

# The COVID-Normal Transport Challenge

## Melbourne's transport during COVID-recovery

As we contemplate a 'COVID-normal' world approaching, there is a danger of traffic gridlock increasing on our roads. To avoid this, we need to understand what travel patterns are likely to arise when, and seek to avoid travelling to popular locations at peak times. Every Melburnian and every business will play a role, and our individual decisions will directly impact on traffic congestion across the whole city.

Due to the unpredictable nature of pandemics it is uncertain if or when a vaccine may become available, and whether COVID-19 might just wane after time (as SARS did). We could be living with COVID for many months or years to come, so each of us should consider how life will function as we establish a COVID-normal lifestyle.

Transport has the potential to spread COVID, yet it is critical to rebuilding our economic activity. As such, increasing economic activity in a COVID-safe way will impact on the efficiency of our transport networks.

To reopen the Victorian economy safely without creating transport gridlock, each of us needs to consider how much travel we really need (as well as how and when we travel).

To throw light on the possibilities, Movement & Place Consulting have modelled two scenarios for Melbourne's transport system:

- Short term: in the early days of recovery from lockdown, but before a vaccine is available, unemployment and working from home will be quite high. This will reduce demand for commuter travel, but public transport

capacity will be reduced by the need for social distancing.

- Medium term: as the economy continues to recover, jobs will rise and there could be less working from home as well. A vaccine will relax social distancing so public transport use can recover again, but we don't expect it to return to pre-COVID levels of crowding for a long time.

The clear message from the modelling is that each of us has a role to play in preventing traffic chaos – and in keeping each other safe. Individuals and businesses that are made aware of the transport issues we're likely to face, will be better equipped to avoid traffic chaos and the frustration it causes.

The modelling shows that travel around Metropolitan Melbourne will rebound considerably, but peak movements in and out of the city centre won't return nearly as quickly.

However, road congestion will also return with a vengeance. Limitations on public transport use will push more people into cars early on, and driving to the CBD in the peak could take a lot longer than it did pre-COVID. Car parking in busy locations should be booked before travel.

We also anticipate a significant uptake in active transport (walking and cycling), although it will still be small compared to public transport and car use. However, busy cycling routes linking inner suburbs to the centre will undoubtedly get busier still.

## Managing our travel needs

Getting around Melbourne after lockdown, especially to and from work, could be very challenging for a while. It'll take a long time to get back to what we were used to pre-COVID.

Most of us are keen to resume normal life. That comes with lots of moving around to enjoy the city, our friends and families again after so long. However, a big rush back will choke the roads, so we need to be careful.

The good news is that there's a lot we can all do to make things easier. Our transport system worked very well under the pressure of the Commonwealth Games in 2006. Major problems were averted and many people enjoyed the experience by thoughtfully planning their travel and avoiding busy areas during peak times.

We can also use the 'reset' to choose more sustainable ways of moving around, as we continue to rise to the climate challenge.

Governments at all levels have big challenges to manage a safe but effective return from lockdown. A lot of planning will be taking place at the moment, including re-thinking future needs. Many initiatives were based on pre-COVID projections; the future now looks as though it'll be very different.

Regardless of how Government priorities might change, there's a lot that we can do as individuals. Some key initiatives include:

- **Working from home more.** Keeping up our newly honed home office habits as long as possible will help enormously. More people at home means fewer on the roads, especially in the peaks. Businesses say they've learnt a lot about videoconferencing and keeping remote workers engaged, and many people have invested in home office equipment during the pandemic. More working from home will undoubtedly be part of the 'new normal'.

- **Booking parking ahead.** If you plan to park in the CBD, remember to book a car space before leaving. Car parking will fill quickly, and the extra time spent searching for parking could be worse than the congestion delay on the way in.
- **Travelling earlier or later than usual.** Getting to and from work is easier outside travel peaks but doesn't always suit the job itself. However, COVID has encouraged new flexibility; businesses can help a lot here by allowing varied working hours.
- **Trying new ways to travel around.** Cycling and walking more is good for our health and wellbeing. Bus transport is under-used in much of Metropolitan Melbourne, so even with social distancing it's worth giving it a go. New mobility solutions are also on the way that could broaden travel choices even more. Parents could help with a 'Walking School Bus' to offer a practical alternative to a car for those living close to school.
- **Avoiding non-essential travel.** Particularly during commuter and school peaks, it helps to travel less. If we can leave our less important journeys for the middle of the day, the journey will probably be more enjoyable.
- **Staying informed.** Keeping up to date about traffic conditions and public transport passenger loadings helps us to adapt when things get busy or difficult. Dynamic, traffic-tracking navigation apps are widespread, but they are seldom used for daily journeys. Using traffic-sensitive route guidance a lot more can help make everyone's car trips more efficient.
- **Sharing the trip.** One of the biggest problems with car use is low car occupancy, which is lowest during the travel peaks, so there are a lot of empty seats that could be filled. Car sharing initiatives can make a big difference. Taking friends, workmates and family members along can also save everyone money.



