Green Transport Plan
2008 – 2010

Environmental Services
December 2007

It's how you get there that counts

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Executive Summary

Car use is a significant contributor to Australia's greenhouse gas emissions and is on the rise; a result of our largely suburban lifestyle and reliance of cars as our primary mode of transportation.

As major destinations, universities generate a large number of car trips daily and have a social and environmental responsibility to provide and promote viable alternatives to single occupant vehicle (SOV) use.

The Green Transport Plan was developed in partnership with the Department for Planning and Infrastructure and the Department for Environment and Conservation through the TravelSmart Workplace Program. A Green Transport Plan is a tool that is used to reduce car use and to facilitate more sustainable travel options to and from destinations. Throughout Western Australia 30 organisations covering 50 workplaces have already completed Green Travel Plans in an effort to demonstrate leadership and take responsibility for transport impacts they generate.

Reducing reliance on car travel realises corporate, staff and community benefits by:

- reducing greenhouse gas emissions associated with carbon driven transportation,
- providing staff and students with more travel choices,
- promoting good health to university employees and students, and
- helping to address local traffic congestion.

While individuals can make decisions about the way they travel to and from places of work and study, Universities are in a strong position to significantly influence these choices through the policies, incentives and infrastructure that is put in place to encourage and support sustainable transport and manage SOV use.

This Plan therefore recommends actions to:

- improve campus facilities and access to further support walking, cycling and public transport,
- develop policy and processes that actively encourages and promotes walking, cycling, carpooling and the use of public transport, and
- communicate the alternatives to single occupant car use to both university employees and students.

Physical access audits, staff and student travel behaviour surveys and a university community workshop were undertaken to inform the recommendations made in the Plan.

736 staff responded to the online survey, 74% said that their main mode of travel for commuting to and from work was driving alone.

Students surveyed during 2007 also drove alone as their primary method for travel however the proportion of trips generated this way was lower than for staff, with 58% of trips to/from Joondalup and 46% of trips made to/from Mount Lawley.

This Plan aims to ultimately reduce the environmental and social impacts resulting from single occupant car trips made to and from Edith Cowan University and by the University fleet by providing and promoting a range of attractive alternatives.

The Green Transport Plan will become part of the University's broader environmental management system and be subject to review and improvement. It is an important component of the University's response to sustainability and helps demonstrate ECU's commitment to leading environmental practice.

1. Background

1.1 Towards Balanced Transport

Greenhouse gas emissions from the transport sector constitute approximately 14% of Australia's total emissions and about 90% of the emissions from this sector are generated by road transport- that is buses, cars and trucks.

The transport sector is also the fastest growing source of emissions in Australia, having risen by 28% between 1990 and 2004. Projections indicate that transport emissions will rise by 40% on 1990 levels by 2010[1].

The Commonwealth and State governments have recently developed policies on greenhouse emissions and climate change. The Premier's Climate Change Action Statement (2007) highlights transport emissions as a significant contributor to the issue of climate change and supports emissions reduction targets through the implementation of the TravelSmart Household and Workplace programs[2].

Because transport contributes significantly to Australia's greenhouse emissions, universities as large employers and major destinations can make a significant contribution to abatement efforts by enabling and promoting alternatives to single occupancy vehicle use for staff and student commuting and work-related travel.

There are other good reasons for seeking a better transport balance including reducing emission of air pollutants, promoting physical activity for staff and student health and wellbeing, providing affordable travel options for staff and students, reducing parking demand and the capital and operational costs of car parking on campus and reducing off-campus parking and traffic impacts.

This involves actively encouraging and facilitating staff and students to reduce the number of single occupant car trips made to and from University campuses and providing for alternative travel modes such as walking, cycling, carpooling and public transport.

Edith Cowan University has actively pursued a balanced approach to transport and access planning, having developed an Integrated Transport Plan in 2003 and undertaken a TravelSmart Program since then.

In 2007 the University joined the TravelSmart Workplace Program delivered by the Department of Environment and Conservation and the Department for Planning and Infrastructure. This Plan is a direct result of the TravelSmart Workplace Program and aims to reduce unnecessary car trips generated as a result of the activities of the University and facilitate a balanced approach to transport planning, infrastructure delivery and communication.

1.2 Benefits of a Green Travel Plan

Developing and implementing a plan to manage staff and student travel to and from university campuses delivers a variety of social, environmental and economic benefits to the University as well as to the individual and broader community.

For example considerable cost savings can be made where fleet vehicles are utilised more effectively and/or use less fuel, and where fewer car parks are required the associated capital and operating costs can be significantly reduced.

Green Transport Plans help to relieve pressure on car parking by providing viable alternatives to car use. The University's campus consolidation project will increase parking pressure during 2008 and onwards at Mount Lawley and Joondalup campuses.

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[1] Australian Greenhouse Office, Sustainable Transport website, viewed 20 Sept 2007. **www.greenhouse.gov.au/transport**

[2] Department of Premier and Cabinet, *Making decisions for the future: climate change (the Premier's climate change action statement)* (2007). Government of Western Australia.

There will also be a need to address transportation linkages between the old Churchlands campus where many students still live and the other city campuses.

Mode shift away from cars also generates tangible environmental and health benefits that can be gained and promoted by the University to both internal and external stakeholders, while reduced traffic congestion around peak times provides benefits to University staff and students as well as the local government, schools and the broader community.

Importantly it also provides viable options and alternatives for staff and students who may not have access to a car

More specifically, the Green Transport Plan aims to provide net benefit unde the following areas:

- Parking and space issues- reducing the pressure on car parking and the cost of maintaining the University fleet and parking infrastructure.
- Access opportunities- ensuring that everyone has access to ECU campuses, not just those with cars.
- Health and wellness- walking and cycling are great ways to stay fit and healthy as well as being a cheap way to travel.
- Environmental sustainability- improving the University's environmental performance with respect to air pollution and greenhouse gas emissions.
- Local traffic congestion- reducing the University's contribution to the number of cars on local roads during peak periods and associated congestion costs, noise and air pollution.

Additional benefits of addressing these issues include alignment with the State Government's Sustainability Code of Practice (2004), the WA Greenhouse Strategy (2004) , the Premier's Climate Change Action Statement (2007) and the Perth Air Quality Management Plan (2000). Addressing transport-related environmental concerns also forms a key component of Facilities and Services' Environmental Management System based on ISO 14001.

1.3 Developing the Plan

The Green Transport Plan was developed in partnership with the Department for Planning and Infrastructure and the Department of Environment and Conservation through the TravelSmart Workplace Program.

The Green Transport Plan covers travel to, from and between Mount Lawley and Joondalup campuses and business trips made from these two campuses. While the Plan primarily covers the two metropolitan campuses, changes to policy and transport communication will be extended to the University's south west campus as well.

The Green Transport Plan builds upon the Integrated Transport Plan developed in 2003 and incorporates staff and student behavioural data (collected through intercept and online surveys) and updated access audits of the Mount Lawley and Joondalup campuses including parking audits, cycling end-of-trip facilities and public transport access.

A facilitated workshop was held on 1st October 2007 with the aim of collaboratively developing a range of strategies to improve transport infrastructure and facilities, encourage changes in staff and student travel behaviour, communicate alternatives to car use and increase the efficiency of the University fleet,

1.4 Aims and Objectives

The broad aim of Edith Cowan University's Green Transport Plan is to:

"Reduce the environmental and social impacts resulting from single occupant car trips made to and from Edith Cowan University and by the University fleet"

The following objectives support the aim:

- Reduce single-occupant car trips made by staff and students commuting to and from the University and for business purposes,
- Increase the use of alternative forms of transport (such as walking, cycling, car-pooling and public transport) as commute modes,
- Increase the economical and environmental efficiency of the University fleet,
- Demonstrate leadership in the area of corporate environmental and social responsibility, and
- Promote physical activity for good health and fitness in conjunction with ECU's corporate health initiative.

These objectives will be achieved through both minimising the barriers to staff and students adopting alternative forms of transportation to and from the University and promoting the opportunities linked to greener travel choices.

Edith Cowan University is committed to reducing its transport impact through the implementation of these strategies and adopting an approach of continuous improvement.

2 Physical Access Audits

Without the appropriate transportation infrastructure and services, behavioural change interventions will have limited success.

A physical access audit of both Joondalup and Mount Lawley campuses was undertaken to ascertain whether facilities such as bike parking, showers and lockers were sufficient. Public transport services and cycling routes were examined for connectivity, proximity to the campuses and appropriate timing of the schedule.

A summary of car parking facilities and results from the 2007 carpark audit has also been included.

2.1 Joondalup Campus

Access Summary

Joondalup campus is readily accessible by public transport, being situated only 550m from the Joondalup train station and serviced by a number of buses as well as the free Joondalup CAT bus from Monday to Friday.

Areas immediately surrounding the University campus, including the education precinct also have well maintained and prominent cycle and shared pathways linked to the University. These include on-road cycle lanes on Lakeside Drive and Grand Blvd, and shared paths on Boas Ave and Lakeside Drive. On-site bike parking facilities include 57 u-rails and two undercover secure bike cages. Showers are available at 6 locations across the campus.

However, the audit identified several barriers to using alternative forms of transport. These are:

- Parking provision has increased by 46% since 2002 and is currently (as of 2007) utilised at a maximum of 71% during peak times.
- Several bus stops along the CAT bus route are isolated and closely surrounded by bush with no connectivity to walking and cycling paths.
- CAT bus stops lack shelter; this is particularly an issue for the main on-campus stops where many students and staff gathered for up to 15 minutes in the sun or rain.
- Lack of east-west connectivity by public transport, particularly from the area surrounding Ellenbrook.
- There are insufficient lockers available in appropriate locations to accommodate cyclists. Locker management procedures require updating and many lockers do not have keys and are not conveniently located.
- Bicycle parking signage is not adequate in many places on campus.
- Several shower facilities are inadequate for the number of staff working in the building (ie: Building 1).

Vehicle Access & Parking

The University is located a short driving distance from the Mitchell Freeway. The main vehicle access points to Joondalup are on Kendrew Crescent, Joondalup Drive and Lakeside Drive which are the main roads surrounding the campus. The respective entry points connect into a ring road system which links the various car parks throughout the campus.

The Joondalup campus currently (May 2007) provides a total number of 2,460 parking bays for staff, students and visitors. These bays are located around the campus and divided into the following zones:

- Reserved parking (yellow zone) - 174
- Zone A (blue zones) - 453
- Zone B (red zones) – 1,413
- Visitors (green zones) - 256
- Disabled (blue and red zones) - 36
- Loadings zones - 32
- Motorcycle - 41
- University Vehicles – 37
- Chancellery - 13

Since 2002 parking at Joondalup campus has increased by 1,151 bays (a +46% percentage change). The suggested parking cap as detailed in the 2008 Master Plan in 2002 was 2,294 bays, 166 bays less than the University currently provides.

Carpark audits (see Appendix 1) carried out in March 2007 found that average peak time occupancy ranged between 62-66% and the highest occupancy rate was 71%. The May audit found that average usage during this period was around 5% less than in March.

Table 2.1- 2007 Parking fees for respective zones

Staff				
	Annual fee		Second Semester fee	
Yellow Reserved Permit	$462.50	$279.00	$231.50	$140.00
Blue Permit	$201.00	$119.50	$101.00	$60.00
Students				
	Annual fee		Second Semester fee	
Red Zone	Full-time	Part-time*	Full-time	Part-time*
	$64.00	$36.50	$35.50	$21.50
*Part Time: Less than 75% of a full unit load.				

Public Transport

The Joondalup Train Station is located approximately 550m from the Joondalup campus and is connected with the Learning Precinct by walk and cycle paths. The trains operate between Perth and Clarkson train stations stopping at Leederville, Glendalough, Stirling, Warwick, Greenwood, Whitfords, Edgewater, Joondalup, Currambine, Clarkson and vice versa. A number of trains, operating from Perth, run express to Warwick. Trains start to

operate from Perth at 5:20am and finish by 12:00am weekdays. Trains from Perth originate at Cockburn Central or Mandurah on the recently opened Mandurah line.

The travel duration from Perth to Joondalup is approximately 25 minutes and from Clarkson to Joondalup the duration is 7 minutes. Within the train peak times (7:00am - 9:00am and 4:30pm - 6:00pm) the trains run every 3 minutes.

The frequency drops off during weekday evenings and on weekends, with weekends having limited service hours. Bicycles are allowed on trains with the exception of travel in the peak direction at peak times i.e. towards Perth in the morning peak and from Perth in the afternoon peak .[3]

Table 2.2- Train frequency and number of journeys made per hour 7:00am - 7:00pm

Journey	Within an hour period	Frequency	How long does it take?
Perth to Joondalup	8-12 times	every 3-9 minutes	25 minutes
Clarkson to Joondalup	8-12 times	every 3-9 minutes	7 minutes

The City of Joondalup, Edith Cowan University and Path Transit have partnered to operate a free CAT bus service between 8am and 6pm from Monday to Friday.

The service comprises two buses that leave the train station every 7.5 minutes and travel around Joondalup CBD and the educational precinct (see Appendix 2). The service is well patronised with 288,626 commuters using the service in 2007, a 14% increase from 2006.

There are also several other bus services that depart from the Joondalup train station which can be utilised to connect to the Joondalup campus (Table 2.2). The closest bus stops to the campus are on Grand Boulevard, south of Kendrew Crescent and on Lakeside Drive between Edgewater Drive and Grassbird Avenue (see Appendix 2).

