ cars

"The e-bike was probably the biggest surprise for me, I ride the bike down to the ferry most days to get to work - I know a lot of people use them these days but I'd never really thought to try it."
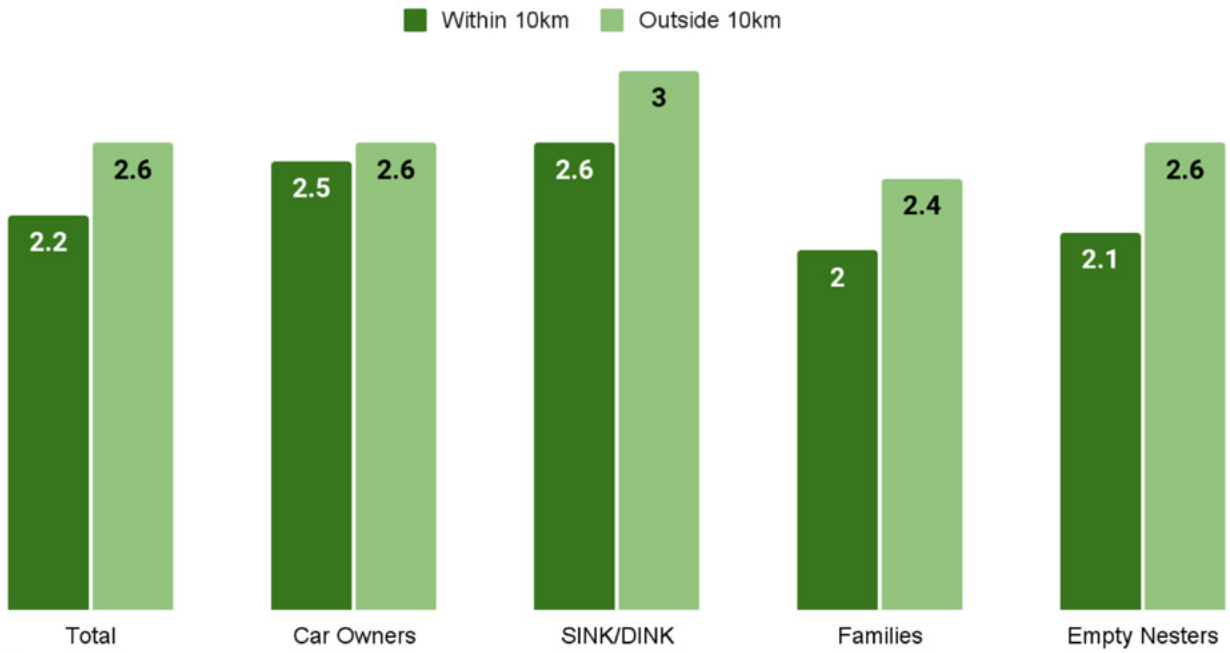
- Male, 34, Sydney, 1 car

"I enjoyed using Ubers and not having to drive myself after having a license for 17 years and now being 76."

- Female, 76, Brisbane, 1 car

Access to public transport is linked to fewer cars

Access to public transport is critical to reducing car dependence. Our research found that within our sample, those living further from the CBD were more likely to own a greater number of cars. (see figures 13 and 14). This was consistent across all cohort groups (SINKs/DINKs, Families and Empty Nesters).
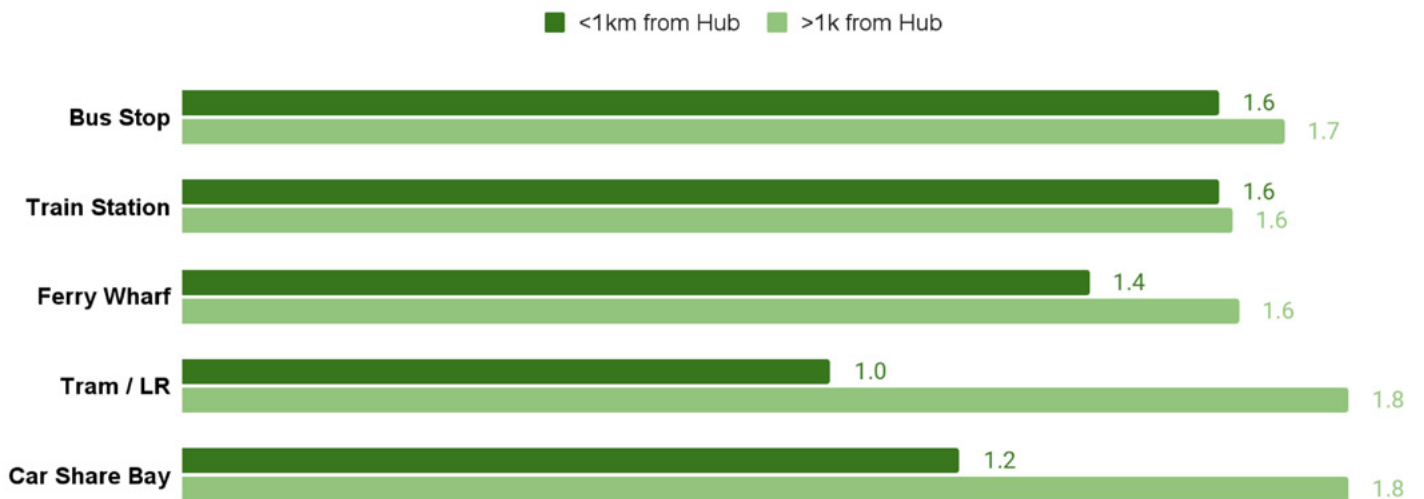
Figure 13: Average number of cars owned by distance from CBD

Legend: ■ Within 10km ■ Outside 10km

Cohort	Within 10km	Outside 10km
Total	2.2	2.6
Car Owners	2.5	2.6
SINK/DINK	2.6	3
Families	2	2.4
Empty Nesters	2.1	2.6

Source: Pre Survey
Caution: As a qualitative trial, these cohorts are based upon low sample size (SINK/DINKs n=14; Families n=16; Empty Nesters n=24)

Figure 14: Average number of cars owned by distance from transport hub

Legend: ■ <1km from Hub ■ >1k from Hub

Hub	<1km from Hub	>1k from Hub
Bus Stop	1.6	1.7
Train Station	1.6	1.6
Ferry Wharf	1.4	1.6
Tram / LR	1.0	1.8
Car Share Bay	1.2	1.8

Source: Pre Survey
Caution: As a qualitative trial, these cohorts are based upon low sample size (SINK/DINKs n=14; Families n=16; Empty Nesters n=24)

Uber

During the trial we found that on average, Families and SINKs/DINKs ended up relying on at least one kind of public transport as part of their 'top four' modal mix. Public transport plays an important role in the commute use case, as most Australian public transport networks are radial and designed to transport people into city centres where car parking is expensive and limited. Public transport was also important for transporting people over larger distances which walking and cycling can not cover and rideshare is prohibitively expensive to do frequently. However, public transport presented challenges to some participants when their destination was not the city centre and it can take longer than other modes. In addition, walkable access to public transport was not available to all participants, particularly those living in the outer urban areas of major Australian cities where one in two people do not live within walking distance of public transport[33].

> "My parents already live a half an hour drive away and it takes longer on public transport."
>
> – Female, 52, Melbourne, 1 car

Car share fulfilled an occasional but critical use case

Our MVPs (walking, cycling and rideshare) solved for the high frequency use case, replacing a lot of the volume of trips previously used by private cars. However it is also important to solve for edge cases as they can remain a reason for people to keep a car even when the majority of frequent trips are covered by other modes of transport. Having said that car share still had a significant increase in the experiment, 180% from week 1 to weeks 2-5. Participants used it to solve for occasional use cases such as weekend escapes to the country and for shopping trips with large bulky items. Car share being dependable and convenient is critical for addressing those remaining trip purposes that other modes can not easily solve.