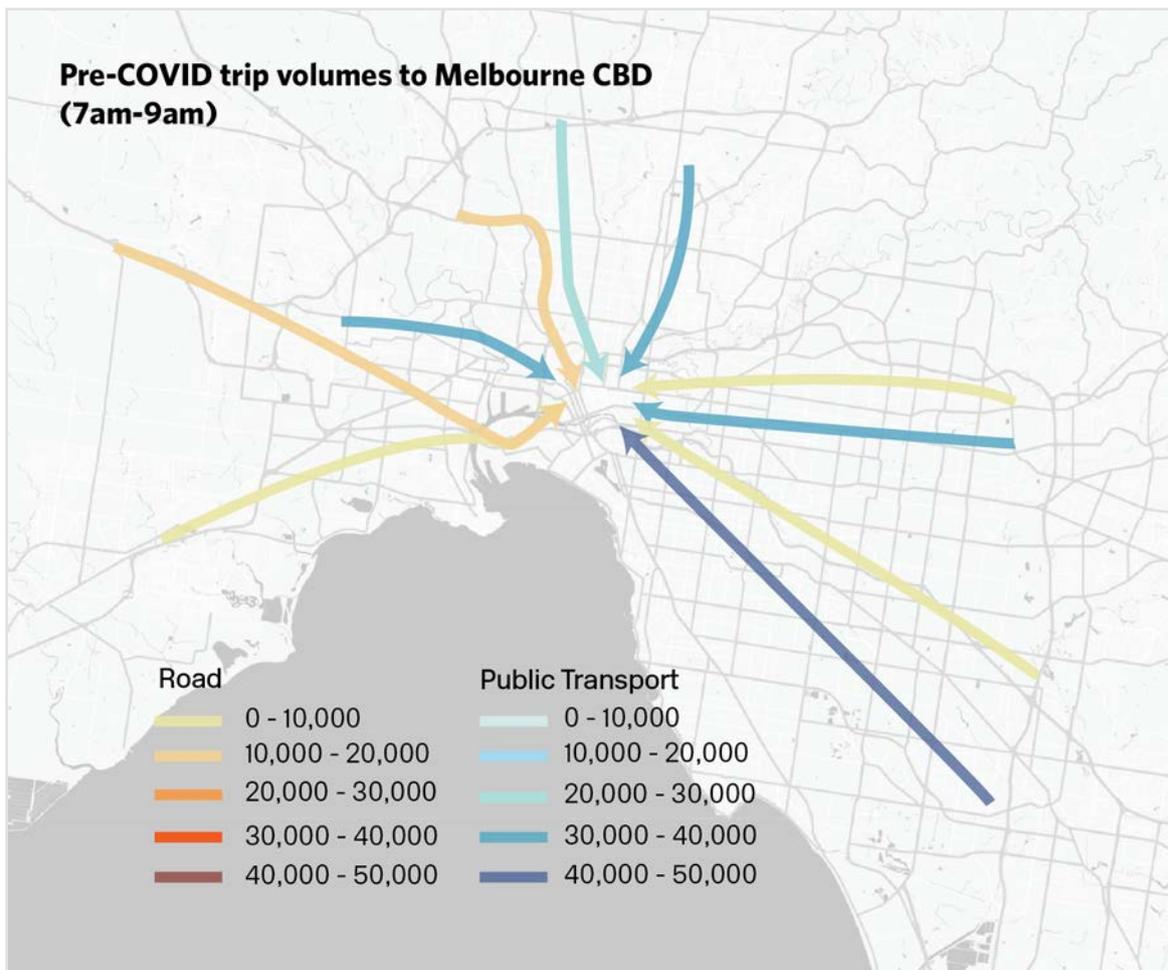
## Understanding pre-COVID travel

Pre-COVID, there were about 16.6 million individual person-trips on an average weekday in Metropolitan Melbourne. Most trips (73%) were made by car, 18% were by active transport (walking and cycling) and 8% by public transport. Of these; 3.4 million (20%) were to and from work, 2.8 million (17%) were to and from education, 7.5 million (45%) were other trips to and from home (e.g. shopping, leisure, personal business) and 2.9 million (18%) were non-home-based trips (primarily, business-to-business).

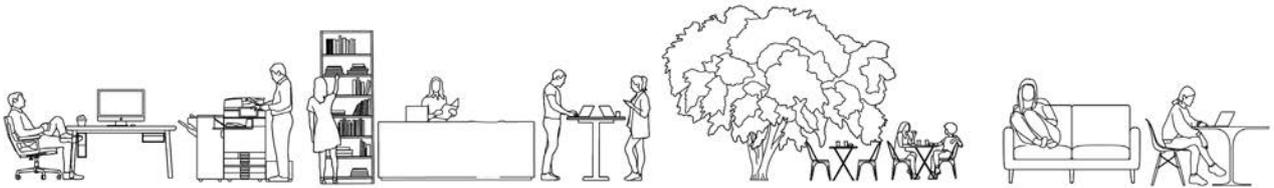
At peak times, commutes to and from work/study are a much larger proportion of total travel, especially into the Central Business District

(CBD). There were typically 280,000 trips into the CBD in the morning peak, of which 75% were to work and 15% to study. Nearly three-in-five people used public transport to get into the CBD, and about a third used cars.

These conditions may seem like a distant memory after so much time in lockdown, but traffic congestion will be back soon – and bigger than you expect.



