



TRAFFIC AND TRANSPORT CONSULTANTS

Leichhardt Business Centres Parking Review Part C (Leichhardt)

Final Report

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1 Introduction

1.1 Background

On the 26 April 2005 Council resolved to prepare a “Leichhardt Business Centres Car Parking Strategy” to determine the amount of off-street parking within the business centres including ‘share drive’ parking places that Council should provide.

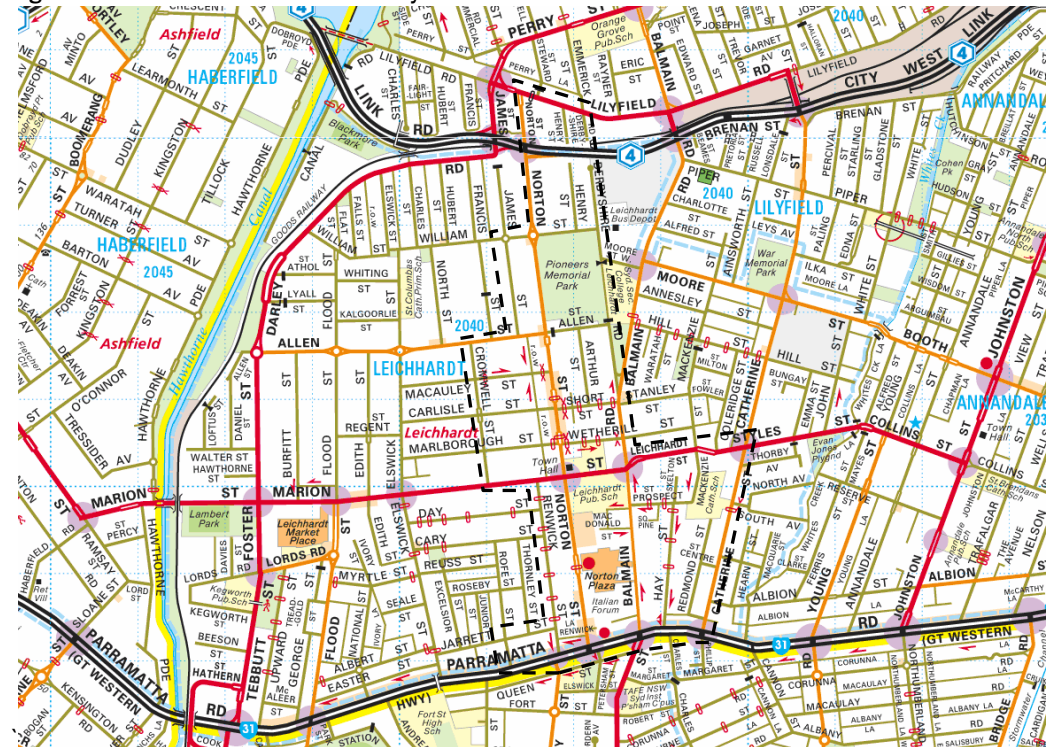
On the 23 August 2005 Leichhardt Council commissioned GTA Consultants to undertake a parking review study within the three business centres of Leichhardt, Balmain and Rozelle. Details of the Leichhardt interview surveys, parking space inventory, parking demand surveys and floor space / land use surveys are contained within this report with conclusions and recommendations relating specifically to this business centre.

1.2 Study Areas

The study area is centred on the Leichhardt Business Centre and is bounded by Catherine Street, Styles Street, Leichhardt Street, Balmain Road, Derbyshire Road, Lilyfield Road, Norton Street, William Street, James Street, Allen Street, Cromwell Street, Marion Street, Cary Street, Thornley Street, Jarrett Street, Roff Street and Parramatta Road.

The location of the study area is shown in Figure 1.1.

Figure 1.1: Location of Leichhardt Study Area



The present land use is predominantly retail and residential. There is a concentration of retail activity on Norton Street including a number of cafes and restaurants. Major land owners/users in the area include the Norton Plaza Shopping Centre and The Italian Forum.

1.3 Purpose of This Report

The purpose of this report is to provide Leichhardt Council with a summary of the survey results undertaken including the parking supply and demand, interview and land use surveys. These surveys form the basis of the final parking review recommendations which address the need for off street parking in the Leichhardt Business Centre and the amount of off street parking required.

2 Existing Parking Conditions

2.1 Business Centre Area and Study Zones

The study area has been divided into three (3) study zones which are illustrated in Figure 2.1. These Zones were established to reflect the intensity of commercial / retail land use and the accompanying parking demand. The general function of the study zones are as follows:

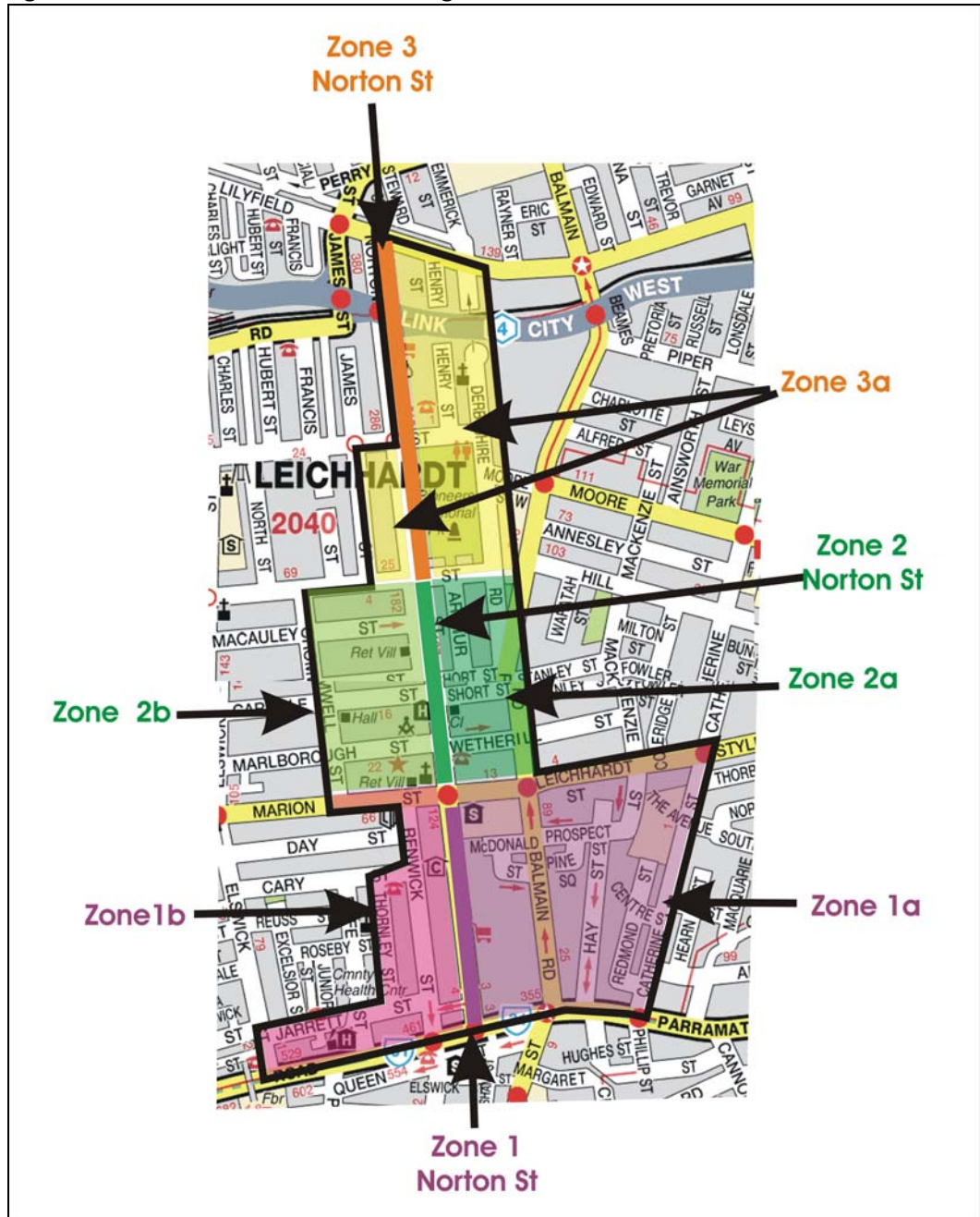
Zone 1 – is located in the south of the study area between Parramatta Road and Marion Street and predominantly contain time restricted on street and off street parking which serve the retail/commercial facilities located along Parramatta Road and Norton Street. This Zone includes the highest concentration of off street parking in the whole LGA;

Zone 2 – is located in the centre of the study area between Marion Street and Allen Street and predominantly consists of time restricted on street parking.