From Wanneroo, service number 468 runs northwards on Wanneroo Road and connects running west with Joondalup Drive with the termination point being Joondalup train station. The other option is to take the 467 or 469 to the Whitfords Train Station and the train to Joondalup.

While bus services to the Joondalup campus are in general very good, there are a few issues that hinder better utilisation of these services.

For example there is a significant lack of east-west connectivity, particularly from the Ellenbrook area. Commuters from Ellenbrook to Joondalup must first travel into Perth and then back out again via the train line, a journey time of 1.5 to 2 hours.

Additionally there are several CAT bus stops that are disconnected to the pathways and surrounded by dense underbrush, making them largely inaccessible to pedestrians.

Table 2.3- Bus services that connect to the Joondalup campus

Timetable No.	Route	Bus Service Numbers	Approx. travel duration

[3] Conditions regarding bicycles on trains are provided on the Transperth website www.transperth.wa.gov.au.

73	Whitfords via Wanneroo/ via Tapping to Joondalup Drive	468	32 mins 19 mins
	Whitfords via Wanneroo	467 469	32 mins
67	Burns Beach via Iluka/ via Currambine	470 471	16mins 15mins
	Kinross via Currambine	472 473	15mins 16mins
	Clarkson via Kinross	474	26mins
69	Banksia Grove via Tapping/ via Carramar	390 391	23mins 26mins
65	Whitfords via Oceanside Prom/ via Dampier Ave/ via Bridgewater Dr	460 461 462	33mins 27mins 27mins
66	Whitfords via Gradient Way/ via Eddystone Ave/ via Trappers Dr/ via Timberlane Dr	463 464 465 466	25mins 22mins 21mins 26mins

Cycling & Walking

Cycle routes

There are several types of cycle route in the Perth metropolitan area that make up the Perth Bicycle Network (PBN) (see Appendix 3). These are:

- Local Bicycle Friendly Streets
- Shared Paths (shared by cyclists and pedestrians)
- Bicycle Lanes or Sealed Shoulders (on roads)

Lakeside Drive and Grand Boulevard have bicycle lanes on the roads for quick and easy transportation. However there are also many shared pathways that service the Joondalup campus and provide linkages between the Learning Precinct, Joondalup City Centre (including the train station) and the Lakeside Shopping Centre.

Bicycle Parking

Bicycle parking is provided on campus by Facilities and Services and is free to both staff and students. There are a total of 68 U-rails (that can accommodate 136 bicycles) allocated across the campus, where 10 of these are secure (contained in an underground cage locker). Some bicycle racks are located in places (such as behind buildings) that are hard to locate and could be deemed insecure as they are out of common sight.

Figure 2.1- U-rail bicycle parking outside the Sports Centre, Joondalup

Figure 2.2- Bicycle rack parking outside Building 31 (Library), Joondalup. This type of parking is not preferred as it can cause damage to the bicycle.

Shower, Changing and Locker Facilities

Sufficient end-of-trip facilities are necessary to encourage students and staff to utilise their bicycle as an effective travel mode. Shower facilities can be found in buildings 1, 6, 17, 19, 22 and 30 and lockers in buildings 1, 17, 19, 22 and 30. In general, the shower facilities are deemed sufficient to cope with the current number of cyclists, however in some areas (eg Building 1) there is only one shower to service over 140 staff. This is likely to be a deterrent for staff to cycle or walk to work, and was cited as an issue by several staff during the staff survey.

Signage indicating the location of bicycle parking is present in some locations (eg: outside the ECU Guild) however in others it is missing. There also seems to be a general lack of student awareness of the facilities which might be enhanced through attractive and consistent signage as well as an ongoing TravelSmart awareness program.

Table 2.4- End-of-trip facilities at Joondalup campus: current and recommended provision

Facility	Current provision	Recommended provision*	Comment
Showers	B 1- 2 B 6- 2 (1 M,1 L) B17- 10 (4 M, 4 L, 2 Disabled) B19- 3 (2 Unisex, 1 Disabled) B 21- 7 (3 Cyclists, 4 Disabled) B 22 (Sports)- 12 B 30- 2 (1 M. 1 L)	Universities- 5 male & 5 female per 100 f/t students Staff- as per design standard in Table 2.4	One of the showers in B 1 is set aside for catering staff only. Sports Centre showers are available to Centre members/patrons only.

	B 31- 2 (1 Disabled, 1 Staff)		
Lockers	B 1- 21 B 17- 14 B 19- 1 B 22- (Sports)- 66 B 21- No Lockers B 30- 12 B 31- 0	20 male & 20 female per 100 f/t students 2 personal lockers per 10 staff	The 60 lockers in the Sports Centre are only available to patrons. 6 lockers in the underground cage are available to all staff/students. Lockers are currently at capacity.
Bike Parking	A total of 68 u-rails/bike racks including 10 secure and 14 undercover exist on Joondalup campus. 12 of these are located at the Sports Centre.	Long term Parking: 5 U bars / bike lockers per 100 f/t students or 1 U bar per 10 staff Short Term Parking: 3 - 5 U bars per department or 3 bicycle U bars per 300 m2	While the amount of bike parking does not meet the standards, the current provision of u-rails is under utilised.

Table 2.5- Design Standards for shower provision as recommended by the DPI www.dpi.wa.gov.au/mediaFiles/cycling_end_of_trip.pdf

Showers need to be sufficient in number so users can make efficient use of facilities. There should be a minimum of; one (1) shower per 0 - 19 staff. two (2) showers, 1 male and 1 female in separate change rooms, per 20 - 49 staff. four (4) showers, 2 male and 2 female in separate change rooms, per 50 - 149 staff. six (6) showers, 3 male and 3 female in separate change rooms, per 150 - 299 staff. eight (8) showers, 4 male and 4 female in separate change rooms, per 300 - 500 staff. additional shower facilities will be required at a rate of 1 female and 1 male shower for every 250 staff. NB. The standards provided in this document are broadly consistent with those in Austroads Part 14 : Guide to Traffic Engineering Practice : Bicycles :

2.2 Mount Lawley Campus

Access Summary

Mount Lawley is situated only 5 kms from the Perth CBD. North-south access is via Alexander Drive and east-west access is via Central Avenue. In general the north-south bus links are good however there is considerable scope to improve east-west connectivity. The Mount Lawley campus is not well serviced by the rail network, as the closest train station is 2kms away.

Cycle access is in general good, with shared paths and bicycle-friendly streets servicing the University from all directions. On-site bike parking facilities include 60 u-rails and an undercover secure bike cage situated at the Sport and Recreation Centre. However showers are only available at the Sport Centre and are only accessible to patrons.

The aspects that are likely to act as barriers to alternative forms of transport identified in the audit were:

- Parking provision has increased by 29% since 2002 and is currently (as at March 2007) utilised at a maximum of 74% during peak times
- Lack of bus connectivity east-west, particularly from closely neighbouring the areas of Joondanna, Leederville, Bedford and Inglewood. Commuters much first travel to either Perth or Morley bus stations before boarding another bus for ECU Mount Lawley.
- There are insufficient lockers available in appropriate locations to accommodate cyclists. Locker management procedures require updating and many lockers do not have keys and are not conveniently located.
- Bicycle parking signage is not adequate in many places on campus.
- There are no shower facilities available to cyclists if they are not a member of the Sports and Recreation Centre. This is a significant barrier for cyclists, even those travelling over a short distance.
- In the morning peak traffic congestion at the main access point on Bradford Street affects vehicle access to the campus. This road is also the main access for Mount Lawley High School. It is planned to move the main vehicle access for the campus to Central Avenue.

Vehicle Access & Parking

The Mount Lawley campus is situated on Bradford Street and Alexander Drive, Mount Lawley in the City of Stirling. It is approximately 5kms away from the city.

The main access for vehicles to the Mount Lawley Campus is from Bradford Street located at the south-west corner of the campus. Further access points are from Central Avenue for south bound traffic from Alexander Drive, from Learoyd Street located on the east side and from Stancliffe Street (off Central Avenue). A partial ring road system for vehicles links car parks together.

The Master Plan shows that the main access into the campus will change from Bradford Street to Central Avenue which should reduce congestion at morning peak times.

The Mount Lawley campus currently (May 2007) provides a total number of 2,045 parking bays for staff, students and visitors. The parking bays are subdivided into the following categories with the corresponding number of bays:

- Reserved parking (yellow zone) - 61
- Zone A (blue zones) - 387
- Zone B (red zones) – 1,436

- Visitors (green zones) - 81
- Disabled (blue and red zones) - 16
- Loadings zones - 22
- Motorcycle - 16
- University Vehicles - 21

Carpark audits were undertaken in March and May 2007 and found that peak occupancy at Mount Lawley was 74% in March and 50% in May. Average occupancy rates fluctuated between 55-65% during March and average usage during May was approximately 18% less than in March.

Since 2002 parking at Mount Lawley campus has increased by 457 bays (a +29% percentage change). The suggested parking cap as detailed in the 2010 Master Plan is 2,592 bays. Parking fees for the Mount Lawley campus can be viewed in Table 2.0.

Public Transport

The Mount Lawley campus is well serviced by buses from the Wellington Street bus station or Morley bus station. Buses operate to and from Perth at least every 15 to 20 minutes from 7:00am to 6:00pm (see Table 2.6).

There are direct services from/to Morley bus station, Yokine, Alexander Heights and Ballajura/Marangaroo. Train stations other than Perth closest to the Mount Lawley campus are Maylands Station (<3kms), East Perth (3kms), Glendalough Station (4kms) and Mount Lawley (2kms). However there are no connecting bus services direct to the campus from these stations.

Staff and students commuting to and from suburbs such as Joondanna, Leederville or Mount Hawthorn must first go into Perth and then catch a connecting bus or train out to them. This is seen as a major barrier to the use of public transport by commuters living in these locations, as the time taken to complete this journey is typically in the region of 30 minutes by public transport versus 10 minutes by car.

Table 2.6- Bus services to Mount Lawley campus

Journey	Route	Bus Service Numbers	Approx. travel duration
Morley Bus Station to ECU Mount Lawley	Bus Station/ Alexander Drive north of Bradford Street	17, 20	19 mins
	Bus Station/ North Street north of Longroyd Street	60	11 mins
ECU Mount Lawley to Morley Bus Station	Alexander Drive north of Bradford Street/ Bus Station	17, 20	25 mins
	Longroyd Street north of North Street/ Bus Station	60	18 mins
Perth CBD to ECU Mount Lawley	Wellington Street Bus Station/ Alexander Drive north of Holmfirth Street	886, 887, 889	7 mins
	Beaufort Street Museum Stand/ North Street north of Longroyd Street	16, 60	7 mins
	Barrack Street Stand/ Bradford Street east of Cone Place	17, 18, 19, 20	12 mins
	Alexander Drive south of Holmfirth Street / Wellington Street Bus Station	886, 887, 889	13 mins
ECU Mount Lawley to Perth CBD	North Street north of Longroyd Street/ William Street before James Street	16, 60	13 mins
	Alexander Drive south of Holmfirth Street/ William Street before James Street (OR Blue Cat Stand)	17, 18, 19, 20	13-17 mins

Cycling & Walking

Cycle routes

Several cycling routes link to the Mount Lawley campus including shared paths along Alexander Drive and Walter Road. These are part of the Perth Bicycle Network which also includes on-road routes on much of Bradford Street and Fourth Avenue (see Appendix 1). All major roads around the ECU campus have either shared paths or are bicycle friendly streets.

Pedestrians walking to or from the bus stops have been crossing Bradford Street and Alexander Drive in peak traffic, raising concerns for staff and student safety. A crosswalk is planned for Bradford Street to address this issue.

Bicycle parking

Bicycle parking is provided on campus by the University and is established at a variety of locations throughout (Appendix 4). There are a total of 60 U-rails, accommodating up to 120 bicycles, distributed across the campus. Ten u-rails are secure and are situated in a bicycle cage in the underground car park at the Sports and Recreation Centre in Building 21.

In general the u-rails at Mount Lawley are very visible and are highly utilised by students requiring short term bicycle parking.

Figure 2.5- Well utilised u-rail bicycle parking, Mount Lawley

Figure 2.6- Typical u-rail bicycle parking at Mount Lawley

Shower, Changing and Locker Facilities

Throughout the campus there are a total of 76 lockers and 7 shower facilities, all located in Building 21 (Sports and Recreation Centre). The lockers and showers within the Sports Centre are only available to Centre patrons with the possible exception of the bicycle cage lockers.

Table 2.7- End-of-trip facilities at Mount Lawley campus : current and recommended provision

Facility	Current provision	Recommended provision*	Comment
Showers	B 21- 7	Universities- 5 male & 5 female per 100 f/t students Staff- as per design standard in Table 2.4	Only available to ECU Sports patrons
Lockers	B 21- 76	20 male & 20 female per 100 f/t students 2 personal lockers per 10 staff	All but the lockers in the underground carpark are only available to ECU Sports patrons. Those available to all staff and students are located

			in the underground bike cage.
Bike Parking	A total of 60 u-rails including 5 secure and 10 undercover exist on Mount Lawley campus. 10 of these are located at the Sports Centre.	Long term Parking: 5 U bars / bike lockers per 100 f/t students or 1 U bar per 10 staff Short Term Parking: 3 - 5 U bars per department or 3 bicycle U bars per 300 m2	Bike parking should be considered as part of all new building projects.

