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Wednesday 2nd March 2022

AITPM Online Webinar – Travel and Living with COVID

Travel and Living with COVID
Monash PTRG Research Update

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PTRG PUBLIC TRANSPORT RESEARCH GROUP

GROUP OF EIGHT AUSTRALIA

MONASH INSTITUTE OF TRANSPORT STUDIES

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Introduction

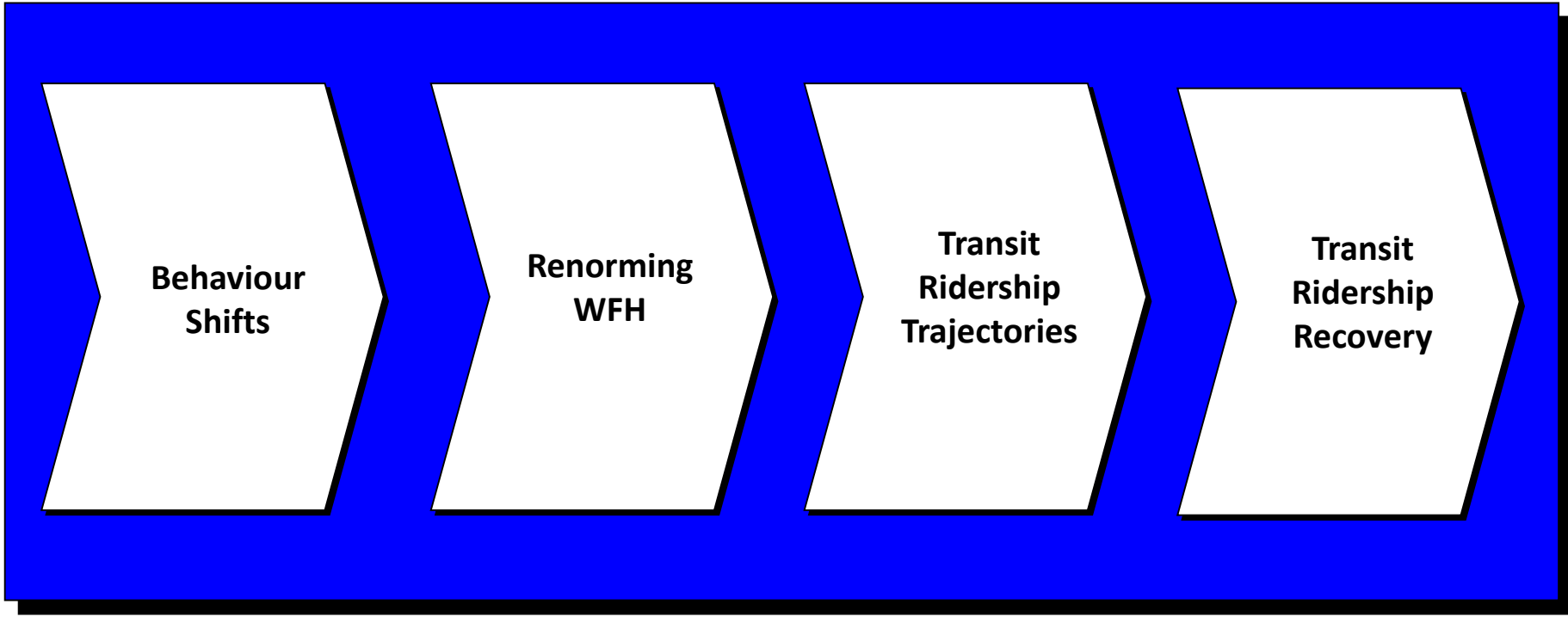
Behavior Shifts

Renorming Work from Home

Transit Ridership Trajectories

Transit Ridership Recovery

This presentation updates PTRG research to understand the long term impacts of COVID-19 on travel in cities



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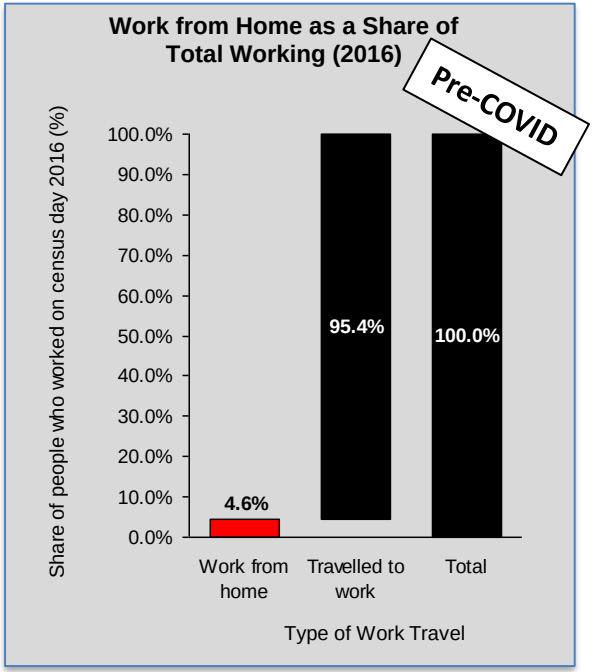
There are four KEY new travel behaviours which will affect POST-COVID travel

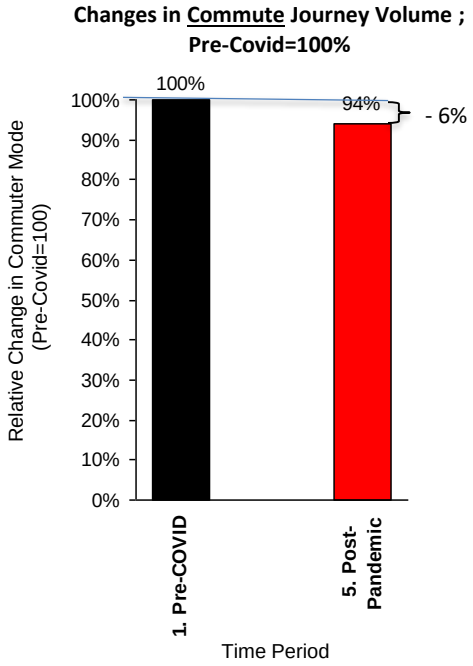
1. Commute Trip REDUCTIONS - due to increased WORK FROM HOME
2. MODE SHIFT from Transit to Car Driving – due to INFECTION FEAR
3. SPATIAL Variations in the Above
4. SOCIO-ECONOMIC Variations in the Above

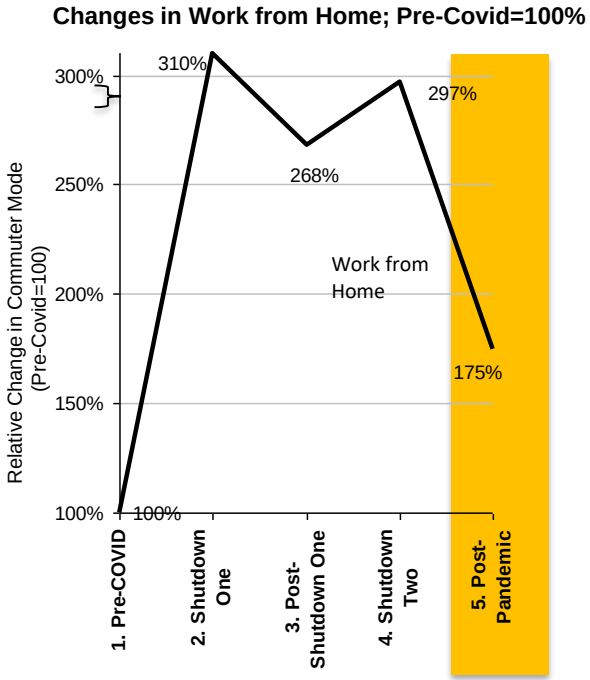
POST COVID total work travel declines by 6% - mainly due to increased Work from Home (WFH) – the scale of shift is small (6%) because WFH is small as a share of work

