

When free public transport is not enough

Christine Cheyne

BA, MA, PhD

Associate Professor, Massey University

C.M.Cheyne@massey.ac.nz

Imran Muhammad

BSc, MSc, PhD

Associate Professor, Massey University

Abstract

Horizons Regional Council has implemented a number of innovative schemes to encourage staff and students at Palmerston North's tertiary education institutions to use public transport. The Massey University Unlimited Access scheme made urban bus services free for full-time staff and students in 2005. This followed a scheme introduced two years earlier to provide similar free travel for full-time staff and students at the Palmerston North's other main tertiary institute, UCOL. In August 2017, a similar scheme was introduced for the International Pacific University.

We share insights from this experience with unlimited access schemes that will be valuable for other cities in New Zealand with tertiary institutes. Data from the last ten years consistently show a high level of initial enthusiasm at the start of the academic year in late summer and to a lesser extent at the start of semester two in mid-July but bus patronage then drops off sharply. We explore the possible reasons why, and what other modes are used, drawing on some data from Massey University bus users. In particular, we focus on how these schemes (and public transport more generally) can also benefit from being more closely associated with active transport promotion.

Introduction

In order to reduce road transport greenhouse gas emissions, as well as to increase health, more use of active travel is vital. The Labour-NZ First Coalition government has signalled that it seeks a transformation of the land transport system in New Zealand with greater priority on the environment and access to a wider range of transport options. However, access to a wider range of transport options may not deliver anticipated health and environmental benefits. Despite intensive promotion of walking, cycling and public transport and some initial interest, increased use is difficult to achieve and sustain. Efforts to increase public transport use have included measures to increase the quality and affordability of public transport but even free public transport may not be sufficient to increase patronage. We argue that much greater focus needs to be given to the opportunities that exist at the interface of different modes of active travel.

Active travel — walking, cycling and other human-powered modes of travel, and public transport — is often promoted, but harnessing the interconnections between different modes of active travel remains very under-developed in New Zealand. In this presentation we discuss recently research on Palmerston North urban bus services that focused on one of the services mostly used by students and staff of Massey University's Manawātū campus who would be likely to have free travel under what is known as the Massey University Unlimited Access scheme. This is one of several 'unlimited access' schemes operated by Horizons Regional Councils in partnership with tertiary education institutions in the city.

First, we briefly outline the so-called 'unlimited access' schemes in Palmerston North. Data from the last ten years consistently show a high level of initial enthusiasm at the start of the academic year in late summer and to a lesser extent at the start of semester two in mid-July but bus patronage then drops off sharply. This pattern of highest use in March reflects the pattern of patronage of public transport in other centres. In Auckland, for example, 'March Madness' is now well-recognised and Auckland Transport provides additional services in this month which is the busiest time of the year on the region's roads, public transport and cycleways. We then discuss the phenomenon of March Madness and implications for Palmerston North's urban bus services and, in particular, bus services for Palmerston North's largest tertiary institution, situated 5km from the city centre. The campus has just under 5000 equivalent full time students. Bus services in Palmerston North have been operated by Transit Coachlines since 1998.

As noted above 'March Madness' reflects the pressure on the transport network as tertiary students take up or return to study. It is also evident in centres outside Auckland. In Palmerston North, for example, there is a surge in use of urban bus services in March and this then slowly declines during the year. This pattern of initial high use and then declining use has a number of implications for transport planners. First, pressure on the land transport system from the spike in usage related to the new academic year of tertiary education organisations can potentially be alleviated through promotion of public transport, walking and cycling as part of travel demand management. Second, the increase in the number of those who do use these alternative modes followed by steady decline in use of public and active transport indicates that more needs to be done to sustain interest in these modes. Third, factors that lead to a decline in public transport patronage from a March peak need to be identified and investigated.

While the cost of public transport may be a barrier to continued use, it appears that the decline in public transport patronage also happens in communities where public transport is free. Therefore, free public transport is not a sufficient innovation for increased patronage.