2.3 Fleet Vehicles

The University has a pool fleet of 20 vehicles (With 8 being at Mount Lawley and 7 at Joondalup) a job needs fleet of 33 vehicles and Senior Executive fleet of 3. These vehicles are used by university employees to commute from home to work and between campuses and meetings.

- In 2006, a total of 5,906 pool vehicle trips were made covering 350,183 kilometres.
- In 2007, a total of 5,083 pool vehicle trips were made covering 313,905 kilometres.

The use of university vehicles generates greenhouse gases, particulates and other pollutants. It is also a costly exercise and initiatives designed to reduce the fleet's environmental impact often result in financial savings as well.

Reducing greenhouse emissions resulting from operating fleet vehicles is a key component of the Western Australian Government's Sustainability Code of Practice (2004). This Code calls for all Western Australian government departments and agencies to reduce their transport emissions by:

- Minimising the number of vehicles in the fleet;
- Maximising the overall fuel efficiency of fleet vehicles;
- Reducing the use of vehicles (i.e.: number of trips made);
- Promoting alternatives to staff; and
- Offsetting greenhouse gas emissions from the fleet.

Edith Cowan University has adopted these principles and has been proactive in reducing the emissions to air produced by its fleet. Initiatives to date include:

- introducing more fuel-efficient vehicles (6 to 4 cylinder),
- reducing the number of vehicles in the fleet, and
- offsetting the remaining emissions using an accredited offset scheme.

The availability of parking and fleet vehicles will have a significant effect on staff travel behaviour as if there is ample cheap parking and fleet vehicles available, there are few incentives to utilise alternative transport modes such as catching the train to a meeting.

Conversely, the fleet is a necessary service to facilitate staff transport. Ideally it should not be restricted but augmented by a range of alternatives such as readily accessible SmartRiders for business travel by public transport, pool bicycles for short trips on and near campuses as well as a means of facilitating carpooling using fleet vehicles.

3. Employee Travel Behaviour

3.1 Employee Travel Summary

A survey was undertaken to ascertain how employees at ECU currently commute to and from the university as well as barriers to sustainable transport and opportunities to encourage its adoption. The primary findings of the survey are:

- There are no incentives for employees to utilise public transport to attend work meetings or for inter-campus travel.
- Time and convenience are seen as important reasons why employees drive cars to work.
- There was little difference in the travel behaviour between general and academic staff.
- Employees who live closer (within 10kms) to the Joondalup campus drive alone more often than the than the total respondent cohort.
- Employees who live closer (within 10kms) to Mount Lawley campus drive alone less and walk or carpool more than the total respondent cohort.
- The majority of inter-campus and work-related travel is done using the staff member's own car and by driving alone.

3.2 Methodology

An electronic survey was sent out to a total of 2,583 staff from all ECU campuses. Staff had a week to complete the survey including questions about travel during the week August 13-17, 2007 (see Appendix 4). Responding was voluntary however the chance to win a prize was offered to those who responded within the allocated timeframe. 736 responses were collected; giving a 28% response rate.

The survey sought to determine how staff travelled each day to and from the University campuses, how they travelled between campuses or to meetings and why they travelled this way.

Respondents were sorted according to the campus that they mostly attend and the postcodes in which they live. This information was used to make comparisons of travel behaviours between all staff working at a campus and those living locally to it as it was recognised that local employees might be better able to change their travel behaviour that staff living larger distances from the campus at which they work.

3.3 Overall Results

From the 736 respondents, 74% said that their main mode of travel for commuting to and from work was driving alone. This figure was the same for both Joondalup and Mount Lawley campuses. The next most common form of commuting was by public transport (9%) at Joondalup and walking (7%) at Mount Lawley.

There was also little difference between the travel habits of academic versus general staff. The biggest difference was found at Joondalup where 69% of trips made by academic staff were by driving alone compared to 77% of those made by general staff.

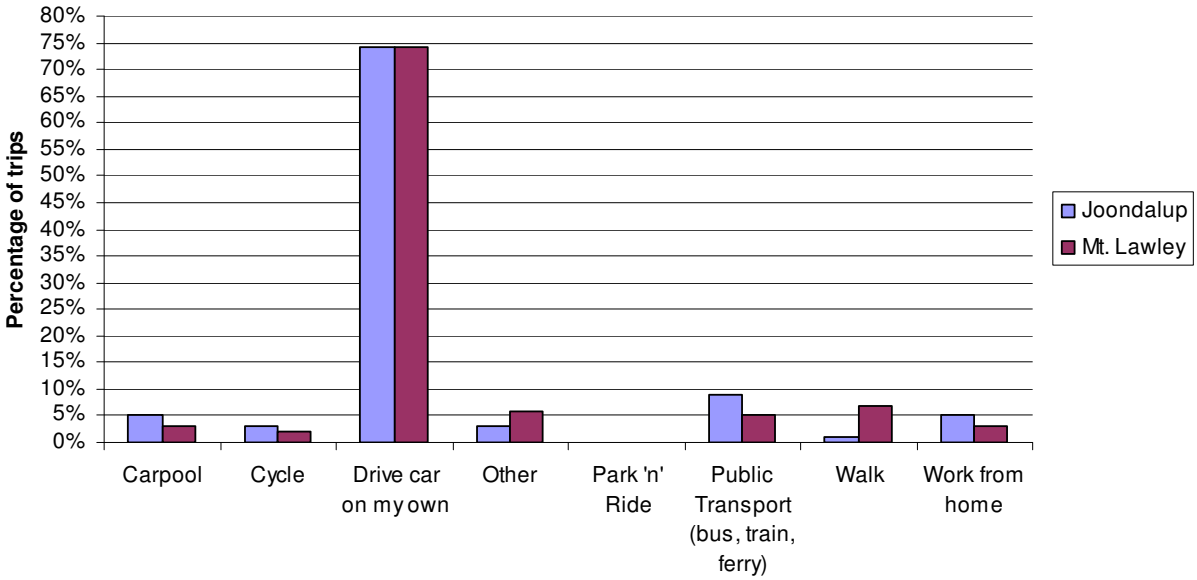


Figure 3.1- Travel mode comparison between employees working at Mount Lawley and Joondalup.

Of the five most common reasons for driving alone, convenience was the main reason given by employees followed by the travel time required. 21% of responses indicated that they needed to drop off or pick up family or friends on the way to or from work.

Both 'convenience' and 'travel time' can be seen as highly subjective reasons for choosing a particular mode of travel and there may be a significant number of respondents who perceive alternatives to car travel as inconvenient and time consuming when these could become viable travel modes if further explored.

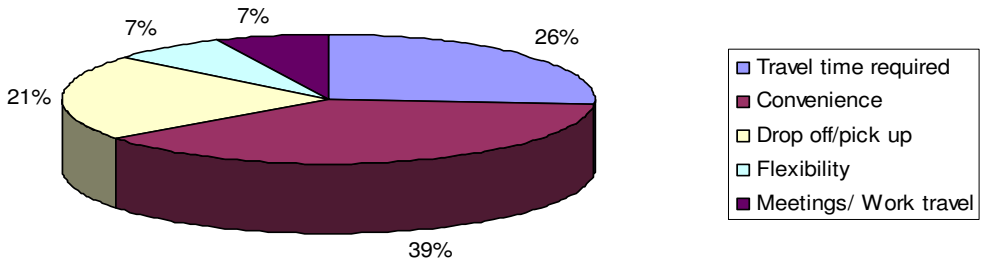


Figure 3.2- Most common reasons why staff chose to drive alone as their main travel mode

3.3 Joondalup Campus

Comparison of employees who live locally (within approximately 10kms) to the Joondalup campus with the total respondent cohort indicate that employees living locally were more likely to drive alone to and from the university than those living further away (>10kms).

This behaviour could be explained by the level of convenience offered by driving versus catching public transport over shorter distances. For example the time required to drive from Perth to Joondalup is more comparable with travel by train, but for shorter trips driving is quicker. A 10 minute car trip could equate to a 20-25 minute bus trip, whereas a 30 minute car trip might equate to a 45 minute train ride (including walking between destinations). The lower proportion of trips made by employees living locally using public transport supports this theory.

However this result shows that staff living closer to campus could be targeted with walking and cycling information and, if parking were to become an issue, could be charged a higher rate for parking permits to encourage use of alternatives.

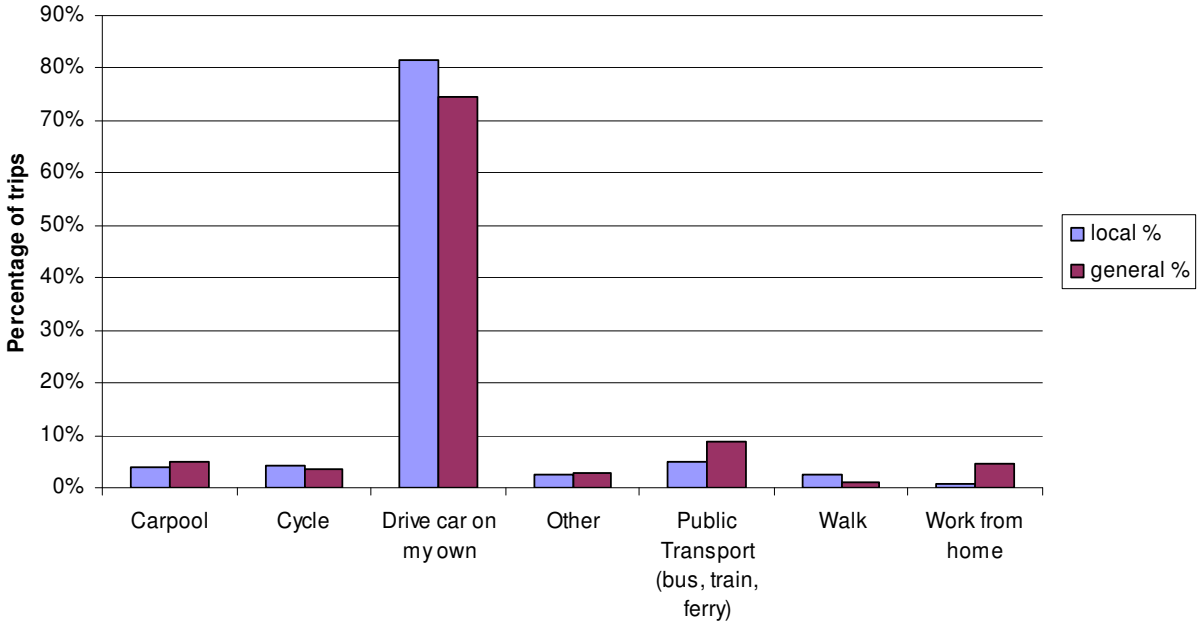


Figure 3.3- Travel mode comparison between employees living locally to ECU Joondalup and the total respondent cohort.

3.4 Mount Lawley Campus

Comparison of travel behaviour of employees living close to (within approximately 10km) and further away from the Mount Lawley campus reveals that unlike at Joondalup, Mount Lawley staff who live close to the campus drive less (53% of trips) than the general staff population (74%). Instead the survey recorded higher incidences of walking, cycling and carpooling.

This may be explained by the higher density of housing surrounding Mount Lawley, thus increasing the walkability to and from the campus as well as the increased time taken to travel shorter distances due to traffic congestion during peak times.

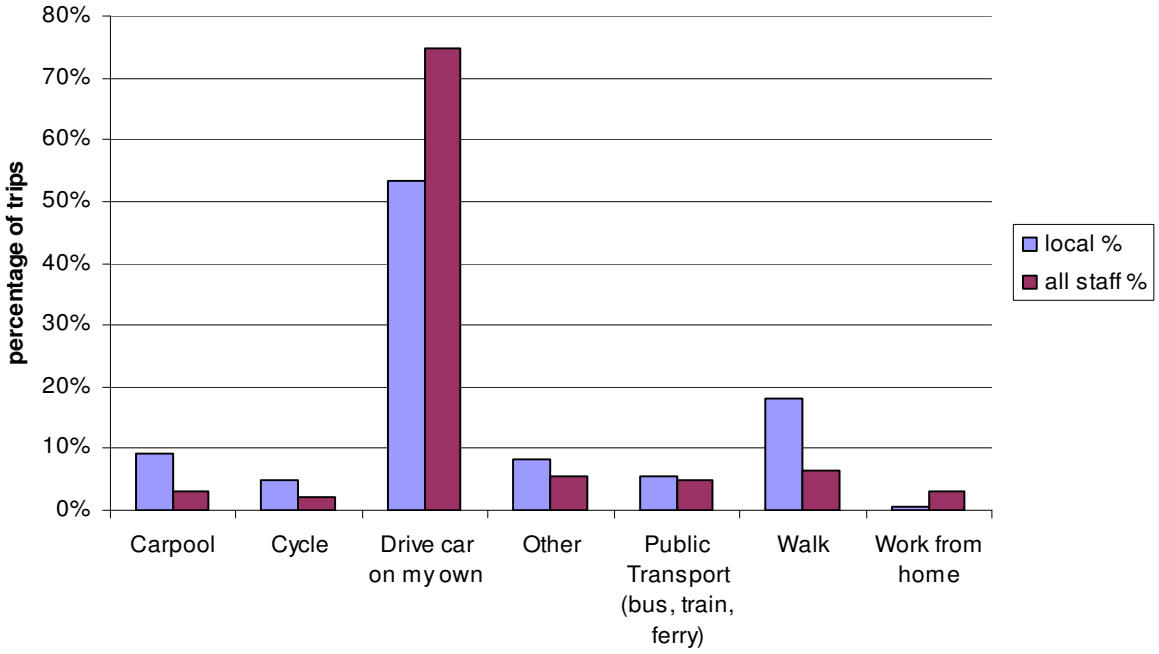


Figure 3.4- Travel mode comparison between employees living locally to ECU Mount Lawley and the total respondent cohort.