> "Taking our first Uber Carshare, we've got this great little Fiat 500 convertible. We're taking her up to the Hunter Valley for the weekend to celebrate my birthday. Thought this would be an appropriate car to do the wine region in."
>
> – Male, 34, Sydney, 1 car

Quality, convenience and reliability

## Ease and convenience are most important when shifting modes

Even prior to the trial beginning, participants cited convenience as one of the top benefits of owning a car. The constant, ready availability of a car supports perceived spontaneity as people can just jump in and go. Participants also acknowledged the valuable role private cars play in terms of storage for groceries, work materials, gym equipment and childrens' items. This enables them to 'trip-chain' where they can move from one activity to another without needing to return home. Over the course of the trial (wks 2-5) we saw an increase in the number of 'home' trips, suggesting that less trip chaining was able to occur (see figure 15).

Figure 15: Proportion of all trips that were 'home trips'
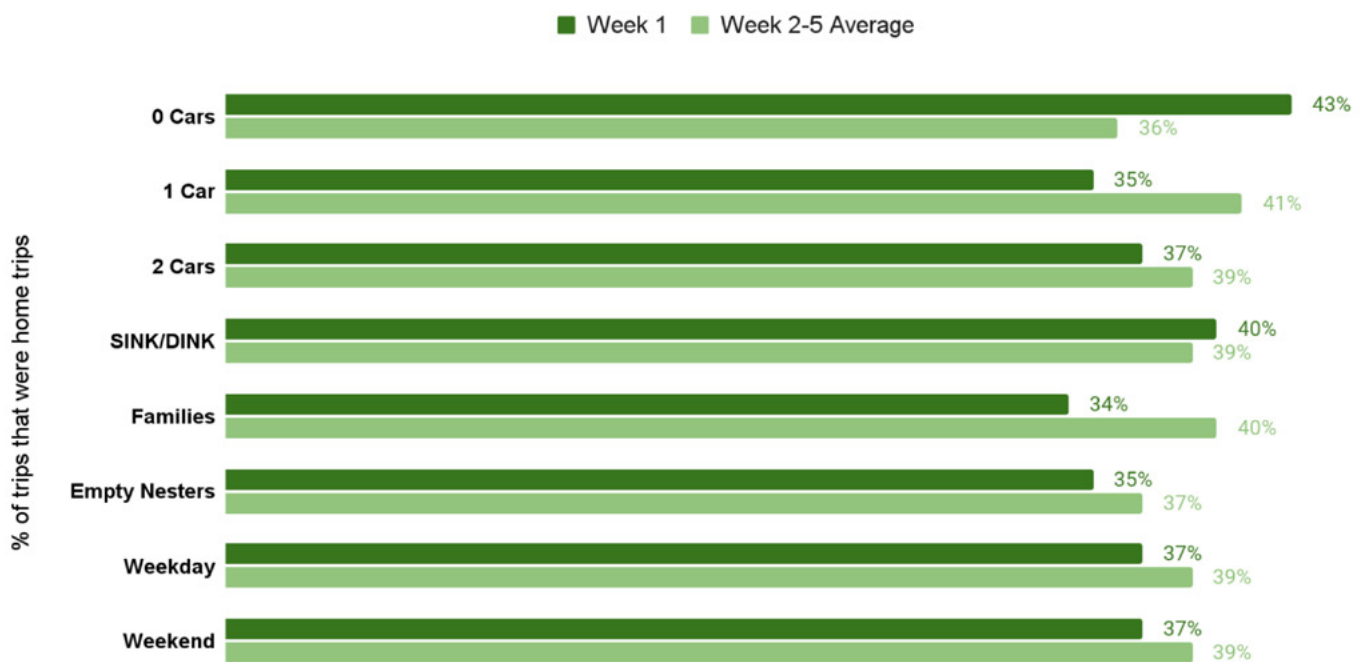
The importance of ease and convenience continued throughout the trial and were found to be one of the most important factors when switching across all modes. These were followed by health benefits, comfort and price as the next most important (see figure 16). We observed qualitatively that Families often lack flexibility in their schedules (e.g. coordinating school drop off, after school activities, multiple pick up and drop off points etc.) As families are likely to face the greatest barriers and lack of flexibility, ease and convenience becomes even more crucial.

Figure 16: Modes used across all trip purposes in W2-5; all participants
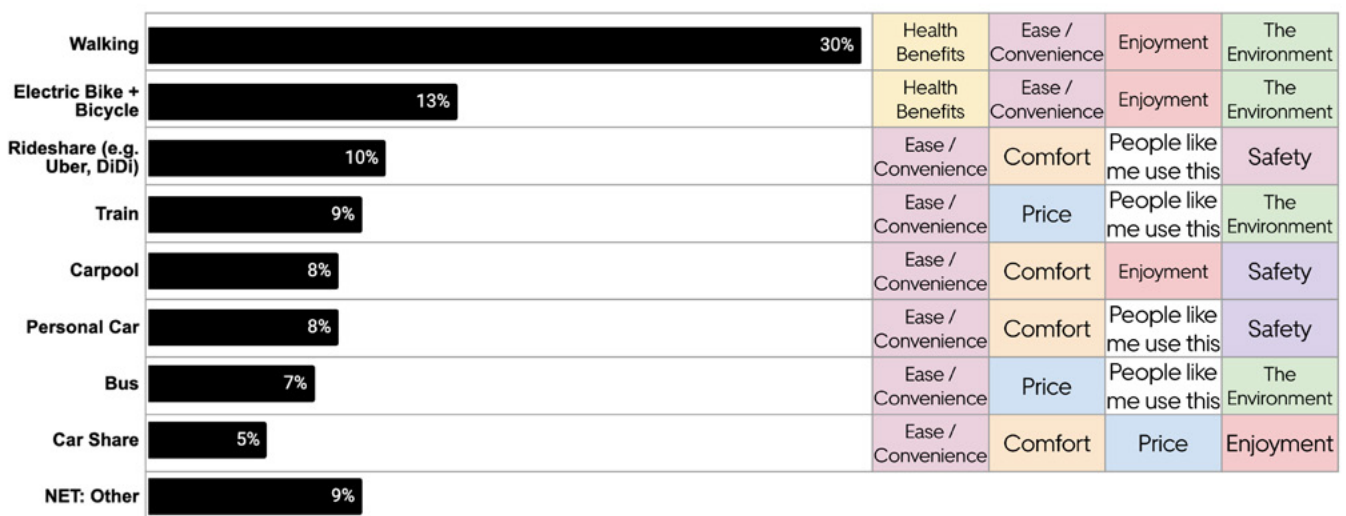
Source: Daily Survey: Q1. How many trips have you taken today? Q1a. What mode of transport did you use? W2-5 n=4,417
Post Survey: A. For [MODE], please indicate where you lie on the scale with the following. Base n=58

The importance of ease and convenience when deciding transport mode highlights one of the greatest challenges of reducing car dependency. It is very difficult for other modes on their own to consistently compete on this without significant structural change in how our cities are planned.

> "I'm running late so the car is convenient as I have a tight turnaround of errands to do."
>
> – Female, 41, Melbourne, 1 car

> "Walking to and from school is nice family time and an opportunity to talk and spend some time together."
>
> – Female, 38, Melbourne, 2+ cars

Challenges with car parking and road congestion help to reduce the perceived 'ease and convenience'

Participants acknowledge that travelling by private car has tradeoffs, particularly the difficulty and expense of parking. Participants found one of the trial's benefits was not having the stress of looking for parking which can be unpredictable and make people run late. It particularly supports the restaurant/bar trip purpose as participants could drink alcohol without concern for being over the legal limit. In addition, they did not have to worry about getting back to the car by a certain time e.g. timed parking constraints.

The other area which helps to reduce the 'ease and convenience' reputation of private cars is when participants encounter road congestion. At the start of the trial, participants found that road congestion, particularly in peak hours, was a major frustration as it is variable and causes time delays. In the trial, participants found that for commutes to work, public and active transport options were quicker than the car during peak periods.

