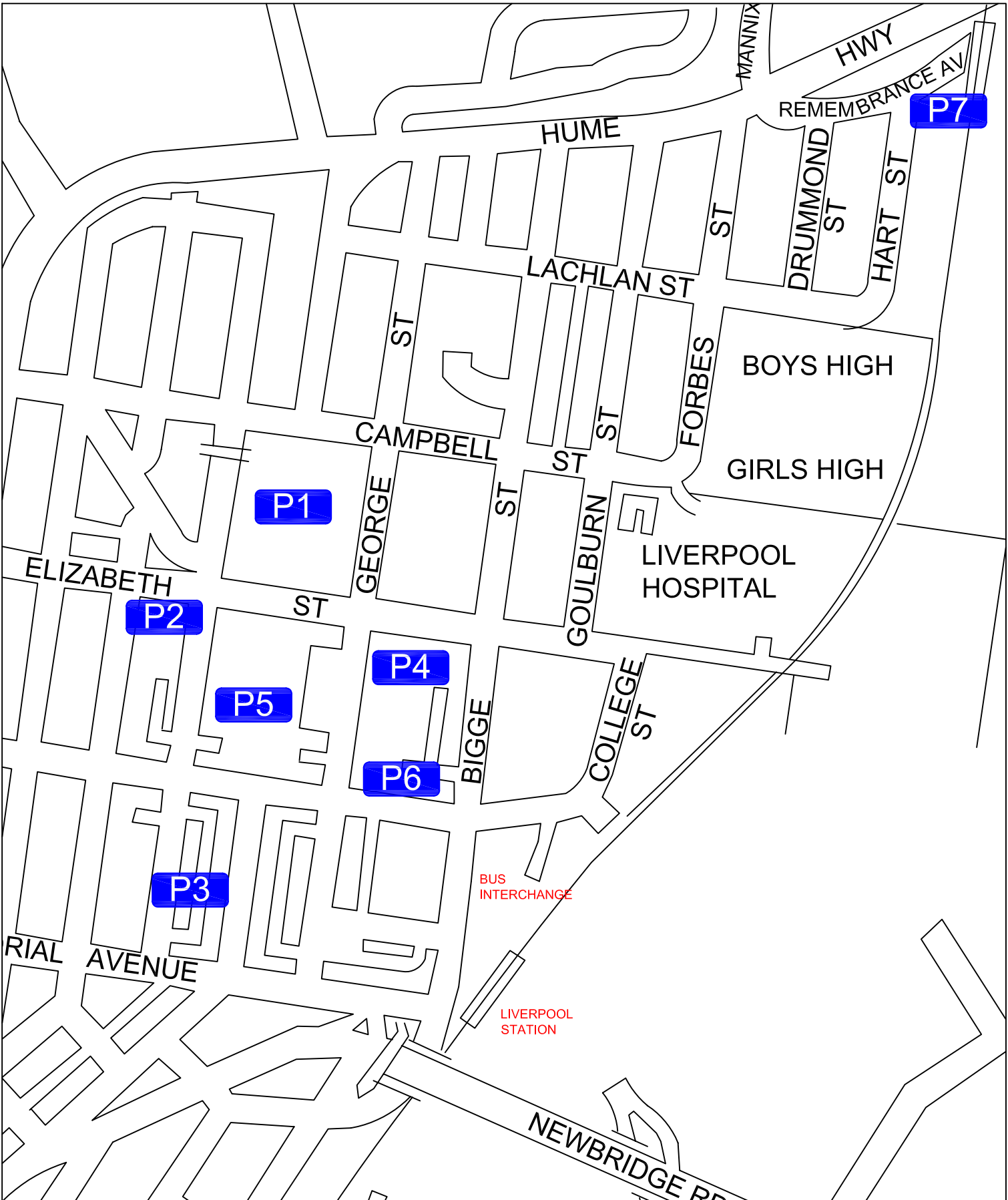
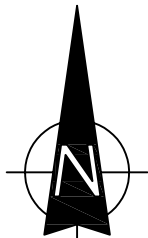




LEGEND

P1	WESTFIELD 2 700	P5	LIVERPOOL PLAZA 250
P2	BATHURST STREET 240	P6	MOORE STREET 250
P3	NORTHUMBERLAND ST 440	P7	WARWICK FARM STATION 328
P4	WARREN SERVICEWAY 670		



**OFF-STREET PUBLIC
PARKING**

FIG 5B

3.3 TRAFFIC CONDITIONS

An indication of the existing traffic conditions in the vicinity of the site is provided by data¹ published by the Roads and Traffic Authority and traffic surveys undertaken for this study. The traffic data published by the RTA is expressed in terms of Annual Average Daily Traffic (AADT) and the results of the latest recorded data are indicated in the following:

	AADT
Hume Highway at Bigge Street	48,532
Bigge Street at Campbell Street	22,378

The significant recorded reduction in volumes on the Highway reflect the completion of the M5 route while the further impact of the opening of the M7 route is yet to be established.

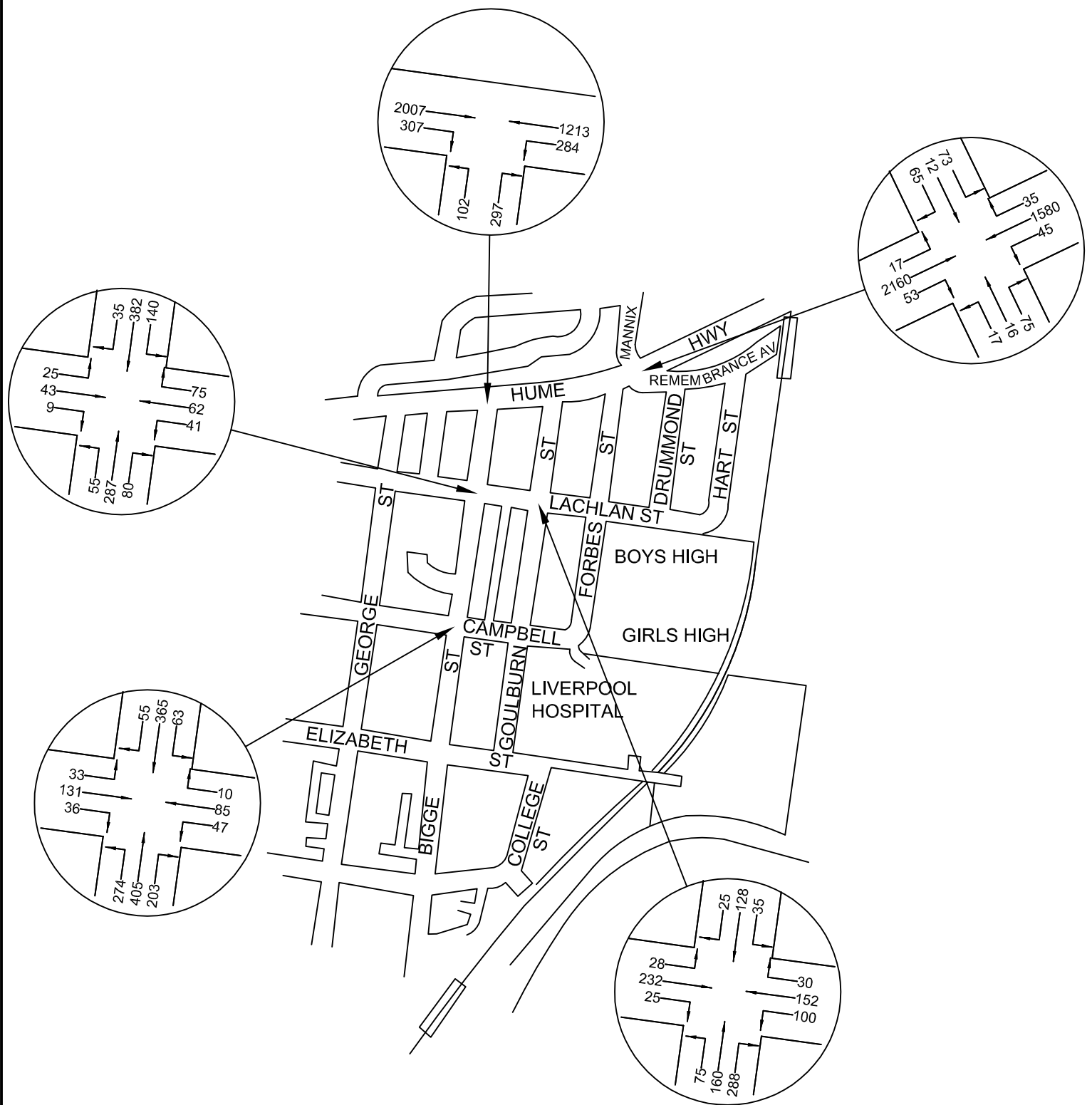
The results of traffic counts undertaken at intersections in the vicinity of the hospital site during the morning and afternoon peak periods are shown in Figure 6a and 6b.

The operational performance of intersections in the area has been analysed using the SCATES and SIDRA programs. The results of that analysis for the morning and afternoon peak periods is provided in the following indicating a generally satisfactory outcome. The criteria for interpreting these results is provided overleaf.