Zone 3 – is located in the north of the study area between Allen Street and Lilyfield Road. It primarily consists of a mixture of time restricted and unrestricted on street parking.



Figure 2.1 Leichhardt Business Centre Parking Zones



2.2 Overall Parking Supply

GTA Consultants compiled an inventory of publicly available on street and off street car parking within the study area.

The inventory identified a total of some 1,882 on street spaces and some 827 off street car parking spaces. Table 2.1 summarises the on street and off street parking supply by zone. The detailed inventory results are provided in Appendix A.



Table 2.1 Total Number of Parking Spaces in Leichhardt Business Centre (Refer Figure 2.1)

Zone	Location	Supply
ZONE 1	On Street	783
	Off Street	757
	Total	1,540
ZONE 2	On Street	611
	Off Street	41
	Total	652
ZONE 3	On Street	488
	Off Street	31
	Total	519
TOTAL	On Street (69%)	1,882
	Off Street (31%)	829
	Total (100%)	2,711

The table above shows that the greatest number of car parking spaces is in Zone 1 which contains Norton Plaza and Italian Forum Car Parks. These car parks account for about 20% of all public parking in the Leichhardt Business Area.

Of the total number of car parking spaces within the study area, 69% consist of on street parking and 31% consist of off street parking.

A summary of parking management within the Leichhardt Business Centre is contained in Table 2.2.

Table 2.2 Parking Spaces Management in Leichhardt Business Centre

Zone	Management						
	Norton St, Off Street	1P	2P	4P	2P/4P	Unrestricted	Other
ZONE 1	640	85	435	25	85	219	51
ZONE 2	-	-	176	266	175	29	6
ZONE 3			221	-	-	277	21
TOTAL PARKING SPACES	640	85	832	291	260	525	78
(% Total Spaces)	(23.6%)	(3.1%)	(30.6%)	(10.7%)	(9.6%)	(19.4%)	(2.9%)

The time restricted parking generally excludes resident parking.

The following summarises the parking management in the Leichhardt Business Centre:

- The private car parks on Norton Street namely the Norton Plaza Car Park, The Italian Forum Car Park and the Palace Cinema offer customers a period of free parking

(usually two hours) before charging on a duration of stay basis. These car parks account for 24% of all spaces in the Leichhardt Business Centre.

- 1P parking generally operates between 8:00am-10:00pm and accounts for 3% of all spaces in the Leichhardt Business Centre, and 5.5% of Zone 1 spaces.
- 2P parking generally operates between 8:00am-10:00pm and accounts for 31% of all spaces in the Leichhardt Business Centre with the greatest number in Zone 1.
- 4P parking generally operates between 8:00am-10:00pm and accounts for 11% of all spaces in the Leichhardt Business Centre with the greatest number in Zone 1.
- 2P/4P parking has a 2P restriction between 8:00am-6:00pm and a 4P restriction between 6:00pm-10:00pm. They account for 10% of all spaces in the Leichhardt Business Centre with the greatest number in Zone 2.
- Unrestricted parking spaces which are concentrated in Catherine Street, Jarrett Street, Redmond Street, Thornley Street, Henry Street, Derbyshire Road, Lilyfield Road, William Street and parts of Norton Street account for 19% of all spaces in the Leichhardt Business Centre with the greatest number in Zone 2.
- Other parking spaces which include disabled spaces, loading zones, work zones and 5 minute and half hour restrictions account for 3% of all spaces in the Leichhardt Business Centre with the greatest concentration in Zone 1.

2.3 Overall Parking Demand

Parking demand surveys were undertaken by GTA Consultants within the study area during the following periods:

Friday 9th September 2005 from 7:00am - 10:00pm

Saturday 10th September 2005 from 7:00am - 10:00pm

Friday survey results are summarised in Table 2.3 and Saturday in Table 2.4 with the detailed inventory and parking demand provided in Appendix A.



Table 2.3 Summary of Peak Public Parking Demand Surveys - Friday

ZONE	Parking Supply	Parking Demand							
		7:00am	9:00am	11:00am	1:00pm	3:00pm	5:00pm	7:00pm	9:00pm
1	On Street (783)	444 (57%)	528 (67%)	547 (70%)	516 (66%)	512 (65%)	514 (66%)	588 (75%)	613 (78%)
	Off Street (757)	61 (8%)	279 (37%)	488 (65%)	610 (81%)	533 (71%)	390 (52%)	392 (52%)	431 (56%)
	Total (1540)	505 (33%)	807 (52%)	1,035 (67%)	1126 (73%)	1045 (68%)	904 (59%)	980 (64%)	1037 (67%)
2	On Street (611)	335 (55%)	328 (54%)	330 (54%)	373 (61%)	386 (63%)	357 (58%)	421 (69%)	490 (80%)
	Off Street (41)	11 (27%)	12 (29%)	24 (59%)	28 (68%)	27 (66%)	29 (71%)	39 (95%)	37 (90%)
	Total (652)	346 (53%)	340 (52%)	354 (54%)	401 (62%)	413 (63%)	386 (59%)	460 (71%)	527 (80%)
3	On Street (488)	241 (49%)	255 (52%)	277 (57%)	277 (57%)	262 (54%)	272 (56%)	262 (54%)	272 (56%)
	Off Street (31)	1 (3%)	5 (16%)	7 (23%)	14 (45%)	15 (48%)	18 (58%)	12 (39%)	23 (74%)
	Total (519)	242 (47%)	260 (50%)	284 (55%)	291 (56%)	277 (53%)	290 (56%)	274 (53%)	295 (57%)
Total	On Street (1,882)	1020 (54%)	1111 (59%)	1154 (61%)	1166 (62%)	1160 (62%)	1143 (61%)	1271 (68%)	1375 (73%)
	Off Street (829)	73 (9%)	296 (36%)	519 (63%)	652 (79%)	575 (69%)	437 (53%)	443 (53%)	484 (58%)
	Total (2,711)	1093 (40%)	1407 (52%)	1673 (62%)	1818 (67%)	1735 (64%)	1580 (58%)	1714 (63%)	1859 (69%)

Note: Percentages in brackets are demand rates for separate on and off street parking.

Table 2.3 indicates that:

- Parking demand for the Friday in the study area is relatively high with overall demand peaking at 69%.
- The 7:00am count was designed in order to provide a measure of on street parking demand associated with local residence. It was timed so as to record parking demand prior to employees leaving for work and the incoming parking activity associated with the local retail/commercial/hospitality facilities. The results indicate that approximately 54% of on street parking is used by local residents.
- In Zone 1 the peak demand of 73% occurred between 1:00pm-3:00pm, however Table 2.1 indicates different processes are affecting the pattern of demand for on street and off street parking in this Zone.
- On street parking demand in Zone 1 remains fairly consistent through the course of the day in the order of 66%-70% between 9:00am-7:00pm, after 7:00pm demand increases to a peak level of 78%. This pattern is consistent with the hospitality facilities on Norton Street and the Italian Forum acting as trip attractors on the evening of a weekend. The off street demand peaks between 1:00pm-3:00pm before subsequently declining in the evening to the order 52%-56%. This pattern suggests a Friday lunch time peak.
- The peak parking demand of 80% occurred in Zone 2 between 9:00pm and 10:00pm while parking demand remained consistent between 1:00pm and 7:00pm in the order of 58-63%. This pattern is consistent with the hospitality facilities in Leichhardt acting as trip attractors on a Friday evening.
- The off street parking in Zone 2 experienced peak demand in the order of 90%-95% between 7:00pm and 10:00pm and thus is in keeping with the above trend.
- The peak parking demand of 57% occurred in Zone 3 between 9:00pm and 10:00pm. Zone 3 is peripheral to the main retail activity in Leichhardt and this is reflected in the size and consistency of the demand levels. Between 11:00am and

10:00pm parking demand fluctuated between 54%-57%. Off street parking peaked at 74% between 9:00pm-10:00pm