> "The occasions which work successfully without a car are going out with friends to a restaurant for a few drinks - we just get an Uber"
>
> – Female, 69, Brisbane, 2+ cars

> "It's nice not to worry about driving in traffic when going to work."
>
> – Male, 30, Sydney, 1 car

Uber

Reduced car use led to health and happiness benefits

Uber included FitBits as part of the support package and asked participants to record step counts. We saw participants' average daily step count increased from 7,509 in week 1 to 8,253 in weeks 2-5 which corresponds with the increase in walking across all user groups throughout the trial. The additional health benefits of living car free also corresponded with increases in overall satisfaction with their community changing from 7.2 out of 10 pre survey to 7.9 in the post survey.

Trial participants gave many examples of how not using their private car made them feel closer to their family members and community. Participants and their households planned their transport movements for the day together and spoke to strangers at the bus stop. Journeys home from school on public transport or eBikes, gave parents more time to connect with their children and talk about their days.

> "The interaction with Uber drivers, as well as station staff and bus drivers has been really pleasant and enriching."
>
> – Female, 35, Brisbane, 1 car

> "I'm swapping for cycling and walking, so I'm doing more exercise which is really great as I sit a lot for work...and then thinking about the environmental difference of not using a car, it feels good to do that as well."
>
> – Female, 52, Melbourne, 1 car

Exposure to alternative modes improved comfort perceptions for some participants, but among car owners the private car still outperforms others

Across all life stages the car was rated the most comfortable on average. The small cohort of non-car users rated car comfort as middle of the pack however both 1 car households and 2 car households rated the private car as most comfortable (~4.7/5) and this did not change significantly between the pre and post surveys. One car households, who were completely deprived of their private car during the trial, saw the biggest increases in comfort perceptions across public transport modes and e-bikes. However this was not consistent with two car households that saw improvements in rideshare and car share but not public transport.

Figure 17: Average comfort by mode
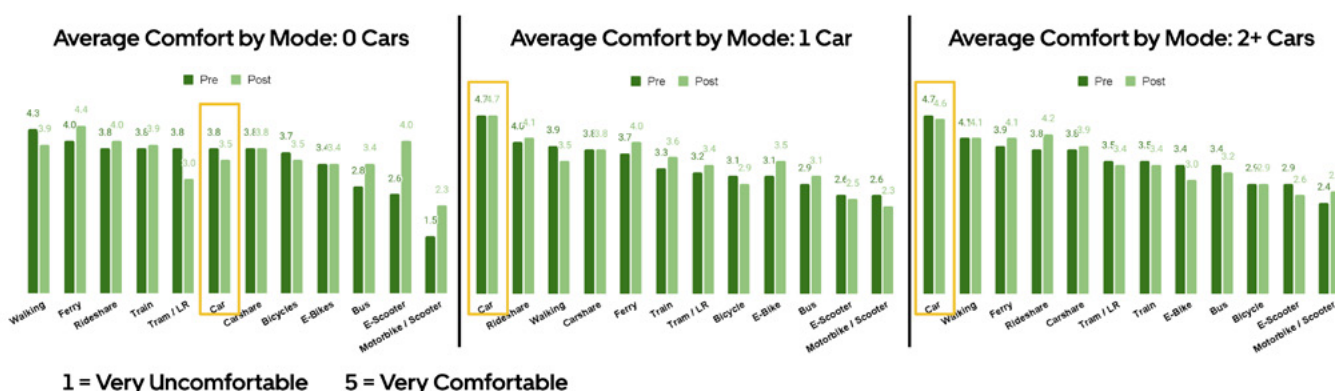
1 = Very Uncomfortable   5 = Very Comfortable

Road safety concerns for micromobility modes are high

As previously discussed e-bikes had a large proportional increase in trips between week 1 and weeks 2-5 however zero, one and two+ car participants all rated safety of bikes, e-bikes and e-scooters low when compared to other modes. There were concerns about safety from other cars, safety from poor or uneven surfaces (e.g. cracked pavements) and the ability to safely park and leave a bike unattended. SINKs/DINKs and the zero car cohorts had the highest safety perception of e-bikes and e-scooters.

Figure 18: Average safety by mode
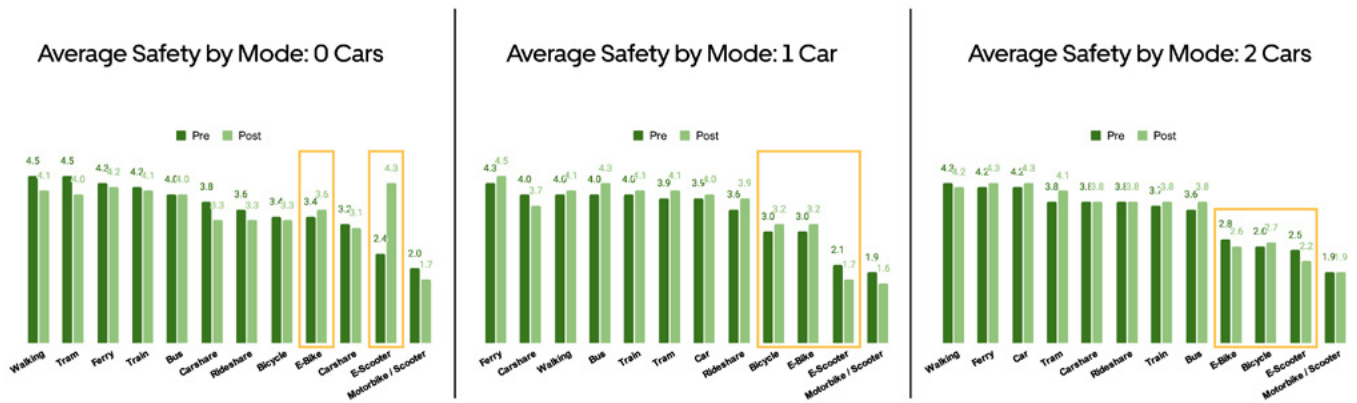
Perception (and reality) that alternate modes are harder, particularly to plan

To replace a door to door trip in a car, multiple modes of transport are often required. There was a perception that using multiple modes would be difficult, take longer and require a large amount of additional planning. This is especially true as a barrier for people who are new to a mode. The perception of difficulty prior to using is potentially enough to prevent or delay them using the mode. Participants found existing trip planning tools were not intuitive to use and that it was difficult to modify your trip mid-journey. However, getting people on their first alternative mode trip is key. We observed that trial participants needed approximately three weeks of trialling new and alternate modes before their behaviour began to settle and establish.

> "The biggest challenge is needing to plan a lot more. Getting into the car is so much easier, you can just jump in and go somewhere like to the shops. Having to get a bus or an Uber, there is a lot of waiting involved, which can be very time consuming."
>
> – Male, 35, Canberra 1 car

> "I used Google Maps trying to decide, well, do I take a bus? Or do I take an uber, so I'd check sort of the price and time and all of that on, both Uber and public transport, and go from there."
>
> – Female, 35, Brisbane, 1 car

High perceived value and affordability

Owning and having access to a private car creates constant, ready availability which was highly valued by participants. Despite low (and lowering) levels of vehicle utilisation in Australia, people tend not to see their own cars as underutilised or financially irrational, even if it might be more economical for them to replace their car with a mix of other transport options.

