

INDUSTRY REPORT

URBAN MOBILITY TRENDS FROM COVID-19

— AUGUST 2020 —



HAS COVID-19 CHANGED URBAN LIFE PERMANENTLY?*

86%

expect to do most of their work back in their workplace



25%

expect to decrease their PT use post pandemic



48%

are shopping online more, with half of these saying they'll continue to do so



42%

expect life will return to normal within 12 months



INTRODUCTION

The emergence of COVID-19 early in 2020 has presented a public health crisis to nations across the world on a scale unlike any witnessed for a century. With governments taking measures to combat the virus, each of us, and our communities, have been affected in ways we could not have imagined just a few months ago.

However, easing restrictions in some regions have offered early signs of what a post-pandemic transportation landscape might look like.

Certain changes to the way we worked and moved about cities made during the COVID-19 restrictions are likely to remain in the short and medium terms, however the drastic and permanent changes some commentators have predicted are less clear. The reality is that many people expect life to return to normal – and expect that to happen within 12 months.

A survey commissioned by Transurban of nearly 4,500 people across Australia and North America (conducted between 24 and 30 July 2020) highlights the ways people are expecting they'll work and travel once the public health risk has eased.

The survey clearly shows that health and safety considerations are likely to drive consumers' travelling behaviour for some time to come with more than 25% of respondents expecting to decrease their use of public transport even after the risk of COVID-19 had passed. This raises considerations about the resilience of our transport networks.

For example, a major shift away from public transport even in the medium term would not be sustainable for our cities.

Productive and liveable cities need efficient transport networks that integrate roads and public transport to meet demand. Even before the COVID-19 public health crisis, transport infrastructure in major cities was straining under increasing demand driven by mass urbanisation and population growth. Shifts in commuting patterns could provide the catalyst for the broader policy changes needed to make the best use of transport networks.

This report outlines transport trends emerging in the regions where Transurban operates—Sydney, Melbourne and Brisbane in Australia, the Greater Washington Area (GWA) area in the United States, and Montreal in Canada—as well as transport policy considerations that could best support communities and cities as they emerge from the crisis. Key themes include:

- how we'll move around cities
- where we'll work
- how we'll shop
- the future of urban mobility.

This analysis includes data and events up to 7 August 2020. Survey data used in this report combines responses from across Sydney, Melbourne, Brisbane, GWA and Montreal unless otherwise specified.

Travel Perceptions Research

Online survey conducted in July 2020

4,500 respondents from Sydney, Melbourne and Brisbane in Australia; Greater Washington Area, USA; and Montreal, Canada

Survey commissioned by Transurban and conducted by Nature, Australia and US and Leger Canada.

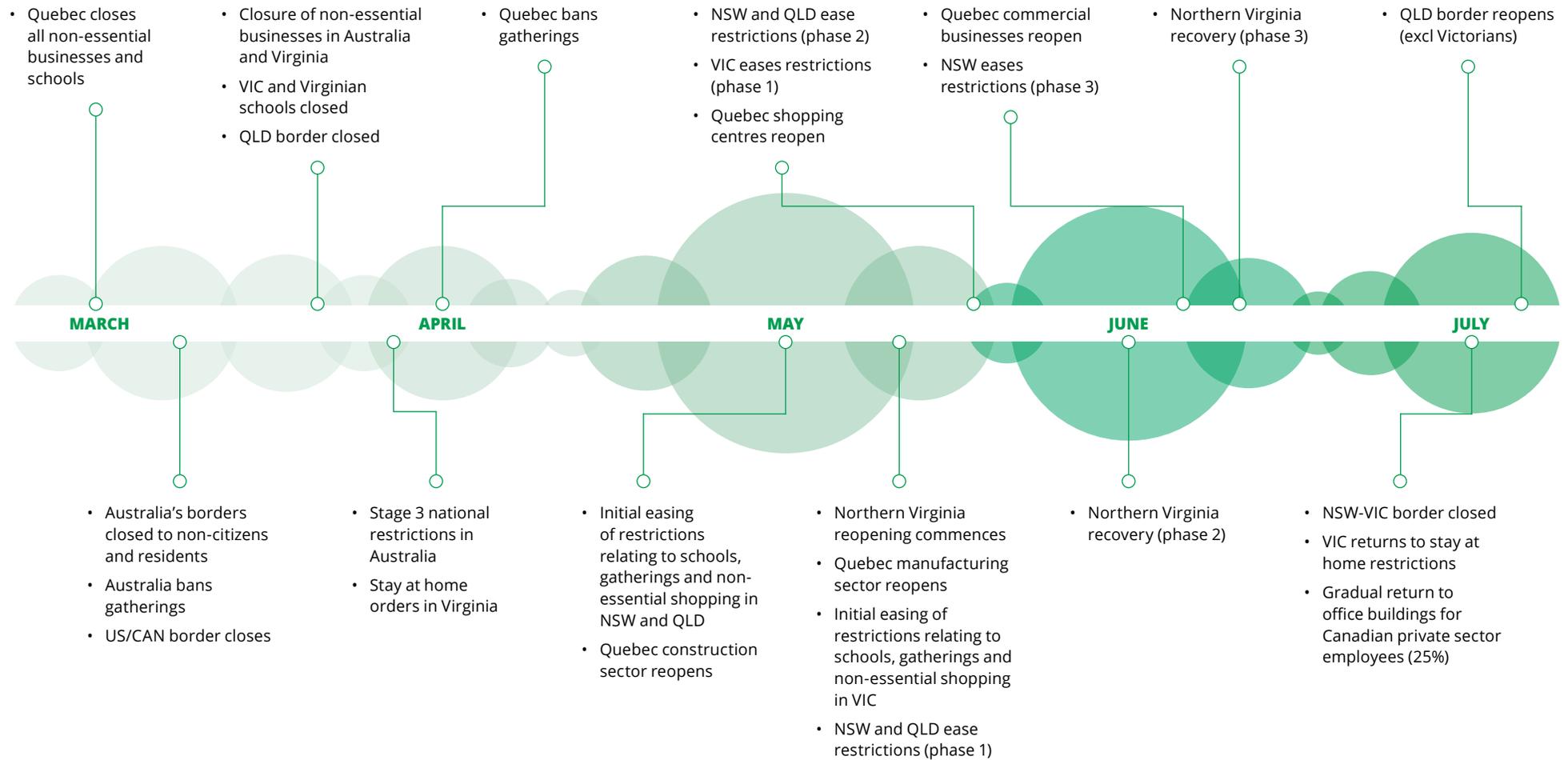
(Travel Perceptions Research, July 2020)

* Compared to pre-pandemic levels

TIMELINE OF RESTRICTIONS

shifting urban mobility

(Mar-Jul 2020)



HOW WE'LL MOVE AROUND CITIES

In pre-COVID-19 Australia, the transport task was shared across road, public transport and active transport modes.