## Pre-COVID Transport Patterns: Greater Melbourne



**Daily work trips**  
3,360,000 (20%)

**Between 7am-9am**  
920,000 (27%) trips

**Daily education trips**  
2,780,000 (17%)

**Between 7am-9am**  
1,230,000 (36%) trips

**Daily social trips**  
2,940,000 (18%)

**Between 7am-9am**  
610,000 (18%) trips

**Daily home-based activities**  
7,500,000 (45%)

**Between 7am-9am**  
670,000 (20%) trips

Public Transport  
**Daily trips 1,270,000 (8%)**  
AM Peak 360,000 (11%)

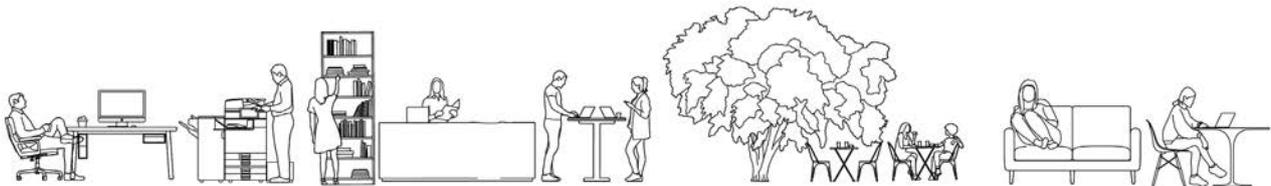


Active Transport  
**Daily trips 3,220,000 (19%)**  
AM Peak 540,000 (16%)



Private Transport  
**Daily trips 12,080,000 (73%)**  
AM Peak 2,530,000 (74%)

## Pre-COVID Transport Patterns in/out of Melbourne CBD



**Daily work trips**  
740,000 (59%)

**Between 7am-9am**  
210,000 (75%) trips

**Daily education trips**  
110,000 (9%)

**Between 7am-9am**  
40,000 (14%) trips

**Daily social trips**  
200,000 (16%)

**Between 7am-9am**  
20,000 (7%) trips

**Daily home-based activities**  
200,000 (16%)

**Between 7am-9am**  
10,000 (44%) trips

Public Transport  
**Daily trips 550,000 (44%)**  
AM Peak 160,000 (57%)



Active Transport  
**Daily trips 140,000 (11%)**  
AM Peak 30,000 (11%)



Private Transport  
**Daily trips 550,000 (44%)**  
AM Peak 90,000 (32%)

## Major road corridors will see a lot of stress

In the first months of recovery, traffic on Melbourne's major roads and freeways could be significantly higher than pre-COVID, as long as public transport use is limited by social distancing.

In the short term, the Eastern, Monash and West Gate Freeways are expected to experience the largest traffic increases inbound in the morning peak, with the Calder, Hume, Western and Tullamarine Freeways not far behind. Traffic in these corridors will also impact on the Metropolitan Ring Road.

If the predicted number of people drive to the city centre in the two-hour morning peak, then in the short term, freeway travel times are likely be 20-30 minutes longer than pre-COVID. Those who travel longer distances will have a greater risk of being caught in significant congestion. Increased traffic levels (and 5 million people making a host of new travel decisions) will also make travel time predictions much less reliable, with unstable flow conditions causing large spikes in delays on arterial roads and freeways even without traffic incidents.

The medium-term outlook is much better, but we still expect significantly more traffic demand than pre-COVID.