Cars have many functional and emotionally-based benefits

Many of the functional benefits of private car ownership are discussed in the previous section. Ease and convenience are the number one factors people consider when shifting modes and private cars can be difficult to beat. Cars provide a personal space that is insulated from other people and weather conditions. Car owners see their cars as the most comfortable mode of transport, offering greater spontaneity and ability to personalise the travel experience, such as radio station choice and air conditioning. The ability to store personal items like gym equipment, prams, nappy bags etc is highly valued and people with cars have a greater ability to 'trip chain' where they can move from one trip purpose to another without need to return home. During the trial we saw the proportion of 'return home' trips increase. These participants couldn't, for example, leave their shopping in the car while they went to see a movie, they needed to return home in between. Finally, cars are often seen as the fastest mode of transport particularly over long distances. This is particularly valued by families who have busy and time-critical schedules.
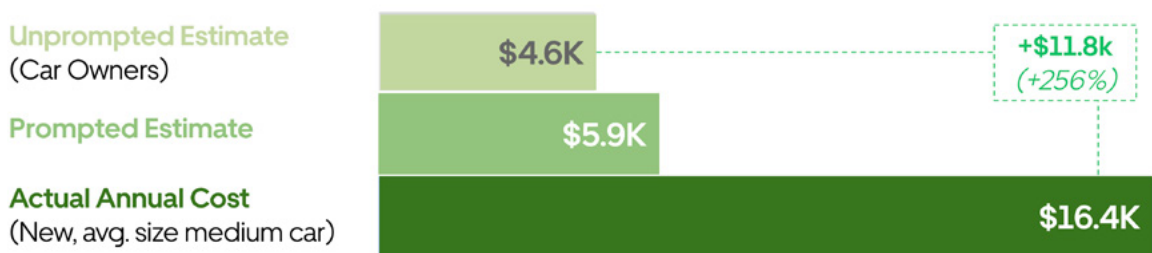
> "The benefit of using my car is that I can use it basically for comfort – I can listen to music on the way and the news on the radio. I can also have the A/C on."
>
> – Male, 59, Adelaide, 2+ cars

Financial cost of car ownership is mostly invisible and underestimated

The high perceived value of private car use is compounded by the fact that most people tend to underestimate the actual financial cost of ownership. They often anchor to the most mentally available and recent cost (fuel) seemingly forgetting additional, more expensive costs associated with owning a car (maintenance, registration, insurance). Participants in the trial estimated on average they spent around $4,500 a year on their car. When prompted to take into consideration maintenance and insurance the cost increased to around $5,900 (see figure 19). However industry data estimates the average cost of car ownership in Australia to be more in the range of $16,000 to $19,000 per year.[34]

Figure 19: "How much would you say you spend on your car each year?"

Unprompted Estimate (Car Owners)	$4.6K
Prompted Estimate	$5.9K
Actual Annual Cost (New, avg. size medium car)	$16.4K

+$11.8k (+256%)

The cost of alternate modes is more salient

Many of the costs of car ownership are invisible, for example registration or servicing costs that are paid infrequently (usually once a year) and hence, lack day-to-day salience. This leads people to underestimate them. Conversely, the cost of alternative modes is highly salient. The frequency and in-the-moment nature of payment for alternative modes, such as public transport fares and Uber rides, increases awareness. As long as people continue to own their car, the costs of alternative transport will likely be additive to the sunk costs they already have in their car and therefore an added cost. In addition, we observed that Families found the cost of alternative modes, particularly public transport, expensive considering the number of people travelling, and it could sometimes be 'cheaper' to pay for parking.

> "It ends up costing $50 to visit my friend which seems like a lot."
>
> - Female, 52, Melbourne, 1 car

SINKs/DINKs
(Single Income No Kids/Double Income No Kids)

The SINKs/DINKs participants entered the study with the highest rates of personal car ownership, owning 2.6 and 3.0 cars, on average, for those respectively living <10km and >10km away from CBDs. Despite their elevated rates of car ownership, this cohort signalled the lowest emotional attachment and social norms around cars relative to the other groups.

Throughout the trial, SINKs/DINKs switched 96% of their trips to personal car alternatives, the highest success rate. Following walking, which was their preferred transit alternative making up 29% of trips, SINKs/DINKs preferred cheaper transit options. Most notably, they had the highest share of trips across bicycles (14%), trains (10%), and buses (9%), at rates similar to, but slightly in excess of, families. This was partially the result of SINKs/DINKs making the most frequent use of walking and buses to get to work. A key input to SINKs/DINKs' willingness to shift from personal cars was that most of their trips were either taken solo or with another adult, yielding more flexibility in options available. Moreover, this group displayed higher familiarity and comfort with personal car alternatives, lessening the burden of planning for multi-modal transit. Overall, SINKs/DINKs living within <10km of a CBD exhibit the highest likelihood of reducing their car ownership when presented with a suite of alternatives.

Families

Families began the trial with the highest baseline trip volume across cohorts, taking an average of 27 trips per week. This group's elevated trip volume largely resulted from additional weekday trips oriented around childcare - namely trips to/from their childrens' schools and daycare centres. Somewhat surprisingly, when surveyed, families responded with the highest willingness to go car free, reduce frequency of personal car trips, or reduce cars owned. Throughout the trial, families put this sentiment into practice. Families switched modes for the vast majority of their trips, employing a combination of walking and cycling for school trips, and a combination of train and rideshare/car share for commute trips.

Intuitively, the largest barrier for families in going car free was navigating the logistics of transporting their children, given 2 in 5 of their trips included their kids. This barrier typically took the form of time pressures around child care, or cost of alternative transit for multiple people. However, families (particularly those within <10km of CBD) found micromobility to be a workable and fun mode to get their kids to school, and reported a higher quality family connection when walking / biking to school, relative to driving. While families are unlikely to go entirely car free, they showed a positive inclination towards reducing car ownership and swapping out car trips for alternate transit options.

Empty Nesters

In surveys, Empty Nesters signalled the lowest inclination to reduce car ownership or usage across trial participants. Despite having rates of car ownership in line with average across participants, Empty Nesters' propensity towards car usage was influenced by long-established habits combined with the highest likelihood to struggle with unfamiliar modes of transit.

Throughout the trial, Empty Nesters did successfully replace 29% of trips with walking, but retained the highest rates of personal car usage, by far, with personal vehicles representing 18% of trips (+10pps vs. Families; +14pps vs. SINKs/DINKs). Moreover, Empty Nesters leaned on Rideshare and Carpool most heavily, with these two options representing 27% of the group's trips (+10pps higher than average), and being the group's favoured transit options after walking and personal car . The affinity for car-based options (personal car, rideshare, carpool) was likely a response to the "planning tax" associated with trips requiring multiple modes of transit as shown through the group's underutilization of public transit, with bus / train making up only 11% of the group's trips (-6pp vs. trial average). However, across particular use cases, this cohort did exhibit willingness to shed personal cars. For example, when visiting family and friends, Empty nesters replaced personal cars with walking to the greatest extent in the trial. In moments of plasticity where usual habits and routines are disrupted, Empty Nesters remain meaningful candidates for reduced car ownership.
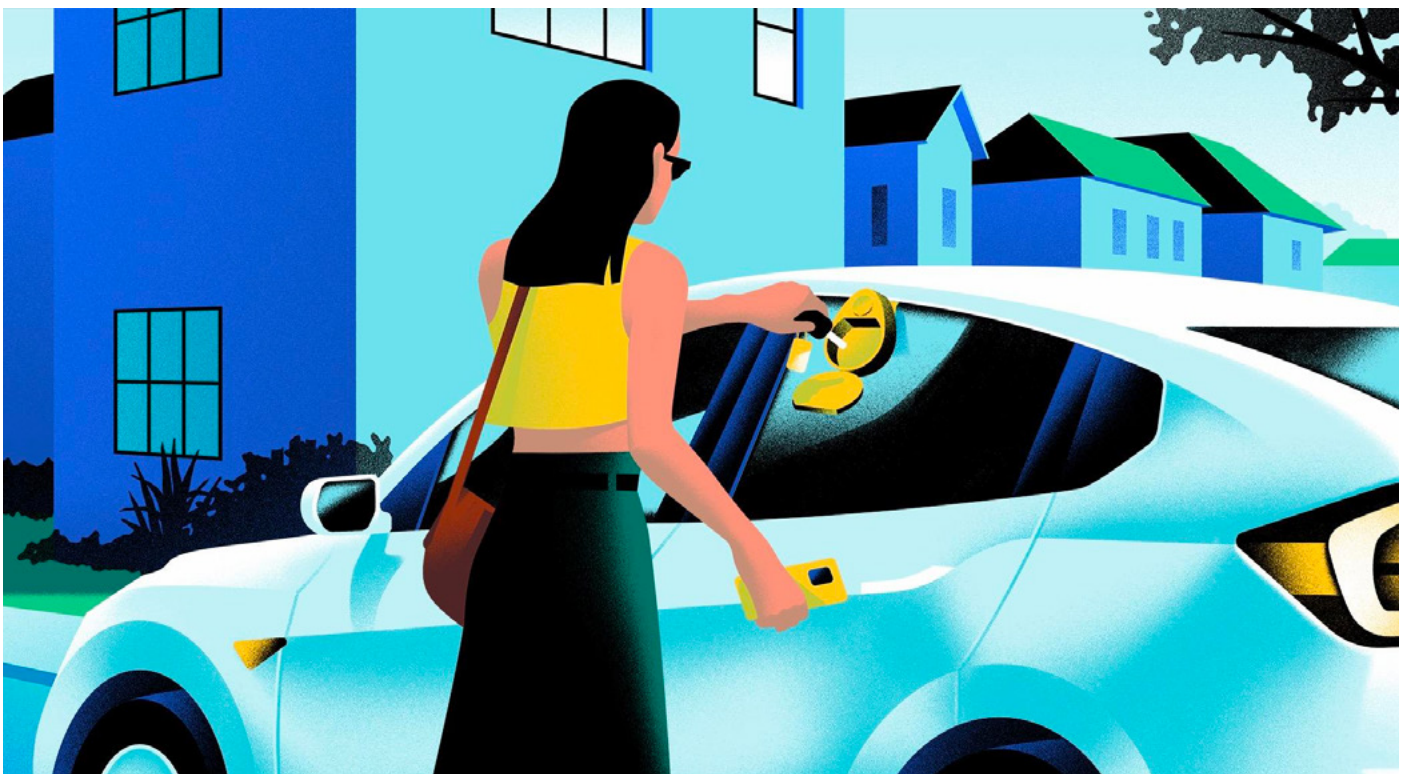
Big Moves

