

UNIVERSITY OF TASMANIA TRAVEL BEHAVIOUR SURVEY 2017 SUMMARY OF FINDINGS

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS	ii
GLOSSARY OF TERMS AND ABBREVIATIONS	iii
EXECUTIVE SUMMARY	v
1 BACKGROUND	1
2 ABOUT THE SURVEY	5
2.1. Method	5
2.2. Participation and statistical confidence	5
2.3. How results are reported	8
3 FINDINGS	10
3.1. Journey to work and study	10
3.2. Student inter-campus travel	24
3.3. Staff business travel	27
3.4. Bus use	32
3.5. Bicycle use	33
3.6. International and local students	39
3.7. Parking	41
4 TRACKING PROGRESS	44
4.1. Students	44
4.2. Staff	46
5 OPPORTUNITIES AND CHALLENGES	48
5.1. Relocation of university facilities	48
5.2. The student community	49
5.3. The staff community	50
5.4. University new-builds and facility upgrades	51
5.5. Parking strategy	51
5.6. Collaborative approaches	52
APPENDIX: TBS Question Topics	54

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This summary information and other raw data is made available to university academics and students as part of the University's Sustainability Integration Program for Students (SIPS¹). In 2017, the TBS 2017 and previous data was used in the following research project. Some of their findings are included in this report.

Yelan Yang, *Understanding transport experiences and expectations of Chinese students in Hobart*. Thesis submitted in partial fulfilment of the requirements for Masters of Planning, June 2017. Supervisor: Dr Emma Pharo, School of Land & Food (Geography), University of Tasmania.

Data from the TBS 2017 is used to: inform university transport and facilities planning; calculate the transport-related carbon footprint of the University as required by the National Greenhouse and Energy Reporting scheme; and compile the University's greenhouse gas emissions inventory.

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¹ For more information see <http://www.utas.edu.au/commercial-services-development/sustainability/SIPS>

GLOSSARY OF TERMS AND ABBREVIATIONS

Active Transport	The combined total of walking/running and cycling.
Carpooling	An arrangement, either through formal programs or informal efforts, between two or more people sharing a ride to a common or nearby destination.
Confidence level	A measure of the reliability of a result.
EoT	End of trip
Main mode	The single transport mode used for the furthest distance in the journey (consistent with the <i>Greater Hobart Household Travel Survey 2010</i>).
Margin of error	A measure of the accuracy of the results of a survey.
Modal share	Also called mode split or mode share, modal share is the percentage of travelers or trips using a particular type of transport. It is an important indicator used for assessing sustainable transport.
Multi-modal	Multi-mode journeys involve more than one trip step and mode.
ICT	Information and communications technology
Inter-campus	Movement between two university campuses or facilities
Inter-regional	Movement between regions
Intra-city	Movement within a city/urban area
SIPS	Sustainability Integration Program for Students
STS	Sustainable Transport Strategy
Sustainable modes	The combined total of walking/running, cycling and public transport modes.
TBS	Travel Behaviour Survey
UTAS	University of Tasmania
Virtual transport	Participation in meetings/classes/events without physically attending, usually with the assistance of ICT (e.g. videoconference).

Campus Abbreviations

CftA	Centre for the Arts
CON	The Conservatorium
CC	Cradle Coast
DOM	The Domain
Hobart CBD	The aggregate of all University Hobart city centre facilities
INV	Inveresk

IMAS-S	Institute for Marine and Antarctic Studies, Salamanca
IMAS-T	Institute for Marine and Antarctic Studies, Taroona
LCS	Launceston Clinical School
MSP	Medical Sciences Precinct
NH	Newnham
RCS	Rural Clinical School
SB	Sandy Bay

Mode Abbreviations

SOV	Single occupant vehicle
MULTI	Multi-occupant vehicle
PASS	Passenger in vehicle
MC/S	Motorcycle or scooter
P(SOV)	Private single occupant vehicle
P(MULTI)	Private multi-occupant vehicle

EXECUTIVE SUMMARY

This report summaries results from the third biennial *University of Tasmania Travel Behaviour Survey* (TBS 2017). The TBS informs University of Tasmania transport and facilities planning and performance indicators that underpin the University's sustainable transport strategies. The data from all the University's travel behaviour surveys is also available for use in student and academic research projects as part of the University's Sustainability Integration Program for Students (SIPS).

This report outlines key findings from the TBS 2017, in which over 2,600 students and staff (combined) participated. It identifies changes since the 2013 and 2015 surveys that will assist with further planning, as well as challenges and opportunities in relation to the university community's collective travel behaviours and practices, and the systems and structures that influence these. The TBS collects data across university campuses and facilities in Tasmania and NSW where it has operations.

The 2017 *UTAS Travel Behaviour Survey* was conducted via two online surveys in March/April 2017 lasting two weeks, one each for UTAS staff and students. Relative to the student on-campus and staff populations, sample sizes across the survey years provide us with high confidence levels and the ability to compare over time.

There is notable variation in findings region to region, campus to campus, and between students and staff. The results are helpful in creating a snapshot for the survey year and period, and also provide us with indicators of change over time, although time series data is still insufficient for trend significance.

The following outlines key findings for the University's student and staff communities.

Key findings – students

- Since 2013, there has been a noticeable and stepped increase in students using sustainable modes (walk/run, cycle, or public transport) for their journey to university. In 2017, more than half (56%) of all University of Tasmania students travelled to the University for study by sustainable modes.
- In 2017, there are fewer single occupant vehicles attending Tasmanian southern and northern campuses than in 2013.
- In 2017, there are significantly more students taking the bus to university in Tasmania than in 2013.
- Despite an overall increase in sustainable modes, there has been a decline in student cycling overall, except for an increase at Hobart CBD campuses. Here there has also been an increase in the proportion of female cyclists relative to male cyclists.

- Any reductions in student cycling as the main mode has tended to be offset by an increase in bus use or walking (or other sustainable modes).
- The proportion of students reporting inter-campus travel in the survey period doubled from 7% in 2015 to 15% in 2017. The majority of these trips were short intra-city journeys between the Sandy Bay campus and Hobart CBD university destinations in the south, and between Newnham and Inveresk campuses in the north.
- Almost all student longer inter-region inter-campus trips were made in private vehicles, with half of these as single occupant drivers. However, the majority (75%) of shorter intra-city inter-campus trips (within cities) were made by sustainable modes.
- In Tasmania, sustainable modes were most often employed by students living in inner urban locations or locations near to their main campus of attendance.
- International and local student residential origins were differently distributed, with the majority of international students living near their main campus.
- The vast majority (more than 80%) of international students employed sustainable modes to get to university facilities (predominantly walking), reflecting their close residential proximity and shorter journeys.
- For local (Tasmanian) students, a little over half employed sustainable modes (particularly public transport), while the other half used private vehicles to get to university, reflecting their longer average journey to university and more dispersed residential origins.

Key findings – staff

- University staff travel practices largely differ from those of students.
- There has been modest growth in sustainable modes used for the journey to work across the University as a whole, although little change since 2015 and with variations by region and campus.
- More staff than students undertook multi-modal or linked (multi-stepped) trips to University. One in 10 staff journeys, and the most common multi-modal journey type, to work at the University involved a mix of single occupant and multi-occupant vehicle journeys. These are vehicle trips involving riding with family or friends at some point in the journey and linked trips with multiple purposes. The second most common multi-modal journey to work type involved staff driving, parking (often at a distance from workplaces) and then walking more than 5 minutes to work. This trip behaviour is most common for those working at Hobart CBD locations where city parking is limited or considered costly.

- The most pronounced growth in sustainable modes for staff journey to work has been at northern campuses.
- There has been a noticeable increase in staff cycling for the journey to work in Tasmanian north and south regions. Here the proportions cycling have reached 10-14% depending on the campus. Staff working at Hobart CBD facilities have maintained the highest cycling modal share of all university locations.
- With the increase in cycling for the journey to work, there are noticeably more women riding.
- Despite overall sustainable mode improvements, single occupant vehicle use as the main mode for the journey to work increased for Hobart CBD campuses from 2015 to 2017 at the expense of sustainable modes.
- A little over 7% of staff worked from home in 2017, an increase on previous survey years, while the use of ICT applications to replace physical attendance at meetings/events increased by 9 percentage points between 2015 and 2017. This is not surprising given information and communication technology improvements that facilitate both working from home and the reduction in the need to meet/attend events in person.
- The proportion of staff reporting inter-campus local travel in the survey period declined from 14% in 2015 to 10% in 2017.
- Some 40% of land-based staff business trips were to other University of Tasmania campuses/facilities, with the majority of these being intra-city trips between Sandy Bay and Hobart CBD locations. Mode share for these trips varied depending on the campus/facility and immediate local transport options.

Other findings

- Newnham and Cradle Coast campuses have the highest levels of single occupant car use.
- Hobart CBD and Launceston inner city campuses (Inveresk) display more sustainable transport practices than suburban campuses (Sandy Bay and Newnham).
- Public transport use is higher for students attending Sydney campuses/facilities than Tasmanian campuses/facilities.
- The ownership of Greencard auto-tap public transport cards has increased.
- The use of public transport online information, particularly apps, is higher in Sydney compared to Tasmania, and in Tasmania's south compared to the north and Cradle Coast. As a metropolitan city, Sydney has a more significant culture of public transport use than Tasmania, and auto-tap cards and trip-planning apps have been available there

for some time.

- Secure, covered bicycle-storage facilities are well used by cyclists (about 70%) at newer Hobart CBD facilities where such facilities have been designed into new builds, with very few cyclists storing their bikes in offices or workspaces. This is in contrast to northern campuses where almost half of all cyclists reported storing their bicycle in offices or workspaces.

Opportunities and challenges

Many opportunities have been identified as strategic actions in the *University of Tasmania Sustainable Transport Strategy 2017-2021*. The travel behaviour survey findings help confirm the value of these as well as alert university planners to further emerging issues.

University relocations and new-builds

Opportunities and challenges for Tasmania will continue to arise from the very significant, 'once in multi-generations' relocation of university facilities from suburban campuses to the CBDs of Hobart, Launceston and Burnie. These opportunities and challenges are very relevant in the transport space. First, because we have known for some time that inner urban/CBD locations tend to have the greatest levels of accessibility, and the capacity to deliver public transport and foster short trips by active modes (especially walking) compared to suburban locations; and second, because traffic congestion is becoming more of a public concern in and around the Hobart CBD, and the University needs to contribute positively to this agenda.

University new-builds and facility upgrades also provide opportunities to design-in sustainable transport infrastructure and facilities as well as incentives for more sustainable practices. Associated with these significant relocations are the following key opportunities:

- the embedding of sustainable transport infrastructure and processes into new university precinct and neighbourhood design, and facility new-builds (largely the responsibility of the University). These include high quality end of trip cycle facilities, on campus parking limits and incentives, electric charge points for e-bikes and electric cars.
- working with other agencies to:
 - improve the quality of public transport services;
 - improve the quality of cycle facilities, particularly safe and interconnected cycle routes;

- ensure the design of parking supply, especially in CBD locations, is carefully considered, recognising its significant role in influencing people’s travel mode choice for commuter trips.

The student community

Students are by far the largest population group of the University. Opportunities exist to address particular student issues and to work with certain groups. For example, our data demonstrates that when public transport infrastructure and services to university campuses are greatly improved (as has occurred in Hobart and Launceston in recent years), patronage by students has noticeably increased, suggesting there was a latent demand for public transport prior. Growth in student patronage builds the capacity to improve services and the system overall, delivering broader community sustainable transport outcomes.

While local and international students have similar uses and challenges regarding public transport, local student residential origins are more dispersed so public transport doesn’t always serve all of them well. As international students have no prior established transport behaviours in Tasmania, with a concerted focus it may be easier to assist them to take up sustainable modes on arrival and consolidate their tendency for sustainable transport practices. Opportunities might include: improving information and campaigns about how to use public transport; and noting feedback from other surveys and student engagement about public transport frequency, hours and days of service, and conveying this to public transport service providers.

Cycling awareness and education programs need to continue, albeit more tailored.

International students and women, for example, may need specific programs that focus on building competencies and confidence, and raising awareness about cycling routes and opportunities.

The Sustainability Integration Program for Students (SIPS) provides opportunities for the University's infrastructure and operational sustainability activities to enhance the academic program with an active learning laboratory in sustainability. Projects can include collecting and analysing more transport data, identifying and designing transport improvements (e.g. redesigning bus stops, bike paths etc.) and designing and building transport facilities (e.g. bicycle end-of-trip facilities).

The staff community

The University staff community presents a more complex challenge for the University, given it is more clearly correlated with the community at large. While the solutions to such complexity are largely beyond the University, the University can explore incentive schemes

and work to leverage partnerships to advocate and assist: improvements to public transport systems overall (e.g. particularly bus lanes, extending peak periods and frequency to assist part-timers, providing park-and-ride facilities well integrated with high frequency bus corridors); improvements in the walkability and connectedness of neighbourhoods; and the take-up of electric vehicles and bicycles.

While there has been a reduction in inter-campus travel, many local business trips are still being made with single occupant vehicles. While these are usually fleet cars, there is potential to increase the proportion of business trips within the Hobart CBD, and between Sandy Bay and the Hobart CBD, that are not made in a motor vehicle (fleet or private). Programs promoting high frequency local bus services linking Sandy Bay with Hobart CBD areas and Newnham/Inveresk and Launceston CBD are encouraged. This will require promoting the offering and benefits, exploring incentives and removing any barriers.

The University could also explore offering salary sacrificing for bicycles, e-bicycles and other active transport gear. This would align with the University's commitment to promoting healthy habits and a healthy workplace.

Packaging parking strategy with private vehicle travel demand strategies

It will be important to carefully consider parking strategies as part of the move to CBD (or fringe CBD) locations in Hobart, Launceston and Burnie. This requires partnering with local councils in all three to roll out measures that maximise alternative transport choices and consider the impact of parking supply and mix. The availability of parking, and its relatively low cost compared to mainland centres, provides a significant incentive for private car use for both the journey to work and other local trips. Parking supply provides opportunities to also consider the mix of parking and pricing structures, for example providing a greater proportion of car spaces for car-poolers, car-share vehicles (where car-share schemes emerge in the future), electric and/or small vehicles (including electric charging points). Along with improving the attraction of public transport, parking is highly relevant to the current concerns about traffic congestion and amenity in and around the Hobart CBD.

Parking is a challenging space to work in, however, with societal demands and expectations for parking and the local political discourse that accompanies the issue. Discussion of parking needs to be packaged with the heightening of community awareness of the links between parking supply, public transport patronage, traffic congestion and amenity in central city areas. Parking strategies that aim to limit parking in central areas cannot be pursued without significant attention to private vehicle travel demand strategies including city-wide public transport improvement and the development of supportive urban form.

Car parking demand can also be addressed by encouraging different models of car ownership and access. Around the world, car-share schemes (or car clubs) are changing the way people think about car ownership and the way many people are getting around, especially in inner urban areas where parking is also at a premium. A car-share scheme works by having cars that members can book for as little as an hour at a time. Such schemes are attractive to those not wanting to own a car, or those households not wishing to own a second or third car because they don't need it all the time. They present an opportunity to change the way people make decisions about their travel choices as owning a car usually acts as an incentive to maximise its use, whether other modes are available or not. Car-share schemes may also improve personal and business travel efficiencies, and might also provide international/interstate students with a means to travel beyond their study environments without the need to purchase a vehicle.

Collaboration is key

The University's most recent *Sustainable Transport Strategy 2017-2021* outlines a number of strategic actions that address opportunities and challenges. While there are strategic actions that the University can undertake in-house, there are many that require collaborative approaches externally. Collaboration in itself is an opportunity to not only address university-specific issues, but also ensure that there are community-wide benefits. For example, enhancing public transport to grow student and staff patronage also enhances public transport for other public transport users. The University of Tasmania already has many constructive relationships and collaborations in the transport space, many of these prompted or led by University Sustainable Transport Strategy initiatives. Continuing to leverage these stakeholder partnerships will deliver improvements to infrastructure and services, delivering sustainability outcomes through sharing data, knowledge, experience and resources.

1 BACKGROUND

The University of Tasmania's (UTAS) Sustainable Transport Strategies (2012-16 and 2017-2021) guide investments and actions that deliver more socially, economically and environmentally sustainable transport outcomes². Responding to the need for appropriate data, the *UTAS Travel Behaviour Survey* (TBS) project was initiated in 2012 to provide baseline travel behaviour data for the university community and then ongoing data over time (biennial) to inform planning and performance indicators that underpin the University's sustainable transport strategies. The survey was initially designed and developed as part of the Sustainability Integration Program for Students (SIPS)³. The SIPS program provides opportunities to partner operational projects with student academic endeavours. In conjunction with data from the 2013 and 2015 TBS, the data from the 2017 TBS is being used by students and academics undertaking various transport-related research projects.

This report outlines key findings from the 2017 TBS, in which over 2,600 students and staff (combined) participated. It identifies changes since the 2013 and 2015 surveys that will assist with further planning, as well as challenges and opportunities in relation to the university community's collective travel behaviours and practices, and systems and structures that influence these.

The results of the survey provide great insight into UTAS staff and student travel behaviour associated with university business (work and study) across university campuses and facilities in Tasmania and NSW, and within the regions of University of Tasmania operations. While there are a range of other smaller purpose-driven surveys associated with UTAS transport planning and management (i.e. vehicle traffic, motorcycle, bicycle and pedestrian counts) the UTAS TBS has become a valuable comprehensive periodical dataset that informs not only university planning but also other agencies responsible for transport service delivery and infrastructure improvement.

UTAS is a growing institution, both in terms of students and its facilities⁴. It is also one of the largest employers in Tasmania⁵. The University's facilities and associated activities generate a range of trips and transport infrastructure and service demands beyond those just focused on the movement of students and staff to and from study or work. It is consequently important to understand how, why, when and where students and staff are moving about to manage the

² <http://www.utas.edu.au/commercial-services-development/sustainability/transport>

³ SIPS (previously known as AOSIP) is an award-winning program linking operational sustainability outcomes with student education and experience. See more at <http://www.utas.edu.au/commercial-services-development/sustainability/SIPS>

⁴ Over 30,000 students were enrolled 2017 (UTAS student enrolment data Semester 1 2017).

⁵ The University is also a significant employer with over 6000 employees in 2016 if fixed-term, ongoing, and casual staff are counted (UTAS Human Resources database).

impacts of the University's trip generation, improve access to facilities, and address inefficiencies or issues associated with university travel.

While the University is a growing institution in terms of student numbers, the drivers of changing travel patterns and transport infrastructure or service demands are not simply associated with an increasing university population. Rather it is the changing nature and location of the university population that are becoming important contributors to travel demand and changing travel patterns amongst students and staff, particularly the following:

1. the reduced proportion of student enrolments as 'on-campus' students and in some cases an actual reduction in the number of students 'on-campus' despite an increase in enrolments due to the take-up of online learning platforms⁶;
2. an increase in 'on-campus' international students, particularly in Hobart and Launceston⁷; and
3. the dispersal of students and staff across city-based facilities as the University develops beyond its largest campuses. While the largest university campus continues to be the Sandy Bay campus (Hobart), there are an increasing number of students and staff attending smaller facilities throughout the Hobart city centre as the University develops into this zone. This will continue into the future, as university expansion programs in Launceston, Hobart and Burnie roll out.

In addition to the three noted changes in the university community's population and location, there have been an array of improvements implemented to encourage the take-up of sustainable transport practices since the 2015 survey. Working internally and with external partners, such as Metro Tasmania and the Cities of Hobart, Launceston and Burnie, considered improvements have been made to enhance the quality of transport choices, transport efficiencies and infrastructure that influence travel behaviour.

⁶ Between 2013 and 2016, UTAS student enrolments increased by 51%. The majority of this increase, however, comprised students enrolled in external (online) capacities with the overall number of students on-campus across the University remaining fairly constant (0.3% increase). In 2013, some 83% of all student enrolments were on-campus in some capacity. In 2016 this reduced to 55%. On-campus students enrolled at Hobart campuses/facilities increased by only 1% between 2013 and 2016, while on-campus students in Launceston and Cradle Coast declined by 6% and 24% respectively and increased by more than 50% in Sydney campuses at Rozelle and Darlinghurst with the growth of programs there (UTAS student enrolments).

⁷ The number of international students as a share of on-campus students is approximately one quarter (<http://www.universityrankings.com.au/international-student-numbers.html>) with the University planning to double international student intake over the decade (<http://www.abc.net.au/news/2015-08-30/utas-plans-to-double-intake-of-overseas-students/6735938>).

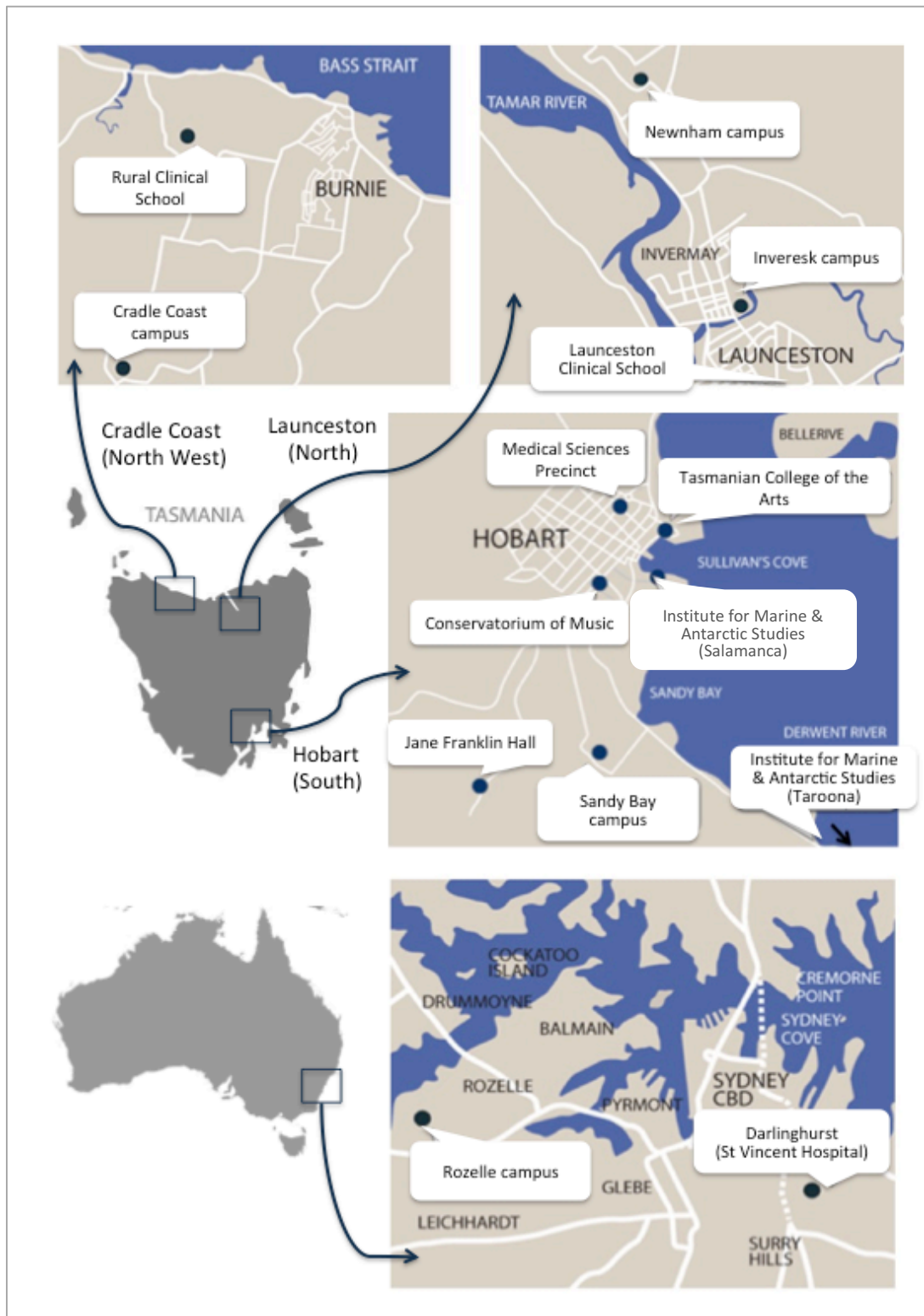


Figure 1.1: University of Tasmania campus locations, 2017

Improvements made in Tasmania since 2015 include:

- Tasmanian public transport service improvements connecting university campuses including:

- high frequency, through-servicing bus routes in various transport corridors connecting Launceston and Hobart suburbs to campuses and CBDs
- high frequency bus services linking Launceston campuses to the Launceston CBD
- Infrastructure upgrades:
 - bicycle parking, lockers, hubs and EoT facilities involving over 200 new parking hoops and upgrades to many more
 - bus shelter and stop installations, re-locations, and upgrades at Newnham, West Park and Sandy Bay campuses
 - 20 more motorcycle/scooter parking spaces
 - availability of car pool parking permits and dedicated spaces
- Provision of Decide Your Ride online videos and maps for the safest bicycle routes connecting Hobart and Launceston campuses to one another and their CBDs
- Increase in parking permit costs

Figure 1.1 shows the location of university campuses and major facilities in Tasmania and inner Sydney, New South Wales. The TBS collects data for all these campuses and facilities.

