

Sustainable Transport Strategy 2012-2016

**Final Report
January 2017**



Contents

Executive Summary	1
Introduction	3
Objectives, Strategies and Actions	3
1. Objective 1 – Maximise access to the university by healthy and sustainable transport options	3
1.1 Establish baseline measures and monitoring for this objective	3
1.1.1 University-wide transport survey	3
1.1.2 Movement counts and other surveys.....	7
1.1.3 Parked bicycle/motorcycle counts	9
1.1.4 Other surveys and projects	11
1.2 Provide and enhance walking, bicycling and motorcycle/scooter infrastructure (including end of trip facilities, cycling routes, safe and direct pedestrian routes)	12
1.2.1 Bicycling infrastructure development.....	12
1.2.2 Motorcycle/scooter infrastructure.....	15
1.2.3 Pedestrian infrastructure	15
1.2.4 Connecting campuses and facilities.....	16
1.3 Work with public transport providers to enhance public transport services to university facilities (including bus shelters, bus service information, WiFi, ticketing, bus route planning, bike user access, and new public transport modes in target corridors)	17
1.3.1 Bus infrastructure development	17
1.3.2 Metro Tasmania service marketing.....	17
1.3.3 Metro Tasmania bus routing and timetabling.....	17
1.3.4 “Bikes on Buses”	17
1.3.5 Metro Tasmania baseline data for University stops.....	18
1.4 Coordinate with other initiatives and establish networks that further support our sustainable transport objectives.....	19
1.4.1 Principle Urban Cycling Network (PUCN) plans.....	19
1.4.2 Collaborative and sharing efforts	19
1.5 Identify opportunities to reduce student and staff travel inefficiencies through improvements to class timetables, e-learning and videoconferencing.	21
2. Objective 2 – Reduce the incidence of single occupant vehicle use and unnecessary travel.	22
2.1 Establish baseline measures and monitoring for this objective.	22
2.2 Encourage students and staff to consider sharing vehicles or choosing non-car options for short trips.	22
2.3 Minimise the number of single occupant vehicle trips.	22

2.3.1	Inter-campus bus service	22
2.3.2	Parking Strategy implementation.....	24
2.3.3	Carpooling	24
2.4	Create an environment where more efficient vehicle options are attractive (motorcycles/scooters, electric vehicles).	25
2.5	Create an environment where more efficient travel is considered.	25
3.	Objective 3 – Reduce greenhouse gas (GHG) emissions from university transport sources.....	26
3.1	Establish baseline measures and monitoring for this objective (incl. GHG emissions from vehicle fleet, collective travel behaviour & supply-chains).	26
3.1.1	Vehicle fleet.....	26
3.1.2	Surface transport (fleet, rental cars, taxis and commuting)	27
3.1.3	Air travel.....	27
3.1.4	Inter-campus bus services.....	28
3.1.5	Metro Tasmania bus service	29
3.2	Identify and implement emission reduction strategies for the UTAS vehicle fleet (including encouraging procurement of more efficient vehicles, use of alternative fuels and reduction of unnecessary vehicle use).....	29
3.3	Identify opportunities to reduce GHG emissions from supply chains.....	29
3.4	Identify certified ethical carbon offset opportunities for any emissions we can't reduce and facilitate implementation of these.	30
3.5	Support and recognise individuals and business units (Schools, Institutes, sections) who act to reduce their transport emissions.	30
3.6	Encourage more energy-efficient travel behaviour.	30
3.7	Identify and reduce unnecessary travel (including local business travel, flights).....	30
Appendix A – Strategic actions.....		31
Appendix B – Outputs for planning from Transport Survey.....		42
Appendix C – Movement counting methodology		52
Appendix D – Baseline movement count results.....		55
Appendix E – Parked bike and motorcycle/scooter count sheet template example		60

List of Figures

Figure 1. Modal share comparisons of UTAS staff and students travelling to/from work/study (2013 and 2015; sans Rozelle).	4
Figure 2. University mode share change by percentage 2013-2015 by region (staff and students).	5
Figure 3. Overall performance – change by percentage for single occupant vehicle and sustainable travel modes 2013-15 (all student and staff) by region.	6
Figure 4. Student modal share by percentage for all of Tasmanian campuses compared to Rozelle (2015).	6
Figure 5. Modal share of Tasmanian campus students travelling to/from work by campus (2015).	7
Figure 6. Transport movement counts by mode at the Sandy Bay campus (5 locations).	8
Figure 7. Transport movement counts by mode at the Newnham campus (4 locations).	8
Figure 8. Southern facilities parked bike and motorcycle counts per day at formal and informal parking. SB = Sandy Bay Campus; SO = other south region locations	9
Figure 9. Northern facilities parked bike and motorcycle counts per day at formal and informal parking. NH = Newnham Campus; INV = Inveresk Campus	10
Figure 10. Example question in bicycle user survey (2011).	11
Figure 11. Examples of UTAS bike signage at the Sandy Bay campus.	15
Figure 12. Total number of passengers between 2012 and 2015 for the Sandy Bay, Newnham and Burnie campuses.	18
Figure 13. Cumulative ridership from Newnham campus stops before and after implementation of the high frequency year round bus servicing on the Newnham-Inveresk-Launceston CBD corridor	18
Figure 14. Sustainable transport campaign poster	22
Figure 15. Average cost and recoup per week over an eight year period.	23
Figure 16. Average ridership per week on both interregional services from 2007-2014.	23
Figure 17. CoolPool Tas website landing page	24
Figure 18. Dedicated parking signage.	25
Figure 19. Transport and UTAS flyer.	25
Figure 20. Branding of Metro buses and all-electric cars.	26
Figure 21. Inter-campus poster (noting service cancelled from 01 January 2016).	26
Figure 22. Hosting tours and site visits.	26
Figure 23. Percentage of UTAS vehicles meeting minimum greenhouse rating and average fuel use (L/100km) of UTAS fleet vehicles.	27
Figure 24. Annual carbon emissions from air travel associated with University business operations.	28
Figure 25. Map showing the location of movement counts, indicated by numbered red circles. Legs are shown by small black numbers.	55
Figure 26. Daily average total movements according to mode and time at the Sandy Bay campus.	55
Figure 27. Daily average total movements according to location and mode	56
Figure 28. Total movement per entry point (March 2011).	56
Figure 29. Weighted arrows showing density of pedestrian movement by time at Sandy Bay campus entrances (2011 data).	57
Figure 30. Weighted arrows showing density of bike movement by time at Sandy Bay campus entrances (2011 data).	57
Figure 31. Weighted arrows showing density of motorbike movement according to time at Sandy Bay campus entrances (2011 data).	57

Figure 32. Map showing movement count location (numbered red circles) and ‘legs’ identified by small black numbers.....	58
Figure 33. Daily average total movements according to mode and time.....	58
Figure 34. Daily average total movements according to location and mode	58
Figure 35. Weighted arrows showing density of pedestrian movement by time at each Newnham campus entrance (2012 data).	59
Figure 36. Weighted arrows showing density of bike movement by time at each Newnham campus entrance (2012 data).....	59
Figure 37. Weighted arrows showing density of motorbike movement according to time at Newnham campus entrance (2012 data).	59

Glossary

AMC	=	Australian Maritime College
AOSIP	=	Academic-Operations Sustainability Integration Program
CO ₂ -e	=	Carbon dioxide equivalent (standard measure for greenhouse gas emissions)
CoP	=	Community of Practice
DDA	=	Disability Discrimination Act
EfS	=	Education for Sustainability
EOT	=	End-of-trip facility (bicycling infrastructure)
GHG	=	Greenhouse gas
KPI	=	Key performance indicator
PUCN	=	Principal Urban Cycling Network
SIPS	=	Sustainability Integration Program for Students
SOV	=	Single occupant vehicle
STS	=	Sustainable Transport Strategy
TBS	=	Transport Behaviour Survey
UTAS	=	University of Tasmania

Simple Actions Towards Sustainability

Executive Summary

The University of Tasmania's Sustainable Transport Strategy 2012-2016 (UTAS STS) was endorsed by the University Council in February 2012 and guided university decision making regarding transport. The strategy outlined three objectives:

Objective 1 – Maximise access to the University by healthy and sustainable transport options.

Objective 2 – Reduce the incidence of single occupant vehicle use and unnecessary travel.

Objective 3 – Reduce greenhouse gas emissions from university transport sources.

Strategies and implementation actions associated with each of the objectives are outlined in sections 3.2 and 3.3 of the UTAS STS. This final report covers initiatives and actions undertaken for each of the three objectives through December 2016. The next five year strategy carries on from this initial work.

Objective 1 initiatives included:

- Data collection
 - University-wide transport survey (2013 and 2015)
 - Sustainable transport counts at various campuses and facilities (2011-2016)
 - movement counts for pedestrians, bicycles, motorcycles/scooters, and bus users
 - stationary counts for parked bicycles and motorcycles/scooters
 - Sandy Bay campus bike users survey (2011)
 - Collection of bus patronage data from service providers, including Redline Tasmania (inter-campus bus service provider) and Metro Tasmania (2011-2016)
 - Motor vehicle counts on all campuses in collaboration with local councils (2015)
- Delivery of infrastructure upgrades
 - Bicycle parking, lockers, hubs and end of trip facilities involving over 900 new parking hoops and upgrades to hundreds more
 - Bus shelter and stop installations, re-locations, and upgrades
 - Deployment of bicycling and pedestrian directional signage on Sandy Bay Road
 - Motorcycle parking involving over 40 more spaces
 - Car pool parking spaces
- Collaboration with state and local governments in relation to transport planning, grant applications for infrastructure provision, and shared cost for service improvements, such as:
 - Participate in State Government-led Principle Urban Cycling Networks (PUCN) planning for the urban and surrounding areas of Burnie, Hobart and Launceston and workshops for integrated transport plans for the three Tasmanian regions
 - Support the State Government's unsuccessful application to the Nation Building 2 fund for \$29.4m for bicycling and walking infrastructure to connect universities to their communities
 - Implementation of high frequency and through-services via Metro Tasmania

Objective 2 initiatives included:

- Collection of baseline data
- Implementation of an on-line carpooling service (CoolPoolTas)
- Implementation of a parking strategy that includes a cost recovery model and resourcing initiatives
- Production of campaign posters, flyers, and other engagement materials

Objective 3 initiatives included:

- Improved vehicle fleet performance through strategic purchasing of three all-electric, eleven hybrid and other more fuel efficient-vehicles
- Calculation of carbon emissions from University vehicle fleet, rental cars, commuting, taxis
- Calculation of carbon emissions from airline travel
- Calculation of carbon emissions from inter-campus bus service (e.g., Redline Tasmania)

Awards and grants

The STS and its implementation has directly and indirectly resulted in both internal and external recognition through awards, successful grant applications and other secured funding.

Awards

- Green Gown Australasia Award - Learning, Teaching and Skills for Sustainability Integration Program for Students (SIPS; originally AOSIP) [2016]
- Tasmanian Community Achievement Awards Sustainability category (FINALIST) [2016]
- Launceston Chamber of Commerce Environment Award (FINALIST) [2016]
- Commonwealth Office of Learning and Teaching - Program Award for Sustainability Integration Program for Students [2015]
- Planning Institute of Australia – Tasmania award for Planning Excellence [2015]
- Green Gown Australasian Award - Facilities and Services category for “Thinking outside the rectangle: beyond the car park for sustainable transport” [2014]
- Cadence Award from Cycling South – awarded to the Sustainability Manager for provision of bicycling infrastructure through the University [2014]
- EfS CoP wins VC Award for Programs that Enhance Learning for the Academic-Operations Sustainability Integration Program (AOSIP) [2013]
- UTAS Sustainability Team wins VC Award for Exceptional Performance by Professional Staff contributions to teaching and learning [2013]
- Highly commended for Green Gown award (Teaching and Learning category) [2013]
- Cycling Promotion Fund – Australian Bicycle Achievement Award for the Sandy Bay campus Bike Hub for both the infrastructure delivered (including future-proofing electric bike charging stations and on-site photovoltaic system) and the design and development process through the AOSIP [2013]
- ACTS Award of Excellence (as voted by peer institutions) [2012]
- Highly commended for Green Gown Australasian Award (Continuous Improvement – Institutional Change category) [2012]

Grants and other funding

- NHMRC Partnership/ARC Linkage Grant – partnership between Menzies, Commercial Services and Development, School of Land and Food and Metro Tasmania; health outcomes from public transport use (\$25,000) [2016]
- Student Services Amenity Fee funding – supported development of various transport infrastructure projects, such as bike hubs and accessories and bus stop shelters (>\$100,000) [2014-2016]
- State Government Cycling for Active Transport grant (Round 2) for bike hub development (\$10,000) [2012]
- Federal Government Climate Change grant – bike hub development (\$5000) [2011-12]
- State Government grant (Round 1) for bike hub development (\$10,000) [2011]
- University partners in Inveresk Green Precinct Project (\$33,000 for UTAS in \$500,000 project) [2009]

Introduction

The [University of Tasmania's Sustainable Transport Strategy](#) 2012-2016 (UTAS STS) was endorsed by the University Council in February 2012 and guided university decision making regarding transport. The strategy outlines three objectives:

Objective 1 – Maximise access to the university by healthy and sustainable transport options.

Objective 2 – Reduce the incidence of single occupant vehicle use and unnecessary travel.

Objective 3 – Reduce greenhouse gas (GHG) emissions from university transport sources.

Strategies and implementation actions associated with each of the objectives are outlined in sections 3.2 and 3.3 of the UTAS STS document. This final report covers initiatives and actions undertaken for each of the three objectives through December 2016. The next five year strategy carries on from this initial work.

Note that the UTAS STS strategic actions table is included within this document at Appendix A. Each initiative described within the three objectives reference this table and the recommended actions addressed by including a statement such as '[Addressing Objectives 1.1.a, 2.1.a, 3.1.b](#)'.

Objectives, Strategies and Actions

1. Objective 1 – Maximise access to the university by healthy and sustainable transport options

1.1 Establish baseline measures and monitoring for this objective

Establishing a baseline data set for the university allows long term monitoring of trends in transport modes, common travel times as well as assists in informing transport infrastructural needs. Baseline data also allows the University to assess the impact from investments made in infrastructure, equipment, services and other initiatives in response to the strategy.

[Addressing Objectives 1.1.a, 2.1.a, 3.1.b](#)

1.1.1 University-wide transport survey

Performance indicators are important tools in informing the relevance of plans, monitoring progress in plan implementation, and informing the review of plans over time. One of the key actions from the UTAS STS was to establish Key Performance Indicators (KPIs) to inform monitoring and evaluation of the UTAS STS plan as it progressed over time. The baseline and comparative data about travel demand and travel behaviour of staff and students at all major campuses and facilities in Tasmania are required to assist improved transport planning into the future.

To gather this information, a project was designed under the UTAS *Academic-Operations Sustainability Integration Program (AOSIP)* with the project scope determined primarily by the planning needs of the UTAS Commercial Services and Development section. This project helped develop some baseline transport and travel behaviour indicators used to develop KPIs for the UTAS STS.

In 2012/2013, Aaron Archer, a Master’s degree student (KGA741), undertook a project to conduct a University-wide Transport Behaviour Survey (TBS) of staff and students from all Tasmanian campuses (with Rozelle campus users also electing to participate in small numbers). The project was conducted under the direction of Dr. Anna Lyth (School of Geography and Environmental Studies) and Corey Peterson (Sustainability Manager). The survey was developed to gather information for use as a baseline for future comparisons, such as effectiveness in shifting modal use and other outcomes. Specific project steps can be found in the separate project report. Survey participation was impressive, with survey completion by almost 4,000 people (3,107 students and 831 staff; ~10% and >30% response rate).

To continue the collection of longitudinal data, the TBS was conducted again in 2015 with plans to continue the bi-annual surveys under future transport strategies so as to gather the data necessary to use in the KPI reporting. Appendix B includes indicative KPIs considered for transport activities.

While full reports of both the 2013 and 2015 surveys are available separately, Figure 1 and Figure 2 are presented below to give an overview of modes of transport used by the UTAS community as well as modal shifts over time. Given the sheer volume of data collected, it is clear that additional insights will be able to be gleaned over time and in future analyses.

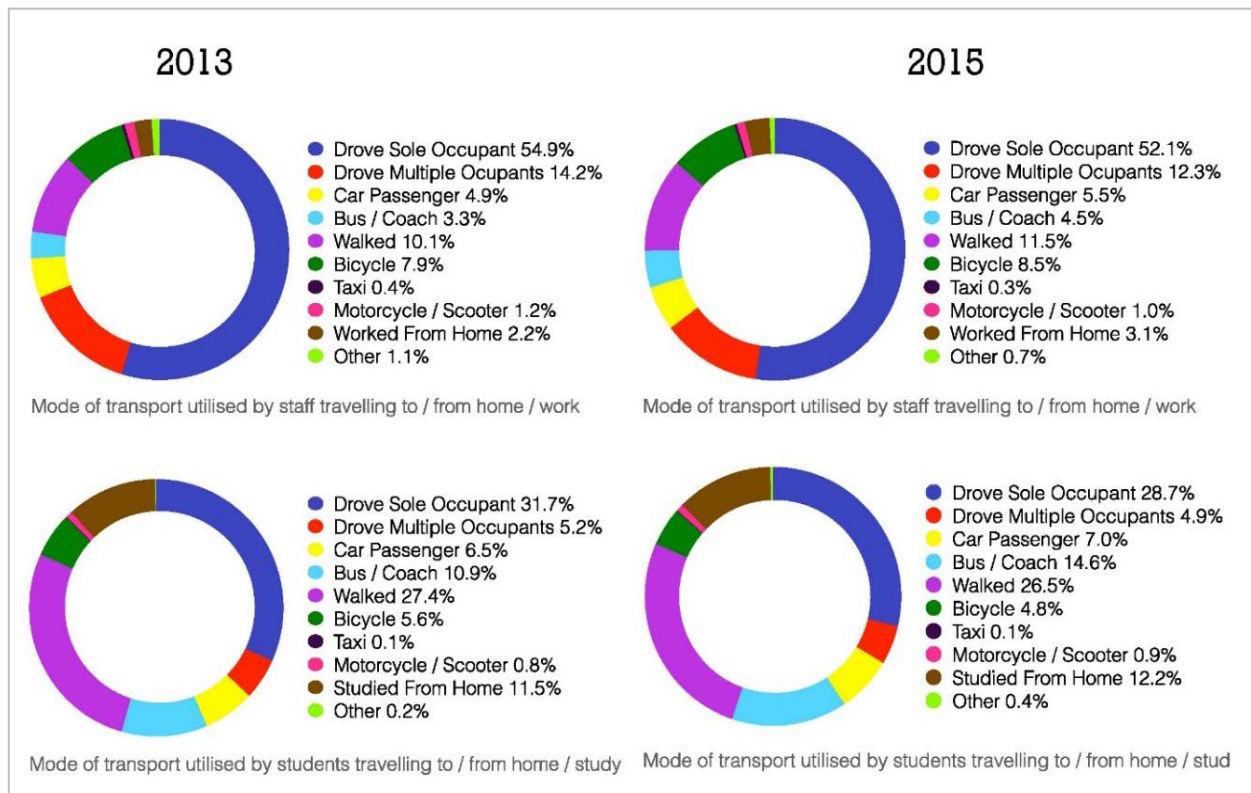


Figure 1. Modal share comparisons of UTAS staff and students travelling to/from work/study (2013 and 2015; sans Rozelle).