1. Commute Trip REDUCTIONS - due to increased WORK FROM HOME



Source:: Australian Bureau of Statistics, 2016 Census Journey to Work

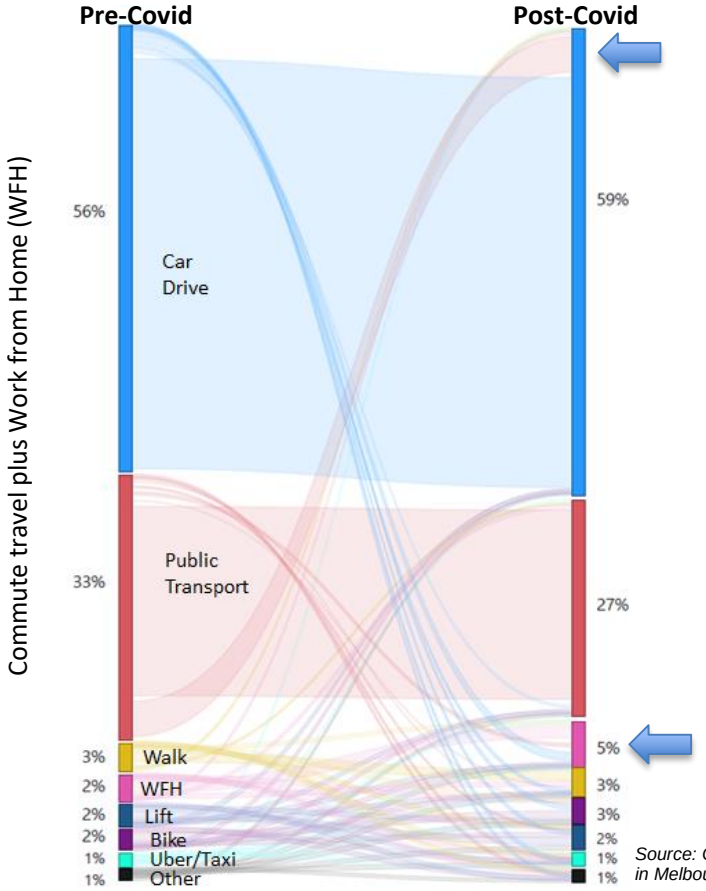


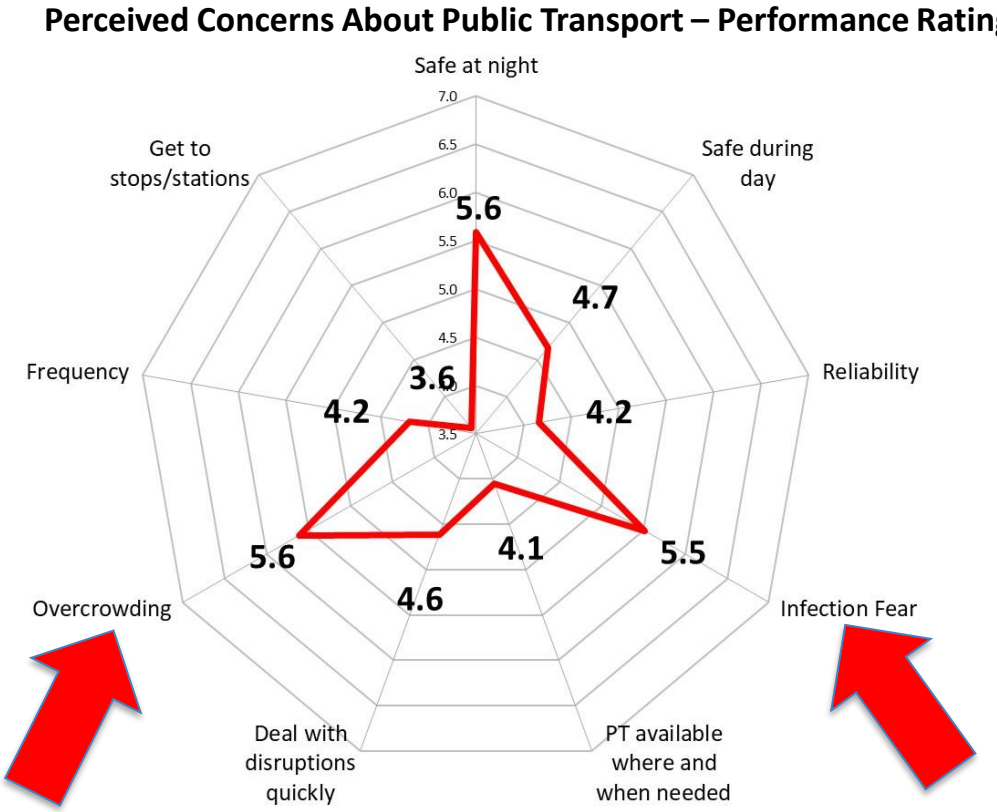


Source: Currie G, Jain T and Aston L (2021) "Evidence of a Post-COVID Change in Travel Behaviour - Self-Reported Expectations of Commuting in Melbourne" Transportation Research Part A Volume 153, November 2021, Pages 218-234

POST COVID work travel has a mode shift from transit to car-drive – this is caused by 'residual infection fear' related to Crowding concerns; new user priorities

2. MODE SHIFT from Transit to Car Driving – due to INFECTION FEAR

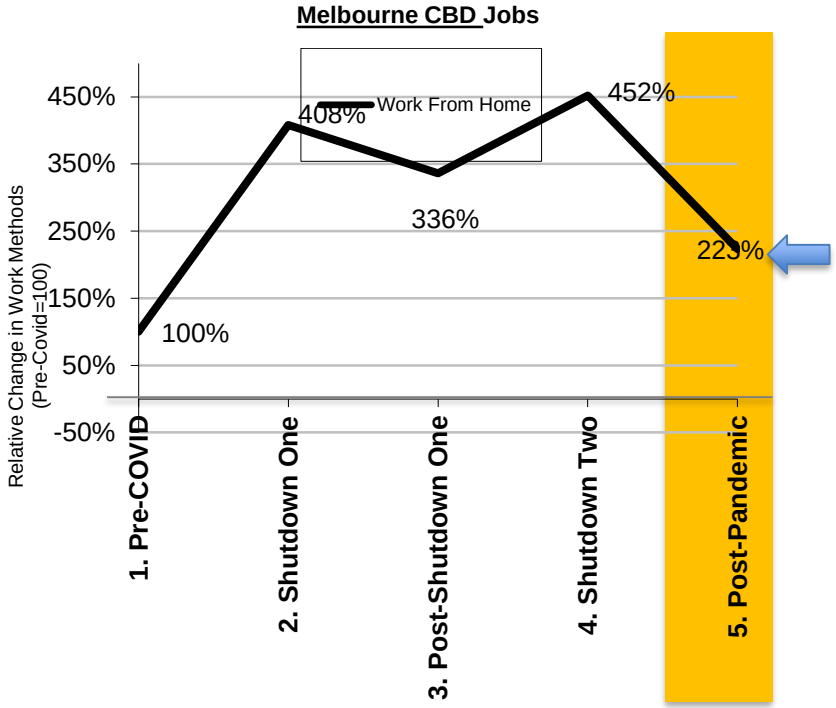


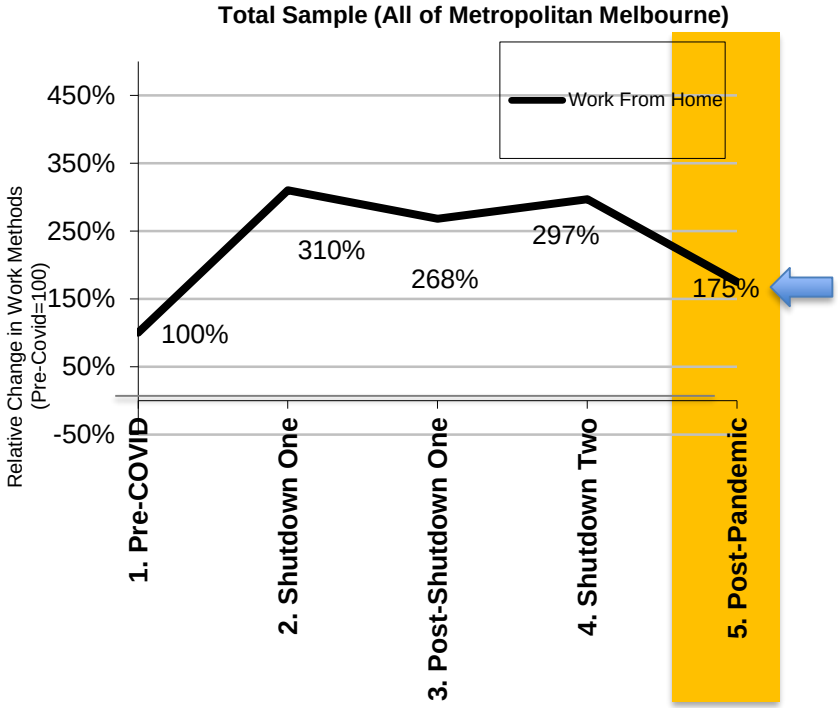


Source: Currie G, Jain T and Aston L (2021) "Evidence of a Post-COVID Change in Travel Behaviour - Self-Reported Expectations of Commuting in Melbourne" Transportation Research Part A Volume 153, November 2021, Pages 218-234

Work from Home is MUCH more common for CBD workers; whos WFH is expected to more than double (+123%) compared to pre-covid, much higher than for Melb as a whole (+75%)

3. SPATIAL Variations in COVID Behaviours





Source: Currie G, Jain T and Aston L (2021) "Evidence of a Post-COVID Change in Travel Behaviour - Self-Reported Expectations of Commuting in Melbourne" Transportation Research Part A Volume 153, November 2021, Pages 218-234

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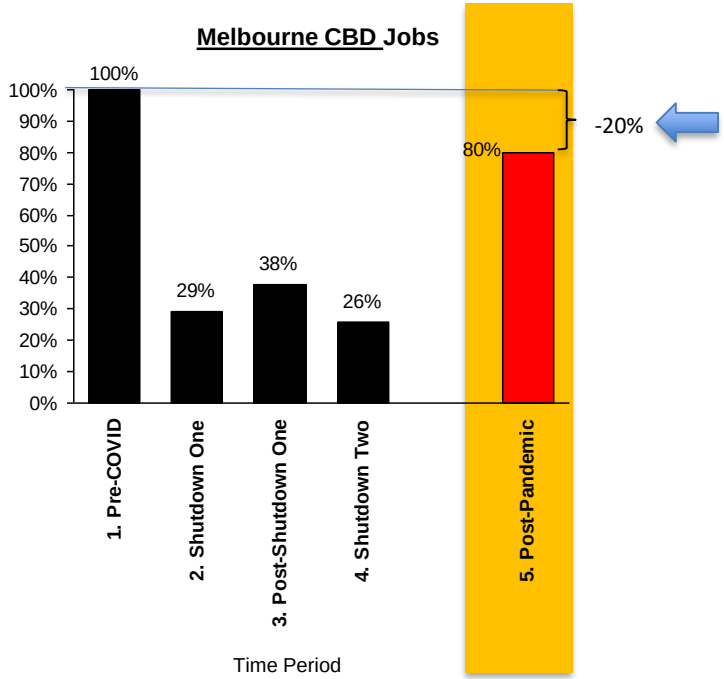
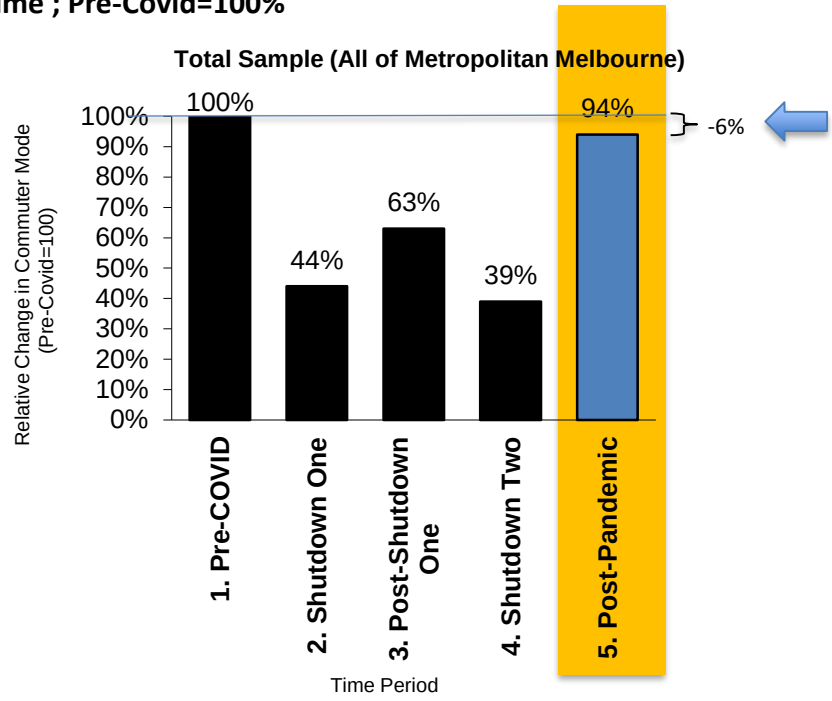
Respondents say CBD COMMUTE will reduce more than the rest of Melbourne; Post Pandemic a 20% decline in CBD COMMUTE is self estimated - much larger than for Melbourne as a whole (6%)