2 ABOUT THE SURVEY

Here we outline the TBS 2017 method employed, participation, and reporting.

2.1 Method

The 2017 *UTAS Travel Behaviour Survey* was conducted via two online surveys in March/April 2017, one for UTAS staff and one for students so that questions could be tailored to these specific communities.

The 2017 survey followed on from the approach adopted in the 2013 and 2015 Travel Behaviour Surveys. Like previous years, an online survey was deemed the most suitable survey approach given available resources, the need to be able to reach all UTAS staff and student communities across the state, and the need to provide capacity for periodically repeated surveys to allow for longitudinal analysis. Each successive survey is run at a similar time of year using similar data collection methods to ensure comparability across data sets. The 2017 surveys were open for a two-week duration, 27 March - 9 April 2017. The TBS project has approval from the Tasmanian Social Sciences Human Research Ethics Committee (reference H0016363).

To recruit participants, bulk emails were sent to students and staff inviting them to participate. A second reminder email was sent out part way through the survey period. Staff news also included a story about the survey in the lead-up to its opening.

The staff survey asked participants to reflect on their travel behaviour for the previous week, such as what days of the week they travelled to and from work, by what mode or modes they travelled and the length of their journey measured by time taken. Other questions focused on travel for work purposes both inter-campus and to other non-UTAS destinations. Further questions were framed around car parking practices, public transport use (including information and ticketing), cycling infrastructure use, information and communications technology use for face-to-face meeting replacement, and carpooling practices. Survey questions and themes are outlined more fully in the Appendix.

The student survey replicated much of the staff survey; however, inter-campus travel for work was reframed as inter-campus travel for study. Questions about technology use for meetings were not included in the student survey. Questions were asked of staff and students to provide further participant context to the analysis, such as the primary campus of work/enrolment, age, gender, employment status, and postcode and suburb of residence.

2.2 Participation and statistical confidence

Survey participation details and statistical confidence are outlined in Table 2.1. Overall, there

was a decline in survey participation in 2017 compared to previous student and staff surveys; however, relative to the student on-campus and staff populations, sample sizes still provide us with confidence levels of 95% for on-campus students with a margin of error +/- 2.1 percentage points, and 90% for staff with a margin of error +/- 2.9 percentage points⁸. Due to only marginal difference in statistical confidence between each survey year, we have high confidence in our year-to-year comparisons⁹.

Table 2.1: Participation & statistical confidence 2013, 2015 and 2017

Student survey			
Survey Year	Responses (sample size)	Confidence level¹⁰	Margin of error (+/- percentage points)
2013	3133	95%	+/- 1.6
2015	3528	95%	+/- 1.5
2017	1976	95%	+/- 2.1
Staff survey			
Survey Year	Responses (sample size)	Confidence level	Margin of error (+/- percentage points)
2013	838	90%	+/- 2.6
2015	952	90%	+/- 2.4
2017	695	90%	+/- 2.9

In each student and staff TBS, there is a higher participation of female respondents than males (Table 2.2). This translates to only a small bias, as there is a higher proportion of females than males in the general student and staff populations. For instance, the University’s staff gender profile was reported as being 44% men and 56% women in 2015-16¹¹. For the student population, some 37% of enrolments were men and 63% women in 2016¹², although the gender difference narrows if external (online) enrolments are removed. Where there is specific gender analysis, such as in calculating male to female cycling ratios, we have standardised the data according to the population gender split to remove bias.

⁸ A confidence level of 95 per cent means that there is a probability of at least 95 per cent that the result is reliable. The larger the margin of error around a value, the less accurate the value.

⁹ The difference between 2015 and 2017 margins of error for students is 0.6 percentage points, and for staff is 0.5 at the same confidence levels.

¹⁰ Confidence levels were calculated based on estimates of student on-campus/part on-campus populations provided by the University of Tasmania, and by using the Survey Monkey sample confidence calculator.

¹¹ Workplace Gender Equity: Public Report 2015-16, University of Tasmania
https://www.wgea.gov.au/sites/default/files/public_reports/tempPublicReport_pjeegtkwll.pdf

¹² University of Tasmania Semester 1 2016 student enrolments

Table 2.2: Survey respondent profile

	STUDENTS			STAFF		
	Year 2013	Year 2015	Year 2017	Year 2013	Year 2015	Year 2017
Location of study/work						
Sandy Bay	47.1%	46.4%	48.5%	52.6%	49.7%	50.4%
Hobart CBD	14.6%	14.4%	16.0%	12.9%	18.5%	22.2%
Other South	0.1%	0.2%	0.4%	2.2%	3.2%	1.4%
All South	61.8%	61.1%	64.9%	67.7%	71.4%	74.1%
Inveresk	4.3%	2.4%	2.2%	1.7%	2.0%	1.3%
Newnham	25.0%	23.7%	19.0%	23.9%	21.3%	19.5%
Other North	0.1%	2.9%	0.9%	0.7%	0.7%	0.2%
All North	29.5%	29.0%	22.1%	26.4%	23.9%	20.9%
Cradle Coast campus	4.7%	4.2%	4.6%	2.9%	2.8%	2.0%
Rural Clinical School	1.0%	0.6%	0.6%	1.2%	0.5%	1.3%
All Cradle Coast	5.7%	4.7%	5.2%	4.1%	3.3%	3.2%
Sydney (Rozelle/Darlinghurst)	-	3.7%	4.3%	-	0.9%	0.4%
Other location	3.0%	5.2%	7.8%	1.9%	1.3%	1.8%
Gender						
Men	31.2%	33.2%	28.2%	31.6%	36.2%	34.8%
Women	68.8%	66.8%	69.7%	68.4%	63.8%	64.9%
Other (incl. Trans/prefer not to specify)	-	-	2.0%	-	-	0.4%
Employment status (staff)						
Full-time	-	-	-	63.2%	65.1%	67.6%
Part-time	-	-	-	19.4%	16.6%	19.5%
Casual/short-term contract	-	-	-	17.4%	18.2%	13.0%
Student origin						
Tasmanian student	80.0%	70.7%	68.0%	-	-	-
Interstate student	9.5%	16.8%	15.2%	-	-	-
International student	10.5%	12.5%	16.8%	-	-	-

2.3 How results are reported

Results are reported for students and staff separately, except for a few key performance indicators where student and staff survey results are aggregated. Results are reported for the University as a whole, at regional scales (i.e. in Tasmania for South, North, Cradle Coast, and for Sydney), and at the campus scale. Where there are a number of smaller campuses/facilities in the same vicinity, we have chosen to group them and report aggregate results (such as Hobart CBD).

Table 2.3: Reporting scales

Reporting scales (groupings)	Campus and facilities incorporated within reporting scales
South – all campus and facilities located in and around greater Hobart	Sandy Bay, Medical Sciences Precinct (MSP), Institute of Marine and Antarctic Studies at Salamanca and Taroona, Conservatorium, College of the Arts, Domain, New Town Laboratories, Mt Pleasant Observatory, all Hobart student accommodation facilities
North – all campuses and facilities located in and around greater Launceston	Newnham, Inveresk, Launceston Clinical School and Australian Maritime College at Beauty Point, all Launceston student accommodation facilities
Cradle Coast – all campuses and facilities located in and around Burnie	Cradle Coast campus and Rural Clinical School, all Burnie student accommodation facilities
Sydney, NSW – all campuses and facilities located in inner Sydney	Rozelle and Darlinghurst
Hobart CBD – all facilities located in the Hobart central business district (CBD)	MSP, Institute of Marine and Antarctic Studies (Salamanca), Conservatorium, College of the Arts, The Domain, all Hobart CBD student accommodation facilities
Sandy Bay campus	All Sandy Bay campus facilities, Hobart

As we now have three biennial data sets, we are able to make comparisons over time for transport mode share, although time series data remains insufficient to determine trend significance. In order to consider changes over time and note differences in mode share by place, we report:

- on the mode share for the University as a whole, and how this compares with 2013 and 2015;
- by region; and
- by major campuses or campus groupings.

It should be noted that the mode share reporting method has changed from 2013 and 2015, although data is still comparable. We have removed the reporting of the proportion of respondents studying or working from home (virtual transport) in 2017 and have adjusted 2013 and 2015 data accordingly. This means that the proportions reported in this report differ slightly from those reported in the 2013 and 2015 Summary Reports. The adjusted data means that we

can compare across years more accurately and report on only those people travelling to a university campus or facility. Work from home/virtual transport is still reported but in its own section.

3 FINDINGS

This section presents the TBS findings as they relate to: transport mode share; land-based inter-campus and business travel; and use of public transport, bicycle and parking infrastructure and services.

3.1 Journey to work and study

The following reports on the modes of transport used for travel to/from university facilities for work or study. We report on both multi-modal journeys and the main mode. Multi-modal journeys involve more than one trip step mode, while main mode is defined as the single mode used for the farthest distance in the journey. The latter is used as a key performance indicator for university transport planning. With three biennial data sets, we are now able to make comparisons over time for the main mode share. In 2017, for the reporting of main mode over time we have focused only on real journeys to the University, removing the reporting of respondents studying or working from home (virtual transport). Work from home/virtual transport is still reported but in its own section.

Multi-modal journeys to university

Around one third of student and staff respondents reported their journeys to the University in Tasmania and Sydney as multi-modal (these journeys include those with walking components longer than 5 minutes).

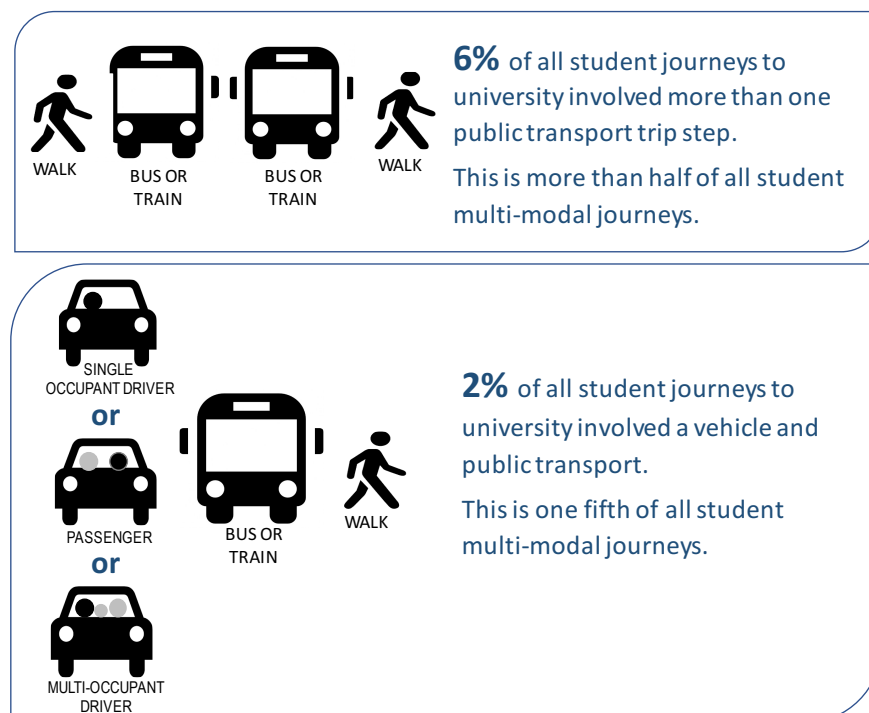


Figure 3.1: Top two student multi-modal journey types to university, 2017

Some 6% of all student journeys to university and more than half of all student multi-modal journeys involved more than one public transport trip step (i.e. at least two buses, or in Sydney possibly a train and a bus), while 2% of all journeys and 21% of all multi-mode journeys involved a vehicle (either as a single or multi-occupant driver or passenger) and public transport (Figure 3.1).

For staff, some 10% of all journeys to university and 34% of all multi-modal journeys were a mix of single occupant and multi-occupant journeys, likely to be vehicle trips involving riding with family or friends at some point in the journey (frequently referred to as carpooling), and also involving dropping off or picking up other household members (i.e. children). The second largest staff multi-modal journey type was single occupant vehicle and walk, where staff drove, parked and walked more than 5 minutes to their workplace (Figure 3.2). For Hobart CBD staff, where parking is restricted or costly in the CBD, the vehicle is often parked on the inner-city fringes.

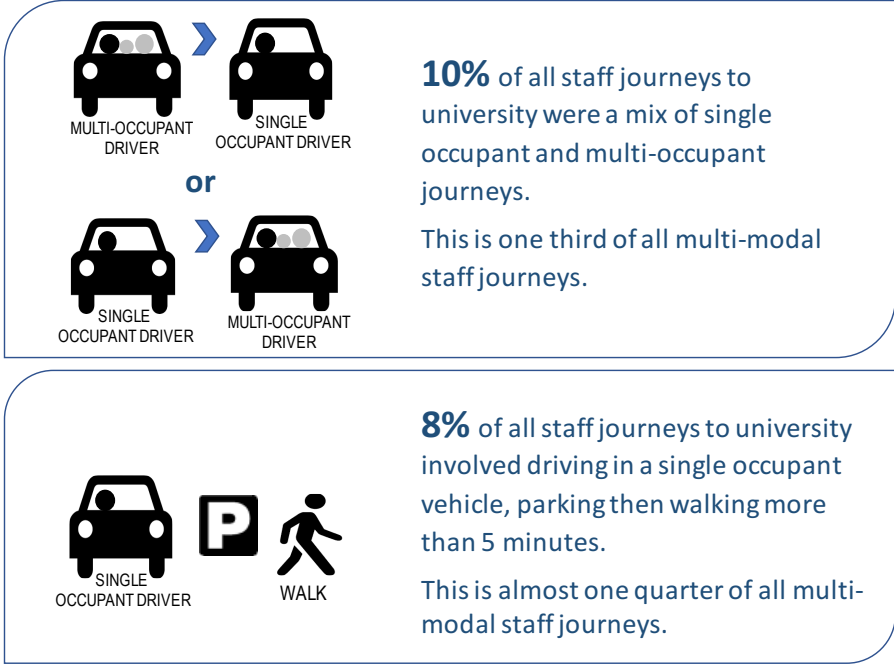


Figure 3.2: Top two staff multi-modal journey types to university, 2017

Student main mode to university

Figure 3.3 shows a gradual increase over time in the use of sustainable modes (walk, bicycle, bus) by students as the main mode for their journeys to/from university overall. Growth in public transport use is most noticeable, as is the decline in car-based modes. Mode distribution, however, varies significantly from region to region and campus to campus as shown in Figure 3.4, with campuses located in or near to city centres performing best (see Hobart CBD compared to Sandy Bay, and Inveresk compared to Newnham for example).

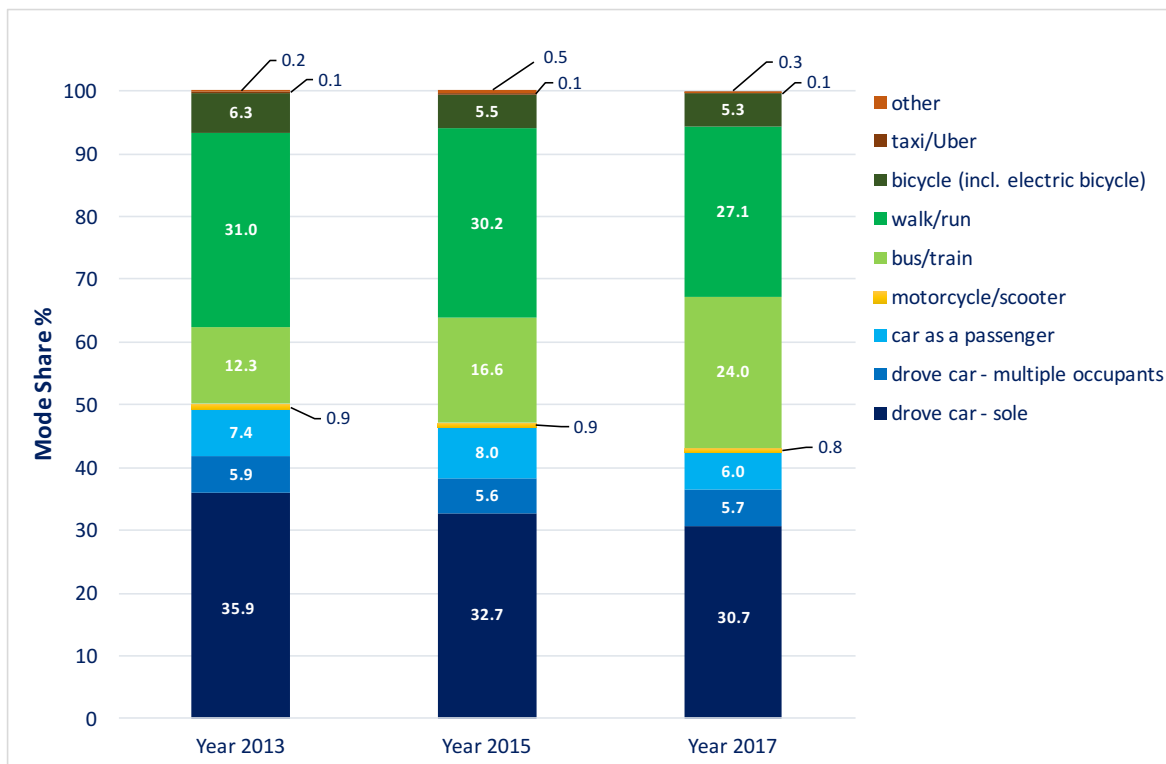


Figure 3.3: Main Mode Share 2013, 2015, 2017 – Students – All University of Tasmania

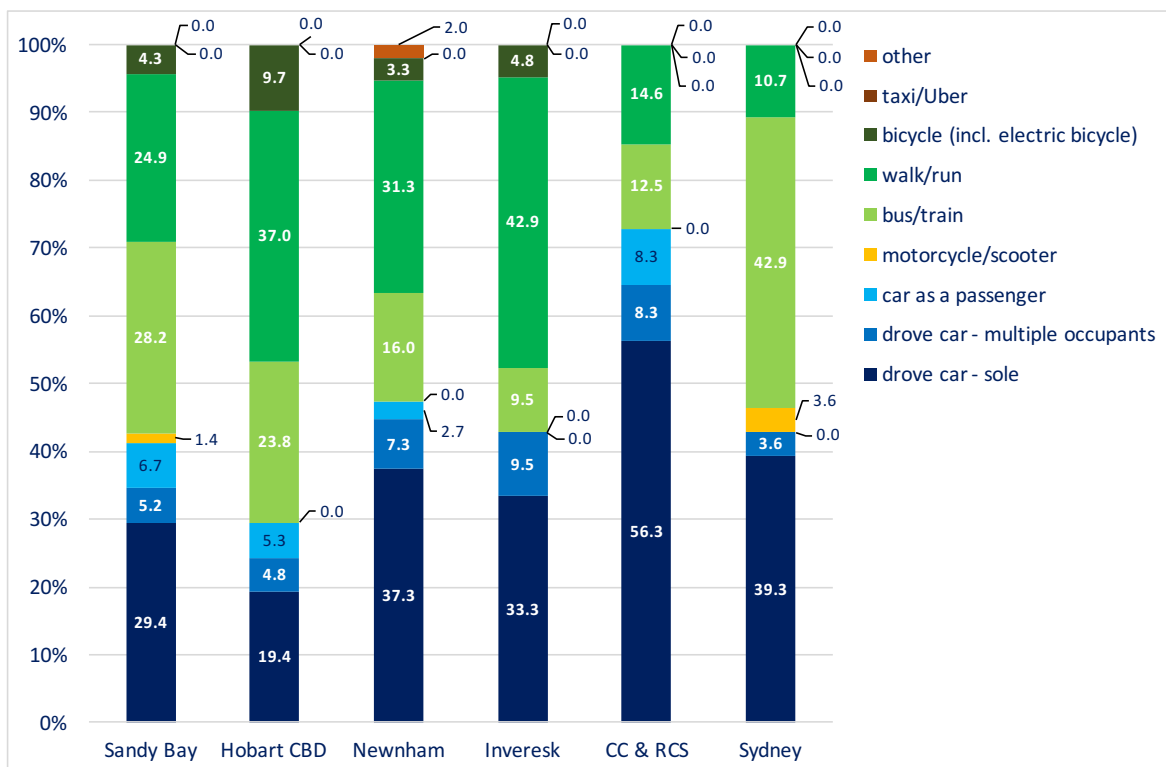


Figure 3.4: Main Mode Share 2017 – Students – by campus and campus groupings

All Tasmanian regions and major campuses display a positive shift away from single occupant vehicle use towards sustainable modes, particularly public transport use (Figures 3.5 to 3.8 and 3.12). However, there has been little change in bicycle mode share, and a decline in bicycle

use in some locations, such as northern campuses (Figure 3.6). The Hobart CBD has the highest proportion of students cycling in 2017 (almost 10%) and the greatest growth in student cyclists between 2013 and 2017 (Figure 3.10). As shown in Figures 3.9 and 3.11 more than 60% of students live within the City of Hobart local government area meaning that there is a concentration of students in inner suburbs where access to public transport and opportunities to walk or cycle are highest.