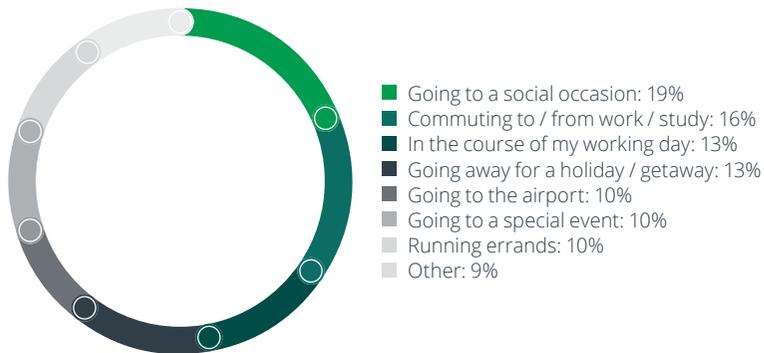
With more than 45 million trips made across Australia's three major cities every day, each mode had an important and specific role to play (see Figure 1)¹.

Historically, a significant proportion of all trips occurred locally or across suburbs and not to the central business district (CBD). Apart from work purposes—which accounted for 26% of all trips—most travel related to shopping, social and recreational activities (42%)². Roads and highways naturally appealed for such trips as they provided the most direct route and were generally quicker than taking public transport.

This was particularly the case for workers who needed a car for work (eg tradespeople) or for movement of goods, taxis and emergency services vehicles. Similarly, trips were also made for purposes other than commuting to get people to destinations such as childcare and education.

Across our toll roads, 16% of trips are related to commuting for work or study, while 19% of trips are made for social purposes and 13% for travelling to holiday destinations (see Figure 2)³.

FIGURE 2. REASONS FOR TOLL ROAD USE

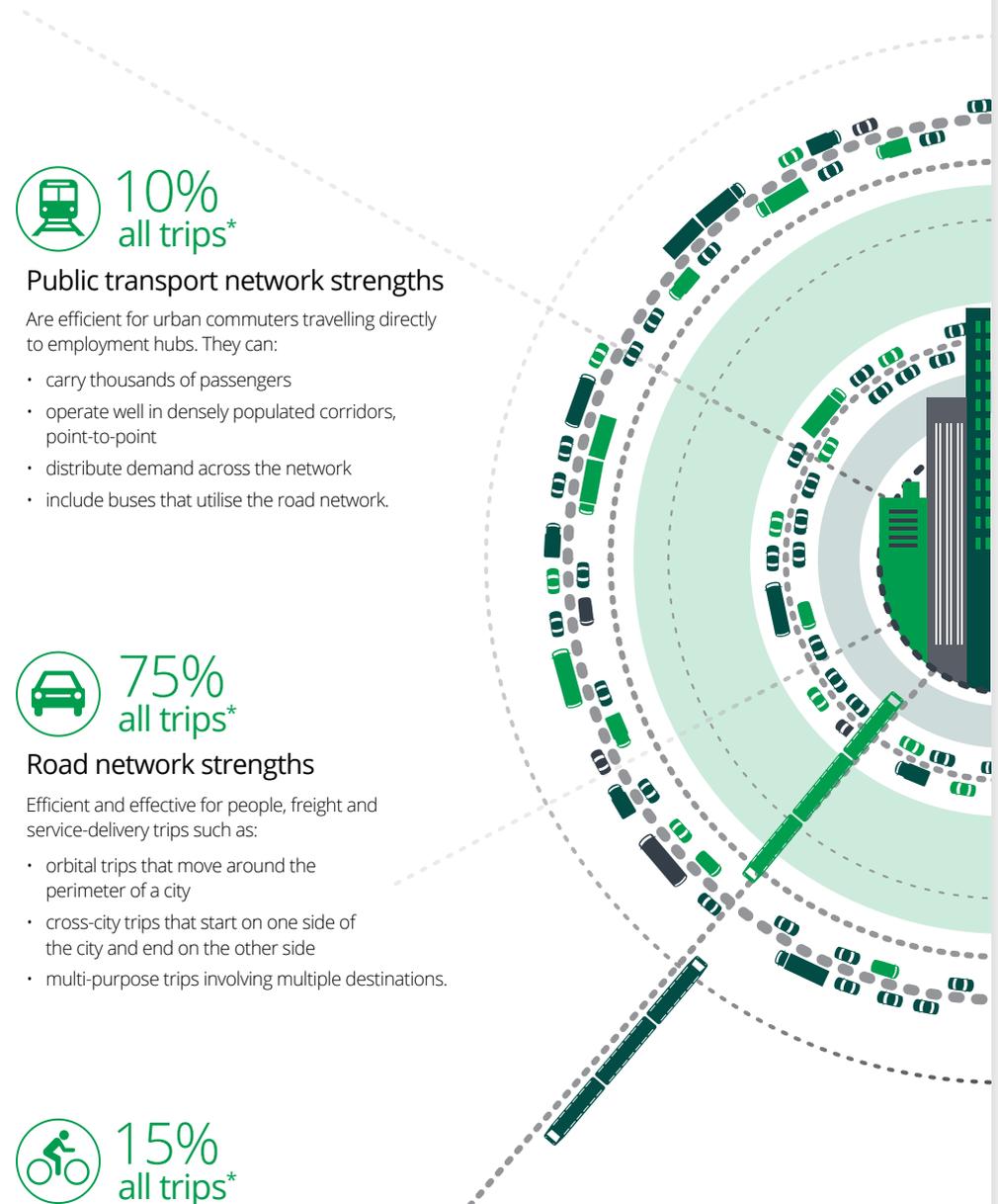


1 NSW, VIC and QLD Government Department of Transport – Household Travel Surveys and Data, 2018

2 Ibid

3 Transurban commissioned research across general population of greater metropolitan Melbourne, Sydney and Brisbane, December 2016. Respondents were asked for specific reasons why they travelled on toll roads.

FIGURE 1. INTEGRATED TRANSPORT NETWORK—HISTORIC MODE SHARE (SYDNEY, MELBOURNE AND BRISBANE METRO AREAS)¹



10%
all trips*

Public transport network strengths

Are efficient for urban commuters travelling directly to employment hubs. They can:

- carry thousands of passengers
- operate well in densely populated corridors, point-to-point
- distribute demand across the network
- include buses that utilise the road network.

75%
all trips*

Road network strengths

Efficient and effective for people, freight and service-delivery trips such as:

- orbital trips that move around the perimeter of a city
- cross-city trips that start on one side of the city and end on the other side
- multi-purpose trips involving multiple destinations.

15%
all trips*

Active transport strengths

Efficient for short distances and encourages community health and wellbeing.

* Historic share of urban trips across metropolitan Melbourne, Sydney and Brisbane

Impact of government restrictions

In April 2020 with stage three government restrictions mandated in most Australian states, trips made by road and active transport had more than halved compared with pre-COVID-19 figures, and public transport ridership was down by as much as 80%⁴. With many CBD workers working from home, peak hour vanished.

However, once restrictions were relaxed, Google Maps data from June/July 2020 revealed⁵ that while travel was still below normal levels, Australian city dwellers were travelling around cities again for the usual purposes. Movement to workplaces was down by 15%, while travel to retail and recreation venues (such as restaurants, shopping centres and cinemas) was 14% below normal levels.

Traffic in some regions has already been springing back to pre-COVID-19 levels. TomTom data at the beginning of August covering Sydney and Brisbane where restrictions had been eased for almost two months, showed congestion levels across the broader network had returned to within 5 to 20% of 2019 averages (see Figures 3 and 4). However in Melbourne where restrictions were tighter, broad-based congestion was still up to 50% lower than normal⁶.

