


TRANSPORT FINDINGS

What Impact does COVID-19 have on Travel Behaviour a Year after it has Passed? Evidence from Hobart, Tasmania

Kathryn Easterher¹, Alexa Delbosc² ¹ Jacobs, ² Monash Institute of Transport Studies

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Findings

This study investigates the impacts of the COVID-19 pandemic on travel behaviour in Hobart, the capital of the island of Tasmania where there was no community transmission of COVID-19 for over a year. It uses a descriptive analysis of traffic volumes for three major arterial routes into Hobart and bus boardings broken down by fare type. Over a year after the last community transmission of COVID-19, traffic volumes were above 2019 levels but bus ridership was 18% below average. This suggests that cities face a long-term challenge in attracting riders back to public transport, even after the threat of COVID-19 has passed.

1. Questions

The COVID-19 pandemic has had significant and unprecedented impacts on travel behaviour. It is difficult to predict what 'post-COVID' travel will look like considering the emergence of new strains and new waves of infection. In the short-term, public transport use significantly drops whereas car driving recovers quickly (Jenelius and Cebecauer 2020; Beck and Hensher 2021). Yet few locations in the world have been 'free from COVID' for more than a few months, leaving much uncertainty over when (if ever) public transport ridership will return to pre-pandemic levels.

The island state of Tasmania, Australia presents a rare example of 'post-COVID' travel behaviour given that at the time of writing its last case of community transmission was in June 2020. Furthermore, at no time during the pandemic were people required to wear a mask on public transport. Therefore, this location provides a rare opportunity to study travel behavior a full year beyond the 'end' of COVID-19.

In this paper we aim to explore the impact of the COVID-19 pandemic on travel behaviour in a location with no community cases of COVID-19 and little to no restrictions on travel movements. The guiding research question is: One year after the last COVID-19 transmission, have car use and public transport ridership returned to pre-COVID-19 levels?

2. Methods

Tasmania is an island state off the southern coast of Australia. Its capital and largest city, Hobart, has a population of 222,000 (Australian Bureau of Statistics 2016). Buses are the only public transport mode available and they are focused on providing access to the city centre during peak periods. Greater

Table 1. Pandemic key dates in Tasmania

Date	Description
2-Mar-20	First case of COVID 19 detected
19-Mar-20	Non-essential travellers arriving in Tasmania required to quarantine for 14 days
26-Mar-20	Fare amnesty for Metro buses begins
28-Mar-20	First case of community transmission (north-west Tasmania)
30-Mar-20	First death from COVID 19 (North West Regional Hospital)
31-Mar-20	Tasmania enters lockdown
27-Apr-20	School term 2 begins with home learning
11-May-20	Easing of state-wide restrictions begins
25-May-20	Kindergarten to Year 6 and Year 11-12 students return to the classroom
5-Jun-20	Further easing of restrictions, Tasmanians allowed to travel across the state
9-Jun-20	Remaining students return to the classroom
12-Jun-20	No active cases of COVID 19 in Tasmania
26-Jun-20	Further easing of restrictions, gatherings of 500 outdoors and 250 indoors permitted
5-Jul-20	Fare amnesty for Metro buses ends

Hobart is heavily car-reliant; private vehicles account for 74% of commuting trips, followed by active transport (13%) and public transport (12%) (Australian Bureau of Statistics 2016).

Key dates for the pandemic in Tasmania are summarised in Table 1. Tasmania entered lockdown on 31 March 2020. Restrictions were progressively eased from May 11 with no restrictions on travel from June 2020. Tasmania had no active cases of COVID-19 by 12 June 2020. Note that masks were never required on public transport.

Weekday traffic volume data from permanent traffic counters was obtained from the Department of State Growth geocounts website (Department of State Growth 2021). The review focused on the three major commuter routes to the Hobart central business district: Tasman Bridge, Southern Outlet and Brooker Highway. Note that for the Tasman Bridge, data from May-July 2021 was not available.

Monthly bus boarding data for Hobart was provided to the authors by Metro Tasmania. Note that a fare amnesty was provided from 26 March to 5 July 2020. During these months boardings were recorded by the driver who pressed buttons to record each person boarding. Drivers were asked to record student, adult and concession boardings separately in this time. Note that in urban areas, most Australian schools do not have fleets of school buses; students use the public bus system. Australian students are easy to visually identify due to the use of school uniforms, so records of student boardings during the fare amnesty are likely to be reasonably accurate. However, concession riders (which includes university students, elderly persons and low-income persons) are difficult to identify visually so the adult vs. concession trends are not shown.