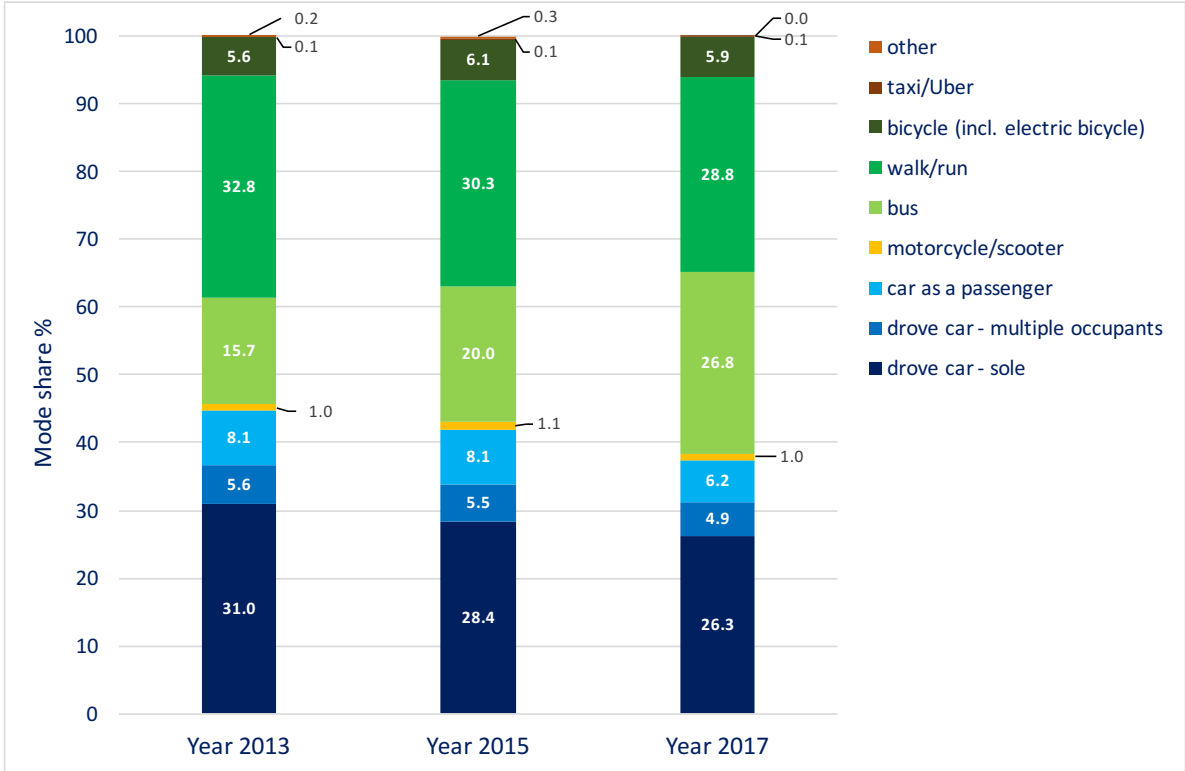


Figure 3.5: Main Mode Share 2013, 2015, 2017 – Students – Tasmania South (all Hobart)

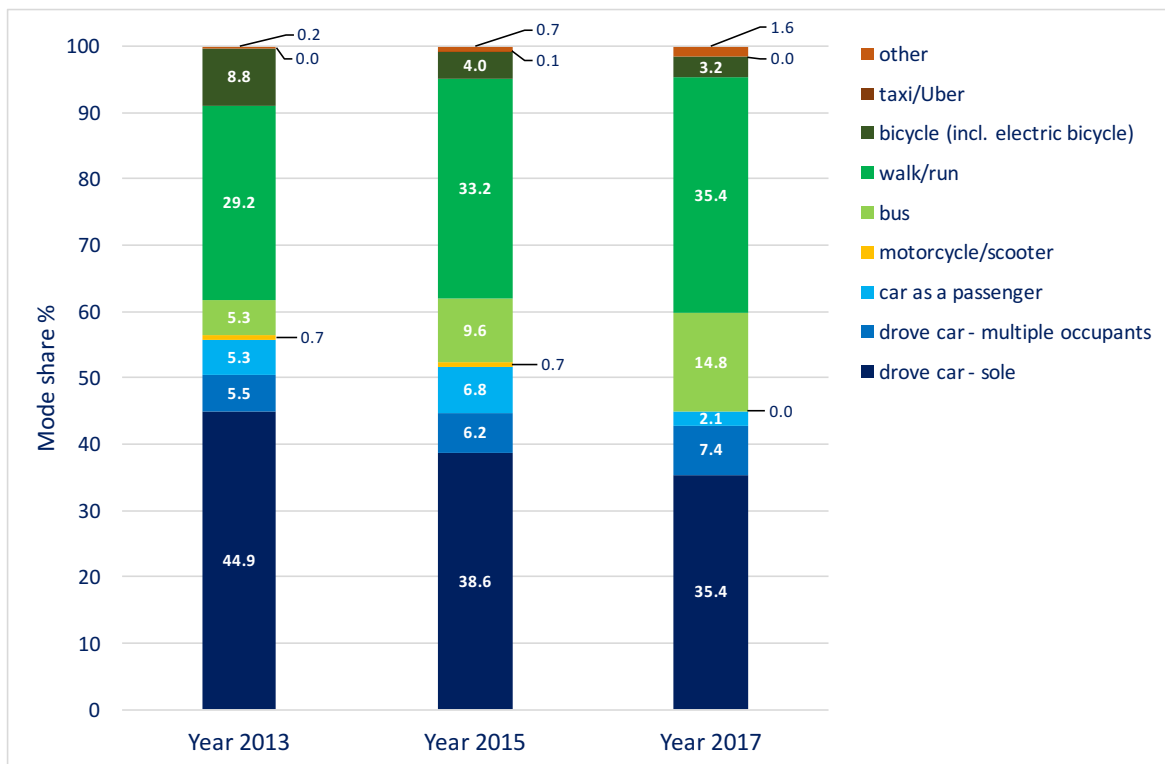


Figure 3.6: Main Mode Share 2013, 2015, 2017 – Students – Tasmania North (all Launceston)

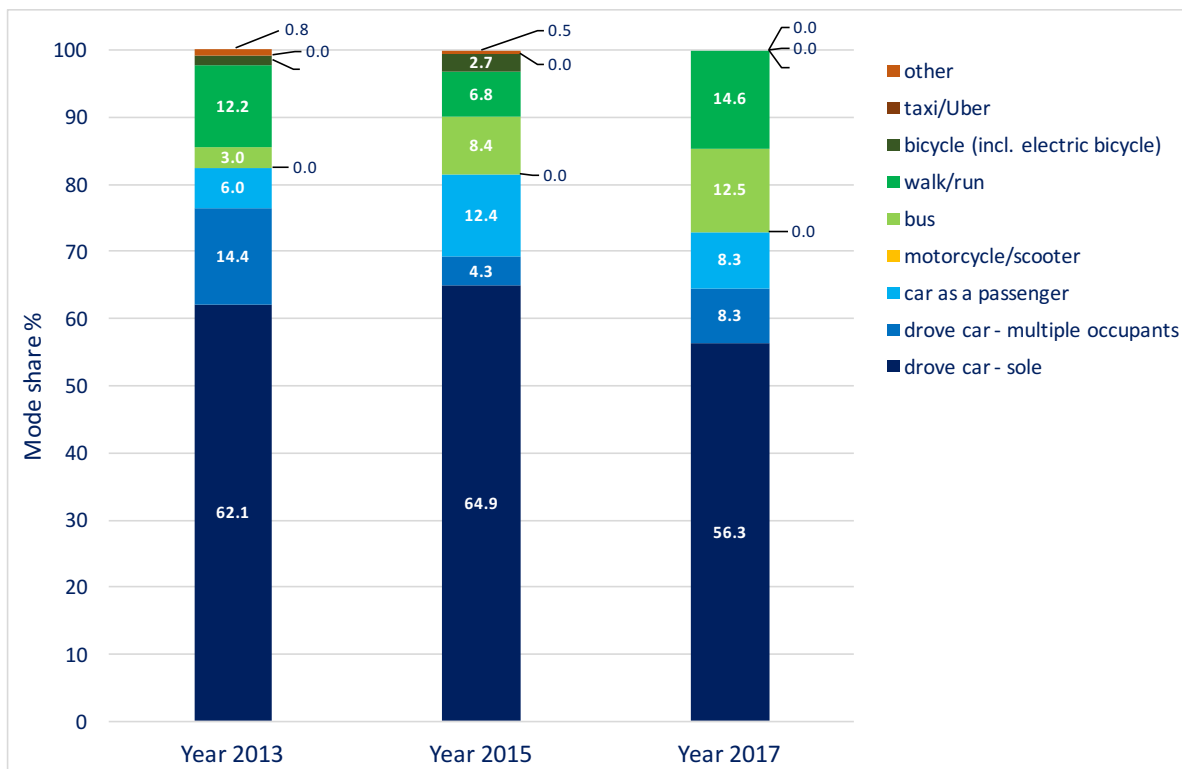


Figure 3.7: Main Mode Share 2013, 2015, 2017 – Students – Tasmania Cradle Coast (all Burnie)

Note: Year-to-year comparisons are to be taken with caution for this region as sample sizes for Cradle Coast in 2017 are small, <100. Instead the data provides an indication of the mode share.

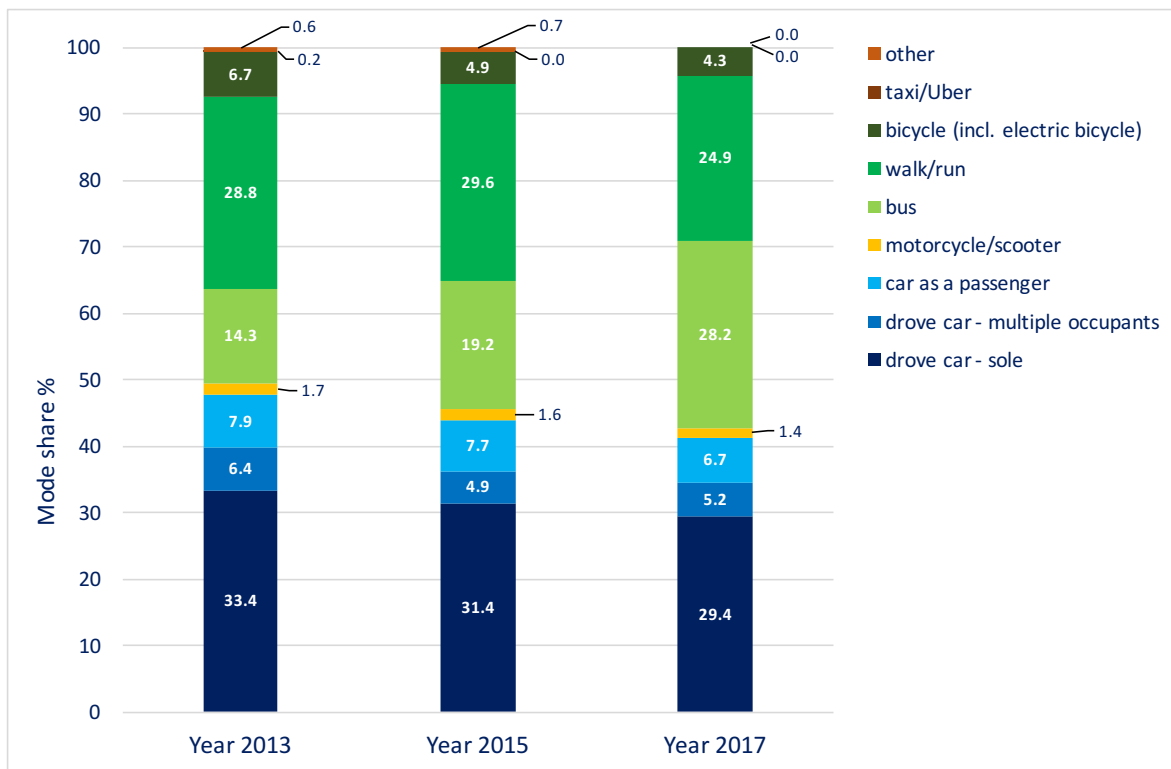


Figure 3.8: Main Mode Share 2013, 2015, 2017 – Students – Sandy Bay Campus (Hobart)

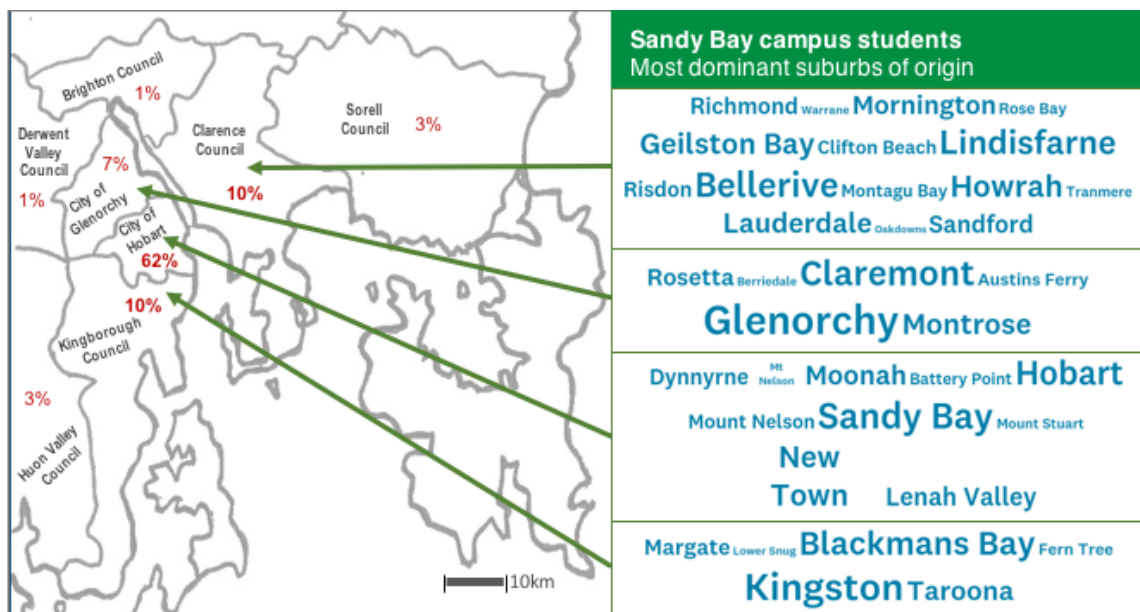


Figure 3.9: Residential origin and most dominant suburbs of origin by local government area - Students studying at Sandy Bay Campus (Hobart)

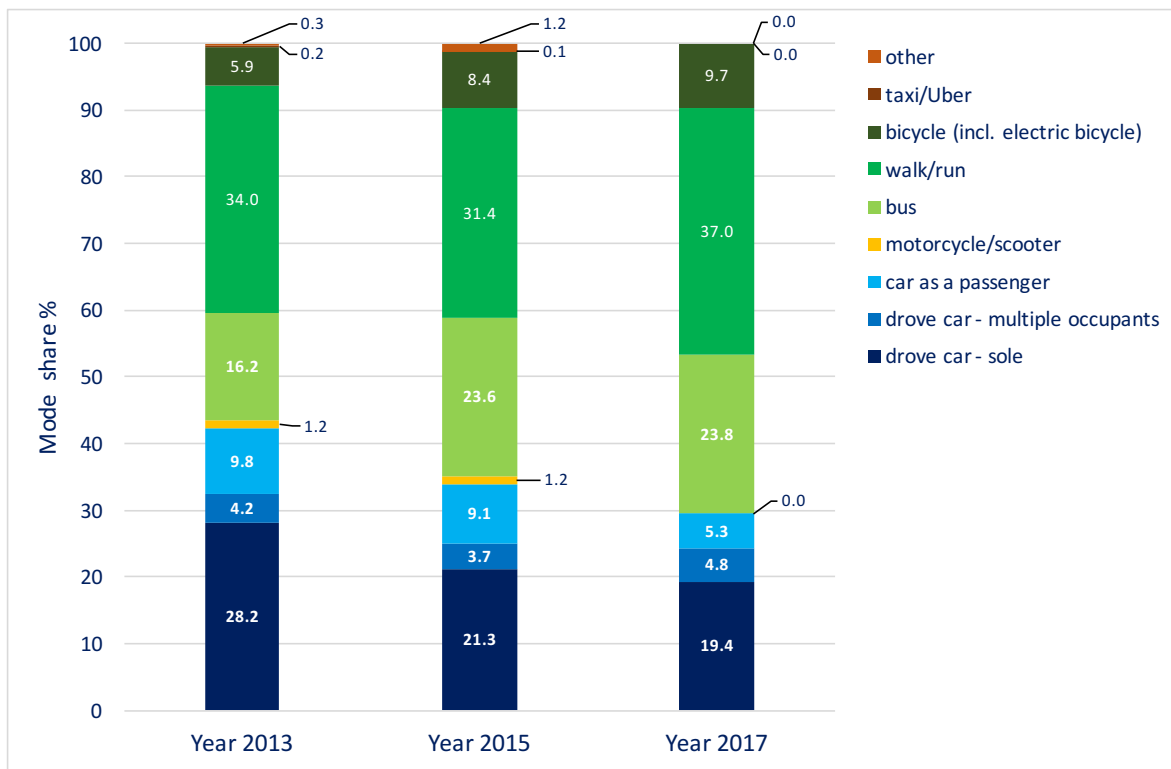


Figure 3.10: Main Mode Share 2013, 2015, 2017 – Students – Hobart CBD

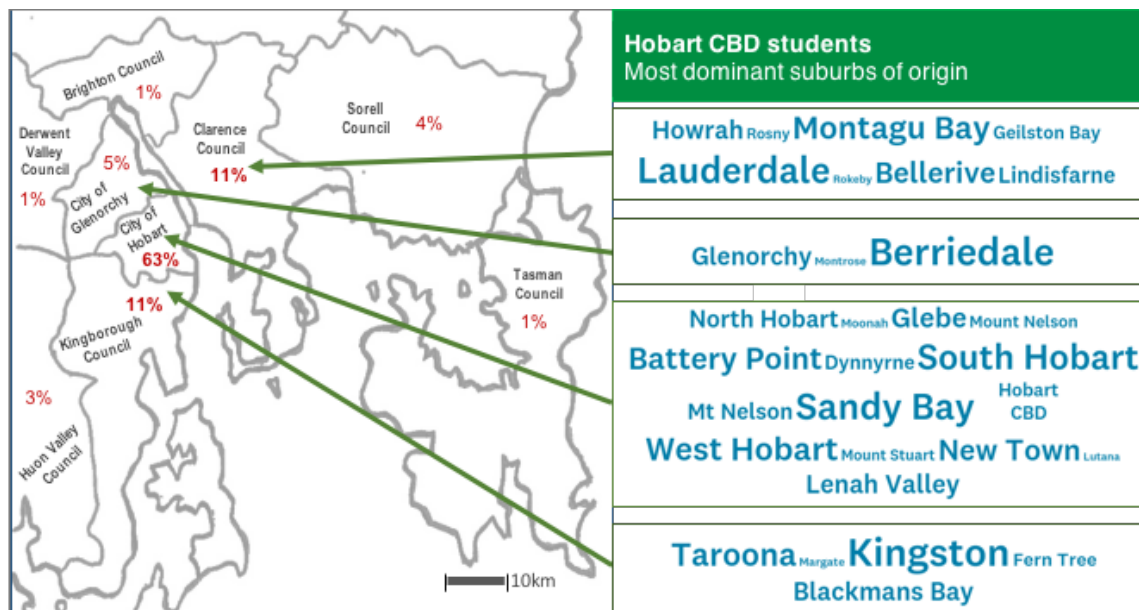


Figure 3.11: Residential origin and most dominant suburbs of origin by local government area – Students studying in Hobart CBD

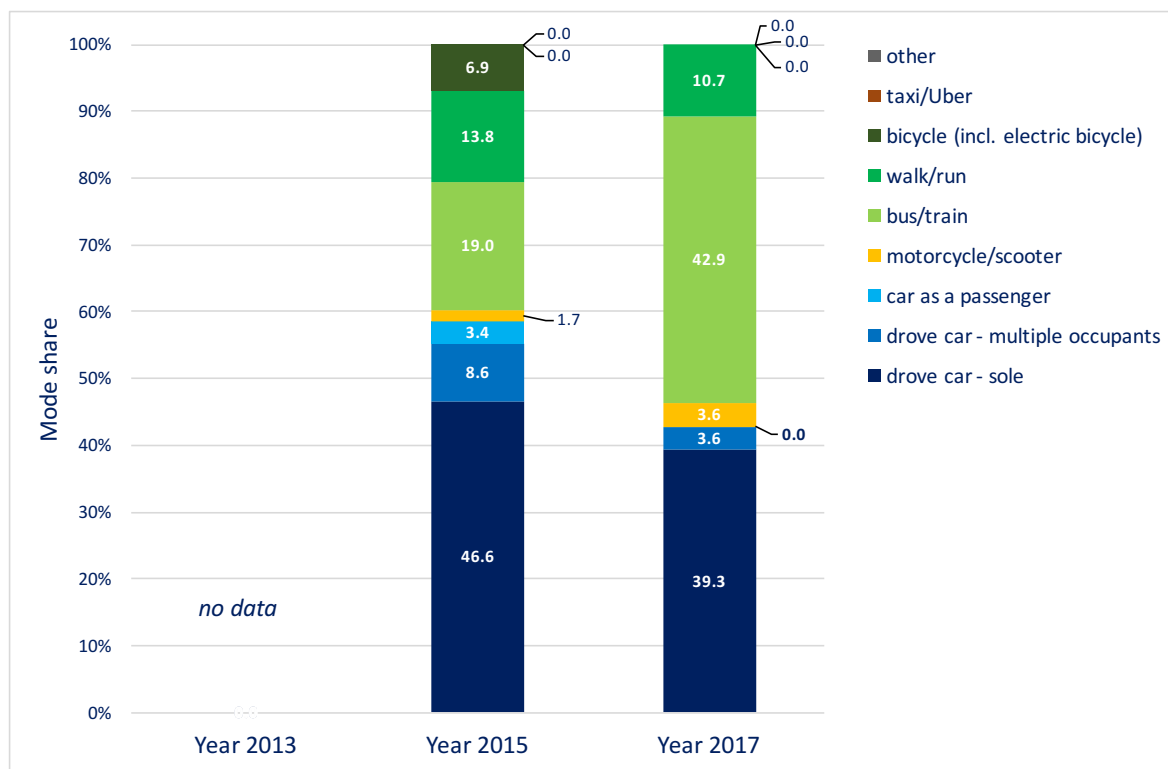


Figure 3.12: Main Mode Share 2015, 2017 – Students – Sydney campuses (Rozelle & Darlinghurst)

Note: Year-to-year comparisons are to be taken with caution for this region as sample sizes are small, <100. Instead the data provides an indication of the mode share.

Staff main mode to work

Main mode distribution for staff journeys to/from the university for work is quite different to that for students and staff residential origins tend to be more dispersed (for Hobart staff see Figures 3.18 and 3.20). For the University overall, Figure 3.13 shows that there has been very little change in car-based modes overall and sustainable modes collectively (walk, bicycle, bus). Like students, however, mode distribution from region to region and campus to campus has notable variations. Figure 3.14 shows that staff located in Hobart CBD locations have almost double the share of sustainable mode use in 2017 compared to those located at Sandy Bay campus (40% in Hobart CBD compared to 21% at Sandy Bay). There is a similar pattern in Launceston where Inveresk/Launceston Clinical School has a higher share of sustainable mode use compared to Newnham. The campuses with the highest single occupant car use are Newnham in the north and Cradle Coast campus/Rural Clinical School in Burnie. In 2017, staff at the latter did not report any sustainable mode use though sample size here was small.