FIGURE 3. SYDNEY—HOURLY CONGESTION LEVEL⁷

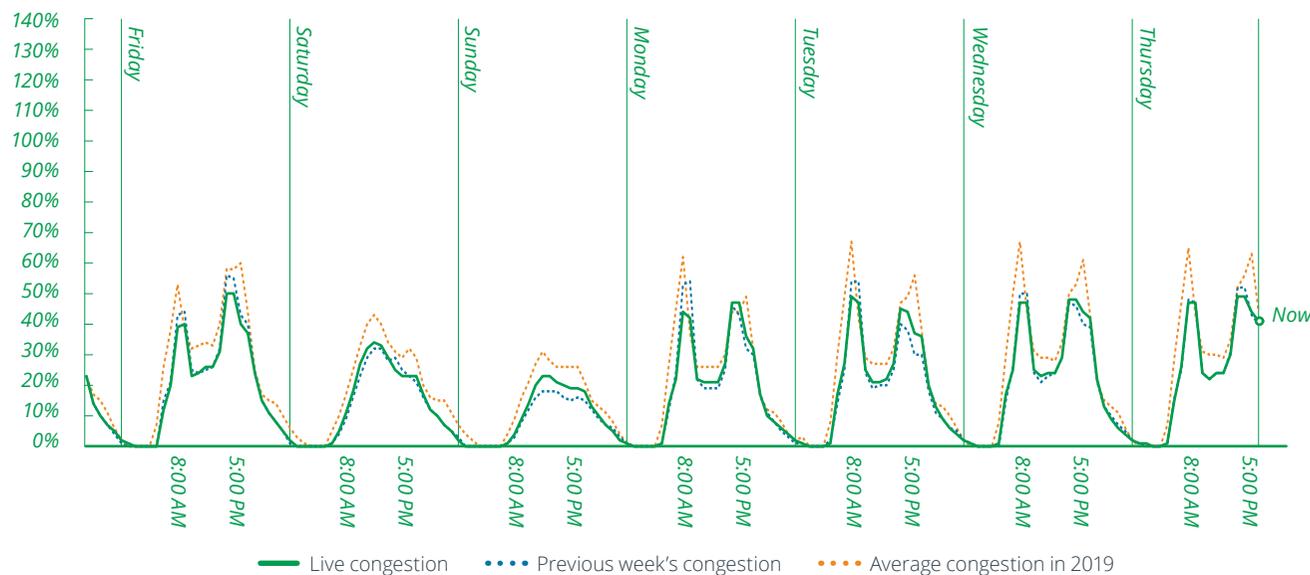
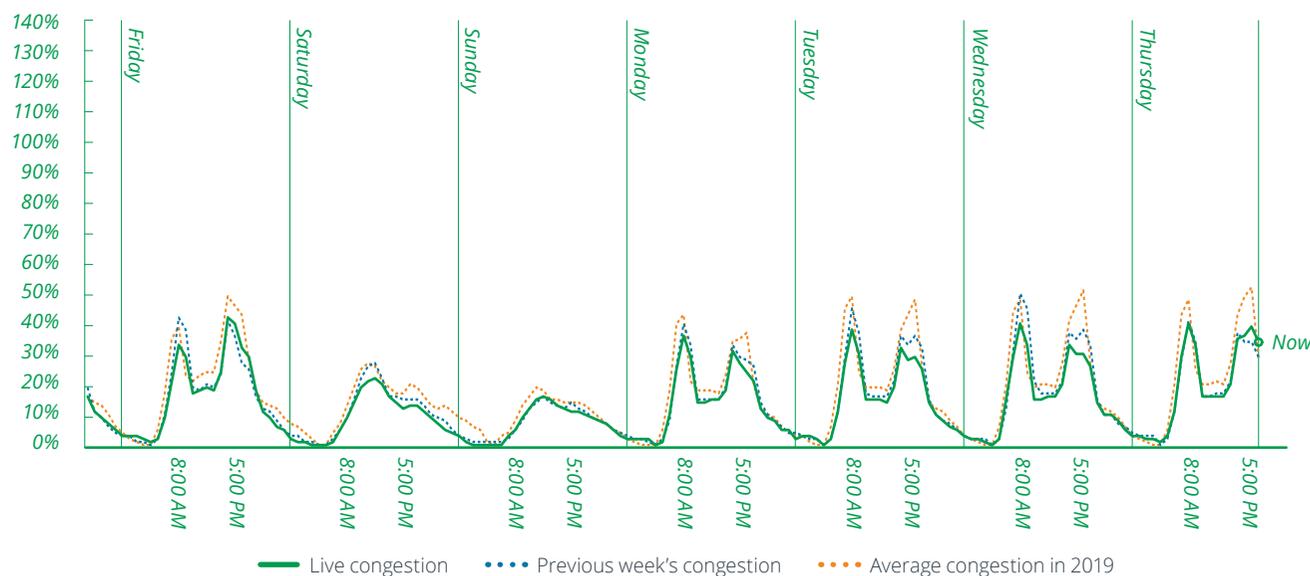


FIGURE 4. BRISBANE—HOURLY CONGESTION LEVEL⁸



4 Compared to January 2020, WSP Public Transport and COVID-19: How to transition from response to recover, 2020, page 4

5 Google Community Mobility Report 19 July 2020

6 TomTom Traffic Index—Melbourne, 31 July–6 August 2020

7 TomTom Traffic Index—Sydney, 31 July–6 August 2020

8 TomTom Traffic Index—Brisbane, 31 July–6 August 2020

While road use decreased during phases of government restrictions, the declines were not as dramatic as those seen on public transport. Data from public transport app Citymapper at the end of July showed there was only 13% of the normal movement in Melbourne⁹.

Additionally, in a sign that health and safety will continue to drive consumer choices in the near term in regions where restrictions have eased, public transport ridership has not recovered like road use. For example, public

transport use in Sydney at the end of July was still down 37% of the normal levels¹⁰.

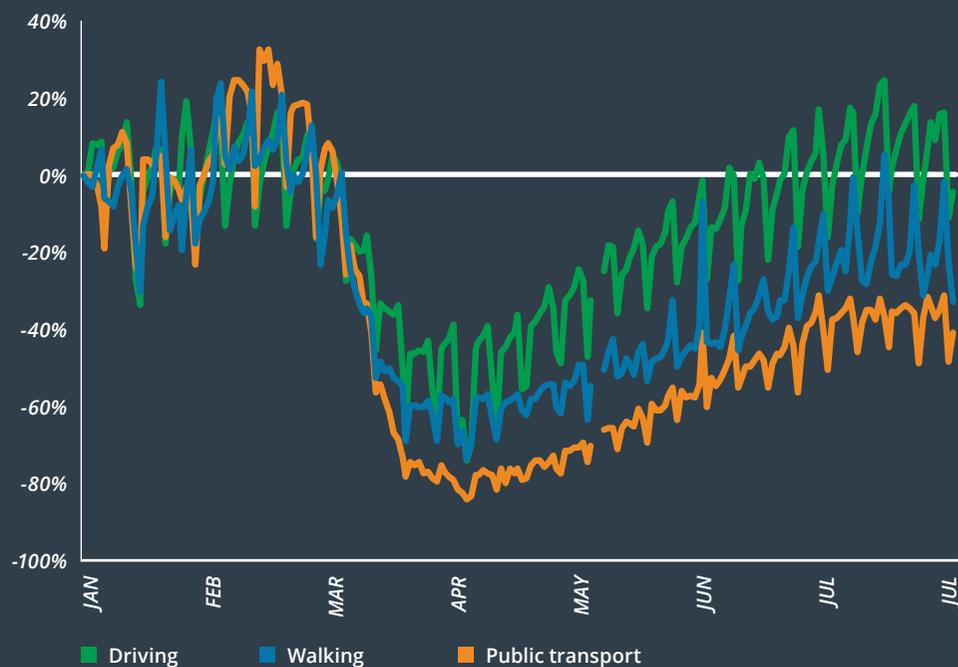
Similarly, data from Apple maps shows that demand for driving directions in Sydney has returned to normal levels, while directions for walking and public transport are still around half the normal amount (see Figure 5)¹¹.