3.5 Business Trips

Survey results suggest that staff utilise their own vehicles to attend work-related meetings or for inter-campus travel significantly more than using a fleet vehicle. Many of these trips may be made on the way to or from work.

If this is the case, the provision of corporate SmartRiders to enable work-related travel by public transport is likely to significantly reduce the number of cars brought onto campus by employees, as staff will be able to combine a work trip with a home trip.

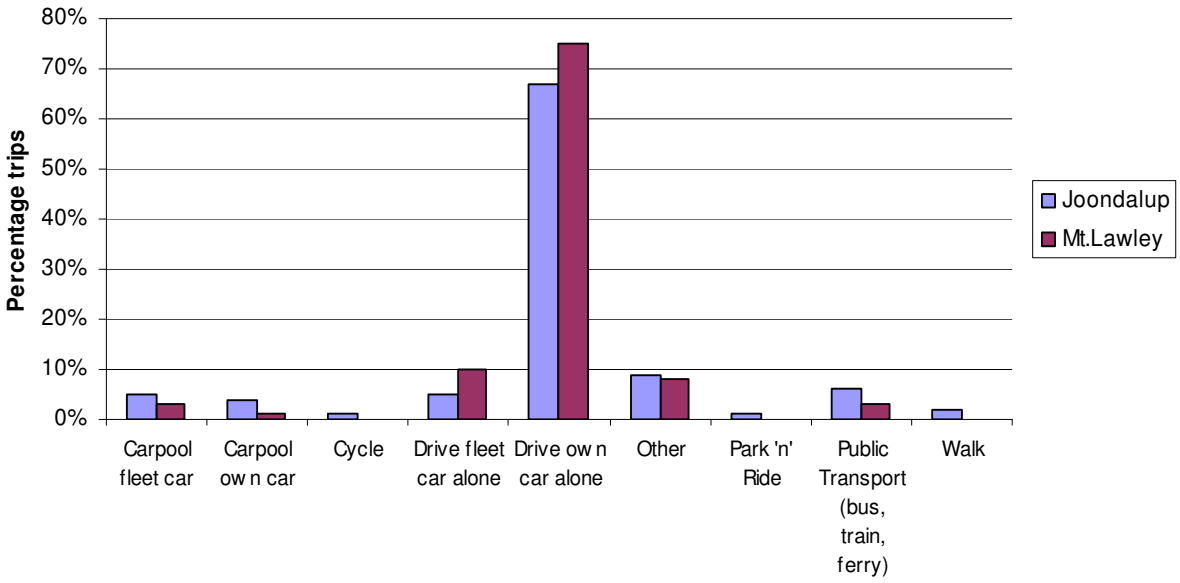


Figure 3.5- Travel mode comparison between Mount Lawley and Joondalup business trips.

4. Student Travel Behaviour

4.1 Student Travel Summary

Intercept surveys were undertaken with students to ascertain how students commute to and from the city campuses. Additionally, an online email survey was undertaken in 2006 to find out how local students travelled and why they made these travel choices. The primary findings of the surveys are:

- 58% of trips to/from Joondalup campus and 46% of trips to/from Mount Lawley campus made by students surveyed consisted of driving alone in 2007.
- Students who live within 10kms of the campus they attend drive alone less than the total respondent group.
- Students who live further from the campus they attend utilise public transport more while students living locally tend to walk or cycle more than the total respondent cohort.
- The number of student trips driving alone is trending upwards at Joondalup and downwards at Mount Lawley.
- The uptake of public transport use is trending upwards at Mount Lawley.
- Walking and cycling are more predominant forms of transport at Mount Lawley than at Joondalup.
- Saving time, use of a car before or after university and less forward planning were the reasons given as 'most important' for choosing to drive alone. The reasons given for choosing to drive alone did not differ significantly between campuses.

4.2 Methodology

An annual intercept survey has been delivered to ECU students attending Mount Lawley and Joondalup campuses since 2003. The survey seeks to record trends in the way students at these campuses travel to and from the university, how often and how they rate cycling and public transport facilities.

Between 500-800 students are surveyed at each campus, with an exception of 2006 where less than 100 students were surveyed. For this reason the data collected in 2006 has not been used to map out trends, although it has been included in the relevant graphs for reference in this report. Comparisons between student travel behaviour use the most recent (2007) survey data unless otherwise specified.

In 2006 an additional email survey was sent to students who lived in suburbs within about 10km of the Mount Lawley and Joondalup campuses. The survey sought to ascertain how students living locally to these campuses travelled and why they made these travel choices. 5,345 email surveys were sent out and over 1,000 responses were received resulting in a 20% response rate.

4.3 Joondalup campus

Results from the 2006 email survey showed that students living locally to and attending the Joondalup campus chose to drive alone 49% of the time compared with the general Joondalup student population who drove alone 58% of the time in 2007.

Incidences of walking and cycling at 18% and 5% respectively were found to be significantly (in the case of walking) higher than the general Joondalup student population surveyed in 2007 (5% and 2% respectively).

The survey showed that the bus and train are poorly utilised (9%) by students living close to Joondalup compared with the general survey population who made 24% of their

trips using public transport. This result is to be expected due to the larger amount of time required to take public transport over shorter distances versus walking or cycling.

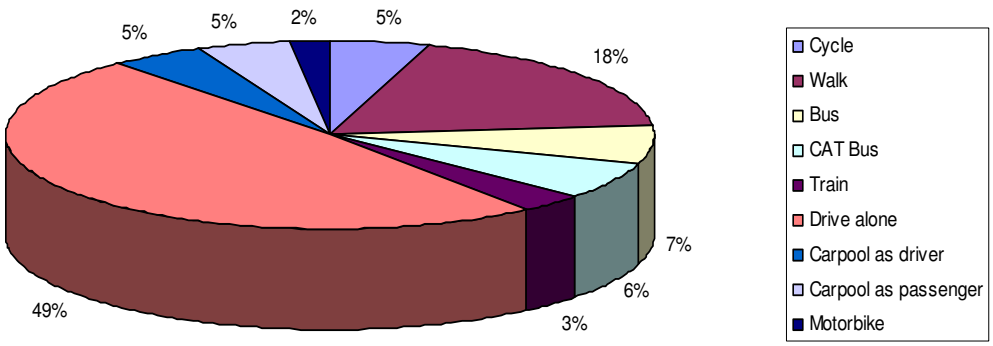


Figure 4.1- Local student travel modes at Joondalup (2006).

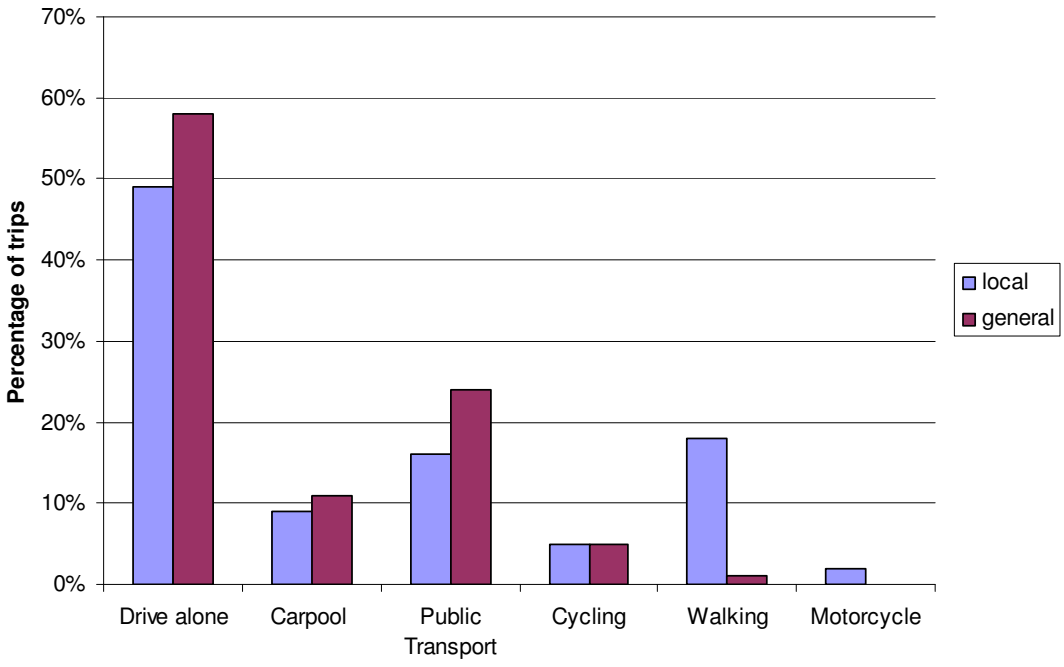


Figure 4.2- Travel mode comparison between students living locally and the total respondent cohort at Joondalup.

When 2006 email survey participants were asked the reasons why driving alone was their preferred option, the most common answer given by respondents as 'very important' was the travel time required (42%). While often this perception is just that, in cases where

commuters live close to their destination this may be a reality, as unless respondents live on or close to the Perth-Joondalup train line or a bus route that services the campus directly, a car trip will take significantly less time than public transport.

The higher incidence of public transport use by the general student population indicates that there is less difference in the time required to travel to the campus by car or by public transport (i.e.: 30 minutes by car versus 45 minutes by train).

The next most common 'very important' response rate (36%) was that cars were required before and/or after uni for work, for picking up children or running errands. 'Less forward planning' rated third highest as a very important reason why students drove alone (24%).

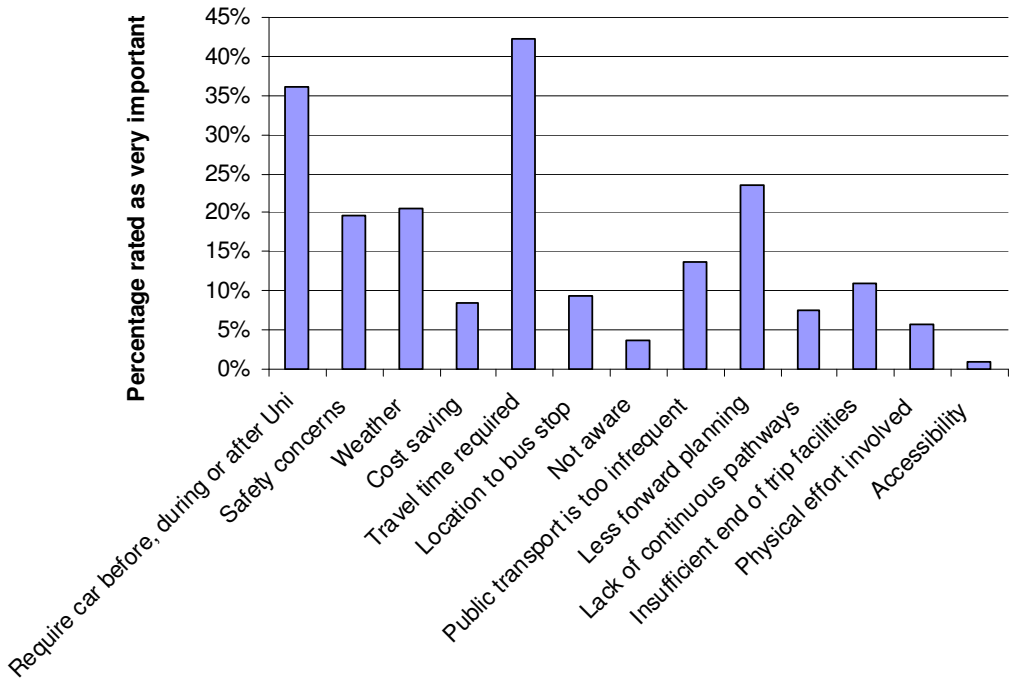


Figure 4.3- Percentage rated as 'very important' as reasons to drive to Joondalup.

Trend data collected from student intercept surveys since 2003 at the Joondalup campus indicate a gradual increase in the proportion of trips made as a driver alone and a corresponding decrease in the proportion of trips made using public transport and carpooling. Cycling and walking remain very low within the general Joondalup student population.