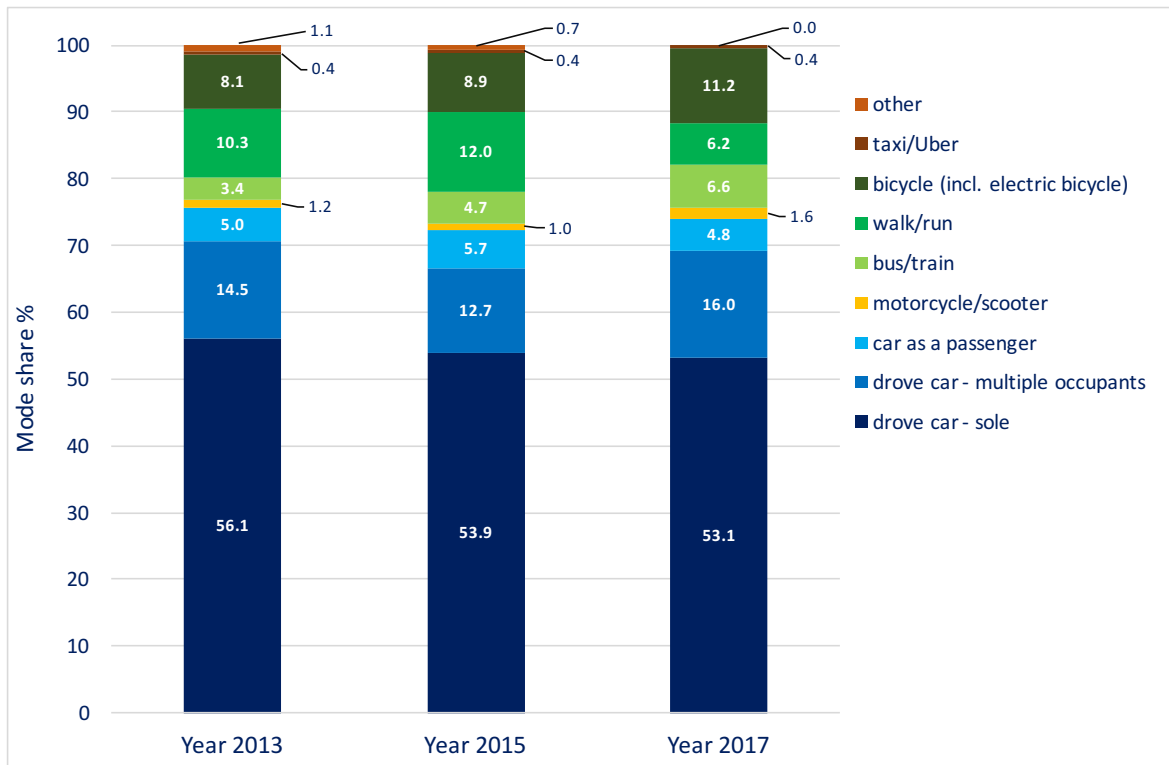


Figure 3.13: Main Mode Share 2013, 2015, 2017 – Staff – All University of Tasmania

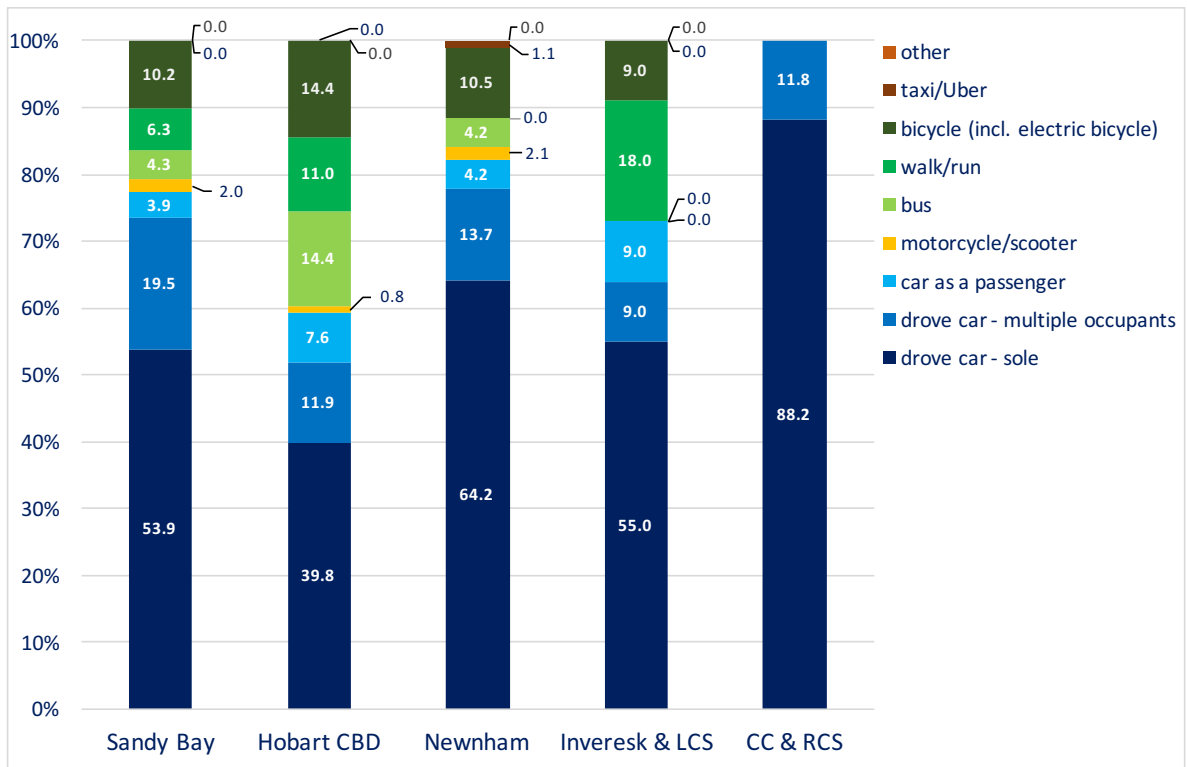


Figure 3.14: Main Mode Share 2017 – Staff – by campus and campus groupings

Note: The staff sample size for Sydney was too small to report

Over time there are small positive changes in bus use and bicycle use for staff in the south (Figure 3.15) and north (Figure 3.16) regions, although a decline in the proportion walking as the main mode. Bicycle use in 2017 for the journey to work is almost 12% in the south and a little over 10% in the north; this rises to over 14% for staff at Hobart CBD locations (Figure 3.19). Both northern and Sandy Bay campuses have increased their staff bicycle use by around 3 percentage points since 2013 (Figures 3.16 and 3.17). The decline in walking appears to be offset by the increases in bus and bicycle use, suggesting that these modes are replacing walking as the main mode, rather than replacing private vehicle use. Walking, albeit less of it, is usually still associated with bus use, however. The challenge into the future will be to grow sustainable modes from those currently travelling by private motor vehicles, rather than those already practising sustainable modes.

While staff at the Hobart CBD have the highest levels of sustainable mode use, it is concerning to see that the share has declined over time and 2017 data shows higher levels of car use compared to 2015 and 2013. This is contrary to the student pattern. Figures 3.18 and 3.20 show that a lower proportion of staff working in the Hobart CBD are living locally (at least within the City of Hobart local government area) than those working at the Sandy Bay campus. For those living in neighbouring local government areas (Clarence and Kingborough) where there are still good public transport links to the city generally, a good number of staff still live in suburbs that have reduced public transport convenience being away from transport hubs or high frequency corridors (e.g. Richmond, Howrah, Mornington and Blackmans Bay). This may partly explain the staff Hobart CBD situation and points to some greater thinking around public transport connectivity for those not near high frequency bus routes. While a high level of public transport service cannot be provided to everyone in a low density and dispersed urban setting, well designed park-and-ride facilities connected to select high frequency bus service corridors perhaps supported by dedicated bus lanes might be further explored, particularly in outer growth areas where travel demand will continue to grow.

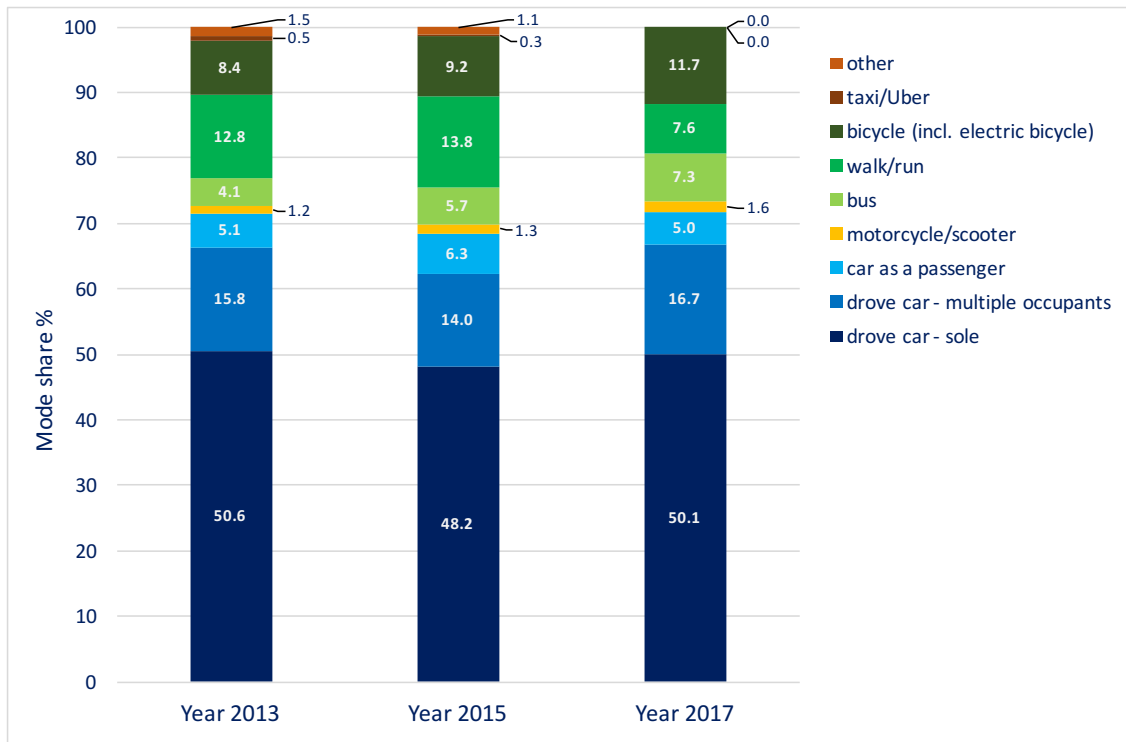


Figure 3.15: Main Mode Share 2013, 2015, 2017 – Staff – Tasmania South (all Hobart)

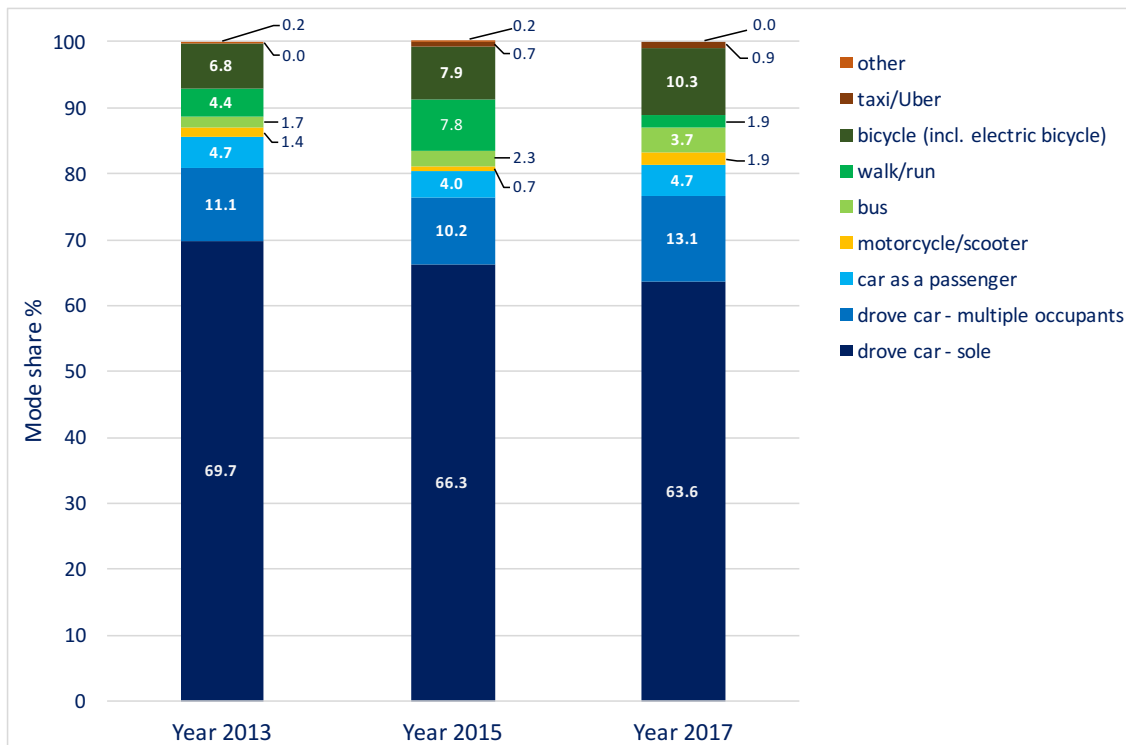


Figure 3.16: Main Mode Share 2013, 2015, 2017 – Staff – Tasmania North (all Launceston)

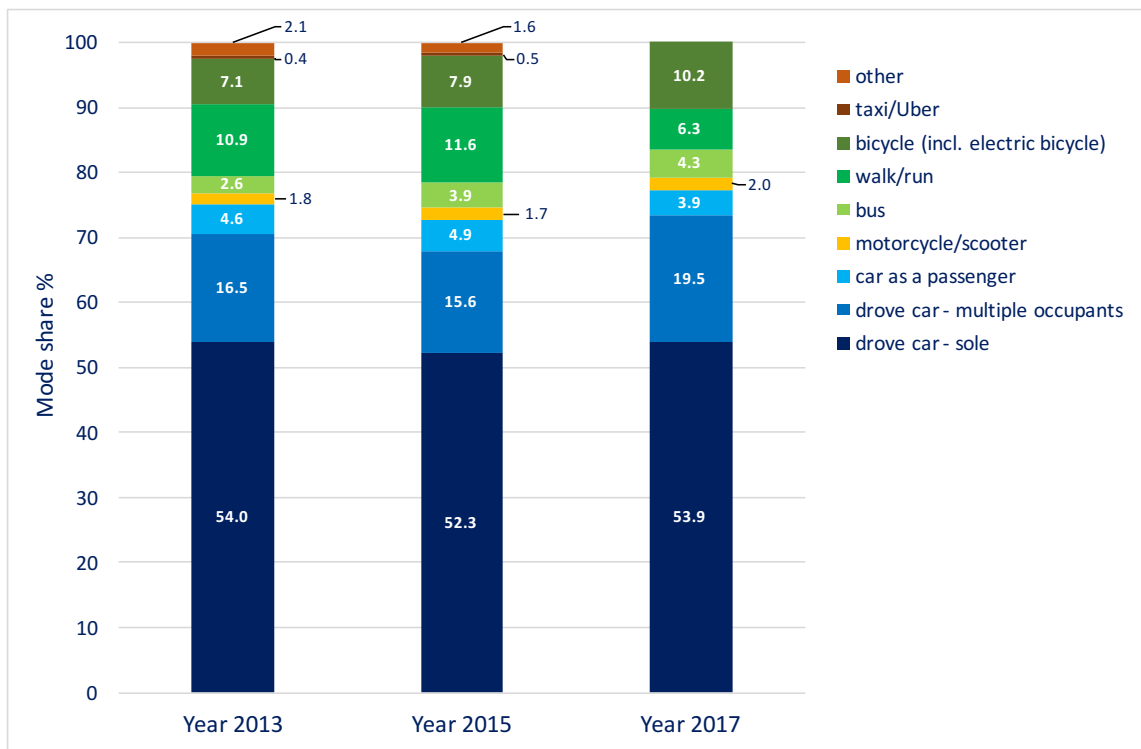


Figure 3.17: Main Mode Share 2013, 2015, 2017 – Staff – Sandy Bay Campus (Hobart)

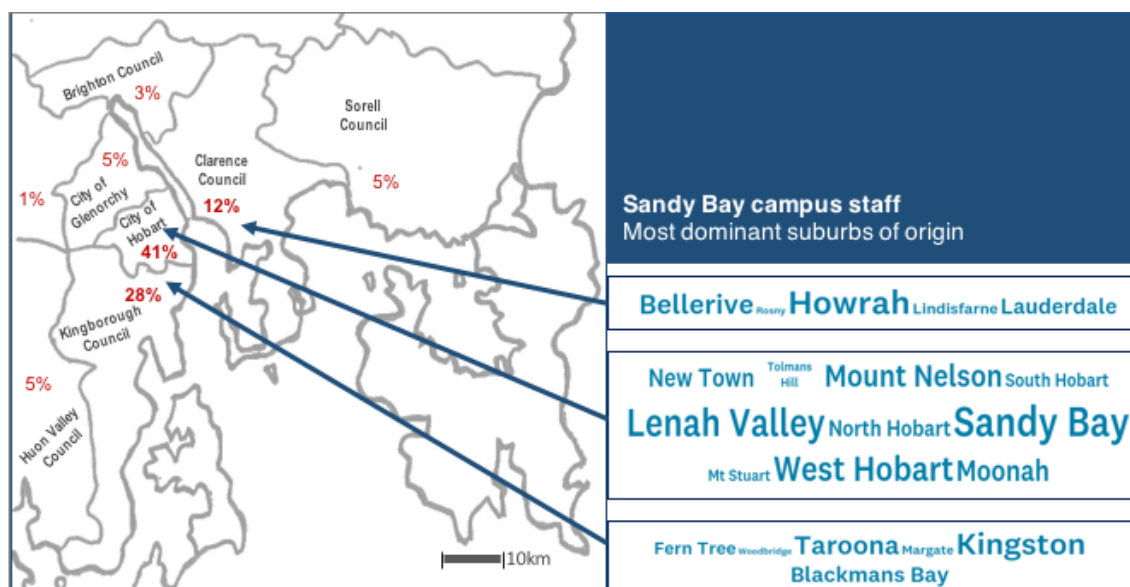


Figure 3.18: Residential origin and most dominant suburbs of origin by local government area – Staff working at Sandy Bay campus

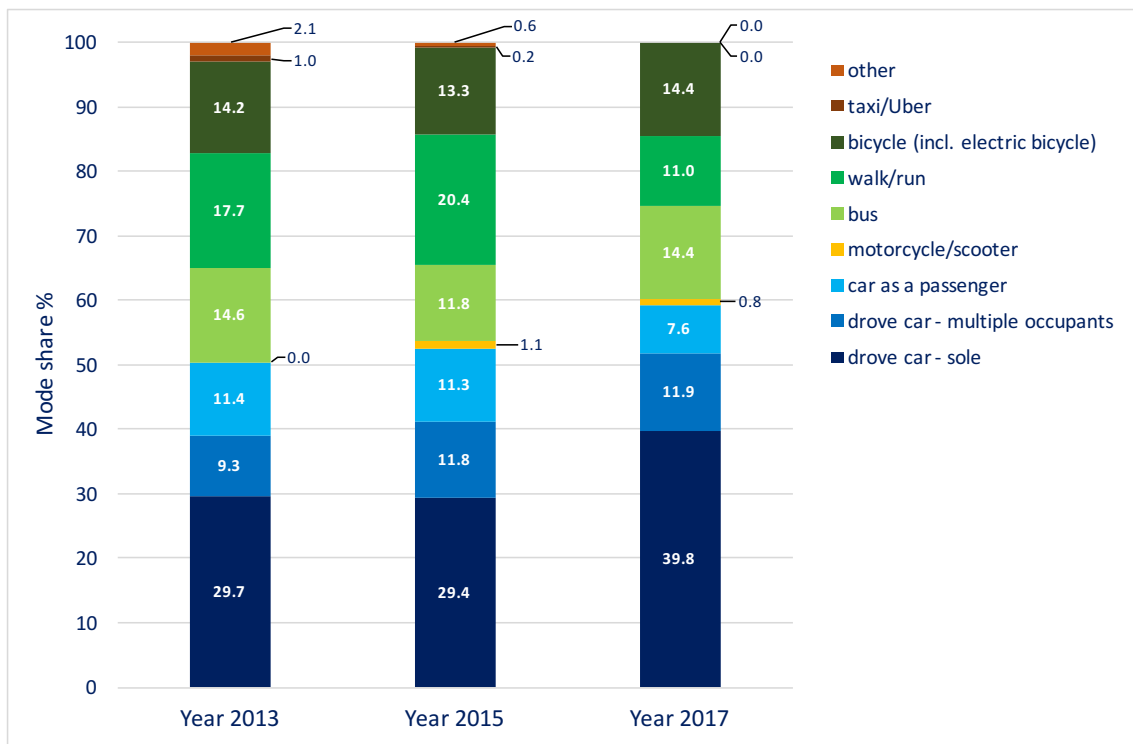


Figure 3.19: Main Mode Share 2013, 2015, 2017 – Staff – Hobart CBD

Note: 2013 data reports MSP only and not other CBD facilities. IMAS-S was not complete and other CBD facilities had very low sample sizes in 2013. Caution should therefore be taken comparing 2013 data with 2015 and 2017. MSP staff are consistently the most sustainable transport users across all campuses and facilities and therefore when compared to the Hobart CBD grouping of small campuses there is a bias towards these modes.

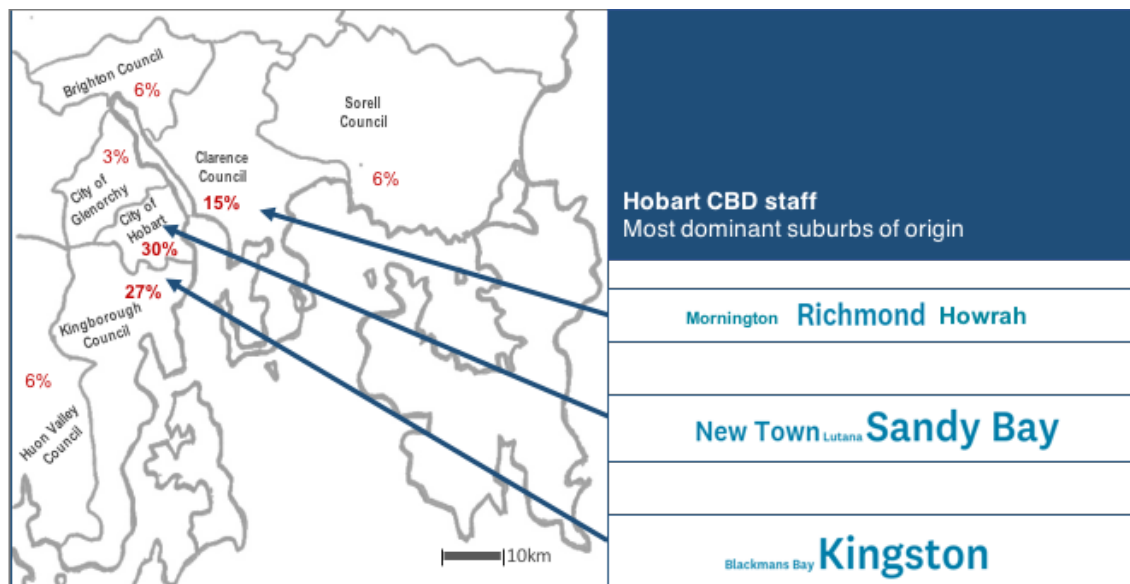


Figure 3.20: Residential origin and most dominant suburbs of origin by local government area – Staff working at Hobart CBD facilities

Working from home or remotely (virtual transport)

Working from home reduces the physical need to travel to work and reduces overall travel demand during peak commute periods¹³. Some 7.3% of staff respondents reported working from home, or from somewhere else remote from the University, in 2017¹⁴. As depicted in Figure 3.21, the share varies from region to region and by weekday. In the north (Launceston) the average staff daily work from home share was 8.2% with a peak on a Tuesday (10.3%), while in the south (Hobart) the average is 6.1% with Wednesday the peak day (7.5%). On the Cradle Coast, the daily work from home share fluctuates with a peak on Wednesday (16.7%); however, the staff population sample size at the latter is low, meaning results are not likely to be representative.

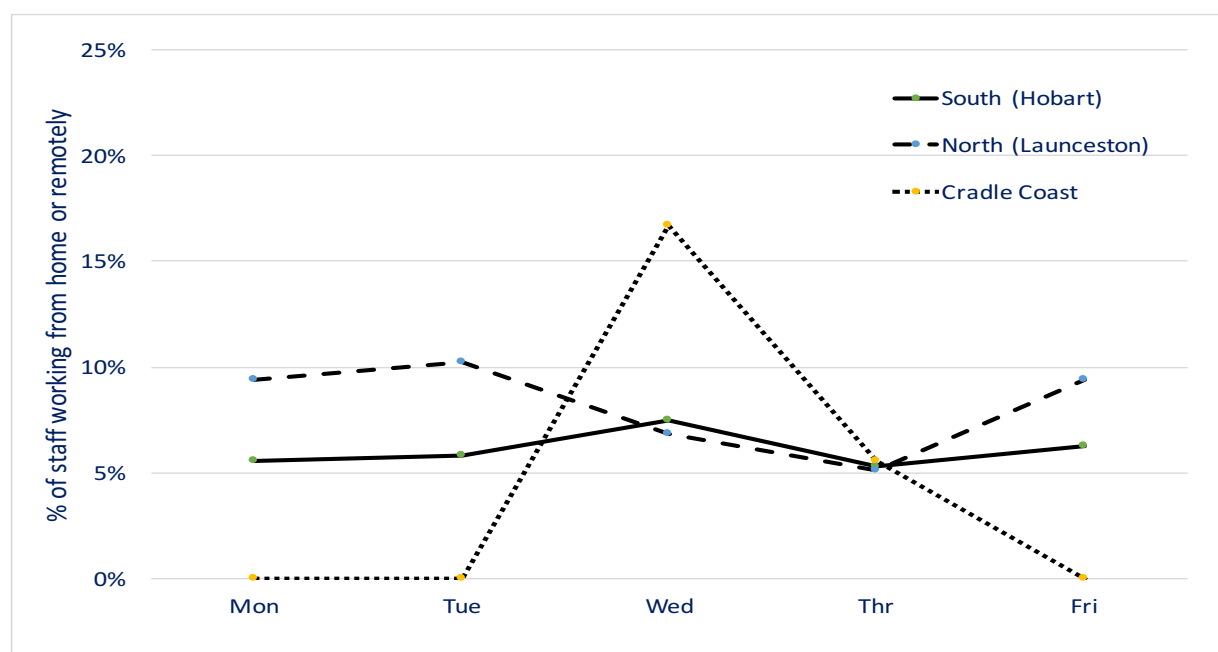


Figure 3.21: Proportion of staff working from home by weekday and Tasmanian region

Table 3.1: Proportion of staff working from home (or remotely) – Monday to Friday average

	2013	2015	2017
South (Hobart)	2.0%	3.1%	6.1%
North (Launceston)	2.2%	3.4%	8.2%
Cradle Coast	5.2%	-	4.4%

Note: In the 2013 & 2015 TBS, 'worked from home' was offered as a mode choice for the journey to/from work each day of the week and so was reported as a transport mode category. In 2017, respondents were asked if they: attended a university facility, worked from home/remotely, or did not work, before asking what transport mode they used to get to/from a university facility. The 'worked from home' share is calculated similarly as a share of total workers for each day for all years, despite the question adaptation in 2017.