	AM			PM		
	LOS	DS	AVD	LOS	DS	AVD
Hume/Highway/Bigge Street	A	0.70	18.0	B	0.73	23.4
Hume Highway/Remembrance Ave	A	0.82	6.9	A	0.80	12.5
Bigge Street/Lachlan Street (RAB)	A	0.45	8.8	A	0.53	9.4
Bigge Street/Campbell Street	B	0.59	19.5	B	0.36	16.4
Bigge Street/Elizabeth Street	B	0.71	16.8	B	0.57	15.6

*LOS – Level of Service
DS – Degree of Saturation
AVD – Average Vehicle Delay*

¹ Traffic Volume Data for Sydney Region
Roads and Traffic Authority

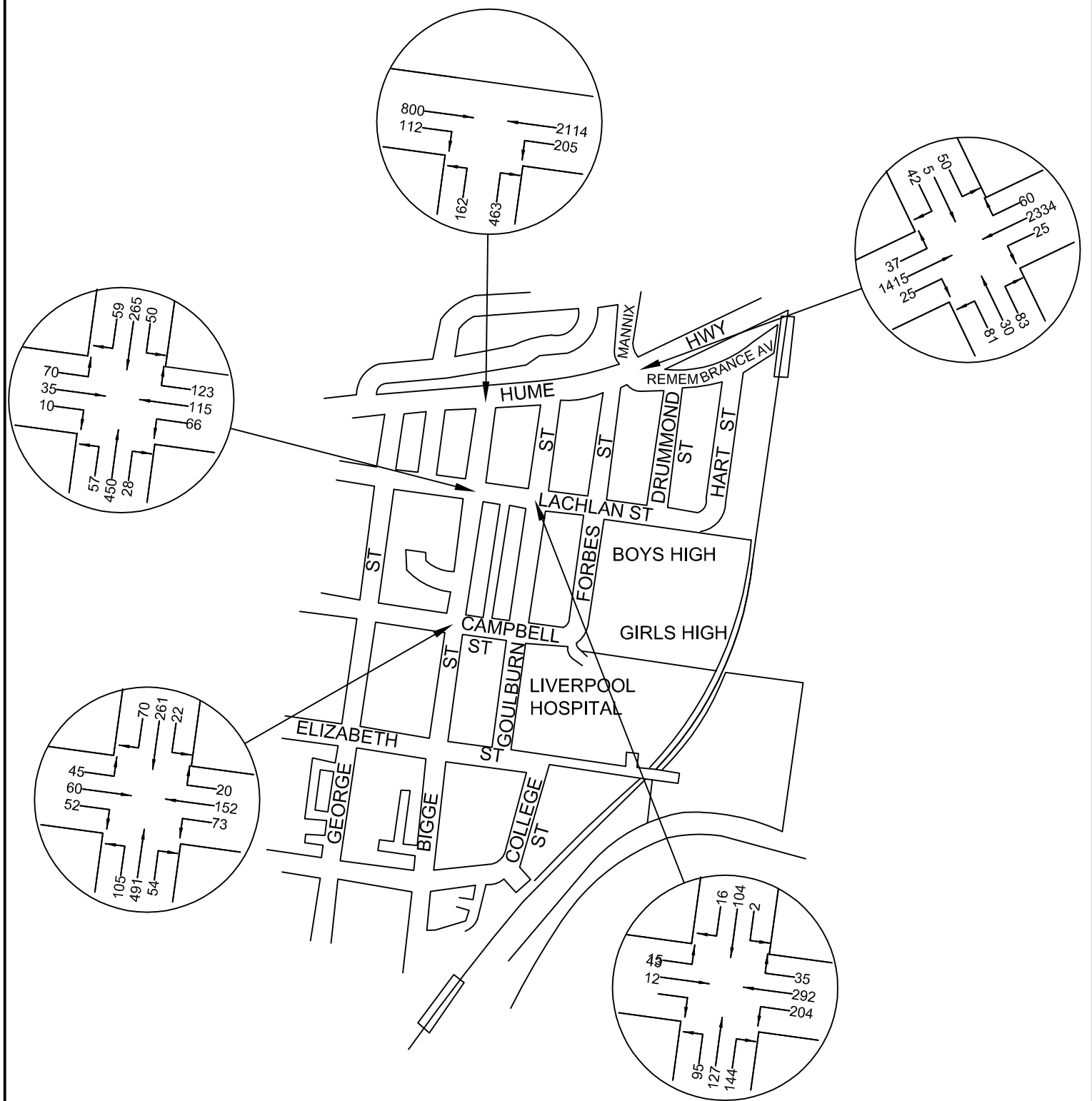


LEGEND



**MORNING PEAK
TRAFFIC VOLUMES**

FIG 6A



LEGEND



**AFTERNOON PEAK
TRAFFIC VOLUMES**

FIG 6B

Criteria for Interpreting Results of SCATES and SIDRA Analyses

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good	Good
'B'	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
'C'	Satisfactory	Satisfactory but accident study required
'D'	Operating near capacity	Near capacity and Accident Study required
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
'F'	Unsatisfactory and requires additional capacity	Unsatisfactory and requires other control mode

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabouts	Give Way and Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by **traffic signals**² both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a **roundabout or GIVE WAY or STOP signs**, satisfactory intersection operation is indicated by a DS of 0.8 or less.

¹ the values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs

3.4 FUTURE CIRCUMSTANCES

There are two impending developments which will have some traffic implications in relation to the hospital site namely:

*** Liverpool Hospital Redevelopment**

Consent has been given for this project as a Part 3A Application and work has commenced. The proposed development will result in the following outcome:

	Existing	Proposed
Beds	591	946
Staff	3,030	4,820
Overnight patients (pa)	23,151	36,206
Day only patients (pa)	9,094	15,959
Outpatients (pa)	702,000	1,122,000
Parking	1,120	1,800 approx

Important elements of the upgraded hospital in terms of vehicle access are:

- a new bridge over the railway line (replacing the at-grade crossing) and a new multi-level staff carpark on the eastern side of the railway line
- a new vehicle access connection to the Hume Highway. This was planned to be a new intersection aligned with Hart Street, however it has eventuated that the existing Remembrance Drive intersection will be upgraded to provide for the hospital traffic.

*** Warwick Farm Commuter Carpark**

Consent has been granted for this project which is expected to commence in the near future. This project involves a multi-deck carpark increasing the current 327 at-grade spaces to some 700 spaces.

Each of these project proposals had a Traffic Impact Assessment, however due to a need to reassess the vehicle access provision for the hospital a separate assessment was recently undertaken by TTPA of the combined traffic implications of these projects.

An extract from that assessment is provided in Appendix A and the conclusions were that:

- * the Hume Highway, Remembrance Avenue and Mannix Parade intersection could be upgraded to accommodate the principal access movements with LOS 'A-B' being achieved
- * the Hume Highway and Bigge Street intersection would operate in its existing form with LOS 'B' being achieved.

4. TRANSPORT FACILITIES

Liverpool CBD including the hospital/medical precinct has excellent transport facilities including CityRail services supplemented by an extensive network of privately operated bus services.

4.1 RAIL

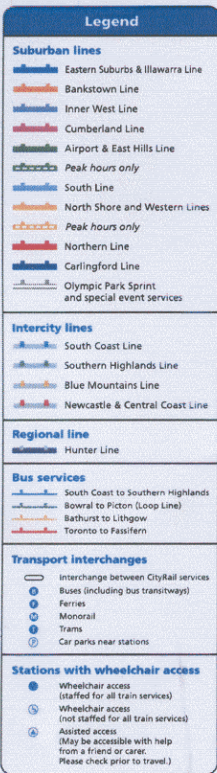
Two railway stations (Liverpool and Warwick Farm) are located on the eastern fringe of the Liverpool CBD providing the majority of residents and workers with convenient access to the CityRail network. Each of these stations is located some 800 metres from the SSWP site (ie within an acceptable/convenient walking distance).

Liverpool Station has a major bus interchange on the western side of the station. The bus interchange provides 12 separate bus stands of which 3 are designated for 'set-down' activities. Warwick Farm Station (to the north of Liverpool Station) has been developed as a park'n'ride facility with parking provision for some 340 vehicles (supplemented by other on-street parking in the vicinity).

Both Liverpool and Warwick Farm Stations are serviced by CityRail's Cumberland, Inner West, Bankstown and Southern Lines providing users with non-transfer connections with major centres such as Sydney CBD, Parramatta, Fairfield, Blacktown, Strathfield, Bankstown and Campbelltown.

The frequency of the rail services travelling via Warwick Farm and Liverpool Stations is summarised in the following:

CityRail network



CITYRAIL SERVICES – LIVERPOOL STATION/ WARWICK FARM STATION (NUMBER OF SERVICES BY RAIL CORRIDOR AND TIME PERIOD)						
Time Period						
Route	4-6am	6-9am	9am-3pm	3-6pm	6pm-12am	12-2am
Liverpool → City via Bankstown	1	6	12	6	5	-
Liverpool → City via Regents Park	4	6	5	6	12	-
Liverpool → City via Fairfield	7	16	18	12	22 (19)*	1
Liverpool → Parramatta	-	2	-	-	-	-
Liverpool → Campbelltown	4	6	16	9	17	5
Parramatta → Liverpool	-	-	-	2	-	-
Campbelltown → Liverpool	6	10	16	6	19 (17)*	-
City → Liverpool via Bankstown	-	6	12	6	8	-
City → Liverpool via Regents Park	3	5	6	6	12	3
City → Liverpool via Fairfield	4	12	18	15	26	5
Total	29	69	103	68	121 (116)*	14