3. SPATIAL Variations in COVID Behaviours

Changes in Commute Journey Volume ; Pre-Covid=100%





Source: Currie G, Jain T and Aston L (2021) "Evidence of a Post-COVID Change in Travel Behaviour - Self-Reported Expectations of Commuting in Melbourne" Transportation Research Part A Volume 153, November 2021, Pages 218-234

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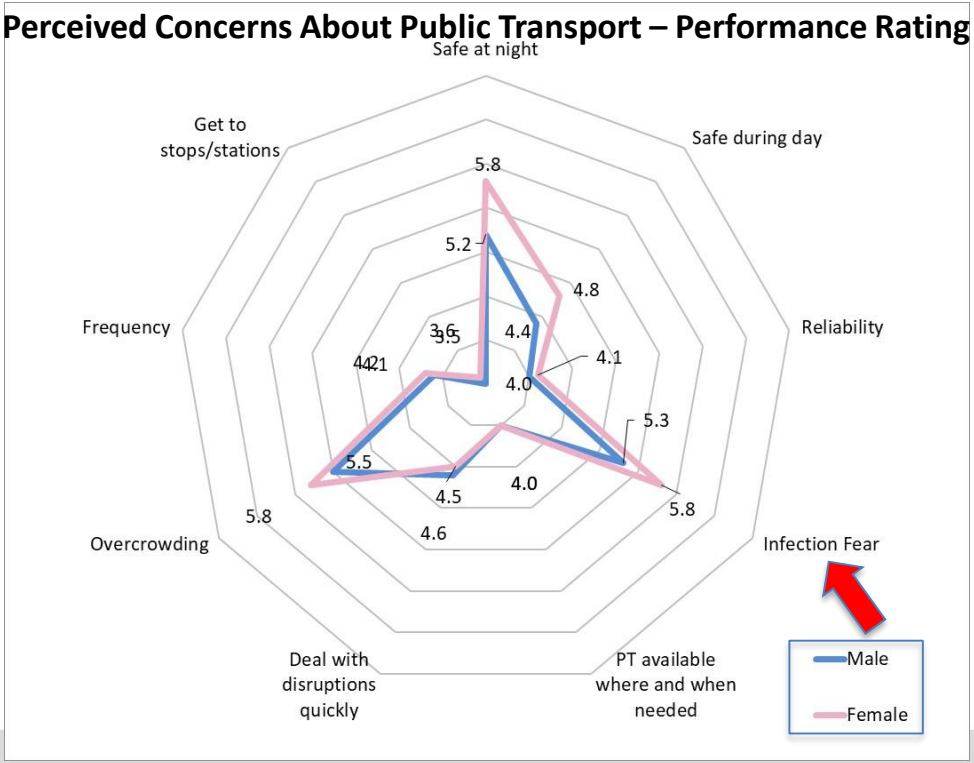
Infection Fear is Gender Biased. Work from Home shifts are larger for White Collar workers and High Income Groups

4. SOCIO-ECONOMIC Variations in COVID Behaviours

Perceived Concerns About Public Transport – Performance Rating



Socio-Economic Patterns of COVID Behavior Change

- Female respondents demonstrated slightly higher post pandemic commute reductions than male respondents
- Income was found to have significant variations in post pandemic commute volume (Kruskal Wallis Test, H (7) = 48.328, P=0.000).
  - In general higher income groups self-report significantly higher reductions in commuting post-pandemic compared to their commuting before COVID
  - income '$1,870-$3,200'; -22.6% and income '$3,200 or more'; -23.9%).
  - Lower income groups (<$1,870) between -0.36% and -3.5% for cohorts with larger samples).
- We also found a statistically significant difference in post pandemic commuter reductions for white collar workers (Mann Whitney U test, U=62846, P=0.000).
  - White collar workers had an average -12.5% reduction in commute volume after the pandemic while
  - other workers had an average of -2.8%.

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Source: Currie G, Jain T and Aston L (2021) "Evidence of a Post-COVID Change in Travel Behaviour - Self-Reported Expectations of Commuting in Melbourne" Transportation Research Part A Volume 153, November 2021, Pages 218-234

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Introduction

Behavior Shifts

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Transit Ridership Trajectories

Transit Ridership Recovery

Travel behaviour changes in different ways; often termed the "R"s – including RENORMING

Travel Adaptions Associated with Disruptive Events

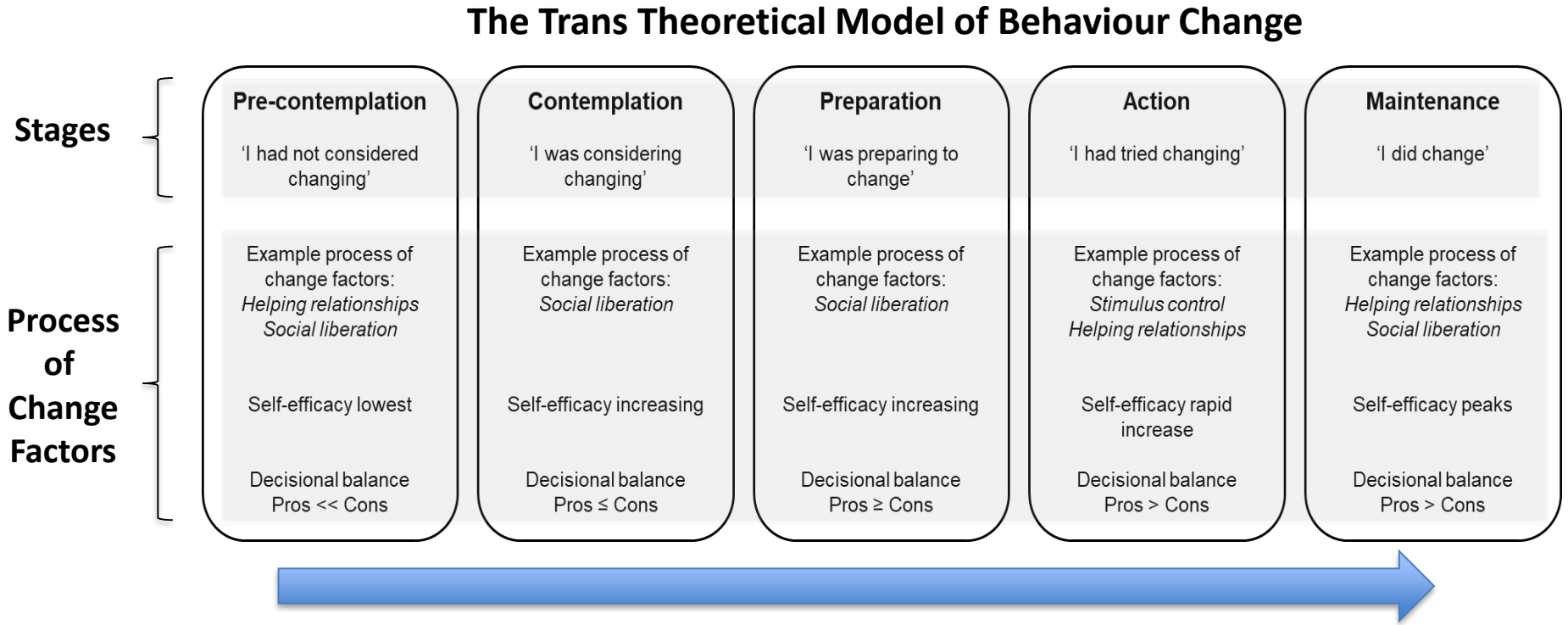
Remode	Switch from public transport o active travel or car
Reduce	Work/socialise/conduct appointments from home
Relocate	Move trip destination: e.g. localisation of activity
Reduce	Reduced ability to participate in activities
Reduce	No need to travel to work
Renorm	Changing normative mobility and travel practices

Habitual Behaviour

New Behaviour

Based on Marsden, G, Anable, J, Chatterton, T, Docherty, I, Faulconbridge, J, Murray, L, Roby, H & Shires, J 2020, 'Studying disruptive events: Innovations in behaviour, opportunities for lower carbon transport policy?', *Transport Policy*

We are exploring long term impacts of C-19 on travel using a behaviour change model called the Trans Theoretical Model (TTM)



TTM was used to explore long term travel impacts of the London 2012 Olympic travel demand management program – will it work for COVID-19?