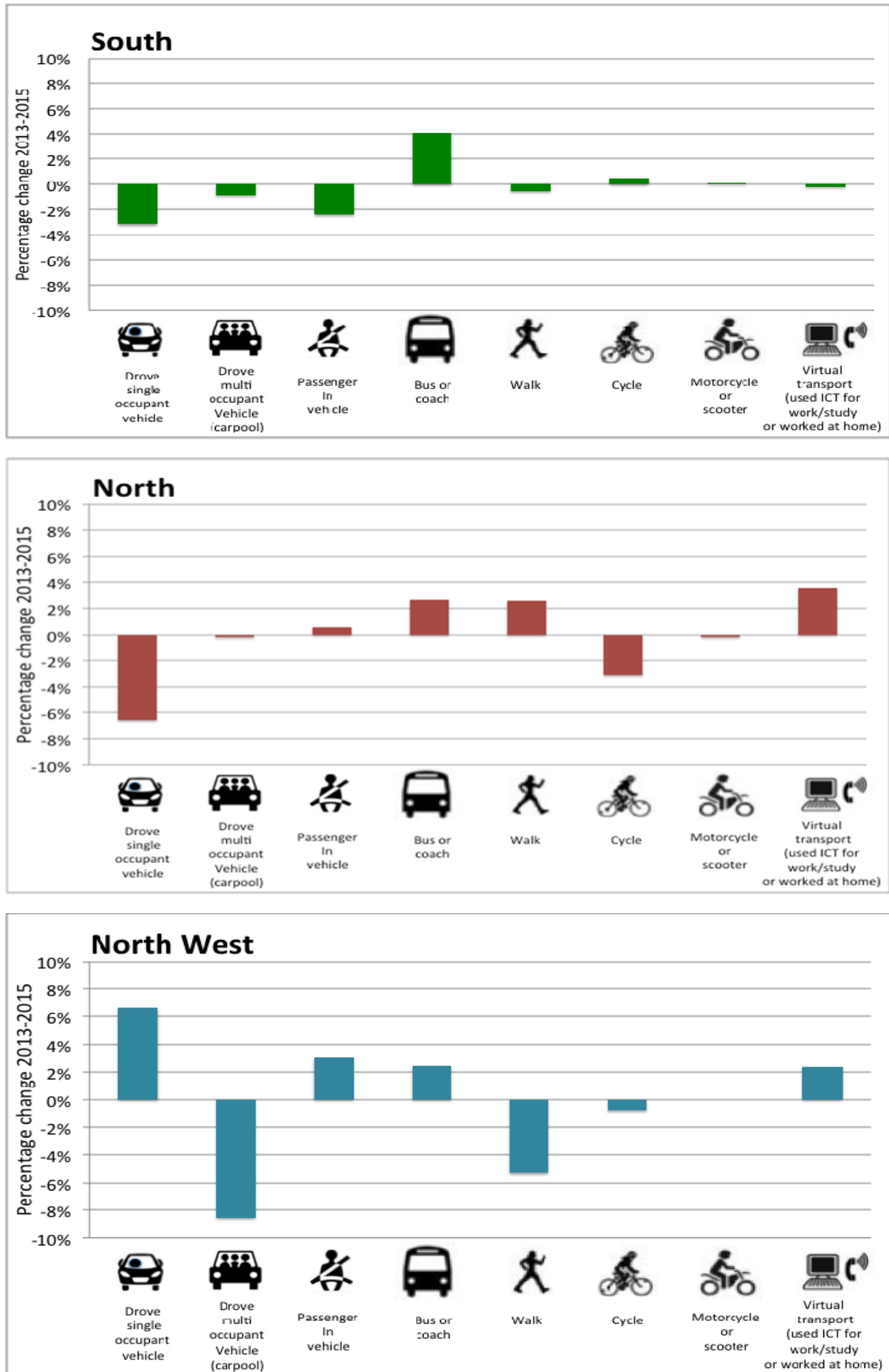


Figure 2. University mode share change by percentage 2013-2015 by region (staff and students).

Figure 3 and Figure 4 show the overall performance by change by percentage points in single occupant vehicle and sustainable travel modes 2013-15 as well as a breakdown by mode per region. This report posits that the positive shifts towards sustainable transport modes results from the concerted efforts from the implementation of the STS.

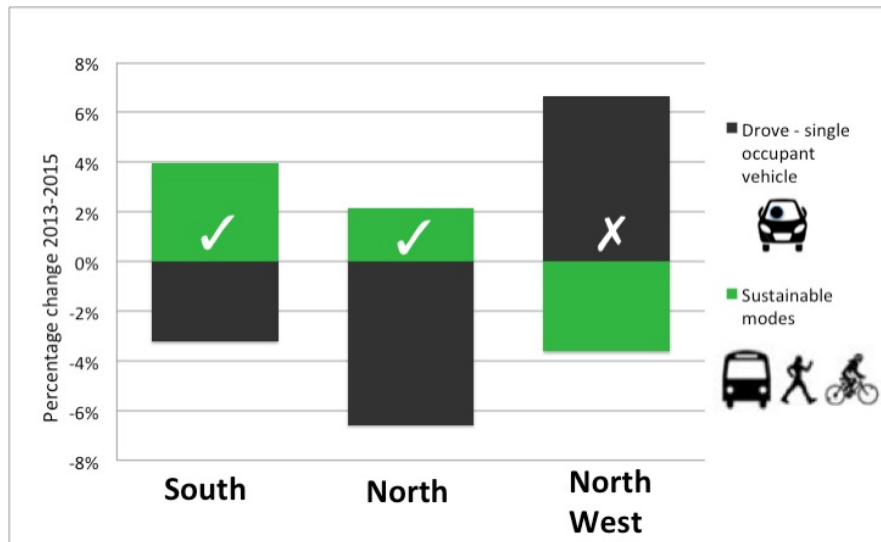


Figure 3. Overall performance – change by percentage for single occupant vehicle and sustainable travel modes 2013-15 (all student and staff) by region.

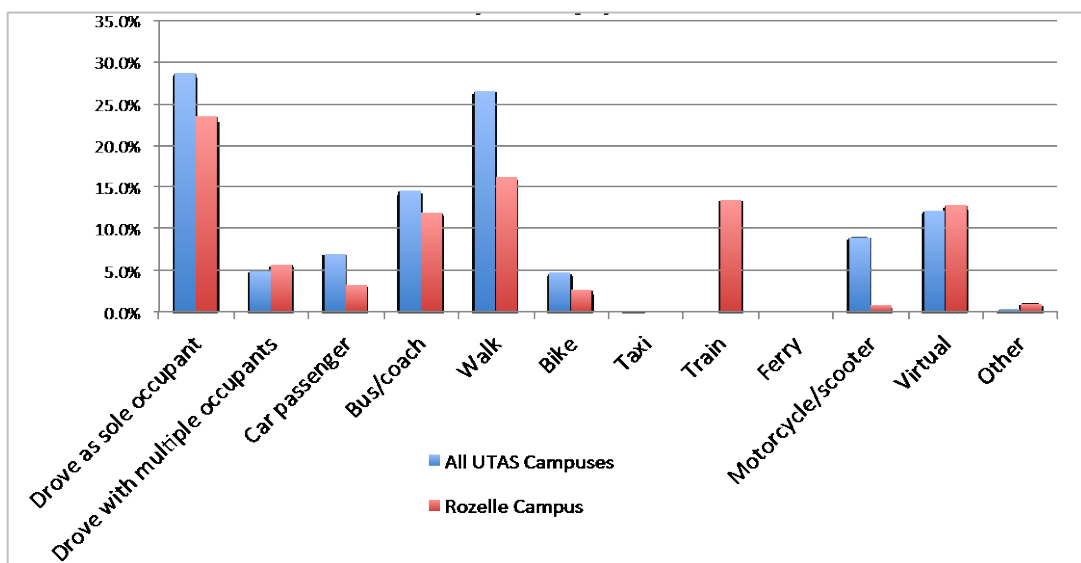
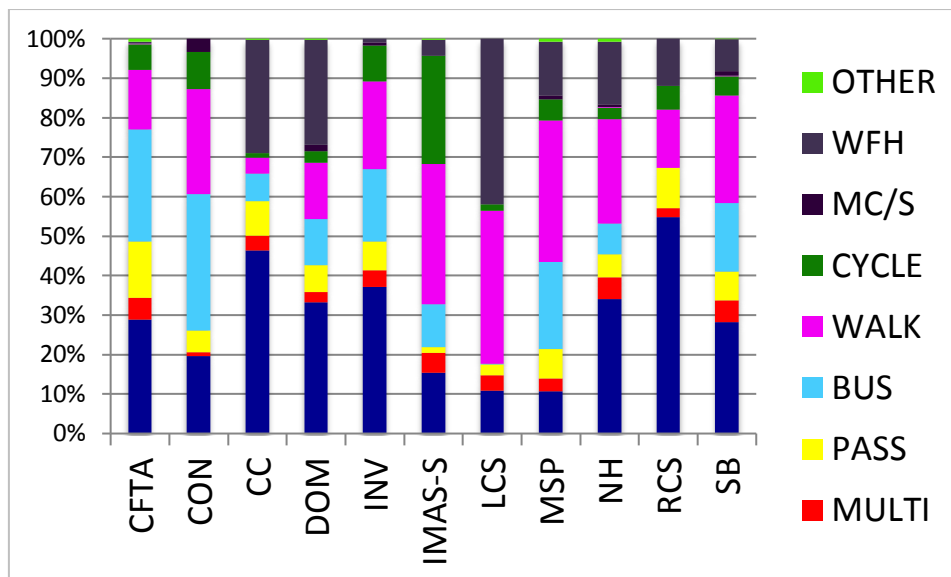


Figure 4. Student modal share by percentage for all of Tasmanian campuses compared to Rozelle (2015).

Note as well that modal shares are very different by facility within a region depending on access to parking, public transport, safe and easy access via active modes, etc. (Figure 5).



*CFTA = Centre for the Arts; CON = Conservatorium of Music; CC = Cradle Coast campus; DOM = Domain; INV = Inveresk; LCS = Launceston Clinical School; MSP = Medical Science Precinct; NH = Newnham campus; RCS = Rural Clinical School; SB = Sandy Bay campus
 ** WFH = work from home; MC/S = motorcycle/scooter; PASS = car passenger; MULTI = private car multiple occupants; SOV = single occupant vehicle

Figure 5. Modal share of Tasmanian campus students travelling to/from work by campus (2015).

1.1.2 Movement counts and other surveys

Addressing Objectives 1.1.b/d/f/h, 2.1.a, 3.1.b

Sustainable transport movement counts were completed annually on the Sandy Bay (since 2011) and Newnham (since 2012) campuses, except 2013. Counts included pedestrians, bicycles, and motorbikes/scooters; car movements were also counted on Newnham campus in the first two years. Movement counts were performed over two two-hour blocks (Newnham; 8:00-10:00am, 3:30-5:30pm) or three two-hour blocks (Sandy Bay; 7:30-9:30am, 9:30-11:30am, 3:30-5:30pm) at various campus entry/exit points providing detailed data for targeted provision of infrastructure and services. Note that due to high reliance on volunteers and misunderstandings of the data collection methodology, some data sets do not have a high degree of reliability for all locations and times, therefore they are not included in graphs of total numbers provided below but some are still useful for individual comparisons. Ad hoc counts have been conducted in the Hobart CBD and at Inveresk from 2010-2016 to get indicative numbers. Counts are yet to be completed on the Burnie campuses.

Counting methodology, instructions and sample log sheet used during the period of the STS are included in Appendix C with example count results per campus and entry point specific breakdowns in Appendix D. Note that a student-developed online 'app' was developed in 2016 to replace the paper-based counting method, which will be deployed in the 2017 counts.

Sandy Bay campus counts

Of the three modes counted, the results show that the majority of people commuting to and from the Sandy Bay campus arrive by walking, secondly by bicycle and thirdly by motorcycle/scooter (Figure 6). Note that pedestrians were not identifiable as coming from parking a vehicle nearby or completing their whole journey on foot. The results of the overall transport survey provides information on this.

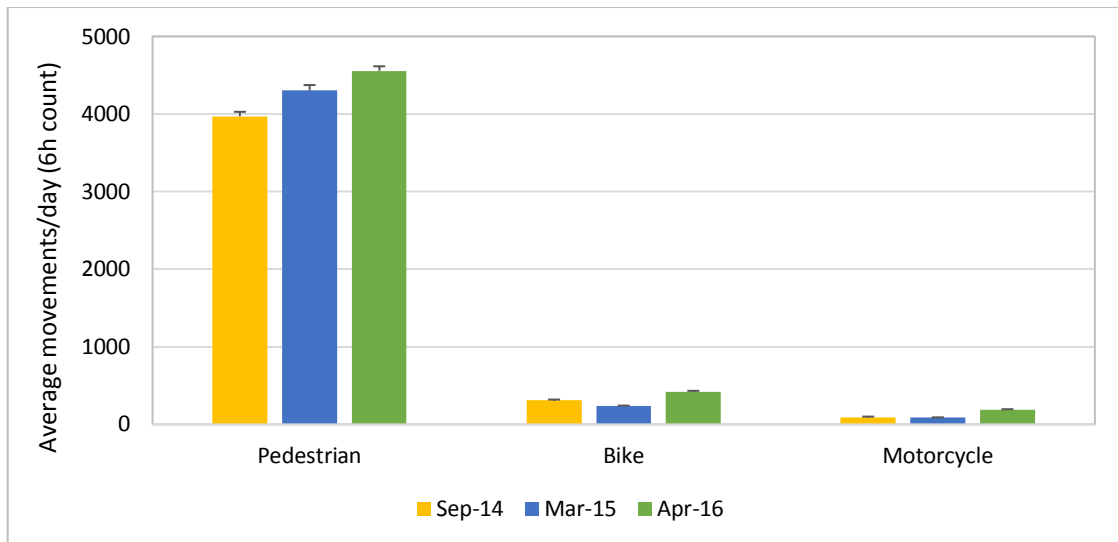


Figure 6. Transport movement counts by mode at the Sandy Bay campus (5 locations).

The results also showed that the Grosvenor Crescent and the TUU Cross-over were the most used access points overall by pedestrians and bicyclists. Motorcycles most commonly used the top entrance opposite TT Flynn Street.

Newnham campus counts

Results show the majority of people commuting to and from the Newnham campus travel by car, then by walking and cycling with motorcycles numbers comparatively low (Figure 7). Access off Invermay Road and the Invermay Connector were most used by bikes and pedestrians.

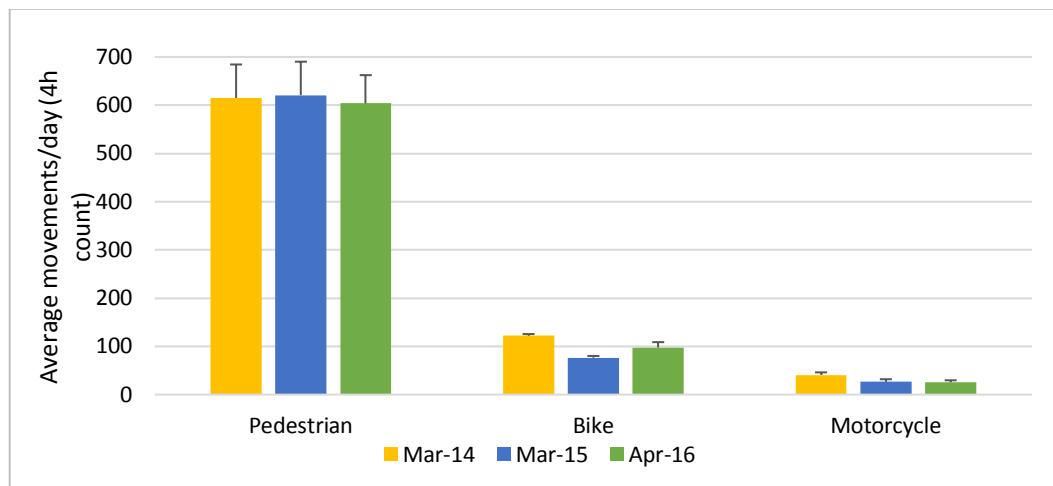


Figure 7. Transport movement counts by mode at the Newnham campus (4 locations).

Motor vehicle counts (all Tasmanian campuses)

Automated counters provided by local councils gathered shareable data in 2014 at Cradle Coast, Newnham and Sandy Bay campuses of motor vehicle movements.

1.1.3 Parked bicycle/motorcycle counts

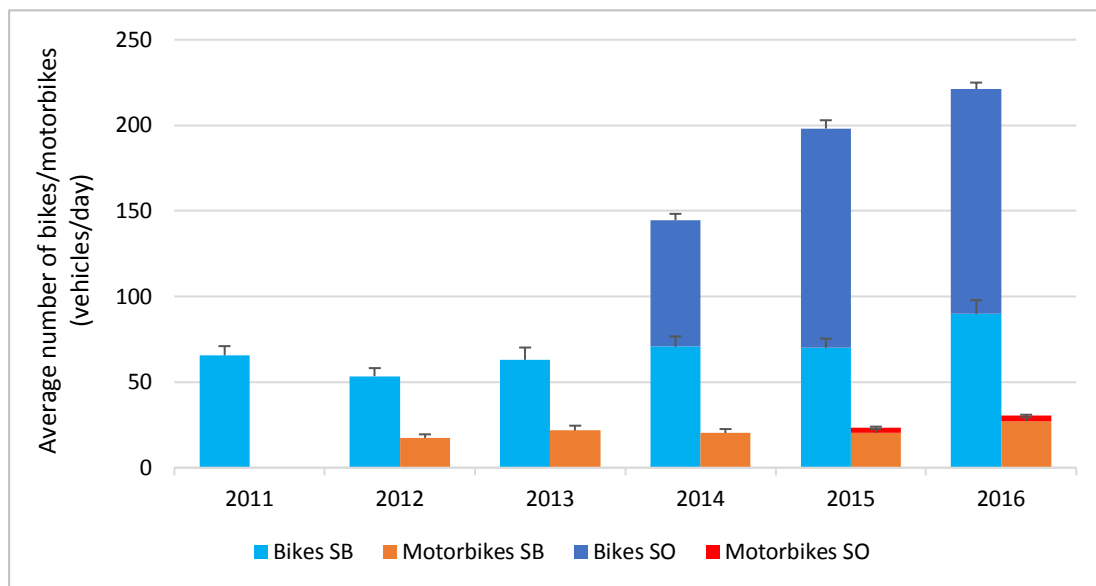
Addressing Objectives 1.1.b/d/f/h, 2.1.a, 3.1.b

Parked bicycle and motorcycle/scooter counts were completed at various University sites since 2011. Count results per campus are covered below. Note these are counts of bikes parked outside. Anecdotal evidence and survey responses indicate that some staff choose to park their bikes in offices and other inside areas, so the overall numbers of bikes on campus are probably higher than shown in this data collection effort. Appendix E provides an example of a count sheet.

Sandy Bay and Hobart campuses counts

Parked bike counts were conducted on the Sandy Bay campus annually since 2011 with motorcycles included from 2012 (Figure 8). Given the significant movement of facilities from the Sandy Bay campus to the Hobart CBD with limited access to parking, in 2014 a significant jump in cycling numbers was noted with increasing numbers through 2016. This increase in bike numbers in Sandy Bay numbers bears testament to uptake of this transport mode over recent years.

Parked motorcycles/scooters increased by approximately 50% on the Sandy Bay campus. Not all Hobart CBD University facilities have University-only motorcycle/scooter parking so data is not collected around those facilities. To determine accurate numbers of motorcycle users would require additional data collection efforts or extrapolation from the Travel Behaviour Survey results.

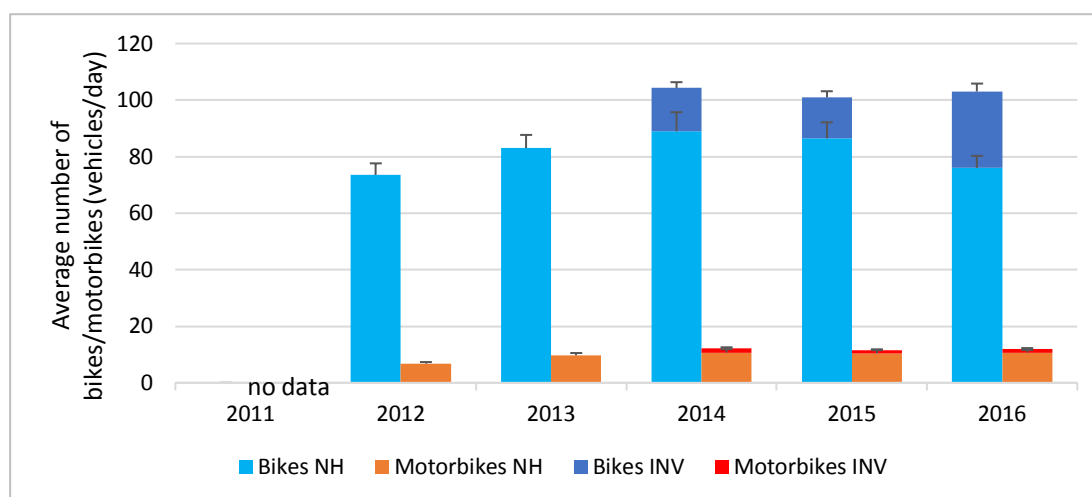


Note the 2011-2013 data is only for Sandy Bay campus and following years including the new facilities in the Hobart CBD and Taroona. SB = Sandy Bay Campus, SO = other south region locations

Figure 8. Southern facilities parked bike and motorcycle counts per day at formal and informal parking. SB = Sandy Bay Campus; SO = other south region locations

Newnham and Inveresk campus counts

Parked bike and motorcycle/scooter counts have been conducted on the Newnham campus since 2012, with regular counts at Inveresk starting in 2014 following construction of the dedicated secure bike hub (Figure 9). Access to Newnham campus via bicycle increased to 2014 and then declined to previous levels by 2016; this decline coincided with the new high frequency bus services being introduced. New student apartments with bike hubs were added to the Inveresk campus in 2016 most likely accounting for the increased counts there.