* Reduced frequency at Warwick Farm

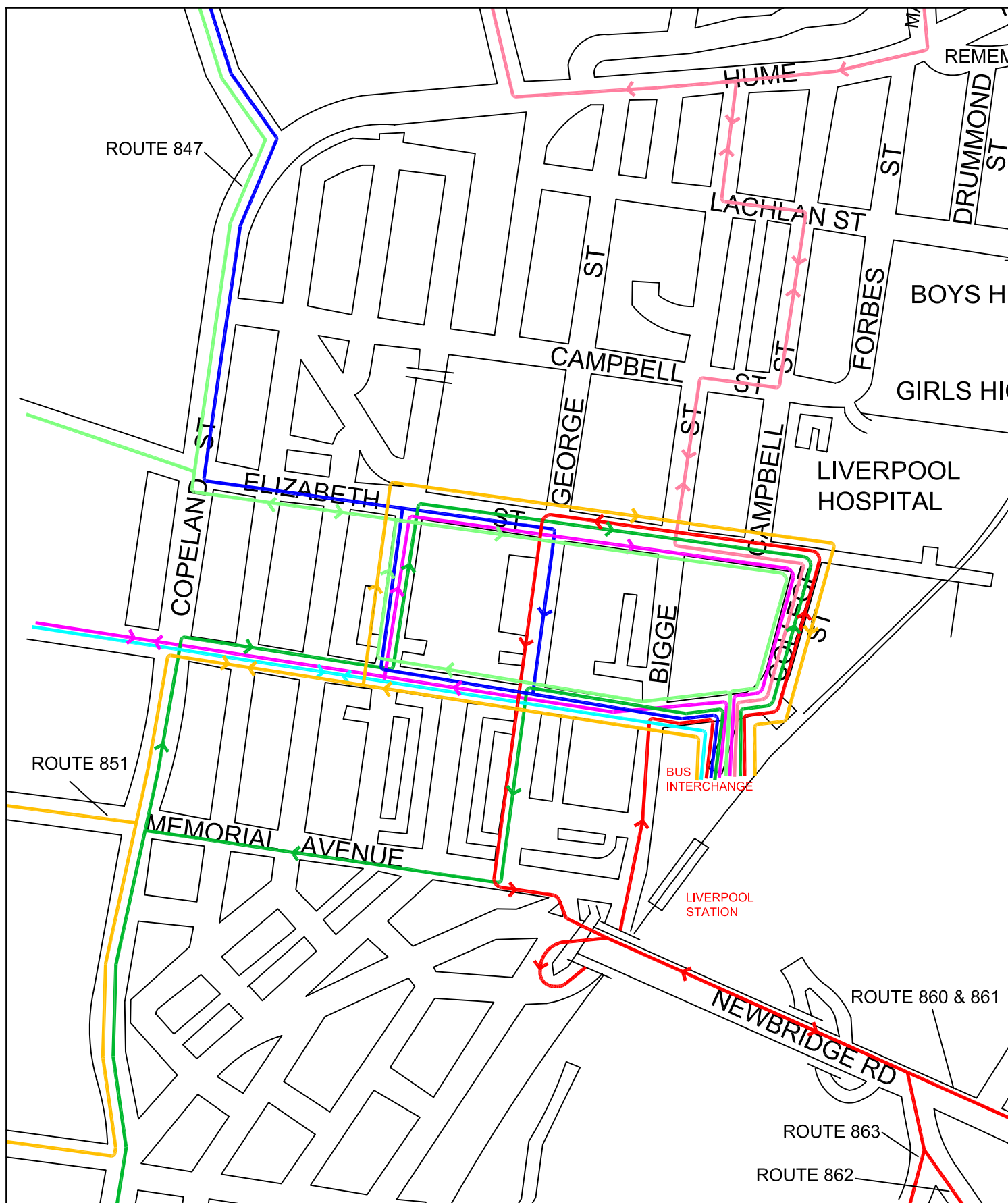
4.2 BUSES

The bus network which services the Liverpool CBD is principally provided by 4 private bus companies, namely Westbus, Metro Link, Busabout and Transit First.

The Parramatta – Liverpool Transitway comprises some 35 stops with service frequency being 10 minutes in peak periods, between 15 – 30 minutes in off-peak periods and 60 minutes at night.

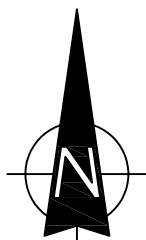
There are a total of 24 bus routes which operate to Liverpool and all of these terminate at the Liverpool bus/rail interchange. Table 4.3 summarises the areas serviced by each of the bus routes while Figure 7 identifies the streets used by each service when approaching and departing the Interchange. The SSWP site is some 300 metres from the principal services along Elizabeth Street and some 600 metres from the services along Moore Street.

It is apparent that the SSWP site has excellent accessibility to frequent/high capacity rail and bus services.



LEGEND

- ROUTE 860, 861, 862, 863
- ROUTE 864, 866, 867, 869
- ROUTE 800, 835, 836
- ROUTE 853, 854, 855
- T80
- ROUTE 850, 851, 852
- ROUTE 841, 842, 843, 844, 845, 847
- ROUTE 849



BUS ROUTES

FIG 7

EXISTING BUS SERVICES OPERATING WITHIN LIVERPOOL CBD			
Route No	Operator	Destination via	Operation
800	Westbus	Parramatta via Canley Heights, Wakeley, Woodpark and Merrylands	6 days per week
835	Westbus	Penrith via Mt Vernon, Erskine Park, UWS Werrington	5 days per week
836	Westbus	Badgerys Creek via Cabramatta Road and Kemps Creek	6 days per week
841	Metrolink	Cecil hills via Bonnyrigg Heights and Heckenberg	6 days per week
842	Metrolink	The Valley Plaza via Sadleir, Miller, Busby and Hinchinbrook	Full time
843	Metrolink	Mt Pritchard	Full time
844	Metrolink	The Valley Plaza via Ashcroft, Heckenberg, Busby	Full time
845	Metrolink	The Valley Plaza via Bonnyrigg, Green Valley and Mt Pritchard	Full time
847	Metrolink	Orange Grove Estate via Liverpool Hospital	Full time
849	Metrolink	Warwick Farm via Liverpool Hospital	6 days per week
850	Busabout	Camden via Lurnea and Leppington	Full time
851	Busabout	Miller via Cartwright	Full time
852	Busabout	Carnes Hill via Horningsea Park, Prestons and Lurnea	Full time
853	Busabout	Rutleigh Park via Austral, West Hoxton and Cartwright	Full time
860	Transit First	Bankstown via Moorebank and Milperra	6 days per week
861	Transit First	Holsworthy via Chipping Norton	Full time
862	Transit First	Holsworthy via Moorebank and Hammondville	Full time
863	Westway	Holsworthy via Wattle Grove	Full time
864	Busabout	Ingleburn via Casula, Glen Regent, Glenfield and Macquarie Fields	Full time
866	Busabout	Ingleburn Station via Denham Court and Links Estate	6 days per week
867	Busabout	Prestons via Casula Mall	Full time
869	Busabout	Churchill Gardens via Lurnea	Full time
T80	State Transit	Parramatta via Miller, Bonnyrigg, Prairiewood, Smithfield and Mays Hill	Full time

4.3 PEDESTRIANS AND CYCLISTS

Pedestrians

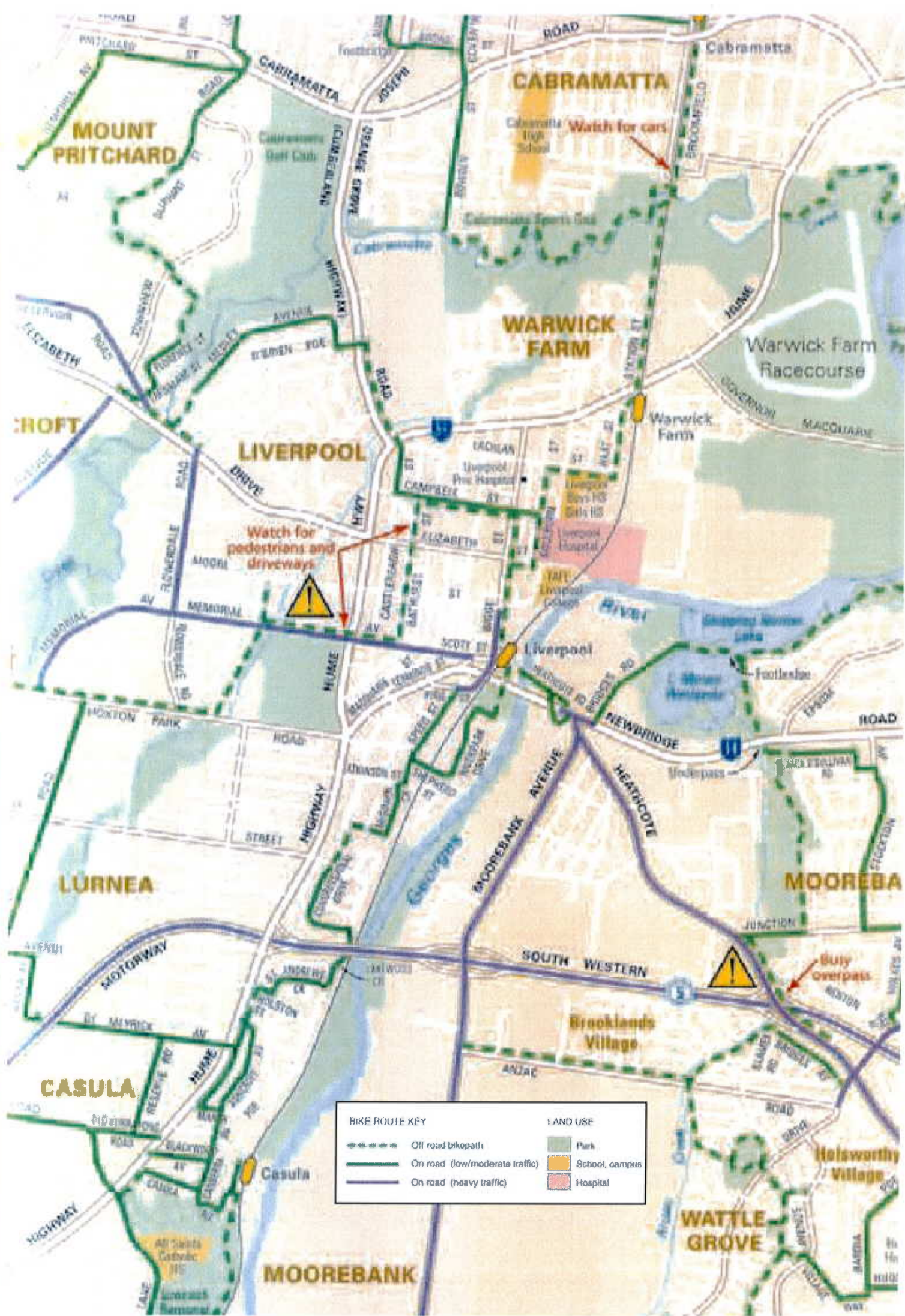
The site has excellent pedestrian connectivity provided by:

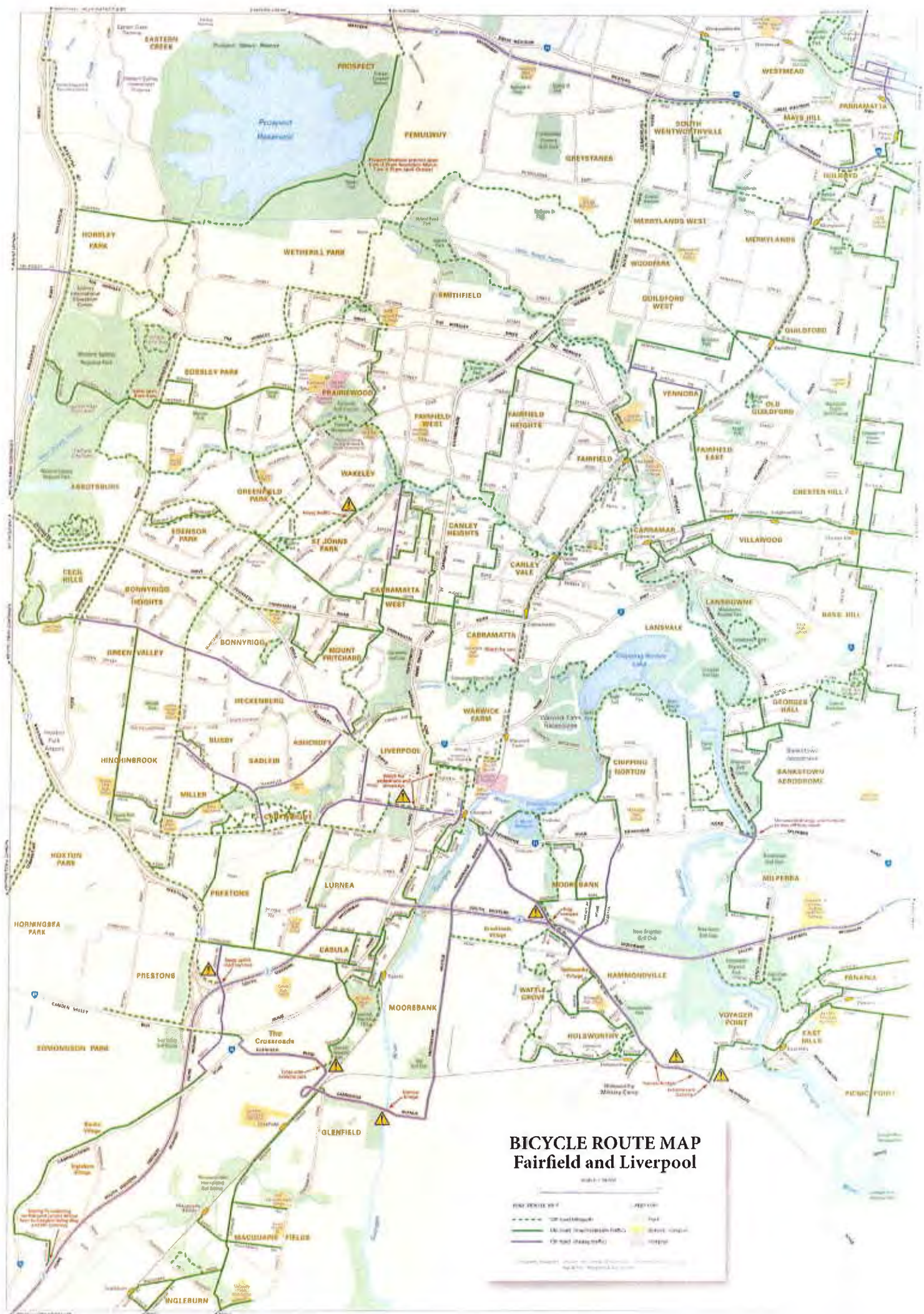
- * the level paved footways along Bigge street, Campbell Street and Lachlan Street
- * the traffic signal controlled pedestrian crossings at intersections along Bigge Street
- * good street lighting and safety surveillance by passing traffic.

Cyclists

The site has excellent cyclist connectivity provided by:

- * the existing cycleways along Bigge Street and Campbell Street (see details overleaf)
- * the connections of these existing cycleways into the regional bicycle network and the railway stations
- * the traffic signal controlled crossings at intersections in the area.





5. TRAFFIC

Traffic surveys have been undertaken at the existing vehicle access points for the carpark areas during the weekday morning and afternoon peak periods. The results of these surveys are provided in Appendix C and summarised in the following:

	AM		PM	
	IN	OUT	IN	OUT
Main Carpark (63 spaces)				
Bigge Street	18	3	11	7
Porte-Cochere	13	13	11	11
Serviceway	4	10	5	9
Staff Carpark (12 spaces)				
Bigge Street	3	1	2	3
Serviceway	3	4	2	5
Total carpark	28	18	20	24
Porte-Cochere	13	13	11	11
Total	41	31	31	35

The potential increased traffic generation of the proposed development will very largely be generated by the additional 34 parking spaces with some minor additional set-down/pick-up movements. The projected additional movements (pro-rata'd in relation to car spaces and porte-cochere movements) are as follows:

	AM		PM	
	IN	OUT	IN	OUT
Bigge Street	16	2	10	6
Serviceway	3	9	4	8
Porte-Cochere	5	5	4	4
Total	24	16	18	18

These projected additional traffic movements will be distributed between the Bigge Street and the Serviceway frontages and as such will be quite minor in nature. The Bigge Street access movements will split relatively evenly between the north and south (as per the existing movements) and will not represent any adverse operational capacity or safety implications.

While the total traffic movements generated by the expanded hospital will not be insignificant they will be spread between:

- * 2 separate combined ingress/egress driveways on the Serviceway
- * 2 separate combined ingress/egress driveways as well as a porte-cochere egress driveway on Bigge Street.

Regular gaps are provided in the vehicle flows along Bigge Street by the operation of the traffic signals to the south and the roundabout and traffic signals to the north. The existing driveways are utilised and these have not experienced any difficulty or safety concerns in the past.

It is apparent that there will not be any adverse traffic consequences as a result of the proposed development scheme.

6. PARKING

Council's DCP 2008 in respect to 'hospital' use within Liverpool CBD area specifies the following:

- * 1 space per 100m² floorarea
- * 3 spaces per 100 spaces for disabled parking
- * 1 motorbike space per 20 parking spaces
- * 1 bicycle space per 200m² floorarea (15% visitor).

The existing hospital of 6,516m² has 75 parking spaces indicating a surplus of 10 spaces in relation to the DCP criteria. The proposed extension of 4,878m² will provide 34 spaces in the new basement. It is proposed to provide a total of 109 spaces with the development scheme for a total floorarea of 11,400m² (ie 1 space per 104.5m²).

The proposed total carparking provision is therefore slightly less than the DCP requirement while the provision for motorbikes, bicycles and disabled driver spaces in the new carpark will be compliant with the DCP criteria. It is also worth noting that the site is located within 800m of both Warwick Farm and Liverpool, both of which are major stations on CityRails Cumberland, Southern and Inner West/Bankstown Lines.

It is also proposed to provide in the new carpark area:

- * 6 motorbike spaces
- * 10 bicycle spaces (plus male and female end of trip facilities)
- * 2 disabled spaces (plus 4 in existing, total 6).

The DCP specifies for commercial use/bicycle space per 200m² 'leasable area' and while the hospital extension will have a GBA of 4,409m² much of this is attributable

to normal commercial floorspace (ie beds etc) and the provision of 19 spaces is considered to be quite adequate.

7. ACCESS, INTERNAL CIRCULATION AND SERVICING

Access

The existing vehicle access provisions will remain unchanged with:

- * main carpark and porte-cochere accesses on Bigge Street
- * main carpark access on Goulburn Serviceway
- * staff carpark accesses on Bigge Street and Goulburn Serviceway
- * loading dock access on Goulburn Serviceway.

These existing accesses have operated for many years without adverse traffic circumstances and comply with the requirements of AS 2890.1 and accommodate all vehicles requiring to access the site.

The existing consent for the vacant site (Appendix A) included a porte-cochere set-down/pick-up on the Bigge Street frontage (2 driveways) and the initial planning for the private hospital extension included a porte cochere. However, considerations in relation to landscaping, pedestrian conflict etc have led to the deletion of a porte-cochere (which would result in the removal of 2 on-street parking spaces).

The hospital extension will include a number of separate operational elements (ie from the general hospital) including a mental health unit and consulting suites. Therefore, there remains a strong need to a convenient set-down/pick-up facility need at the front entrance of the new building.

It is proposed that this facility be provided with a section of NO PARKING restrictions which would result in no net loss of on-street parking (in relation to the provision of a porte-cochere).