¹³ While tending to reduce travel demand in peak commuter periods, working from home may increase short local trips in the neighbourhood of the worker, which can have a negative and/or positive impact on that place.

¹⁴ Some staff may also be working remotely while on work business.

Table 3.1 shows that in the south and north there has been an increase over time in the incidence of working from home or remotely. This is not surprising given information and communication technology improvements that facilitate this.

3.2 Student inter-campus travel

Some 1643 student respondents reported a total of 273 inter-campus trips between Monday and Friday during the survey period¹⁵. This means that for every student respondent, 0.17 land-based inter-campus trips were made between Monday and Friday.

Inter-regional inter-campus trips

As depicted in Figures 3.22 and 3.23, the most common inter-regional inter-campus trips made by students were between northern campuses (Launceston) and southern campuses (Hobart), particularly between Newnham and Sandy Bay campuses. The number reporting trips between northern and southern campuses was only 1 to 1.9 trips per 100 students Monday-Friday. For trips between northern and Burnie campuses and Burnie and southern campuses the reported figure was below 1 trip per 100 students. For these inter-regional trips, almost all students used private vehicles with half each as sole occupant and multi-occupant respectively. Just one student travelled by bus (coach) between Sandy Bay and Launceston.

Intra-city inter-campus trips

The most frequent intra-city inter-campus journey reported was between the Medical Sciences Precinct (MSP)/Domain and the Sandy Bay campus (38% of all intra-city inter-campus trips), with 5.9 trips per 100 students Monday-Friday. Some 55% of these trips were by bus, 19% were walk trips, and 24% were trips made in a private vehicle (Table 3.2). Overall, 76% of these trips were made by sustainable modes (bus, walk or cycle). A dedicated bus stop outside MSP and a frequent bus service to and from the Sandy Bay campus appear to be assisting the option for inter-campus bus travel.

¹⁵ The TBS does not monitor trips made by air or sea.

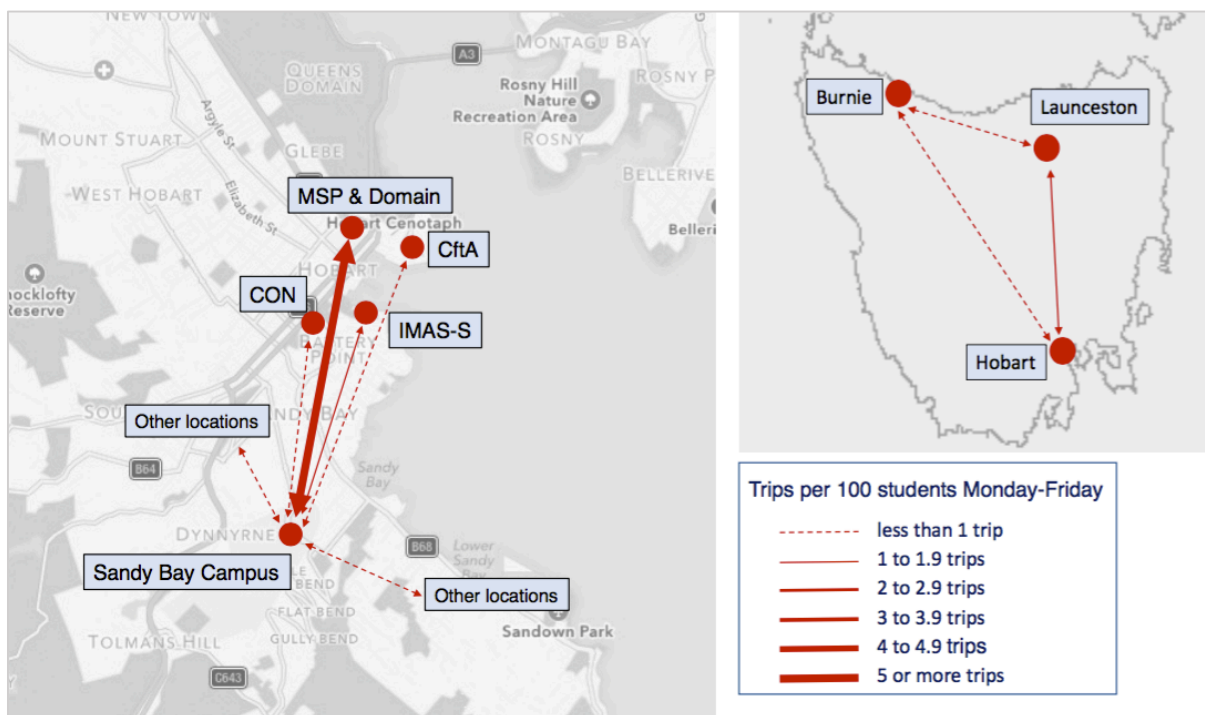


Figure 3.22: Student inter-campus travel – Tasmania and Hobart – trips per 100 students

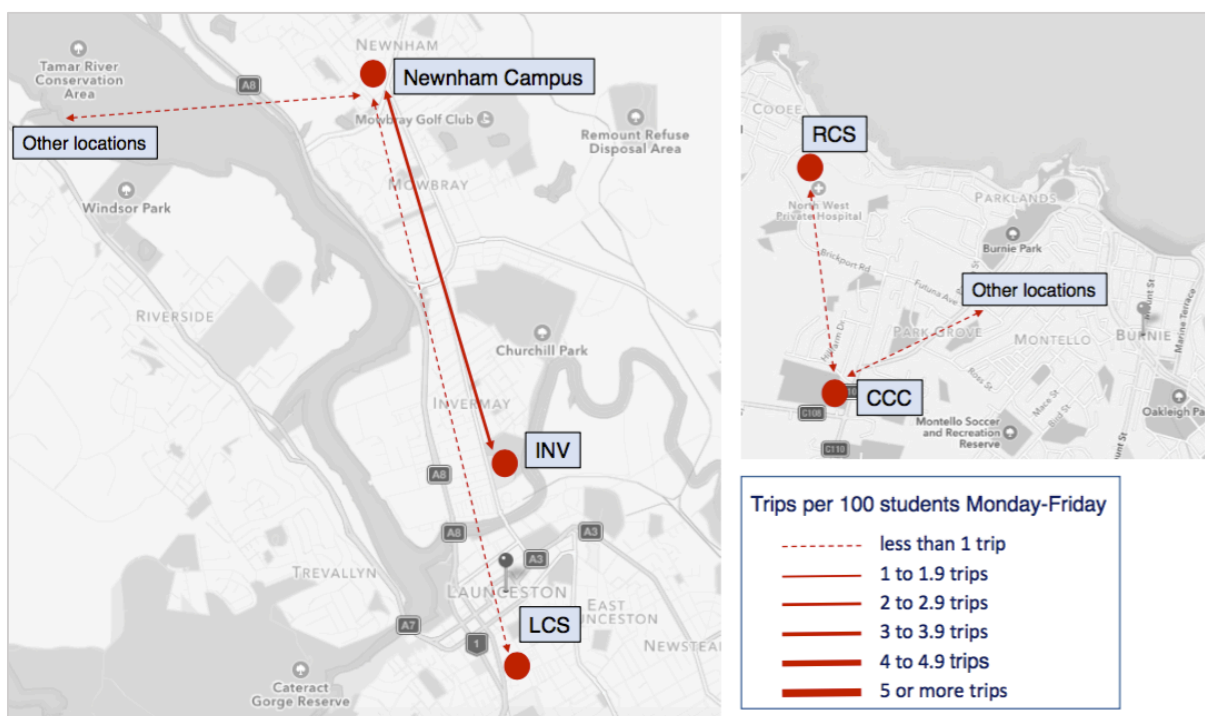


Figure 3.23: Student inter-campus travel – Launceston and Burnie – trips per 100 students

Other frequented routes reported during the survey period were between Inveresk and Newnham campuses in Launceston (17% of intra-city inter-campus trips), and between IMAS Salamanca and Sandy Bay (10%). Overall, over half (52%) of all inter-campus trips were between Sandy Bay and university CBD facilities, equating to 8.6 trips per 100 students Monday-Friday. Almost 67% of these trips were made by sustainable modes (bus, walk, bike) with bus the most dominant mode (Table 3.2). Private vehicle use accounted for 31%, with half

of these sole occupants.

Table 3.2: Student inter-campus journeys within Hobart & Launceston – by transport mode

Transport mode	Most frequent journeys		
	MSP to SB SB to MSP	SB-All CBD destinations All CBD destinations - SB	INV-NH NH-INV
Private car – sole occupant	11%	16%	39%
Private car – multi occupants	13%	15%	14%
Motorcycle/scooter	-	-	-
Bus	55%	43%	34%
Walk	19%	19%	14%
Bicycle	2%	5%	-
Taxi/Uber	-	1%	-
Other (not specified)	-	-	-

On the Cradle Coast, the dominant movement between university facilities was between the Cradle Coast campus and Rural Clinical School with just 0.2 trips per 100 students reported Monday-Friday. All of these trips were made in private vehicles with the majority as sole occupants.

Change over time

Approximately 15% of students took land-based inter-campus trips in 2017, which is double the proportion reported in 2015 (7%). Figure 3.24 outlines changes in student inter-campus travel by route category. Here we can see variations in change, specifically:

- a noticeable increase in the proportion of ‘other’ journeys since 2013 and 2015¹⁶; and
- a decrease since 2013 in the proportion of trips between Sandy Bay and Hobart CBD university destinations, and between Sandy Bay and Newnham; this is after increases from 2013 to 2015.

Of the ‘other’ journeys, some 25% were reported in 2017 as short trips between university facilities in the Hobart CBD, 43% between Sandy Bay and other non-specified locations, and 15% within Launceston. The latter two journey types are likely to include trips to or from university student accommodation. There has been an increase in the number of students living in student accommodation in or on the fringes of the Hobart and Launceston CBDs recently¹⁷. The majority of trips in the Hobart CBD were by active modes, with walk trips 59% and bicycle trips 29%.

¹⁶ ‘Other’ journeys are those that are unspecified in either their origin or destination or both.

¹⁷ In early 2017, the University's National Rental Affordability Scheme apartments, ‘Hobart Apartments’, in the Hobart CBD opened. On completion, this complex will consist of 430 apartments. Some 44 students living at the Hobart Apartments responded to the survey, with 190 students living in student accommodation across Tasmania responding overall.

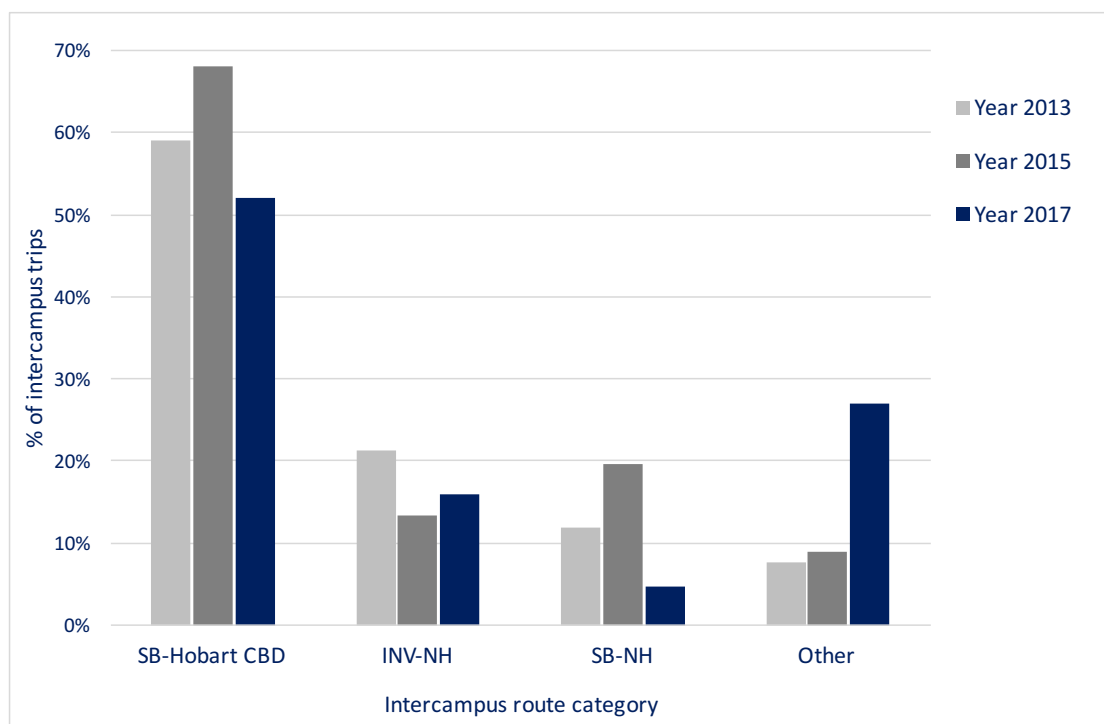


Figure 3.24: Change in share of student inter-campus student trips by major route category

The decrease in the share of trips between the Sandy Bay and Hobart CBD campuses and Sandy Bay and Newnham campuses may be due to improvements in timetabling of classes and/or the co-location and rationalisation of classes as new builds come on line, although this can not be confirmed by looking at the survey results alone.

3.3 Staff business travel

Some 566 staff respondents reported a total of 287 land-based Tasmanian business trips between Monday-Friday during the survey period¹⁸. This means that for every staff member there were 0.5 land-based business trips made between Monday-Friday. Of these, 40% were trips between University of Tasmania campuses or facilities (inter-campus). Other business trips were made to or from non-university locations within Tasmania.

Inter-regional inter-campus trips

As depicted in Figure 3.25, the most common inter-regional inter-campus business trips were between Launceston and Hobart (particularly between Newnham and Sandy Bay campuses), although the number reporting trips between Launceston and Hobart was not high, with only 2 to 2.9 trips reported per 100 staff Monday-Friday, and 1 to 1.9 trips per 100 staff for journeys between Launceston and Burnie and Burnie and Hobart. For these inter-regional trips, staff

¹⁸ The TBS does not monitor trips made by air or sea.

predominantly used university fleet cars (93%). Some 69% of these trips made with a university fleet car included multiple occupants¹⁹, 23% were made with a university fleet car as a sole occupant, and 8% used a university eco-fleet car as a sole occupant²⁰. A very small number of staff used their own private vehicle with multiple occupants. No trips between Hobart and Launceston were made by bus (coach), whereas in 2013 and 2015 a small but noticeable number of staff used an inter-city coach service²¹.

Intra-city inter-campus trips

For staff undertaking business trips within greater Hobart (Figure 3.25), the most frequented journey reported was between the Medical Sciences Precinct (MSP)/Domain and the Sandy Bay Campus with 8 trips per 100 staff Monday-Friday. While 37% of these trips were by private or university fleet vehicles as sole occupants, an equal number were made by bus (Table 3.3). A dedicated bus stop outside MSP and a frequent bus service to and from the Sandy Bay campus appear to be assisting this option.

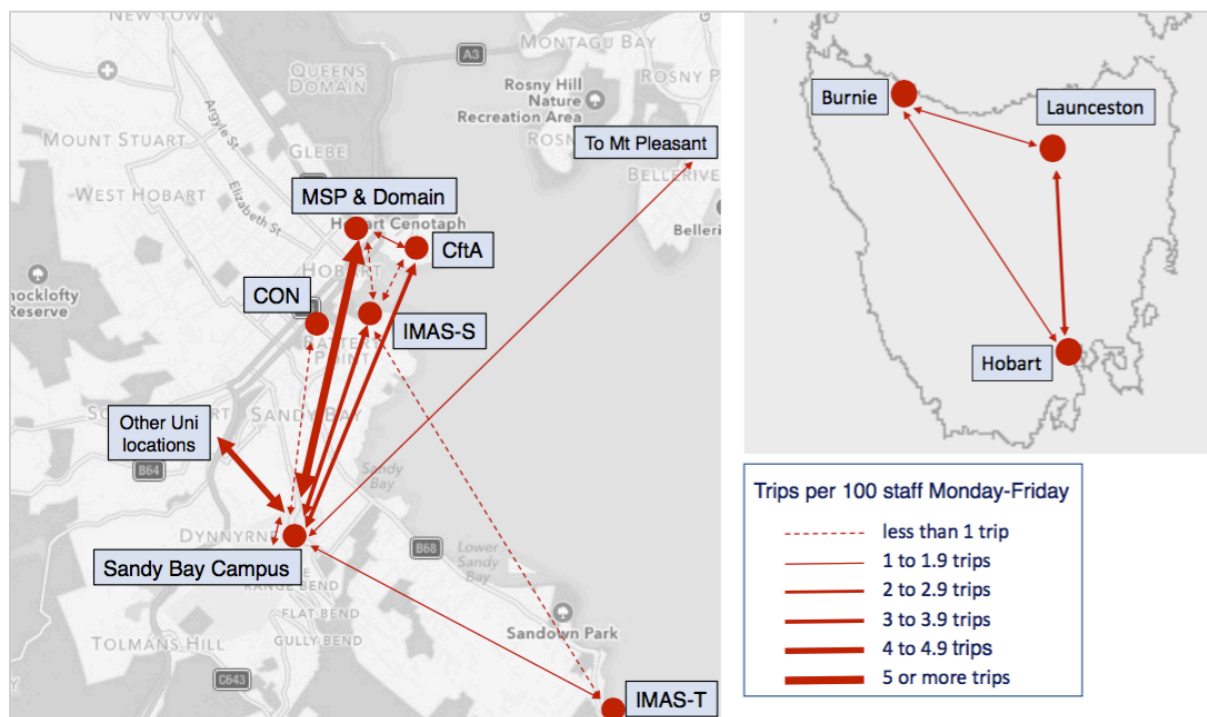


Figure 3.25: Staff inter-campus travel – Tasmania and Hobart – trips per 100 staff members
 Note: Does not include business trips to non-university locations

As shown on the schematic (Figure 3.25), other frequented Hobart routes reported during the survey period were between IMAS Salamanca (IMAS-S) and Sandy Bay campus, between Sandy Bay campus and the Centre for the Arts, and Sandy Bay campus to various other

¹⁹ The classification ‘university fleet car’ means a traditional fleet vehicle that is not a hybrid or electric vehicle.

²⁰ The classification ‘university eco-fleet car’ means a fleet vehicle that is either a hybrid or electric vehicle.

²¹ The University-subsidised Redline Coach service between Newnham and Sandy Bay stopped operating in 2015 due to a financially unsustainable model.

unspecified university locations (in and outside the Hobart CBD). As shown in Table 3.3, the majority of these trips were made using either private or university fleet vehicles as sole occupants, although for IMAS-S to Sandy Bay some 37.5% of journeys were by taxi. Perhaps explaining the latter is the close proximity of the Salamanca taxi rank to IMAS-S. Only a few staff members chose to walk and, unlike the MSP to Sandy Bay trips, no-one reported taking the bus, with the nearest bus stop over 500m from IMAS-S.

Table 3.3: Staff inter-campus business journeys within Hobart & Launceston – by transport mode

Transport mode	Most frequent journeys				
	MSP to SB SB to MSP	INV-NH NH-INV	SB to CftA CftA to SB	IMAS-S to SB SB to IMAS-S	SB to other other to SB
Private car – sole occupant	21%	43%	36.5%	25%	-
Private car – multi occupants	21%	14%	9%		-
Uni fleet car – sole occupant	16%	36%	45.5%	12.5%	56%
Uni fleet car – multi occupant	-	7%	-	-	22%
Uni eco-fleet car – sole occupant	-	-	9%	-	-
Uni eco-fleet car – multi occupant	-	-	-	-	-
Motorcycle/scooter		-	-	12.5%	-
Bus	37%	-	-	-	-
Walk	-	-	-	12.5%	-
Bicycle	-	-	-	-	-
Taxi/Uber	5%	-	-	37.5%	11%
Other (not specified)	-	-	-	-	11%

A small number of staff reported undertaking very local trips (less than 2.5 km) in the vicinity of the Sandy Bay campus, or even in the campus itself. Nearly all these trips were by private car as sole occupant. It is possible that these trips reflect flawed self-reporting; however, it is also possible that they reflect the need by some staff to travel for meetings from one end of the campus to another and/or up and down hilly terrain. This may discourage walking and encourage the use of private vehicles for which staff may have bought parking permits. This cannot be confirmed via the 2017 survey results, however, and may need to be explored further.

For staff undertaking business trips within the greater Launceston and Burnie areas, the most frequent journey reported was between Inveresk and Newnham campuses, with 4.5 trips per 100 staff made Monday-Friday. Some 1.4 trips per 100 staff are made Monday-Friday between the Cradle Coast Campus and the Rural Clinical School, Burnie. All these trips were made in vehicles (Figure 3.26). For trips between Inveresk and Newnham, some 43% were made in private vehicles as sole occupant and 36% in university fleet cars as sole occupants (Table 3.3).

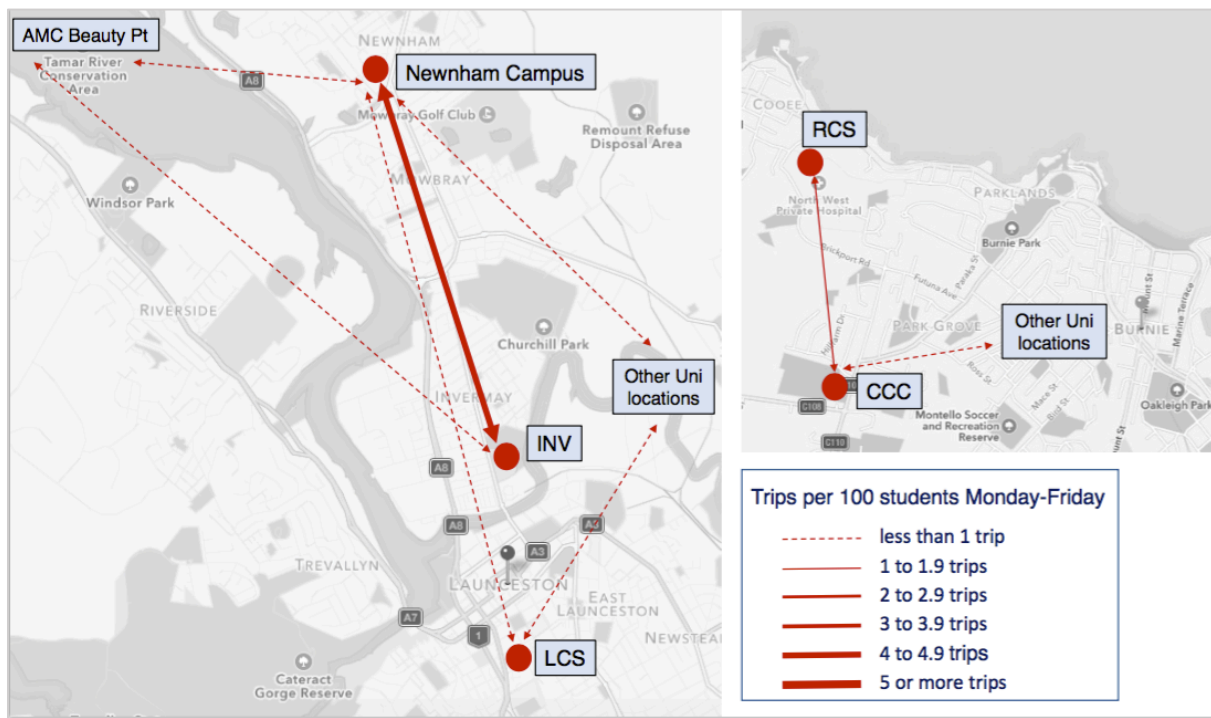


Figure 3.26: Staff inter-campus travel – Launceston and Burnie – trips per 100 staff members

Change over time

Approximately 23% of staff undertook land-based travel for business purposes including inter-campus and trips to non-university locations during the survey period. Figure 3.27 highlights change over time in the proportion of staff undertaking certain inter-campus trip routes. Some 10% of staff undertook land-based inter-campus travel during the survey period, a drop from 14% in 2015. Change was largely seen in the route categories of inter-campus travel with (Figure 3.27):

- a decrease over time in journeys between Sandy Bay and Hobart CBD, and between Sandy Bay and Newnham;
- a small increase in the proportion undertaking trips between Newnham and Inveresk campuses; and
- a small increase in the proportion of ‘other’ journeys since 2015 but significant change since 2013.