A similar trend can be seen in Brisbane with directions for walking and public transport 31% and 37% off the norm respectively (see Figure 6)¹².

FIGURE 5. APPLE MOBILITY TRENDS—SYDNEY



FIGURE 6. APPLE MOBILITY TRENDS—BRISBANE



9 Citymapper Mobility Index, Melbourne, data from week ending 26 July 2020

10 Citymapper Mobility Index, Sydney, data from week ending 26 July 2020

11 Apple Mobility Trends Report—Sydney, July 2020

12 Apple Mobility Trends Report—Brisbane, July 2020



Our market research results are aligned with this data, with respondents in Brisbane saying the way they moved around the city has already changed in favour of modes that protected their personal health and safety.

Across all regions, personal health and safety has become the most important consideration when choosing which mode of transport respondents would use, followed by convenience (see Figure 7).

Respondents indicated that the safety of travelling on public transport was a key concern, with over half feeling less safe than they felt before and more than 25% feeling much less safe than before.

Conversely, more than 90% of respondents believed that car and motorcycle travel was as safe as before or safer (see Figures 8–10 on page 7). Importantly when looking forward to when the risk of COVID-19 had passed, more than 25% of all respondents said they would reduce their public transport use.

From the survey, 84% of daily train users in Melbourne said they had reduced their use, while one in five said they did not expect to return to daily use even after the pandemic. A similar pattern can be seen for daily tram and bus users, with a significant proportion saying they are using these services less now compared with their pre-COVID-19 use and they expect to continue to use them less in the future (12% and 30% respectively).

Similarly, 72% of daily train riders in Sydney and 55% of Brisbane bus riders had reduced their use with around 15% of each group indicating they did not expect to return to daily use post COVID-19.

Apart from public transport use, respondents indicated that their use of all other modes of transport would bounce back to pre-pandemic levels. Across all regions, respondents said their toll-road use would also return to similar levels, except in Greater Washington where they expected to use Express Lanes more after the pandemic had passed.

FIGURE 7. THEMES IMPACTING TRANSPORT MODE CHOICE

Australia

Pre-COVID	Now
Convenience	Safety
Safety	Convenience
Affordability	Affordability
Comfort	Comfort
Speed	Speed
Sustainability	Sustainability

Greater Washington Area

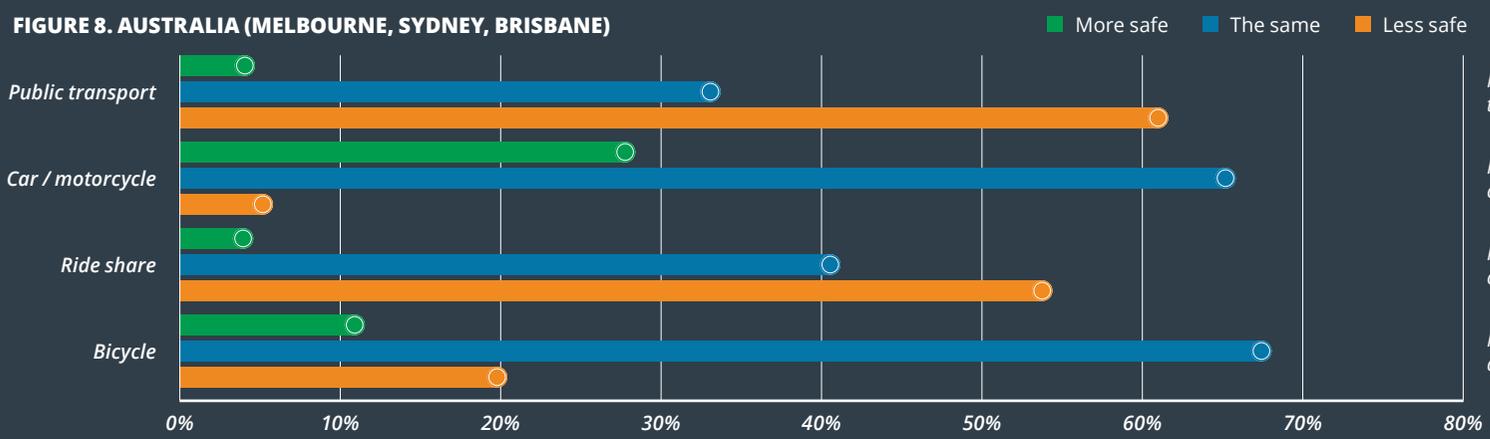
Pre-COVID	Now
Safety	Safety
Affordability	Affordability
Convenience	Comfort & Convenience
Comfort	Sustainability
Speed	Speed
Sustainability	

Montreal

Pre-COVID	Now
Convenience	Safety
Safety	Convenience
Speed	Speed
Affordability	Affordability
Comfort	Comfort
Sustainability	Sustainability

Feelings of personal safety on transport modes

FIGURE 8. AUSTRALIA (MELBOURNE, SYDNEY, BRISBANE)



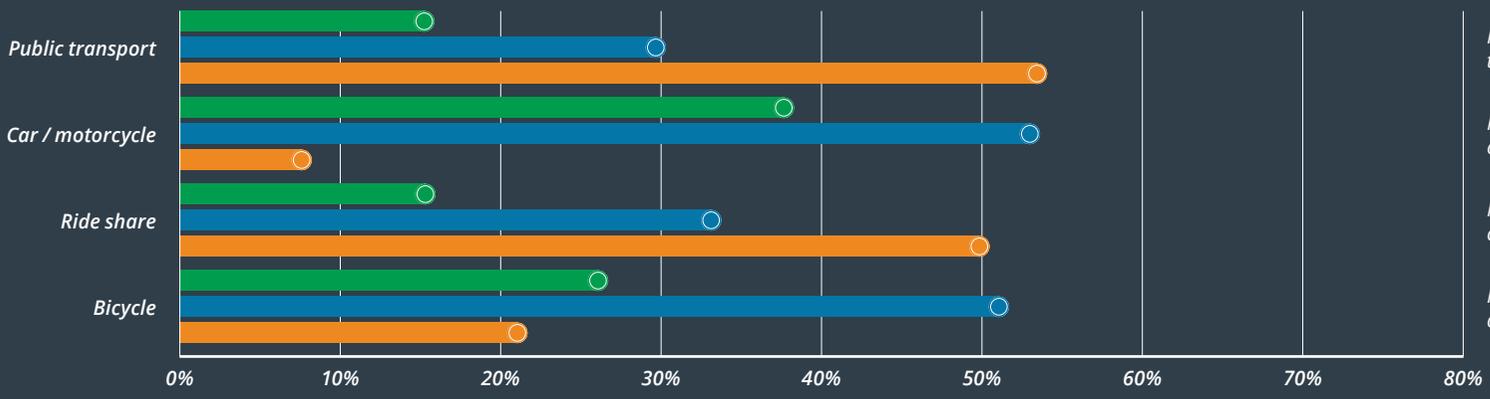
Most people feel less safe travelling on public transport, though about a third feel the same as before