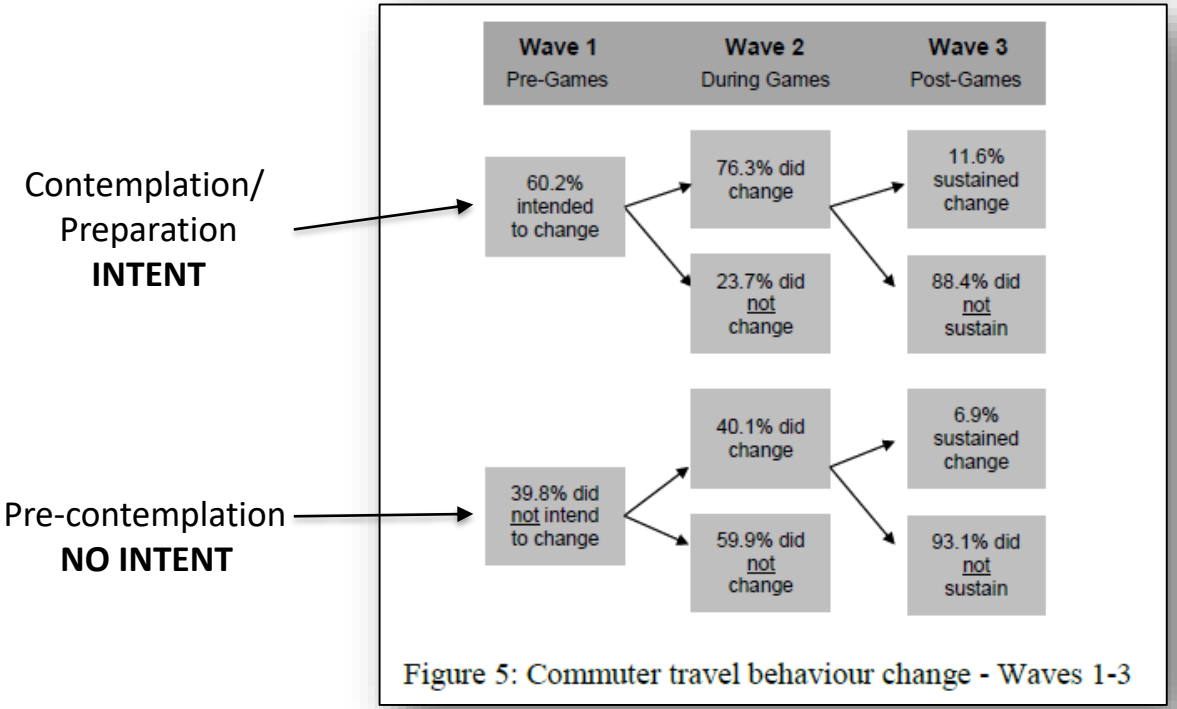


Figure 5: Commuter travel behaviour change - Waves 1-3

Source: Parkes, S. D., Jopson, A. and Marsden, G. (2016). "Understanding travel behaviour change during mega-events: Lessons from the London 2012 Games." Transportation Research Part A: Policy and Practice 92: 104-119

Results show WFH behaviour change was higher both short and long term with Contemplation/Preparation; confirm TTM theory applies to COVID-19

London 2012 TDM Program Impacts

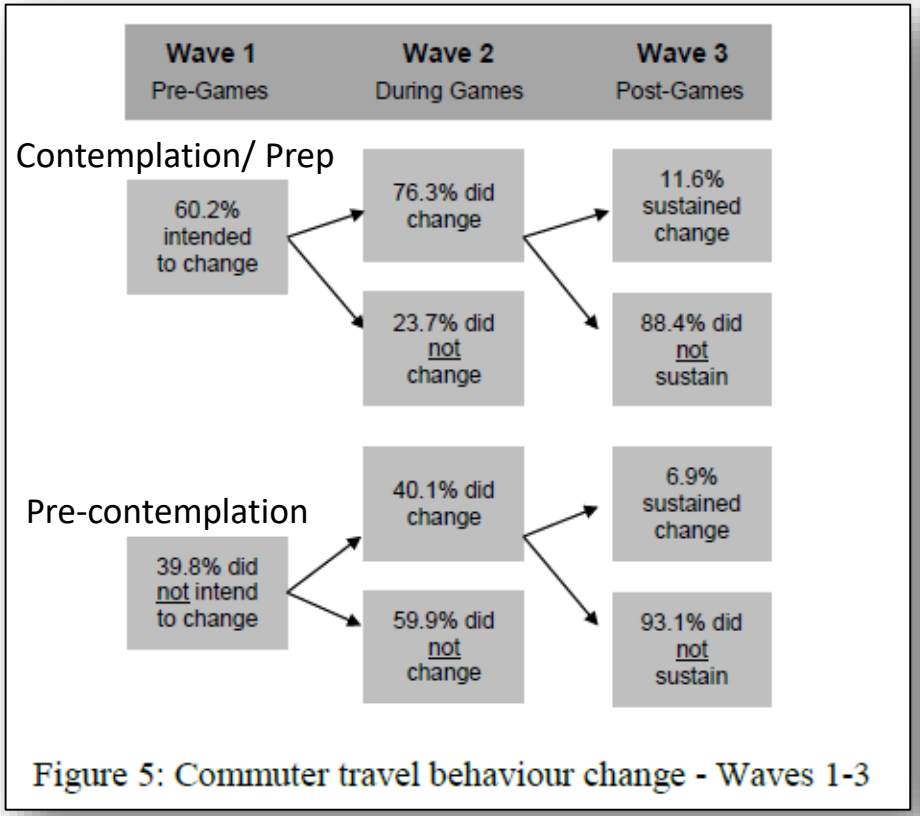
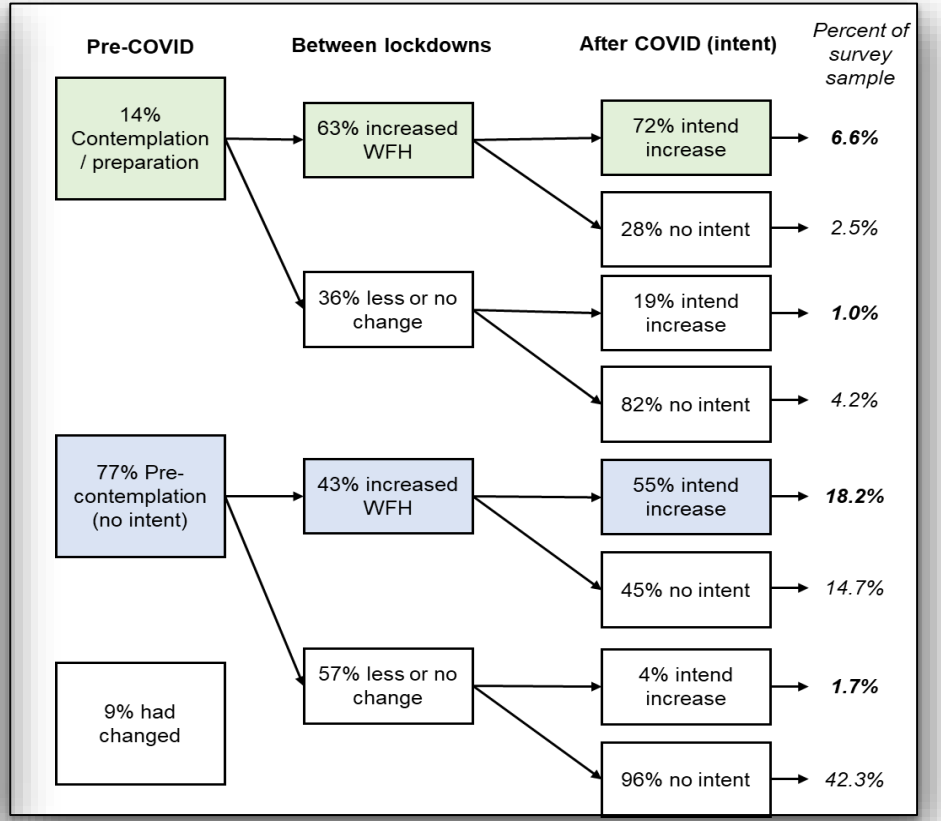


Figure 5: Commuter travel behaviour change - Waves 1-3

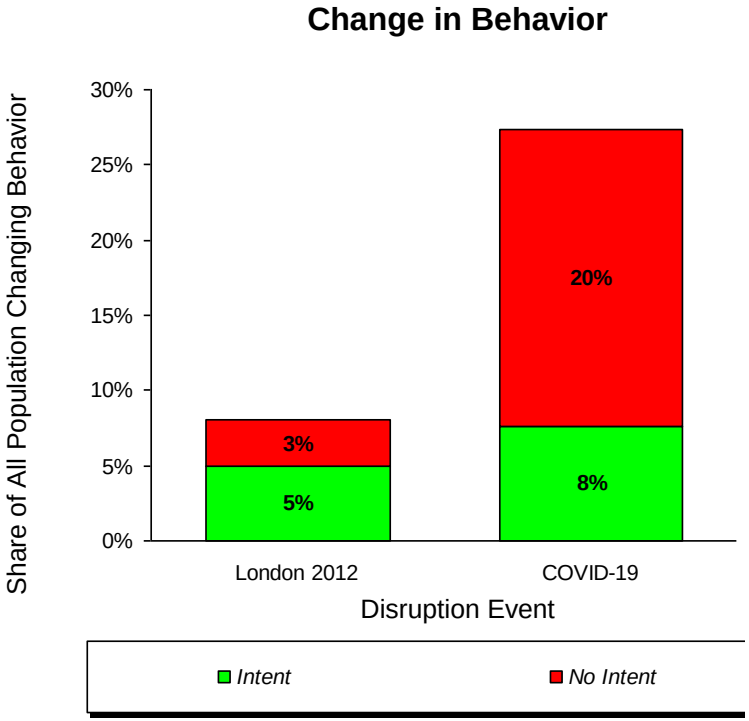
Source: Parkes et al (2016).