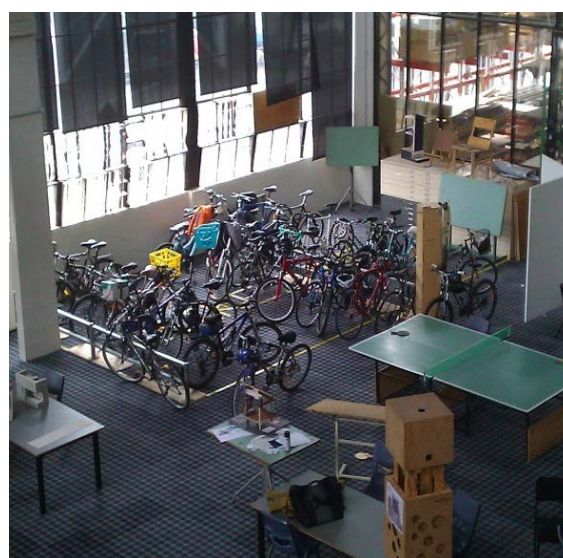


Note the 2011-2013 data is only for Newnham campus and following years including Inveresk. NH = Newnham Campus, INV = Inveresk Campus

Figure 9. Northern facilities parked bike and motorcycle counts per day at formal and informal parking. NH = Newnham Campus; INV = Inveresk Campus

Some anecdotal counts were conducted at the School of Architecture and Design at Inveresk in 2012 after concerns from staff regarding the loss of teaching space caused from bikes being stored inside (image to right). Bikes began to be stored inside in 2011 due to high rates of vandalism and theft in external parking areas.

The number of bikes parked inside per day in a specially marked area in the main student work space ranged from 22 to 51. This information was used in the successful proposal for a new secure external facility at Inveresk funded through the Student Services Amenity Fee and a \$10,000 grant from the State Government in 2012 (see infrastructure discussion below).



Regular counts are yet to be conducted at the Beauty Point campus, Cradle Coast Campus, Rural Clinical School and Rozelle (Sydney).

1.1.4 Other surveys and projects

Addressing Objectives 1.1.b/d/f/h, 2.1.a, 3.1.b

Bicycling-specific survey (Sandy Bay campus)

A survey was conducted in 2011 to determine what bicyclists accessing the Sandy Bay campus expected in an EOT facility, as well as what would encourage them to ride more often. Covered and secured shelters, as well as change rooms and showers were the most desired EOT facilities. In general, the main improvements that would influence respondents to bike more frequently included more separate bike lanes on primary street routes and more paved (off-street) bike paths, together with more covered bike parking/storage and showers and gear lockers.

This information was used to prepare the design briefing note provided to the School of Architecture and Design students who worked on the design elements of the Sandy Bay campus Dobson Road EOT facility, which was completed in October 2012. The survey data also supported the successful 2011 application to a State Government (\$10,000) cycling infrastructure grant fund, and helped to achieve funding from a Federal Government climate change grant (\$5,000) to construct the facility.

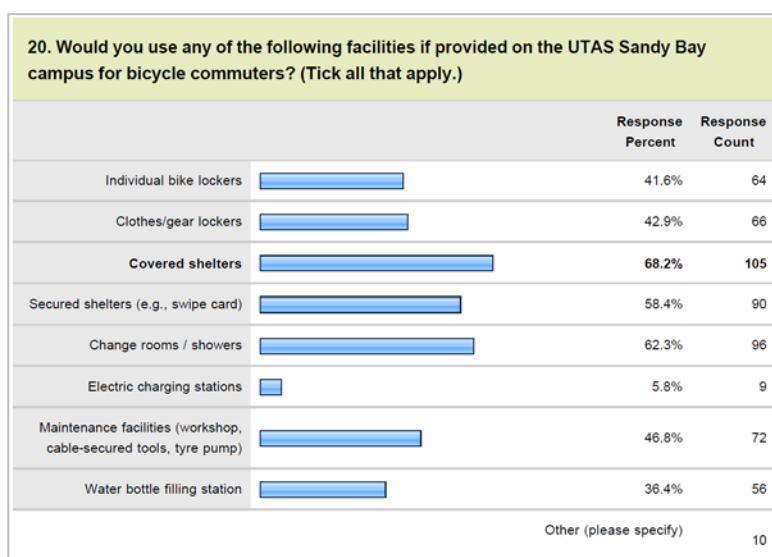


Figure 10. Example question in bicycle user survey (2011).

A sample question and answer from the 2011 survey is provided in Figure 10.

A follow-up survey in late 2013 conducted by AOSIP students asked the same questions to start to gather data for comparisons on bicyclists' needs and wants over time as well as to gain feedback on facilities and services provided since the last survey. With a similar participation rate, the spread of responses was similar, except half as many respondents noted they wanted secured shelters and double the percentage saying they would use maintenance facilities and a water bottle filling station.

Student projects

A number of student projects have explored various aspects of sustainable transport, with reports available separately. Examples of efforts include analysis of movement and parked bike counts and assessment of travel demand from specific student cohorts.

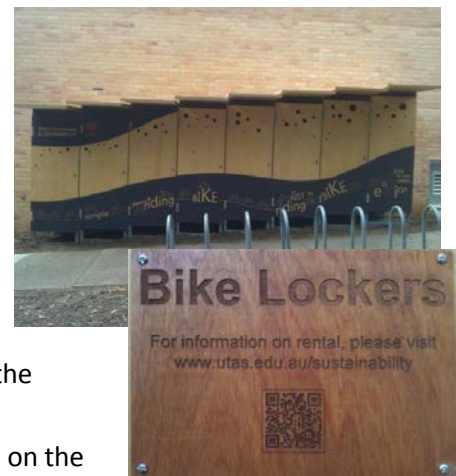
1.2 Provide and enhance walking, bicycling and motorcycle/scooter infrastructure (including end of trip facilities, cycling routes, safe and direct pedestrian routes)

Addressing Objectives 1.2.a, b, c, d, e, g

1.2.1 Bicycling infrastructure development

Sandy Bay Campus

Students from the School of Architecture and Design (SA&D), working through the Launceston Assistance and Research Centre (LARC), were given a brief to design bike lockers for installation on UTAS campuses. In response to the design brief, the students worked through the process from concept design to manufacture. The first set of working bike lockers were installed on the Sandy Bay campus in February 2012 for hire by staff and students.



A similar process was undertaken for development of a more extensive 'bike hub' EOT development on the Sandy Bay campus between Dobson Road and Alexander Street.

This facility was officially launched by the Vice Chancellor and the State Government Minister for Sustainable Transport in October 2012. Based on results of the data collection and analysis (covered in Section 1.1 above), design requirements were provided to SA&D students. The bike hub project included a photovoltaic system and electric bike recharging stations. The project attracted the maximum possible cycling infrastructure grant of \$10,000 from the State Government due to the project's innovative design and facilities. UTAS was also awarded the Cycling Promotion Fund's Australian Bicycling Achievement Award in March 2013 for facility innovation and the process by which it was developed (i.e., student ownership through direct involvement).



Hobart CBD facilities

UTAS 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. Specifically, five individual bike lockers were installed on the Domain site near the entrance to the School of Nursing and Midwifery in 2012.

A temporary end-of-trip (EOT) facility was provided near the Hobart Railway Roundabout at Liverpool Street from 2010 to 2013. This facility was heavily used for this time with a range of 5 to 28 bikes.

In 2013, an EOT opened in the basement of the new Medical Science building providing secure, undercover facilities for 200 bikes, access to 20 electric bike charging stations, a maintenance station, showers and lockers. The new IMAS development on the Salamanca Waterfront provides all the same facilities as MS2 above, but with inside parking for 30 bikes in the main building and an undercover, secure facility for an additional 90 in a separate EOT outside the back entrance.



From this...
to this...



Newnham Campus

The Newnham campus boasts a large number of existing bike parking options, from small sheds and hanging racks at Accommodation Services buildings through to the undercover facilities provided near the main library and other areas. To supplement this with more individually secure options, the UniGym through ActiveUTAS in collaboration with Commercial Services and Development (CSD) procured ten secure individual lockers and deployed them in pairs around the Newnham campus in mid-2013. Rental information on all campus lockers is available on the CSD website.

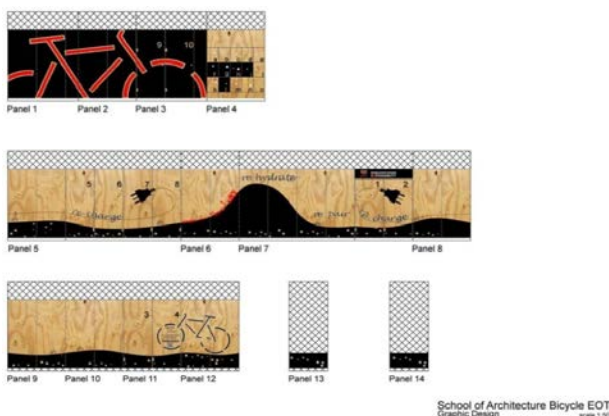


Additional bike parking hoops have been added to various areas of the campus over the past five years as well as a new secure cage at Kerslake Hall and a repair station near the library in 2015. A new EOT with repair and water stations was installed next to the Investigator Hall laundry in 2016, again involving a SA&D student through the SIPS program in the design, manufacture and installation of the facade elements.



Inveresk Campus

A project for bike parking facilities at the Inveresk campus in 2012 replicated the Sandy Bay process. Students once again responded to a design brief and site specific requirements, including re-using the temporary 'bike cage' from the Medical Science Precinct.



The Inveresk campus project also attracted \$10,000 from the State Government as well as being selected by students and the Student Services Amenity Fee funding committee for the remaining funds. This facility involve an Architecture student taking the designs and with some minor changes made the materials using the School's equipment and completed the installation in late 2013.

Rural Clinical School

The Rural Clinical School installed undercover racks for up to 12 bikes in early 2012 in response to their own campaigns and initiatives around sustainability and personal health. The number of bikes using this facility ranges from 6-12 per day.

Rozelle campus, Sydney

In 2013, the Rozelle campus was provided with four stainless steel hoops and in 2014 a repair station. A water station supplemented these facilities in 2016.

New student accommodation facilities state-wide (NRAS-funded)

NRAS developments at West Park (Burnie), Newnham and Inveresk include bicycle parking and EOTs as part of UTAS environmental sustainable design and sustainable transport commitments.

Between the three, secure swipe card access parking for bikes include 36 at Inveresk and six publicly accessible; whereas Newnham (36) and West Park (8) are all publicly accessible.



Signage development and deployment

As part of the strategy to provide and enhance cycling routes to/from UTAS facilities, signage was designed for deployment at key UTAS locations. The State Government's *Cycling for Active Transport Strategy 2010* included development of a '[Cycle Route Directional Signage Resource Manual](#)' via the work of a University of Tasmania student. The manual is a resource for cycle infrastructure owners to utilise when developing and implementing signage for cycleways and the on-road environment.

This manual was used to develop UTAS bicycle signs. As some of the first users of the draft manual, it became obvious that the standards would result in excessively sized signs. UTAS feedback to DIER resulted in changes to the standards to achieve more reasonably sized signage, while adhering to common look signage across the state (Figure 11).

Directional signage was installed on the Sandy Bay campus at the Sandy Bay Road entrances and preliminary plans completed in collaboration with Cycling South and City of Hobart to mark two routes through Battery Point to connect the Sandy Bay campus to the Hobart CBD.

1.2.2 Motorcycle/scooter infrastructure

Between 2012 and 2016, infrastructure for motorcycles and scooters was upgraded or added across all campuses and facilities, totalling over 25 additional parking spaces. Another 13 were included in the final designs for the NRAS Hobart development.

1.2.3 Pedestrian infrastructure

Infrastructure to support pedestrian movements have focused on improving and maintaining road crossings, including upgrades to make them DDA compliant.

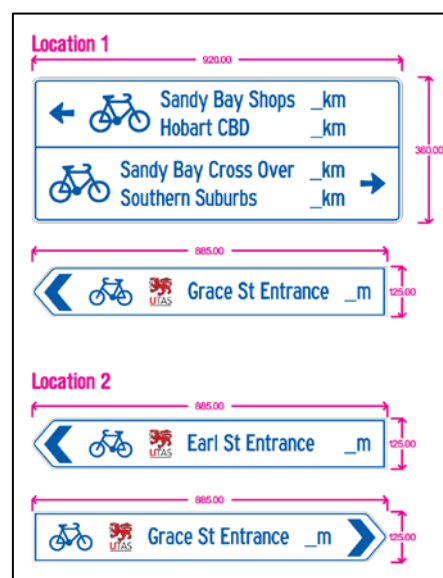
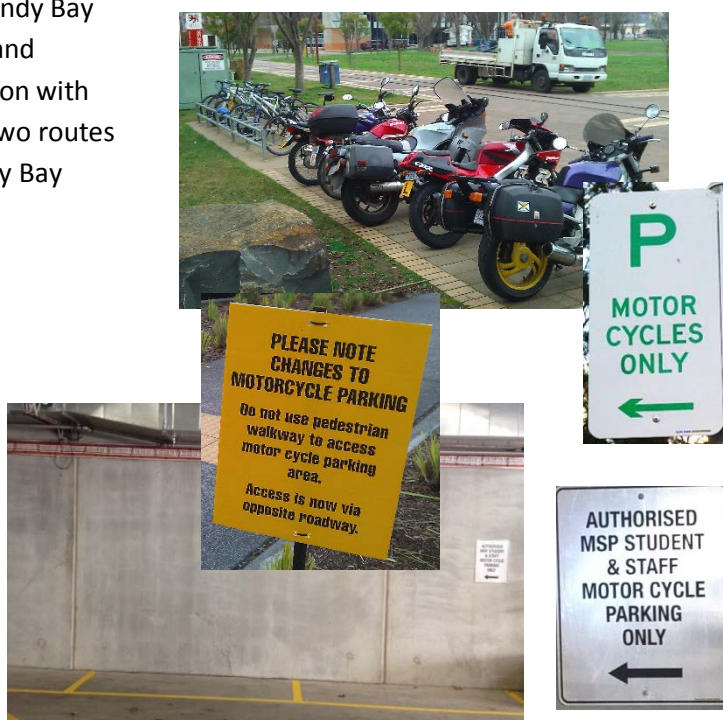


Figure 11. Examples of UTAS bike signage at the Sandy Bay campus.



1.2.4 Connecting campuses and facilities

Through a strategic funding commitment, the University supported a City of Launceston upgrade to the East Tamar Highway shared bicycle/pedestrian pathway to include provision of a safe crossing over the Mowbray Connector, widening the pathway in sections, installation of lighting on low visibility corners and general vegetation management.

Through student work, a series of 'Decide Your Ride' videos have been created of the three most commonly used and safe routes between Sandy Bay campus-Hobart CBD and Newnham-Inveresk campuses. These 'virtual buddy' videos are available on the University website and include on-screen route maps, tips for safe riding, road rules and route conditions.

A number of student projects also addressed bicycle movement on Sandy Bay campus, including impediments to safe and effective movement and potential solutions.

<p>Hobart Medical Science Precinct via Fitzroy Place</p>		<p>Sandy Bay Campus via Fitzroy Place</p>	
<p>From Sandy Bay campus Bike Hub along Grosvenor St to a shortcut up to Fitzroy Place, this avoids the busier Sandy Bay Road and Regent Street. Continue via Molle to Collins Street to the Medical Science Precinct.</p>		<p>From the Medical Science Precinct via Liverpool and Molle Streets to Fitzroy Place. Take the shortcut used on the outward journey and continue on Grosvenor Street to the campus Bike Hub.</p>	
<p>Ride time - 14 min / video 7 min</p>		<p>Ride time - 15 min / video 6:25 min</p>	
<p>Lower Sandy Bay to Sandy Bay Campus</p>		<p>Sandy Bay Campus to Lower Sandy Bay</p>	
<p>From the Lower Sandy Bay shops using the bike lanes along Sandy Bay Road. Turn left up Nelson Road, right up Quorn Street and through to the Earl Street entrance.</p>		<p>From the Bike Hub to Earl then Quorn Street and to the Nelson Road traffic lights. Turn onto the Sandy Bay Road bike lanes and continue to the Lower Sandy Bay shops.</p>	
<p>Ride time - 9 min / video 4:45 min</p>		<p>Ride time - 9 min / video 5 min</p>	
<p>Sandy Bay Campus via Battery Point</p>		<p>Hobart Medical Science Precinct via Battery Point</p>	
<p>From the Medical Science Precinct and the Hobart Railway Roundabout through to the Intercity Cycleway. Continue via Morrison Street and Castray Esplanade to Battery Point. Then via Napoleon Street and Marieville Esplanade to the Sandy Bay campus.</p>		<p>From the Sandy Bay campus Bike Hub via Earl Street and Marieville Esplanade to Napoleon Street. Continue through Battery Point to Castray Esplanade and Morrison Street to the Intercity Cycleway. Cross at the junction of Brooker Avenue and Davey Street and continue to the Medical Science Precinct via the Hobart Railway Roundabout.</p>	
<p>Ride time - 16 min / video 7 min</p>		<p>Ride time - 16 min / video 9:15 min</p>	

1.3 Work with public transport providers to enhance public transport services to university facilities (including bus shelters, bus service information, WiFi, ticketing, bus route planning, bike user access, and new public transport modes in target corridors)

Addressing Objectives 1.3.a, b, d, e, g, h, i, k- o, q; 2.2.d, m

1.3.1 Bus infrastructure development

In collaboration with Metro Tasmania and local councils, including planning and shared investment, bus stop shelters were installed or upgraded for campus bus stops at Sandy Bay, Newnham, Cradle Coast and West Park. Other stops were relocated for safety considerations.



1.3.2 Metro Tasmania service marketing

Metro Tasmania participated in University Orientation events for the past few years, including in 2012 and 2013 with the physical presence of a bus to inform potential bus users of the service and allow no pressure 'how to use a bus' sessions and booths from 2014-2016. Links to Metro services are included on the University website.

1.3.3 Metro Tasmania bus routing and timetabling

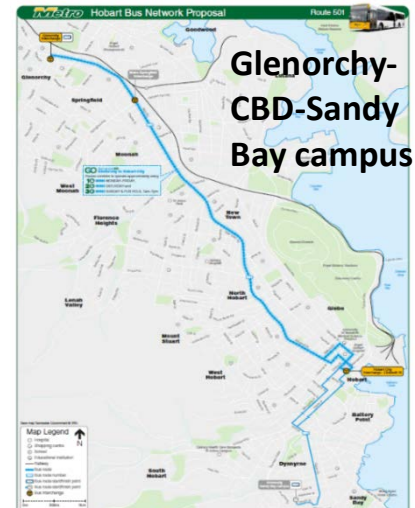
Metro Tasmania is one of the main public transport providers in Tasmania, with services state wide. The STS recognised that reliable and regular bus services are crucial to achieving the objectives outlined in the strategy document.



In fulfilling the objectives of the strategy, the University worked with, and supported through strategic funding commitments, Metro Tasmania to review and institute new bus servicing arrangements for the high demand Sandy Bay campus- Hobart CBD and Newnham-Inveresk-Launceston CBD corridors. Through these efforts, high frequency through services have been implemented on these corridors with expanded servicing to year round and a longer range of hours.

1.3.4 "Bikes on Buses"

UTAS encouraged Metro Tasmania in its trial of bike racks on buses. Unfortunately, the trial occurred only on select routes in Hobart from late December 2012-early January 2013 period when few University users would have participated.



1.3.5 Metro Tasmania baseline data for University stops

Data is readily available from Metro Tasmania to determine trends in ridership across each of the locations as well as ridership changes over time. The data is sourced from Metro Green Card use, which is a proprietary electronic on-board payment system. While not all Metro users access the service through card use, University surveys were used to determine the percentage of UTAS staff and student bus users having active Green Cards. Working with Metro to interpret the data and their own Green Card use statistics, these percentages were used as a multiplier from the data supplied to determine ridership.