Table 2.4 Summary of Peak Public Parking Demand Surveys - Saturday

ZONE	Parking Supply	Parking Demand							
		7:00am	9:00am	11:00am	1:00pm	3:00pm	5:00pm	7:00pm	9:00pm
1	On Street (783)	497 (64%)	493 (63%)	540 (69%)	540 (69%)	524 (67%)	541 (69%)	640 (82%)	718 (92%)
	Off Street (757)	54 (7%)	245 (32%)	475 (63%)	580 (77%)	581 (77%)	492 (65%)	523 (69%)	708 (93%)
	Total (1540)	551 (36%)	738 (48%)	1015 (66%)	1120 (73%)	1105 (72%)	1033 (67%)	1163 (76%)	1426 (93%)
2	On Street (611)	328 (54%)	328 (54%)	336 (55%)	356 (58%)	323 (53%)	337 (55%)	479 (78%)	528 (86%)
	Off Street (41)	6 (15%)	8 (20%)	26 (63%)	34 (83%)	31 (76%)	32 (78%)	33 (81%)	37 (90%)
	Total (652)	334 (51%)	336 (52%)	362 (56%)	390 (60%)	354 (54%)	369 (57%)	512 (79%)	565 (87%)
3	On Street (488)	204 (42%)	222 (46%)	253 (52%)	247 (51%)	262 (54%)	282 (58%)	304 (62%)	343 (70%)
	Off Street (31)	0 (0%)	1 (3%)	12 (39%)	15 (48%)	12 (39%)	19 (61%)	17 (55%)	25 (80%)
	Total (519)	204 (39%)	223 (43%)	265 (51%)	262 (51%)	274 (53%)	301 (58%)	321 (62%)	368 (71%)
Total	On Street (1,882)	1029 (55%)	1043 (55%)	1129 (60%)	1143 (61%)	1109 (59%)	1160 (62%)	1423 (76%)	1589 (84%)
	Off Street (829)	60 (7%)	254 (31%)	513 (62%)	629 (76%)	624 (75%)	543 (66%)	573 (69%)	770 (93%)
	Total (2,711)	1089 (40%)	1297 (48%)	1642 (61%)	1772 (65%)	1733 (64%)	1703 (63%)	1996 (74%)	2359 (87%)

Note: Percentages in brackets are demand rates for separate on and off street parking.

Table 2.4 indicates that:

- The peak parking demand in the area of 87% was very high. Occupancy rates recorded on the Saturday were predominantly higher than those recorded on Friday. This indicates that the peak town centre activity occurs on Saturday.
- The 7:00am survey indicates a demand 55% and is thus in keeping with the results recorded on Friday.
- The peak demand for all Zones occurred between 9:00pm and 10:00pm suggesting a high weekend evening trip attraction associated with the hospitality facilities located in the study area. Generally parking demand is consistent between 11:00am and 7:00pm, prior to increasing between 7:00pm and 9:00pm and peaking between 9:00pm and 10:00pm.
- Zone 1 experience a peak in on street and off street parking demand in the order of 92%-93%. This is extremely high suggesting parking is almost at capacity during the hours of Saturday's peak activity. On street parking demand was consistent during the course of the day between 7:00am and 7:00pm it fluctuated between 64%-69%. Between 11:00am and 7:00pm off street parking demand was in the order of 63%-77%.
- Zone 2 experienced peak parking demand of 87% between 9:00pm and 10:00pm. On street parking demand was consistent during the course of the day between 7:00am and 7:00pm it fluctuated between 51%-60%.
- Zone 3 experienced peak parking demand of 71% between 9:00pm and 10:00pm. This is significantly higher than the parking demand experienced on Friday and suggests that the extra parking demand in Zones 1 and 2 is causing drivers to park further away from the town centre and increasing the general parking demand in Zone 3.

The Friday and Saturday car parking demand, by time and region, is represented diagrammatically in Figures 2.1 – 2.4.