for city leaders to make four the norm

Accelerating the transition to a 'car light' future requires all city leaders, across government, industry and academia, to push together to make four the norm. A key finding of our research and analysis has been that people need access to at least four alternative modes of transport to reduce their car dependence.

Four or more travel mode choices enable people to reliably replace the private car for the majority of trips. To get there, city leaders need to start acting now, requiring bold ambition, underpinned by substantial actions—what we call 'Big Moves'. We have the opportunity to build off what we have learnt through the One Less Car Trial, global best practice and our partnerships with organisations such as Lime, Lug + Carrie and Uber Carshare. We have structured our Big Moves to support city leaders to make an impact now, whilst also considering deeper, strategic Big Moves that require longer to execute to achieve lasting change. These recommendations are not limited to Australian cities. They have broad applicability and can be adapted and implemented in cities worldwide that are grappling with the challenges that come with car dependency.

> "My mindset has shifted - over the course of the 4 weeks I've really adapted to appreciate the many different modes."
>
> – Female, 52, Melbourne, 1 car

Target: Make four the norm

IMPACT NOW

Big move 1:	Invest in infrastructure to increase access for all
Big move 2:	Improve the reliability & convenience of every trip
Big move 3:	Raise awareness of travel choices and emphasise the benefits
Big move 4:	Target ready-to-shifters and scale up what works

LASTING IMPACT

Big move 5:	Enabling plans and strategies
Big move 6:	Policy reform towards one less car
Big move 7:	Bet on big mass transit projetcs

IMPACT NOW

Achieving a car-light future in our cities demands both immediate and sustained efforts. In the short term, we need swift and decisive actions to kickstart the transition. We are proposing four Big Moves that city leaders can implement within the next 12 months and make an impact NOW.

Big move 1:	Invest in infrastructure to increase access for all	Make more modes like cycling, walking, rideshare and public transport more attractive through small infrastructure projects to increase access for all
Big move 2:	Improve the reliability & convenience of every trip	Reliability and convenience are hygiene factors for choosing any mode of travel and travel choices must be available when people need them and without friction
Big move 3:	Raise awareness of travel choices and emphasise the benefits	It isn't enough for alternatives to the private car to be available, need to be aware of their options and be incentivised or nudged to try something new
Big move 4:	Target ready-to-shifters and scale up what works	Cites to target the people most ready-to-shift away from car use to tailor interventions and scale up what works

Invest in infrastructure to increase access for all

Make core modes like cycling, walking, rideshare and public transport more attractive through small infrastructure projects and integration to increase access for all

The One Less Car trial found that walking, cycling and rideshare were the MVPs as alternatives to travelling by private car. Public transport was also revealed as a key enabler for people to replace medium- and long-private car trips. Investing in enabling infrastructure projects is needed to make these viable alternatives to the car.

In many cases, opportunities to cycle, walk or move by rideshare are nearby, however, nearby does not always mean accessible. The quality of small pieces of infrastructure can have a large impact on how people travel. Broken pavements can act as a barrier for people to walk short distances to their local shops. Bus stops without shade or seating can make bus travel an unattractive option, leading to people favouring travelling by car. Unprotected cycleways can add to a perception that cycling is unsafe.

Infrastructure to increase access for all in our cities and places requires addressing the 'missing links' to offer a seamless network that is free of obstructions, offers connectivity, continuity, and directness.

Actions to unlock the Big Move:

- **Make walking the preferred option** for short trips through wide and level footpaths, kerb ramps, providing shade and shelter, improving lighting and activating streets, and making it easy to cross roads

- **Unlock cycling** by making it easier and safer to travel across cities through building safe, protected cycling networks and supporting infrastructure like end of trip facilities and storage

- **Make public transport accessible** to all through lifts and ramps to access stations, low floor buses and trains, visibility aids

- **Integrate public transport** with other modes prioritising prime real estate at transport interchanges for bike parking and rideshare/taxi pick up and drop off zones

- **Promote shared-car modes** with more parking space for car share vehicles and improved access to rideshare and taxis through dedicated pick up and drop off locations on high streets and at events so people have an easy travel choice to leave the car at home

> "Even public transportation has proven difficult in terms of accessibility with up to 40% of train stations lacking any accessibility access as well."
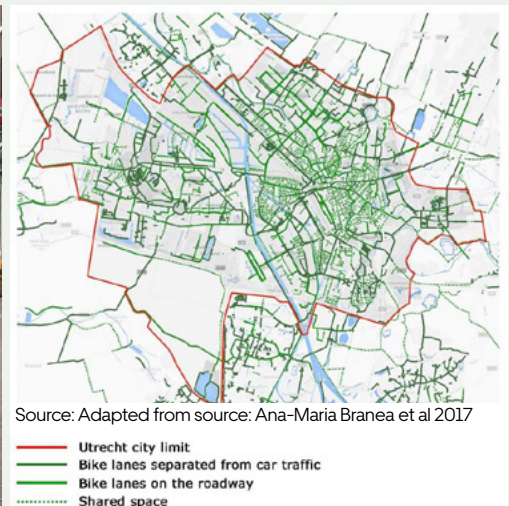>
> - Female, 35, Brisbane, 1 car

Source: Collection Het Utrechts Archief

Source: BicycleDutch

Source: Adapted from source: Ana-Maria Branea et al 2017

— Utrecht city limit
— Bike lanes separated from car traffic
— Bike lanes on the roadway
⋯ Shared space

Before: Zadelstraat in Utrecht in the 1960s when cars could still use the street

Utrecht's extensive cycling infrastructure network

Prioritising cycling as a key mode of transport is a key enabling factor in phasing out motorised vehicles from Utrecht's city centre. 98% of households in Utrecht own at least one bike, with an average ownership rate of 2.9 bikes per household. The City Council plans to double the city's extensive cycling network by 2030 and it spends over €49 million every year to build, improve and maintain its cycling network and supporting facilities. Utrecht's Mobility Plan 2040 has made 30 km/h the new normal on all streets in built up areas to make cycling safer. It will remove 1% of car parking spaces each year and reallocate it to cycling.[35]

Source: Image by Freepik

To make public transport a real option for everyone, we also need to address the challenges confronting people with a permanent or temporary disability. Interventions include lifts and ramps to access stations, low floor buses and trains, visibility aids, priority drop off and pick up zones centrally located for those with mobility issues

Improve the quality, reliability & convenience of every trip

Quality, reliability and convenience are hygiene factors for choosing any mode of travel and travel choices must be available when people need them and without friction.