Most people feel the same or feel more safe travelling in cars or on motorcycles

Most people feel less safe travelling in ride shares or carpools, though more than 40% feel the same as before

Most people feel the same travelling on bicycles, though a notable proportion feel both more and less safe

FIGURE 9. USA (GREATER WASHINGTON AREA)



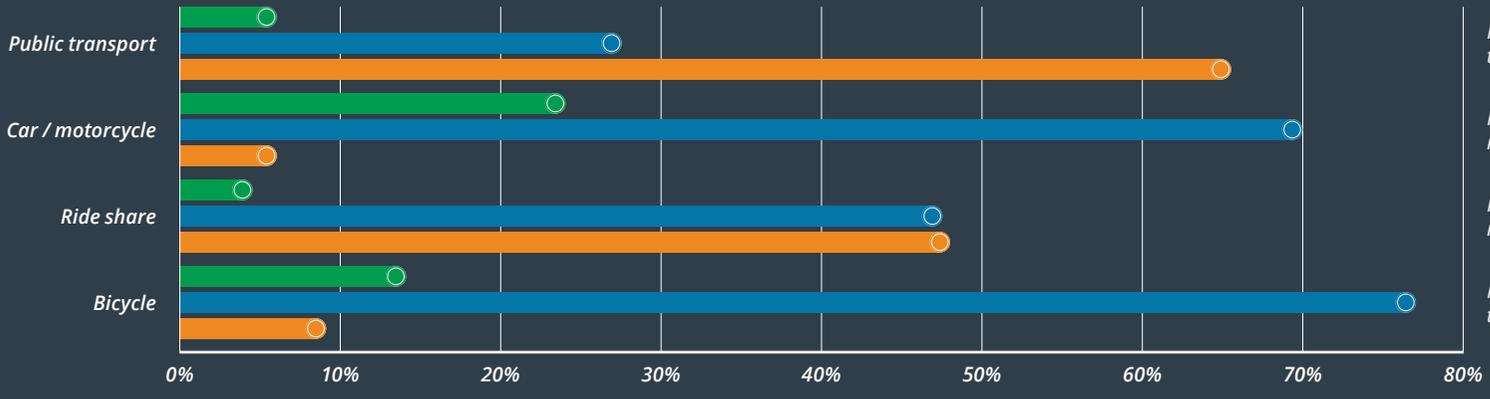
Most people feel less safe travelling on public transport, though about 30% feel the same as before

Most people feel the same or feel more safe travelling in cars or on motorcycles

Most people feel less safe travelling in ride shares or carpools, though about a third feel the same as before

Most people feel the same travelling on bicycles, though a significant proportion feel both more and less safe

FIGURE 10. CANADA (MONTREAL)



Most people feel less safe travelling on public transport, though almost 30% feel the same as before

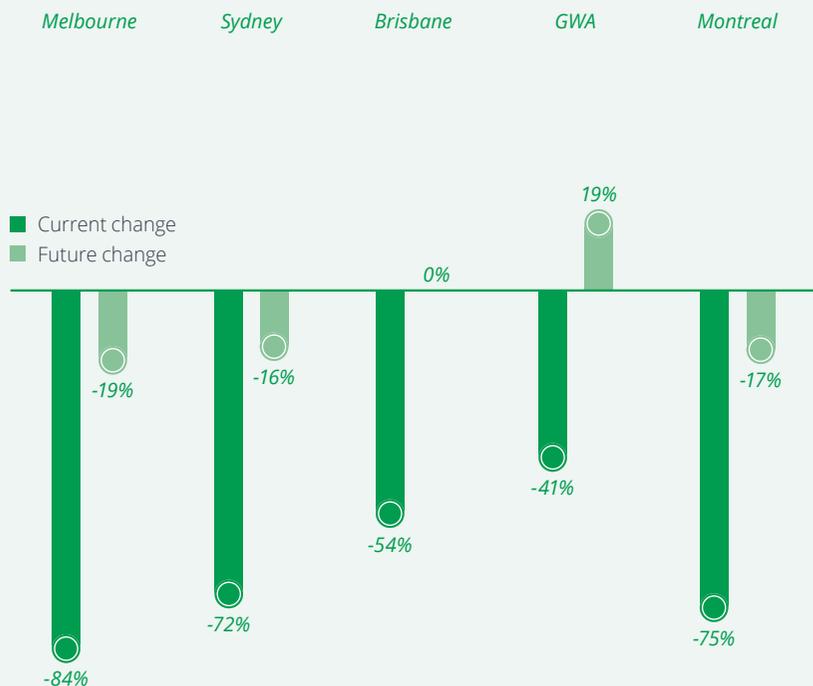
Most people feel the same travelling in cars or on motorcycles, though almost a quarter feel more safe

Most people feel the same or less safe travelling in ride shares or carpools

Most people feel the same travelling on bicycles, though a notable proportion feel more safe

How daily users of transport expect their use will change (% change)

FIGURE 11. TRAIN / SUBWAY



Except in GWA and Brisbane, respondents indicated daily use of trains / subways would be reduced after the risk of the pandemic had passed.

FIGURE 12. BUS

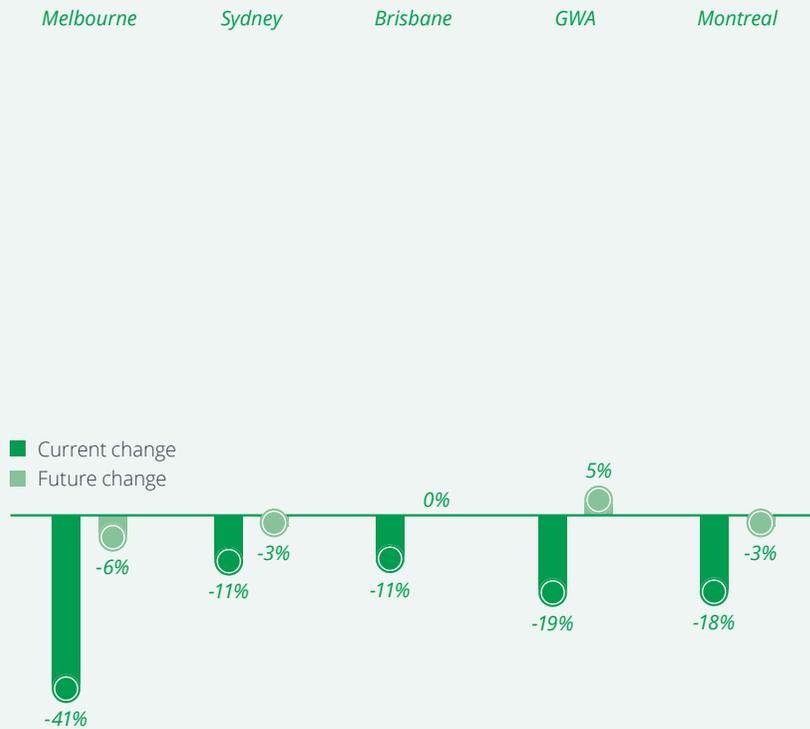


Except in GWA and Sydney, respondents indicated daily use of buses would be reduced after the risk of the pandemic had passed.