Internal Circulation

The only new internal circulation elements will be in the basement carpark under the new building and the connections into the existing carpark. The design of these carpark elements will comply with the requirements of AS 2890.1 and Council's DCP including:

- * bay dimensions
- * aisles
- * ramps
- * grades
- * manoeuvring areas.

Servicing

Servicing of the new hospital elements will be undertaken through the existing facilities utilising the existing loading dock on Goulburn Serviceway with transfer of medical waste undertaken by contractor (currently SITA). The existing loading dock will be quite adequate to provide for these additional servicing needs (refer to Waste Report) and all vehicles requiring to access this dock facility.

8. CONSTRUCTION TRAFFIC MANAGEMENT

The provision of a detailed Construction Traffic Management Plan will be a Consent Condition requirement. The principal considerations in relation to the proposal are:

- * the whole of the vacant site is to be excavated
- * the Serviceway is only some 5 metres wide
- * the existing hospital is to remain operational.

The principal construction processes/activities will be:

Excavation

- * trucks to enter and depart via Bigge Street
- * truck route to/from the Hume Highway along Bigge Street
- * traffic controller supervision of truck access.

Construction

- * WORKS ZONE on Bigge Street frontage
- * B Class hoarding with work sheds
- * craneage from WORKS ZONE
- * construction hours to be specified
- * worker parking in completed basement.

It is apparent that there will not be any special or unusual circumstances associated with the construction processes nor will there be any need for any mitigation measures. Indication will be undertaken for all workers and visitors to the construction site.

9. RESPONSE TO DIRECTOR GENERAL'S REQUIREMENTS

This Assessment Report has been prepared with reference to:

- * Metropolitan Transport Plan
- * NSW State Plan
- * NSW Planning Guidelines for Walking and Cycling
- * Integrated Landuse and Transport Policy
- * NSW Bike Plan
- * RTA Guide to Traffic Generating Development.

It is expected that Consent Conditions will require preparation of a Transport Access Guide and a Workplace Travel Plan and these will ensure that users of the development will be able to make travel choices.

The existing circumstances for pedestrians, cyclists and public transport services are identified. The existing provisions, particularly public transport services, present an ideal situation for a hospital use and the accommodation of future travel demands. Appropriate provision is proposed for pedestrian access, parking for motorbikes, bicycles and disabled drivers.

The traffic impacts during the construction stage will be no greater than that of the operational stage. The construction activities will be facilitated by a WORKS ZONE on the site frontage and deployment of Traffic Controllers. Traffic activity on the road system will be accommodated by the existing intersection controls (traffic signals and roundabouts).

The traffic generation of the expanded hospital is identified and assessed in relation to the existing traffic circumstances as a result of the Public Hospital expansion and the commuter carpark project. It is concluded that there is no requirement for upgrading or road improvement works.

The existing vehicle accesses are to be utilised and there will be design compliance with the relevant Australian Standards and DCP's.

The proposed total parking provision of the expanded hospital will be slightly less than that specified in Council's DCP parking criteria. The parking provision is constrained while recognising the circumstances of shift changeover and limited on-street availability.

10. CONCLUSION

The vacant site adjoining the existing SSWP Hospital represents a valuable opportunity to consolidate facilities within the Liverpool Hospital Precinct and take advantage of the existing convenient public transport services. The proposed new building will be integrated with the existing building and will utilise the existing vehicle accesses which are quite flexible and effectively distribute the generated traffic movements.

This assessment has been prepared to accord with the DG's requirement and has concluded that:

- * travel choices will be ensured by the convenient high capacity public transport services as well as the facilities available for pedestrians and cyclists
- * there will be no adverse traffic implications and no requirement for upgrading roadworks
- * the proposed parking provision will be constrained but adequate to avoid any excessive on-street demand
- * the vehicle access, internal circulation and servicing arrangements will be satisfactorily and appropriate.