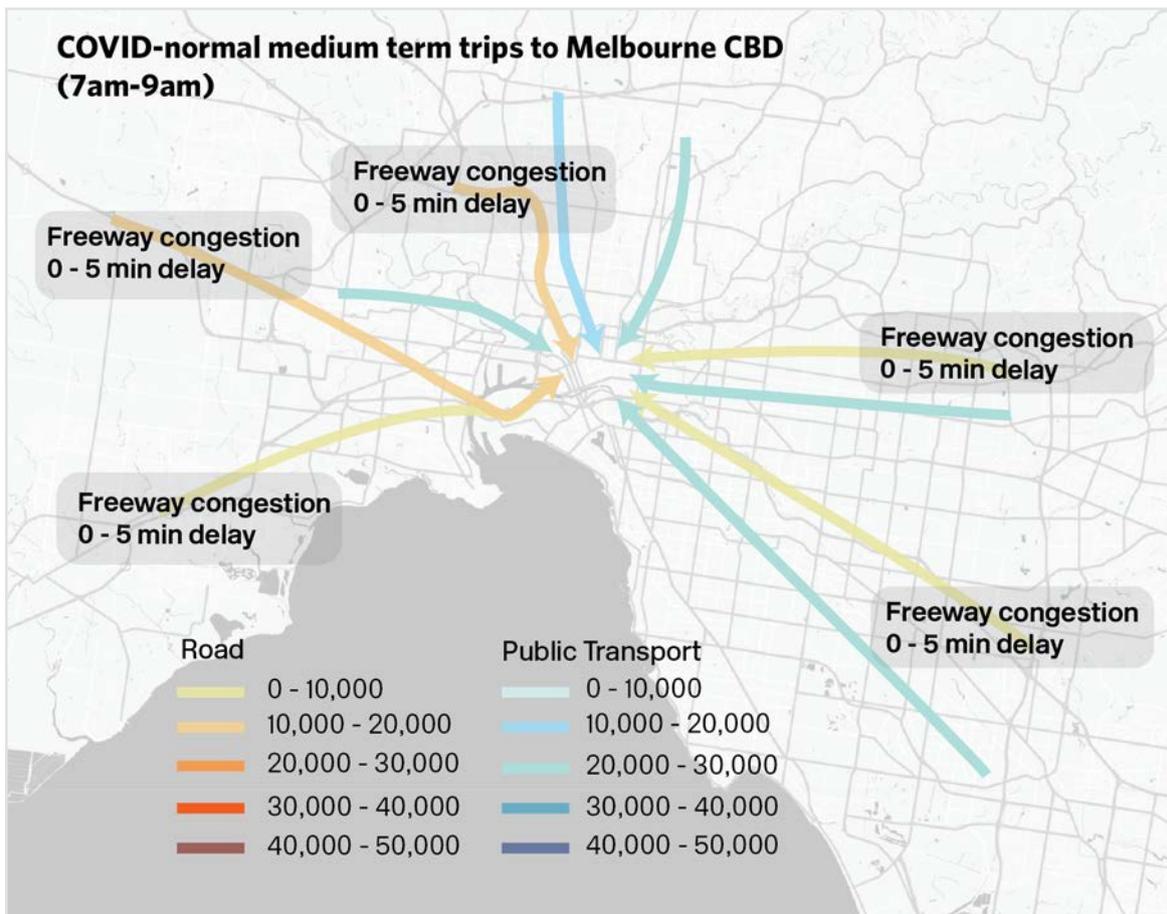
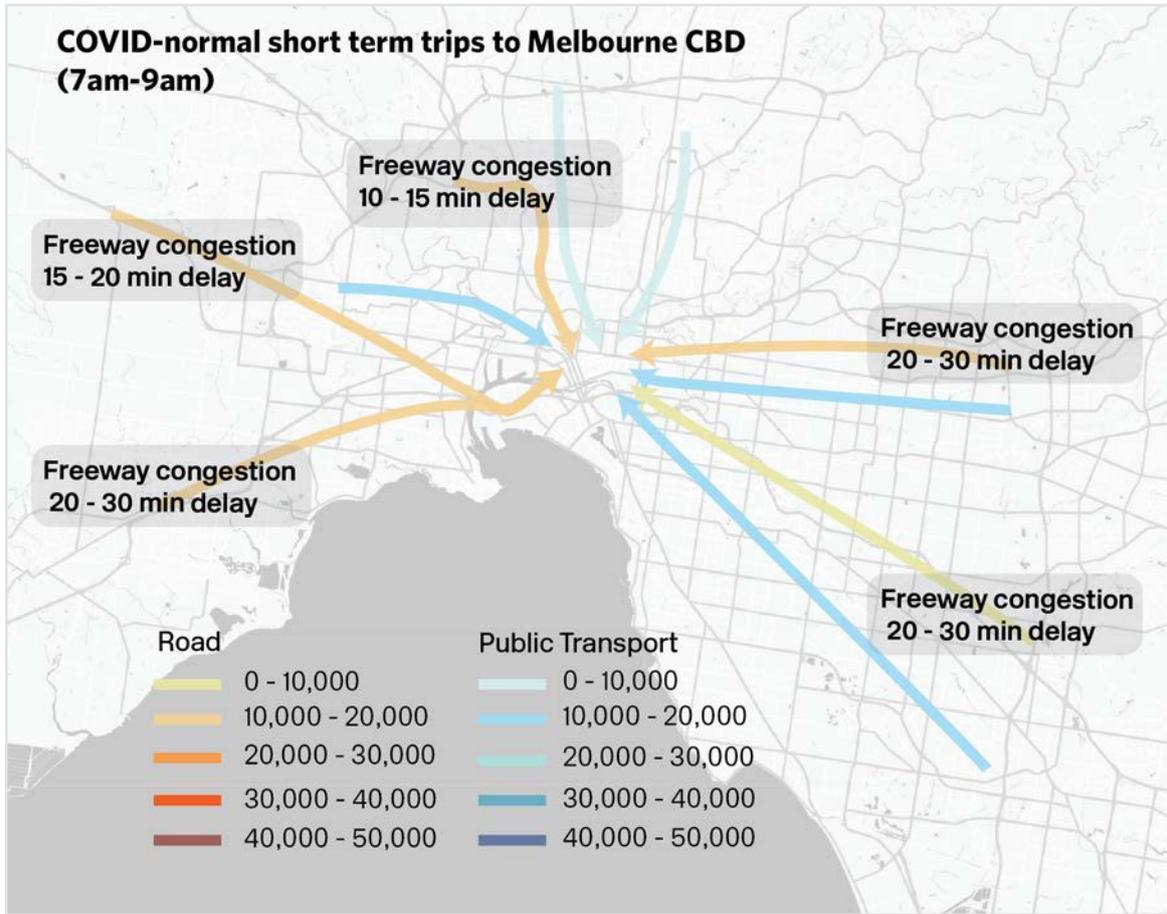
Keeping trams moving will be especially important; they typically take significant volumes of inner-city traffic off the road. Cars using tram lanes on arterial roads will cause significant congestion on those corridors, and further delay the entire road transport system (cars, trams and buses). We will all need to avoid driving along tram lanes in the peak period.

In the inner areas people walking and riding a bicycle will have the most reliable travel times. We expect that electric bikes will increase in popularity for slightly longer journeys, providing bicycle transport without needing a change of clothes.