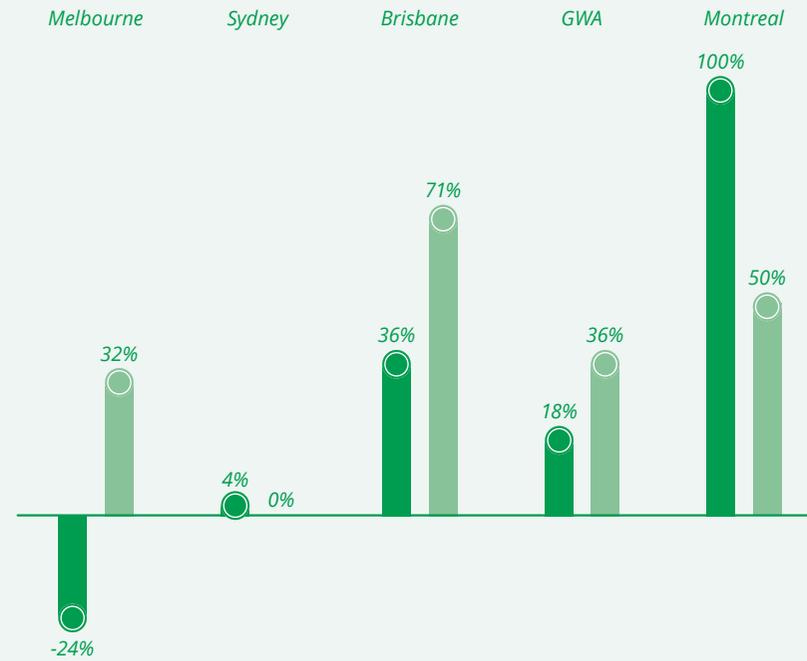
How daily users of transport expect their use will change (% change)

FIGURE 13. CAR / MOTORCYCLE



Respondents indicated that daily use of cars / motorcycles would return to near pre-pandemic levels.

FIGURE 14. BICYCLE



Respondents indicated they would cycle more post pandemic.



Implications for transport networks

With driving rebounding in many cities, it could eventually return stronger than ever, depending on how long commuters remain wary of public transport. Such an increase in demand could stretch urban road infrastructure beyond pre-pandemic levels.

This is especially the case for commutes into the CBD during peak hours, where public transport has traditionally picked up most of the demand. Some estimates indicate that public transport picks up as much as 50 to 75% of all commutes into the CBD. Ensuring public health and safety on public transport with physical distancing measures would also have a significant impact on capacity levels.

Governments are already planning or working on road and rail projects across capital cities to provide much-needed, additional capacity to networks (see the list of selected major road projects underway). They have also flagged the importance of accelerating construction projects—both minor and major—in stimulating economic recovery and creating jobs. These initiatives, along with a longer-term, and more continuous, pipeline of activity to maintain growth

and productivity, will support efficient movement around the road networks. Many of these projects include active transport options, such as cycle paths and walkways, which will be important to cater for the expected uptake in those modes. Our survey showed an increase of up to 27% in cycling in most cities.

The level of disruption on our transport networks has also given rise to discussion around other changes such as spreading peak traffic and passenger volumes through either price signalling or broader policy changes relating to staggered work and/or school hours, which have been previously floated as a solution to congestion. The latter offers the additional opportunity of intrinsic social distancing with fewer people in the workplace or schools at any given time.

Many questions remain over how COVID-19 will impact our transport systems, and this presents an ideal opportunity for government and businesses to work together to consider broad-based changes to best support communities and local economies as cities emerge from the crisis, and ultimately create more efficient ways for people to get around.



Travel demand management



Re-engagement of public transport riders



Investment and project prioritisation



More cycle friendly cities

Selected projects in development or recently completed (Australia)

WestConnex M8 tunnels, Sydney (opened July 2020)

Twin 9km tunnels providing an alternative to the M5 East

Up to 30 mins saved on average peak journeys between western and south Sydney

Delivered 14km of cycle and pedestrian paths

WestConnex M4–M5 Link, Sydney (expected opening 2023)

7.5km tunnels linking New M4 with M8 Tunnels, and connections to Anzac and Iron Cove bridges via Rozelle Interchange

West Gate Tunnel Project, Melbourne (under construction)

70kms of new lanes and tunnels

Alternative to the West Gate Bridge, providing choice for drivers

Delivering over 14kms of new and upgraded cycle and pedestrian paths, including a 2.5km elevated veloway

NorthConnex, Sydney (opening 2020)

Twin 9km tunnels, connecting Sydney and the central coast

Expected 15 mins travel-time savings between M1 and M2

Includes 4km of new and upgrade cycle paths, including new city flyover at the M2 Motorway Pennant Hills Road intersection

North East Link, Melbourne (expected completion 2027)

Missing link in freeway network, connecting north and south-eastern suburbs

Expected 35 mins travel-time savings

Delivering more than 25kms of new and upgraded walking and cycling paths, completing the North East Bicycle Corridor

Western Harbour Tunnel, Sydney (in development)

Proposed tunnel linking the Northern Beaches to WestConnex, bypassing CBD

Expected 20-mins travel-time savings between Olympic Park and northern Sydney

Proposed 2.5km of improvements along the Warringah Freeway to align with the proposed North Shore Link Cycleway

Beaches Link, Sydney (in development)

Proposed tunnel linking areas on the Northern Beaches

Expected 30-mins travel-time saving between Brookvale and CBD

New shared path proposed, connecting Seaforth with Northern Beaches Hospital precinct

WHERE WE'LL WORK

Even before the pandemic, working from home and flexible working hours had been gaining momentum in recent years, with the Australian Bureau of Statistics reporting in 2016 that almost a third (3.5 million) of all employed Australians regularly worked from home¹³.

Another study found this number could be as high as 50% of Australian employees working remotely for at least half of the week while more than two-thirds work at least one a day a week outside the office¹⁴.

Across Transurban's offices, we have supported flexible working practices for many years and pre COVID-19, more than 90% of our workforce had the opportunity to work from home. During COVID-19, over 95% of our workforce has been working from home.

In our survey, one-in-two respondents (45%) had worked or were continuing to work from home since the emergence of COVID-19 in early 2020. However, the majority of respondents (86%) believed they would not significantly increase the amount of time they worked from home following the pandemic. Only 14% said that the experience

of COVID-19 would significantly increase the level they worked from home post pandemic, signalling a return to work at a centralised workplace in the near future (see Figure 16).

Concerns around maintaining relationships, managing tasks that can't be done from home, and separating work from home are key drivers for people wanting to return to the workplace (see Figure 17). However there was some variation between the regions. Residents of Greater Washington rated increased productivity alongside maintaining relationships as the most important reasons for returning to the office. However, for Sydney and Melbourne residents this was less important, with respondents rating this fifth on the list behind increasing collaboration.