Figure 12 compares the total number of passengers between 2012 and 2016 for the Sandy Bay, Newnham and Burnie campuses. The graph shows an increase in people using a Metro bus at Sandy Bay and Newnham campuses, with ridership being similar in Cradle Coast Campus for the last few years. The immediate success of the new high frequency bus service on the Newnham-Mowbray-Inveresk-CBD corridor is evidenced by a 25% increase in passengers within the first year highlighting the latent demand met (Figure 13).

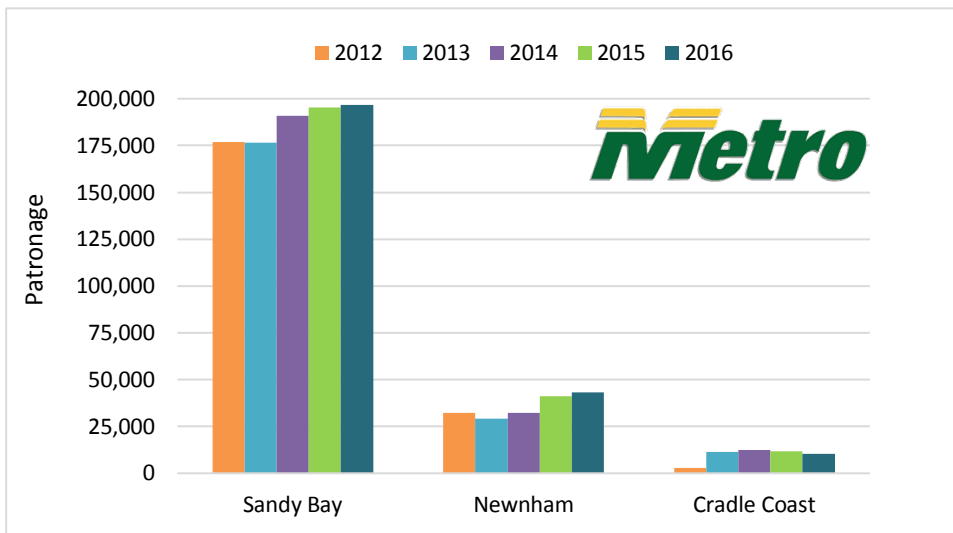


Figure 12. Total number of passengers between 2012 and 2015 for the Sandy Bay, Newnham and Burnie campuses.

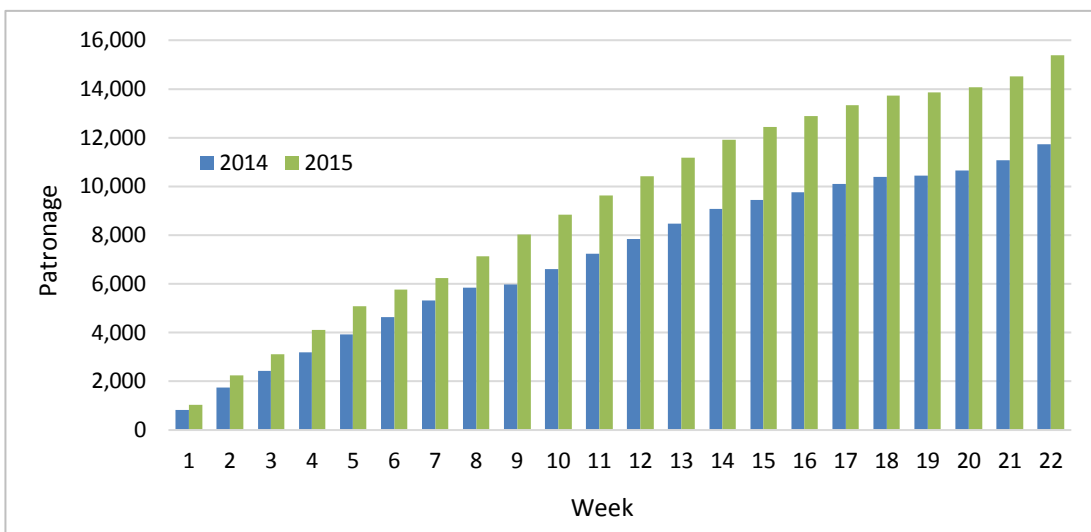


Figure 13. Cumulative ridership from Newnham campus stops before and after implementation of the high frequency year round bus servicing on the Newnham-Inveresk-Launceston CBD corridor.

1.4 Coordinate with other initiatives and establish networks that further support our sustainable transport objectives.

Addressing Objectives 1.4.a, b, c; 2.2.a, h, j, n

1.4.1 Principle Urban Cycling Network (PUCN) plans

UTAS, in conjunction with local government representatives, bicycling groups and other community based organisations, participated in State Government-led efforts to develop Principle Urban Cycling Network (PUCN) plans for the urban areas of Hobart, Launceston and Burnie. PUCNs identify the highest priority transport oriented cycling routes in Tasmania's major urban and peri-urban areas. Maps of the Principal Urban Cycling Networks are available on the [Department of State Growth website](#). It should be noted that while cycling infrastructure exists on some routes, it is yet to be developed on others. In some cases the precise route to be followed has not been finalised and it will not be possible to do this until some initial feasibility, concept, planning and design work has been completed. The PUCNs directly inform local, state and national government funding support.

1.4.2 Collaborative and sharing efforts

Australian Government

UTAS provided information and reviewed documentation of a Commonwealth Government case study report focussing on the Dobson Road Bike Hub development as a best practice example as included in Austroads documentation. One report expands on and complements information that is provided in the Australian Bicycle Parking Standard AS2980.3 and in the Austroads Guide to Traffic Management.

State Government

UTAS directly supported the State Government in an unsuccessful \$29.4m Nation Building 2 (NB2) funding application which focused on "Connecting Universities to Communities" through projects state wide. Projects included bicycle and pedestrian infrastructure developments. UTAS staff attended working meetings, provided maps and data, information on UTAS investments in end-of-trip facilities at various developments and reviewed the application. While advised in May 2013 that the application was not successful, the effort exemplified the possibilities for collaborative efforts.

UTAS participated in State Government-led integrated transport workshops to inform northern and southern regional transport plans more generally as well as the Northern Transformation program. These included participation in workshops and forums on low carbon emission transport options for Tasmania, ways to encourage more bicycle users and 'Wheels for Work and Training - design and do' to help to improve bus services along the NW Coast. The latter led to the 2016 implementation of a Latrobe to Burnie return service, including the Cradle Coast and West Park campuses.

The University also contributed as a key player in the Tasmanian Climate Change Office's electric vehicle demonstration program, including presenting at workshops, hosting site visits to view electric cars and charging stations.

The University provided site tours and supported information requests on bike facilities for Department of Health and Human Services and Treasury groups.

Local Government

In addition to collaborative work on the PUCNs in 1.4.1 above, UTAS has coordinated delivery of infrastructure with local governments as identified in section 1.2. Various grant opportunities have been explored in collaboration with local government, some successful some not.

The University also participated in the City of Hobart's Bicycle Advisory Committee from 2014-2016 and workshops on pedestrianisation in Hobart. The Southern Council's Cycling South group is also a regular partner in data collection and analysis as well as infrastructure design and delivery projects.

Periodic discussions are also held with City of Launceston regarding active and public transport mode services and infrastructure. In addition, the free Tiger Bus service and exploring opportunities for shared service models or other approaches for service efficiencies have also been a focus.

Burnie City Council and the Cradle Coast Authority supported initiatives related to the proposed North West Coastal Pathway and ensuring West Park is a significant node on this active transport connector.

Within UTAS

Within UTAS, efforts have been made to coordinate with ActiveUTAS/HealthyU initiatives to look at transport holistically from both sustainability and health perspectives. Example collaborations include the installation of bike lockers on the Newnham campus and coordination of Ride to Work activities.

Participation in internal meetings, workshops and conferences (e.g., Peter Underwood Centre, Student Experience Committee, HealthyU forum, Geography and Spatial Sciences conference) through presentations and attendance was useful in garnering additional internal support for strategy implementation as well raising the profile of initiatives to encourage additional student projects.

Major new development projects were also informed by the STS, including Medical Science 2, IMAS and four NRAS student accommodation projects. These projects have included dedicated parking for fuel efficient vehicles, motorcycles/scooters and bicycles and various EOT facilities for active transport (see previous sections). Smaller redevelopments have also included transport-related infrastructure where appropriate at various campuses, such as showers, change rooms and lockers.

Stakeholder engagement

Annual meetings were hosted by the University at campuses state-wide to share and discuss data sets collected under the strategy as part of stakeholder engagement with resulting collaborations eventuating as noted in other sections. In addition to various government representatives, a diverse range of stakeholders were included, such as TasCOSS, Red Cross, Regional Development Australia, RACT, Bus Operators Association, Metro Tasmania, Bicycle Network and Cycling South.

Establishment of a free corporate membership with Bicycle Network allows UTAS staff and students to join at a discount and get insurance coverage. UTAS regularly participates as a host of Ride to Work and School events as well as supports the Super Tuesday Bike Counts.

Participation in various other forums also allowed effective stakeholder engagement and information sharing, including presenting at Metro Tasmania internal staff reference group (2016), Bike Futures conferences (national and state level), Sustainable Living Festival activities with a transport focus

(2014-2016) and national conferences, such as the Tertiary Education Management Conference (2014-2015) and Australasian Campuses Towards Sustainability (2014-2015).

The University was a founding member of the Australian Electric Vehicle Association – Tasmania and co-locates at Sustainable Living Festival booths with the University-liveried all-electric car in the booth.

1.5 Identify opportunities to reduce student and staff travel inefficiencies through improvements to class timetables, e-learning and videoconferencing.

Addressing Objectives 1.5.a, b

A significant investment in improved e-learning (e.g., revamped MyLo) and videoconferencing facilities improved virtual transport outcomes through reduced use of and demand for physical transport.

On-line communication and shared work spaces

In May 2013, UTAS Information Technology Services implemented the Lync rollout project, which was upgraded to Skype for Business in 2016. These technologies enabled all UTAS Microsoft Exchange users (all staff/PhDs) to conduct business on-line rather than travelling for meetings and collaboration as it allows direct computer to computer video interactions, such as sharing documents on screen.

Videoconferencing

The Videoconference Improvement Program (VCIP) initiated in 2014 provided quality videoconferencing facilities to various teaching and learning spaces across all campuses.



Benefits of VCIP have included¹:

- Reduction in intrastate, interstate, and international travel requirements University-wide through broader adoption of video communication;
- More effective use of UTAS' teaching resources, including staffing costs;
- More flexible options for offering of teaching programs across campuses;
- Reduction in UTAS' car fleet utilisation, size and carbon emissions;
- Better use and rationalisation of existing administrative videoconference enabled meeting rooms;
- A reduction in traditional telephony costs;
- Extended enterprise telephony functionality for mobile users, enabling VoIP calls to be made from mobile handsets when interstate and overseas (at local call costs);
- A more contemporary and therefore flexible and reliable communications service.
- Improved staff and student productivity;
 - The ability to enable and encourage real-time remote group collaboration;
 - The ability to enable employees to be more accessible and responsive;
 - Improved productivity through better awareness of personnel availability;
 - Improved effectiveness of work from home arrangements.
- A more innovative approach to the use of video communications;
- A more technologically attractive environment for staff and students;
- Enhance research and learning and teaching reputation through contemporary technology use.

¹ VCIP Business Case (internal UTAS document); selected items specifically relating to 'transport'.

2. Objective 2 – Reduce the incidence of single occupant vehicle use and unnecessary travel.

2.1 Establish baseline measures and monitoring for this objective.

Addressing Objectives 1.1.a-h; 2.1.a

The university-wide travel survey discussed in Section 1.1 has generated significant information about the incidence of single occupant vehicle use over time. Additional information has been gathered for general car use (not just single occupant vehicles) at Newnham campus while conducting movement counts for other modes. Automated traffic counters at Cradle Coast, Inveresk, Newham and Sandy Bay also provide data on motor vehicle movements.

No specific information has been gathered for ‘unnecessary travel’.

2.2 Encourage students and staff to consider sharing vehicles or choosing non-car options for short trips.

Addressing Objectives 2.2.a, h, j, n; 3.6

In addition to the provision of improved infrastructure for sustainable transport modes described above, a campaign poster was developed (Figure 14) and posted periodically throughout the University as well as featured on the UTAS website.

Awards recognising the improved bicycle facilities in particular have been used as an opportunity to engage with the UTAS community through *news@UTAS* and on the Commercial Services and Development website. Coverage of the awards in the local newspaper also helped highlight the modal options available for transport to university facilities.

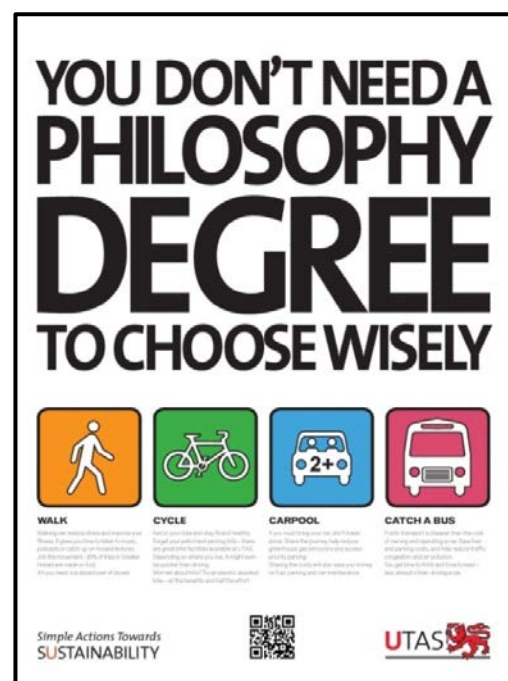


Figure 14. Sustainable transport campaign poster.

2.3 Minimise the number of single occupant vehicle trips.

Addressing Objectives 1.3.g, m; 2.3.a, b, d, e, f, g; 3.6

2.3.1 Inter-campus bus service

The Redline intercampus bus service provided an early morning (6 am departure) public transport option for staff and students travelling to or from Hobart and Launceston, which would otherwise be unavailable.

The University renewed Redline Tasmania's contract through 2015 to provide the Hobart-Launceston and the Launceston-Hobart 0600 services. In the later years of the service, it was improved by the inclusion of formal stops in the CBDs of Hobart and Launceston as well as a stop at Oatlands (half-way point), Derwent Entertainment Centre (northbound) and Inveresk. Various attempts to improve the ridership on this service included lowering per trip costs, adding additional stops and working with the

State Government to review operating requirements legislation to allow non-University people to use the service in a formal or even quasi-formal way. While the reduced costs and additional stops lifted ridership slightly, it was not enough to justify maintaining the service beyond 2015.

The 2014 average cost of running the inter-campus service per week was \$5,244, with an average recoup (income from fares) of 14.2% of total costs. The price of the service increased from 2007 to 2015 due to regular increase of the price per trip and transfers charged by Redline. Nevertheless, the percentage recoup remained fairly constant for the final 4 years, even with slight increases in the student and staff fares (Figure 15).

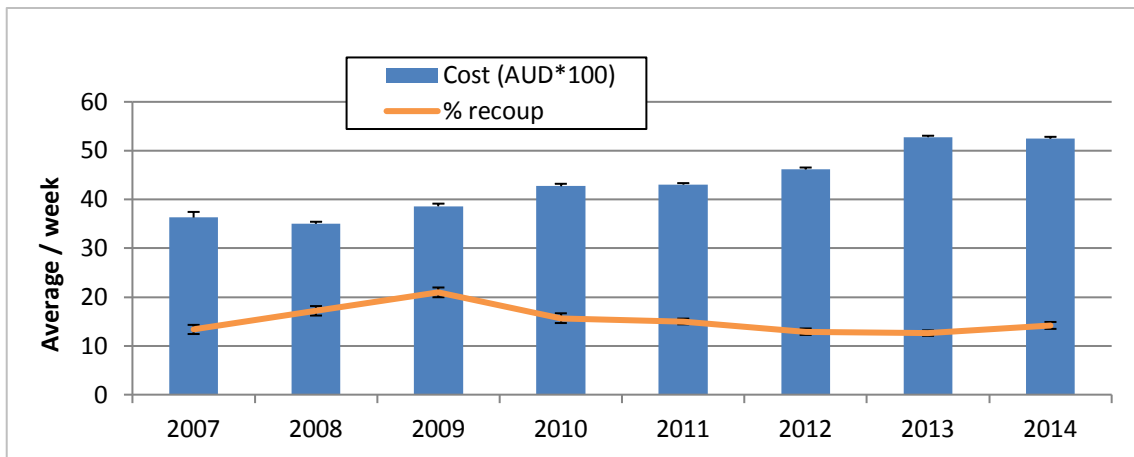


Figure 15. Average cost and recoup per week over an eight year period.

The weekly average ridership in 2014 was 53 passengers, with 37 passengers per week travelling from Sandy Bay to Newnham and 16 on the opposite direction. Historically, the number of passengers travelling to the north has always been higher than the number of passengers going to the south. In both cases (northbound and southbound trips), however, there was a 3-4 year increasing trend in ridership (Figure 16).

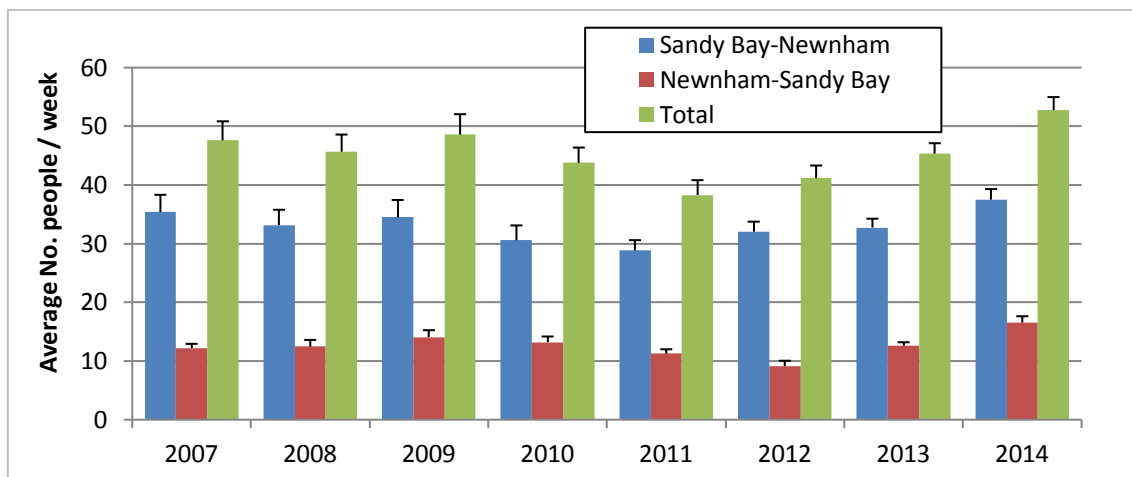


Figure 16. Average ridership per week on both interregional services from 2007-2014.

The Australian Maritime College (AMC) also chartered services between Newnham, Beauty Point and Bell Bay, with this service continuing post 2015.

2.3.2 Parking Strategy implementation

UTAS implemented a Parking Strategy in mid-2013 that resulted in the phased implementation of the removal of free parking across all campuses (except Cradle Coast and other regional facilities, and limited areas in Sandy Bay and Newnham campuses for student parking), as well as a phased increase in permit and voucher parking prices to 2016. Full information is available on the [UTAS website](#).

Until mid-2013, UTAS has subsidised much of the parking available at all campuses. The strategy concluded that continuing to provide subsidised parking compromised UTAS' capacity to provide quality parking services and infrastructure to meet growing demand. Further, subsidised parking is inconsistent with *Open to Talent's* vision of sustainability that seeks to reduce environmental impacts, achieve economic efficiency and demonstrate social responsibility.

Via this strategy, UTAS has opted to encourage use of other transport modes to reduce parking demand. Funds formerly used to subsidise parking have been diverted to support UTAS core functions while funds generated from permits after 2014 have been used to invest in more strategically situated and sustainable parking, improved public transport options, and in sustainable transport initiatives.

2.3.3 Carpooling

Staff and students were able to share the cost of parking among carpooling participants from 2014 with parking spaces established within existing staff permit parking areas, with the number and location of spaces determined by demand. Carpool spaces are marked with signage and included on maps available on the UTAS parking webpage. Groups of two or more current UTAS staff and/or students are eligible to apply for a carpool permit, subject to the requirement that each driver in the group holds a valid driver's licence and can provide proof of vehicle registration. Each group must lodge a single joint application to be issued with a single transferable permit sticker. Carpool permits are valid for designated carpool spaces only. Specific information is available on the [UTAS website](#).