Of the ‘other’ journeys, some 24% were reported in 2017 as short trips between university facilities in the Hobart CBD. Just over half of these trips were reported as being made in either private or fleet vehicles, with the rest as walk trips. Like the student inter-campus trips, the decrease in the proportion of trips between Sandy Bay and Hobart CBD campuses, and Sandy bay and northern campuses, may be due to improvements in timetabling of classes and/or the establishment of meeting-efficiency practices (such as the use of ICT meeting services) as staff settle into new builds and ways of working.

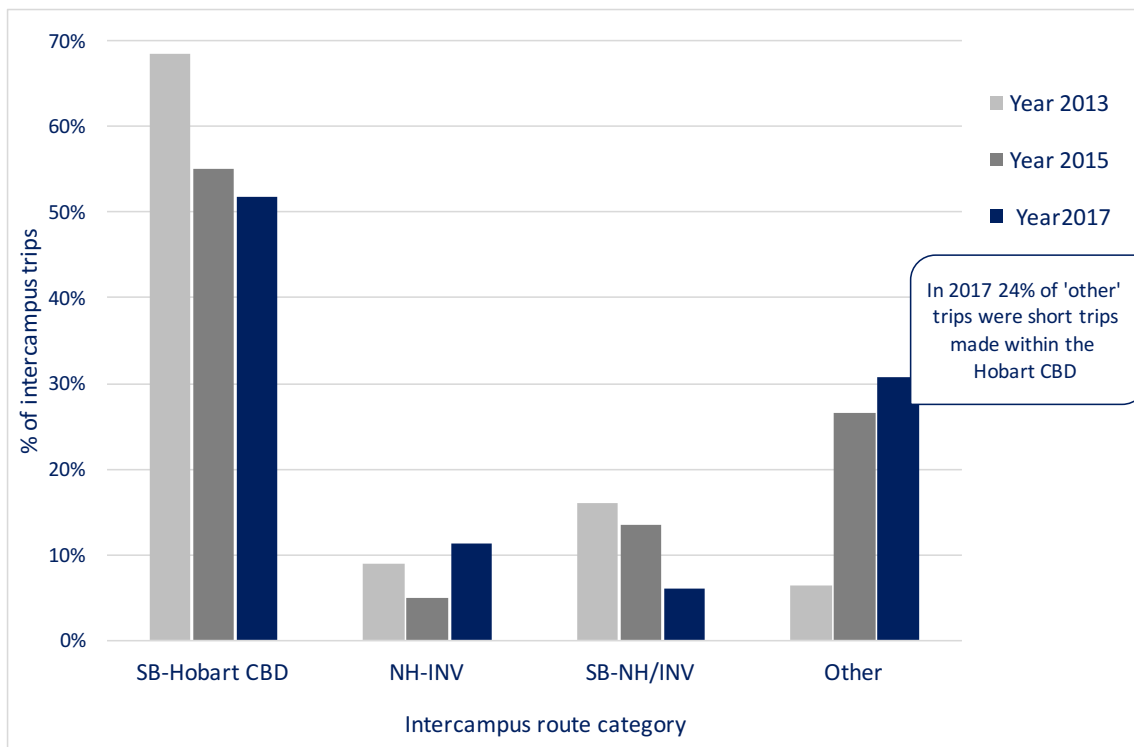


Figure 3.27: Change in share of inter-campus staff trips by major route category

These links cannot be confirmed by the survey data; however, the survey did ask staff how frequently they had used ICT over the previous year. Results show that as the quality of ICT has improved and its accessibility enhanced, there has been a notable increase in regular use. Figure 3.28 highlights the change in the proportion of staff using meeting-replacement ICT at least weekly, specifically telephone or PC-based teleconferencing/videoconferencing and university videoconference venues.

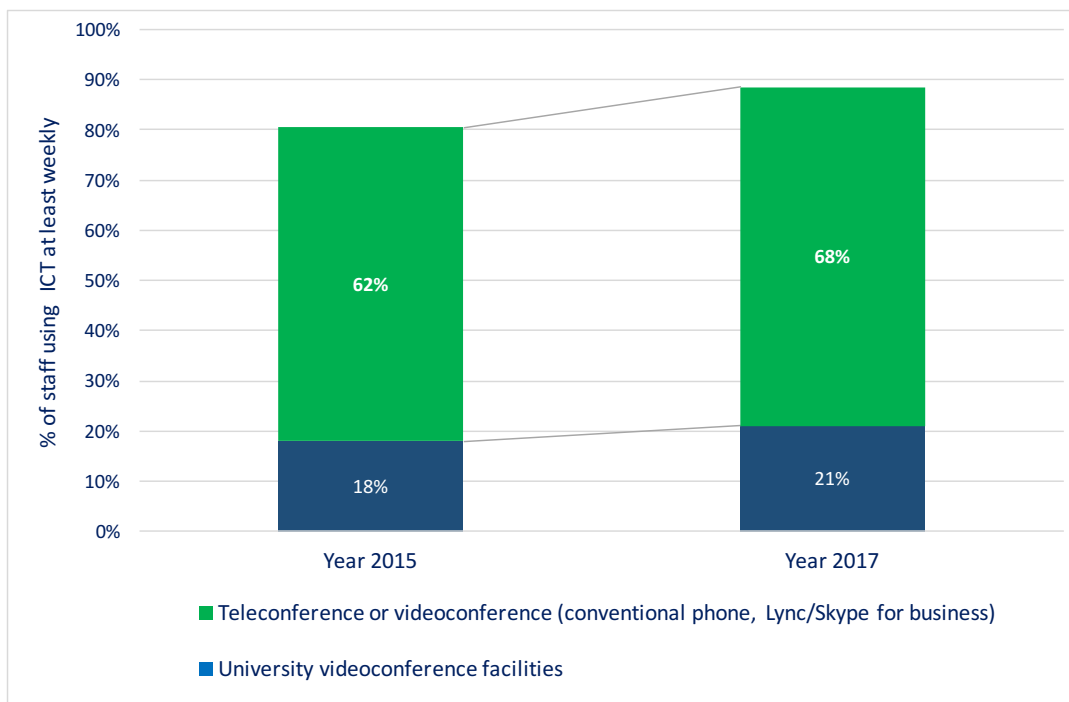


Figure 3.28: Proportion of staff using teleconferencing or videoconferencing ICT at least weekly

3.4 Bus use

As demonstrated in section 3.2, the most striking and consistent increase in mode share since 2013 across all regions and major campuses has been bus use in Tasmania (and public transport use more generally in Sydney), particularly amongst students. The TBS survey also seeks feedback on the use of public transport service information and auto-tap ticketing cards. This information helps us understand the level of awareness of, and engagement with, local public transport services.

Greencard and Opal card ownership

The proportion of university staff and students in Tasmania and Sydney with auto-tap public transport ticketing cards has increased since 2013, the most noticeable increase in Metro Greencard (Tasmania) ownership being amongst students in Tasmania’s north (Launceston) rising from 32% in 2013 to 50% in 2017 as shown in Figure 3.29. This increase has coincided with the increase in Metro Tasmania bus services to and from Newnham and Inveresk campuses, particularly the ‘Turn-up-and-go’ service, and the promotion of the Metro Greencard. There is, however, a sizeable proportion of student Metro Greencard owners that do not have credit on their cards (21%, 36%, and 48% in the south, north and Cradle Coast respectively). This proportion is a little less for staff in the south and north (19% and 24% respectively). Potentially, the share of Metro Greencards that regularly have credit on them is a better indicator of use than simply ownership of cards, which may not involve use. Ownership-in-itself suggests that there is an opportunity for use, however.

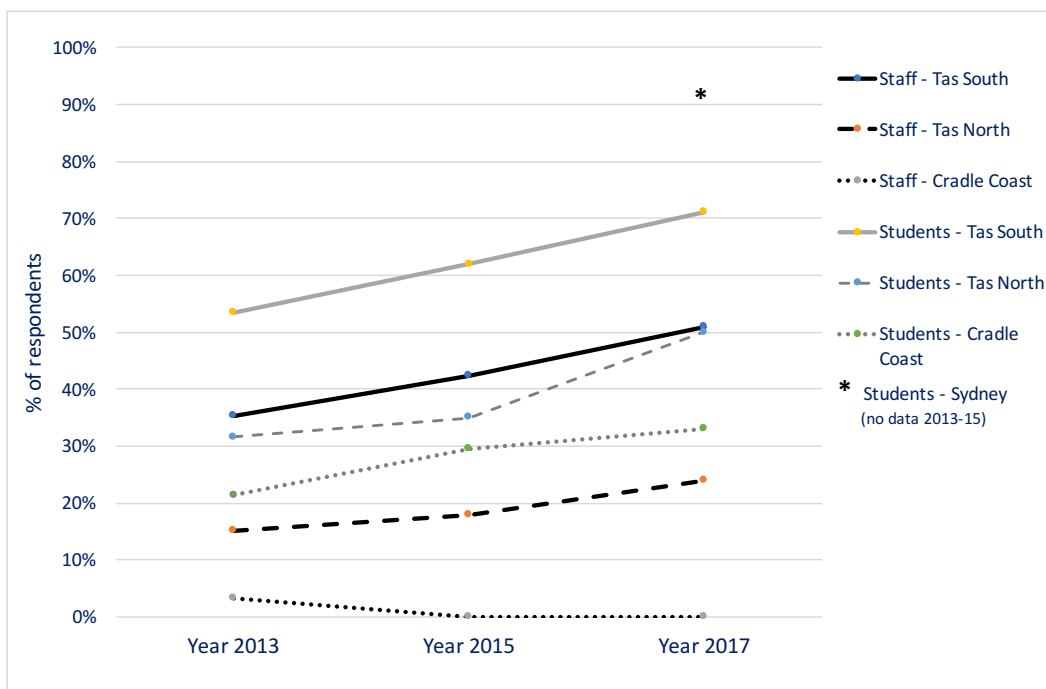


Figure 3.29: Metro Greencard (TAS) or OPAL card (Sydney) ownership

Use of online public transport information and apps

In 2017, we asked respondents how frequently they accessed public transport websites or apps such as the *Metro Tasmania App* (Tasmania) or *Opal Travel App* (NSW). Such tools include trip planners, timetable information, service updates and fare information. As shown in Figure 3.30, Sydney students reported the highest degree of access to such information, perhaps reflecting the length of time such tools have been available in Sydney. In Tasmania, the highest levels of access were in the south (Hobart) where some 46% of students and 27% of staff had accessed such information at least a few times a year (Figure 3.30). If we look at the University as a whole, some 36% of students and 24% of staff accessed such information at least a few times a year. This compares to 59% of all student bus users and 46% of all staff bus users.

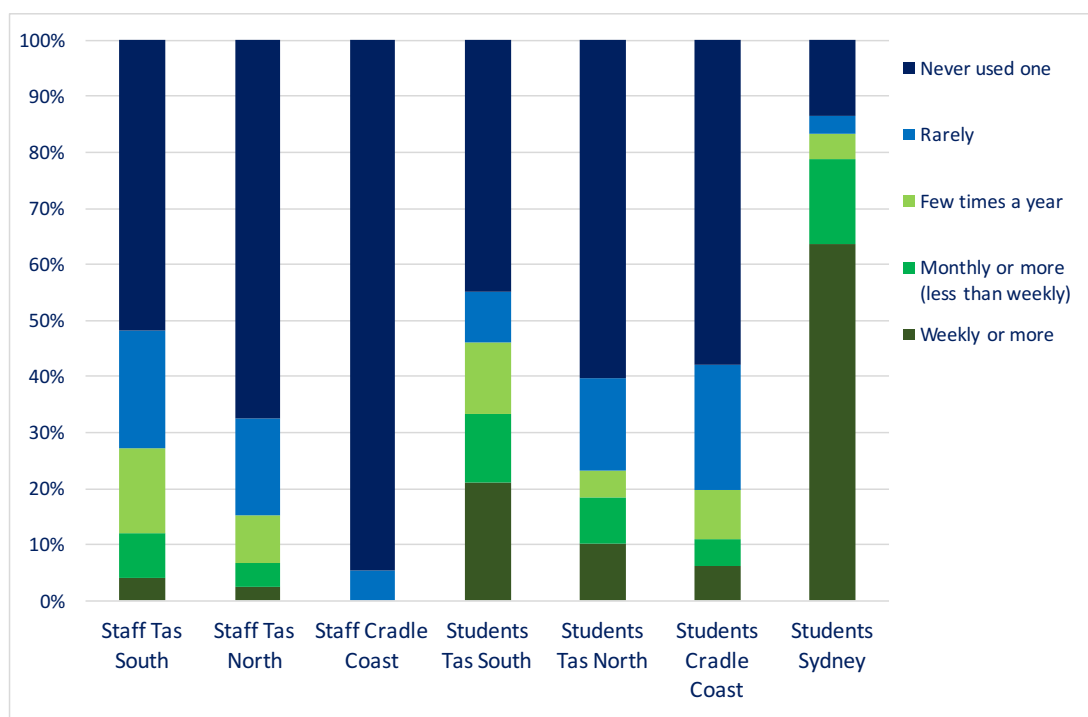


Figure 3.30: Use of a public transport information website or app (including trip planner) – all students and staff 2017

3.5 Bicycle use

The University has an interest in encouraging cycling. For students, this is a relatively inexpensive and healthy way to get around, particularly when the journey is considered a little too far to walk. Travelling to work or study by bicycle appeals to some more than others, with personal factors (health and enjoyment related) identified as significant motivators for urban cycling. Factors constraining cycling are largely reported in the literature as being environmental concerns related to traffic conditions, motorist aggression and safety, with

women reporting more constraints than men²². In Tasmania, hilly topography (such as in Hobart and Burnie) and seasonal change (i.e. cold or wet weather, and dark evenings) are frequently referred to as limiting cycling take-up. The wider body of literature around shifting behaviours also points to an array of other social, personal and external constraints (including the influence of social norms, personal habits and time constraints, and cycling competency and confidence issues) that are perhaps not commonly considered in the development of strategies to grow cycling²³.

In the TBS, we measure bicycle mode share for the journey to work or study and also ask how cyclists are using university bicycle infrastructure and information.

Change over time and gender

Change in the share of bicycle as the main mode for the journey to/from work or study is inconsistent across campuses and also depends on whether you consider student or staff travel behaviours. Figures 3.31 and 3.32 show that for the University overall, there has been minimal change in bicycle mode share for students, with a negative one percentage point change between 2013 and 2017 and barely any change between 2015 and 2017. For staff overall, there is an indication of an upswing in bicycle mode share, with an increase of a little over three percentage points between 2013 and 2017.

When we look at the largest campuses or campus groupings, we see the inconsistencies. Student bicycle use has increased at Hobart CBD locations (9.7% in 2017 from 5.9% in 2013), decreased significantly in northern Tasmanian campuses (down more than five percentage points since 2013), and decreased a little at the Sandy Bay campus. For staff, however, the northern Tasmanian campuses and Sandy Bay campus show a notable increase of more than three percentage points in staff bicycle use for the journey to/from work. Both Sandy Bay and northern campuses reached 10% in 2017. Bicycle use for Hobart CBD locations is largely stable (at 14.4% in 2017), with 2017 bicycle mode share returning to 2013 levels after a small dip in 2015.

²² For example see Heesch, K.C., Sahlqvist, S., Garrard, J. 2012. Gender differences in recreational and transport cycling. *Intl. J. of Behavioral Nutrition & Physical Activity*, 9(106). DOI: 10.1186/1479-5868-9-106.

²³ For example, see Shove, E. 2010. Beyond the ABC: Climate Change Policy and Theories of Social Change. *Environment and Planning A*, 42(6): 1273-1285.
Cupples, J., Ridley, E. 2008. Towards a Heterogeneous Environmental Responsibility: Sustainability and Cycling Fundamentalism. *Area* 40(2): 254-264.

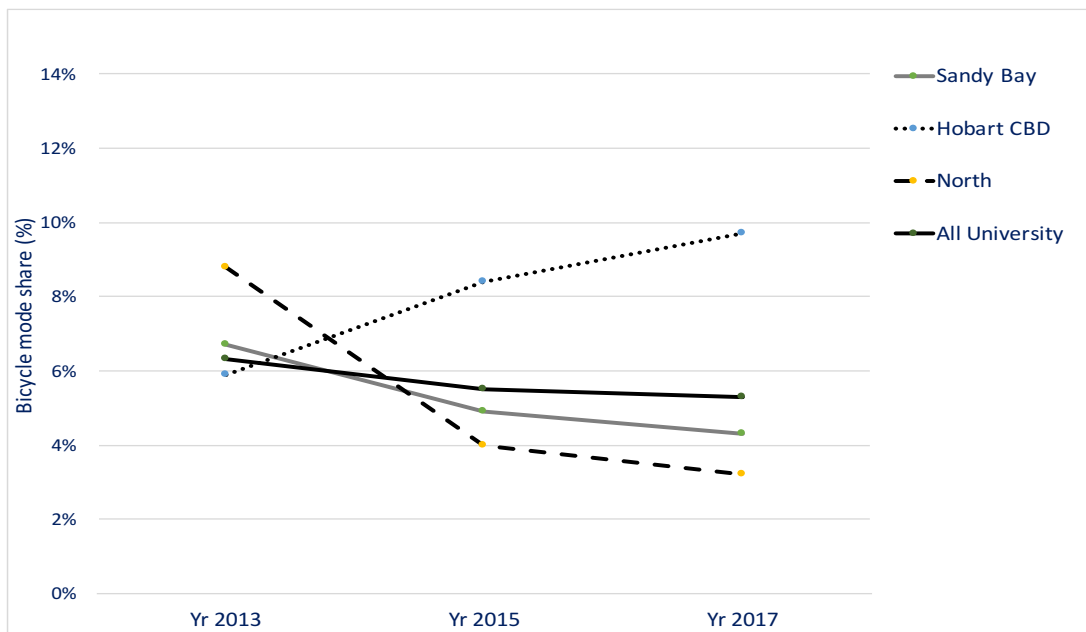


Figure 3.31: Bicycle as main mode – students – change over time

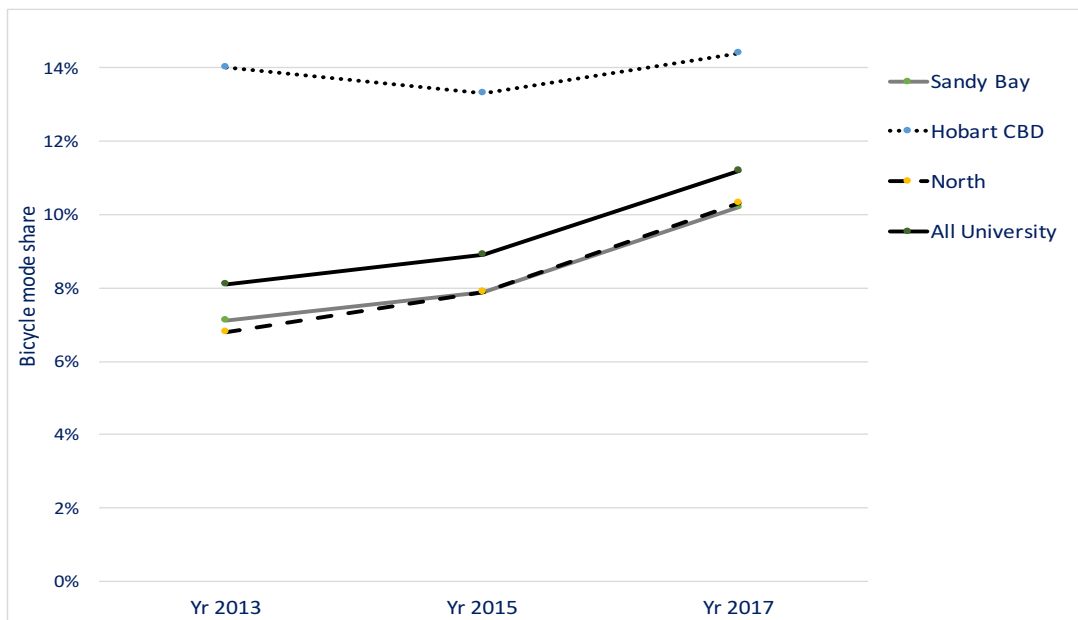


Figure 3.32: Bicycle as main mode – staff – change over time

An interesting feature of bicycle mode share change revolves around the gender breakdown of cyclists. Figure 3.33 depicts the proportions and ratios schematically of male to female cyclists over the period 2015-2017 for the University’s largest campuses and overall. In the 2015 TBS report, we discussed the male gender bias in cycling nationally and how this was also evident across the university community²⁴. The 2015 TBS showed that university female staff and students cycled less than male staff and students, with the male to female cycle ratio across

²⁴ Lyth, A., Archer, A., & Peterson, C. 2015. University of Tasmania Travel Behaviour Survey: Summary of findings, University of Tasmania, Hobart.

the University being 3:1 in 2015²⁵. Having normalised the 2015 and 2017 data to account for gender bias in survey participation, we find that the male to female ratio is now much less stark across all major campuses and campus groupings²⁶. Overall, in 2017 the University has a male to female cycling ratio of just under 2:1, and in the Hobart CBD it is very close to 1:1 where there has also been a notable increase in bicycle use. In northern campuses the shift is marked; however, this is partly explained by the decline in student bicycle share overall in this region and with this the decline in male cyclists.

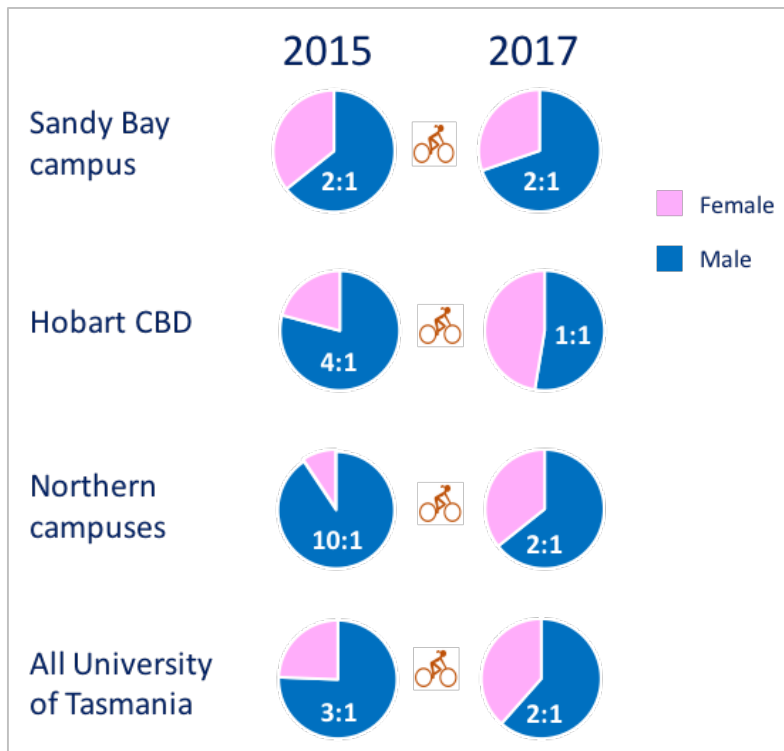


Figure 3.33: Proportions and ratios of male to female bicycle riders 2015 and 2017

Note: Male to female ratios have been rounded

Women are sometimes talked about as the indicator gender for cycling, that is if you have larger numbers of women than men cycling, as there are in some European countries, then your cycling infrastructure is likely to be of a quality that will attract a broad range of people²⁷. With this in mind, there are some positive indicators from the TBS that cycling infrastructure may be improving, particularly for students and staff working or studying in the Hobart CBD. Within the Hobart CBD facilities grouping is MSP, the largest university facility in the group.