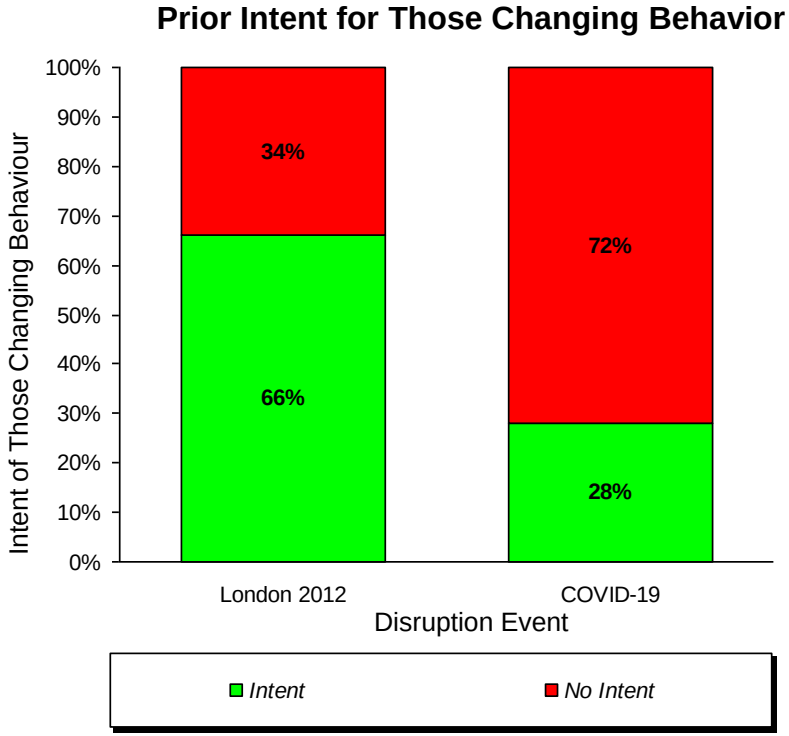
Monash COVID-19 WFH Travel Impacts Research



Source: Preliminary results Monash Research 2022

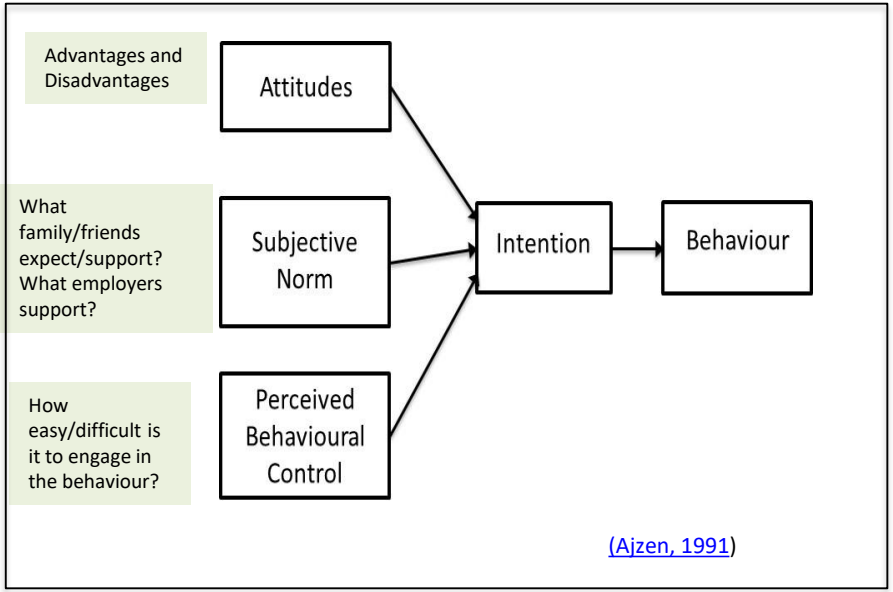
The implication is that WFH behaviour shifts are bigger for COVID-19 and most shifts occur without intent – suggesting a RENORMING of behaviour





This hypothesis matches our findings on WFH post COVID using the Theory of Planned Behaviour – Norms are very influential

Theory of Planned Behaviour



Post COVID-19 WFH Intention

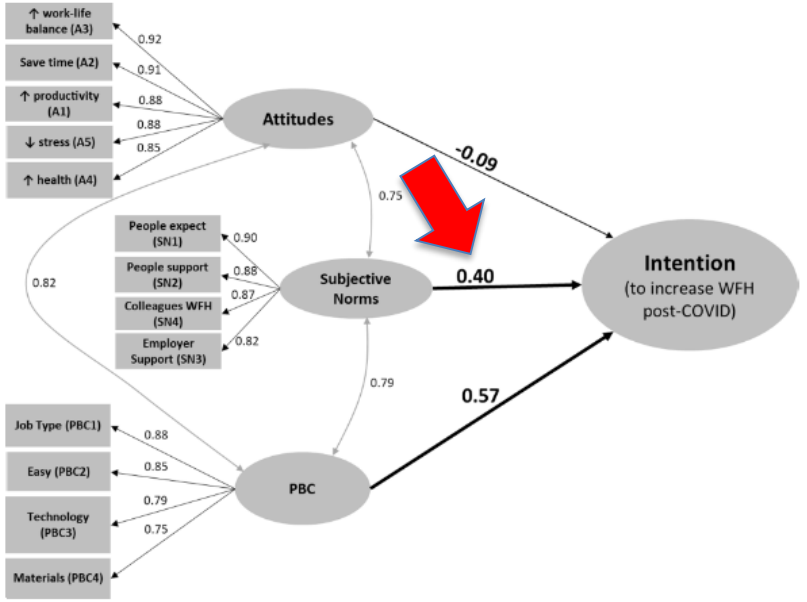


Fig. 5a. Group A SEM Output - for respondent who did not WFH pre-COVID (n = 986).

Source: Jain T Currie G and Aston L (2022) "COVID and Working from Home: Long-term Impacts and Psycho-social Determinants" TRANSPORTATION RESEARCH PART A Volume 156, February 2022, Pages 52-68

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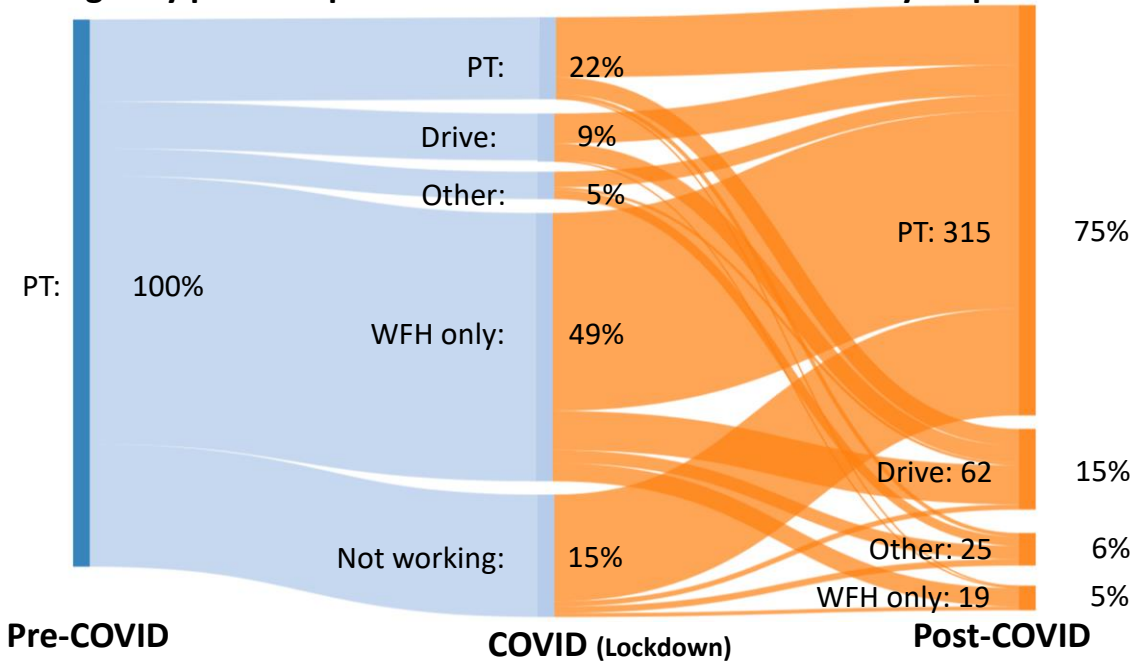
We are researching mobility trajectories of pre-COVID PT users during and also Post COVID to understand the prospects for market futures

Inclusion criteria

- Working pre- & post-COVID:
  - Full time,
  - Part time, or
  - Casual
- PT user pre-COVID