To make the process of finding a fellow carpooler easier, UTAS engaged online carpool matching service [CoolPool Tas](#) as its preferred online carpooling system. To seek more ad hoc ride sharing options, CoolPool Tas users are required to maintain a current registration with the matching service (Figure 17).



Figure 17. CoolPool Tas website landing page.

2.4 Create an environment where more efficient vehicle options are attractive (motorcycles/scooters, electric vehicles).

Addressing Objectives 2.4.a

Dedicated motorcycle/scooter parking is provided at high use/centrally located sites at most facilities (Figure 18). Sandy Bay campus (n=63), Newnham (n=43), Inveresk (n=13), Medical Science Precinct (n=2), Domain (n=2), Centre for the Arts (n=7) and Cradle Coast (n=5). Other Hobart CBD UTAS facility users have access to various motorcycle/scooter public parking spots. The locations and numbers of dedicated motorcycle parking on UTAS campuses was reviewed as a component of the parking strategy implementation. Motorcycles/scooters were also exempted from parking permit requirements in the near-term.



Figure 18. Dedicated parking

No specific actions regarding encouraging uptake of electric cars by staff and students were undertaken. However, electric bike charging stations have been provided at three locations at southern Tasmanian locations and at Inveresk. These initiatives were described in Section 1 above.

2.5 Create an environment where more efficient travel is considered.

Addressing Objectives 2.5.a

In addition to the aforementioned infrastructure and servicing initiatives, education through various channels was pursued. Sustainable transport has been a focus at student orientation days, including having Metro Tasmania buses on-site for 'boarding practice', providing free Green Cards and having bike users groups attend. Traditional approaches include a general sustainable transport poster (Figure 14 above), a flyer for distribution (Figure 19), regularly updating information on the UTAS sustainability webpage, putting University livery on Metro buses and UTAS electric vehicles (Figure 20), hosting tours of bicycle EOTs for staff, students and external groups (such as Bicycle Network conference – see Figure 22, and specific poster for inter-campus bus service (Figure 21).



Figure 19. Transport and UTAS flyer.

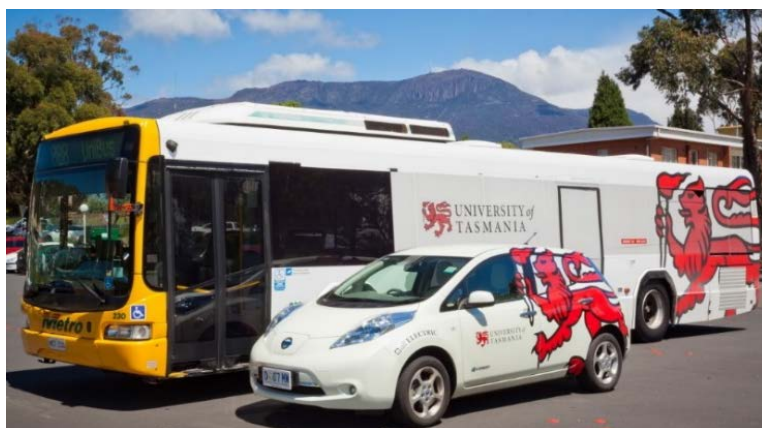


Figure 20. Branding of Metro buses and all-electric cars.



Figure 22. Hosting tours and site visits.



Figure 21. Inter-campus poster (noting service cancelled from 01 January 2016).

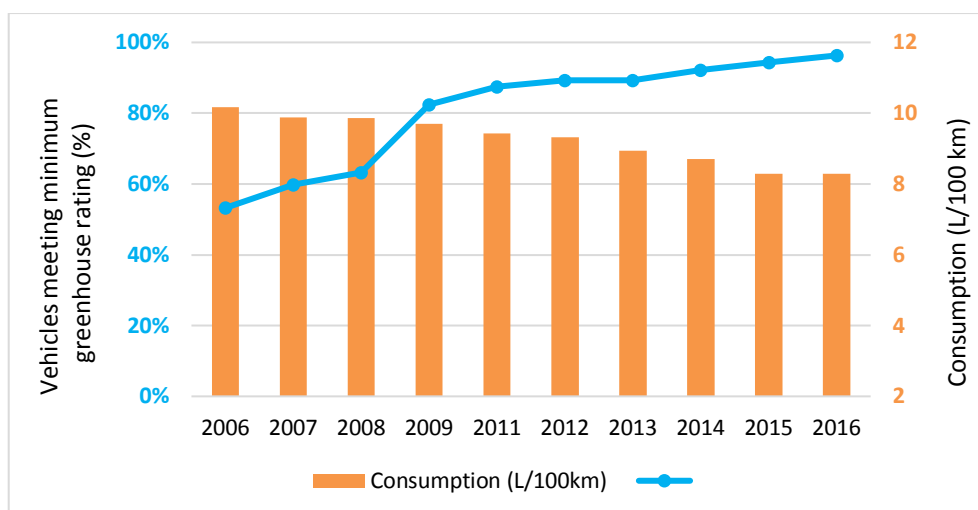
3. Objective 3 – Reduce greenhouse gas (GHG) emissions from university transport sources

3.1 Establish baseline measures and monitoring for this objective (incl. GHG emissions from vehicle fleet, collective travel behaviour & supply-chains).

Addressing Objectives 3.1.a, b

3.1.1 Vehicle fleet

One of the clear guidelines of the UTAS Environmental Management Plan 2009-2011 was to improve the emissions performance of our vehicle fleet through strategic purchasing in the first instance. The success of this is evident in the significant improvement of the number of vehicles meeting minimum greenhouse gas emissions ratings from 53% in 2006 to 96% in 2016 (Figure 23). This policy has carried through the UTAS STS implementation that delivered a more concerted focus to maximise the percentage of fleet vehicles achieving a minimum greenhouse rating. Guidance on the appropriate level of environmental performance is taken from the Federal Government Green Vehicle Guide (GVG), which includes greenhouse gas emissions and air pollution ratings.



Notes: 2010 data unavailable and excludes hire cars, tractors, forklifts, trailers, boats, motorcycles and non-rated old vehicles.

Figure 23. Percentage of UTAS vehicles meeting minimum greenhouse rating and average fuel use (L/100km) of UTAS fleet vehicles.

Reflecting the purchase of more fuel efficient vehicles over the past few years, the average fuel use in litres/100km has dropped from 10.2 L/100km in 2006 to 8.3 L/100km in 2016 (Figure 23).

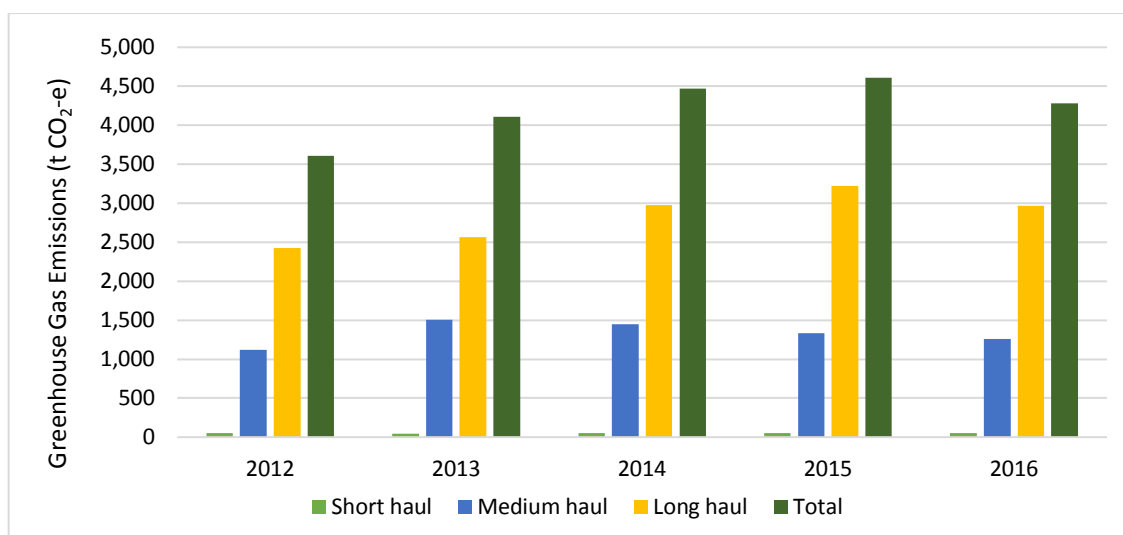
3.1.2 Surface transport (fleet, rental cars, taxis and commuting)

Data on greenhouse gas emissions from the UTAS vehicle fleet (including boats), rental cars, commuting and taxis is also available. UTAS staff and postgraduate students use University-owned cars, semi-permanent hire vehicles and boats to carry out their teaching, research and administrative activities. Occasionally, ad hoc hire cars and taxis are also used. Fuels used in these vehicles include unleaded petrol and diesel and resulted in the emission of 1,142 t CO₂-e in 2015. A baseline year of 2015 provides these numbers: 1,033 tCO₂-e for fleet, rental cars and commuting with taxi use adding 56 tCO₂-e. Additionally, emissions from staff commuting in 2015 were calculated to be 2,648 t CO₂-e.

3.1.3 Air travel

One of the clear guidelines of the UTAS Environmental Management Plan 2009-2011 was to improve emissions from air travel. The University of Tasmania has clear guidelines for business related staff and student travel. As per the UTAS Travel Guidelines, all domestic and international air travel must be for University business or study purposes, and must be arranged through University approved travel agents. The consolidation of servicing has allowed for collection of complete data sets for air travel.

Air travel data for University staff and students is available from the contracted travel agent. Data collected for 2015 was also used to support a comprehensive greenhouse gas emissions inventory for the University of Tasmania. The underlying trend is an increase in distance travelled per year and commensurate greenhouse gas emissions generated from 2012 to 2016 (Figure 24).



Note haul limits are: Short <463 km; Medium 463-3700 km; Long > 3700 km.

Figure 24. Annual carbon emissions from air travel associated with University business operations.

The data sets gathered can be further analysed to provide information down to faculty and division level as needed, both total figures and per capita in each area. While this information is interesting and could lead to effective policy and initiative implementation, it is beyond the scope of this report other than to note that the data is available as baseline information.

3.1.4 Inter-campus bus services

During the period covered in this report, the University provided a number of ‘inter-campus’ services, with the two major ones being between Sandy Bay and Newnham as well as between Newnham and Beauty Point. The former was known as ‘the Redline service’ service and consisted of eight campus-to-campus services per week (which includes the shuttles connecting the CBDs with the main campuses) for 26 weeks a year (13 weeks per semester), resulting in approximately 33 t CO₂-e per year (Table 1). Note that this service was discontinued from 01 January 2016.

The Australian Maritime College (AMC) Newnham-Beauty Point service operates on a more as-needed basis, with approximately 222 return trips a year, resulting in 11.82 t CO₂-e per year (Table 1).

Table 1. Carbon emissions per annum from inter-campus travel *

Service	One-way Trips (#)	Distance (Km)	Fuel (L)	CO ₂ -e (t)
Hobart - Launceston	208	46,592	14,560	32.29
Hobart CBD-Sandy Bay shuttle	104	665.6	208	0.46
Launceston CBD- Newnham shuttle	104	1164.8	364	0.81
Newnham – Beauty Point	444	24,864	5,328	11.82

* From data provided by Redline Tasmania P.L. in May 2013

Other services

Accommodation Services at Sandy Bay and Jane Franklin Hall also run regular shuttles for residents to the CBD and Sandy Bay. Note that AMC also provides bus services between Newnham-Bell Bay, Beauty Point-Bell Bay as well as various ad hoc trips from Newnham to Devonport and Hobart. Many other faculties and schools book bus and shuttle services on an as-needed basis. None of these services have had emissions calculations conducted.

3.1.5 Metro Tasmania bus service

While not directly responsible for managing carbon emissions from the Government-owned Metro Tasmania, it is important to note that (as shown above) a significant number of the UTAS community access public transport bus services. Of special interest in relation to any UTAS carbon management planning with respect to the transport, in 2011 Metro engaged RARE Consulting to carry out a carbon audit across all aspects of Metro's business activities develop a Carbon Response Plan. This included several short term strategies that assists Metro in its objective to lower emissions. These could also be considered for UTAS efforts, such as a review of current tyre pressure inflation capacities and of tyre pressure check procedures.

3.2 Identify and implement emission reduction strategies for the UTAS vehicle fleet (including encouraging procurement of more efficient vehicles, use of alternative fuels and reduction of unnecessary vehicle use).

Addressing Objectives 3.1.a; 3.2.a

The UTAS Vehicle Fleet is under review at the time of this report preparation. The review recognises the need to align with the principles of the STS as well as changing technologies and management opportunities. The review includes minimum environmental performance standards for vehicles.

Specific actions taken during the period covered in this report include purchase of three Nissan Leaf all-electric cars as well as eleven additional hybrid vehicles. As identified in section 3.1.1 above, there has already been a significant improvement in percentage of vehicles achieving the minimum greenhouse rating² to over 96% in 2016.

3.3 Identify opportunities to reduce GHG emissions from supply chains.

Addressing Objective 3.3

UTAS participated as an invitee in a 2012 consultation roundtable on opportunities for responding to climate change (i.e., emissions) in Tasmania's transport sector. The discussion focused on the then State Government's *Low Carbon Tasmania Issues Paper* and emissions reduction strategies in the State generally. Feedback from the roundtable informed the development of the then Tasmanian Government's *2020 Climate Smart Strategy* released in December 2013. The current government has undertaken community consultation to update a state climate strategy. The University participated in these consultation opportunities, specifically focusing on transport emissions from commuting and supply chain activities.

² Greenhouse ratings for fleet vehicles uses the Federal Government Green Vehicle Guide (GVG), which includes greenhouse gas emissions and air pollution ratings.

3.4 Identify certified ethical carbon offset opportunities for any emissions we can't reduce and facilitate implementation of these.

Addressing Objective 3.4

As part of the exploration of becoming a certified carbon neutral university, a draft carbon management strategy and strategic carbon offset plan developed in 2016 included opportunities firstly within existing partnerships and secondly through projects based in Tasmania.

3.5 Support and recognise individuals and business units (Schools, Institutes, sections) who act to reduce their transport emissions.

No actions scheduled until future years.

3.6 Encourage more energy-efficient travel behaviour.

Addressing Objective 3.6

In addition to the initiatives described in previous sections with respect to encouraging use of active and virtual travel and public transport modes, an eco-driving course option was offered multiple times in 2015 and 2016. This offering did not progress due to low interest. Discussions about future opportunities to implement 'eco driving' training will be explored in future years.

3.7 Identify and reduce unnecessary travel (including local business travel, flights).

Addressing Objective 3.7

While no specific targeted action has occurred with respect to unnecessary travel, the provision of high end video conference facilities across all campuses through the Video Conference Improvement Program is anticipated to address this aim. Future opportunities exist to provide targeted signage and information to inform those using the facilities about the saved time from avoided travel as well as lowered costs and emissions.

Appendix A – Strategic actions

The following tables outline the strategic actions relevant to each objective and strategy area.

Each action has a timing code to indicate the priority of action implementation. These are:

A= commences in first 6 months (or immediately)

B= commences in year 1-2

C= commences in year 2-3

D= commences in year 3-5



Objective 1 - Maximise access to the University by sustainable and healthy transport options

Strategy	Whole of UTAS	Timing	South <i>Hobart Sandy Bay Campus, Hobart CBD facilities, other facilities</i>	Timing	North <i>Launceston Newnham Campus, Inveresk Campus, Beauty Point, other facilities</i>	Timing	North-West <i>Burnie Cradle Coast Campus and North West Rural Clinical School</i>	Timing
1.1 Establish baseline measures and monitoring for this objective	a) Survey: Undertake a university-wide online survey of staff and student travel behaviour, needs and attitudes to benchmark mode share, trip generation, and travel behaviour attitudes for the university and separate campuses and facilities and establish key performance indicators.	A	c) Walking: undertake a baseline audit of pedestrian movements and quality (directness, lighting, safety) of access routes (to Sandy Bay Campus and other main city facilities, within Sandy Bay campus, and between UTAS facilities and public transport services) to establish needs and performance indicators.	A	e) Walking: Undertake a baseline audit of pedestrian movements and quality (directness, lighting, safety) of access routes (to Newnham, Inveresk and Beauty Point campuses, within each campus, and between UTAS facilities and public transport services) to establish needs and performance indicators.	A	g) Walking: Undertake a baseline audit of pedestrian movements and quality (directness, lighting, safety) of access routes (to Cradle Coast Campus, NW Rural Clinical School, and key public transport services) to establish needs and performance indicators.	A
	b) Motorcycles/Scooters: Complete the baseline audit of ridership and parking provision at all campuses and main facilities to establish needs and performance indicators.	A	d) Bicycling: Complete the baseline audit of bicycle ridership, electric bike use, access routes and end of trip facilities in all Hobart facilities to establish needs and performance indicators.	A	f) Bicycling: Undertake a baseline audit of bicycle ridership, electric bike use, access routes and end of trip facilities for Newnham and Inveresk campuses and Beauty Point facilities to establish needs and performance indicators.	A	h) Bicycling: Undertake an audit of bicycle ridership, electric bike use, access routes and end of trip facilities for Cradle Coast Campus and NW Rural Clinical School to establish needs and performance indicators.	A
1.2 Provide and enhance walking, bicycling and motorcycle/scooter infrastructure (including end of trip facilities, cycle routes, safe and direct pedestrian routes)	a) Identify priorities, develop an action plan and implement end of trip bicycling infrastructure for all campuses and main facilities.	B	b) Identify priorities and develop an action plan for improving pedestrian and bicycle access and safety on campus and between Hobart main facilities, local activity centres and public transport services (based on pedestrian and bicycling audits and online survey).	B	d) Identify priorities and develop an action plan for improving pedestrian and bicycle access and safety on campuses and between Launceston/Beauty Point main facilities, local activity centres and public transport services (based on pedestrian and bicycling audits and online survey).	B	f) Identify priorities and develop an action plan for improving pedestrian and bicycle access and safety on campus and between main Burnie facilities, local activity centres and public transport services (based on pedestrian and bicycling audits and online survey).	B
			c) Include walking, bicycling and motorcycle/scooter infrastructure in future facility development and campus improvement plans (including Master Plans, IMAS, MS2, Domain House and other emerging plans).	A	e) Include walking, bicycling motorcycle/scooter infrastructure in future facility development and campus improvement plans (including the Newnham Campus Urban Design Framework).	A	g) Include walking, bicycling motorcycle/scooter infrastructure in future facility development and campus improvement plans.	A

Objective 1 - Maximise access to the University by sustainable and healthy transport options

<p>1.3 Work with public transport providers to enhance public transport services to university facilities (including bus shelters, bus service information, Wi-Fi, ticketing, bus route planning, bike user access, and new public transport modes in target corridors)</p>	<p>a) Provide input into bus service provider bus network reviews/route service reviews (especially Metro Tasmania's Greater Hobart and Launceston bus network review processes), and review of ticketing improvements (including future possibility for integrated student/bus card).</p>	A	<p>g) Identify opportunities to improve the inter-city/inter-campus (Hobart-Launceston) bus service, and work with the service provider to deliver improvements.</p>	B	<p>m) Identify opportunities to improve the inter-city/inter-campus (Hobart-Launceston) bus service, and work with the service provider to deliver improvements (including facilities and financial viability).</p>	A	<p>p) Ensure the new bus stop pull-over outside the Cradle Coast Campus has a safe, comfortable and informative bus shelter (work with Burnie Council to move existing UTAS School of Architecture designed bus stop shelter or undertake alternative improvements works).</p>	A
	<p>b) Ensure Metro Tasmania/Tiger Bus and other bus service providers are visible at UTAS orientation events to inform bus users of service routes, timetables, ticketing and 'how to use' buses.</p>	A	<p>h) Develop a UTAS public transport information brochure (for the Greater Hobart region and inter-city) for distribution at key UTAS student and staff information points.</p>	B	<p>n) Develop a UTAS public transport information brochure (for the Launceston region and inter-city) for distribution at key UTAS student and staff information points.</p>	B	<p>q) Develop a UTAS public transport information brochure (for the Cradle Coast region and inter-city) for distribution at key UTAS student and staff information points.</p>	B
	<p>c) Advocate for WiFi facilities on longer haul urban and inter-city bus routes.</p>	A	<p>i) Work with Metro Tasmania, Hobart City Council and other stakeholders (including other major trip generators) to explore opportunities for a campus and city circle 'green' bus service to improve links between Sandy Bay Campus and UTAS city and waterfront facilities and encourage mode shift from car to public transport for short trips in the central Hobart zone.</p>	A				
	<p>d) Develop an easy to access portal on the UTAS website about public transport services (routes, timetables, ticketing, bike access, WiFi facilities etc.) for use by students/staff/visitors.</p>	A	<p>j) Advocate for a bus interchange in the Hobart central zone that improves ease of access to bus services throughout the Greater Hobart region for UTAS users and enhances service information.</p>	A				
	<p>e) Advocate for bus bike access on certain routes and where feasible.</p>	B	<p>k) Advocate for expansion of the public transport network including a ferry service linking the Eastern Shore to the CBD and Wrest Point/Sandy Bay, and progression of the proposed transit corridors in Northern Suburbs (high frequency bus transit or light rail) and Kingston-CBD/Sandy Bay.</p>					

	f) Work with Metro Tasmania, Tiger Bus and other bus service providers to identify and improve the quality (safety, comfort and information) of bus shelters associated with UTAS destinations and services.	B	l) Work with Metro Tasmania to improve bus services that better serve UTAS users, Hobart campuses and facilities.	o) Work with Metro Tasmania and/or Tiger Bus to improve bus services that better serve UTAS users, Launceston campuses and facilities.		
--	--	---	---	--	--	--