²⁵ In Queensland, Heesch et al. found that only 24% of transport cyclists are women, while in Sydney only 17% of bicycle commuting trips are by women (a male to female ratio of nearly 6:1) with the ratio in Melbourne 4:1 (Heesch, K.C., Sahlqvist, S., Garrard, J. 2012. Gender differences in recreational and transport cycling. *Intl. J. of Behavioral Nutrition & Physical Activity*, 9(106). DOI: 10.1186/1479-5868-9-106).

²⁶ 2015 and 2017 data has been standardised according to the university population and to adjust for the female gender bias in survey response.

²⁷ Baker, L. 2009. How to Get more bicyclists on the road. *Scientific America* (1 Oct 2009) <https://www.scientificamerican.com/article/getting-more-bicyclists-on-the-road/>

Many of the staff working at MSP work in the health field. There is anecdotal evidence that there is more health-based enthusiasm for cycling here compared to the general university staff population. While the drop in cycling amongst students at the Sandy Bay and northern campuses may also reflect a shift to bus use, the findings point to the need to continue to work to improve safe and connected routes to these campuses across the urban region, and target cycling promotion and education at students.

Use of bicycle infrastructure

The TBS asked participants to give feedback on the bicycle infrastructure and information they used if they had ridden a bicycle to the University on any day in the previous week, and also asked whether anyone had ridden an electric bicycle or scooter.

The University of Tasmania policy to embed environmentally sustainable design elements in all capital works projects includes a commitment to Green Building Council of Australia's Green Star ratings for major projects. With this commitment, all new facilities or major refurbishments since 2011 have included significant provision for bicyclists and other active transport users. These EoT facilities include electric bike (e-bicycle) charging stations, maintenance station, water stations, showers and lockers. EoT facilities were expanded between 2015 and 2017, including at the new IMAS-S development with inside parking for 30 bikes in the main building and an undercover, secure facility for an additional 90 in a separate EoT facility outside the back entrance. Other provision includes a new secure cage at Newnham campus Kerslake Hall and a repair station near the library in 2015. A new EoT facility with repair and water stations was installed next to the Investigator Hall laundry in 2016. Secure swipe card access parking places for bikes were also added in 2016, including 36 at Inveresk and six publicly accessible; in contrast, Newnham (36) and West Park (8) are all publicly accessible.

The Decide Your Ride videos²⁸ are a series of cycling videos for those interested but unsure about cycling to and between Sandy Bay and Hobart CBD campuses, and Newnham and Inveresk campuses in Launceston. The videos and commentary show safe and 'bikeable' introductory routes. Decide Your Ride is not just about route selection; it's also about route riding, including taking advantage of footpaths, passing parked cars, dealing with intersections – a virtual buddy system.

Figure 3.34 outlines the facilities and information both student and staff bicycle riders reported using the week prior. They range from different types of bicycle storage to bicycle maintenance and information. The Hobart CBD shows the highest levels of usage of secured or covered bicycle storage (68% of respondents using these), reflecting the high quality EoT infrastructure

²⁸ <http://www.utas.edu.au/commercial-services-development/sustainability/transport/decide-your-ride>

that has been installed at a number of facilities here. This is in contrast to some 47% of respondents at northern campuses reporting parking their bicycles in their work space. Very few respondents reported using the e-bicycle recharge points; however, the potential for increased use of these in the short term is high, as explained in the following electric bicycle section. Water stations were used moderately at northern campuses, as were shower facilities at Sandy Bay and Hobart CBD campuses. There was very little reporting of use of special cycling information.

The survey did not seek feedback on opinions surrounding the quality of this infrastructure and information, although other smaller ad hoc user opinion surveys are undertaken from time to time.

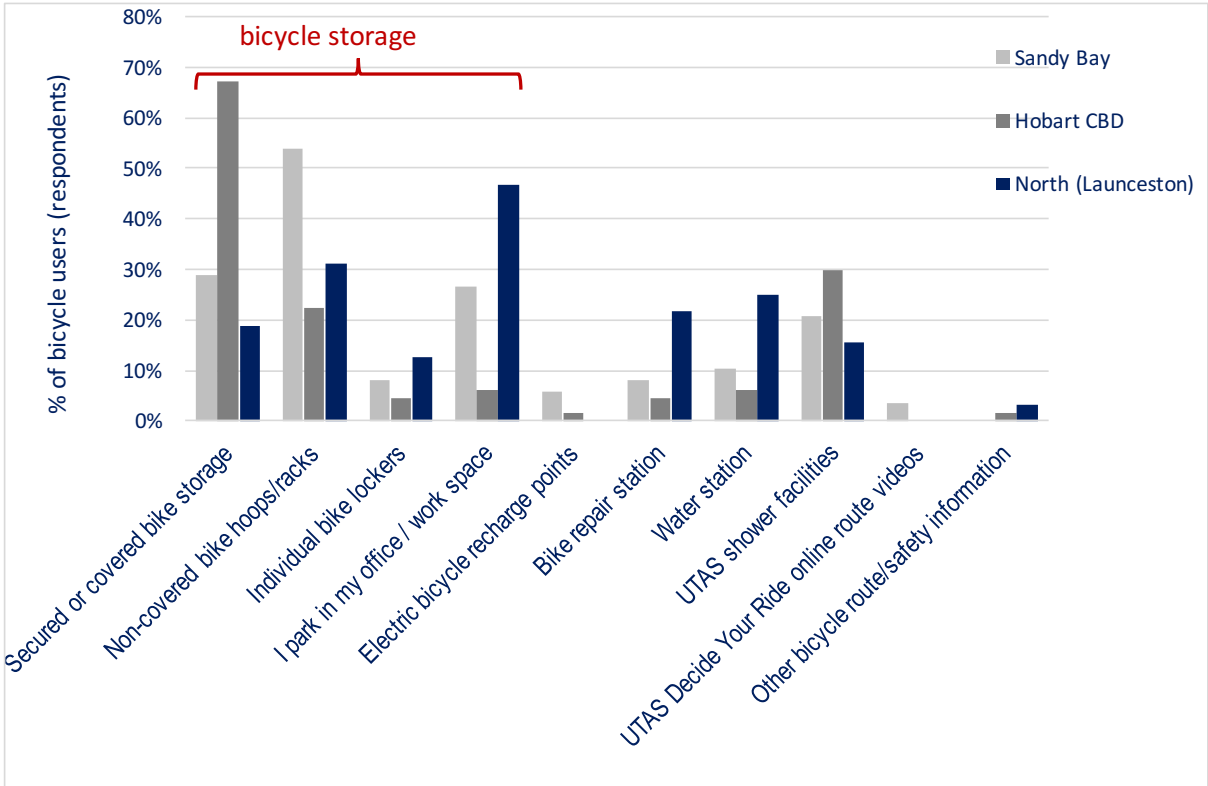


Figure 3.34: University facilities or information used by bicycle riders

Electric bicycles

Interestingly, despite university provision of electric bike (e-bike) charging stations at all new EoT facilities since 2012 and improvements to secure bicycle storage, the share of e-bike users reported in the TBS dropped from 10.2% in 2015 to 8.9% in 2017²⁹. National sales of e-bikes

²⁹ The decline is only marginal at 1.3% and due to the survey margins of error may not reflect much of a change overall.

over the past decade or so have also stagnated after an initial jump, despite growth in awareness and commercial availability of electric bikes³⁰.

For the University of Tasmania's community, it is possible that students in particular are constrained by e-bike costs (including the cost of purchase, insurance, and battery replacement), and concern about bicycle storage security. In addition, there remain concerns about road safety, relevant whatever type of bicycle is being ridden³¹.

The potential to grow the electric vehicle market, including e-bike use, is anticipated to be significant in the next 5-10 years once electric vehicles become economically viable³². Australian trials of e-bikes show that once on an e-bike, most people like them³³. Further, electric vehicle stakeholders have recommended financial incentives for take-up in the Australian market and measures to encourage the supply of supporting infrastructure (such as charging facilities and infrastructure incentives such as dedicated parking)³⁴. The University of Tasmania has become an early Tasmanian adopter of electric vehicle fleet conversion and charging infrastructure for electric cars and e-bikes. Further attention thereby points to other stakeholders to help grow this initiative, including the improvement of bicycle route connectivity and safety, and system-wide e-vehicle infrastructure in a State that enjoys the benefit of renewable energy supply.

3.6 International and local students

With the notable increase in international student enrolments, the University has a growing responsibility to ensure students are accommodated appropriately and are able to get to and from their classes efficiently and without significant cost to themselves or the community. International students come from a wide range of countries and bring with them their own experiences and expectations of transport. Many, such as Chinese students, have experienced high quality public transport systems back home or different cultures of bicycle use and find it challenging shifting to a different, largely car-based transport culture³⁵.

³⁰ Bowen, N. 18 April 2017. The rise of electric bikes: Bridging the gap for commuters, Royal Automobile Club of WA (RAC). https://rac.com.au/car-motoring/info/future_the-rise-of-electric-bikes (accessed 22 July 2017)

³¹ The Australian Bicycle Council & Austroads' *National Bicycle Participation Survey 2017: Tasmania* report cites concern about 'danger' as one of three top reasons for not riding a bicycle to university <http://www.bicyclecouncil.com.au/publication/national-cycling-participation-survey-2017>

³² ClimateWorks Australia, 2017. The State of Electric Vehicles in Australia. Report prepared on behalf of the Electric Vehicle Council. <https://climateworks.com.au/publications> (accessed 22 July 2017)

³³ Bowen, N. 18 April 2017. The rise of electric bikes: Bridging the gap for commuters, Royal Automobile Club of WA (RAC). https://rac.com.au/car-motoring/info/future_the-rise-of-electric-bikes (accessed 22 July 2017)

³⁴ Climate Works Australia, 2016. The path forward to electric vehicles in Australia: Stakeholder recommendations.

³⁵ Yelan Yang, 2017. *Understanding transport experiences and expectations of Chinese students in Hobart*. Thesis submitted in partial fulfilment of the requirements for Masters of Planning, School of Land & Food (Geography), University of Tasmania.

As an indicator of difference, we looked at international and Tasmanian students attending the Sandy Bay campus. For those international students, some 88% lived in either Sandy Bay (postcode 7005) or in surrounding suburbs (postcodes 7007, 7004, 7000, 7053). These locations are largely accessible by walking, cycling, or short bus trips. In comparison, Tasmanian student residential origins are more dispersed across Greater Hobart and southern region. Nevertheless, some 40% of Tasmanian students attending Sandy Bay campus still live locally in Sandy Bay or surrounding suburbs (postcodes 7005, 7007, 7004, 7000, 7053).

As shown in Figure 3.35, Tasmanian students are more likely to travel by car than international students. This is most likely influenced by a range of factors including residential location outside inner urban areas, public transport service quality and journey time from outer urban areas. The Australian culture of car use and the option for some local students to use family vehicles are also likely other contributors. The residential location of international students in the vicinity of Sandy Bay campus or neighbouring suburbs clearly enables active modes, particularly walking, with more than 80% travelling to the university by some form of sustainable transport.

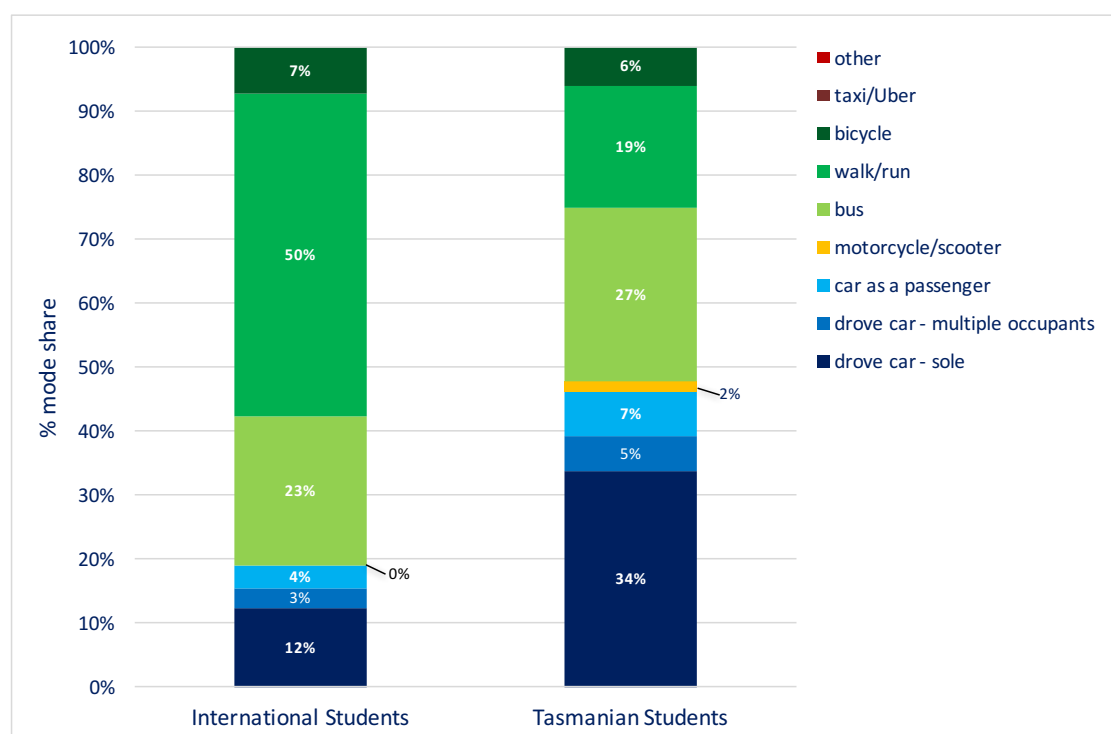


Figure 3.35: Monday mode share for journey to Hobart campuses (Sandy Bay and Hobart CBD) – international students and Tasmanian students

The share of cycling is greater for international students, but not significantly greater than local students. Targeted promotion of cycling as an option and education in cycle safety and cycle routes, such as the Decide Your Ride videos, may improve the interest in cycling for international students and also assist them to get around to other urban locations outside of

study. Likewise, there is also room to improve communications about public transport services and their use for international students specifically.

3.7 Parking

For those students and staff that drove to university campuses and facilities, we asked what type of parking they used in order to get a sense of:

- demand for parking at different campuses;
- the potential impact of parking in neighbourhoods surrounding university facilities; and
- the take-up of paid and non-paid parking options.

The total number of parks (cars parked) reported by students and staff Monday-Sunday and the proportion of parks by parking category are presented in Figures 3.36 and 3.37.

Student parking

At the Sandy Bay campus, some 379 students reported parking their vehicle at some point Monday-Sunday (46% of the total student vehicles reportedly parked). Some 31% of the vehicles parked by students attending Sandy Bay were on-campus with purchased permits or vouchers, with 22% being parked on-campus at no charge. Some 43% of student vehicles were parked off-campus at no charge³⁶. These are likely to be in surrounding streets in the vicinity of the campus.

Although there is less demand for parking by students in the Hobart CBD, still 138 students reported parking their vehicle to attend a Hobart CBD facility Monday-Sunday (17% of the total student vehicles reportedly parked). Some 37% of students attending Hobart CBD facilities parked off-campus at no charge, these likely to be in streets on the city fringe largely accessible by foot. Some 51% paid for parking in some form, with about equal proportions of parks at university facilities and CBD parking stations or on-street metre/voucher locations. The remainder parked at university facilities at no charge, likely using a student parking permit.

At Newnham and Inveresk campuses, the majority of students parked their vehicles on-campus with paid voucher or permits (68%). Some 20% of students parked their vehicles on-campus at no charge, with just 10% off-campus at no charge.

At the Cradle Coast campus and Rural Clinical School in Burnie, the vast majority (91%) parked on-campus at no charge. At Sydney facilities (Rozelle and Darlinghurst) almost all students reported not paying for parking (96%), with just over half of these on-campus and the remainder off-campus.

³⁶ The Sandy Bay Grace Street car park provides car parking free of charge providing the student has a permit to search for a park there.

Staff parking

More than half of staff reporting parking Monday-Sunday parked to attend the Sandy Bay campus (51% of all reported parking). Some 78% of Sandy Bay staff parking involved the use of purchased parking permits or a paid parking voucher, while 19% of parking was off-campus at no charge.

Staff parking vehicles in the Hobart CBD accounted for 20% of the total university staff parking reported Monday-Sunday. Of these, almost half were paid parking permit or voucher parks (48%), with 29% off-campus at no charge, and a further 18% paid for at CBD parking stations or on-street metres/vouchers.

At Newnham and Inveresk, the vast majority of staff parked on-campus (87%), with 82% of these parks being paid parking on-campus (permits or vouchers). Some 11% of vehicles parked were off-campus at no charge. While the size of the Cradle Coast staff survey sample was low and results need to be taken with caution, almost all the staff that reported their parking Monday-Sunday parked on-campus, with 66% of these parks at no charge. Sydney staff survey responses were too low to report.

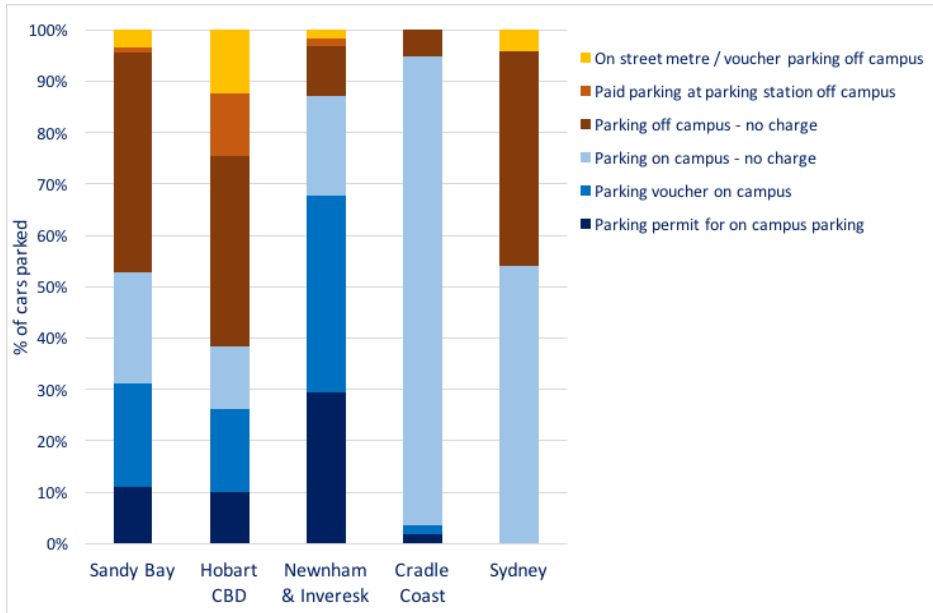
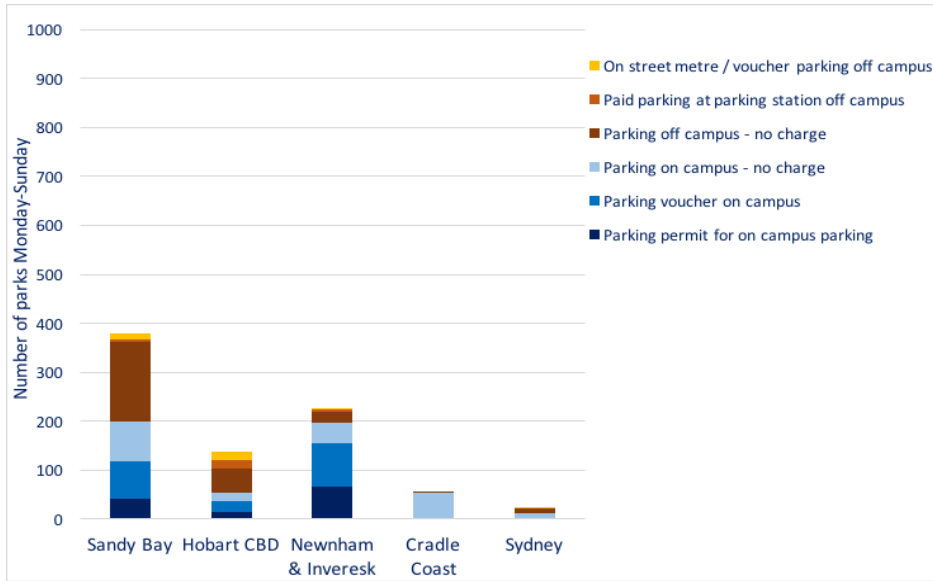


Figure 3.36: Students – car parking by category Mon-Sun (*top* - number of parks reported Mon-Sun by category, *bottom* - % of cars parked by category)

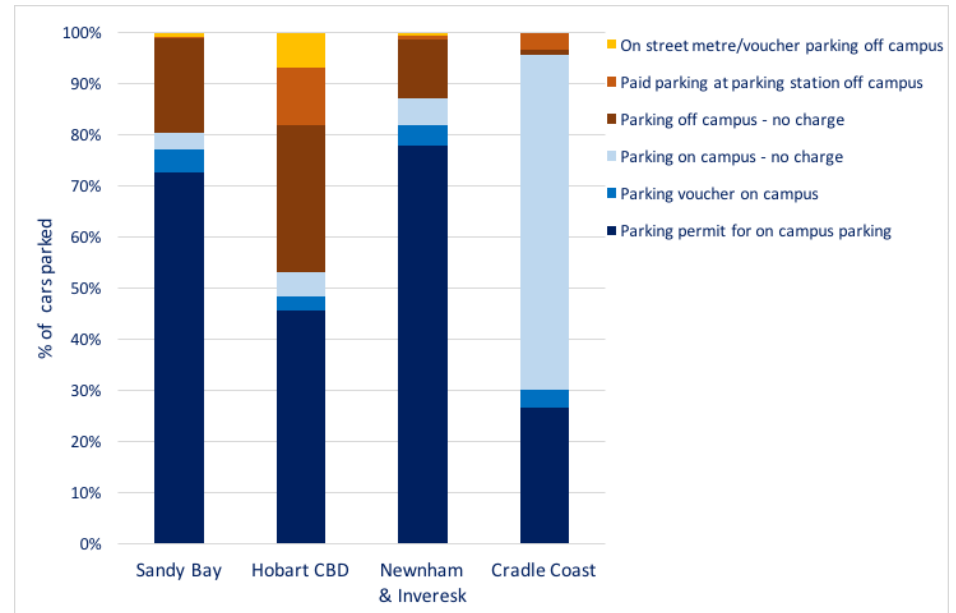
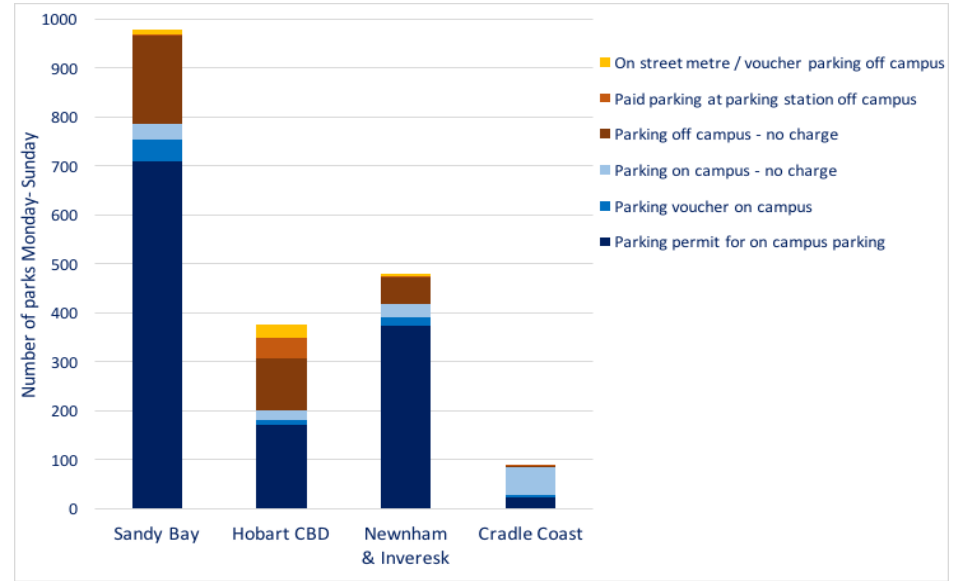


Figure 3.37: Staff – car parking by category Mon-Sun (*top* - number of parks reported Mon-Sun by category, *bottom* - % of cars parked by category)

4 TRACKING PROGRESS

The following figures show how the university community has progressed in terms of demonstrating more sustainable travel behaviours. Overall, the story is positive, although for staff there is some variability between campuses and regions. Figures 4.1 and 4.3 show the change between 2013 and 2017 for students and staff in all regions and larger campuses or campus groupings according to the key performance indicator 'main mode' to university.