Travelling by car is a habit. Changing habits is tough. For people to try a different way to travel and for it to stick requires alternatives to deliver on some non-negotiables – quality, reliability and convenience for every trip.

Participants of the One Less Car trial identified 'ease and convenience' as the number one factor when switching modes. People need to feel confident that they will get to their destination on time. If they do not feel confident, they will not enjoy the trip and will be less likely to repeat it. Reliability is key. But if things don't go to plan they need a safety net to ensure they get where they need to go.

Along with reliability and convenience, people want a quality user experience. Of course, what quality means to one person may be different to somebody else. However, most people would agree that safety and cleanliness are essential, along with making the travelling experience as frictionless as possible.

Actions to unlock the Big Move:

- **Prioritise operating a reliable and dependable transport network** through frequent public transport services; always-available sharing modes such as rideshare, e-scooters and bikes; and seamless interchange

- **Make safety, quality and cleanliness a priority** for a better, more convenient user experience by prioritising comfort through regular cleaning schedules, easy-to-understand real-time timetables, integrated fare structures, clear signage and convenient amenities such as lockers at stations and onboard Wi-Fi

- **Boost commuter confidence** to try a new way of travelling by providing a safety net through Bike Breakdown & Maintenance Services, CARE programmes and Guaranteed Ride Home Schemes using rideshare and taxi services

"I had a cycle lane the whole way into the city which felt safe - I wouldn't have felt confident without it."

– Female, 32, Melbourne, 1 car

Source: Lime

Shared mobility schemes, such as e-scooters, bikes, and other on-demand services, play a vital role in closing the first and last leg gap. They provide a flexible, convenient, and sustainable solution connecting people to public transport options, making public transport more accessible.

Source: Image by peoplecreations on Freepik

Bike Breakdown & Maintenance Services, Rider insurance, CARE programmes and Guaranteed Ride Home Schemes can provide peace of mind to people leaving the car behind that they will have a dependable backup plan if things go wrong. An example is the Bicycle Network, an Australian non-profit organisation that offers bike insurance, rider rescue and in partnership with Public Transport Victoria offers free and secure bike parking at key locations in Melbourne.[36]

Raise awareness of travel choices and emphasise the benefits

It isn't enough for alternatives to the private car to be available, people need to be aware of their options and be incentivised or nudged to try something new

Once travel alternatives to the private car are reliable and convenient, we need to make people aware of their travel options and to give them a reason to try a new way of travelling. The end goal is then that people create new travel habits. Creating new habits is a topic that has occupied the minds of transport planners for some time when exploring travel demand management interventions. When teamed with insights from the behavioural sciences, there is a rich body of practice to draw from. Frameworks like MINDSPACE[37], EAST[38], and COM-B[39] offer valuable techniques and frameworks to effectively shape travel behaviour change programmes, such as workplace travel planning approaches.

The design of the One Less Car trial has been informed by the behavioural sciences and yielded some interesting results. It demonstrated that, once reliable and convenient travel choices are available, people are attracted to improving their personal health and to pursue positive environmental outcomes. Emphasising these benefits can therefore help nudge people towards travelling by different ways.

We also know that cost is a key contributing factor for people choosing whether or not to drive. However, people drastically underestimate how much it actually costs to travel by private car, which makes comparisons with modes that have ticket prices potentially misleading.

Actions to unlock the Big Move:

- **Invest in digitisation and journey planning** so that people know their travel choices through having access to relevant and timely information. It also needs to be presented in an intuitive and personalised way that is easy to modify on a trip

- **Empower people to choose the best travel choice** by making real the true cost of private car travel. Roll out incentives to encourage alternative travel options such as pre-tax incentives for public transport and e-bikes, bundling and subscription models, and try-before-you-buy trials of e-bikes or scooters.

- **Incorporate health and environmental benefits into journey planning** to increase benefit salience. Some cities are including environmental impacts and health impacts (e.g. emissions saved, calories burned) into journey planning so that people can make real-time, rounded decisions through assessing travel time and price alongside other salient factors.

> "I've had some challenges such as planning ahead. I thought I'd be better at it as the weeks rolled on by but I found myself constantly being just on time, just a little early or way too early."
>
> – Female, 28, Sydney, 2+ cars

> "I needed to plan ahead a bit more and it was a bit of a challenge when those plans changed. So there was a night when my dinner plans changed and instead of just driving a little bit further I had to rethink the route and how I was going to get there."
>
> – Female, 28, Sydney, 2+ cars

Source: Citymapper

A crucial step for people to decide how to travel is having access to relevant and timely information that is presented in an intuitive and tailored way. Apps and trip planning platforms such as Citymapper, Uber, and others are supporting people to explore different travel options.

Source: Lug+Carrie

16 families trialed an electric cargo bike from Lug+Carrie for two weeks as part of a trial run by the Merri-Bek Council. Over 50% chose to continue renting post trial. Of the families that signed up to the trial 75% previously drove to school. Now 83% plan to ride to school, and 91% plan to replace regular car trips with bikes, showcasing the impact of "try before you buy" initiatives.[40]

Target ready-to-shifters and scale up what works

Cities need to target the people most ready-to-shift away from car use to tailor interventions and scale up what works

The Impact NOW Big Moves highlight key enablers required to provide people with the opportunity to use an alternative to the private car for most trips. For city leaders to prioritise effort and to realise a change in a short period of time means targeting people who are ready-to-shift.

Changing behaviour takes time but for some, a nudge is enough. Which is why it's important to first understand who to target in the short term – the low hanging fruit. These are people with high levels of opportunity to prevent, reduce and replace private car use. This may include people living: close to destinations, in walkable neighbourhoods, or in locations with good access to public transport and cycling infrastructure. The One Less Car Trial identifies these ready-to-shifters as people living in locations with access to four or more mode choices, households without children (SINKs/DINKs), and those taking trips that are easier to shift, such as the commute. While this provides a good starting point, it is important for cities to do further analysis to understand the nuances relevant to their local places and communities.

We also know from our [Future of Delivery](#) report that last mile deliveries in congested city centres are ripe for replacing vans and trucks with people- and micromobility-power.

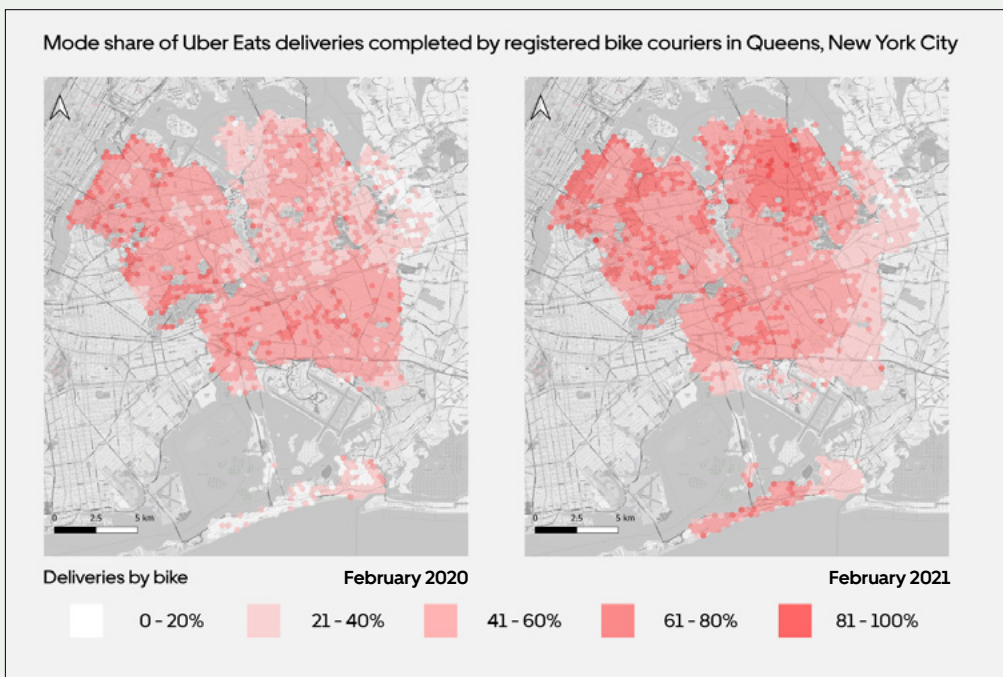## Actions to unlock the Big Move:

- **Identify and target Four+ mode locations** using tools such as walkability scores, Public Transport Accessibility Level analysis and the Propensity to Cycle Tool[41]

- **Prioritise initiatives that target cohorts and trip types** with the greatest propensity to shift such as commuting and education trips, through spatial data analysis and engagement with workplaces and schools

- **Identify and target congested delivery locations** by engaging with businesses and logistics operators, undertaking kerbside maturity assessments and considering micromobility for the last mile

- **Scale up what works** through cross-sector collaboration enabled by nimble policy and regulatory frameworks

"Living in a major city, I'm a single person, I don't have children…I don't have a requirement for a private car to take people places."