Drawing on some data from Massey University bus users, we explore the possible reasons for the drop-off in patronage from the March peak. We conclude with discussion of how these schemes (and public transport more generally) can also benefit from being more closely associated with active transport promotion taking into account local conditions.

Unlimited Access

The Massey University Unlimited Access scheme made urban bus services free for full-time staff and students in 2005. This followed a scheme introduced in 2002 to provide similar free travel for full-time staff and students at the Palmerston North's other main tertiary institute, UCOL. In August 2017, a similar scheme was introduced for the International Pacific University, a small private tertiary education institution. Another small private training establishment, the English Training Centre, also has a Universal Access scheme. However, the Massey and UCOL schemes are by far the largest. All these organisations contribute to the cost of the service so that the costs of the free travel is not paid by Horizons Region ratepayers. Currently, the Massey University Unlimited Access scheme provides approximately 150 services a day to and from Massey's Manawātū campus on routes 12, 12A, 12B, 12C and 15. Massey University introduced car parking charges at the Manawātū campus to fund and promote bus services. It was estimated that free bus services cover the requirement of 800-900 parking spaces at the campus. In order to monitor the schemes, passenger numbers are collected separately for these schemes.

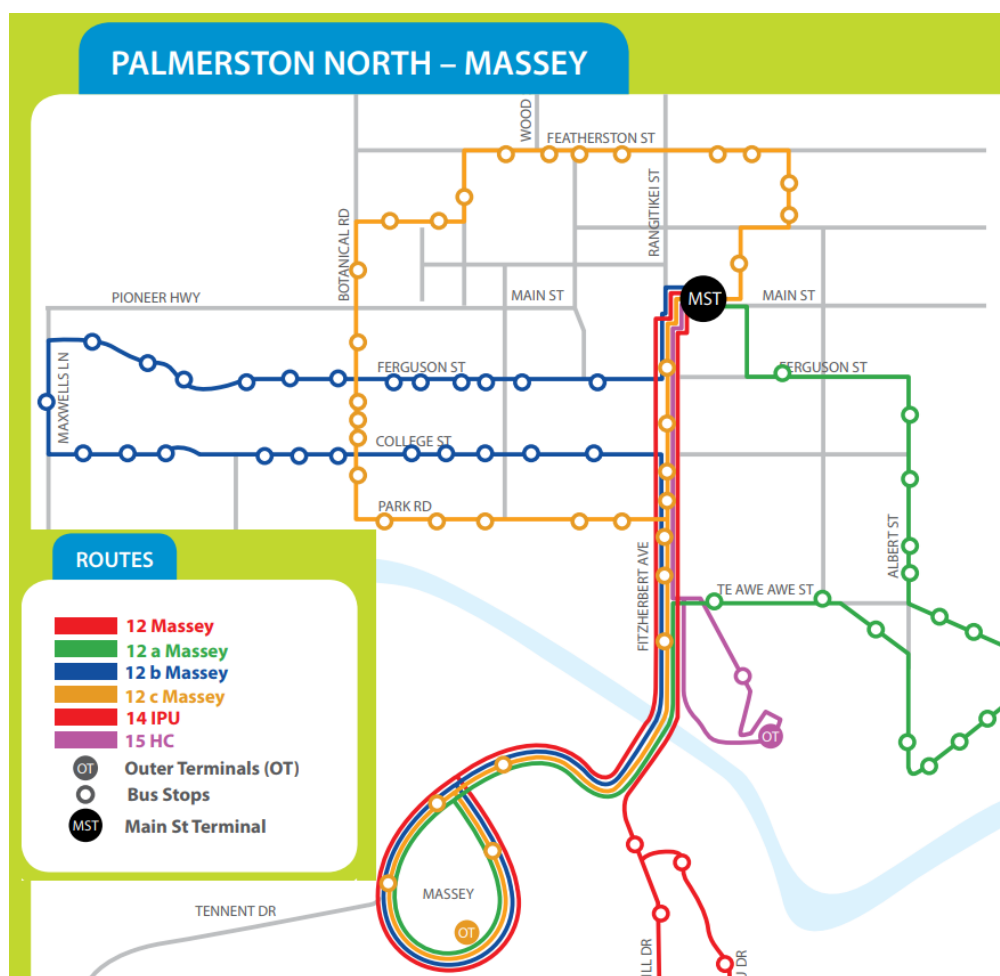


Fig 1 Massey Bus Routes (Source: <http://www.horizons.govt.nz>)