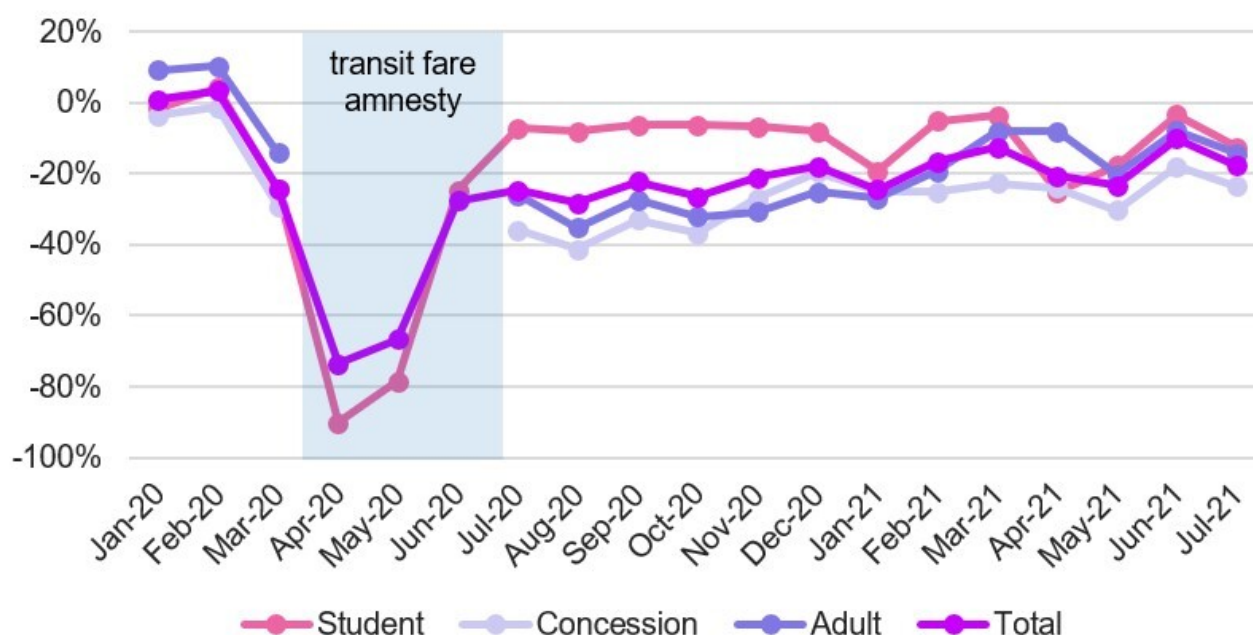


Figure 1. Relative change in weekday bus boarding volumes

Results will be presented as change relative to a baseline level. For both traffic and bus data the ‘baseline’ is the corresponding month in 2019 (to control for seasonality).

3. Findings

[Figure 1](#) presents the relative change in bus boardings relative to the same month in 2019. Boardings significantly decreased between March and May 2020 to below 60% of the same months in 2019. Student boardings recovered almost immediately and remained around 7% below 2019. Adult and concession boardings recovered more gradually and remain significantly below 2019 levels.

Weekday daily traffic volume data is presented in [Figure 2](#), showing percentage changes from 2019 volumes for the three major commuter routes into the city. Traffic volumes decreased significantly in March 2020, after the first case of COVID-19 was detected on March 2. Traffic volumes began increasing in May, corresponding with the progressive easing of restrictions from May 11. Within a month of restrictions easing, traffic volumes on two of the three roads returned to (and then exceeded) volumes in 2019; traffic on the Tasman bridge was slower to recover.

A comparison of bus boarding volumes and traffic volumes is presented in [Figure 3](#). The traffic volume data is the median of the daily volume on the three commuter routes. The pandemic had a greater impact on bus boarding volumes than traffic volumes, with bus boarding volumes reduced by