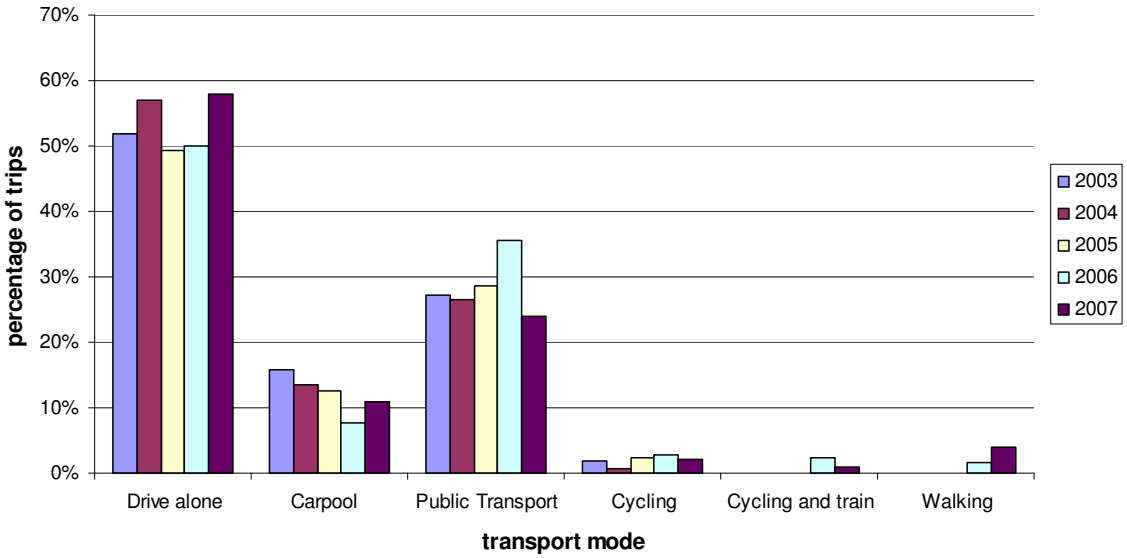


Figure 4.4- Student travel mode trends for Joondalup (2003-2007).

Private car use remains the dominant transportation mode for students attending the Joondalup campus, with the percentage of trips made by walking and cycling under 5%. One explanation for the low take-up of walking and cycling by the broader student population is the distance that many students travel to attend the Joondalup campus and the low population density of the City of Joondalup.

4.3 Mount Lawley Campus

Survey results for students attending the Mount Lawley campus were similar to those obtained at Joondalup. Driving alone was the most popular mode of transport for students living locally to the Mount Lawley campus with 37% of trips generated this way. In comparison the general student population attending Mount Lawley chose to drive alone 46% of the time.

Walking and cycling in the local student population made up 26% and 12% of total trips respectively. The general student population walked 8% and cycled 5% of the time. Walking to Mount Lawley is facilitated by the number of shared paths and the higher density of accommodation available close by.

The survey showed that 29% of trips made by the general student population comprise public transport and this proportion drops to 11% in the local population.

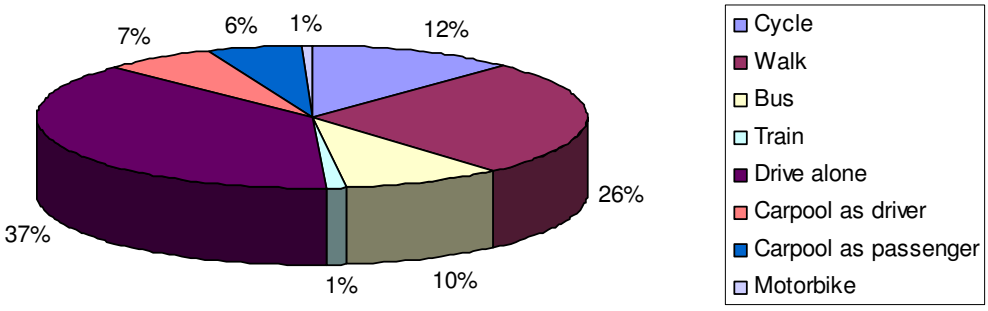


Figure 4.5- Local student travel modes at Mount Lawley (2006).

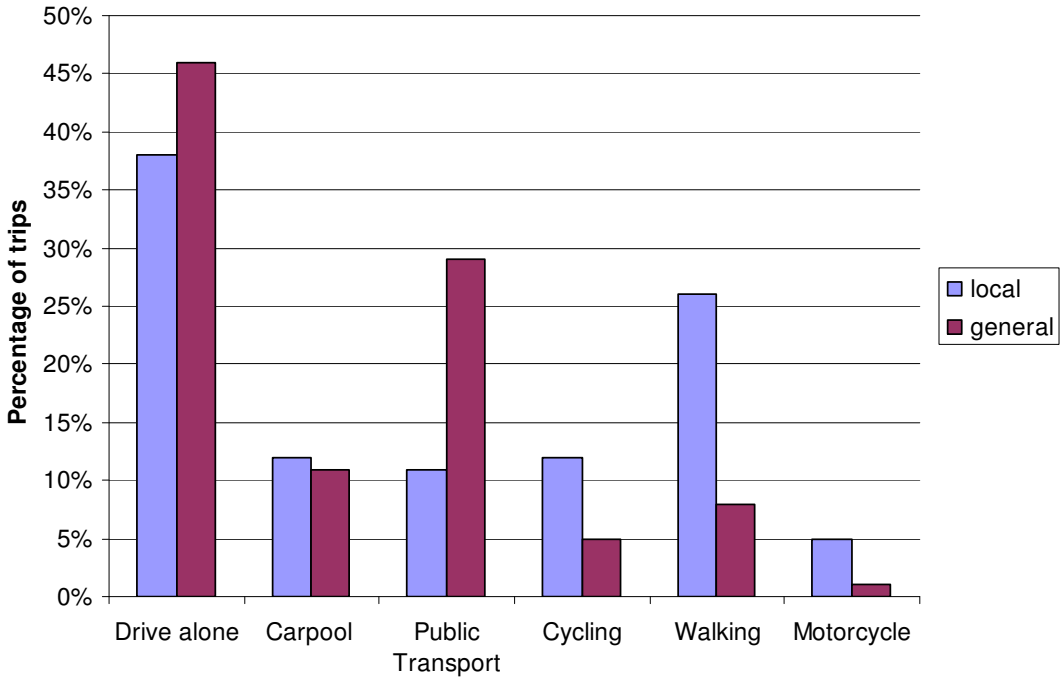


Figure 4.6- Travel mode comparison between students living locally and the total respondent cohort at Mount Lawley.

When asked the reasons why driving alone was the preferred and/or most common option, the most common answer given by respondents was travel time required (39%).

For shorter trips (i.e.: less than 10km from origin to destination) this may be the case, as waiting for buses and often having to take them into then out of the city can take up more time than the 10 minutes required to drive.

The next most common response (35%) was that cars were required before and/or after uni for work, picking up children, shopping etc. again this could in fact be true but in many cases probably reflects a lack of planning on the behalf of the students.

Safety (24%), weather (26%) and less forward planning (25%) also rated highly as reasons for driving alone.

These results are almost identical to those attained for students living locally to Joondalup which indicates that local factors are probably not responsible for the decision by ECU students to commute primarily by car.

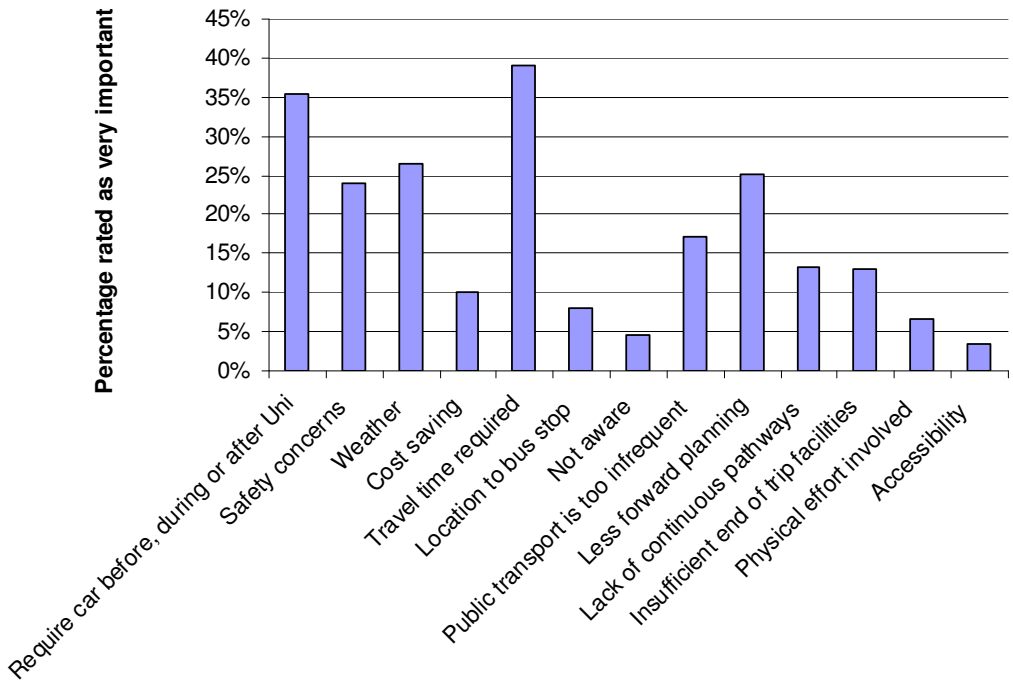


Figure 4.7- Reasons why students living locally chose to drive to Mount Lawley.

Trend data collected through intercept surveys from the general student population since 2003 indicate that the use of public transport to commute to and from Mount Lawley is increasing over time while driving alone and walking as a mode of transport is steadily declining. Cycling and carpooling trips are remaining relatively stable over time.

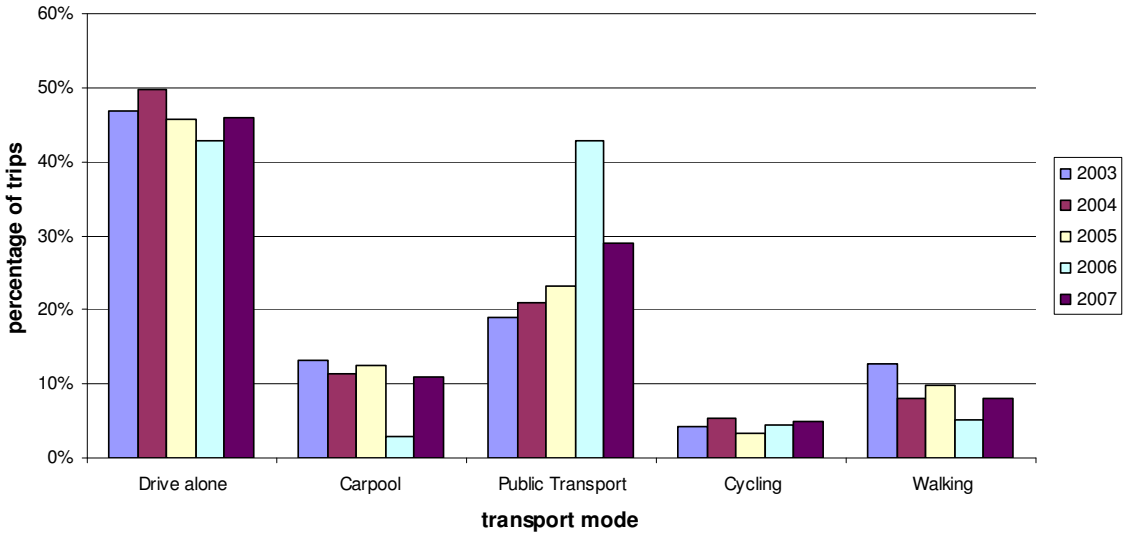


Figure 4.8- Student travel modes trends at Mount Lawley (2003-2007)

5 Discussion & Strategies for Change

Mode shift from single occupant vehicle use to cycling, walking, carpooling or public transport does not have to occur for every trip made to be effective in achieving the aims of this Plan. Nor does it have to occur for every member of the university community, and indeed cannot, as for many trips people need to drive (e.g. need to pick up children or no viable public transport).

However there are also a proportion staff and students who choose to drive but do have the opportunity to change their travel behaviour. Travel choices are often made based on perceptions or biases rather than fact, so a major strategy of Green Transport Plans is to provide information and encouragement in order to allay negative perceptions and to highlight the benefits of mode shift away from car use.

These may include the perception that public transport takes too long, requires too much forward planning or that there are insufficient end-of-trip facilities. Part of the role of Facilities and Services is to market the alternatives, how easy they are to adopt and the services that are provided on campus for those who wish to utilise them.

There are however some significant actual barriers to adopting more sustainable forms of transport. It is important that these barriers are removed or reduced in order to achieve travel mode shift. For example if there are not enough shower facilities or lockers for cyclists, this will make it an unattractive prospect for people to take up or even continue cycling. Similarly is there is ample cheap parking and/or pool vehicles available, alternative forms of transport appear relatively unattractive.

Complementing the removal of significant barriers to change is the provision of incentives for both staff and students to adopt sustainable alternatives. Integrated, flexible incentive and reward programs (particularly if they result in actual or perceived cost savings) are important strategies to encourage behaviour change. However they must be appropriate to the situation and proportionate to the level of change sought or they will not facilitate the changes desired.

Importantly, whatever strategies are adopted, they should be integrated within existing systems to ensure effective implementation. Outlined below are strategies aimed at satisfying the objectives aligned with this Plan.

5.1 Information and Communication

Addressing negative perceptions of public transport and providing information on the alternative options to driving alone.

When asked the question 'How important are the following reasons for why you do not walk, cycle or take public transport to and from ECU more frequently?', 'Not aware' scored less than 5% of the 'Very Important' votes for both Mount Lawley and Joondalup campuses. So it appears that lack of information is not a significant factor in the travel choices made by students living locally to the campus at which they attend.