Although termed ‘March Madness’ and used to refer to the surge in usage of Auckland’s land transport system as a result of students commencing or returning to study (Auckland Council 2018), the phenomenon occurs much more widely throughout New Zealand and in fact starts earlier in February. March Madness is also not confined to New Zealand. For example, Daniels and Mulley (2013) in their research on how to spread peak travel by University of Sydney students note that March is historically the highest month for public transport patronage. March Madness is evident in the distinct peak in patronage of Palmerston North’s urban bus services in March each year (see Figure 1 below).



Moreover, the phenomenon is common across both the urban bus services in general, and the bus services that are predominantly used by those who have free travel under the Universal Access schemes (see Figure 2 below). A similar pattern can be found in other bus services contracted by Horizons Regional Council even for smaller urban centres in the region. It is clear that the March peak is present in a range of regions and within large and small urban areas within those regions. This raises the question of why there is a decline after the March surge and whether and to what extent it is possible to sustain the initial enthusiasm for public transport that is evident at the start of the school/academic/work year.

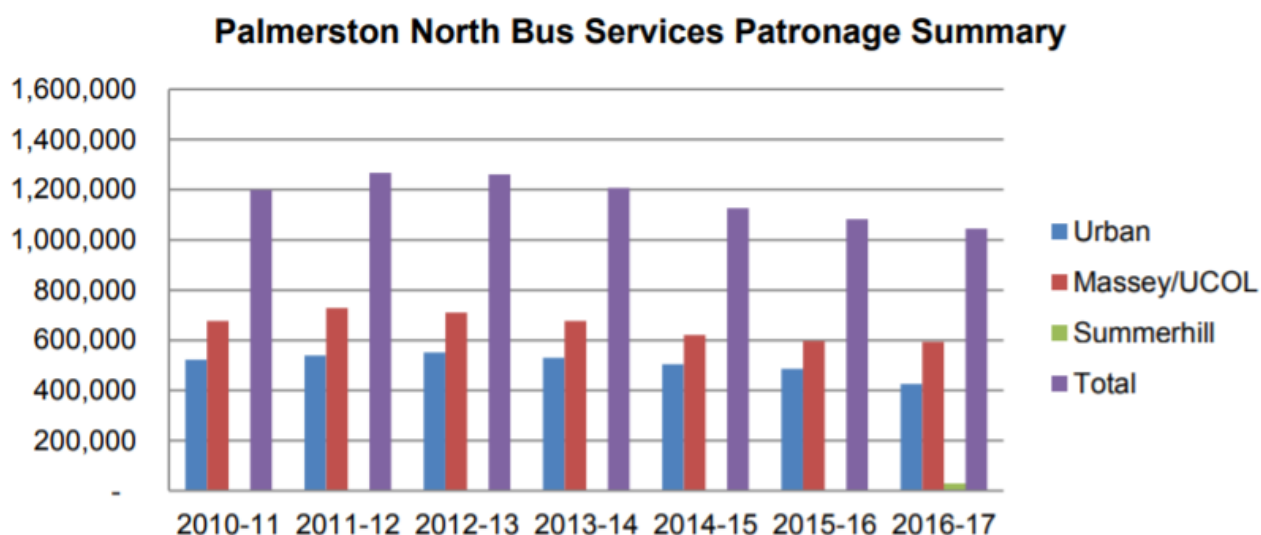


Figure 2 Comparison of Massey/UCOL Unlimited Access Scheme and Other PN Urban bus patronage (Webber & Curry 2017)

Finding answers to these questions is important as there is growing interest in New Zealand and internationally in free or significantly less costly public transport. For example, free public transport has been promoted in a number of overseas jurisdictions to assist governments to meet their Paris Agreement goals for greenhouse gas emissions as well as air quality improvements. The Paris Agreement parties seek to limit the global temperature increase to 1.5-2°C above pre-industrial levels in this century.