- Female, 50, Canberra, zero cars

The Travel Choices Program in Sydney, Australia has successfully nudged people to sustainable commutes through a destination approach that reaches commuters at their workplace. The program contributed to a 13% reduction in vehicles entering the CBD and a 14.7% increase in public transport trips. It provides an example of using travel disruption due to construction activity as a catalyst for people to rethink their travel behaviour and to get into new habits. [42]

Mode share of Uber Eats deliveries completed by registered bike couriers in Queens, New York City

Deliveries by bike

February 2020   February 2021

| 0 - 20% | 21 - 40% | 41 - 60% | 61 - 80% | 81 - 100% |

The mode share of Uber Eats food deliveries completed by registered bike couriers across Queens, particularly north-eastern Queens in February 2021 compared to the same time last year. Queens is well served by the New York Subway, bus services, taxis and ridesharing services. During Covid-19 induced lockdowns, many streets in Queens were closed to cars to encourage more people to walk and cycle. Allied to this was deeming food deliveries as an essential service. These regulatory changes and the reallocation of roadspace elevated walking and cycling for Queens to be a borough that embraces making four modes the norm.[43]

LASTING CHANGE

To achieve lasting, sustainable change, we need to implement plans and strategies that design out our overreliance on private cars and prioritise people. It also means focussing long-term infrastructure spending on projects that improve peoples' access to mass transit. Correcting a century-old habit will take time, but weaning our cities and places off an addiction to the private car will spark a neighbourhood renaissance.

Rewiring the transport networks in our cities provides the opportunity to consider its role in enabling city planning objectives such as increasing the supply of housing and creating liveable places. Increasing the density of housing around public transport services is one way that infrastructure can be optimised to enable broader objectives.

We are proposing three Big Moves that city leaders can act upon to deliver longer-term, positive transformation of our cities and places, and enable more people to live car free.

Big move 5: Enabling plans and strategies	The full suite of city plans and strategies must pull together to end the overreliance on the private car so that all people have 4+ travel modes to choose from no matter where in the city they live, work, study or play
Big move 6: Policy reform towards one less car	The full spectrum of government policies from health to education to city planning to be tweaked to enable people to choose one-less-car
Big move 7: Bet on big mass transit projects	Corridor protection, planning and big project infrastructure spending to ensure people across our cities have access to fast and frequent transit services into the future

"When I was going to the footy, shops or locations close to where I live I found walking, (bike) riding or tramming was easier for me. Mainly because it saved time finding a parking spot. It did require more forward planning."

- Female, 30, Melbourne, 2+ cars

Enabling plans and strategies

The full suite of city plans and strategies must pull together to end the overreliance on the private car so that all people have 4+ travel modes to choose from no matter where in the city they live, work, study or play

Rewiring and upgrading the transport networks in our cities is essential to reduce dependence on the private car. It will not be a quick process. It requires reorienting city plans and strategies, and sequencing the delivery of big infrastructure projects that push beyond the status quo. It also enables a broader perspective of the transport network's role in supporting the delivery of policy objectives such as increasing housing delivery and creating liveable places.

There are green shoots. Planning ideas such as 10, 20 or 30 minute cities, and the funding of big mass transit projects are pushing in the right direction. However, greater ambition and more action is required to achieve a car-light future.

A key blocker for cities to reach their potential is a reliance on past experience informing future plans, described as a predict and provide approach to city planning. The predict and provide approach delivers 'more of the same' and reinforces a legacy of streets and places being designed for private vehicles and not for all modes and people. Forward-thinking cities are increasingly engaging with their communities to agree on a vision for the future and then put in place policies and projects to achieve it.

## Actions to unlock the Big Move:

- **Adopt a Vision and Validate approach** to city planning by engaging with the community to articulate a vision for their city and putting in place integrated transport, land use and infrastructure plans to make it happen

- **Transform the government's siloed approach to infrastructure delivery** to unlock the potential of places to deliver housing and economic opportunities by taking a sequenced, whole-of-government approach

- **Use place-based planning frameworks** to design neighbourhoods where people can quickly and easily access more opportunities to work, study and play through implementing planning ideas such as the 30 minute neighbourhood and low traffic neighbourhoods

- **Introduce mode share targets** that prioritise four+ sustainable transport modes so governments can align budgets, infrastructure programs and measure performance. In addition, communities can judge whether whole-of-government plans and strategies are making an impact on-the-ground

"When I was going to the footy, shops or locations close to where I live I found walking, (bike) riding or tramming was easier for me. Mainly because it saved time finding a parking spot. It did require more forward planning."

- Female, 30, Melbourne, 2+ cars

Source: Future of Delivery 2022, WSP and Uber
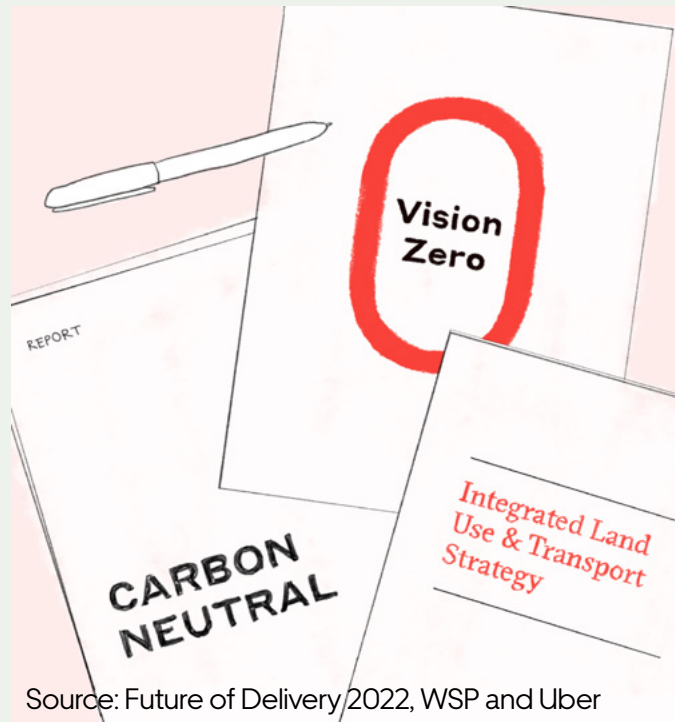
Vision and validate approaches to city planning have been embraced over recent years. Sydney, Australia is seeing the ongoing implementation of the Metropolis of Three Cities alongside district plans in lock step with the State Infrastructure Strategy. Together the suite of integrated transport, land use and infrastructure strategies set the direction for government action to meet community expectations, rather than repeating the mistakes of the past.