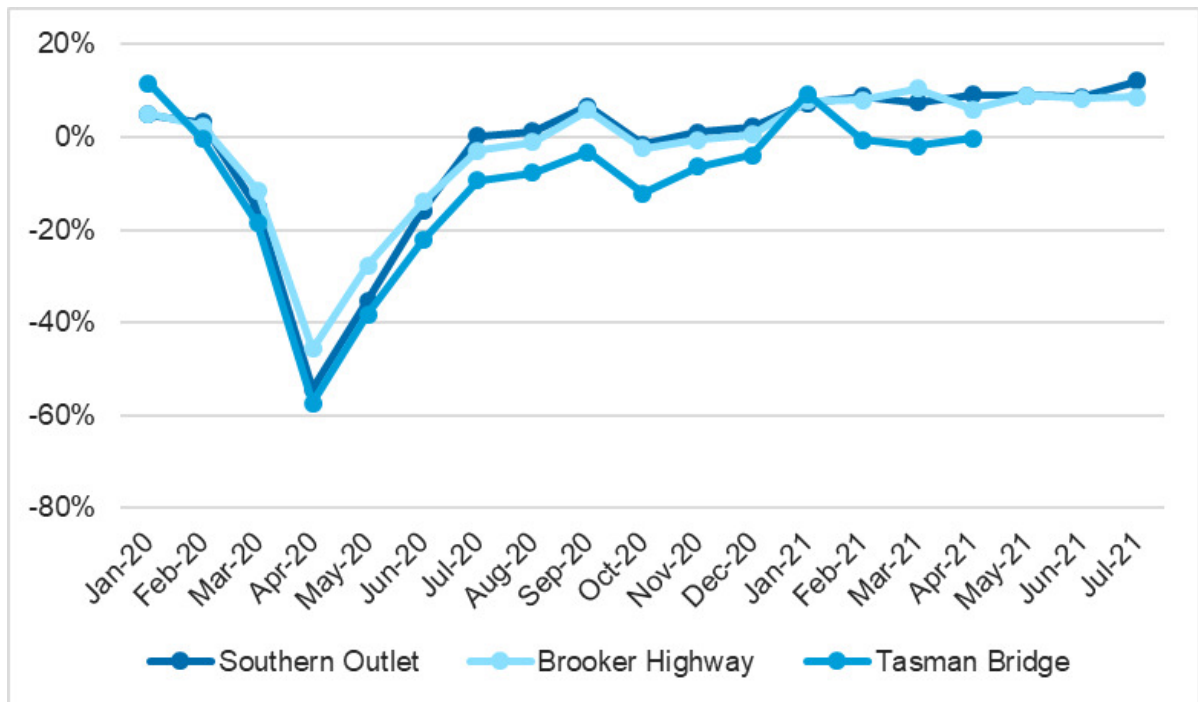


Figure 2. Relative change in weekday daily traffic volumes

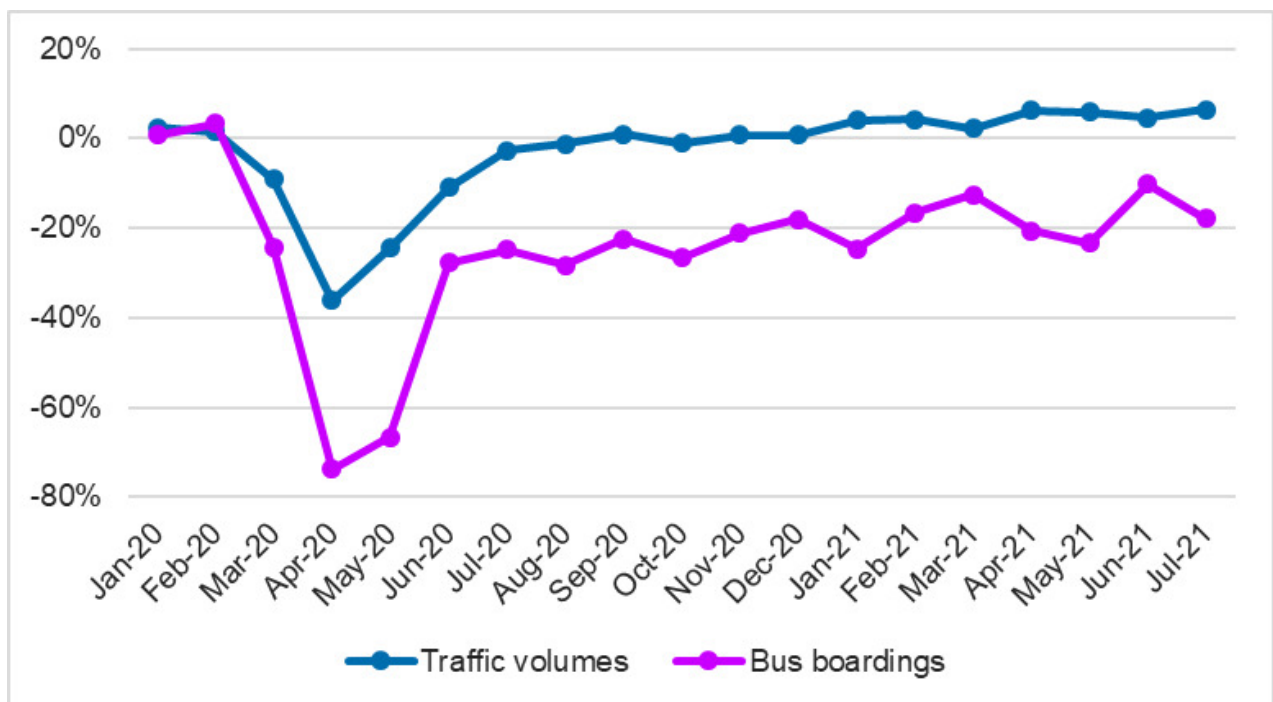


Figure 3. Comparison of relative change in traffic volumes and bus patronage

approximately twice as much as daily traffic volumes. In July 2021, bus boarding volumes remained down by 18%, while traffic volumes were above 2019 levels.

The rapid increase in road traffic echoes findings from many jurisdictions. The public transport trends show that even in a city with no COVID-19 cases for over 12 months, and which never had a mask mandate on public transport, bus ridership shows little sign of recovery to 'pre pandemic' levels. Even student and concession riders, who are traditionally more 'captive' parts of the bus market, have not shown a full recovery. In conclusion, these findings suggest that cities face a long-term challenge in attracting people back onto public transport even a year after the threat of COVID-19 has passed.

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