New Zealand, too, has Paris Agreement commitments which require short and medium-term actions to reduce greenhouse gas emissions. According to New Zealand's most recent greenhouse gas emissions inventory, emissions from the Energy sector which generated 40% of New Zealand's gross emissions in 2016. Road transport makes up nearly 45% of Energy emissions which had increased by nearly one-third since 1990. The bulk of this increase since 1990 came from road transport emissions which had increased by 82% since 1990 (Ministry for the Environment 2018 p. 8).

New Zealand has made international commitments to reducing GHG emissions to 30 per cent below the 2005 levels by 2030 and a long-term target of 50 per cent below 1990 levels by 2050 (Ministry for the Environment 2017). New Zealand also has an unconditional target of reducing GHG emissions to 5% below 1990 levels by 2020. For reducing road transport emissions, the main focus is the Electric Vehicles Programme. However, this will not significantly reduce road transport emissions in the short-term (before 2021) and perhaps not even in the medium-term (2021-2030). Other low-cost options are needed. Key opportunities lie in increasing use of public transport (PT) and active transport. In particular, we see potential to have a greater focus on optimising use of both PT and active transport in conjunction with one another.

If free or low cost public transport expands, the need to manage peak demand will become more urgent. However, it is also clear that having free public transport may not be enough to achieve a modal shift from private cars, if public transport services are not also of good quality.

Improving bike/bus integration is a key opportunity for public transport and active transport planners. Integration of bikes and buses (and passenger rail) can assist with managing peak capacity. It can also assist with improving use of active travel by ensuring that bus travel supports walking and cycling so that where bus use declines it is not replaced by car trips.

Method

To attempt to find answers to the questions why there is a decline after the March surge and whether and to what extent it is possible to sustain the initial enthusiasm for public transport that is evident at the start of the school/academic/work year, we undertook exploratory research involving users of the bus services between the Massey Manawatū campus and the city in early March 2018. We sought to find out whether those who used the bus early in the new academic year continued to use the bus and what modes they used if they did not use the bus and continued to travel. Participants were asked to fill in a brief travel diary in four alternate weeks in the semester, starting in week 2 (5-9 March 2018) and concluding in week 8 (30 April-4 May 2018) indicating the mode of transport they used for each trip (Monday-Friday) to and from the campus. Respondents were also asked to indicate the reasons for their choice of mode. Detailed data will be presented orally.

Findings and Conclusion

Our data showed that initial enthusiasm for PT at the beginning of the academic year in semester 1 (late February) is rapidly diminished as PT users shifted to other modes or did not travel. Our research did not gather data on the reasons for the shift away from PT and this needs to be the focus of further research. However, some insights into the reason for reduced numbers of journey by PT can be gleaned from other sources, in particular, recent research conducted by Massey University Students Association (MUSA) on students' perceptions of the bus services, and from submissions to councils on draft plans. Submissions and the MUSA survey indicate dissatisfaction with the bus timetables, and dissatisfaction with facilities.

It has been recognised that attracting people to public transport and active transport and sustaining the modal shift is a challenge particularly when public transport and active transport (especially biking) substitute for each other (Lingqian & Schneider 2015). Nevertheless, our research on the Massey University Manawatū campus Universal Access scheme suggests there is considerable scope (and merit) to promote the use of biking in conjunction with bus use.