Objective 1 - Maximise access to the University by sustainable and healthy transport options

<p style="text-align: center;">1.4</p> <p style="text-align: center;">Co-ordinate with other initiatives and establish networks that further support our sustainable transport objectives</p>	a) Input to proposals, plans and strategies that have implications for the delivery of UTAS sustainable transport strategies.	A				
	b) Explore opportunities to collaborate and co-ordinate with other stakeholders responsible for transport outcomes where possible.	A	as per 1.4a, b, c, d	as per 1.4a, b, c, d	as per 1.4a, b, c, d	
	c) Investigate opportunities and feasibility of linking the UTAS community to an established and tested state-wide carpooling scheme to provide students and staff travelling long distances with alternative options.	A				
	d) Explore the suitability and feasibility of linking to programs and initiatives that support this strategy (including travel behaviour change programs, awareness and educational campaigns, active transport initiatives that promote health and wellbeing).	A				
<p style="text-align: center;">1.5</p> <p style="text-align: center;">Identify opportunities to reduce student and staff travel inefficiencies through improvements to class timetables, e-learning and video conferencing access.</p>	a) Promote the use of UTAS video conferencing and teleconferencing facilities to reduce unnecessary travel by staff and research students. Explore business model for possible sharing of facilities	B			e) investigate student transport issues created by class time-tables and identify opportunities for improvement (use Cradle Coast Campus students in a pilot study and undertake as a student research project).	B
	b) Work with ITR to establish monitoring of the use of video-conferencing facilities.	B	as per 1.5 a, b, c, d	as per 1.5 a, b, c, d	as per 1.5 a, b, c, d	
	c) Improve the quality and range of courses offered online.	B				
	d) Work with exam timetabling to limit scheduling of exams on weekends when university facilities are less well served by public transport.	B				

Objective 2 - Reduce the incidence of single occupant vehicle use and unnecessary travel

Strategy	Whole of UTAS	Timing	South <i>Hobart Sandy Bay Campus, Hobart CBD facilities, other facilities</i>	Timing	North <i>Launceston Newnham Campus, Inveresk Campus, Beauty Point, other facilities</i>	Timing	North-West <i>Burnie Cradle Coast Campus and North West Rural Clinical School</i>	Timing
2.1 Establish baseline measures and monitoring for this objective	a) Undertake a university- wide online survey of staff and student travel behaviour, needs and attitudes to benchmark mode share, trip generation, and attitudes for the university and separate campuses/facilities, and inform establishment of key performance indicators.	A	as per 2.1 a	A	as per 2.1 a	A	as per 2.1 a	A
2.2 Encourage students and staff to consider sharing vehicles or choosing non-car options for short trips	a) Explore and adopt relevant initiatives used at other universities to encourage bike use through incentives, partnering with external organisations (e.g., Bicycle Tasmania, CyclingSouth, DIER, various bicycle user groups - BUGs) or internal groups advocating and providing physical fitness programs (e.g., UniGym, Active Launceston).	A	h) Raise awareness among the high proportion of students and staff that live in the central Hobart zone about their opportunities to reduce the use of cars for short trips when feasible. Particularly encourage active transport modes (walking and cycling) pointing out health and wellbeing benefits, parking/car running cost savings and trip time benefits at congested periods.	B	j) Identify priorities and develop an action plan for improving pedestrian and bicycle access and safety on campuses and between Launceston/Beauty Point main facilities, local activity centres and public transport services (based on pedestrian and bicycling audits and online survey).	B	n) Identify priorities and develop an action plan for improving pedestrian and bicycle access and safety on campus and between main Burnie facilities, local activity centres and public transport services (based on pedestrian and bicycling audits and online survey).	B
	b) Participate in already established 'encouragement' days (e.g., National Ride to Work and School Days).	A	i) Work with Metro Tas to promote the use of the MetroTas CBD to Sandy Bay Campus services to students and staff (including regular services and the UniBus 888 service), highlighting ease of use, travel time and frequency, and parking cost savings compared to use of car for trips to CBD. Market services through targeted information, promotion of the Metro Tas online trip planner, and improved wayfinding.	A	k) Raise awareness among the high proportion of students and staff that live in the central Launceston zone about their opportunities to reduce the use of cars for short trips when feasible. Particularly encourage active transport modes (walking and cycling) pointing out health and well-being benefits, parking/car running cost savings and trip time benefits at congested periods.	B	o) Reduce the generation of car based lunchtime personal business trips into Burnie by improving on campus facilities including improvements to food outlets, provision of an onsite ATM and Australia Post/news agent onsite or nearby (in collaboration with Hellyer College and neighbouring Umina Park Home for the Aged)	B

Objective 2 - Reduce the incidence of single occupant vehicle use and unnecessary travel

2.2 Encourage students and staff to consider sharing vehicles or choosing non-car options for short trips	c) Conduct a trial at the Newnham and/or Sandy Bay campuses providing a set of bicycles (electric or manual) available for short term use by staff and secured by a key or wallet deposit, with signed disclaimer and safety notes.	B			l) Promote the use of the free Tiger Bus service to Inveresk students and staff for commutes and local business trips into the city.	A		
	d) Encourage Metro Tasmania's participation in UTAS Orientation activities by having a bus use familiarisation demonstration (a bus on site that allows potential users to 'walk through' the process for boarding and exiting).	A			m) Work with Metro Tasmania to enhance bus services onto Newnham Campus (especially in evening period to improve evening safety accessing bus routes), and explore the feasibility of a dedicated UniBus (Newnham-Launceston city) similar to the SBC - Hobart 888 service.	A		
	e) Encourage student bus use by providing a Metro Greencard free of charge at Orientation.	B						
	f) Encourage staff bus use for local business trips by making Metro Greencards available to business units/Schools/institutes and include a reward scheme for use.	B						
	g) Develop a UTAS vehicle fleet efficiency improvement strategy that identifies opportunities to improve the efficient use of the UTAS vehicle fleet and identifies business cost savings as a consequence (as per Action 3.2a); this may include reporting and data gathering standardisation and requirements .	A						

Objective 2 - Reduce the incidence of single occupant vehicle use and unnecessary travel

<p>2.3 Minimise the number of single occupant vehicle trips</p>	<p>a) Review links to state-wide carpooling schemes (e.g., TravelSmart, CoolPoolTas) to ensure best fit for UTAS requirements and promote use by staff and students via: easily accessible information on the UTAS website; and promotional activities to students and staff outlining the benefits of carpooling for longer trips (inter-regional/inter-campus) and after hours, and explaining how carpooling works.</p>	B				<p>f) Seek opportunities to actively promote the use of alternative transport options for students and staff when feasible for them. Particularly the use of bus services and carpooling alternatives at CCC as well as cycling to NW Rural Clinical School.</p>	B	
	<p>b) Investigate and implement where feasible incentive options for carpoolers, such as: parking permit discounts, dedicated carpool parking close to key facilities, and rewards programs (e.g., car maintenance and running cost discounts).</p>	B	as per 2.3 a-e	B	as per 2.3 a-e	B	as per 2.3 a-e	B
	<p>c) Seek opportunities to actively promote the use of alternative transport options for students and staff when feasible for them (i.e. walk and bike to work days). Particularly promote active transport modes for short (near campus and city) trips focused on health benefits and parking/car running cost savings, and use of bus services.</p>	B						
	<p>d) Promote other transport options such as the UTAS-chartered Redline coach service between Hobart and Launceston as well as standard bus/coach services available state-wide.</p>	A						
	<p>e) Continue parking pricing reform plan across all campuses and major facilities, including higher costs for single occupant vehicles.</p>	A	<p>f) Monitor the impact of parking reform on neighbouring streets and work with Hobart City Council to address emerging issues.</p>					

Objective 2 - Reduce the incidence of single occupant vehicle use and unnecessary travel

<p>2.4 Create an environment where more efficient vehicle (or small vehicle) options are attractive</p>	<p>a) Continue parking pricing reform plan across all campuses and major facilities, including encouragement of use of smaller vehicles (motorcycles, scooters, electric bikes) and inclusion of sustainable transport performance indicators or targets.</p>	A				
	<p>b) Increase dedicated parking spaces for smaller vehicles (scooters, motorcycles, electric motorcycles) in preferred accessible locations at each campus.</p>	B	<p>c) Increase the number of dedicated parking spaces for smaller vehicles (scooters, motorcycles, electric motorcycles) in accessible locations on Sandy Bay Campus and working with the Hobart City Council at or near the UTAS CBD facilities.</p>	B	<p>d) Increase provision of dedicated parking spaces for smaller vehicles (scooters, motorcycles, electric motorcycles) in accessible locations at Newnham, Inveresk Campuses and AMC at Beauty Point.</p>	B
<p>2.5 Create an environment where more efficient travel is considered</p>	<p>a) Raise awareness about opportunities for reducing unnecessary university business travel, including information and tips on the UTAS website.</p>	A				
	<p>b) Identify opportunities to amend policies and procedures in university business units that encourage consideration of the necessity of travel and alternatives (e.g. use of video or web-conferencing, carpooling for longer car trips, more efficient organisation of meetings within Tasmania and outside the state).</p>	B				

Objective 3 - Reduce greenhouse gas (GHG) emissions from university transport sources

Strategy	Whole of UTAS	Timing	South <i>Hobart Sandy Bay Campus, Hobart CBD facilities, other facilities</i>	Timing	North <i>Launceston Newnham Campus, Inveresk Campus, Beauty Point, other facilities</i>	Timing	North-West <i>Burnie Cradle Coast Campus and North West Rural Clinical School</i>	Timing
3.1 Establish baseline measures and monitoring for this objective (including GHG emissions from vehicle fleet, collective travel behaviour, and supply chain activities)	a) Undertake a UTAS vehicle fleet GHG emission assessment (including fleet type, size, use, fuel use tracking) to determine a baseline understanding from which to develop an emission reduction response strategy, develop a vehicles emission monitoring framework and key performance indicators.	A	as per 3.1 a, b		as per 3.1 a, b		as per 3.1 a, b	
	b) Undertake a university-wide online survey of staff and student travel behaviour to benchmark mode share and trip generation for the university and estimate GHG emissions from collective university travel and individual campuses/facilities (as per Action 1.1a).	B						
3.2 Identify and implement emission and waste reduction strategies for the UTAS vehicle fleet (including encouraging procurement of more efficient vehicles and reduction of unnecessary use)	a) Building from the vehicle fleet GHG assessment study, develop an emission reduction response plan for the UTAS fleet that includes attention to vehicle technologies and fuel options (particularly reduction of petrol use), procurement, vehicle usage policies and procedures, and waste management). Investigate vehicle pilot options such as electric vehicles for urban use and re-charge facilities. Include learnings from other fleet improvement initiatives (e.g. the experiences of Hobart City Council)	B	as per 3.2 a		as per 3.1 a		as per 3.1 a	

Objective 3 - Reduce greenhouse gas (GHG) emissions from university transport sources

3.3 Identify opportunities to reduce GHG emissions from supply chains	a) Work with appropriate academic staff to identify a student research project investigating GHG emissions from UTAS supply chains to establish baseline information and performance indicators.						
	b) Identify a UTAS supply chain that can be used to pilot efficiency improvements (such as bulk purchasing, preference for local manufacture, sustainable suppliers including those using sustainable transport or emissions offsets). Implement the pilot and communicate the findings.	B	as per 3.3 a, b		as per 3.3 a, b		as per 3.3 a, b
3.4 Identify certified carbon offset opportunities for any emissions we can't reduce and facilitate implementation of these	a) Identify and assess certified ethical carbon offset opportunities and options.	B					
	b) Adopt preferred certified ethical offset options in policies (especially if Tasmanian options).	B	as per 3.4 a-c		as per 3.4 a-c		as per 3.4 a-c
	c) Amend air travel policies and booking procedures to require purchase of certified ethical carbon emission offsets as part of an airfare.	B					
3.5 Support and recognise individuals and business units (Schools, Institutes, sections) to reduce their transport emissions	a) Identify opportunities for individual and business unit GHG transport emission reduction challenges and reward and recognition programs.	B					
	b) Provide ideas, tips and emission calculators via UTAS Sustainability website transport portal to inform and encourage individual and collective action to reduce transport emissions and report successes.	A	as per 3.5 a-e		as per 3.5 a-e		as per 3.5 a-e
	c) Develop a campus challenge (SBC, Newnham, Inveresk, RCS, CCC) to reduce GHG emissions from the baseline.	B					
	e) Communicate via the media GHG emission reduction efforts and success stories to showcase to the wider community.	B					

Objective 3 - Reduce greenhouse gas (GHG) emissions from university transport sources

<p>3.6 Encourage more energy efficient travel behaviour</p>	<p>as per 2.2, 2.3, 2.4, and 3.2</p>							
<p>3.7 Identify unnecessary travel (including local, inter-regional and air travel) and identify feasible opportunities to reduce</p>	<p>as per 2.5</p>							

Appendix B – Outputs for planning from Transport Survey

CHAPTER SIX

OUTPUTS FOR PLANNING

6.1 DEVELOPMENT OF KEY PERFORMANCE INDICATORS FOR THE UNIVERSITY OF TASMANIA'S SUSTAINABLE TRANSPORT STRATEGY

The aim of the survey was to establish reliable baseline travel behaviour and travel pattern information of the university community across all campuses and facilities within Tasmania. The baseline data obtained from the survey through rigorous analysis has led to the development of the following 10 key performance indicators. These KPIs are intended to guide and monitor the delivery of the University of Tasmania's Sustainable Transport Strategy, facilitate future transport and facilities planning and improve our understanding of travel behaviour in Tasmania more broadly.

This project presents an opportunity to develop tangible baseline data and contribute to the limited knowledge of the actual travel behaviour and measurable implications of travel by the University of Tasmania's staff and students which is currently not available.

The survey has provided the necessary baseline data on the travel behaviour of staff and students at the University's three major campuses and other facilities across Tasmania from which future periodical monitoring can occur. The key performance indicators that have been developed will be communicated to staff and students to achieve the objectives identified in the UTAS Sustainable Transport Strategy.

It is hoped that the survey results and the 10 KPIs developed will enhance the understanding of travel behaviour and transport planning issues across the wider Tasmanian community beyond UTAS. Table 6.1 outlines the 10 KPIs identified to guide and monitor the delivery of the UTAS Sustainable Transport Strategy. Each KPI has been selected on the basis of its suitability within the strategies objectives. Table 6.2 demonstrates how each goal may achieve each objective of the UTAS Sustainable Transport Strategy.

Table 6.1 KPIs for the UTAS Sustainable Transport Strategy

KPI (goal based on 2013 baseline)	Objective & Strategy	Whole of UTAS KPI Measures	South Data KPI Measures	North Data KPI Measures	North West Data KPI Measures
An increase in the number of active transport end of trip facilities available at each campus and facility	1.2 1.4 2.2 2.3 2.5 3.5 3.6	(Refer to other survey data and facilities management)	(Refer to other survey data and facilities management)	(Refer to other survey data and facilities management)	(Refer to other survey data and facilities management)

KPI (goal based on 2013 baseline)	Objective & Strategy	Whole of UTAS KPI Measures	South Data KPI Measures	North Data KPI Measures	North West Data KPI Measures
A % increase in the share of students and staff travelling to/from study and work by active modes	1.2 1.4 2.2 2.3 2.5 3.5 3.6	Share of student trips to/from UTAS/home: 29.8% Walking 6.6% Cycling	Share of student trips to/from UTAS/home: 31.8% Walking 5.8% Cycling	Share of student trips to/from UTAS/home: 27.2% Walking 9.2% Cycling	Share of student trips to/from UTAS/home: 15.4% Walking 2.1% Cycling
		Share of staff trips to/from UTAS/home: 10.7% Walking 7.8% Cycling	Share of staff trips to/from UTAS/home: 13.4% Walking 8.4% Cycling	Share of staff trips to/from UTAS/home: 4.2% Walking 6.0% Cycling	Share of staff trips to/from UTAS/home: 7.7% Walking 10.6% Cycling
			Sandy Bay (SB) Share of student trips to/from UTAS/home: 30.6% Walking 5.9% Cycling	Newnham (NH) Share of student trips to/from UTAS/home: 29.8% Walking 6.8% Cycling	
			SB Share of staff trips to/from UTAS/home: 12.2% Walking 6.9% Cycling	NH Share of staff trips to/from UTAS/home: 3.8% Walking 6.0% Cycling	
			Medical Science Precinct (MSP) Share of student trips to/from UTAS/home: 40.2% Walking 4.8% Cycling	Inveresk (INV) Share of student trips to/from UTAS/home: 12.0% Walking 23.3% Cycling	
			MSP Share of staff trips to/from UTAS/home: 19.6% Walking 13.7% Cycling	INV Share of staff trips to/from UTAS/home: 7.3% Walking 9.8% Cycling	

KPI (goal based on 2013 baseline)	Objective & Strategy	Whole of UTAS KPI Measures	South Data KPI Measures	North Data KPI Measures	North West Data KPI Measures
A % increase in the share of students and staff travelling to/from study and work by public transport	1.3	Share of student trips to/from UTAS/home: 12.9% Bus	Share of student trips to/from UTAS/home: 16.3% Bus	Share of student trips to/from UTAS/home: 5.9% Bus	Share of student trips to/from UTAS/home: 1.9% Bus
	1.4				
	1.5	Share of staff trips to/from UTAS/home: 3.6% Bus	Share of staff trips to/from UTAS/home: 4.3% Bus	Share of staff trips to/from UTAS/home: 1.9% Bus	
	2.2				
2.3	SB Share of student trips to/from UTAS/home: 15.7% Bus	NH Share of student trips to/from UTAS/home: 5.0% Bus			
2.5			Share of staff trips to/from UTAS/home: 2.8% Bus	Share of staff trips to/from UTAS/home: 2.1% Bus	
3.5	MSP Share of student trips to/from UTAS/home: 21.8% Bus	INV Share of student trips to/from UTAS/home: 10.9% Bus			
3.6			Share of staff trips to/from UTAS/home: 15.0% Bus	Share of staff trips to/from UTAS/home: 1.2% Bus	
A % increase in the share of staff utilising virtual transport facilities	1.4	Share of staff that used UTAS virtual transport facilities in the last year: 47.0%			Share of staff that used UTAS virtual transport facilities in the last year: 45.0%
	1.5				
	2.5				
	3.5				
A % increase in the share of students and staff who have a Metro Transport Greencard	1.4	Share of students who have a Metro Transport Greencard: 44.9%	Share of students who have a Metro Transport Greencard: 53.5%	Share of students who have a Metro Transport Greencard: 31.6%	Share of students who have a Metro Transport Greencard: 21.4%
	2.2				
	2.5	Share of staff who have a Metro Transport Greencard: 28.5%	Share of staff who have a Metro Transport Greencard: 35.3%	Share of staff who have a Metro Transport Greencard: 15.1%	
	3.6				