Figure 2.1 Overall Parking Demand Rates by Type Friday 09/09/05

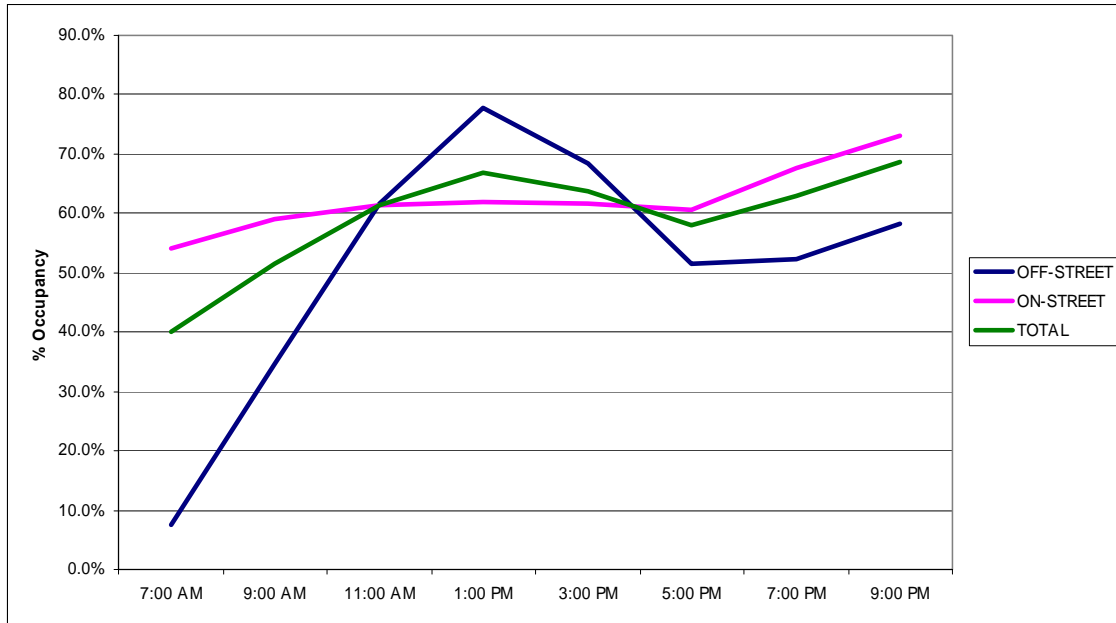


Figure 2.2 Overall Parking Demand Rates by Region Friday 09/09/05

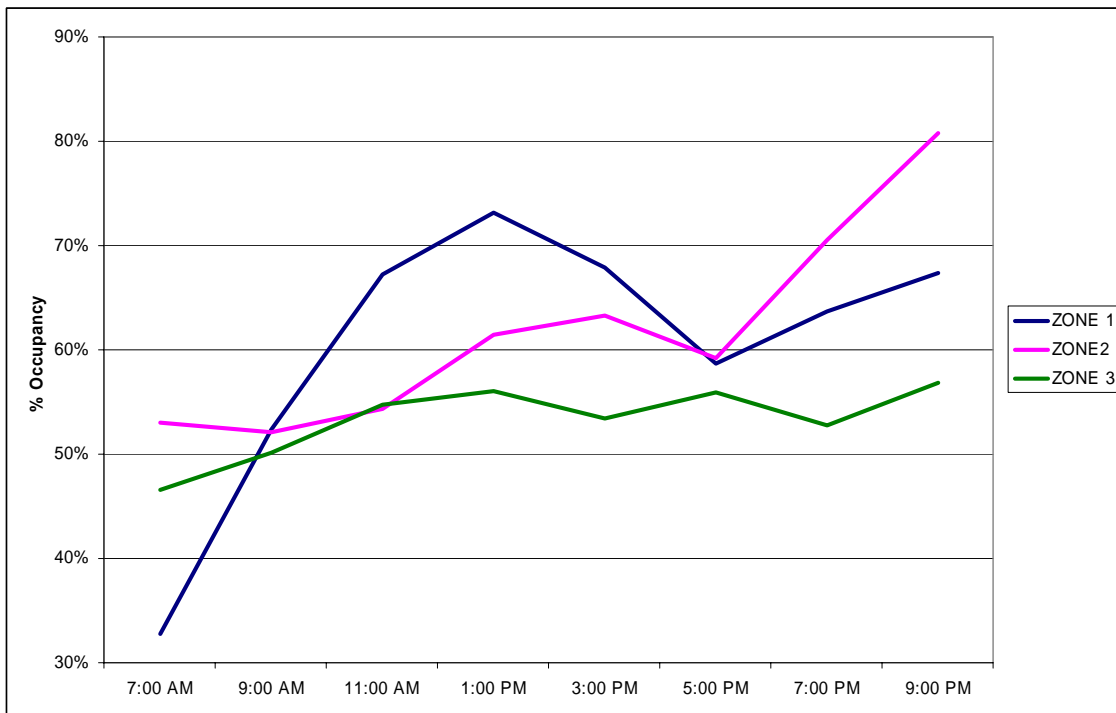




Figure 2.3 Overall Parking Demand Rates by Type Saturday 10/09/05

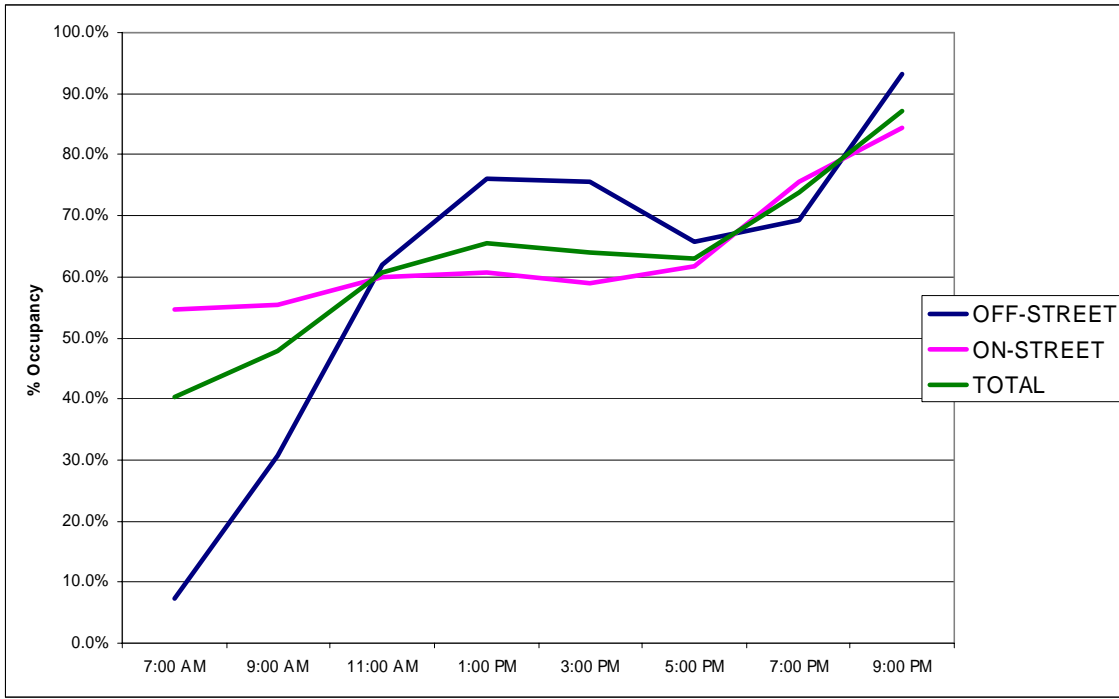
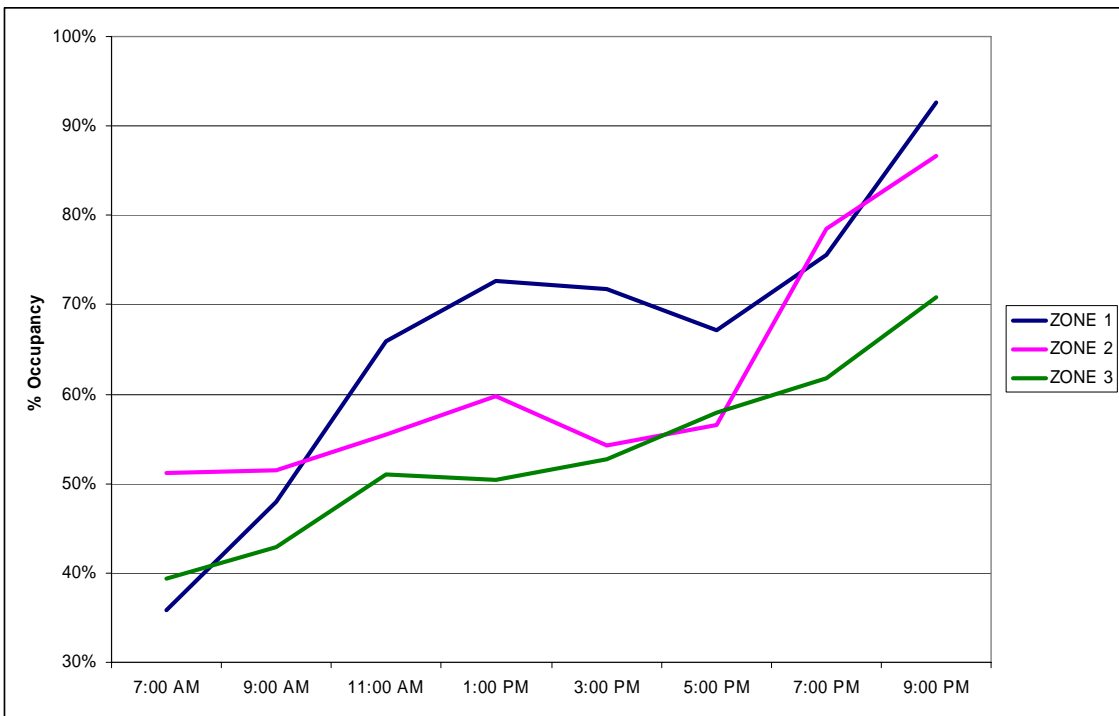


Figure 2.4 Overall Parking Demand Rates by Zones, Saturday 10/09/05



2.4 Summary of Overall Parking Supply and Demand

It should be noted that parking supply is generally not designed for the peak parking demand and therefore it is important to take note of the results in Figures 2.1 – 2.4. The majority of the peak parking demand occurs on the Saturday between 9:00pm-10:00pm. More detail of peak car parking demand by zone and time period is provided below:-

- Car park demand rates are affected by location, function and time, and depending on these, a car parking space can be shared by several users – thus 'shared parking'¹
- Peak parking demand in the Leichhardt Town Centre was relatively high with an overall peak demand of 69% on the Friday and 87% on the Saturday. These results indicate that peak town centre activity occurs on Saturdays. Both the Friday and Saturday surveys record their peak parking demand in the final study period (9:00pm-10:00pm).
- The 7:00am traffic count was designed to provide a measure of on street parking demand associated with local residence. It was timed so as to record parking prior to employees leaving for work and the parking activity associated with the local retail/commercial/hospitality facilities. The Friday and Saturday results suggest that approximately 55% of the available on street parking is used by local residences.
- Zone 1 experienced a peak parking demand of 73% on Friday between 1:00pm and 3:00pm suggesting a Friday lunchtime peak. On Saturday Zone 1 experienced a peak demand of 93% between 9:00pm and 10:00pm suggesting the local hospitality facilities are high Saturday evening trip attractors.
- Zone 2 experienced a peak parking demand of 80% on the Friday and 87% on the Saturday between 9:00pm-10:00pm. This trend is in keeping with the above trend.
- Zone 3 is peripheral to the main retail activity in Leichhardt and this reflected in the low peak demand of 57% recorded in the Friday survey. On Saturday peak demand in Zone 3 raises to 71% and suggests that the extra parking demand on the Saturday in Zones 1 and 2 is causing drivers to park further away from the town centre and increasing the general parking demand in Zone 3.

¹ *Austrroads (1994) Guide to Traffic Engineering Practice – Parking* – states that parking needs should not be calculated by adding the individual land use needs in mixed use areas

3 Interview Surveys

Surveys were conducted on Wednesday 5th October 2005 during the day, to ascertain the parking and transport habits of two groups of users of the Leichhardt Business Centre:

- (i) Business Centre Shoppers /Visitors;
- (ii) Business Centre Workers.

A copy of the interview sheets and respondent summaries is included in Appendix B.

3.1 Shopper/Visitor Interviews

On street interview surveys were undertaken on 5th October along the main shopping strip of Norton Street. Fifty (50) interview responses were obtained and all were usable. The intent of these surveys was to:

- ascertain the various modes of travel used;
- define the purpose of the trips to Leichhardt Business Centre;
- determine their home postcode;
- ascertain the length of stay in the Centre; and
- define the parking habits of those who access the Centre by car.

The data collected on type of transport mode the shoppers/visitors used indicates that:

- 43% drove cars;
- 24% walked;
- 16% utilized a bus;
- 10% were car passengers;
- 6% rode bicycles; and
- none rode motor bikes or caught a taxi

Of the 43% interviewees who drove their cars, the majority (65%) utilised the on-street parking while 35% parked in the off-street carparks. The results of off-street carpark users also indicated that they primarily parked in Palace Cinema and Norton Plaza carparks which offer 2-hour free parking for shoppers. The results also indicate that the interviewees who utilised the on-street parking primarily utilised the Zone 1 and 12% of them parked in Zones 2 and 3. Within Zone 1 area, fewer car drivers have parked along Norton Street.

It is encouraging to see that nearly a quarter of the shopper/visitors interviewed, walked to the centre, suggesting a considerable portion of shoppers are drawn from the local catchment.

Interviewees defined the purpose of their trips as follows:

- Shopping – 44%;

- Banking – 11%;
- Medical – 6%
- Services eg real estate, hair dresser – 2%
- Services eg accountant– 0%
- Recreation/Social – 26%
- Other – 11%

The above data indicates that in addition to shopping, a considerable proportion of visitors (26%) made trips to the Business Centre for recreation/social purposes.

In terms of expected duration of stay the results were as follows:

- Less than 30 minutes – 42%
- 30 minutes to an hour – 8%
- 1 hour to 2 hours – 17%
- 2 hours to 3 hours – 15%
- 3 hours to 4 hours – 10%
- Over 4 hours – 8%

The intended duration of stay for approximately 67% of the respondents was 2 hours or less. This gives an indication of the average possible parking time management in the centre with a predominantly 2 hour demand for parking within the area.