¹³ Australian Bureau of Statistics, *Characteristics of Employment, Australia, August 2019*

¹⁴ International Workplace Group, *Global Workplace Survey: Welcome to generation flex, March 2019*

FIGURE 15. FLEXIBLE WORKING ARRANGEMENTS HAVE BEEN INCREASING IN AUSTRALIA (ABS DATA 2015-2019)¹³

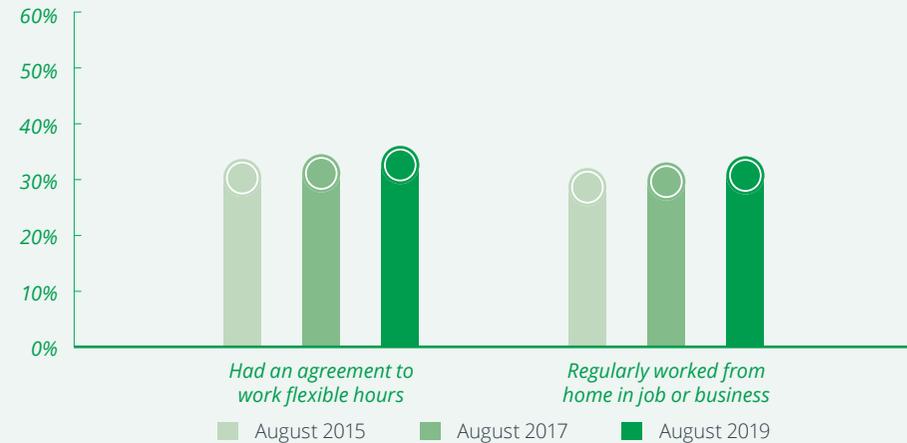


FIGURE 16. DOES THE OFFICE HAVE A FUTURE?

Once the risk of COVID-19 has passed, how much will you work from home?

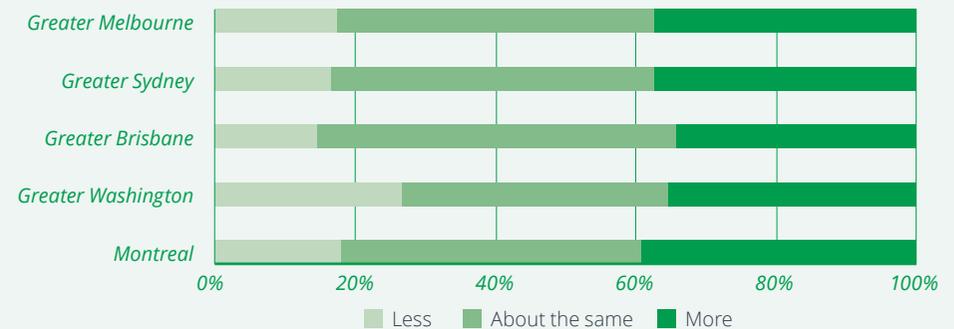
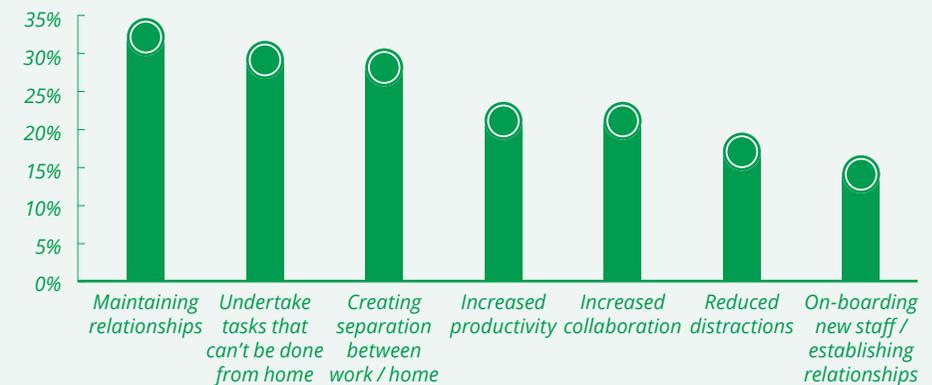


FIGURE 17. WHY PEOPLE VALUE WORKING FROM THE OFFICE



HOW WE'LL SHOP

Social distancing, self-isolation and the closure of bricks and mortar stores have meant online has become not just the preferred way to shop but arguably the only way to shop, prompting unprecedented online growth as retailers and shoppers alike adapt to a new normal.

Australia Post reported that 2020 has seen more people shopping online than ever before—up 31% in April to 5.2 million, when compared to the average in 2019. This equates to a million more people shopping online every week compared to the average in 2019. Overall the national average of online purchases also increased by 41% for the year to 30 April 2020, up from 17.2% in 2019¹⁵.

To help manage the demand from this eCommerce boom, Australia Post and other parcel delivery services have been delivering packages on Saturdays and Sundays in capital cities since mid-April¹⁶.

While online shopping growth reached new heights in Melbourne as the city re-entered Stage 3 restrictions in July (purchases were

up 161% when compared with the same week in 2019), it had also held steady in the period between the first and second lock downs—up 77% on 2019 figures¹⁷.

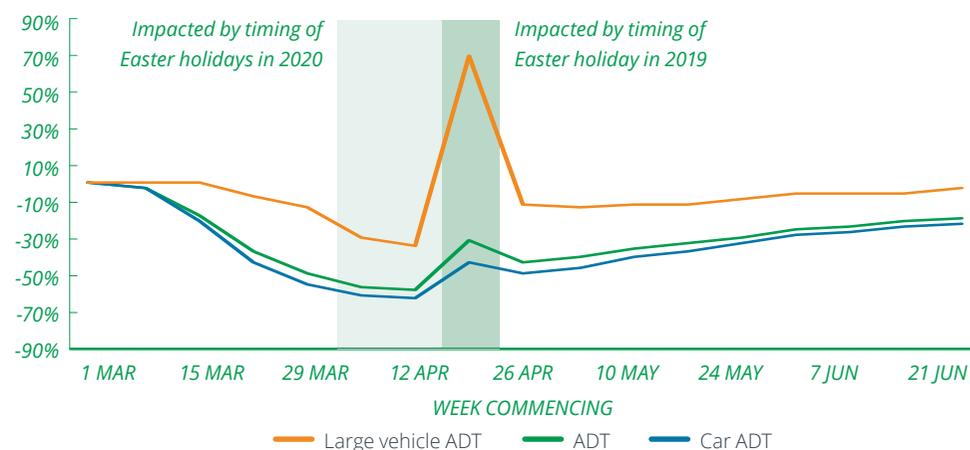
Similarly, despite restrictions being in place at the end of July, online purchases were also elevated in Sydney (up 73%) and Brisbane (up 65%), potentially pointing to a longer-term shift in shopping behaviours.

Forty-eight per cent of respondents in our survey said they had been shopping online more during the pandemic with half of these saying they would maintain this increased level even after the pandemic.

While parcel delivery services look set to be a common fixture on our roads, one area that has been largely unaffected by the pandemic in Australia, is truck movements.