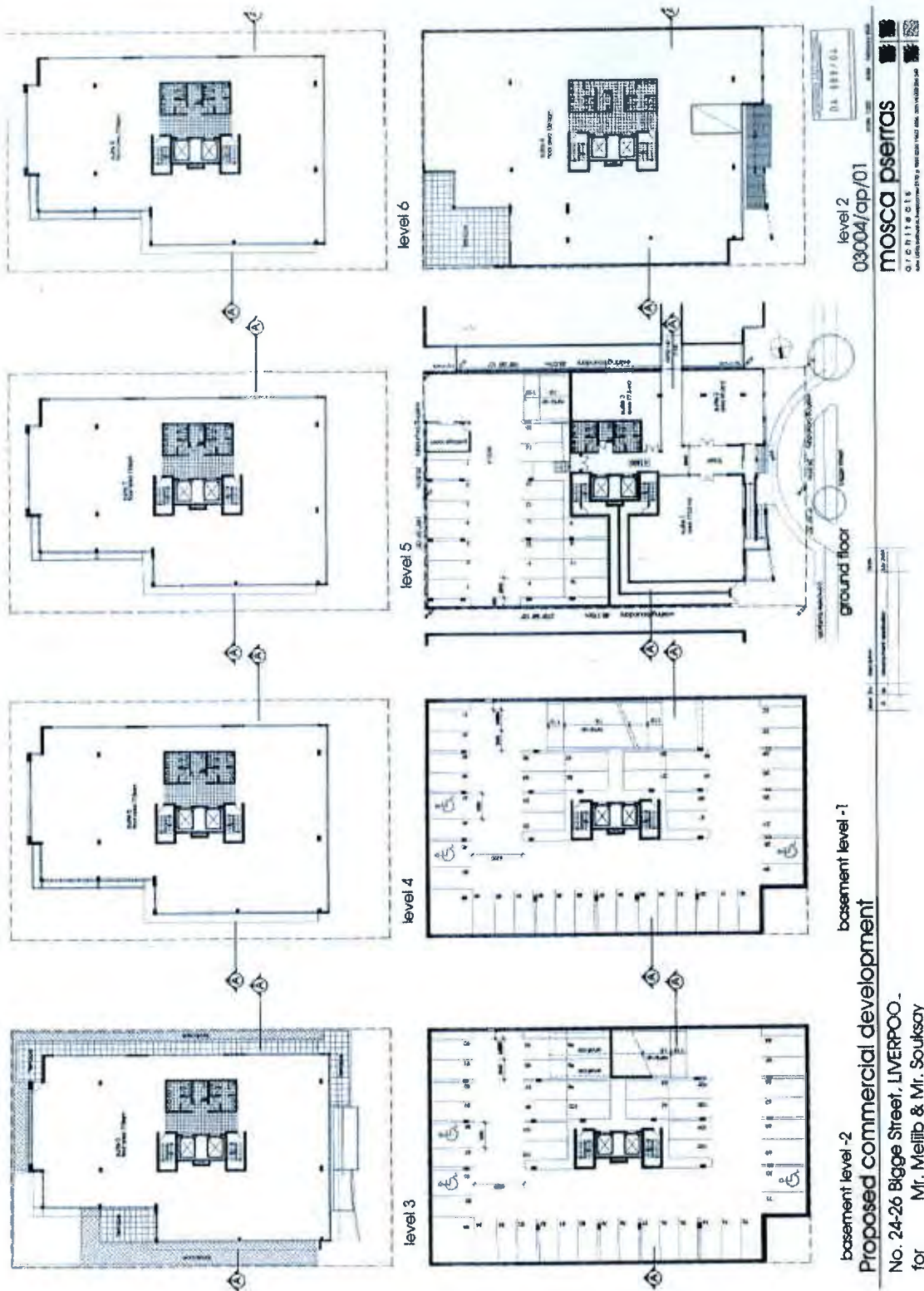
APPENDIX A

APPROVED SCHEME

Annexure 2 Exterior Elevation

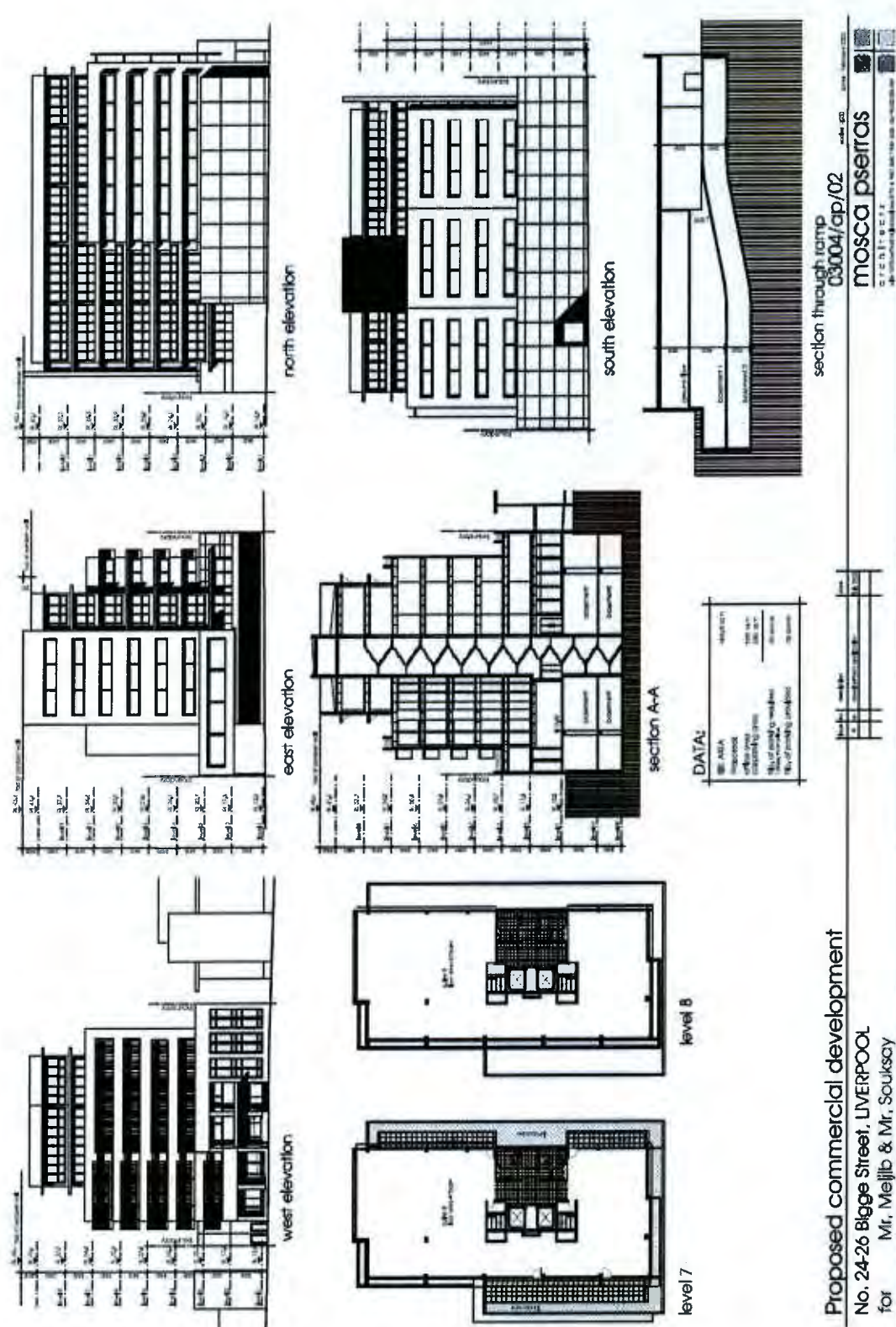


Annexure 3 Floor Plans



JONES LANG
LASALLE

Annexure 4 Elevations & Floor Plans



JONES LANG
LASALLE

APPENDIX B

TRAFFIC ASSESSMENT FOR PUBLIC HOSPITAL



TRANSPORT AND TRAFFIC PLANNING ASSOCIATES

A division of Monvale Pty Ltd ACN 060 653 125
ABN 44 060 653 125

3 May 2010
Ref 0635

Liverpool Hospital Traffic Assessment for Revised Vehicle Access Via Hart Street

The traffic assessment for the Liverpool Hospital Development scheme identified a new access intersection on the Hume Highway with a new link road connection as an extension of Hart Street. A number of subsequent circumstances and considerations have acted to generate a need to review the potential options for access (eg severing of Remembrance Way, removal of trees and location of intersection just over the crest of the railway overpass). The only available alternative is to upgrade the existing Hume Highway, Remembrance Drive and Mannix Parade intersection to accommodate the future traffic demands.

The potential future traffic circumstances are now complicated by the proposal by TIDC to construct a multi-level commuter carpark on the site of the existing at-grade carpark at the eastern end of Remembrance Avenue adjacent to Warwick Farm Railway Station. Details of the existing intersection arrangement are provided on the traffic signal design plan (Appendix A).

The TIDC development application was accompanied by a Traffic Assessment prepared by Gennaoui Consulting Pty Ltd and projected additional vehicle movements at the intersection consequential to the TIDC proposal is as follows:

Transportation, Traffic and Design Consultants

Suite 603 Level 6 282 Victoria Avenue PO Box 1160 Chatswood NSW 2067 ph (02) 9411 5660 Fax (02) 9904 6622
Email ttpa@ttpa.com.au

		AM		PM	
		Carpark Peak	On-Street Peak	Carpark Peak	On-Street Peak
Hume Highway	Right-turn	108	23	15	1
	Left-turn	36	8	5	-
Remembrance Avenue	Right-turn	2	2	33	39
	Left-turn	3	1	99	13

Whilst the 'carpark peak' shows a significant difference (for carpark movements) this is a rather mute point as reference to Figures 3a and 3b of the TIDC Report indicate an eastbound flow on the highway of 1,842 for the 'on-street' peak and 2,494 for the carpark peak. While the westbound movement in the afternoon peak is 2,025 for the 'carpark' peak and 2,494 for the 'on-street' peak.

The differences in the various movement volumes between 7.45am (end of the carpark peak) and 8.00am (start of the on-street peak) and 5.00pm (end of the on-street peak) and 6.00pm (start of the carpark peak) are very minimal. The adopted Existing Peak Traffic Flows at this intersection adjusted from the study to provide a basis of assessing the compound Existing Traffic + TIDC + Hospital are as follows:

		AM	PM
Hume Highway	Eastbound	2,400	1,400
	Right-turn	130	30
	Left-turn	30	40
	Northbound	1,400	2,400
	Right-turn	30	80
	Left-turn	30	30
Remembrance Avenue	Northbound	20	10
	Right-turn	80	80
	Left-turn	30	80
Mannix Parade	Southbound	10	10
	Right-turn	80	80
	Left-turn	50	50

The brief for this assessment requires a more detailed analysis of the directional distribution (and impacts) of the hospital generated traffic. Section 2.2 of the Hospital Traffic Assessment provided details of the established directional distribution of vehicle trips for staff, day patients and visitors (Appendix B). These distributions are depicted on Figure 1 while the make up of the existing and projected future traffic generations is as follows:

	AM		PM	
	Existing	Future	Existing	Future
Staff	626	940 (+314)	610	870 +(260)
Patients/Visitors	174	260 (+86)	140	200 (+60)
Total	800	1,200	750	1,070

It can be seen that:

- * the great majority of movements are generated by staff
- * there will be very little change to any patient/visitor movements through the Hume Highway/Remembrance Avenue intersection as they will not have access to the new multi-deck carpark or other parking on the Eastern Campus.

At the present time there are some 640 staff parking spaces in the eastern campus and this will increase to some 1,400 spaces whilst there are some 480 staff etc spaces in the Main Campus and this will remain along with some 500 visitor/patient spaces plus the available on-street parking. The nature of the staff vehicle movements will change because of:

- * the increased number of movements (ie parking spaces)
- * the changed access for the Eastern Campus (where the additional spaces will be located).

The requirement for this assessment is to identify the implications for the Hume Highway intersections of Remembrance Avenue/ Mannix Street and Bigge Street. The various access routes relative to the Figure 1 distributions are depicted on Figure 2 and it can be seen that the only affectations for the subject intersections are for vehicles arriving/departing via Hume Highway East and Orange Grove Road. There may be some very minor movement to/from Elizabeth Drive along the Highway, however would be quite minimal.

It is difficult to predict how the movements to/from Orange Grove Road will distribute, however it is reasonable to assume that the staff movements will split 50/50 between Bigge Street and Remembrance Avenue while all of the additional patient/visitor movements will go to Bigge Street

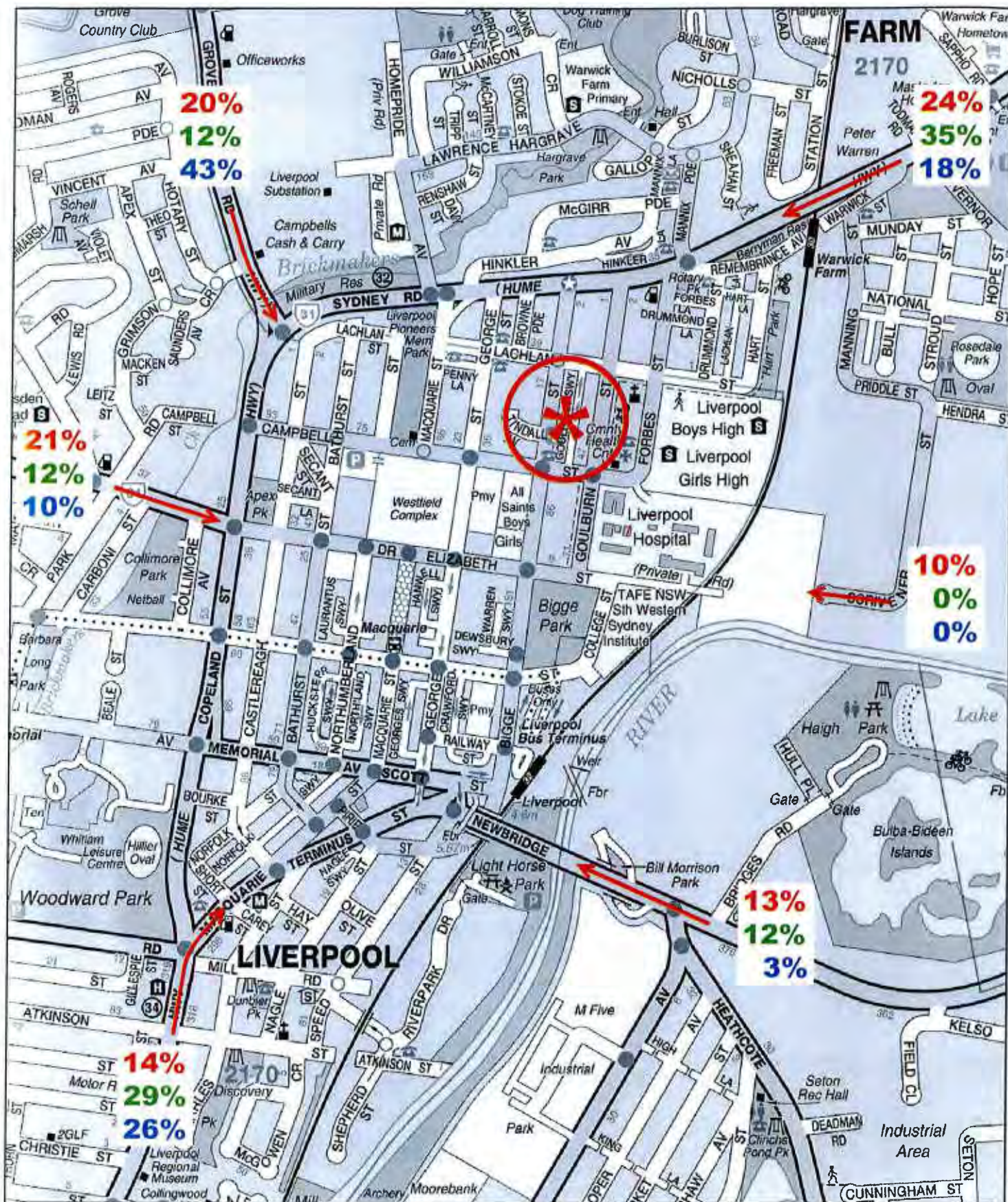
Hume Highway/Bigge Street

		AM	PM
Additional staff	20% of 314/260	64	52
	50% turn right/left	32	26
	50% use Remembrance	32	26
Additional patient/visitor			
	40% of 86/60	34	24
	50% turn right/left	17	13
	50% use Remembrance	17	13
	30% of 86/60	26	18
	Turn right out of Bigge or left before Bigge		