The good news is that major investments in more public transport will continue. New, larger trains and trams, and network upgrades like the Melbourne Metro Rail Tunnel and regional rail improvements will come onstream over the next few years. They'll provide much-needed increases in services, faster travel times and more space on board.

There's a lot more still to be done, but we're hopeful that government commitments and a broad community understanding of the traffic pressures, will make a big difference.





## Our modelling methodology

The starting point for our modelling was a 2021 prediction of travel demand across Metropolitan Melbourne. It was based on non-COVID times and informed by 2016 Census journey-to-work and 2012-2016 Victorian Integrated Survey of Travel and Activity (VISTA) data, adjusted for population and employment growth from 2016 to 2021. The modelling used carefully calibrated relationships between demographic data, network details (times, distances and costs) and travel data to provide confidence in the results.

This process provided a breakdown of trips by origin, destination, purpose, time period and transport mode of travel across a typical weekday in 2021. The model used Census SA3 areas, which are generally larger than suburbs but smaller than local government areas; there are 40 of them across Metropolitan Melbourne. This gave us a baseline from which to estimate the consequences of post-pandemic recovery on travel demand and patterns.

To estimate the effects of working from home, we analysed data on those who worked at home on Census day in 2016, but who normally had a place of work elsewhere. We identified which occupations were likely to work from home the most (primarily office jobs) and identified where they lived and worked. From this, we generated estimates of the commuter journeys that would disappear through more working from home. We then deducted them from the commuter trips in the 2021 non-COVID model.

Broader unemployment was estimated in a similar way, to provide a general scaling down of the remaining commuter trips.

We also applied some reductions to student travel to allow for more home study, but only to the longer trips as a way of focusing more on secondary and tertiary education.

Finally, we applied adjustments to the amount and patterns of home-based shopping and personal business trips to account for greater numbers of people at home during the day, and also to non-home based trips (mostly business-to-business) to reflect the lesser numbers at work during the day.

The revised travel patterns were then apportioned between transport modes using the non-COVID mode shares. We factored down public transport use and allocated the displaced trips between car and active transport in line with existing ratios, but also allowing for greater take-up of active transport.

The size of these various adjustments varied between the short- and medium-term COVID recovery scenarios, as shown below.

Modelling Assumptions	Short Term	Medium Term
Unemployment	15%	7.5%
Increased working from home	200%	75%
Public transport use	40%	80%
Increased relative take-up of walking and cycling	50%	20%

We've omitted tourist travel from our calculations. Although domestic travel could return strongly (it used to make up 70% of Melbourne Airport's passenger throughput), international travel is expected to be severely restricted. Travel to and from the airport is likely to be easier than pre-COVID.

This also means that travel on the Tullamarine Freeway will be easier than normal, and people from Sunbury will likely benefit from travelling via Bulla - rather than using the Calder Freeway. These local insights will be key to making your own journeys easier.



## Short term scenario after lockdown

Our short-term scenario looks at what could happen immediately after lockdowns are eased and businesses re-open. We assume this will happen before a vaccine is widely available, so social distancing (and masks) will need to be maintained. This has major implications for public transport patronage, where the need to avoid crowding has an impact on capacity. The number of people working from home is expected to remain high (even if unemployment drops), but there will be fewer people at home than there were during lockdown.

Travel into the central city could be lower overall, but car travel could increase by 32% in the morning peak compared to pre-COVID levels. Higher unemployment and more working from home could reduce commuting into the city centre by around 25% initially. More people at home during the day may bring increased local trips for activities such as shopping and leisure. Public transport could only achieve about a third of pre-COVID patronage at peak times, when the risk of contact is highest. As we have seen in all areas of Melbourne, walking and cycling will increase substantially.

## Medium term scenario after lockdown

Our medium-term scenario assumes that social distancing can be relaxed due to the widespread adoption of a vaccine. More people would be employed, and fewer would be working from home (although both would still be more than pre-COVID levels). Public transport would recover to about 80% of pre-COVID levels by this stage.

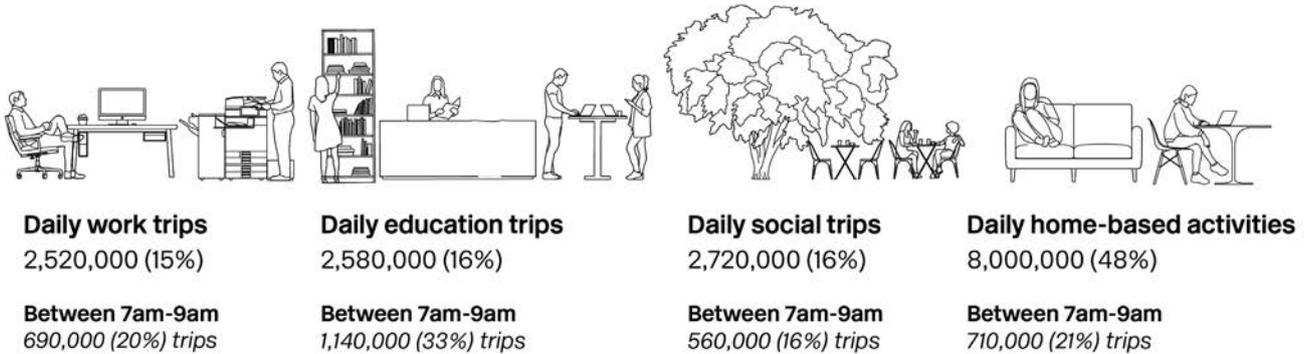
In the medium term, commuter trips will increase but will still be less than pre-COVID. Public transport patronage will still be 32% down, for morning peak trips into the CBD, so car use will be up by about 10%. The added time to commuting could be 5-10 minutes over pre-COVID levels depending on which route is used. This is a still a big improvement over the short-term prediction of 20-30 minutes increase.