The interviewees' home postcode data indicated that 40% of them came from Leichhardt. This contributes to the relatively high proportion of shopper/visitors who walked to the centre.

3.2 Worker Interviews

A total of 100 survey sheets were distributed to workers in retail and commercial premises in the Leichhardt Business Centre. These were distributed on Wednesday 5th 2005, of these a total of 96 were returned. The workers were asked to fill out the questionnaire which was collected later that day in the afternoon. The intent of these surveys was to:

- ascertain the various modes of travel used by the workers;
- ascertain whether the respondent worked part-time or full time;
- determine the home postcode of workers;
- ascertain the length of stay in Leichhardt Business Centre; and
- define the parking habits of workers who access the centre by car.

Workers nominated the following modes of travel used to access their work place (some are multi-modal):

- 72% drove a car;
- 4% were car passengers;

- 8% utilized buses;
- 2% rode a motor bike
- 8% walked; and
- None caught a taxi or rode a bicycle

By far the greatest majority travelled by car (76%). Of the 72% respondent drivers, a considerable proportion (60%) utilised the on-street parking while 40% parked in the off-street carparks. The details of the off-street carpark users also indicated that only few workers who drove to work utilise the main carparks within the Business Centre, while 18% used other carparks which could be provided at their office premises. Among the on-street parking areas within the Business District, 34% of those who drive to work have secured parking in the Zone 3 while only a few have used on-street parking in Zones 1 and 2. This situation is encouraging as workers primarily utilise on-street parking areas away from the retail hub.

With the considerable proportion of workers utilising the on-street parking area and majority of them staying longer than 6 hours, it appears that either they overstay or move their cars in the on-street parking areas which have 4 hours or less time restrictions.

The survey data also indicated 70% of the respondents were employed full-time and 30% part-time.

In terms of expected duration of stay the results were as follows:

- less than 3 hrs – 2%
- 3 hours to 4 hours – 2%
- 4 hours to 6 hours – 8%
- 6 hours to 8 hours – 39%
- Over 8 hours – 49%

According to the home postcode data collected, only few came from Leichhardt or nearby suburbs which explains high proportion of car users and smaller proportion of walkers.

3.3 Summary of Interview Surveys

The results from the interview surveys are summarised below as follows:

1. Shoppers/Visitors to Centre

- Approximately 53% of shoppers access Leichhardt Business Centre by car with approximately 24% walking. About 16% used public transport.
- 44% of trips included shopping, while other typical centre based activities such as banking (11%), and local services (6%) accounted for smaller mentions. Apart from shopping trips, a considerable percentage of trips made were for recreational/social purpose (26%).
- The surveys indicate that the majority (67%) spent 2 hours or less in Leichhardt Business Centre.

- Of those who drove cars, 65% utilised the off-street parking while the 35% utilised the on-street parking.
- Approximately 40% of the shoppers/visitors to the area were from Leichhardt.

2. Workers at Centre

- This survey revealed that more local workers use the car (76%) than the other groups – only 8% use public transport.
- The nature of employment in Leichhardt Business Centre area consists of approximately 70% full-time and 30% part-time.
- The duration of stay for the majority of workers (49%) was more than 8 hours, with another 39% staying 6-8 hours.
- Of the car drivers 60% parked in on-street parking areas (primarily in Zone 3), while 40% utilised off-street carparks within the centre.
- Only few workers arrived from Leichhardt and nearby suburbs.

It appears that the on-street parking in the Leichhardt Business Centre is well facilitated, as parking in Zones 1 and 2 are primarily utilised by shoppers/visitors while Zone 3, which is away from the retail hub, is utilised by workers.

4 Land Use and Floor Space Surveys

4.1 Preamble

The purpose of these surveys were to provide land use information for the business centre so that the statutory parking requirements could be calculated and then compared against the actual on and off street parking supply as surveyed on site and as discussed in section 2 of this report. This would give some indication as to the level of shortfall or over supply of parking within the centre and would provide Leichhardt Council with important information on which to base decisions regarding the provision of parking within the centre.

A zoning plan, aerial photography and a listing of properties zoned “business use” within the study area was provided by Leichhardt Council to assist with the land use surveys.

The surveys were undertaken over the weekend of the 1st and 2nd of October 2005 to determine the existing commercial and retail floor space within the Leichhardt business centre. This survey identified:

- The types of the land uses within the Leichhardt business centre,
- The proportion of floor space that each land use occupied within the overall building; and
- Any private or unofficial off street car parking spaces associated with these land uses.

Further follow up surveys were also undertaken to gather land use information that could not initially be obtained as a result of restricted access to certain properties at the time.

(It should be noted that a very small percentage of land use information was not obtained but this would have an insignificant effect on the overall final result.)

The location of these various land uses were transposed onto aerial photography so that the actual gross floor area (GFA) of each commercial/retail property could be measured on GTA Consultants GIS system. This is discussed further in Section 4.2.

There were a total of 310 business properties identified and surveyed within the Leichhardt Business Centre. These consisted of a wide range of land uses within the business centre of Leichhardt including commercial, retail, professional consulting rooms, restaurants/cafes, community facilities, hotels, clubs, bulky goods facilities and childcare centres.

For various reasons (primarily due to reasons of accessibility) land use information was not available for 33 of the 310 business properties. There were also 61 additional “private” (marked and unmarked) parking spaces recorded which will be cross referenced against the original parking survey to determine if some of these are duplicated. (Land use data and aerial plans are provided in Appendix C).

4.2 Gross Floor Areas

The total GFA of non-residential premises within the Leichhardt Business Centre is approximately 103,906m². The distribution of different types of land uses among the zones is given in the Table 4.1.

Table 4.1 Land Use Distribution

Zone	Clubs	Commercial	Bulky Goods Retail	Industry	Child Care Facility	Professional Consulting	Restaurant	Retail/Shops	Community Facility
1a	80%	43%	100%	5%	81%	9%	47%	57%	0%
1b	6%	37%	0%	34%	19%	80%	25%	25%	100%
2a	10%	2%	0%	0%	0%	5%	11%	6%	0%
2b	0%	2%	0%	0%	0%	4%	12%	6%	0%
3	4%	16%	0%	61%	0%	2%	5%	6%	0%
Total Area (m ²)	5,093	23,598	1,906	2,354	985	14,534	12,093	42,599	355

A hotel of 389m² is also located in Zone 2. Accordingly, the Zone 1 primarily consists of land uses such as Clubs and a Hotel which require relatively more parking spaces.

4.3 Statutory Parking Requirements

Leichhardt Councils Development Control Plan 2000 (Part A) stipulates specific parking rates for developments within the Leichhardt Local Government Area. These specific parking rates have been applied to the corresponding land uses so that the level of statutory parking required for the Leichhardt Business Centre in it's current form can be calculated.



Table 4.2 Parking Rates – LEICHHARDT DCP Part A

Land Use	Statutory Parking Requirements			
	Staff (per staff)		Visitor / Shoppers (Per 100m ² GFA)	
	Minimum	Maximum	Minimum	Maximum
Commercial	-	-	1.5	3
Clubs	(1)	(1)	5	10
Restaurants	0.44	0.55	5 2.5	10 5
Industrial	-	-	1	2
Shops	(1)	(1)	1.5	3
Professional Services	0.44	0.55	2	4
Auditorium	(1)	(1)	4	8
Hotel	(1)	(1)	5 3	10 5
Service Station	(1)	(1)	2 spaces/work bay 2 spaces/100m ² ancillary services	4 spaces/work bay 10 spaces/100m ² ancillary services

(1) Min - 80% of total staff

Max – 100% of total staff (depending on access to public transport).

4.4 Parking Supply Analysis

4.4.1 Applying the Statutory Parking Requirement

The statutory parking requirement for each zone in the Centre was calculated based on the parking rates provided in the Leichhardt DCP and the statutory requirement was then compared with the current parking supply. In the analysis, parking requirements for staff are excluded due to lack of data available. It should also be noted that such demand, specifically all-day staff parking, would need to be accommodated in off-street parking areas.

As the operating hours of different land uses vary, the following assumptions were made in the analysis to derive day time and night time statutory parking requirements of the DCP as follows:

<i>Operating Hours</i>	<i>Land use</i>
Day time only	Commercial, Professional services, Shops (50% of total), industrial
Night time only	Clubs
Day and night time	Restaurants, Shops (50%), Hotels, Hostels, Childcare Facilities, Hostels

Using the above, the day and night time statutory parking requirements and current parking supply for each zone was calculated and is shown in Table 4.3.