KPI (goal based on 2013 baseline)	Objective & Strategy	Whole of UTAS KPI Measures	South Data KPI Measures	North Data KPI Measures	North West Data KPI Measures
A % increase in the share of students and staff travelling intercampus for study and work by Redline inter-regional coach	1.3 1.5 2.3 2.5 3.6	<p>Share of students aware of inter-regional coach service: 34.1%</p> <p>Share of staff aware of inter-regional coach service: 69.8%</p> <p>Share of students travelling intercampus for study that have used inter-regional coach: 12.7%</p> <p>Share of staff travelling intercampus for work that have used inter-regional coach: 11.3%</p> <p>Share of students who would consider using the inter-regional coach service in the future: 38.0%</p> <p>Share of staff who would consider using the inter-regional coach service in the future: 42.2%</p>	<p>Share of students aware of inter-regional coach service: 30.4%</p> <p>Share of staff aware of inter-regional coach service: 69.1%</p> <p>Share of students travelling intercampus for study that have used inter-regional coach: 7.5%</p> <p>Share of staff travelling intercampus for work that have used inter-regional coach: 8.5%</p> <p>Share of students who would consider using the inter-regional coach service in the future: 34.7%</p> <p>Share of staff who would consider using the inter-regional coach service in the future: 41.0%</p>	<p>Share of students aware of inter-regional coach service: 45.5%</p> <p>Share of staff aware of inter-regional coach service: 76.2%</p> <p>Share of students travelling intercampus for study that have used inter-regional coach: 20.6%</p> <p>Share of staff travelling intercampus for work that have used inter-regional coach: 17.5%</p> <p>Share of students who would consider using the inter-regional coach service in the future: 48.9%</p> <p>Share of staff who would consider using the inter-regional coach service in the future: 49.7%</p>	

KPI (goal based on 2013 baseline)	Objective & Strategy	Whole of UTAS KPI Measures	South Data KPI Measures	North Data KPI Measures	North West Data KPI Measures
A % reduction in the share of students and staff travelling to/from study and work by single occupant vehicles	1.5 2.2 2.3 2.5 3.6	<p>Share of student trips to/from UTAS/home by car: 36.1% Single occupant 6.0% Multiple occupants</p> <p>Share of staff trips to/from UTAS/home by car: 57.0% Single occupant 14.4% Multiple occupants</p> <p>Of students who were part of a carpool, arrangements were made via: 1.1% UTAS Coolpool 1.8% Coolpool 97.2% Self arranged</p> <p>Of staff who were part of a carpool, arrangements were made via: 0.0% UTAS Coolpool 1.1% Coolpool 98.9% Self arranged</p>	<p>Share of student trips to/from UTAS/home by car: 31.1% Single occupant 5.6% Multiple occupants</p> <p>Share of staff trips to/from UTAS/home by car: 50.9% Single occupant 16.0% Multiple occupants</p> <p>Of students who were part of a carpool, arrangements were made via: 1.7% UTAS Coolpool 2.4% Coolpool 95.9% Self arranged</p> <p>Of staff who were part of a carpool, arrangements were made via: 0.0% UTAS Coolpool 0.0% Coolpool 100.0% Self arranged</p>	<p>Share of student trips to/from UTAS/home by car: 45.6% Single occupant 5.6% Multiple occupants</p> <p>Share of staff trips to/from UTAS/home by car: 72.1% Single occupant 10.4% Multiple occupants</p> <p>Of students who were part of a carpool, arrangements were made via: 0.0% UTAS Coolpool 0.8% Coolpool 99.2% Self arranged</p> <p>Of staff who were part of a carpool, arrangements were made via: 0.0% UTAS Coolpool 5.9% Coolpool 94.1% Self arranged</p>	<p>Share of student trips to/from UTAS/home by car: 57.6% Single occupant 15.2% Multiple occupants</p> <p>Share of staff trips to/from UTAS/home by car: 60.4% Single occupant 14.0% Multiple occupants</p> <p>Of students who were part of a carpool, arrangements were made via: 0.0% UTAS Coolpool 0.0% Coolpool 100.0% Self arranged</p> <p>Of staff who were part of a carpool, arrangements were made via: 0.0% UTAS Coolpool 0.0% Coolpool 100.0% Self arranged</p>

		<p>SB Share of student trips to/from UTAS/home by car: 33.0% Single occupant 6.0% Multiple occupants</p> <p>Share of staff trips to/from UTAS/home by car: 54.0% Single occupant 18.1% Multiple occupants</p> <p>MSP Share of student trips to/from UTAS/home by car: 18.9% Single occupant 3.5% Multiple occupants</p> <p>Share of staff trips to/from UTAS/home by car: 31.0% Single occupant 8.7% Multiple occupants</p>	<p>NH Share of student trips to/from UTAS/home by car: 46.9% Single occupant 6.0% Multiple occupants</p> <p>Share of staff trips to/from UTAS/home by car: 72.6% Single occupant 10.7% Multiple occupants</p> <p>INV Share of student trips to/from UTAS/home by car: 37.9% Single occupant 3.1% Multiple occupants</p> <p>Share of staff trips to/from UTAS/home by car: 58.5% Single occupant 8.5% Multiple occupants</p>
--	--	---	---

KPI (goal based on 2013 baseline)	Objective & Strategy	Whole of UTAS KPI Measures	South Data KPI Measures	North Data KPI Measures	North West Data KPI Measures
A % reduction in the share of students and staff travelling intercampus for study and work in a private car (sole occupant)	1.5 2.2 2.3 2.5 3.6 3.7	Share of student intercampus trips for study in a private car (sole occupant): 27.5% Share of staff intercampus trips for work in a private car (sole occupant): 40.7%	Share of student intercampus trips to/from SB/MSP for study in a private car (sole occupant): 17.1% Share of staff intercampus trips to/from SB/MSP for work in a private car (sole occupant): 55.2%	Share of student intercampus trips to/from NH/INV for study in a private car (sole occupant): 36.5% Share of staff intercampus trips to/from NH/INV for work in a private car (sole occupant): 66.7%	Analysis of percentage modal share to/from Cradle Coast Campus (CCC) to Rural Clinical School (RCS) was not possible due to an extremely low trip count for these journeys.
A % reduction in the Share of staff travelling for work purposes to other non UTAS destinations in a private car (sole occupant)	1.5 2.2 2.3 2.5 3.2 3.6 3.7	Share of staff trips for work purposes to other non UTAS destinations in a private car (sole occupant): 47.1%	Share of staff trips for work purposes to other non UTAS destinations in a private car (sole occupant): 47.3%	Share of staff trips for work purposes to other non UTAS destinations in a private car (sole occupant): 60.7%	Share of staff trips for work purposes to other non UTAS destinations in a private car (sole occupant): 18.8%
A reduction in the total kilometres travelled by vehicles in the University vehicle fleet per year (Explore more through fleet study)	1.5 2.2 2.3 2.4 2.5 3.2 3.5 3.6 3.7	Share of staff intercampus trips for work in a UTAS vehicle fleet car: 37.7% Share of staff trips for work purposes to other non UTAS destinations in a UTAS vehicle fleet car: 23.7%	Share of staff intercampus trips to/from SB/MSP for work in a UTAS vehicle fleet car: 13.8% Share of staff trips for work purposes to other non UTAS destinations in a UTAS vehicle fleet car: 16.5%	Share of staff intercampus trips to/from NH/INV for work in a UTAS vehicle fleet car: 33.3% Share of staff trips for work purposes to other non UTAS destinations in a UTAS vehicle fleet car: 21.4%	Share of staff trips for work purposes to other non UTAS destinations in a UTAS vehicle fleet car: 64.7%

Table 6.2 KPI Goals Relating to Each Objective of the UTAS Sustainable Transport Strategy

KPI	OBJECTIVE 1	OBJECTIVE 2	OBJECTIVE 3
An increase in the number of active transport end of trip facilities available at each campus and facility	Provision of attractive active transport end of trip facilities may increase the share of both staff and students walking and cycling to/from study/work across all UTAS campuses and facilities	Increasing the share of both staff and students walking and cycling to/from study/work across all UTAS campuses and facilities may result in an decrease in SOV trips	Increasing the share of active transport of both staff and students across all UTAS campuses and facilities may reduce GHG emissions attributed to current modal share
A % increase in the share of students and staff travelling to/from study and work by active modes	Provision of attractive active transport end of trip facilities may increase the share of both staff and students walking and cycling to/from study/work across all UTAS campuses and facilities	Increasing the share of both staff and students walking and cycling to/from study/work across all UTAS campuses and facilities may result in an decrease in SOV trips	Increasing the share of active transport of both staff and students across all UTAS campuses and facilities may reduce GHG emissions attributed to current modal share
A % increase in the share of students and staff travelling to/from study and work by public transport	Increasing the share of students and staff travelling to/from study and work by public transport may increase sustainable transport usage as part of the current modal share	Increasing the share of both staff and students traveling by public transport to/from study/work across all UTAS campuses and facilities may result in an decrease in SOV trips	Increasing the share of public transport use by both staff and students across all UTAS campuses and facilities may reduce GHG emissions attributed to current modal share
A % increase in the share of staff utilising tele and video conference facilities	Increasing the share of staff utilising tele and video conference facilities may reduce the need for users to travel inter-campus or to other non UTAS destinations for work purposes	Increasing the share of staff utilising tele and video conference facilities may reduce the need for users to travel inter-campus or to other non UTAS destinations for work purposes	Increasing the share of staff utilising tele and video conference facilities work purposes may result in a reduction of GHG emissions attributed to inter-campus travel and travel for work purposes by reducing the need to travel in the first place
A % increase in the share of students and staff who have a Metro Transport Greencard	Increasing the share of students and staff who have a Metro Transport Greencard may encourage an increase in bus use	Increasing the share of students and staff who have a Metro Transport Greencard may encourage an increase in bus use resulting in an decrease in SOV trips	Increasing the share of students and staff who have a Metro Transport Greencard may encourage an increase in bus use resulting in a reduction of GHG emissions attributed to current modal share

KPI	OBJECTIVE 1	OBJECTIVE 2	OBJECTIVE 3
A % increase in the share of students and staff travelling intercampus for study and work by Redline inter-regional coach	Increasing the share of students and staff travelling inter-campus for study and work by Redline inter-regional coach may result in an increase in sustainable transport usage as part of the current modal share for inter-campus travel	Increasing the share of students and staff travelling inter-campus for study and work by Redline inter-regional coach may result in a decrease in SOV trips intercampus	Increasing the share of both students and staff travelling inter-campus by Redline inter-regional coach for study/work purposes may result in a reduction of GHG emissions attributed to current modal share for inter-campus travel
A % reduction in the share of students and staff travelling to/from study and work by single occupant vehicles	Decreasing the share of both staff and students travelling in sole occupant vehicles to/from study/work across all UTAS campuses and facilities may result in an increase in walking, cycling and bus use to/from study/work	Decreasing the share of both staff and students travelling in sole occupant vehicles to/from study/work across all UTAS campuses and facilities may result in an increase in walking, cycling and bus use to/from study/work	Decreasing the share of both students and staff travelling in sole occupant vehicles to/from study/work across all UTAS campuses and facilities may result in a reduction of GHG emissions attributed to current modal share
A % reduction in the share of students and staff travelling intercampus for study and work in a private car (sole occupant)	Increasing the share of both staff and students walking, cycling, using public transport or carpooling inter-campus may result in a decrease in SOV trips inter-campus	Increasing the share of both staff and students walking, cycling, using public transport or carpooling inter-campus may result in a decrease in SOV trips inter-campus	Decreasing the share of both students and staff travelling inter-campus in sole occupant vehicles for study/work purposes may result in a reduction of GHG emissions attributed to current modal share
A % reduction in the Share of staff travelling for work purposes to other non UTAS destinations in a private car (sole occupant)	Increasing the share of staff walking cycling, using public transport or carpooling for work purposes to other non UTAS destinations may result in a decrease in SOV trips inter-campus	Increasing the share of staff walking cycling, using public transport or carpooling for work purposes to other non UTAS destinations may result in a decrease in SOV trips inter-campus	Decreasing the share of staff travelling in sole occupant private vehicles for work purposes to other non UTAS destinations may result in a reduction of GHG emissions attributed to current modal share
A reduction in the total kilometres travelled by vehicles in the University vehicle fleet per year (Explore more through fleet study)	A reduction in the total kilometres travelled by vehicles in the University vehicle fleet per year may result in a increase in walking cycling, use of public transport or carpooling for travel for work purposes travel and/or a possible increase in the use of tele/video conferencing	A reduction in the total kilometres travelled by vehicles in the University vehicle fleet per year may result in a decrease in single occupant vehicle travel and/or a possible increase in the use of tele/video conferencing for work purposes	A reduction in the total kilometres travelled by vehicles in the University vehicle fleet per year may reduce GHG emissions attributed to current modal share (dependent on vehicle efficiency)

Appendix C – Movement counting methodology

UTAS TRANSPORT COUNTING INSTRUCTIONS

Firstly, a very sincere thank you for volunteering to participate in this counting effort to record ALL pedestrian, cyclist, motorcyclist/scooters, and bus user movements to and from UTAS campuses on specified days and times. Bicycles parked around campus will also be counted at these times so that we can have a good idea of how many bicycles are being taken inside of buildings. That data that you are helping amass will feed directly into critical decisions regarding UTAS transportation from policies right down to on the ground constructions such as covered and/or secured bicycle parking areas, improved amenities at bus stops, safer pedestrian crossings, etc. Coupled with this will be a survey of staff and students to get complementary qualitative data as well as suggestions/comments.

To get the most accurate data, it is critical to conduct the count no matter the weather (while recording the weather conditions on the sheet).

Step 1: Before the Count

- Some counters recommend a lightweight fold up chair for those that can manage to transport it.
- Some counters also suggest bringing some audio entertainment or podcasts to fill in those slower times.
- Ensure that you have appropriate gear for the weather for both yourself and a plastic cover for the count sheet.
- Have a clipboard or other surface on which to write on the count sheet.
- Check the lights on your bike if you are riding to or from your counting location in low light levels.
- Study the diagram and associated example section of a count sheet presented below to ensure the process is clear.
- Study the intersection you will be counting – for example, some are four-way, some are three-way – and determine which type yours is.
- Verify the count sheet matches your intersection, including whether the identified legs in the spreadsheet match the names of the streets/paths/ access points. These are the correct count sheets designed specifically for your intersection/counting location, please do not use any other template.
- Note that some counting locations require only bicycles, pedestrians, and bus users to be counted as there is no option for other modes to use the access point to the campus.
- Find a location from which to conduct the counting that is safe and allows clear viewing of all movement directions, *including bus stops (if applicable)*.

Step 2: On Counting Day

- Be in place and ready to count the first transport movement at the beginning of your allotted time. We don't want to miss anyone!
- Mark the count sheet and marvel at how many people are on the move! We suggest using the block of five 'gate method' of four uprights slashed diagonally when the fifth movement goes past.

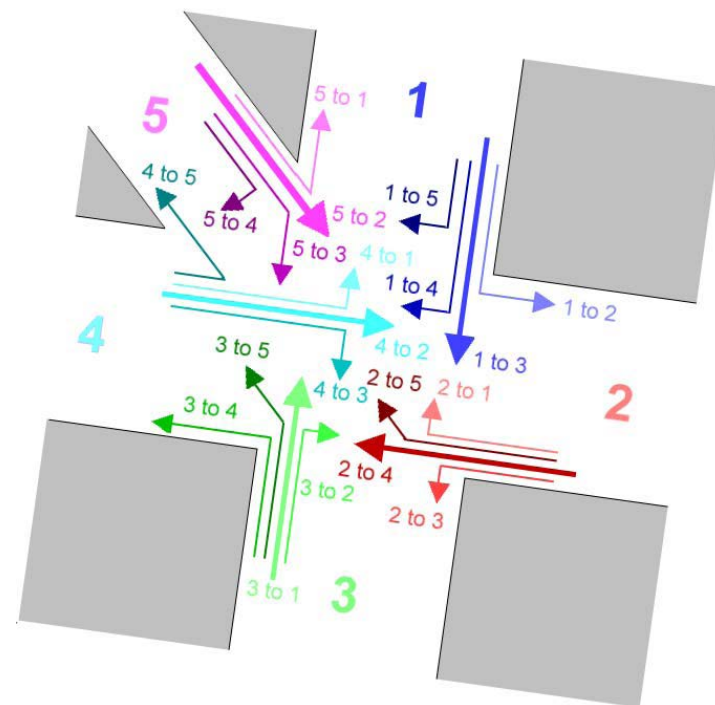
- It is very important that any off road path that parallels a road in the same direction, is counted as one and the same thing unless specifically directed otherwise.
- Record rider movements by describing which leg of an intersection they enter and by which leg they leave. For example, in the diagram below a rider going from left to right would be a '4 to 2' movement. If the same rider were to make a right hand turn, it would be a '4 to 3' movement.
- Note that the counting period has been divided into 15 minute increments, so please be aware of time when marking a movement.
- Don't pump up the figures. We need to have accurate data. Analysis of data from other count locations nearby will expose any inaccurate counting.

Step 3: After the Count

- Send your count sheet to Corey Peterson, UTAS Sustainability Manager by either scanning and emailing to corey.peterson@utas.edu.au or sending a copy through to Corey at Private Bag 35, University of Tasmania, Hobart TAS 7001. Ensure that you keep a copy if sending a hardcopy on the off chance the original gets lost in the post.
- ***If you have any questions, please email at the above or call Corey on 03-6226-6203 or 0437266203.***

INSTRUCTIONAL DIAGRAM AND COUNT SHEET

- Note the diagram at right presents the most complex scenario, most intersections include only 3-4 directions.
- The 'legs' are identified on the counting sheet in the upper right hand corner (see yellow highlighting on count sheet – next page).
- Record movements by describing which leg of an intersection they enter by and by which leg they leave the intersection (the 'from-to'; grey shading – next page). For example, in the diagram to the right a rider going from left to right would be a '4 to 2' movement. If the same rider were to make a right hand turn, it would be a '4 to 3' movement or a sharp left would be a '4 to 5'.
- Note that the counting period has been divided into 15 minute increments.
- Ensure you also record the movement in the correct box (e.g., bike, car/truck, etc)
- We suggest using the block of "five bar gate" method of four uprights slashed diagonally when the fifth movement goes past (blue shading – next page).
- Ensure that you have filled out the details in the top section (green highlighting – next page) and your Start and End times (red highlighting – next page).



Example section of a count sheet

UTAS MOVEMENT COUNT SHEET

Return to Corey Peterson, Sustainability Manager, Commercial Services & Development

Counter Name and Email: Mitch.mitch@utas.edu.au
 Count Day and Date: Tuesday 05 October 2010
 Weather Conditions: Partly cloudy, gusting winds, 15C
 Start Time: 0730 End Time: 0930

Intersection leg / street names:
 Leg 1: Grosvenor Street
 Leg 2: UniGym carpark entrance
 Leg 3: Grosvenor Crescent
 Leg 4: Dobson Rd
 Leg 5: Alexander Street
 * For each movement type, mark using the "five bar gate" method (e.g., 5 riders): †††

FROM-TO	MOVEMENT	0730	0745	0800	0815	0830	0845	0900	0915	TOTALS
Leg 1 - 2	Bike	IIII								
	Motorcycle	I								
	Pedestrian	III								
Leg 1 - 3	Bike									
	Motorcycle									
	Pedestrian									
Leg 1 - 4	Bike									
	Motorcycle									
	Pedestrian									
Leg 1 - 5	Bike									
	Motorcycle									
	Pedestrian									
etc										
Leg 2 - 1										

etc

Appendix D – Baseline movement count results

The methodology and results included here to clearly identify how the counts were conducted and the results obtained, which have been used heavily in resource allocation and operational management decisions.

Sandy Bay campus counts

The Sandy Bay campus has the most complete data set to date. The results presented below are for March 2011, which represents the first holistic and consistent count for Sandy Bay campus, as excerpted from Sara Wikström's Master's degree KGA519 Planning project in 2011.

Counts were conducted at the six main entry points to campus (Figure 25).