ECU has maintained a TravelSmart Program (aimed primarily at students) for the past five years. Communications incorporate web pages, delivering presentations during student orientations, posters, bumper stickers, maintaining bus and train timetables at various locations on campus and media stories through internal publications and newsletters. To date the TravelSmart Program has been aimed at students, with little attention given to staff travel.

Recommendations:

- Develop a communications strategy to allay the negative perceptions about public transport targeted at employees.
- Incorporate information on sustainable travel options into staff induction packages.

- Improve linkages with TravelSmart web pages throughout the ECU website
- Continue to maintain up-to-date TravelSmart campus maps and distribute to employees and students.
- Continue to incorporate TravelSmart information into student orientation events and packs.
- Link the promotion of walking and cycling with Sports Centre promotions and the ECU Corporate Health Program.
- Review bicycle parking signage to ensure it is consistent and appropriate for attracting attention to parking areas.

5.2 Infrastructure and Services

Parking provision is an important component of any University access strategy. However plentiful, cheap and conveniently located parking, whether alternative transport options are available or not, will tend to provide an irresistible incentive to staff and students to utilise a car as their primary transportation.

Providing information, encouragement and public transport access to the campus will only facilitate those already engaging in the desired behaviours to maintain them and perhaps encourage those already contemplating change.

Parking provision has risen by 46% at Joondalup and 29% at Mount Lawley since 2002. At both campuses parking utilisation rarely exceeds 70%, meaning that a significant amount of parking space is available at most times. The Integrated Transport Plan (2002) recommended that parking be capped at 2008 and 2010 Master Plan levels for Joondalup and Mount Lawley respectively, however parking at Joondalup has exceeded this cap. The report also recommended a ratio of 33 bays per EFTSL with a view to increasing this number over the medium to long term. Since 2002 this ratio has dropped to 27-28 bays per EFTSL.

Therefore parking management, alongside the adequate provision of public transport services and cycling/walking infrastructure should be approached in an integrated manner to provide significant incentive to adopt environmentally friendly travel behaviours.

To support cycling, three types of infrastructure are required on university campuses:

- Cycling networks linking to and through the campus,
- Bicycle parking, and
- Shower, change and locker facilities.

Whereas the Mount Lawley campus is relatively flat, Joondalup is oriented along a sloping axis with a stairway linking the north-western and the south eastern ends of the campus. This spine of stairs impedes cycling around the campus as it forces cyclist to use the roadways. This does not readily facilitate cycling as cyclists must either navigate the stairs or use the switch-back ramps or roads throughout the campus.

Bicycle parking is well-located at Mount Lawley campus, being predominantly situated outside building entries. At Joondalup there are several instances where bicycle parking is poorly located in areas that are inconvenient or insecure/not visible (ie: behind Building 19) or in areas that are exposed to the weather and highly visible from the roads (i.e.: at the ends of Building 2). Undercover and secure bicycle parking is offered on both campuses however is in general under-utilised, possibly through lack of communication that it is there.

In general the shower and change facilities at Joondalup are good, however on both campuses there is a shortage of lockers available to cyclists for both short and long term

storage. Showers are not available to cyclists at Mount Lawley unless they are a member of the Sports and Recreation Centre.

Both Mount Lawley and Joondalup campuses are relatively well-serviced by public transport, although it is noted that the services running east-west to both campuses often require at least one service change and therefore can take significantly longer than corresponding north-south services.

Of note are the suburbs of Ellenbrook, Wanneroo, Joondanna and Inglewood- suburbs that are adjacent to Joondalup and Mount Lawley campuses (respectively) and require lengthy trips and service changes as opposed to a relatively short car journey.

Despite relatively good public transport provision to both campuses and an ongoing TravelSmart information campaign, survey results have found little change in the use of private vehicles as the dominant means of commuting for students over the past five years. Instead mode shift appears to be occurring between cycling and walking and public transport (probably due to the increasing distance travelled from home to university).

This indicates that the number of students likely to change their behaviour away from car travel as a result of information alone has stabilised. It is recommended that the barriers to adopting alternatives to the car and the available incentives be investigated

Recommendations

- Review future parking provision and formalise a parking cap for both metropolitan campuses.
- Review 'pay per day' parking as the main form of ticketing.
- Investigate the feasibility of increasing public transport connectivity between the Joondalup campus and the suburbs to the east such as Ellenbrook.
- Investigate the feasibility of increasing public transport connectivity between the Mount Lawley campus and the neighbouring suburbs in an east-westerly location such as Joondanna, Leederville, Bedford and Inglewood.
- Review the locker management system through the FMO and Sports and Recreation Centres to ensure that lockers are efficiently utilised and promoted.
- Communicate locker availability in underground carparks through the Sports and Recreation Centres.
- Install bus shelters at CAT stops including service information on Joondalup campus.
- Review the provision of shower and locker facilities on the Mount Lawley campus, particularly with respect to new buildings and refurbishments.
- Develop guidelines for the provision of appropriate bicycle parking facilities on campus, ensuring high usability and integration with the campuses 'look and feel'.
- Develop a business case for 'Pay & Display' parking model whereby some revenue can be used to fund improvements to alternative transport access and facilities.

5.3 Policy and Procedure

Another significant barrier to the use of alternative forms of transport is the manner in which parking permits are issued. Staff and students are able to purchase an annual permit and once having done so are unlikely to spend what would be considered 'extra' money on public transport.

By developing policy and procedure that supports and complements the infrastructure, the University can further encourage staff and students to utlise alternatives to the private vehicle.

Recommendations

- Investigate developing an incentives/rewards scheme for carpooling.
- Investigate providing employees with SmartRiders for use on business-related trips.
- Investigate salary packaging bicycles and SmartRiders.
- Develop a policy/guidelines promoting teleconferencing instead of car travel for staff business trips.

5.4 Managing the University Fleet

The provision of fleet vehicles to staff provides a strong incentive to support driving. In some cases fleet cars are the only feasible option for business or intercampus travel, however many trips could be either avoided or made using public transport.

Where trips cannot be either avoided or made using an alternative form of transport, consideration may be given to increasing the fuel efficiency of the fleet and offsetting the carbon emissions generated from the fleet.

Recommendations

- Continually review fleet with the view of reducing numbers and size of vehicles.
- Amend the online Vehicle Management System (VMS) so that staff may view vehicle bookings to determine vehicle sharing opportunities.
- Improve the VMS to allow reports to be generated on greenhouse emissions.
- Introduce hybrid vehicles into the University fleet.
- Continually monitor the market for the most efficient vehicles based on GVG ratings. Increase the efficiency of the fleet- fuel, numbers, size, distance travelled etc measure thru GVG ratings.
- Actively promote alternatives to single occupant vehicle use to University staff.
- Continue to offset the greenhouse gas emissions generated from the fleet.

5.5 Implementation and Review

Without the support and commitment of staff within the University to this plan, many of the recommendations outlined within the action plan will not be implemented. It is therefore important that this plan is resourced appropriately and integrated into the everyday operations of the relevant university administrative centres and faculties.

Recommendations

- Establish a representative working group to review the implementation of the Green Transport Plan.
- Develop a strategy for the integration of the action items into the appropriate operational plans.
- Review the plan by July 2010, including evaluation of travel behaviour changes and consultation with staff, students and external stakeholders.
- Integrate Green Transport Plan actions and performance indicators into the Environmental Management System.

6 Performance Indicators

Factor	Measure	2007 Baseline	Target
Employee SOV mode share for commute trips	% trips SOV	JO- 74% ML- 74%	Reduce
Employee SOV mode share for inter-campus travel	% trips SOV	JO- 72% ML- 85%	Reduce
Student SOV mode share	% trips SOV	JO- 58% ML- 46%	Reduce
Employee car-sharing for commute trips	% trips car-sharing	JO- 5% ML- 3%	Increase
Student car-sharing	% trips car-sharing	JO- 11% ML- 11%	Increase
Employee cycling and walking for commute trips	% trips cycling and walking combined	JO- 4% ML- 9%	Increase
Student cycling and walking	% trips cycling and walking combined	JO- 7% ML- 13%	Increase
Public transport use by employees	% trips combined public transport	JO- 9% ML- 5%	Increase
Public transport use by students	% trips combined public transport	JO- 24% ML- 29%	Increase
Fleet efficiency	CO_2 emissions per km travelled Avg Green Vehicle Guide rating for pool fleet	Fleet- 0.316 kg Pool- 0.285 kg Unknown	Reduce Increase

7 Recommended Actions

Number	Priority	Actions	Who	When	Resources	Progress
1	Information and Communication					
1.1	M	Improve linkages with TravelSmart web pages throughout the ECU website	KITSC, EO	Mar 08	NA	
1.2	H	Integrate transport information into staff induction program and package	PD, EO	April 08	Provided	
1.3	H	Continue to deliver TravelSmart Information to students during orientation	EO	Ongoing	Provided	
1.4	M	Promote transport alternatives through Green Office Program	EO, Green Office Reps	Ongoing	Provided	
1.5	M	Develop a strategy aimed at communicating the benefits of alternative transport, including profiling staff who take alternative transport	CMO	Quarterly	Provided	
1.6	L	Hold bike to work breakfasts/walking events, link with Bikeweek and Walk Week	Guild EO	Annual	Provided	
1.7	M	Develop partnerships with local bike shops to offer discounts to student	Guild EO	Feb 08	NA	

Number	Priority	Actions	Who	When	Resources	Progress
		and staff cyclists				
1.8	M	Facilitate the development of a Bicycle Users Group	EO, Guild EO	Feb 08	NA	
1.9	H	Ensure that bicycle parking is displayed correctly on campus maps	P&D	Feb 08	Provided	
1.10	H	Promote bicycle cages and lockers to cyclists	FMO, ECU Sports	Feb 08		
2	Infrastructure and Services					
2.1	M	Investigate providing a short-term 'cloakroom' type service for cyclists	CS	April 08	NA	
2.2	H	Review current locker management system through FMO's	FMO's	April 08	NA	
2.3	H	Investigate the potential growth of student numbers in suburbs east of Joondalup to inform transport planning	CS	2009		
2.4	M	Investigate feasibility of increasing public transport connectivity between the Joondalup campus and suburbs to the east such as Ellenbrook	CS	2009	Requires funding	
2.5	H	Investigate feasibility of increasing east-west public transport	CS	2009	Requires funding	

Number	Priority	Actions	Who	When	Resources	Progress
		connectivity for the Mount Lawley campus				
2.6	H	Develop business case for 'Pay & Display' parking model whereby some revenue can be used to fund improvements to alternative transport access and facilities	CS	June 08		
2.7	M	Review future parking provision above current levels and formalise cap on parking bay numbers at both metropolitan campuses	CS	Ongoing		
2.8	H	Investigate numbers of staff, students likely to utilise an intercampus shuttle bus	CS	2008		
2.9	H	Install shelters with service information at on-campus CAT Bus stops at Joondalup	P&D	2008	Requires funding	
2.10	M	Initiate dialogue with PTA towards better public transport provision in the future	CS	2009		
2.11	H	Review bicycle parking signage to ensure that it is consistent and appropriate for attracting attention to parking areas	P&D	2008		

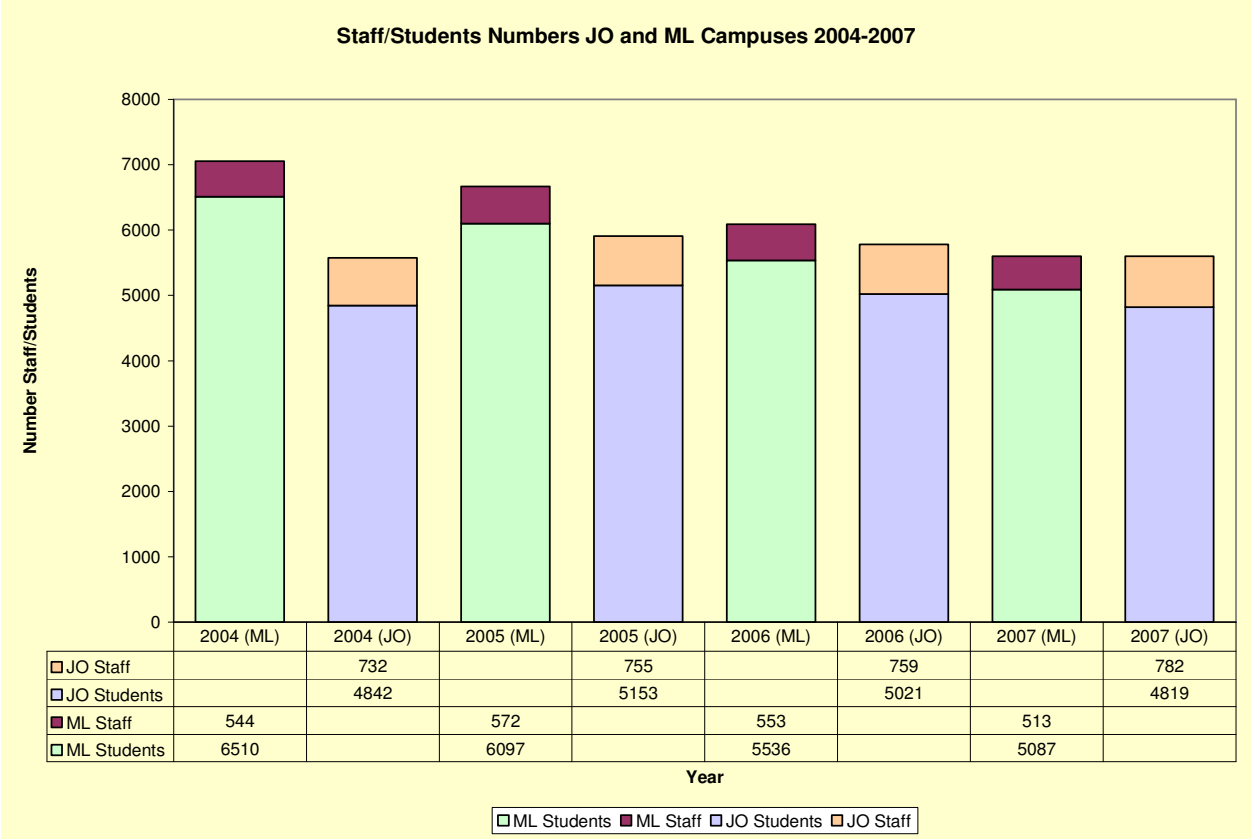
Number	Priority	Actions	Who	When	Resources	Progress
2.12	H	Investigate developing better linkages for cyclists at Joondalup	P&D, EO	2008	NA	
2.13	M	Increase the provision of lockers and showers on the Mount Lawley campus outside of the Sports Centre	P&D	2010	Requires funding	
2.14	H	Survey registered carpoolers about the online system and their travel mode change	EO	May 08	Provided	
2.15	H	Investigate the feasibility of providing a rewards package to carpoolers	CS, EO	2008	Provided	
2.16	L	Hold coffee club breakfasts to encourage carpooling	EO	2008	Provided	
2.17	M	Develop linkages between the promotion of walking and cycling with Sports Centre promotions and the ECU Corporate Health Program	ComS, EO	2008		
3	Policy and Procedure					
3.1	M	Develop a program to provide incentives for staff who utilise alternative transport	HR, EO	2009		
2.3	H	Develop a policy around the use of SmartRiders for business trips	HR, EO	2008	NA	