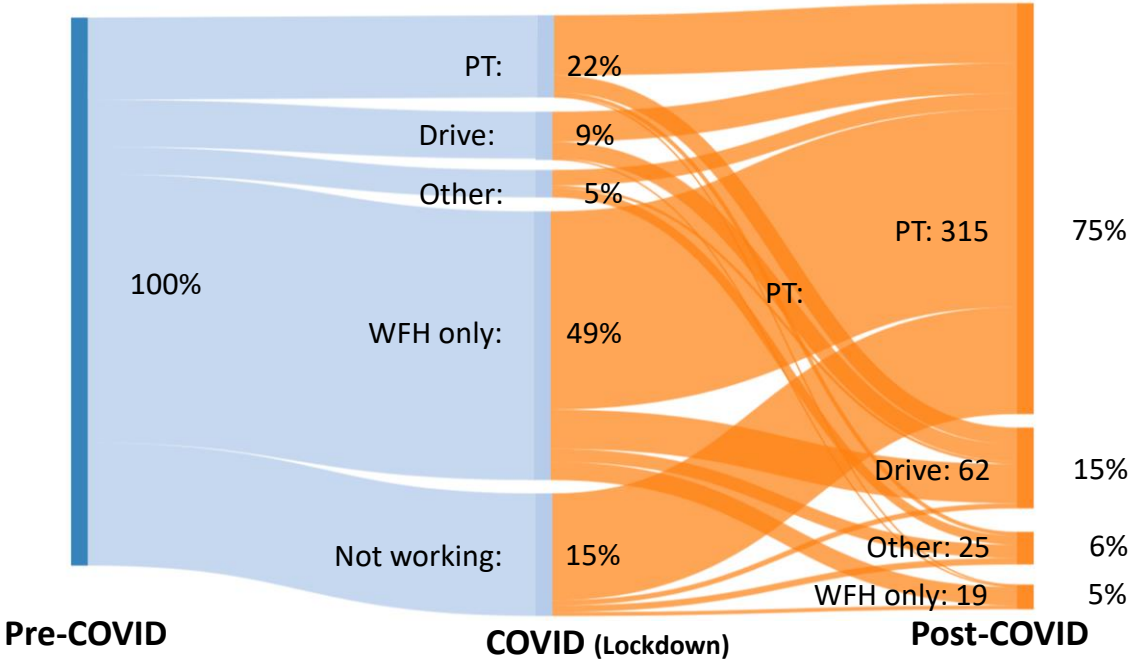
Travel changes by pre- and post-COVID workers who commute by PT pre-COVID



Source: Preliminary results Monash Research 2022

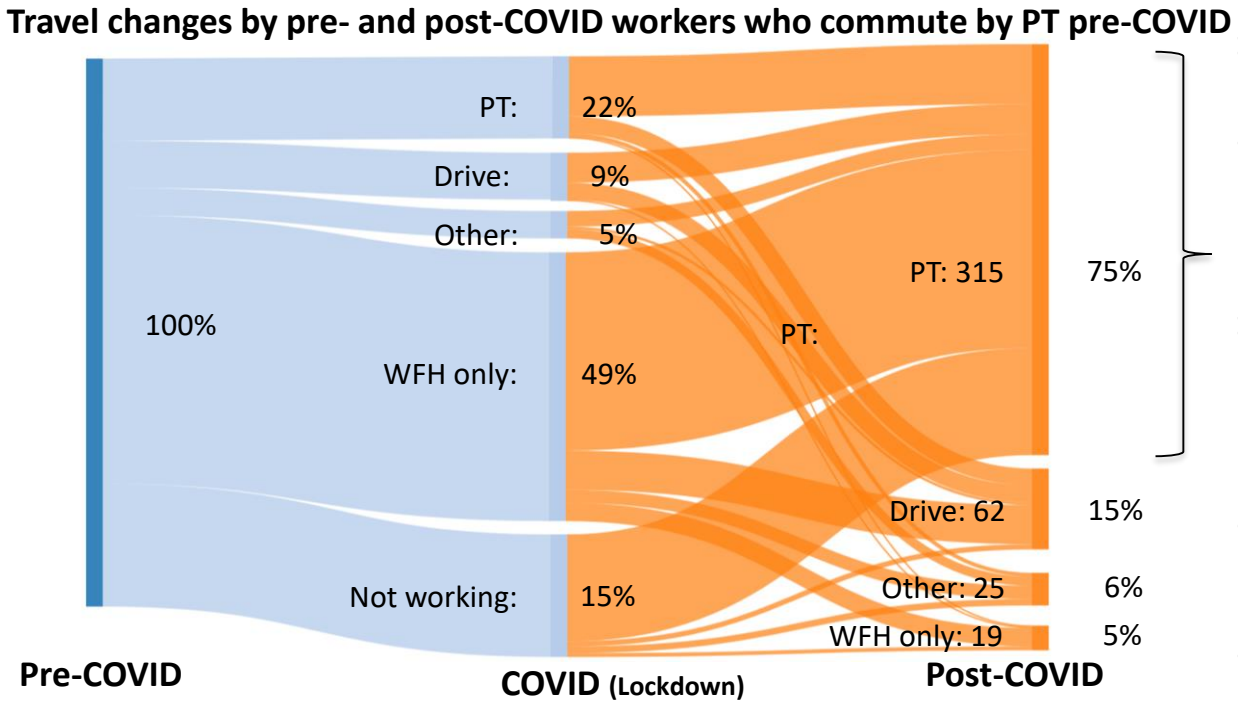
Currently; most of the pre-Covid PT market are WFH (49%), Not working (15%) or driving (9%); 22% are still using PT

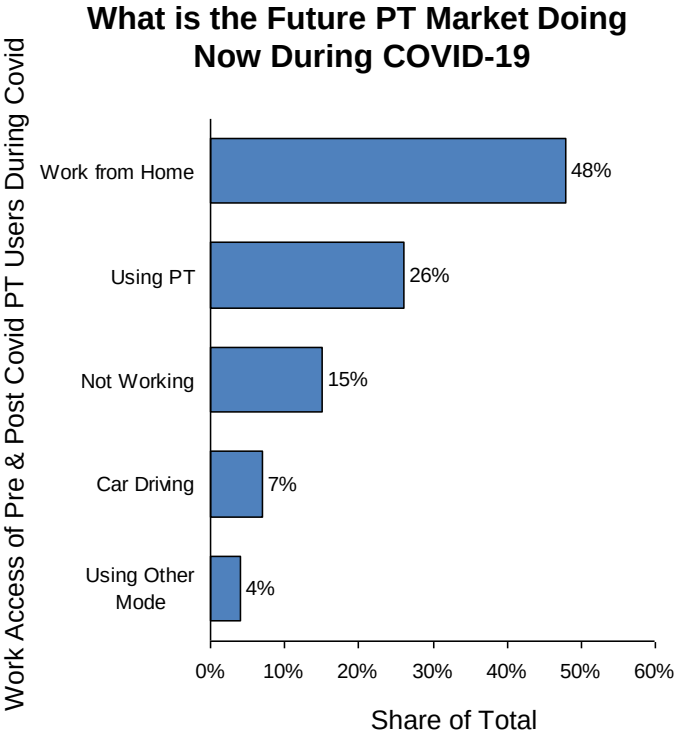
Travel changes by pre- and post-COVID workers who commute by PT pre-COVID



Source: Preliminary results Monash Research 2022

Post-COVID the Mkt will grow from 22% (now) to 75% pre Covid levels – Expected future ridership is currently WFH (48%) using PT (26%) out of work (15%) or using other modes

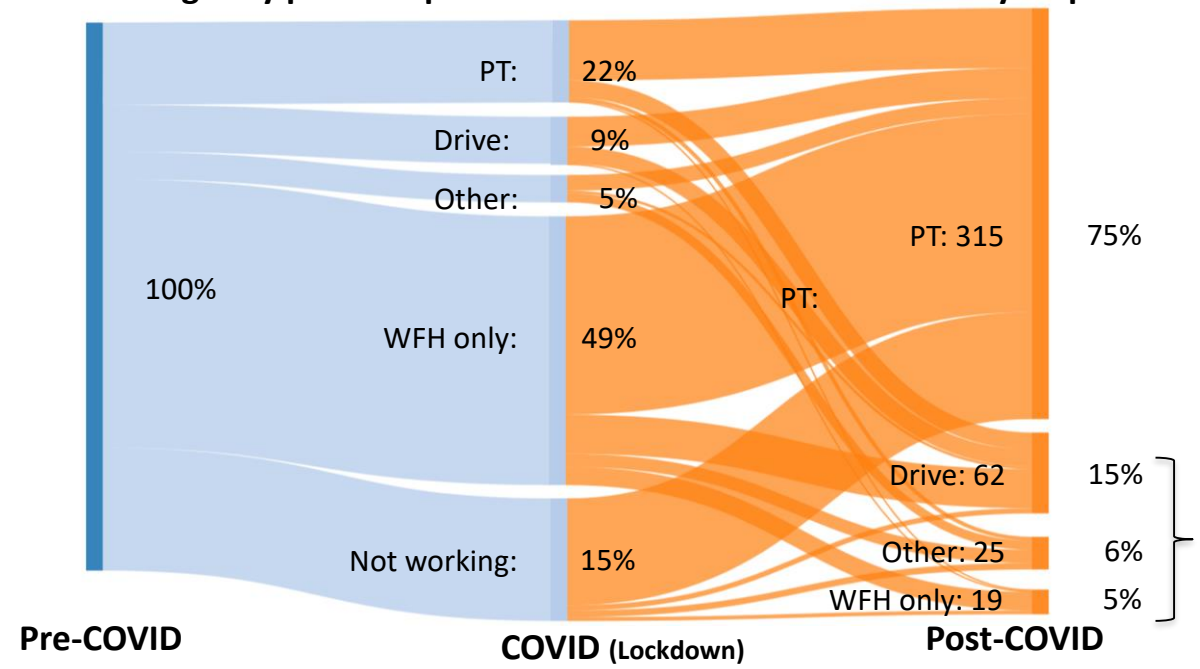




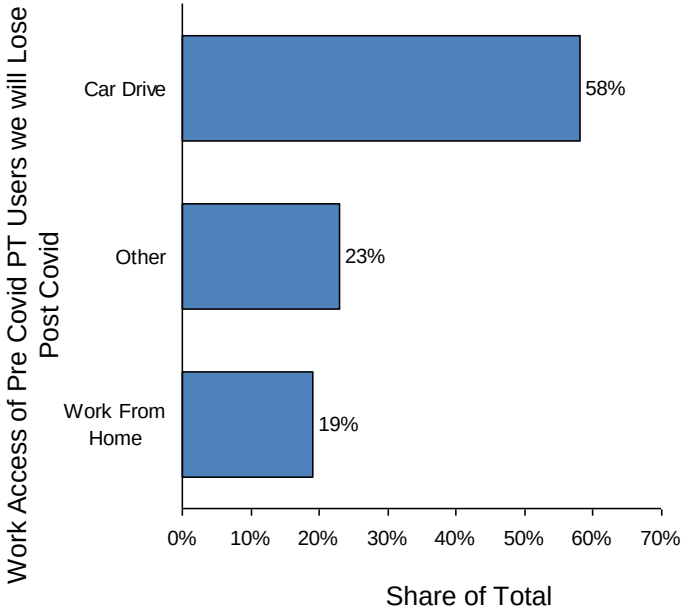
Source: Preliminary results Monash Research 2022