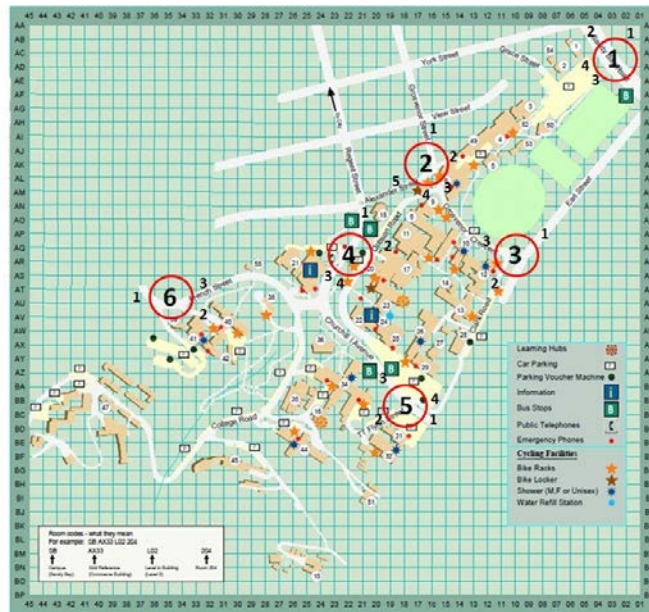


Figure 25. Map showing the location of movement counts, indicated by numbered red circles. Legs are shown by small black numbers.

Of the three modes counted, the results show that the majority of people commuting to and from the Sandy Bay campus arrive by walking, secondly by bicycle and thirdly by motorcycle/scooter (Figure 26). Note that pedestrians were not identifiable as coming from parking a vehicle nearby or completing their whole journey on foot. The results of the overall transport survey provides information on this.

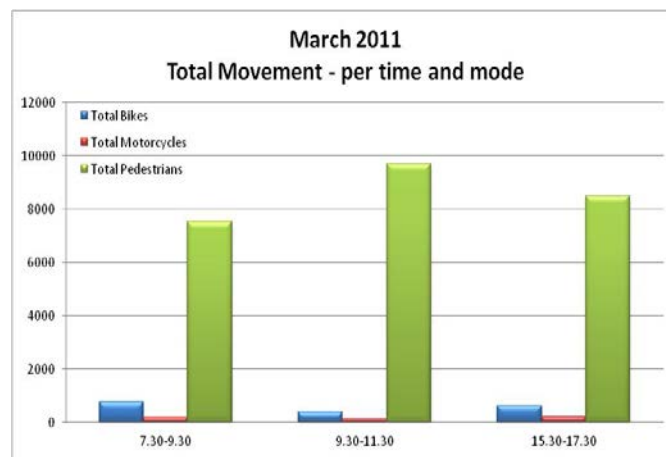


Figure 26. Daily average total movements according to mode and time at the Sandy Bay campus.

The results also showed that locations 2 and 4 were most used by pedestrians, while bicyclists most used 1, 2 and 4 (Figure 27). Motorcycles were observed at locations 2, 3, 4 and 5, however were highest in numbers at location 5.

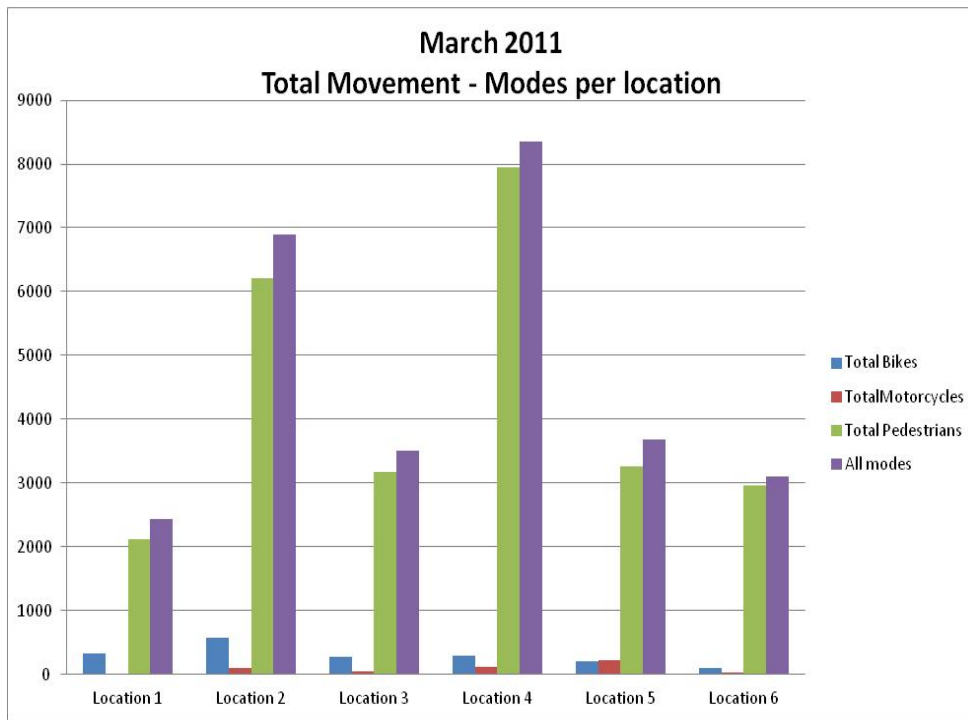


Figure 27. Daily average total movements according to location and mode

Figure 28 provides a percentage breakdown of movements by entry point.

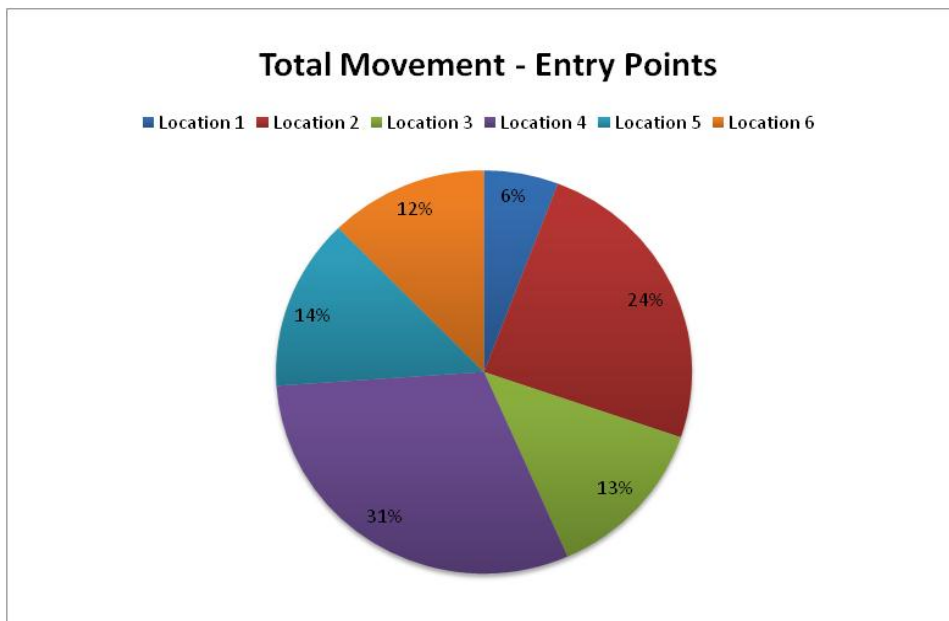


Figure 28. Total movement per entry point (March 2011).

To give a more geographical interpretation, Figure 29 - Figure 31 visually depict the density of travel at each location on each leg by transport mode using weighted arrows.

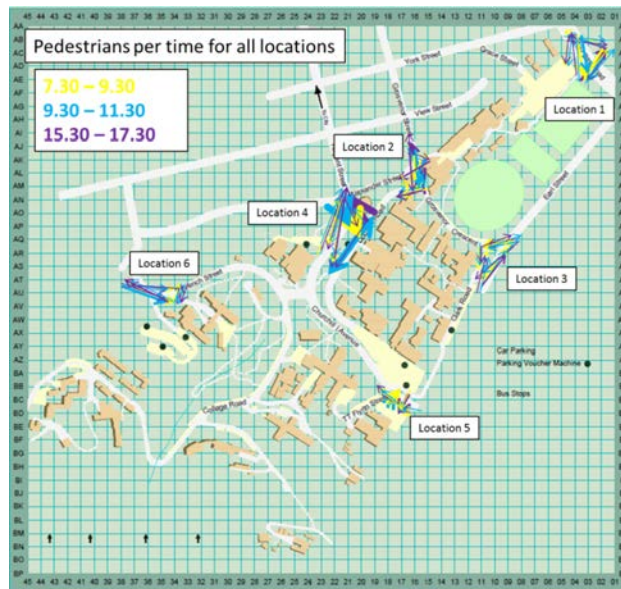


Figure 29. Weighted arrows showing density of pedestrian movement by time at Sandy Bay campus entrances (2011 data).

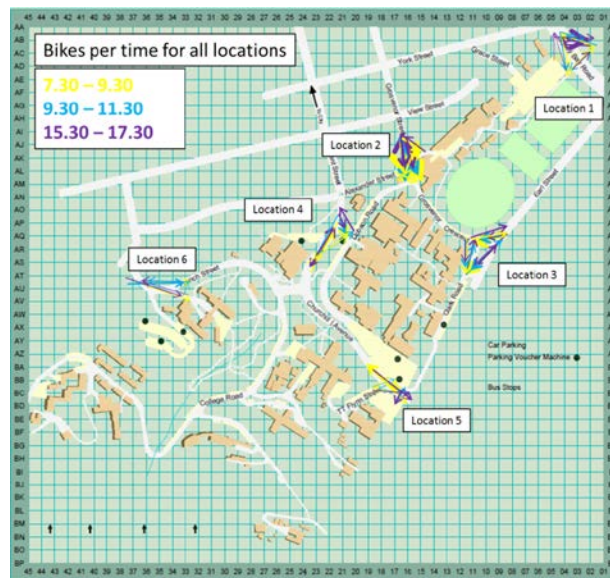


Figure 30. Weighted arrows showing density of bike movement by time at Sandy Bay campus entrances (2011 data).

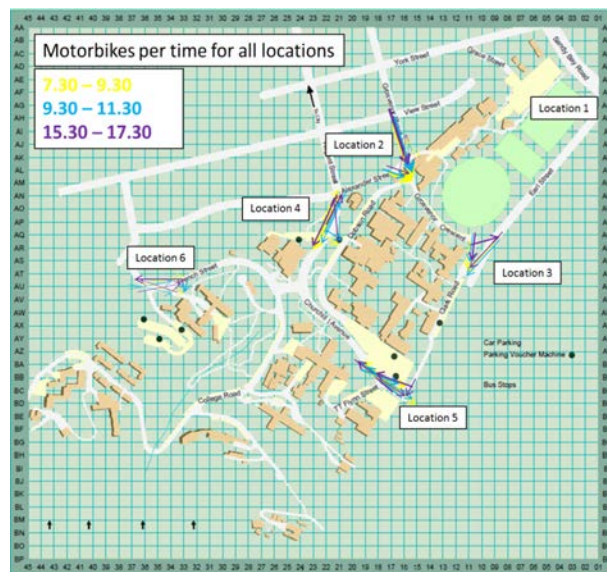


Figure 31. Weighted arrows showing density of motorbike movement according to time at Sandy Bay campus entrances (2011 data).

Newnham campus counts

Movement counts were performed by volunteers at four locations (Figure 32) on the Newnham campus on weekdays over two weeks in October 2012.



Figure 32. Map showing movement count location (numbered red circles) and 'legs' identified by small black numbers.

The results show that the majority of people commuting to and from the Newnham campus travel by car, followed by walking and thirdly by cycling (Figure 33). Motorbikes were comparatively low in numbers. Graphs for each mode, time, location and leg are available in Appendix F.

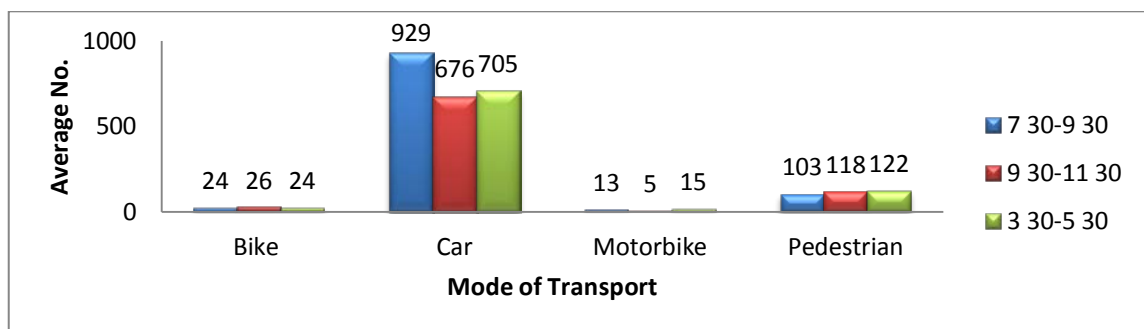


Figure 33. Daily average total movements according to mode and time.

The results show that locations 1 and 2 were most used by cars, locations 2, 3 and 4 were most commonly used by pedestrians, and bikes were most commonly observed at locations 1, 2 and 3 (Figure 34).

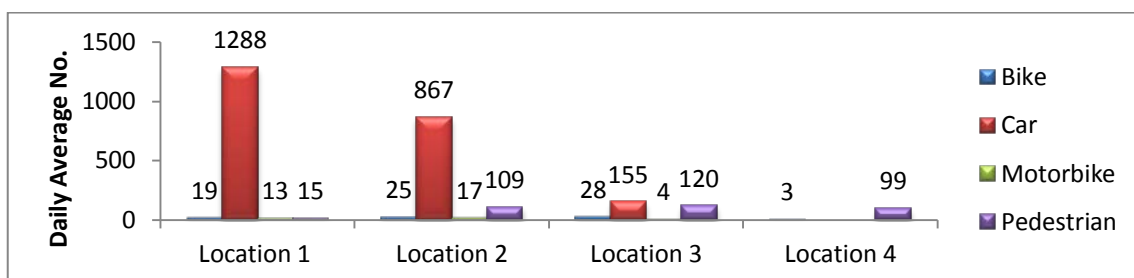


Figure 34. Daily average total movements according to location and mode

To give a more geographical interpretation, Figure 35 - Figure 37 visually depict the density of travel at each location on each of the legs by transport mode using weighted arrows.

Additional graphs showing total movement for each location by time and direction of travel (leg) are also able to be generated from the data available.

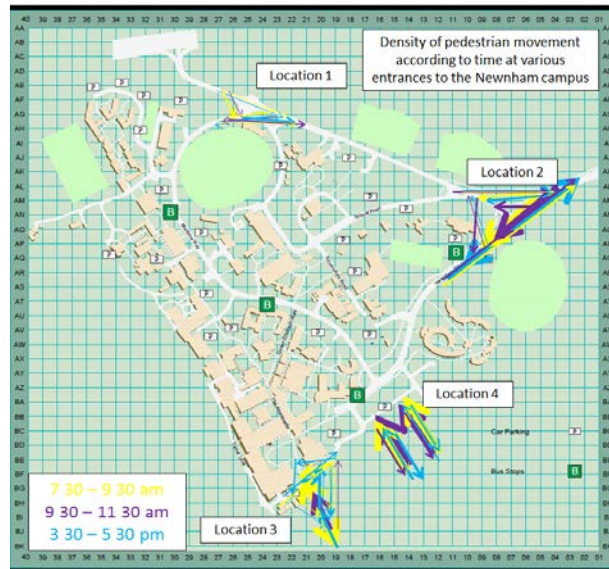


Figure 35. Weighted arrows showing density of pedestrian movement by time at each Newnham campus entrance (2012 data).

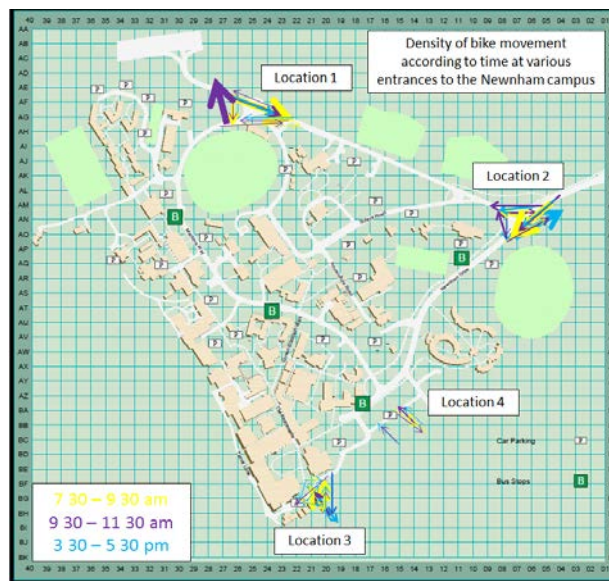


Figure 36. Weighted arrows showing density of bike movement by time at each Newnham campus entrance (2012 data).

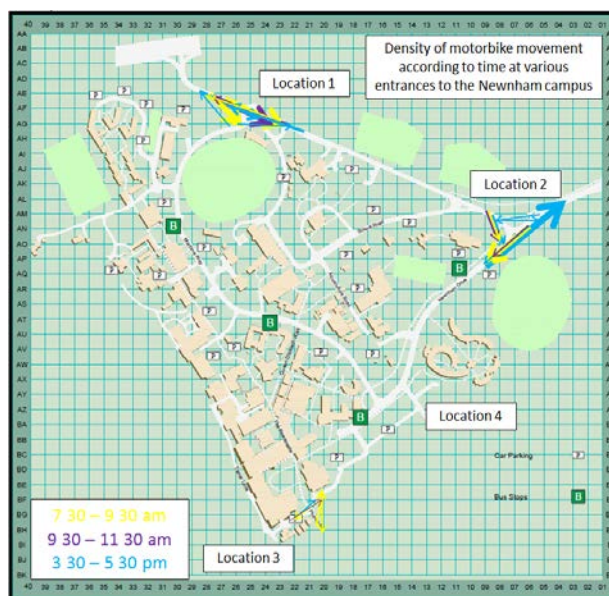


Figure 37. Weighted arrows showing density of motorbike movement according to time at Newnham campus entrance (2012 data).

Appendix E – Parked bike and motorcycle/scooter count sheet template example

BIKE PARKING SURVEY 2016 NEWHNAM CAMPUS

Who	CPP	CPP
Period	Holidays	Holidays
Day of Week	Fri	Wed
Date	8/01/2016	13/01/2016
Time	14:00	11:00
Weather conditions	Sunny	Sunny
Temperature	27.3	23.3

Site No.	Grid Ref.	Location Description		
1	AW10	Leprena Accommodation colourbond shed	3	3
2	AX10	Leprena Accommodation colourbond shed	5	5
3	AV8	Leprena Accommodation colourbond shed	2	2
4a	BF21	Farrel Centre (far end)	0	0
4b	BD21	Farrel Centre	0	0
5	BC21	Library entrance area	5	3
6	AZ23	Outside financial services	0	0
7	BA23	Co-op Bookstore under cover	1	0
8a	AZ24	Corner near Commonwealth Bank, under cover	0	1
8b	AX26	Nursing (Block J) entrance	0	0
9	AX23	Queen Elizabeth Walk	0	0
10	AW23	Kerslake Bldg P under cover	13	13
11	AV29	AMC Swanston Building	4	4
12	AR29	Connell Post Grad inside	7	7
13	AQ30	AMC near Saltz Restaurant, against wall	0	1
14a	AJ33	AMC Accommodation Units, behind/under stairs right	2	1
14b	AJ33	AMC Accommodation Units, behind/under stairs left	3	3
15a	AI34	AMC Accommodation Units, behind/under stairs right	1	1
15b	AI34	AMC Accommodation Units, behind/under stairs left	0	0
16	AG33	AMC Accommodation Units enclosed shed	1	1
17	AF36	AMC Accommodation Units enclosed shed	2	2
18	AF34	AMC Accommodation Units enclosed shed	0	0
19	AG35	AMC Accommodation Units enclosed shed		
20	AP23	Science Building back entrance	0	0
21	AR22	Computer building	0	0
22	AR17	Unigym	0	0
23	BD24	Education (opposite DW1)	0	0
24	AE35	NRAS Block A in front NA 105	5	5
25	AE35	NRAS Block A next to stairs door	2	2
26	AE34	NRAS Block B next to stairs door	0	0
27	AE33	NRAS Block C next to stairs door	0	0
28	AE32	NRAS Block D next to stairs door	3	3
29a	AK34	Investigator Hall Bike Hub (inside)		
29b	AK34	Investigator Hall Bike Hub (outside)		
M1	BD20	Near Sir Raymond Ferrall Centre	0	0
M2	AR30	On Saltz lane way near Norfolk Hall	2	4
M3a	BE25	Tamar Lane (3 places)	2	3
M3b	AZ27	Tamar Lane (6 places)		
M4	AQ20	Aquaculture Road	0	1
M5	AL30	Swimming pool	0	0
M6	AE32	NRAS Block C	0	0
Total Bikes			59	65
Total Motorcycles			4	8