Number	Priority	Actions	Who	When	Resources	Progress
3.3	H	Make SmartRiders available for staff to use for business trips	HR, EO	2008	Requires funding	
3.4	H	Investigate salary packaging bikes and public transport fares (through SmartRiders)	HR	2008		
3.5	M	Lobby federal government to change FBT rules that impede green commuting incentives [no supporting text for this in the plan to explain why a problem]		Ongoing		
3.6	M	Investigate options for tele-working and/or more flexible working hours	HR	2009		
3.7	M	Develop policy/guidelines on usage of video conferencing facilities versus travel to meetings		2009		
3.8	M	Improve help service for teleconferencing facilities and promote its use to staff		2009		
3.9	M	Develop guidelines for the provision of appropriate cycle parking facilities on campus (linked to Austroads guidelines)	P&D, EO	2009		

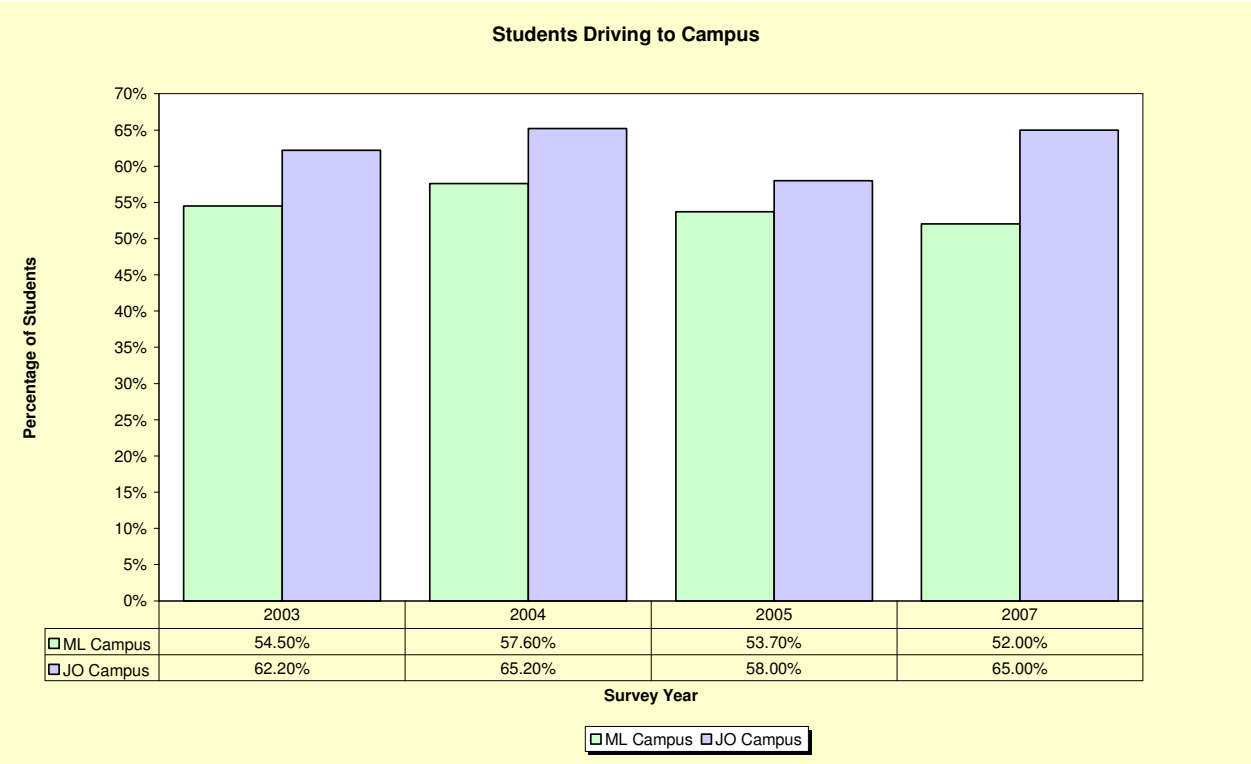
4	Managing the University Fleet					
4.1	H	Investigate the feasibility of introducing the use of high octane fuel into the fleet	CS	March to June 2008		
4.2	H	Continually review fleet with the view of increasing efficiency	CS	Ongoing		
4.3	M	Continue to offset carbon emissions generated by the University fleet	CS	Annually	Requires funding	
4.4	H	Investigate a 'van pool' system for shopping trips on dedicated days throughout the week	CS	2008		
4.5	M	Introduce hybrid vehicles into the fleet	CS	2008	Requires funding	
4.6	H	Provide a fleet booking system that allows staff to choose to carpool between campuses	CS	2008		
5	Implementation and Review					
5.1	H	Establish a representative working group to review the implementation of the Green Travel Plan	Director F&S	2008		

8 Appendices

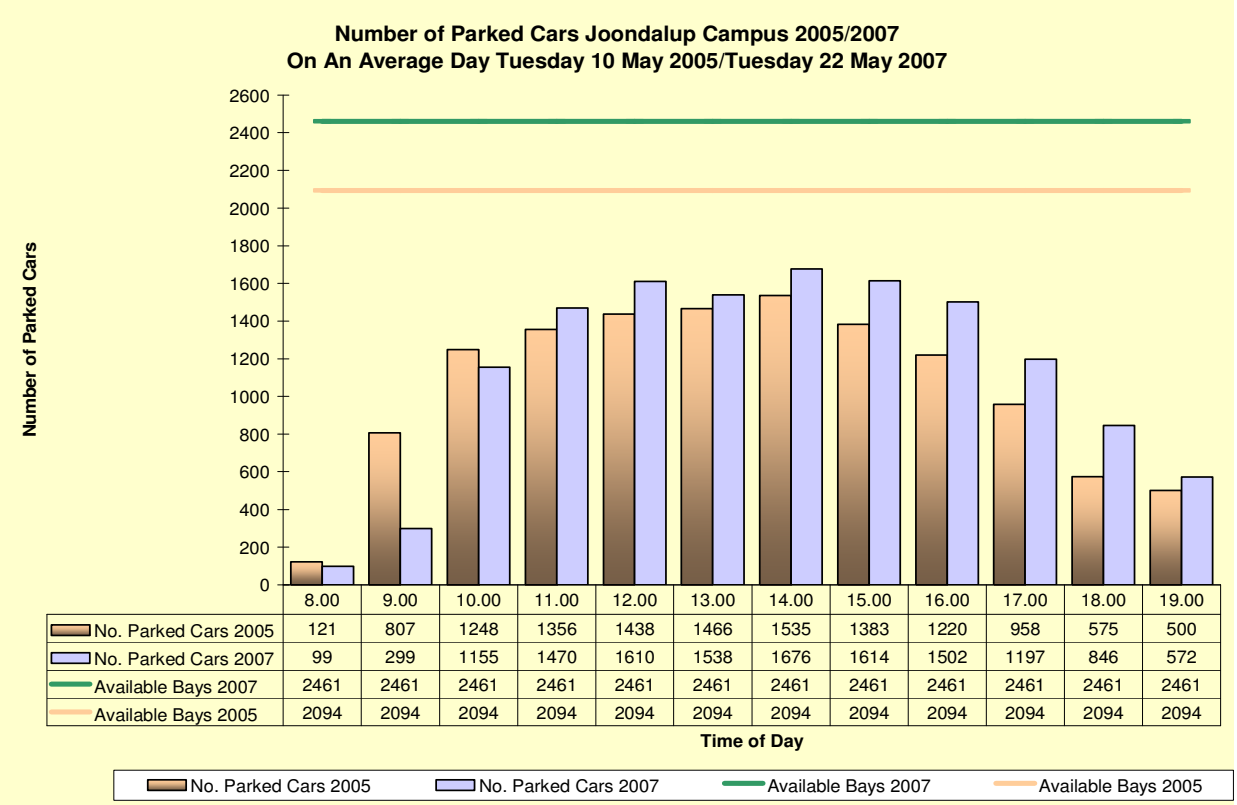
Appendix 1
2007 Carpark Audit Results



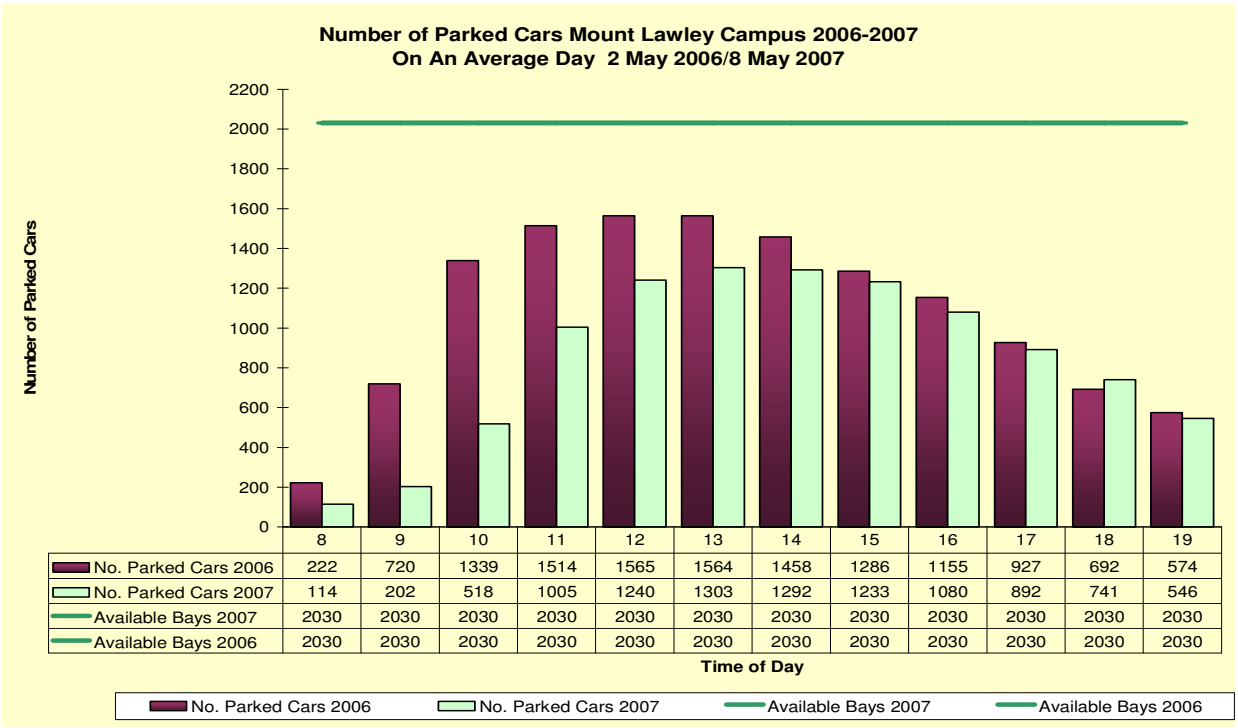
	2004 (ML)	2004 (JO)	2005 (ML)	2005 (JO)	2006 (ML)	2006 (JO)	2007 (ML)	2007 (JO)
JO Staff		732		755		759		782
JO Students		4842		5153		5021		4819
ML Staff	544		572		553		513	
ML Students	6510		6097		5536		5087	



	2003	2004	2005	2007
ML Campus	54.50%	57.60%	53.70%	52.00%
JO Campus	62.20%	65.20%	58.00%	65.00%