4.4.2 Impact of Resident and Business Permit Parking

Due to the lack of off-street residential parking in the area, substantial on-street parking is a result of resident cars in the streets, as well business parking. The parking occupancy surveys for the Leichhardt Business Centre (conducted by GTA) show that about 55% of on-street parking is occupied at 7am. This is interpreted as the resident on-street parking demand impacting on the on-street parking supply which overlaps with evening and late night visitor parking around the centre (say from 9pm-7am).

In addition, residential and business permit holder parking is also shown to impact on the on-street parking supply during the day, as found by parking occupancy surveys conducted by Leichhardt Council. These surveys found that, on average, about 50% of on-street parking in side streets is occupied by permit holders during the hours of 9am and 8pm, with Norton Street permit holder on-street parking at 15%. This results in a reduced number of available on-street parking spaces during the day.

In order to estimate the actual parking supply for the daytime period, which we have named the *net daytime* parking supply, we have followed the process below:

- Permit holder parking occupancy (as measured at regular intervals throughout the day) is taken from the supply of on-street parking;
- To this remaining on-street supply, we have added all of the available off-street public parking (assuming that residents/permit holders are unlikely to park in off-street car parks).

In order to estimate the actual parking supply for the evening period, which we have named the *net night time* parking supply, we have followed the process below:

- Permit holder parking occupancy (as measured at 7am) is taken from the supply of on-street parking;
- To this remaining on-street supply, we have added all of the available off-street public parking (assuming that residents/permit holders are unlikely to park in off-street car parks).

The *gross* parking supply refers to the total number of parking spaces, including all on street and off street public parking as measured by GTA's parking inventory.

Table 4.3 summarises the above calculations.



Table 4.3 Leichhardt DCP Parking Requirement and Supply Analysis

Zone	Maximum DCP Requirement		Minimum DCP Requirement		Parking Supply			Surplus / (Deficiency)	
	Day time	Night time	Day time	Night time	Gross	Net day time	Net night time	Net daytime	Net night time
1a	1,369	1,333	672	666	1,182	963	927	(406) (DCP max) 291 (DCP min)	(406) (DCP max) 261 (DCP min)
1b	1,253	502	624	251	358	204	182	(1,049) (DCP max) (420) (DCP min)	(320) (DCP max) (69) (DCP min)
2a	214	221	107	111	324	204	175	(10) (DCP max) 97 (DCP min)	(46) (DCP max) 64 (DCP min)
2b	254	219	127	109	328	165	141	(89) (DCP max) 38 (DCP min)	(78) (DCP max) 32 (DCP min)
3	256	122	128	61	519	307	251	51 (DCP max) 179 (DCP min)	129 (DCP max) 190 (DCP min)
All Zones	3,346	2,397	1,658	1,198	2,711	1,843	1,676	(1,503) (DCP max) 185 (DCP min)	(721) (DCP max) 478 (DCP min)

From the above table, the *net daytime* parking supply for the Leichhardt business centre as a whole is:

- under-catered to by 1,503 parking spaces according to the statutory maximum parking requirement,
- there are 185 more parking spaces than the minimum requirement,
- all zones (except for Zone 1b) comply with the minimum statutory requirement,
- Only Zone 3 complies with the *net daytime* maximum statutory requirement.

The *net night time* parking supply for the Leichhardt business centre as a whole is:

- under-catered to by 721 parking spaces according to the statutory maximum parking requirement,
- there are 478 more parking spaces than the minimum requirement,
- all zones (except for Zone 1b) comply with the minimum statutory requirement,
- Only Zone 3 complies with the maximum statutory requirement.



The difference in the DCP maximum and minimum requirements are substantial as illustrated by the fact that even if on street parking permits were abandoned, then the day time parking supply for the Leichhardt business centre as a whole (*gross*) is:

- under-catered to by 635 parking spaces according to the statutory maximum parking requirement, while
- there are 1053 more parking spaces than the minimum requirement.

The current parking supply in all zones, except Zone 3, is below the maximum DCP parking requirement. The current parking supply in Zone 1b is also significantly below the minimum parking requirement. The results of the occupancy survey given in Table 2.3 previously indicates high occupancies in on-street and off-street parking areas in Zone 1, particularly during normal business hours in weekdays and at night time on Saturday, reaching about 80%-93% occupancy in the off-street car parking in all zones.

Overall, the Leichhardt centre is under-catered in parking supply taking the statutory requirements into consideration, although, Zone 3 has a slight over-supply of parking. It should be noted that off-street parking supply in the centre is higher compared with the other two centres, at approximately 26% of total parking supply.

4.5 Statutory Parking Requirement Comparisons

Table 4.4 has been constructed by applying parking rates from other inner city LGAs to the Leichhardt Centre. The table shows that the use of maximum and minimum rate is not common; the South Sydney rates were also proposed to have maximums and minimums prior to the amalgamation with Sydney City. The minimum parking rates of Leichhardt LGA are generally lower than the other comparative LGAs, and only the minimum rates proposed by the South Sydney Transport DCP were to be more restrictive. The land uses used to construct this table have been developed to resemble the land use distribution in this Centre.

Table 4.4 Application of Visitor/Shoppers Parking Rates (per 100 sqm) to Select Land Uses

Land Use	Gross Floor Area	Leichhardt LGA		Marrickville LGA		(previous) South Sydney LGA		Woollahra LGA		RTA Rate	
		Max	Min			Proposed					
						Max	Min				
Commercial	23598	3	1.5	2.2		2.0	0.8	2.5		2.5	
Retail/Shops	42599	3	1.5	2.2		2.5	1.5	3.3		6.1	
Clubs	5093	10	5	16.7		5.0	5.0	20		0	
Restaurants	12093	10	5	2.2		2.5	1.5	15.0		15.0	
Industrial	2354	2	1	1.1		1.3	0.8	2.0		0.3	
Prof. Services	14534	4	2	2.2		4.0	3.2	4.0		2.5	
Hotel	0	10	5	16.7		4.0	4.0	3		0	
Total parking spaces required		4333	2166	2938	2938	2706	1747	5457	5457	5374	5374
Comparison with Leichhardt Parking											
Max				-32%	+36%	-38%	-19%	+26%	+152%	+41%	+181%
Min											

In South Sydney the rates were linked directly to public transport accessibility which was determined as highest within 600m of a railway station, then linked to the number and frequency of bus routes. Without undertaking a similar public transport accessibility exercise, and using this logic, Leichhardt is less accessible to the wider metropolitan area for at its closest point, Norton Street is about 700m from Petersham railway station. Essentially the Leichhardt Business Centre must rely on the linking bus services to connect to the wider metropolitan area by public transport. The daytime public transport use would be expected to be higher than that for evening recreational purposes, particularly to visit the restaurants and the cinemas.

It is therefore questioned whether the parking maximum and minimum rates as applicable to the Leichhardt Business Centre are meaningful. To achieve the DCP maximum amount of car parks, and assuming that there is no residential on street parking demand, an additional 635 spaces would be required overall. Considering the high level of permit parking both day and night in the area, to comply with the DCP over 1,500 spaces would be required. This is considered unsustainable.

5 Summary and Recommendations

5.1 Parking Supply

The Leichhardt Business Centre provides a *gross* total of 2,711 public car parking spaces which includes 1,882 on-street spaces and 829 off-street spaces. With the on-street parking, 2P accounts for 40%, 4P for 14%, 2P/4P for 13% and the rest is for 1P and unrestricted.

The occupancy surveys indicated that on both Friday and Saturday, 55% of on-street parking is occupied before normal business hours (i.e. 7am). Council's records show that during daytime hours (i.e. 9am-8pm), about 50% of on-street parking in side streets and 15% of on-street parking on Norton Street are occupied by residents. The peak parking time is therefore likely to converge with resident (and possibly some business) permit holders' on-street parking demand.

The above results clearly indicate that permit holders occupy a large percentage of the limited on-street parking in the Leichhardt Business District, which obviously impacts on visitor parking demand both in the daytime and night time.

Eligible Business like residents are entitled to apply for a maximum of 2 Business permits (no main street parking) and can also apply for a Loading Permit to assist with deliveries as there are no Loading Zones. There have been some rare cases where businesses and community organisations have been issued more than 2 permits and these are assessed on valid reasons such as safety issues e.g. staff finishing at 3am and having to walk several blocks to their vehicle with no reasonable parking alternative. The survey has identified 301 businesses currently operating in the Balmain Business Centre. If the limited on-street parking is allowed to be utilised by the residential and business occupiers in the area, it is unlikely that visitors have a fair share of the current parking stock.

When consideration is made for resident and permit holder occupancy, the number of public car parking spaces during the daytime, nominated as the *net daytime* parking supply, is reduced from 2,711 to 1,843 spaces. The number of public car parking spaces during the night time, nominated as the *net night time* parking supply, is reduced further to 1,676 spaces.