## Comparison of short term and medium term scenarios

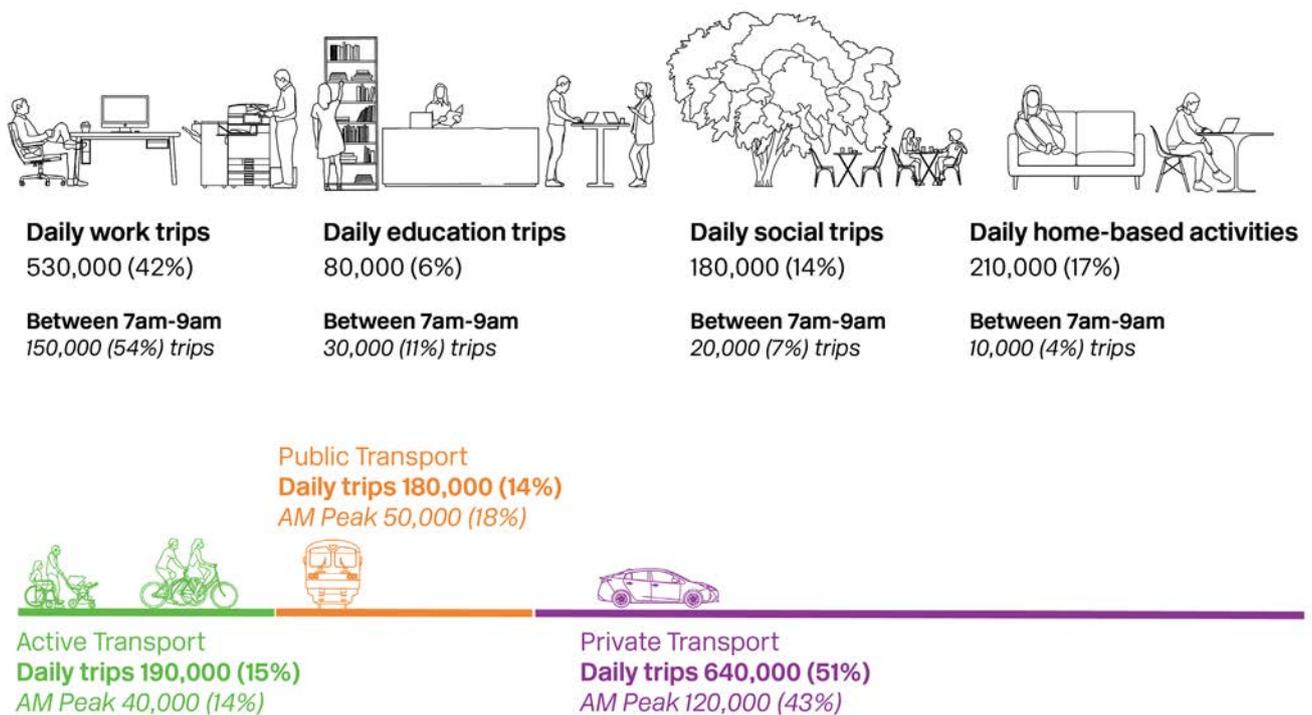
Comparison of the short-term and medium-term forecasts shows the vital role public transport plays in reducing traffic congestion in the COVID-normal world. Whilst car trips into the CBD in the morning peak rise by 33% initially (when public transport capacity is still very limited), this goes down to a more manageable 11% increase in the medium term, when public transport can take a much greater share of the load.