Another Perspective – Post COVID we lose ~25% of our pre-Covid PT market; 58% will drive, 19% WFH; the rest using other modes

Travel changes by pre- and post-COVID workers who commute by PT pre-COVID



Where are the PT Users we will Lose in Future Going to Go Post-Covid



Source: Preliminary results Monash Research 2022

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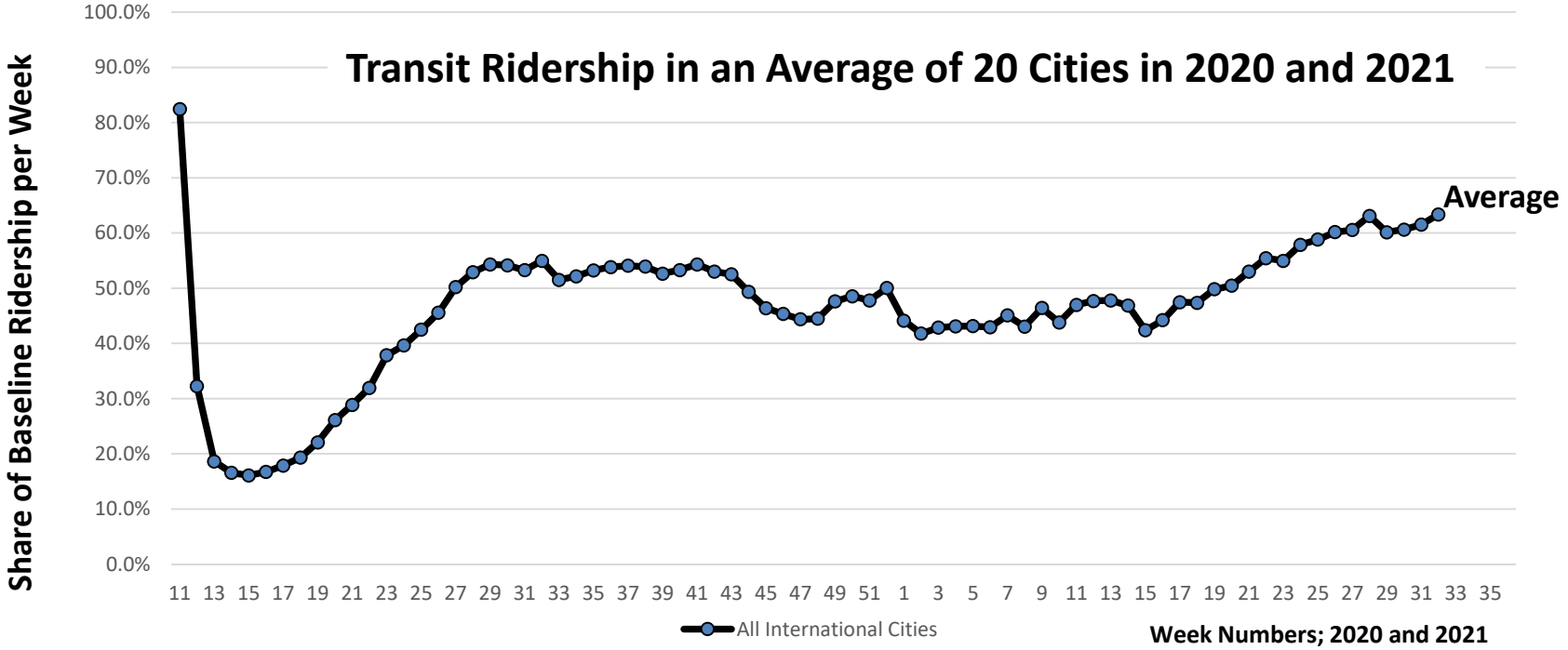
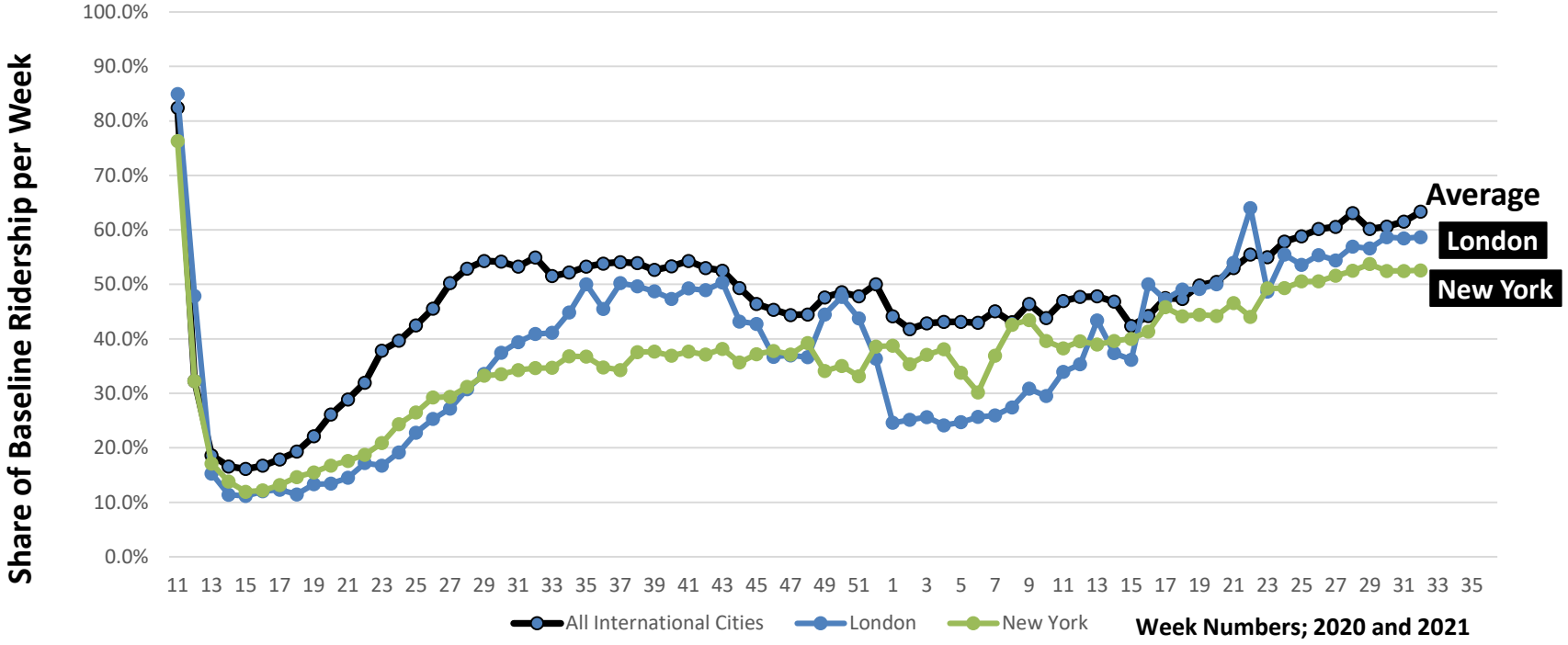
City Transit ridership fell, recovered then slightly declined from early 2020; from 2021 a slow recovery is underway



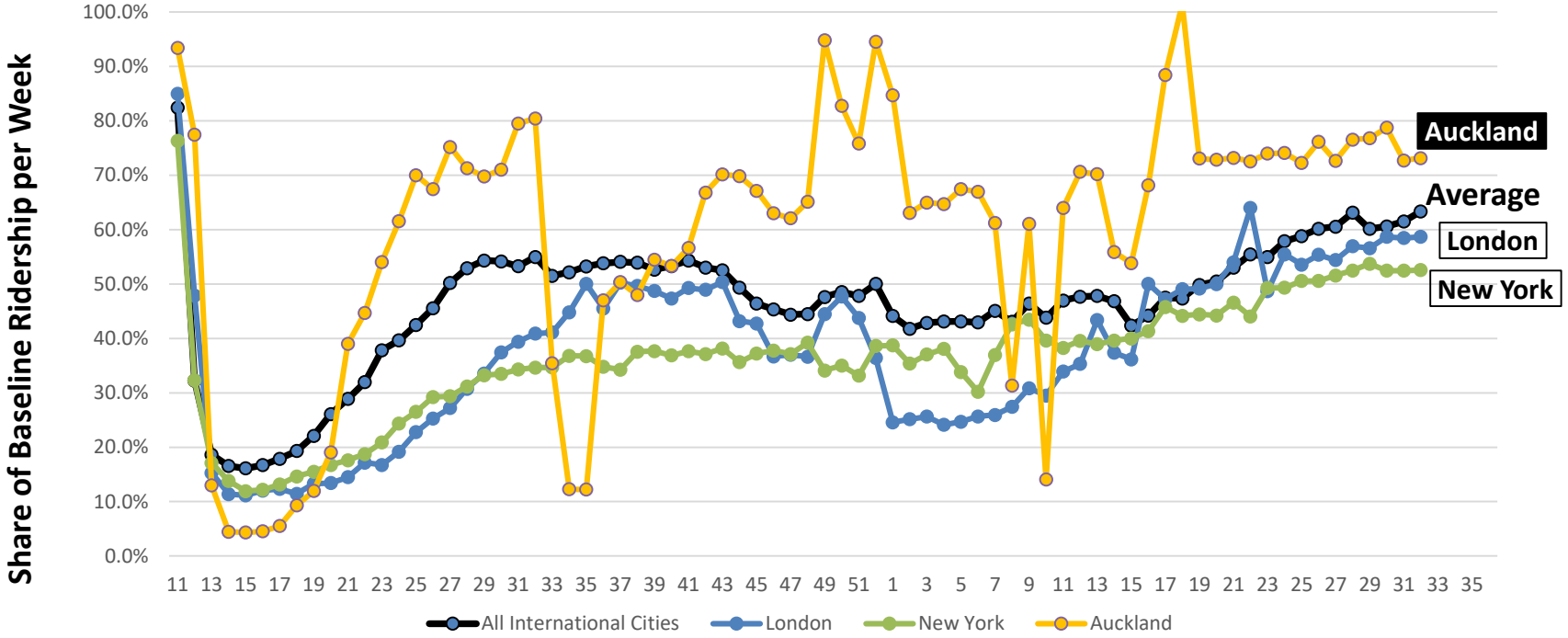
Source: Data courtesy of UITP; cities include Vienna, Oslo, London, Montreal, Madrid, Auckland. Pilsen, New York, Kayseri, Barcelona, Berlin, Vancouver, Chicago, Ottawa, Stockholm, Jersey City, Dijon, Warsaw, Reenes, Toronto