Overall, the area which has the greatest parking shortfall is Zone 1b which lies west of Norton Street in the block between Parramatta Road and Marion Street.

5.2 Parking Demand

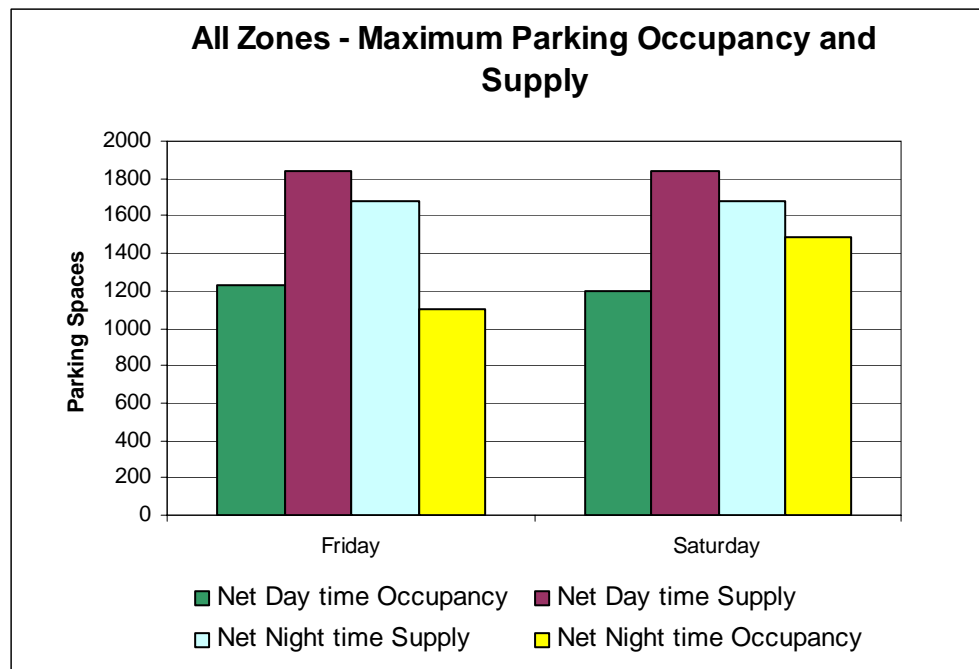
The parking demand surveys were carried out in September 2005. During this period, schools operation was typical and the weather was warm and dry. Therefore, the survey period is considered as “typical”. Visitor trips would be expected to increase closer to Christmas as retail and recreation/leisure activities increase in early December, while schools and the workforce are also still operating. A seasonal factor can be applied to the measured parking demand to estimate the demand in such short peaks. However, this parking review is based on a “typical” day parking demand as it is impractical to design the parking system to cater for such short peak demands.

The measured “typical” parking demand for the Leichhardt Business District is 1,859 spaces (69% of supply) on Friday and 2,359 spaces (87% of supply) on Saturday. These current demands however contain permit holders’ parking demand, which is has been measured at around 50% of on-street parking during daytime and 55% at night time.

Peak demand (93% occupancy) occurred along Norton Street, between Allen Street and Parramatta Road on Saturday between 9 and 10pm. On Friday the peak demand was from 7pm-10pm from Marion Street to Allen Street. This demand would be expected to last past 10pm, at which time the surveys ceased.

A peak demand over 90% is considered “very high”, as this high level of parking occupancy means that there is little parking capacity. This parking situation is also interpreted as “critical state” where it causes greater inconvenience to motorists seeking parking as well as generating unnecessary traffic circulation. This situation is aggravated at night time as the efficiency of parking utilisation decreases (limited visibility affects vehicle reversing and turning manoeuvres).

Figure 5.1 Overall Parking Occupancy and Supply



The net parking occupancy and existing net supply for the Leichhardt Business Centre as a whole is shown in the above figure. This does not show the differences between the zones in the centre.

It should be noted that the values in the above figure have been adjusted to exclude the estimated permit holders' share of occupancy. While overall in the business centre there is still available supply of parking on Fridays, this is critical on Saturdays, specifically at night.

5.3 Statutory Compliance

The parking supply was assessed against the statutory parking requirements according to parking rates provided in the Leichhardt DCP. The parking requirements were generated separately for the day time and night time and calculated as 3,346 spaces for day time operating land uses and 2,397 spaces for night time operating land uses.

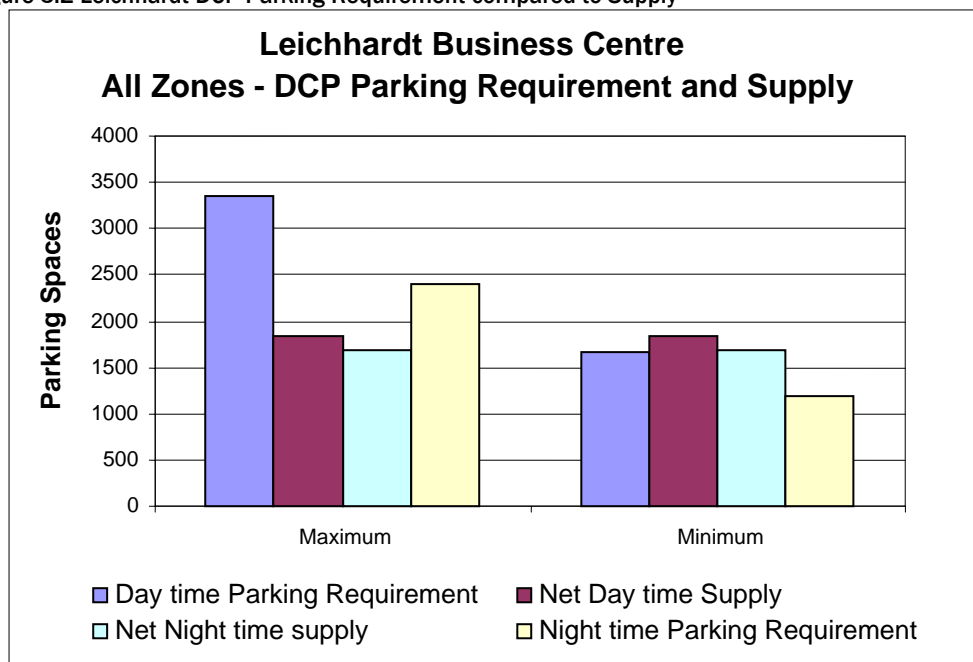
The *net daytime* parking supply of 1,843, which is considered as available during normal business hours, does not comply with the maximum statutory requirements and gives a deficiency 1,503 spaces. The supply value has been adjusted to exclude any parking occupied by residents and permit holders.

The *net night time* parking supply of 1,676 spaces, which is the night time parking availability, does not comply with the maximum statutory parking requirement of the existing land uses, and is deficient by 721 parking spaces. The supply value has been adjusted to exclude any parking occupied by residents and permit holders.

The Leichhardt Business Centre parking complies with the statutory parking space minimum with an oversupply of 185 in the *net daytime* and 478 in the *net night time* period, if all on-street and off-street parking is taken into consideration.

If only the amount of off street parking is considered, then the centre has a clear shortfall even in respect to the minimum DCP requirements with a 799 spaces daytime shortfall and 399 night time shortfall.

Figure 5.2 Leichhardt DCP Parking Requirement compared to Supply



5.4 Proposed Car Park Expansion by Council

In the Parking Review Study commissioned by Leichhardt Council in July 2005, the following proposals have been considered for the Leichhardt centre:

- *to use Council's 48 space basement carpark at Wetherill Street for public parking weekday and weekend evenings after 6.00pm and all day during weekends; and*
- *the extension of Marion Street carpark to provide 110 off-street parking spaces and 12 on-street spaces due to the reconfiguration of driveways resulting in a net increase of 51 spaces.*

The proposals will provide a total of 48 parking spaces during the day (weekdays) and 99 spaces at nights and all day during weekends.

5.5 Modal Split of Visitor/Shoppers and Workers Trips

As discussed in Section 3.3 above, among the shoppers/visitors to centre, 53% of shoppers access the business centre by car while 24% walked and 16% used public transport. A larger proportion of workers (76%) drove to the centre while only 8% used public transport.

In terms of utilisation of parking in the area, 65% of visitors/shoppers utilised the off-street parking while the 35% utilised the on-street parking. The split of off-street and on-street parking utilisation for workers was 40%-60%.

The modal split also indicated that 40% of the shoppers/visitors to the area were from Leichhardt, however, only few workers originated from Leichhardt.

The majority of shoppers/visitors (67%) spent 2 hours or less in the centre while 88% of workers stayed 6 or more hours.