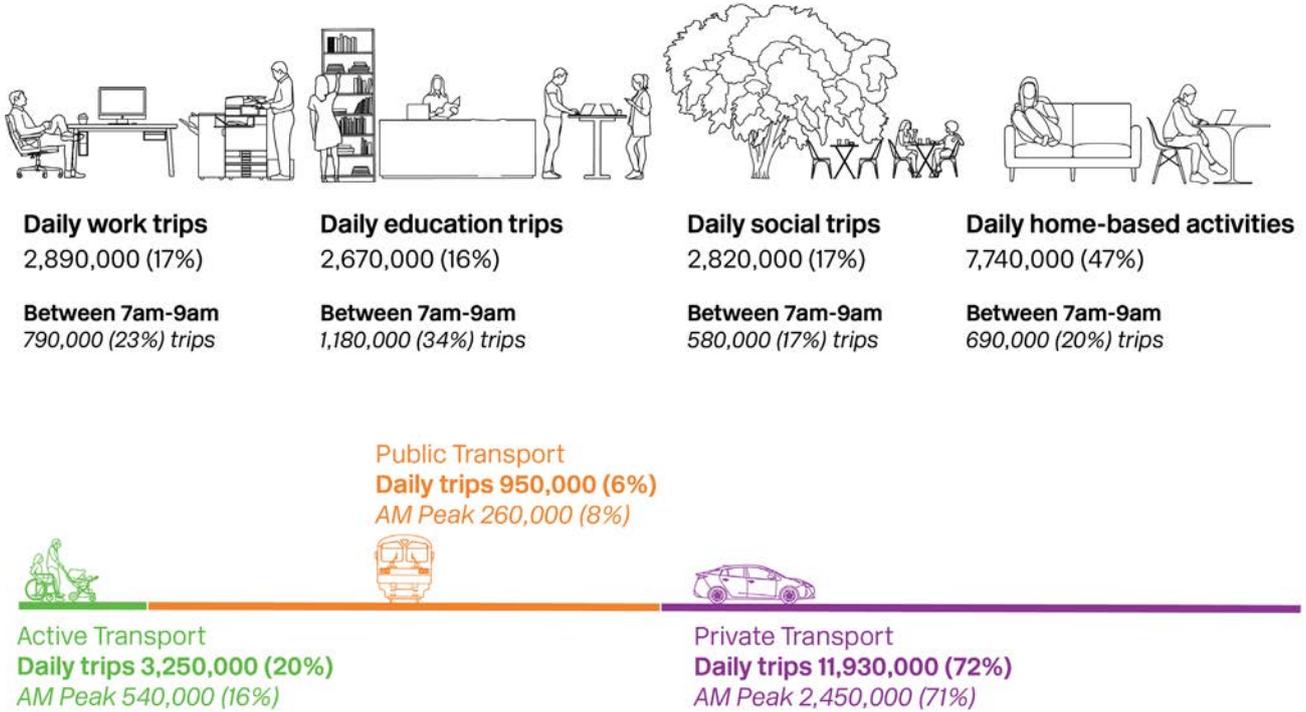
## Short Term COVID-Recovery for Greater Melbourne



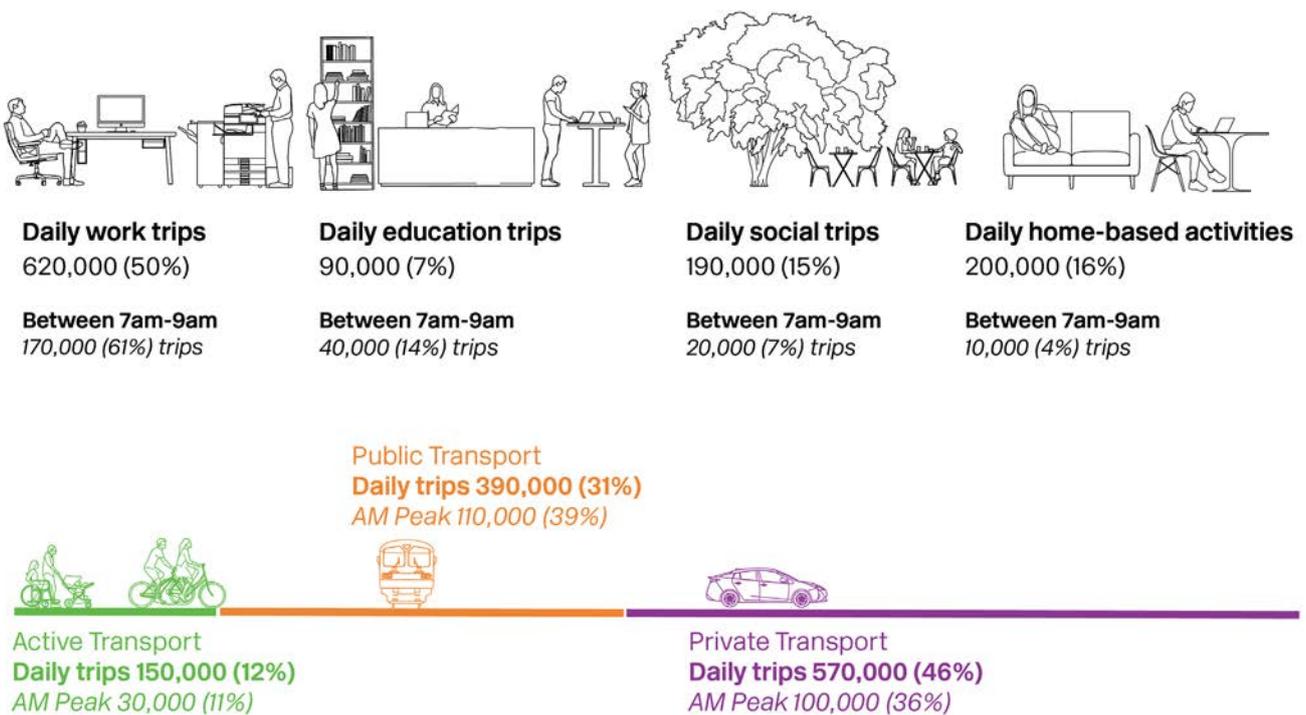
## Short Term COVID-Recovery for Melbourne CBD



## Medium Term COVID-Recovery for Greater Melbourne



## Medium Term COVID-Recovery for Melbourne CBD



## Conclusions

Before COVID-19 disrupted our lives, Melbourne’s transport system handled peak travel demands reasonably well, although road congestion and public transport crowding was frequent. About sixty percent of morning commuters into the CBD used trains, trams and buses. This kept car use down; without it, serious congestion would have made many peak journeys impossible.