Thus the additional flows at this intersection are:

		AM		PM
Hume Highway	Eastbound	32 + 17	Westbound	26 + 13
	Right*	32 + 17 + 26	Left-turn	26 + 13 + 18

* assume all arrive AM/depart PM

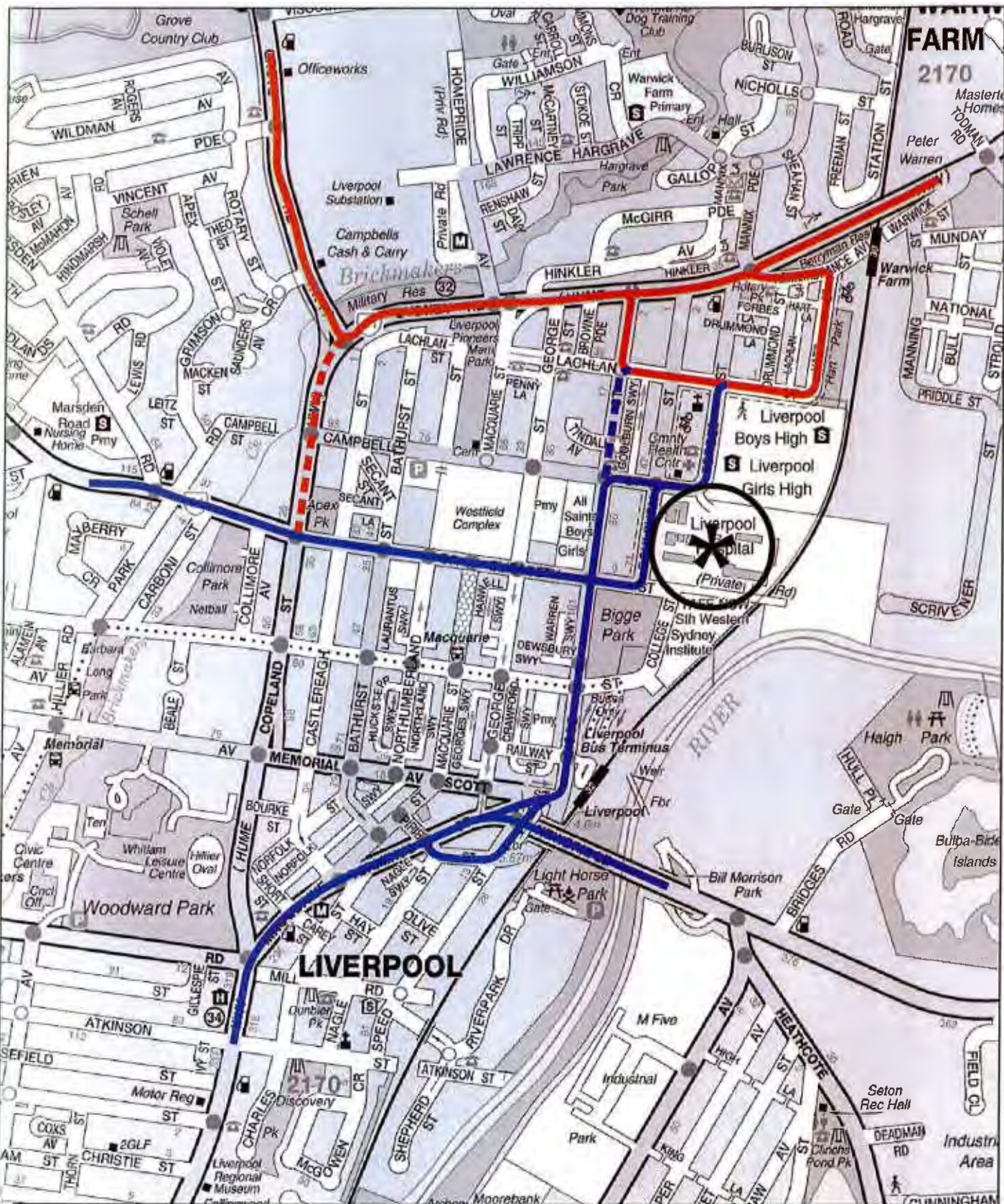


LEGEND

- STAFF
- DAY PATIENTS
- VISITORS



VEHICLE MOVEMENT DISTRIBUTION



LEGEND



APPROACH AND DEPARTURE ROUTES

Transport and Traffic Planning Associates

		AM	PM
Hume Highway	Eastbound	+ 49*	-
	Westbound	-	+ 39*
	Right-turn	+ 75	-
Bigge Street	Right-turn	-	+ 18
	Left-turn	-	+ 75 **

* plus some +30 trips due to TIDC

** note there are other routes available

The operational performance of this intersection has been assessed using SIDRA and the results indicating a satisfactory outcome are provided in the following:

	AM				PM		
LOS	DS	AVD		LOS	DS	AVD	
B	0.894	27.3		B	0.835	24.7	

Hume Highway/Remembrance Avenue/Mannix Avenue

		AM	PM
Additional staff			
	To/from the west	32 (RT)	26 (LT)
	To/from the east 24% 314/260	75 (LT)	62 (RT)
Additional patient/visitor			
	To/from patient/visitor	26 (WB)	18 (EB)
	To/from west		
Miscellaneous arrive/depart		40	40
(Set-down/pick-up, taxi etc)			
Hume Highway	Eastbound		18
	Right-turn	32 + 10	+ 10
	Westbound	26	
	Left-turn	75 + 10	+ 10
Remembrance	Right-turn	+ 10	62 + 10
	Left-turn	+ 10	26 + 10

Transport and Traffic Planning Associates

The compound additional flows at this intersection would be as follows:

		AM	PM
Hume Highway	Eastbound	2,400	1,400 +18 (1,418)
	Right-turn	130 + 108 +42 (280)	30 + 15 + 10 (+ 55)
	Left-turn	30	40
	Westbound	1,400 + 26 (1,426)	2,400
	Right-turn	30	80
	Left-turn	30 + 36 + 85 (151)	30 + 5 + 10 (45)
Remembrance Ave	Northbound	20	10
	Right-turn	80 + 3 + 10 (93)	80 + 99 + 72 (251)
	Left-turn	30 + 2 + 10 (42)	88 + 33 + 36 (157)
Mannix Avenue	Southbound	10	10
	Right-turn	80	80
	Left-turn	50	50

Assessment of this demand outcome (together with the other contingent needs in regard to other future traffic growth and some 'sensitivity' provision) in relation to the existing intersection arrangement indicate that:

- * the right-turn volumes out of Remembrance Avenue and Mannix Avenue will require diamond turn phasing
- * the right-turn volumes out of the Highway will require diamond turn phasing
- * the right-turn volume into Mannix Avenue is relatively light and modification of the central median could accommodate this bay and provide 3 westbound lanes
- * the heavy left-turn movement from the Highway into Remembrance Avenue requires a separate left-turn lane (reducing obstruction of westbound traffic due to the acute turn).

Transport and Traffic Planning Associates

A concept geometrical provision of these requirements is indicated in Appendix C. The operational performance of this intersection with the projected volumes and double diamond overlap phasing has been modeled using SIDRA and the results are provided in Appendix D and summarized in the following:

AM			PM		
LOS	DS	AVD	LOS	DS	AVD
B	1.16	20.1	A	0.768	8.8

The results indicate that some minor movements would experience LOS 'E – F' in the morning peak, however this is not unusual while the volumes adopted reflects peak on-street, peak carpark and peak hospital generation. At the same time the overall Average Vehicle Delay outcome is significantly better than the existing circumstance.

Yours faithfully



Ross Nettle
Director
Transport and Traffic Planning Associates

Appendix A

Appendix B

Travel Mode	Staff	Day Patient	Patient Visitor
Car driver	80%	58%	50%
Car passenger	5%	19%	20%
Set-down/pick-up, taxi	1.5%	2%	1.5%
Train	8%	9%	20%
Bus	2.5%	7%	7%
Walk/cycle	3%	5%	1.5%

The morning 'arrival time' patterns for staff, day patients and patient visitors are depicted on the graph overleaf and it is apparent that the only significant activity during the normal 'on-street' peak traffic periods is that of the staff arrivals and departures which peak at 8.00am and 4.30pm respectively.