Over the next two decades, road freight volumes are expected to grow by 56%¹⁸. Particular sectors are more heavily road transport intensive than others, and account for a larger share of total road freight transport than other sectors. For example, the construction

FIGURE 18. WEEKLY TRAFFIC PERFORMANCE BY VEHICLE CLASS



sector is heavily dependent on roads for delivery of crude materials used in construction and comprises around 30% of total road freight tonnages.

Similarly, the retail sector is also a heavy user of road freight services. For example, food and live animals and beverages comprise around 13% of total road freight tonnages,

and manufactures and machinery together accounted for around 19% of total road freight tonnages in 2017–18¹⁹.

Since the emergence of the pandemic in early March 2020, heavy vehicle traffic on our toll roads has remained largely consistent with pre-COVID-19 volumes (see Figure 18).

Who's shopping online more

Women more than men (51% vs 43%)

Gen Xers and Millennials (55% and 52% respectively) more than Boomers and The Lucky Generation (48% and 36%)

Post pandemic Gen Xers will continue shopping most (33%)

Greater Washington and Montreal residents most (both 55%), then Melburnians (47%), Sydneysiders (42%) and Brisbanites (38%)

¹⁵ Australia Post, 2020 Inside Australian Online Shopping Report

¹⁶ Australia Post Newsroom, Online shopping booms as Melbourne bunkers down again, 29 July 2020

¹⁷ Ibid

¹⁸ Australian Government, Bureau of Infrastructure, Transport and Regional Economics, Australian aggregate freight forecasts, 2019

¹⁹ Ibid

THE FUTURE OF URBAN MOBILITY



While the focus to date has been on creating greater convenience for consumers, new community expectations around public health could serve to refocus the role of Mobility as a Service (MaaS) applications.

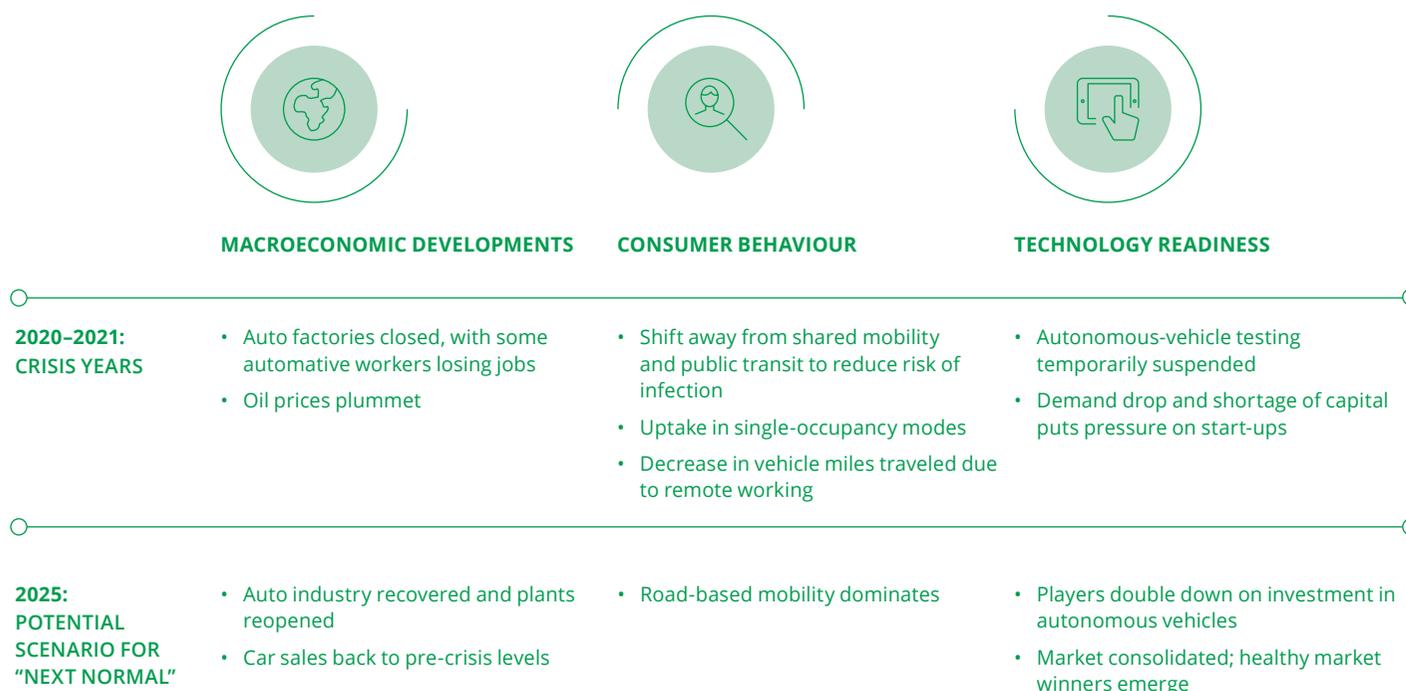
For example, the NSW Government has incorporated estimated real-time capacity information into its travel apps to help people decide when and whether to travel.

MaaS apps are already incorporating car parking and bicycle facilities into their offerings and this will become increasingly important if greater numbers of people drive or ride to work.

Given there may be a reluctance to carpool with strangers, community members may be happy to share a ride with colleagues or neighbours and ride-sharing apps could reflect this. Potentially one of the greatest benefits MaaS apps offer is contactless payment for transport services, like that available in Transurban's LinktGO (in Australia) and Go Toll (in North America) apps.

Transport technologies that combine different transport modes and services have been gaining momentum for some time.

FIGURE 19. FLOW-ON IMPACTS FROM COVID-19 AFFECTING CONNECTED AND AUTOMATED VEHICLE DEVELOPMENT²⁰



Connected and automated vehicles

While driverless vehicles could play an expanded role in addressing new health and safety expectations, like many sectors, the automotive industry has been hard hit by the economic impacts of the pandemic. Reports have indicated that factory closures during 2020 may result in up to 7.5 million fewer vehicles manufactured.

Over the short to mid-term, the COVID-19 crisis could mean automakers focus on core business and scale back their research and development activities, which could include autonomous driving (see Figure 19).

²⁰ McKinsey Center for Future Mobility: The impact of COVID-19 on future mobility solutions (selected data)



CONCLUSION

COVID-19 has changed our way of life in ways we could not have conceived just a few months ago.

The immediate impacts on our road and public transport networks have been pronounced but the longer-term implications are less clear giving rise to speculation about what the new normal will look like for how we work and travel.

Across Australian and North American cities, the respondents in our survey point to some trends in how they intend to travel with personal health and safety continuing to play a role in their choice of modes. More than a quarter of our respondents said they would reduce their use of public transport even after the risk of COVID-19 had passed.

More than 85% also expect they will return to the workplace and suggest that the experience of COVID-19 would not significantly increase the level from which they worked from home. They want to connect with their colleagues in the workplace setting and regain some separation between work and home life.

These perceptions suggest we may see a level of disruption across transport modes for some time to come, making this an opportune time for governments and industry to work together to ensure we have efficient and resilient transport networks into the future.

Many options—from flexible working hours to leveraging data and technologies—should be part of the conversation but most importantly we need integrated transport networks that help spread the peak travel periods and give people choice in how they want to travel.