Not all participants in our study, and certainly not all users of the Massey University Manawatū campus Universal Access scheme are young people. However, a large number of users are young people (aged under 25). Rive *et al* (2015) in a study about public transport use by young people in New Zealand funded by the New Zealand Transport Agency concluded:

there will be a large, sustained growth in public (and active) transport use, particularly among Generation Y. Key service priorities for Generation Y and older travellers are very consistent, indicating improvements in well-known convenience factors like frequency and coverage are critical. Once these basics are delivered more specific improvements desirable for Generation Y include smarter pricing mechanisms (such as free transfers) and improved real-time information. Key life stage changes, like moving home or starting a family, are opportunities for positive travel interventions (p. 10).

Some of the factors that can be a deterrent to public transport use (in particular, inconvenience/length of travel time) provide an incentive for cycling and those factors that have been found to discourage cycling (in particular, weather) can be mitigated to a large extent by use of the bus (either to replace a trip by bike or to take advantage of bike racks on buses. If the overall goal is to reduce trips by private vehicles, promotion of alternatives to car trips should focus not on biking and public transport as separate modes but as modes that can be combined. Moreover, while free public transport may be an important initiative to incentivise public transport take-up in larger urban centres where there are more frequent services for more hours in the day, free public transport in smaller urban centres may not be sufficient to attract people to public transport if the services are of limited duration and frequency. Frequency of services, reliability

of travel time and integration with connecting services are essential qualities. However, in these situations there are significant opportunities to expand active and public transport through improved integration of walking, cycling and public transport.

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References

- Auckland Council. (2018). *How to cope with March Madness*. Auckland: Auckland Council. Weblink <http://ourauckland.aucklandcouncil.govt.nz/articles/news/2018/2/march-madness/>
- Curry, K., & Webber, D. (2018). *Public Transport Activities Quarterly Report 1 July 2017 to 31 March 2018. Report to 15 May 2018 Passenger Transport Committee*. Palmerston North: Horizons Regional Council. Weblink <http://www.horizons.govt.nz/HRC/media/Media/Agenda-Reports/Passenger-Transport-Committee-2018-15-05/1867%20Annex%20A%20PT%20Services%20Quarterly%20Report.pdf>
- Daniels, R., & Mulley, C. (2013). The Paradox of Public Transport Peak Spreading: Universities and Travel Demand Management. *International Journal of Sustainable Transportation*, 7(2), 143-165. doi:10.1080/15568318.2011.626970
- Lingqian, H., & Schneider, R. J. (2015). Shifts between Automobile, Bus, and Bicycle Commuting in an Urban Setting. *Journal of Urban Planning & Development*, 141(2), 1-7. doi:10.1061/(ASCE)UP.1943-5444.0000214
- Ministry for the Environment. (2017). *New Zealand's Seventh National Communication – Fulfilling reporting requirements under the United Nations Framework Convention on Climate Change and the Kyoto Protocol*. Wellington: Ministry for the Environment. Weblink <http://www.mfe.govt.nz/publications/climate-change/new-zealands-seventh-national-communication-under-united-nations>
- Ministry for the Environment. (2018). *New Zealand's Greenhouse Gas Emissions Inventory April 2018*. Wellington: Ministry for the Environment. Weblink <http://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/National%20GHG%20Inventory%20Report%201990-2016-final.pdf>
- Rive, G., Thomas, J., Jones, C., Frith, B., & Chang, J. (2015). *Public transport and the next generation. Research report 569*. Wellington: New Zealand Transport Agency. Weblink <https://www.nzta.govt.nz/assets/resources/research/reports/569/docs/569.pdf>
- Webber, D., & Curry, K. (2017). *Passenger Transport Activities Twelve Month Update 2016-17. Report to Horizons Regional Council Passenger Transport Committee meeting 17 October 2017*. Palmerston North: Weblink <http://www.horizons.govt.nz/HRC/media/Media/Agenda-Reports/Passenger-Transport-Committee-2017-17-10/17201%20Passenger%20Transport%20Activities%20Twelve%20Month%20Update%20201617.pdf>