Source: Wikimedia
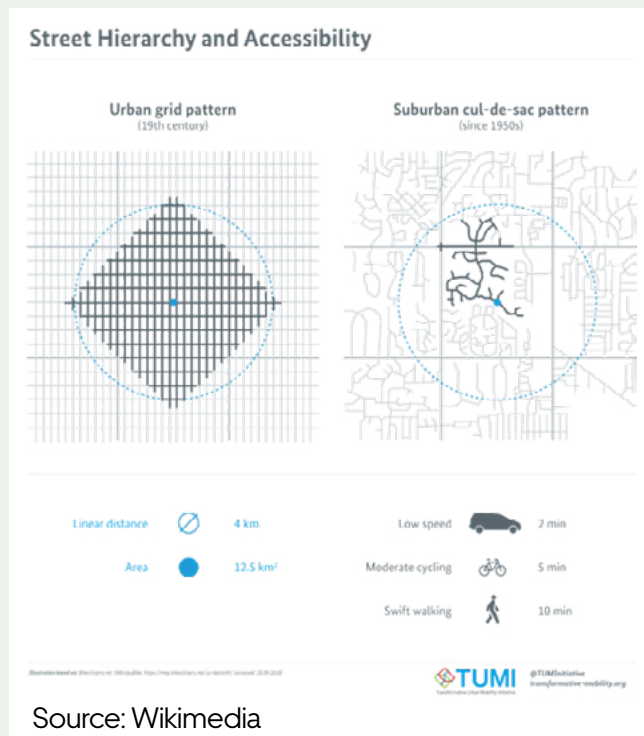
The infographic above compares accessibility by car, cycling and on foot in different street environments. Planning ideas such as the 30 minute city should be supported and implemented by cities as a measure to improve social mobility and access to employment and education. The 30-minute city is a planning idea that suggests people should be able to travel by sustainable modes such as walking, cycling and public transport to work, study and play within a 30 minute trip. There are variations on this idea that servicing needs, such as shopping for groceries, should be available within 10 minutes of home and that work and education be within a 30 minute trip.[44]

Policy reform towards one less car

The full spectrum of government policies from health to education to city planning to be tweaked to enable people to choose one-less-car.

Pursuing an objective of 'one less car' per household would be achieved through a number of policy areas working together. It will not be achieved solely through a tweak to transportation policy.

Achieving 'one less car' requires action across most policy areas, including health, energy, transportation, education, planning, infrastructure, treasury and social services. In many cases there are shared policy objectives across government that can be attacked together.

One example is reducing emissions to meet net zero targets. Transport accounts for more than a third of global CO2 emissions[45]. Reducing the number of private cars on the road will in turn reduce the number of cars with internal combustion engines on the road which in turn reduces emissions and better enables cities to meet their net zero targets.

Another example is encouraging people to exercise to improve their health outcomes. The One Less Car trial identified walking as the most likely alternative to using the private car. Making it easier for people to walk and cycle for short trips, to the bus stop and to the train station presents an opportunity to improve their health outcomes and in turn to place less pressure on the health system.

It is incumbent on governments to adopt a holistic approach to reform and to pull every policy lever available.

Actions to unlock the Big Move:

- **Price access to city centres and roadspace** to encourage behaviour change through parking charges, road tolling, congestion charges and clean air zones as a part of wider behaviour change programmes

- **Reform out-dated parking policies and regulations** to unlock space for people and for active places. Reallocate kerb space for cycling or dynamic pick up and drop off zones; and review out-dated parking minimum policies

- **Unabashedly focus all government policy areas on securing the future well-being of people** by requiring alignment through legislation such as that implemented by the Wales Government

- **Reform health and net zero policies** to encourage more active lives and reduce emissions through devising and promoting travel behaviour change initiatives delivered in partnership with industry, communities and the third sector

> "My daughter is loving the novelty of the e-bike - getting to school has been easier as a result."
>
> - Female, 41, Melbourne, 1 car

Source: Government of Wales, 2021

The Wales government has embedded a holistic, people-focussed mission for all arms of government through the Well-being of Future Generations (Wales) Act. It specifies how public bodies must work, and work together, to improve the well-being of Wales. It presents well-being goals as the yardstick to which government action must meet across themes such as resilience, culture, equality, health and prosperity.[46]

Source: Wikimedia

Pricing measures such as congestion charges and clean air zones are less prevalent in Australia but have been deployed in Europe with positive results. Rather than being road-by-road charges like tolling, these area-based pricing mechanisms charge people for driving into specific places. By varying the charge by type of vehicle and time-of-day cities can send a clear price signal and influence travel behaviour. Low emission Zones (LEZ) and Ultra Low Emission Zones (ULEZ) in London have cut the number of older, more polluting vehicles in London by 60% since 2021 and reduced the levels of harmful air pollution by 46% lower in central London than would have been the case without the ULEZ. [47]

Bet on big mass transit projects

Corridor protection, planning and big project infrastructure spending to ensure people across our cities have access to fast and frequent transit services into the future

Many of our cities have public transport deserts where people have no choice but to drive their cars for medium and long trips. Or, if public transport options are available, services may be infrequent or unreliable so cannot be trusted to get people to work, school and appointments on time. The disproportionate access to public transport across our cities leads to gulfs in opportunity. Planning concepts such as the 30 minute city are designed to address this but must be underpinned by big investment in public transport infrastructure to translate plans into reality.

Investing in the right transport infrastructure is key, however the decision-making processes that many cities go through are flawed and lead to poor outcomes. A preoccupation in assessing the costs and benefits of projects over a 20-30 year time horizon has big implications for our cities and the future well-being of its people. This is due to the benefits of many city-shaping, vision-led projects being more likely to pay off over a longer time horizon. In practical terms, the current system will prioritise spending on a road upgrade yielding a 2 minute travel time improvement compared to a rail project that will future-proof a new community with a sustainable, car-free travel option.

Actions to unlock the Big Move:

- **Invest in a robust city-wide rail network** with seamless interchange as a fundamental enabler to make four modes the norm so that people have an alternative to the private car for all trips

- **Invest in bus networks to increase geographic coverage and frequency** flipping transport deserts into the most connected places to opportunities for work, study and play

- **Overhaul business case assessments** to prioritise people and future well-being by down-weighting short-term benefits such as travel time savings in favour of long-term benefits such as new homes and jobs

"What surprised me most about taking fewer (car) trips would be how comparable it is in time as well as price, especially if it's a long journey. So going to the city (by train) was way cheaper and the time was probably either the same or a bit quicker."

- Female, 28, Sydney, 2+ cars

Source: CoMoUK

The integration of last mile services such as taxi, rideshare, bus, and bike hire are required to ensure the door-to-door travelling experience rivals and exceeds the reliability and convenience of the private car. Integrating mobility hubs at railway stations is integral to seamless transition between modes.[48]

Source: Image by wirestock on Freepik

A bus network hierarchy of frequent, regular and reliable trunk routes served by feeder routes can offer a legible and accessible option for people to quickly and easily move around cities.

Conclusion

Reducing overreliance on private cars - particularly underutilised ones - has great potential to alleviate economic, societal and environmental burdens imposed on our communities. We know cities need to be re-oriented - particularly during peak periods - away from single-occupancy car trips and toward reliable, shared, electric and multimodal solutions.

The One Less Car trial identifies some of the barriers that currently exist to a car-light future, but also highlights the opportunities. Positively, when provided with transport alternatives, 58 Australians were able to reduce their car use without any (apparent) major barriers. They adapted their lives, tried different modes and realised many of the benefits including greater connection with their communities, families and improved health.

By the end of the trial, many participants stated they would continue to use alternative transport modes more, with three participants indicating they planned to sell one of their cars in the near future, or make their car available on Uber Carshare. While this gives hope for the future it also demonstrates that there is more work to be done to create cities where people are ready to use 'one less car'.

City leaders across the public and private sectors need to work together to implement the Big Moves outlined in this report. We need to systematically address the push and pull factors which make private cars the dominant mode of transport in Australia today. It will be a multi-decade journey but work needs to begin today to ensure Australia's cities remain among some of the most liveable, healthy and sustainable cities in the world.

"Taking fewer private car trips has required adaptability, resourcefulness and a shift in perspective. But despite the challenges the rewards and benefits have made the positive experience worthwhile. I definitely intend to continue exploring alternative methods of transportation, while acknowledging the occasions where a private car may be more practical."

– Female, 35, Brisbane, 1 car

"Before this trial I had actually been out to look at buying a car but after this trial no I don't think I will."

– Female, 50, Canberra, zero cars

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