During COVID-19 lockdowns, the city’s roads and public transport have seen much lower travel demands than we’ve been used to in the past. There’s also been a surge in cycling and walking.

When lockdowns are lifted, Melburnians will be keen to resume their working lives as we move towards ‘COVID-normal’.

From the outset, higher unemployment and working from home will produce less commuter travel demand overall. However, many will be reluctant to use public transport until the infection risk is reduced through a vaccine.

Despite increased use of walking and cycling, for many the only viable alternative to public transport is to drive to work. This means that morning peak traffic into the CBD could be

significantly higher than it was pre-COVID, giving rise to increased congestion and delays.

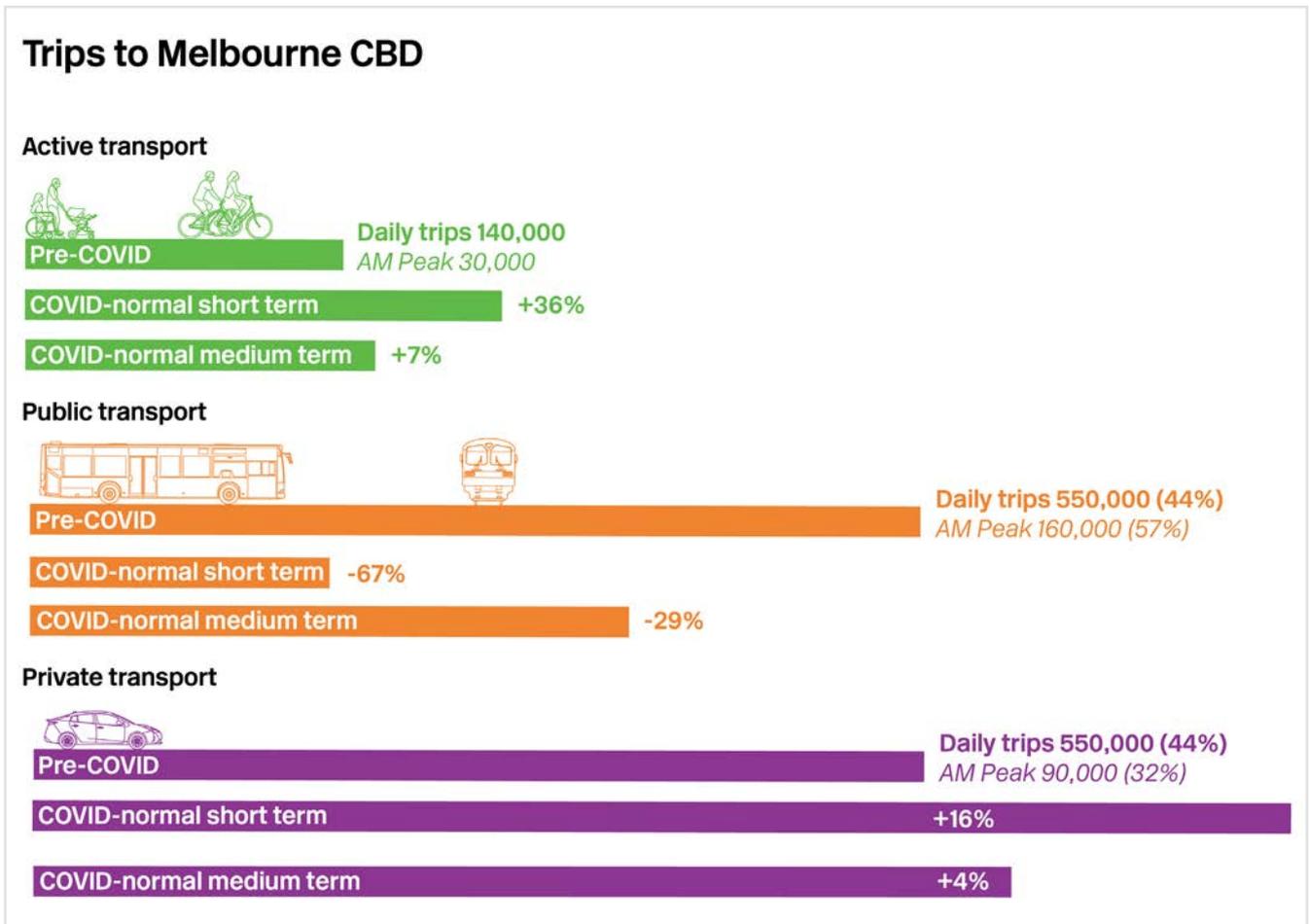
Our modelling suggests there could be extra delays of 20-30 minutes on the major freeways. Higher traffic flows will produce more frequent flow disruptions, so the journey times could vary a lot more from one day to the next.

Travel demand will then steadily increase as the economy recovers.

When infection risk recedes and public transport use increases, traffic levels will ease somewhat. However, they could still be more than pre-COVID, and average travel times could be 5-10 minutes longer than before.

Fortunately, there’s a lot that everyone can do to ease the situation. During the pandemic, we have seen how Melburnians can work together and support each other through difficult times.

We have suggested many ways that commuters can manage their own travel choices and help each other as well. Just like battling the virus, we must each play a role in reducing traffic congestion and easing the potential frustration it will cause us all.



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