Student features

- Noticeable growth in sustainable modes across all regions and major campuses for the journey to university.
- Fewer single occupant vehicles attending campuses.
- Significantly more students on buses in Tasmania.
- Decline in cycling overall as the main mode for the journey to university, except for an increase at Hobart CBD campuses.
- Increase in the proportion of female cyclists at Hobart CBD campuses.
- Decrease since 2015 in the proportion of inter-campus trips between Sandy Bay and Hobart CBD university destinations and between Newnham and Sandy Bay.
- Vast majority of short inter-campus trips made by sustainable modes.

4.1 Students

For students, the largest population group, the picture is very positive with a consistent decline across campuses and regions since 2013 (since 2015 for Sydney campuses) in the proportion of student drivers of single occupant vehicles. The green bars show that all regions and larger campuses have noticeably grown the proportion of students using sustainable modes (either bus, walk or bike).

As has been shown earlier, the most obvious and consistent improvement has been the increase in public transport use (bus only in Tasmania and bus/train/light rail in Sydney) within the sustainable mode category, with changes in the walk and bicycle mode more variable depending on the campus or region. In addition to provision of bus stop shelters, improvements to Metro Tasmania bus services through to university campuses in both

Launceston and Hobart (especially through-services, which avoid bus changes in the Hobart CBD, and service frequency) have made a clear impact on student bus-patronage levels.

Where there has been a decline in walking as the main mode for students, such as at the Sandy Bay campus, this has been offset by a marked increase in bus use (almost doubling from 14.3% in 2013 to 28.2% in 2017). Since bus use usually involves walking either end, walking activity associated with this is hidden, as it is with those drivers parking vehicles

some distance from campuses. The Sandy Bay campus and Sydney were the only places where walking as the main mode for students declined over time, however.



Figure 4.1: Students – percentage change 2013-2017 – sustainable mode indicators (main mode to university)

Note: The change for Sydney campuses is for 2015-2017 as we have no 2013 data.

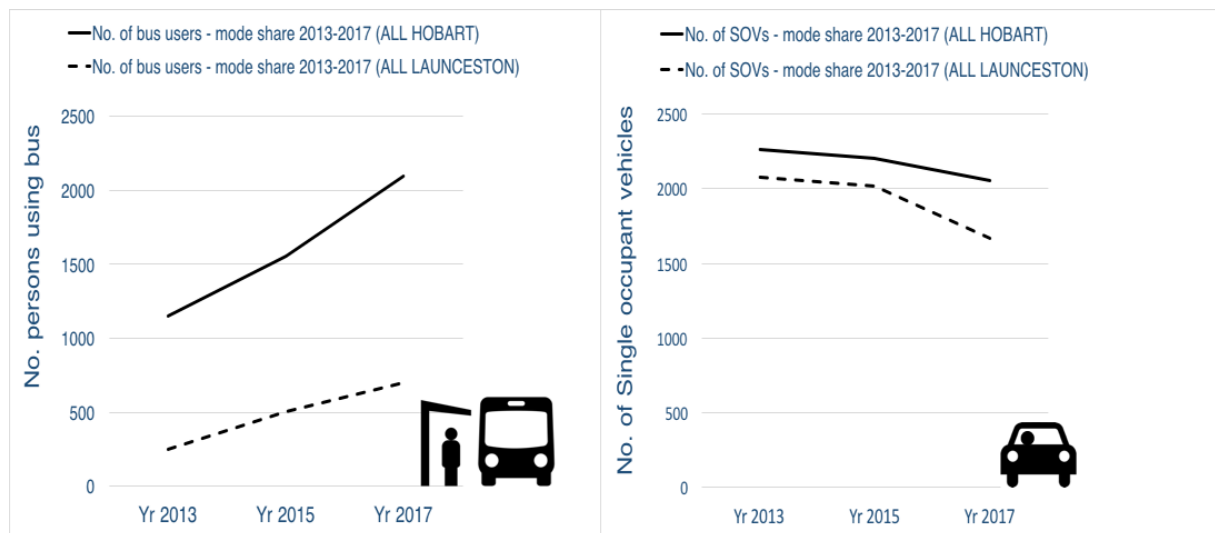


Figure 4.2: Estimate of change in the number of student actual bus users and single occupant vehicle drivers (SOVs) for all Hobart and Launceston campuses/facilities on an average semester weekday

Note: Extrapolated using on-campus student enrolment data (enrolled students minus external students). We do not have enough time series data to provide trend significance. As the authors did not have staff population data for specific campus or regions, similar analysis has not been done for staff. Regardless, students are the larger population size and therefore have the most impact on travel demand.

Figure 4.2 estimates the change in the number of actual student bus users and student single occupant vehicles based on the main mode share data and extrapolation of on-campus student population data for an average semester weekday. The numbers are an approximation and indicator of the volume of bus users and single occupant vehicles. The time series is so far insufficient to provide trend significance. However, it does suggest that in both Hobart and Launceston use of single occupant vehicles for student travel to university facilities has declined in real terms. As well as the decline in single occupant vehicle mode share, a decline in on-campus students in Launceston partly explains the Launceston dip, but not in Hobart where on-campus student numbers have increased, albeit only marginally.

Staff features

- Modest growth in sustainable modes for the journey to work overall since 2013 but limited change since 2015.
- Evident increase in Tasmanian staff bus use for the journey to work.
- Most pronounced growth in sustainable modes for the journey to work at northern campuses.
- Noticeable increase in staff bicycle use in north and south Tasmania.
- More women riding bikes.
- Very limited change in staff driving single occupant vehicles to work overall, with Hobart CBD campuses showing an increase since 2015 at the expense of sustainable modes.
- Decrease since 2015 in the proportion of inter-campus trips between Sandy Bay and Hobart CBD and between Newnham and Sandy Bay.
- An increase in virtual transport and working from home.

4.2 Staff

For staff, there has been a smaller growth in sustainable modes and a similar decline in the share of single occupant vehicle drivers across the whole university. The growth in sustainable modes is most pronounced at northern campuses (Launceston), where there has been a modest growth in staff bus use and clear growth in staff bicycle use (up from 6.8% in 2013 to 10.3% in 2017).

At the Sandy Bay campus, however, there has been minimal change over the period, except for growth in multi-occupant vehicles (carpoolers). The minimal overall change in sustainable modes, although slightly positive, is associated with a decline in walk trips as main mode offset by a small increase in bus use (up from 2.6% in 2013 to 4.3% in 2017) and more significant growth in bicycle use (up from 7.1% in 2013 to 10.2% in 2017).

In the Hobart CBD, there has been a noticeable increase in staff single occupant vehicle use,

while bus and bicycle mode share has remained stable and walk-only trips have declined.

This observation is contrary to the student picture. It is not clear what is contributing to the increase in single occupant vehicle use. While the child-rearing life-stage in which many staff

are situated influences greater car use amongst staff compared to students³⁷, it is the availability of parking for staff and/or the willingness to pay for parking in and around the CBD that are mostly likely to influence car use for Hobart CBD staff as well as staff residential locations³⁸, particularly where there have been increases in the supply of staff parking options. This is strongly supported in the academic literature³⁹. It will be important to more carefully consider parking strategies for CBD locations, partnering with local councils in both Hobart and Launceston to roll out measures that maximise alternative transport choices and consider the impact of parking supply as more university facilities are planned in Hobart and Launceston CBD (or fringe CBD) locations. This is also highly relevant to the current concerns about traffic congestion in and around the Hobart CBD.

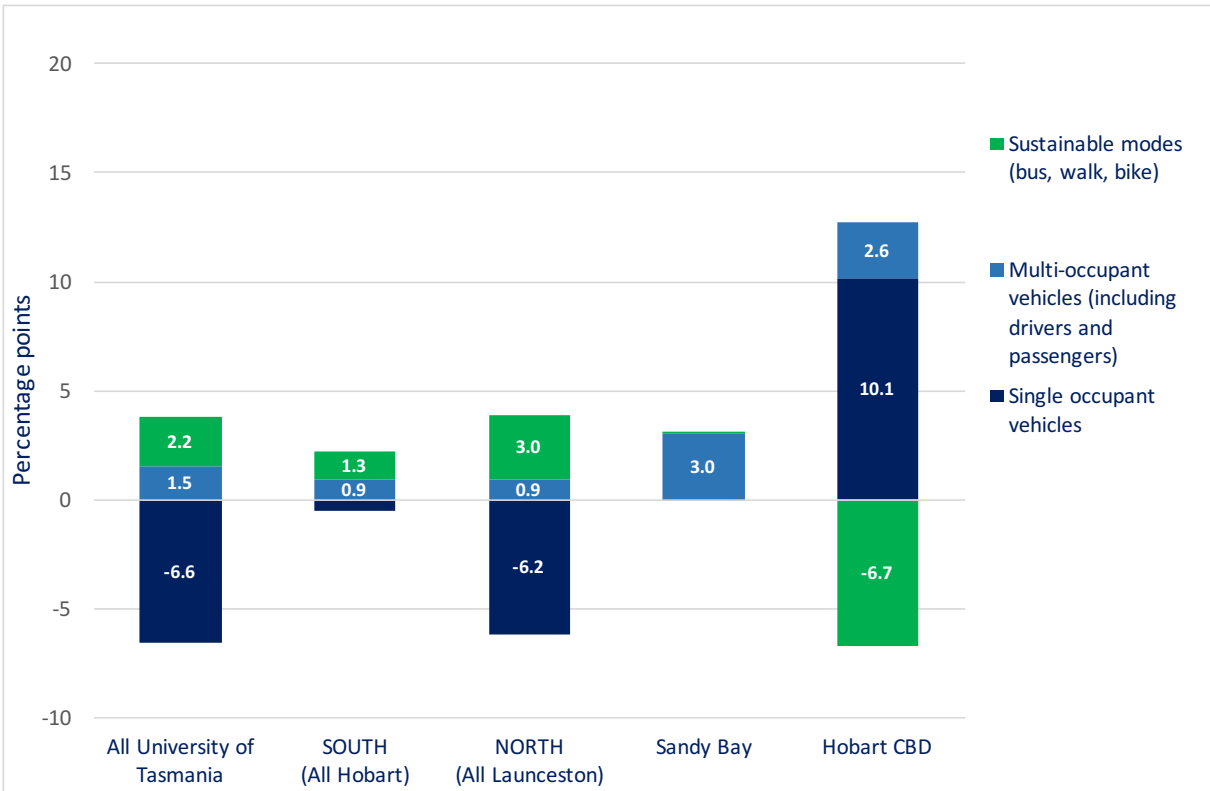


Figure 4.3: Staff – percentage change 2013-2017 – sustainable mode indicators (main mode to work)

³⁷ Life-stage is frequently associated with: complicated travel demands; an increase in part-time female employment to manage child rearing which often means shorter work days and the need for a quick get-away from work often in out-of-peak periods (pers comm MSP and IMAS_S transport focus groups 2015); and squeezed daily time budgets. These factors heightened reliance on the motor vehicle (Lyth-Gollner, A., Dowling, R., 2002. Implications of Household Form, Gender and Parenting Cultures for car use and urban transport policy: a Sydney Study, *Refereed Proceedings of the 25th Australasian Transport Research Forum*, Canberra 2-4 October 2002). http://atrf.info/papers/2002/2002_LythGollner_Dowling.pdf (accessed 22 July 2017).

³⁸ Pers comm, suggestions made by participants in concurrent *Health by Stealth* Research Project focus groups, Menzies Institute for Medical Research (preliminary results); and MSP and IMAS-S transport focus groups 2015.

³⁹ Christiansen, P., Engebretsen, O., Fearnley, N., Usterud Hanssen, J. 2017. Parking facilities and the built environment: Impacts on travel behavior. *Transportation Research Part A: Policy and Practice*, 95: 198-206. <https://doi.org/10.1016/j.tra.2016.10.025> (accessed 20 July 2017)

5 OPPORTUNITIES AND CHALLENGES

The following discusses specific opportunities and challenges associated with: the relocation of university facilities; specific sectors of the university community; and the university organisation and external partner agencies. Many opportunities have been identified as strategic actions in the *University of Tasmania Sustainable Transport Strategy 2017-2021*. The travel behaviour survey findings help confirm the value of these as well as alert university planners to further emerging issues.

5.1 Relocation of university facilities

Opportunities and challenges for Tasmania will continue to arise from the very significant, 'once in multi-generations' relocation of university facilities from suburban campuses to the CBDs of Hobart, Launceston and Burnie. These opportunities and challenges are very relevant in the transport space. First, because we have known for some time that inner urban/CBD locations tend to have the greatest levels of accessibility, and the capacity to deliver public transport and foster short trips by active modes (especially walking) compared to suburban locations⁴⁰; and second, because traffic congestion is becoming more of a public concern in and around the Hobart CBD, and the University needs to contribute positively to this agenda. Associated with these significant relocations are the following key opportunities:

- the embedding of sustainable transport infrastructure and processes into new university precinct and neighbourhood design, and facility new-builds (largely the responsibility of the University); and
- working with other agencies to:
 - improve the quality of public transport services;
 - improve the quality of cycle facilities, particularly safe and interconnected cycle routes;
 - ensure the design of parking supply, especially in CBD locations, is carefully considered, recognising its significant role in influencing people deciding whether to drive for commuter trips.

⁴⁰ See as examples: Newman, P., & Kenworthy, J. 2006. Urban Design to Reduce Automobile Dependence, *Opolis* 2(1) 35-52; and Ewing, R., & Cervero, R. 2010. Travel and the Built Environment: a meta analysis. *Jnl of the American Planning Assoc.* 76(3).

5.2 The student community

Students are by far the largest population group of the University, but they are not a homogeneous group given differences in age, life circumstances, residential origin, and whether they are local or international students. Nevertheless, opportunities exist to address particular student issues and to work with certain groups. For example, our data demonstrates that when public transport infrastructure and services to university campuses are greatly improved (as has occurred in Hobart and Launceston in recent years), patronage by students has noticeably increased, suggesting there was a latent demand for public transport prior. Growth in student patronage builds the capacity to improve services and the system overall, delivering broader community sustainable transport outcomes. As the University grows and shifts its activity to CBDs, this dual benefit (University and community) should continue to be realised.

While local and international students have similar uses and challenges regarding public transport, local student residential origins are more dispersed so public transport doesn't always serve all of them well. As international students have no prior established transport behaviours in Tasmania, with a concerted focus it may be easier to assist them to take up sustainable modes on arrival and consolidate their tendency for sustainable transport practices. Opportunities might include:

- improving information and campaigns about how to use public transport, to raise student awareness and confidence (such as travel planning app, Greencard, how to get on/off a bus, and bus etiquette);
- noting feedback from other surveys and student engagement about public transport frequency, hours and days of service, and conveying this to public transport service providers.

Cycling awareness and education programs need to continue, albeit more tailored.

International students and women, for example, may need specific programs that focus on building competencies and confidence, and raising awareness about cycling routes and opportunities. Examples could include:

- increasing the awareness of the *Decide Your Ride* app, and offering guided rides both individually and in small groups to raise awareness of safe routes and rider support networks;
- targeted student bike-share, bike-purchase and/or trade-in schemes for those living in inner city or inner suburban locations and in student accommodation.

The Sustainability Integration Program for Students (SIPS) provides opportunities for the University's infrastructure and operational sustainability activities to enhance the academic program with an active learning laboratory in sustainability. Projects can include collecting and analysing more transport data, identifying and designing transport improvements (e.g. redesigning bus stops, bike paths etc.) and designing and building transport facilities (e.g. bicycle end-of-trip facilities).

5.3 The staff community

The University staff community presents a more complex challenge for the University, given it is more clearly correlated with the community at large. Our data shows there has been limited change in uptake of sustainable modes overall and an actual increase in single occupant car use at some campuses. There may be a variety of reasons for this, but research suggests that this reflects wider labour force issues, including where staff live relative to their work and the urban form of our cities, hours of work and the family demands of many staff. All these can add complexity to travel patterns. As an example, part-time employees (often women) may need to get away from work quickly to pick up dependent children. The car is often seen as the only transport choice in these circumstances. The reasons commonly voiced are: the need to travel out of peak periods (especially in the afternoons) when public transport is less frequent; the need for a reliable transport mode when picking up or dropping off children; and the need for a transport mode that facilitates multiple journey steps (linked multi-purpose trips). While the solutions to such complexity are largely beyond the University, the University can work to continue to leverage partnerships to advocate and assist: improvements to public transport systems overall (e.g. particularly bus lanes, extending peak periods and frequency to assist part-timers, providing park-and-ride facilities well integrated with high frequency bus corridors); improvements in the walkability and connectedness of neighbourhoods; and the take-up of electric vehicles and bicycles.

While there has been a reduction in inter-campus travel, many local business trips are still being made with single occupant vehicles. While these are usually fleet cars, there is potential to increase the proportion of business trips within the Hobart CBD, and between Sandy Bay and the Hobart CBD, that are not made in a motor vehicle (fleet or private). Programs promoting local bus services linking Sandy Bay with Hobart CBD areas and Newnham/Inveresk and Launceston CBD are encouraged. As is already being implemented in some areas, such as at the MSP in Hobart, this could include providing staff with Greencards linked to operational budget lines (which would also reduce the transport costs for budget units), and implementing policies and procedures that encourage rather than discourage public transport use. This will require promoting the offering, including benefits to

individuals, the University and the community (especially in relation to congestion relief). Public transport reward schemes could also be considered in this context. Working with Metro Tasmania to deliver real-time on-line information into the future means that public transport for business trips should also become more attractive.

The University could also explore offering salary sacrificing for bicycles, e-bicycles and other active transport gear. This would align with the University's commitment to promoting healthy habits and a healthy workplace⁴¹.

5.4 University new-builds and facility upgrades

University new-builds and facility upgrades provide opportunities to design-in sustainable transport infrastructure and facilities as well as incentives for more sustainable practices. For example, the University is already implementing and/or considering the following initiatives in its facilities, including student accommodation:

- high quality EoT cycle facilities, including secure facilities for e-bikes;
- parking limits and incentives, including fewer car parking spaces for single occupant vehicles but more dedicated car spaces for car-poolers, electric vehicles/small vehicles, and spaces for car-share (or car club) vehicles;
- electric charging points for bikes, motorcycle/scooters and cars;
- bicycle share possibilities/partnerships.

5.5 Packaging parking strategy with private vehicle travel demand strategies

It will be important to carefully consider parking strategies as part of the move to CBD (or fringe CBD) locations in Hobart, Launceston and Burnie. This requires partnering with local councils in all three to roll out measures that maximise alternative transport choices and consider the impact of parking supply and mix. The availability of parking, and its relatively low cost compared to mainland centres, provides a significant incentive for private car use for both the journey to work and other local trips. Parking supply provides opportunities to also consider the mix of parking and pricing structures, for example providing a greater proportion of car spaces for carpoolers, car-share vehicles (where car-share schemes emerge in the future), electric and/or small vehicles (including electric charging points). Along with improving the attraction of public transport, parking is highly relevant to the current concerns about traffic congestion and amenity in and around the Hobart CBD.

⁴¹ See MyHEALTH <http://www.utas.edu.au/work-health-safety/myhealth>

Parking is a challenging space to work in, however, with societal demands and expectations for parking and the local political discourse that accompanies the issue. Discussion of parking needs to be packaged with the heightening of community awareness of the links between parking supply, public transport patronage, traffic congestion and amenity in central city areas. Parking strategies that aim to limit parking in central areas cannot be pursued without significant attention to private vehicle travel demand strategies including city-wide public transport improvement and the development of supportive urban form.

Car parking demand can also be addressed by encouraging different models of car ownership and access. Around the world, car-share schemes (or car clubs) are changing the way people think about car ownership and the way many people are getting around, especially in inner urban areas where parking is also at a premium. A car-share scheme works by having cars that members can book for as little as an hour at a time. Such schemes are attractive to those not wanting to own a car, or those who may not wish to own a second or third car because they don't need it all the time. Owning a car usually acts as an incentive to maximise its use, whether other modes are available or not. Car sharers often use other modes, using a car from a car-share scheme when alternative modes are less suitable or available. Such schemes are already well established in European and north American cities including smaller cities⁴². In Australia, they are well established in Sydney and Melbourne and are growing in Adelaide and Brisbane.

In a university community, a community-based car-share scheme would reduce vehicle ownership overall, reducing the incentive to use a car that may not need to be used for a commute trip that could otherwise be made by another mode. Car-share schemes may also improve personal and business travel efficiencies (as has occurred at Sydney campuses where some staff use car-share schemes for intra-urban business trips), and might also provide international/interstate students with a means to travel beyond their study environments without the need to purchase a vehicle.

5.6 Collaborative approaches

The University's most recent *Sustainable Transport Strategy 2017-2021* outlines a number of strategic actions that address opportunities and challenges. While there are strategic actions that the University can undertake in-house, there are many that require collaborative approaches externally. Collaboration in itself is an opportunity to not only address university-specific issues, but also ensure that there are community-wide benefits. For example,

⁴² UK Annual Survey of Car Clubs <https://www.carplusbikeplus.org.uk/tools-and-resources/annual-survey-of-car-clubs/>

enhancing public transport to grow student and staff patronage also enhances public transport for other public transport users. The University of Tasmania already has many constructive relationships and collaborations in the transport space, many of these prompted or led by University Sustainable Transport Strategy initiatives. Continuing to leverage these stakeholder partnerships will deliver improvements to infrastructure and services, delivering sustainability outcomes through sharing data, knowledge, experience and resources.

APPENDIX

The University of Tasmania Travel Behaviour Survey 2017 (Students and Staff) Question Topics

1. Students and staff were asked which University of Tasmania campus they attended for work or study on each of the previous seven days (list of campuses were provided).
2. For each day of the previous week, students and staff were asked:
 - whether they travelled from home to work or study at a University of Tasmania campus;
 - what their main mode of transport from home to work or study was (options included: drove a car as a sole occupant, drove a car with multiple occupants, went by car as a passenger, rode a motorcycle/scooter, took the bus, took the train or light rail (NSW participants only), walked, ran, rode a bicycle (including electric bicycle), took a taxi/Uber vehicle, took a water taxi/ferry, other e.g. skateboard, hoverboard);
 - what trip steps were made for the journey (by mode and approximate time).
3. For sole and multi-occupant car drivers and for each weekday (Monday-Friday), students and staff were asked whether they combined their trip to work or study with any other activities (such as picking-up or dropping-off family members, visiting shops, gym etc).
4. For sole and multi-occupant car drivers, students and staff were asked how they paid for parking in the previous week.
5. For each of the previous weekdays (Monday-Friday), staff were asked whether they undertook travel for University of Tasmania work purposes and if so what trip steps were made for the journey (by campus or non-campus destinations, mode, and approximate trip distance).
6. Referring to the last year, staff were asked how frequently they had used the following types of ICT technology for work purposes (teleconference using conventional telephone, teleconference or videoconference using Skype for Business, UTAS video conference facilities, webinar, personal Skype or other similar, Facetime//Google/Hangouts or similar on smart phone, other ICT).
7. Students and staff were asked whether they were part of a carpool to or from the University of Tasmania on any day last week and how this was arranged (i.e. informally or using the CoolPool tool).
8. Students and staff were asked whether they had a Metro Transport Greencard (Tasmania) or Opal Card (if based in Sydney NSW) for public transport use and whether they usually had credit on it.
9. Students and staff were asked how frequently they used a public transport website or App (such as the Metro Tasmania App or Opal Travel App) to help them plan their public transport travel, receive information about public transport, or manage their travel card.
10. For students or staff that cycled to work/study in the previous week, they were asked:
 - what university facilities or information they had used/accessed (a list of facilities and information options were provided);

- whether their bicycle or scooter was electric or electric assisted.

11. Other information collected:

- Main campus of work or study
- Staff employment status (full-time, part-time, casual/short term contract)
- Student enrolment status
- Student origin (Tasmania, inter-state, international)
- Vehicle type (if drove to the University in the week prior)
- Residential postcode and suburb
- Student accommodation residence
- Gender