5.6 Public Transport and Taxis

The modes of public transport available for visitors/shoppers in the LGA are buses and taxis. The nearest railway station is located in Petersham which does not provide interchange between CityRail services.

A review on current bus routes operating between Petersham railway station and Leichhardt indicated that only one bus route operates between the Petersham railway station and Leichhardt and its headway between 7pm and midnight is one hour on weekdays and weekends. Given the poor level of service and lack of seamless public transport service available at night time, the majority of visitors/shoppers are unlikely to utilise the current public transport services.

There are currently few taxi ranks provided in the Leichhardt Business Centre. Discussion with the NSW taxi organisation has revealed that the current taxi rank capacities are inadequate to meet the demand. This situation has caused safety concerns as visitors hail taxis at inappropriate locations and taxis tend to double park.

5.7 Conclusions

5.7.1 Mode Split

In summary, the user modal split indicates that:

- Among shoppers/visitors, 24% walked and 43% depended on car transport to the business centre:
- Among workers, 8% walked and 76% depended on car transport to the business centre.

5.7.2 Parking Supply and Demand

The *net daytime* and *net night time* parking supply is 1,843 and 1,676 respectively, and would be increased to 1,891 and 1,775 spaces when the additional Council parking is available. The statutory maximum parking requirements for current land uses are 3,346 spaces during the daytime and 2,397 spaces at night time, consequently the parking supply does not meet this maximum. The parking supply does, however meet the minimum parking requirement of the DCP.

Throughout the day and night, parking demand consists of both visitors and residents/permit holders, causing high demands on both on-street and off-street parking supplies.

Existing parking supply and level of parking usage indicates that:

- Parking demand data are obtained on a “typical” day and $\pm 10\%$ gives any seasonal high/low;
- The peak level of occupancy occurs from 7pm;
- The peak level of occupancy on-street (92%) and off-street (93%) has reached “critical” levels in Norton Street, between Parramatta Road and Marion Street on Saturday;
- The permit holders (residents and business property occupiers) occupy around 50% of on-street parking supply during the daytime, and 55% of on street parking supply during the night time;
- The supply of parking (on-street and off-street) for visitors during the daytime is about 1,843 spaces, while at night time is about 1,676 spaces (excluding the proposed parking and the on-street permit holder parking);
- The daytime supply of 1,843 spaces currently provides 185 spaces above the DCP minimum requirement, while the night time supply of 1,676 spaces provides 478 spaces above the DCP minimum requirement;
- If only the off-street spaces are considered (existing is 829 spaces), then according to the minimum DCP requirements, the centre has a daytime shortfall of 829 spaces (1,658 min requirement) and a night time shortfall of 369 (1,198 min requirement).

Presently Leichhardt Business Centre relies on on-street parking spaces to service its non residential land use parking needs. Contemporary parking policy specifies that all parking should be off street. Clearly it will be difficult for existing uses to comply with this, however to assist the vibrant day and night time activities in Leichhardt, the provision of additional parking by Council estimated at 48 spaces during the day and 99 for the weekends and night times would only assist in addressing some of the off-street shortfall.

Table 5.1 is a summary of the existing parking environment examined in this report; the highlighted components present a deficiency which needs addressing.

Table 5.1 Synthesis of Parking Demand, Statutory Requirements, Permit Parking in Leichhardt

Peak Parking Demand (based on Tables 2.3 & 2.4)					
Day		Location		Where / When	Parking Demand as % of Gross Supply
Friday		Leichhardt Business Centre		All – at 9pm	69%
		Greatest Demand Zone		Zone 2 – 9pm	80%
Saturday		Leichhardt Business Centre		All – at 9pm	87%
		Greatest Demand Zone		Zone 1 – 9pm	93%
		Greatest Demand Zone		Zone 2 – 9pm	87%
Statutory Parking Space requirements and Existing Net Supply (based on Table 4.3)					
Existing Gross Parking Supply			2711		
DCP		Minimum Parking Requirement		Net Supply	Net Supply / Deficiency
Daytime -	all Centre	1658		1843	185
	Zone 1b	624		204	-420
Night time -	all Centre	1198		1676	478
	Zone 1b	251		182	-69
Net (Visitor) Parking Supply and Net (Visitor) Occupancy (based on Figure 5.1)					
		Net Parking Supply		Net Occupancy	
Friday					
Daytime		1843		67%	
Night time		1676		66%	
Saturday					
Daytime		1843		65%	
Night time		1676		89%	

Table 5.1 summarises the peak parking demand and when it occurs. The demand includes resident and business parking. On Saturday, the Leichhardt Centre as a whole is reaching critical parking level at 9pm (87%) with the greatest critical demand in Zone 1 at 9pm (93%). Demand is not as great on Friday, although still high (80%) in Zone 2 at 9pm.

If the DCP minimum parking rate is applied to the land uses in the Centre, the Centre as a whole is in surplus, however significant deficiencies exist in Zone 1b for both daytime and night time uses.

Finally, examining the existing demand within the context of the net component – that is, the actual parking available to visitors and the degree of take up of the parking by visitors, then the existing situation in Leichhardt Centre is at critical levels for the night time period on Saturday. Other times exhibit acceptable levels. In order to increase parking for the Saturday night time period so that 80% occupancy is achieved, 180 additional spaces would need to be provided. For this period, Council proposes to provide an additional 99 spaces, therefore approximately another 80 off street spaces would be required.

5.7.3 Recommendations

The principal recommendation in relation to parking supply for the Leichhardt Business Centre is that in order to service the existing Saturday night time parking, a total of about 180 parking spaces are required for that time. Council's provision of 99 spaces provides for this demand in part only. Council should therefore investigate the nature of the provision of this additional 80 car parks by reducing the parking permits and/or providing off street parking. The location of this parking should be no further than about 300m from Norton Street in Zone 1.

However, to maximise the utilisation of the current parking stock, particularly on-street, it is important to:

Increase the availability of public parking (on-street and off-street) for visitors/shoppers to the LGA by:

- Limiting the number of parking permits issued to residents and business property occupiers/owners to be more in line with other inner city LGAs;
- Introducing a "cap" for the permits issued for properties between Parramatta Road and Allen Street;
- Relocating "permit holders excepted" parking outside the Leichhardt Business Centre;
- Modifying the parking regulations to prevent permit holders utilising on-street parking in Norton Street, between Parramatta Road and Allen Street; and
- Increasing awareness of availability of parking and taxi ranks to visitors (use of parking maps, transport access guide by restaurants) to the centre.

Improve public transport facilities within the LGA by:

- Increasing frequency of bus routes servicing Petersham railway station and the centre to at least 15 minute intervals, particularly at night time on Friday and Saturday;
- Investigating the Night Bus services to this area;
- Introducing bus routes linking Central station and Leichhardt; and
- Increasing capacity of Taxi Ranks in Norton Street particularly in the area from Parramatta Road to Marion Street (Zone 1).

Ensure future land-uses, including developments that increase evening trips and residential developments, accommodate additional parking generated within their premises. This can be done by:

- Future Development Applications for retail, commercial or residential premises, particularly in Zone 1, including a provision of off-street parking as a condition of consent;
- Council refusing to accept monetary contributions in-lieu of off-street parking provisions; and
- Resident and Business permits no longer being granted to new residents and businesses.

Implement measures to accommodate potential car ownership growth by:

- Resolving whether priority is to be given to visitor parking or resident parking in terms of utilising the available on-street parking;
- Provision of off street parking for visitors and local residents;
- Investigate the car share option for commercial uses;

5.7.4 On Street Parking Management

The main day time surveyed trip purposes include shopping, recreation (visiting cafes & meeting friends) and would normally require a minimum 3 hour time period. The short trips (2hr trips) are likely to cover banking and some services such as real estate, a short hotel visit, a shopping trip that excludes a visit to a café (but excluding services such as hairdressing, accountant).

GTA's interview surveys carried out during the day in Leichhardt indicate that about 67% of visitors stayed 2 hours or less, while 33% stayed 3 hours or more. The sample was too small to distinguish between those who used cars and those who used other modes.

It is therefore, recommended that the peak demand areas – ie Zone 1 (Norton Street, between Marion Street and Allen Street), be provided with the following mixture of parking time zones:

- 1P (50%),
- 2P (17%) and
- 3P (33%).

Additionally, no 4P parking should be provided during the day time on street, as this would be taken up in the first instance by local employees who do not have business parking permits. The demand for 4P during the day time should be accommodated in off street car parking areas only. At night time all on street parking could be reverted to 4P which is more suitable for recreation uses.

Appendix A Parking Supply & Demand & Data Sheets

Appendix B Questionnaire Surveys

Appendix C Land Use Survey Plans & Data Sheets