London/New York – Poor Pandemic Containment Cities who Rely on Vaccination – have underperformed but are in a recovery trend



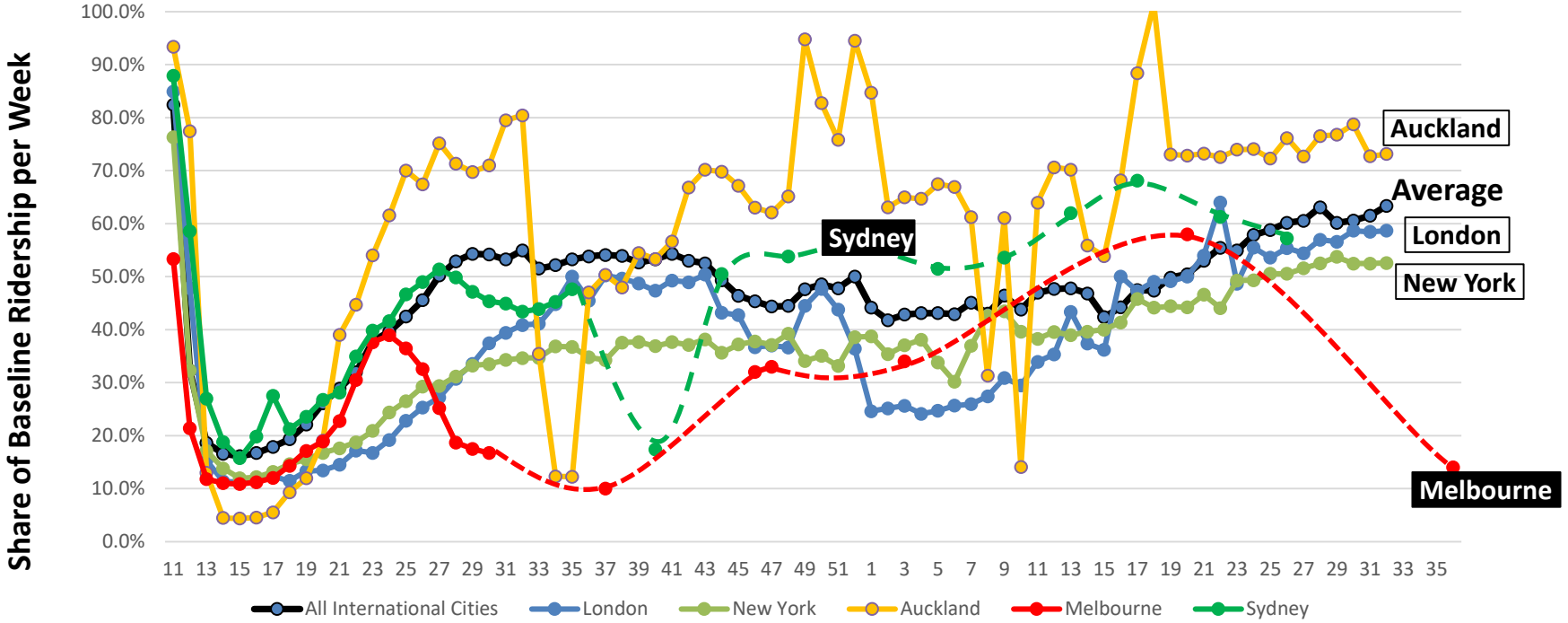
Source: Data courtesy of UITP

Auckland – A Strong 'Lockdown and Eradicate' City – has better performance during eradication; and poor during lockdown – but is also on a recovery path



Source: Data courtesy of UITP

Sydney/Melbourne – also Lockdown/Eradicate – have a generally similar performance

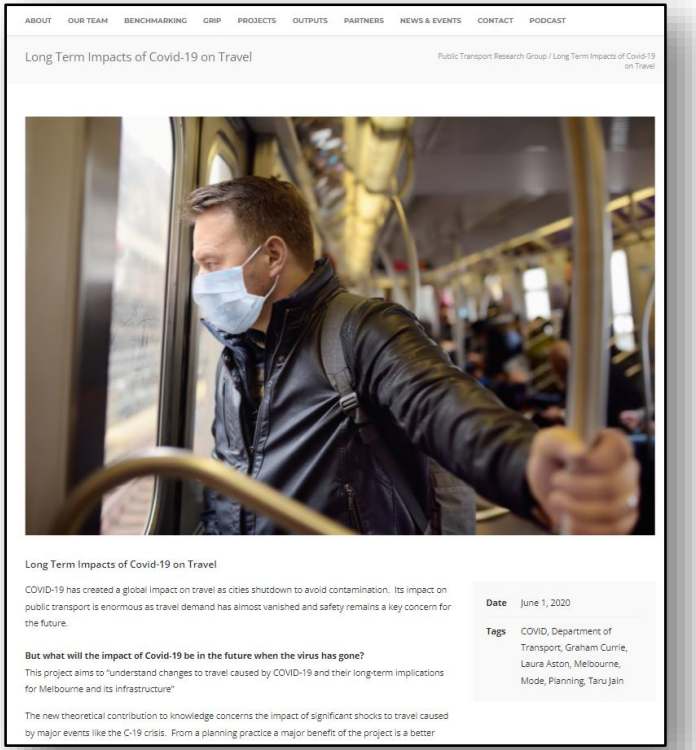


Source: Data courtesy of UITP

Monash COVID-19 Research has been made OPEN ACCESS; free to assist industry

- Published papers in top journals:
  - Currie G, Jain T and Aston L (2021) "Evidence of a Post-COVID Change in Travel Behaviour - Self-Reported Expectations of Commuting in Melbourne" Transportation Research Part A Volume 153, November 2021, Pages 218-234
  - Jain T Currie G and Aston L (2022) "COVID and Working from Home: Long-term Impacts and Psycho-social Determinants" Transportation Research Part A Volume 156, February 2022, Pages 52-68
- PTRG Monash website for COVID-19 Travel Research:

http://publictransportresearchgroup.info/portfolio-item/covid-19-long-terms-impacts/



Please reach out for more information

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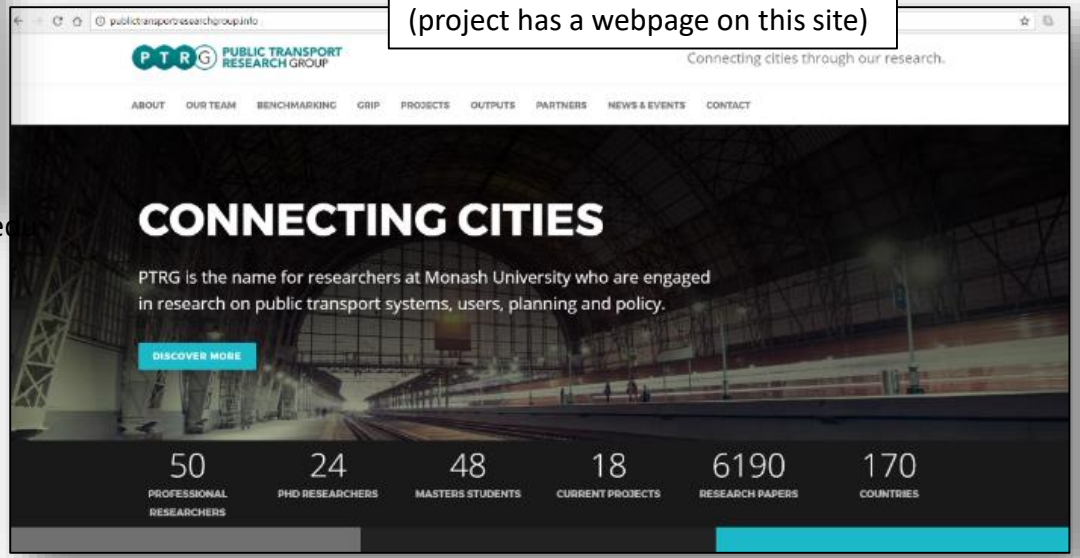
W: ptrg.info
(project has a webpage on this site)



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Researching Transit

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RT5 – Long term impact of COVID-19 on Travel Behaviour

SOUNDCLOUD