	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00	19.00
No. Parked Cars 2005	121	807	1248	1356	1438	1466	1535	1383	1220	958	575	500
No. Parked Cars 2007	99	299	1155	1470	1610	1538	1676	1614	1502	1197	846	572
Available Bays 2007	2461	2461	2461	2461	2461	2461	2461	2461	2461	2461	2461	2461
Available Bays 2005	2094	2094	2094	2094	2094	2094	2094	2094	2094	2094	2094	2094



	8	9	10	11	12	13	14	15	16	17	18	19
No. Parked Cars 2006	222	720	1339	1514	1565	1564	1458	1286	1155	927	692	574
No. Parked Cars 2007	114	202	518	1005	1240	1303	1292	1233	1080	892	741	546
Available Bays 2007	2030	2030	2030	2030	2030	2030	2030	2030	2030	2030	2030	2030
Available Bays 2006	2030	2030	2030	2030	2030	2030	2030	2030	2030	2030	2030	2030

Appendix 2

Joondalup CAT Bus Timetable

Route 10		Route 11	
1	Joondalup Station Stand 9	20	Joondalup Station Stand 8
2	Edith Cowan University	21	Joondalup Central Park
3	Student Guild	22	Boas Ave
4	Student Village	23	Joondalup Health Campus
5	Child Care	24	Centrelink Joondalup
6	Lakeside Dr	25	Joondalup City Council
7	Police Academy	26	Joondalup City Library
8	TAFE Joondalup	27	TAFE Joondalup
9	Joondalup City Library	28	Police Academy
10	Joondalup City Council	29	Lakeside Dr
11	Centrelink Joondalup	30	Child Care
12	Joondalup Health Campus	31	Student Village
13	Boas Ave	32	Student Guild
14	Joondalup Central Park	33	Grand Blvd Car Park

Joondalup CAT *timetable* 10

Weekdays

Train from Perth			Joondalup Train Stn	Joondalup Train Stn	Train to Perth	
Perth Train Stn	Joondalup Train Stn				Joondalup Train Stn	Perth Train Stn
7:30 C	7:53	am	7:58	8:10	8:14 C	8:38
7:45	8:10		8:13	8:25	8:31	8:57
7:54 C	8:17		8:28	8:40	8:43	9:09
8:12	8:37		8:43	8:55	8:58	9:24
8:28	8:53		8:58	9:10	9:13	9:39
8:44	9:09		9:13	9:25	9:28	9:54
-	-		9:28	9:40	9:43	10:09
9:15	9:40		9:43	9:55	9:58	10:24
9:30	9:55		9:58	10:10	10:13	10:39
9:45	10:10		10:13	10:25	10:28	10:54
10:00	10:25		10:28	10:40	10:43	11:09
10:15	10:40		10:43	10:55	10:58	11:24
10:30	10:55		10:58	11:10	11:13	11:39
10:45	11:10		11:13	11:25	11:28	11:54
11:00	11:25		11:28	11:40	11:43	12:09
11:15	11:40		11:43	11:55	11:58	12:24
11:30	11:55		11:58	12:10	12:13	12:39
11:45	12:10	pm	12:13	12:25	12:28	12:54
12:00	12:25		12:28	12:40	12:43	1:09
12:15	12:40		12:43	12:55	12:58	1:24
12:30	12:55		12:58	1:10	1:13	1:39
12:45	1:10		1:13	1:25	1:28	1:54
1:00	1:25		1:28	1:40	1:43	2:09
1:15	1:40		1:43	1:55	1:58	2:24
1:30	1:55		1:58	2:10	2:13	2:39
1:45	2:10		2:13	2:25	2:28	2:54
2:00	2:25		2:28	2:40	2:43	3:09
2:15	2:40		2:43	2:55	2:58	3:24
2:30	2:55		2:58	3:10	3:13	3:39
2:45	3:10		3:13	3:25	3:29 C	3:53
3:00	3:25		3:28	3:40	3:52	4:18
3:15	3:40		3:43	3:55	4:01 C	4:25
3:30	3:55		3:58	4:10	4:18 C	4:42
3:44 C	4:07		4:13	4:25	4:34 C	4:58
4:00 C	4:23		4:28	4:40	4:50 C	5:14
4:16 C	4:39		4:43	4:55	4:59 C	5:23
4:32 C	4:55		4:58	5:10	5:15 C	5:39
4:40 C	5:03		5:13	5:25	5:30	5:56
4:56 C	5:19		5:28	5:40	5:46	6:12
5:12 C	5:35		5:43	5:55	6:00	6:26
5:29 C	5:52		5:58	6:10	6:13	6:39

No Weekend and Public Holiday Service (see note below)

Joondalup CAT *timetable*

Weekdays

Train from Perth			Joondalup Train Stn	Joondalup Train Stn	Train to Perth	
Perth Train Stn	Joondalup Train Stn				Joondalup Train Stn	Perth Train Stn
7:30 C	7:53	am	7:58	8:10	8:14 C	8:38
7:45	8:10		8:13	8:25	8:31	8:57
7:54 C	8:17		8:28	8:40	8:43	9:09
8:12	8:37		8:43	8:55	8:58	9:24
8:28	8:53		8:58	9:10	9:13	9:39
8:44	9:09		9:13	9:25	9:28	9:54
-	-		9:28	9:40	9:43	10:09
9:15	9:40		9:43	9:55	9:58	10:24
9:30	9:55		9:58	10:10	10:13	10:39
9:45	10:10		10:13	10:25	10:28	10:54
10:00	10:25		10:28	10:40	10:43	11:09
10:15	10:40		10:43	10:55	10:58	11:24
10:30	10:55		10:58	11:10	11:13	11:39
10:45	11:10		11:13	11:25	11:28	11:54
11:00	11:25		11:28	11:40	11:43	12:09
11:15	11:40		11:43	11:55	11:58	12:24
11:30	11:55		11:58	12:10	12:13	12:39
11:45	12:10	pm	12:13	12:25	12:28	12:54
12:00	12:25		12:28	12:40	12:43	1:09
12:15	12:40		12:43	12:55	12:58	1:24
12:30	12:55		12:58	1:10	1:13	1:39
12:45	1:10		1:13	1:25	1:28	1:54
1:00	1:25		1:28	1:40	1:43	2:09
1:15	1:40		1:43	1:55	1:58	2:24
1:30	1:55		1:58	2:10	2:13	2:39
1:45	2:10		2:13	2:25	2:28	2:54
2:00	2:25		2:28	2:40	2:43	3:09
2:15	2:40		2:43	2:55	2:58	3:24
2:30	2:55		2:58	3:10	3:13	3:39
2:45	3:10		3:13	3:25	3:29 C	3:53
3:00	3:25		3:28	3:40	3:52	4:18
3:15	3:40		3:43	3:55	4:01 C	4:25
3:30	3:55		3:58	4:10	4:18 C	4:42
3:44 C	4:07		4:13	4:25	4:34 C	4:58
4:00 C	4:23		4:28	4:40	4:50 C	5:14
4:16 C	4:39		4:43	4:55	4:59 C	5:23
4:32 C	4:55		4:58	5:10	5:15 C	5:39
4:40 C	5:03		5:13	5:25	5:30	5:56
4:56 C	5:19		5:28	5:40	5:46	6:12
5:12 C	5:35		5:43	5:55	6:00	6:26
5:29 C	5:52		5:58	6:10	6:13	6:39

No Weekend and Public Holiday Service (see note below)

Appendix 3

Perth Bicycle Network

The Perth Bicycle Network (PBN) is an extensive plan that details a comprehensive network of cycling routes for the Perth metropolitan region. These routes include:

- **Local bicycle routes-** Local bicycle routes are a series of signed on-road routes (with some off-road shared path components) that connect major trip attractors, such as schools, shopping centres and community facilities. The routes are mostly on quiet suburban streets and are suitable for cyclists of all ages and experience.
- **Principal shared paths-** Principal shared path (PSP) routes are being created along the passenger railway, freeway and major highway corridors of metropolitan Perth. The primary purpose of PSP routes is to provide high standard access for the commuter cyclist. The railway and freeway corridors provide an ideal location for a PSP, as there are limited crossover interruptions.
- **Recreational shared paths**- Recreational shared path routes have been identified along the coastline, rivers and areas of public open space. The primary purpose of recreational paths is to provide for cycling and walking as a leisure activity. These paths are in recreational areas and are often well removed from vehicle traffic, making a more pleasant cycling journey.

Appendix 4

Staff Email Survey

Dear Peter,

Edith Cowan University's Environmental Services is undertaking a web-based travel survey of all staff in order to:

- Inform future campus access planning, and
- Provide and facilitate the promotion of further opportunities for travel alternatives to single occupancy vehicles.

Similar information has already been sought from students for integration into a University Travel Plan, which will make a significant contribution to the University's environmental sustainability and campus planning objectives.

The survey only takes five to ten minutes, and personal details will remain confidential.

By taking part you will go into the draw to win an Entertainment Book, containing hundreds of vouchers to local restaurants, cafes, movies and accommodation.

Please complete the survey based on your travel in the week commencing Monday 13th August to Friday 17th August 2007 by Friday August 24th. You also have the opportunity to provide comments on how to improve transport options to, from and between ECU campuses.

Click here to complete the survey:

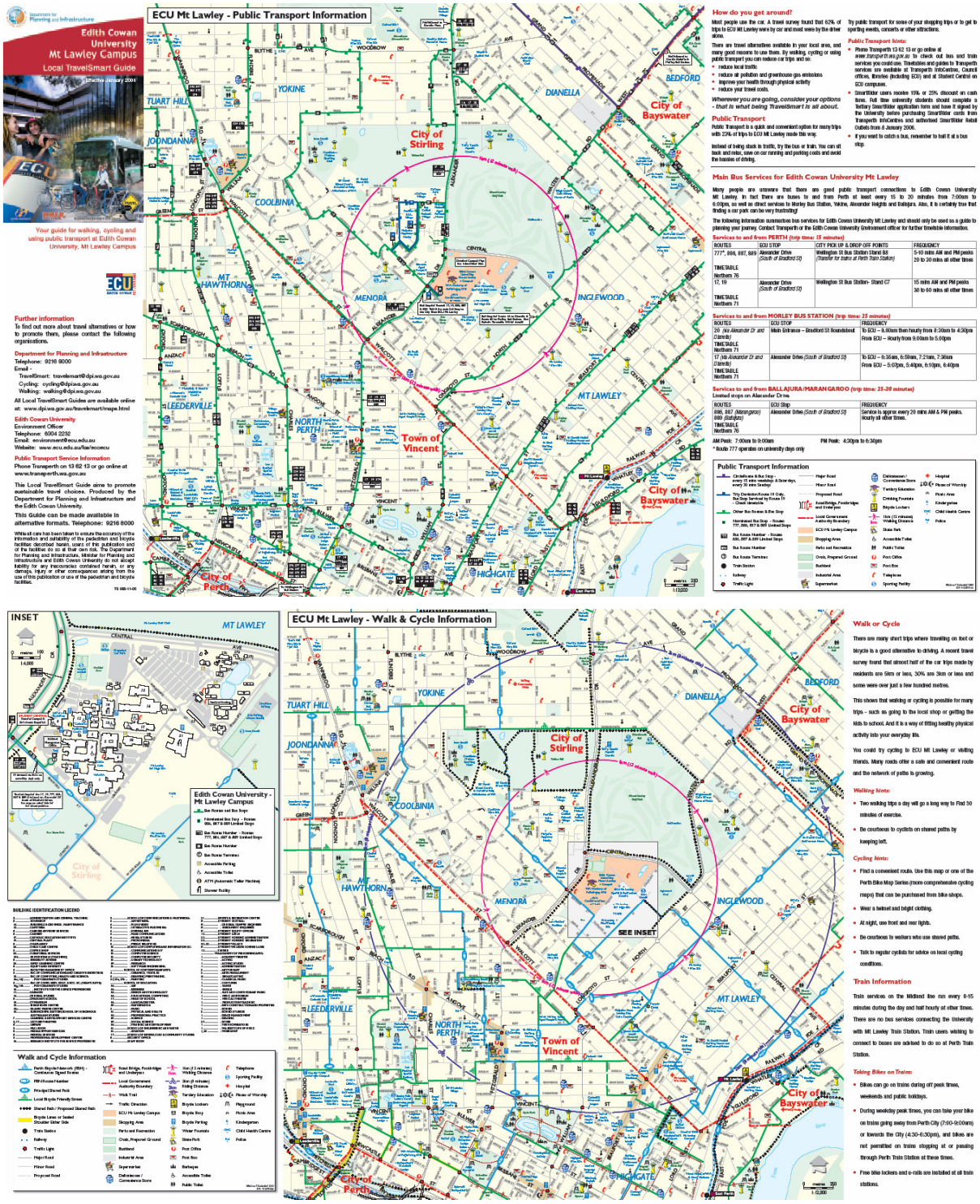
http://inquisite.ecu.edu.au/cgi-bin/qwebcorporate.dll?idx=4T4BGS&preview=1

If you have any queries about the survey please contact Melanie Barter, Environment Officer on m.barter@ecu.edu.au or 6304 2232.

Your participation and support of this process is very much appreciated.

Appendix 5
ECU 2007 TravelSmart Maps

Mount Lawley Travelsmart Map



Joondalup Travelsmart Map