The locational make-up of 'place of residence' of existing staff, day/out patients and visitors is as follows:

	Staff	Day/Out Patients	Visitors
North	10%	5%	15%
North-west	9%	5%	28%
North-east	17%	37%	7%
East	12%	5%	11%
West	4%	2%	10%
South-west	19%	20%	15%
South-east	13%	5%	2%
South	14%	9%	11%
Liverpool	2%	14%	1%

Whilst the hospital specifically serves the South-West Metropolitan area it is apparent that a significant proportion of movements to/from the hospital (at the present time) are distributed to/from the North, North-West, North East and East as follows:

Staff	-	46%
Day/Out Patients	-	52%
Visitors	-	61%

This pattern is likely to change to some extent over time as urban development extends in the south-western sector. The seasonal pattern of hospital admissions is fairly consistent as shown on the graph overleaf.

Appendix C



Appendix D

Unlicensed Trial Version

MOVEMENT SUMMARY

Site: Existing AM

Hume Highway and Bigge Street

Existing AM Peak

Signals - Fixed Time Cycle Time = 110 seconds

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South											
1	L	86	0.0	0.578	51.9	LOS D	12.0	83.7	0.96	0.82	24.7
3	R	318	0.0	0.579	52.7	LOS D	12.0	83.7	0.96	0.82	24.5
Approach		404	0.0	0.579	52.6	LOS D	12.0	83.7	0.96	0.82	24.5
East											
4	L	264	0.0	0.725	35.4	LOS C	23.1	161.6	0.92	0.88	31.2
5	T	1289	0.0	0.725	31.4	LOS C	24.5	171.3	0.93	0.82	30.5
Approach		1554	0.0	0.725	32.1	LOS C	24.5	171.3	0.92	0.83	30.8
West											
11	T	2473	0.0	0.894	19.9	LOS B	58.7	410.8	0.87	0.87	36.8
12	R	397	0.0	0.606	29.3	LOS C	13.0	91.0	0.88	0.90	33.3
Approach		2869	0.0	0.894	21.2	LOS B	58.7	410.8	0.87	0.87	36.2
All Vehicles		4827	0.0	0.894	27.3	LOS B	58.7	410.8	0.90	0.85	33.0

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).

Level of Service (Worst Movement): LOS D. LOS Method for individual vehicle movements: Delay (RTA NSW).

Approach LOS values are based on average delay for all vehicle movements.

Movement Performance - Pedestrians							
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued
P1	Across S approach	53	21.6	LOS C	0.1	0.1	0.63
P7	Across W approach	53	36.0	LOS D	0.1	0.1	0.81
All Pedestrians		106	28.8				0.72

Level of Service (Aver. Int. Delay): LOS C. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).

Level of Service (Worst Movement): LOS D. LOS Method for individual pedestrian movements: Delay (HCM).

Processed: Wednesday, 14 April 2010 3:32:51 PM

SIDRA INTERSECTION 4.0.16.1074

Project: G:\WORK\06\0635 LIVERPOOL HOSPITAL\sldra\hume and bigge.sip

Unlicensed Trial Version

Copyright ©2000-2010 Akcelik & Associates Pty Ltd

www.sidrasolutions.com

**SIDRA
INTERSECTION**

Unlicensed Trial Version

MOVEMENT SUMMARY

Site: Existing PM

Hume Highway and Bigge Street

Existing PM Peak

Signals - Fixed Time Cycle Time = 100 seconds

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South											
1	L	245	0.0	0.813	51.5	LOS D	19.7	137.7	1.00	0.92	24.8
3	R	442	0.0	0.813	53.3	LOS D	19.7	137.7	1.00	0.92	24.3
Approach		687	0.0	0.813	52.7	LOS D	19.7	137.7	1.00	0.92	24.5
East											
4	L	220	0.0	0.834	30.4	LOS C	37.9	265.0	0.90	0.96	34.1
5	T	2464	0.0	0.835	22.7	LOS B	38.5	269.8	0.90	0.86	34.9
Approach		2684	0.0	0.835	23.4	LOS B	38.5	269.8	0.90	0.87	34.8
West											
11	T	1129	0.0	0.432	8.1	LOS A	14.1	98.5	0.50	0.45	47.2
12	R	176	0.0	0.818	41.0	LOS C	8.6	60.5	1.00	0.95	28.2
Approach		1305	0.0	0.818	12.5	LOS A	14.1	98.5	0.57	0.52	43.3
All Vehicles		4877	0.0	0.835	24.7	LOS B	38.5	269.8	0.82	0.78	34.0

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).

Level of Service (Worst Movement): LOS D. LOS Method for individual vehicle movements: Delay (RTA NSW).

Approach LOS values are based on average delay for all vehicle movements.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	9.7	LOS A	0.1	0.1	0.44	0.44
P7	Across W approach	53	30.4	LOS D	0.1	0.1	0.78	0.78
All Pedestrians		106	20.1				0.61	0.61

Level of Service (Aver. Int. Delay): LOS C. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).

Level of Service (Worst Movement): LOS D. LOS Method for individual pedestrian movements: Delay (HCM).

Processed: Tuesday, 13 April 2010 4:51:08 PM

SIDRA INTERSECTION 4.0.16.1074

Project: G:\WORK\08\0635 LIVERPOOL HOSPITAL\sidrahume and bigge.slp

Unlicensed Trial Version

Copyright ©2000-2010 Akcelik & Associates Pty Ltd

www.sidrasolutions.com

**SIDRA
INTERSECTION**

Unlicensed Trial Version

MOVEMENT SUMMARY

Site: Post Development AM

Hume Highway and Remembrance Avenue
Post Development AM Peak
Signals - Fixed Time Cycle Time = 160 seconds

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South											
1	L	44	0.0	0.186	76.2	LOS F	4.4	26.2	0.93	0.75	19.3
2	T	21	0.0	0.084	66.6	LOS E	2.2	13.1	0.92	0.66	20.5
3	R	98	0.0	0.520	80.3	LOS F	9.0	54.3	0.98	0.79	18.8
Approach		163	0.0	0.520	77.4	LOS F	9.0	54.3	0.96	0.76	19.1
East											
4	L	159	0.0	0.167	7.8	LOS A	0.6	3.3	0.06	0.62	49.4
5	T	1501	0.0	0.313	1.1	LOS A	3.8	23.0	0.08	0.07	57.8
6	R	32	0.0	0.231	10.6	LOS A	0.3	1.9	0.08	0.68	46.4
Approach		1692	0.0	0.313	1.9	LOS A	3.8	23.0	0.08	0.13	56.6
North											
7	L	53	0.0	0.199	69.7	LOS E	5.7	34.3	0.90	0.77	20.6
8	T	11	0.0	0.199	61.5	LOS E	5.7	34.3	0.90	0.70	20.9
9	R	84	0.0	0.523	83.4	LOS F	8.1	48.7	0.99	0.79	18.2
Approach		147	0.0	0.523	77.0	LOS F	8.1	48.7	0.95	0.77	19.2
West											
10	L	32	0.0	0.889	11.4	LOS A	30.4	182.5	0.34	1.03	47.1
11	T	2526	0.0	0.883	3.2	LOS A	30.5	182.7	0.34	0.32	53.5
12	R	295	0.0	1.169	210.5	LOS F	48.4	290.1	1.00	1.40	8.9
Approach		2853	0.0	1.168	24.7	LOS B	48.4	290.1	0.41	0.44	35.1
All Vehicles		4855	0.0	1.169	20.1	LOS B	48.4	290.1	0.33	0.35	38.1

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on average delay for all vehicle movements.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	3.0	LOS A	0.0	0.0	0.19	0.19
P5	Across N approach	53	5.8	LOS A	0.1	0.1	0.27	0.27
P7	Across W approach	53	60.4	LOS F	0.2	0.2	0.87	0.87
All Pedestrians		159	23.2				0.43	0.44

Level of Service (Aver. Int. Delay): LOS C. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual pedestrian movements: Delay (HCM).

Unlicensed Trial Version

MOVEMENT SUMMARY

Site: Post Development PM

Hume Highway and Remembrance Avenue

Post Development PM Peak

Signals - Fixed Time Cycle Time = 90 seconds

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South											
1	L	165	0.0	0.372	39.9	LOS C	7.9	47.2	0.89	0.80	28.6
2	T	11	0.0	0.023	28.4	LOS B	0.6	3.4	0.79	0.55	32.3
3	R	264	0.0	0.756	46.5	LOS D	13.3	80.0	0.99	0.90	26.4
Approach		440	0.0	0.756	43.6	LOS D	13.3	80.0	0.94	0.86	27.3
East											
4	L	47	0.0	0.036	7.7	LOS A	0.1	0.5	0.05	0.61	49.5
5	T	2526	0.0	0.665	1.5	LOS A	6.5	39.2	0.15	0.13	56.8
6	R	84	0.0	0.352	20.6	LOS B	2.8	16.9	0.54	0.76	38.3
Approach		2658	0.0	0.665	2.2	LOS A	6.5	39.2	0.16	0.16	55.8
North											
7	L	53	0.0	0.108	31.9	LOS C	2.9	17.4	0.75	0.78	32.1
8	T	11	0.0	0.108	23.7	LOS B	2.9	17.4	0.75	0.58	33.3
9	R	84	0.0	0.355	45.5	LOS D	4.7	28.5	0.93	0.78	26.6
Approach		147	0.0	0.355	39.1	LOS C	4.7	28.5	0.85	0.76	28.8
West											
10	L	42	0.0	0.766	14.8	LOS B	16.9	101.2	0.50	0.98	44.4
11	T	1493	0.0	0.768	6.7	LOS A	16.9	101.4	0.50	0.46	48.6
12	R	58	0.0	0.519	18.4	LOS B	1.8	11.0	0.44	0.74	39.9
Approach		1593	0.0	0.768	7.3	LOS A	16.9	101.4	0.50	0.48	48.1
All Vehicles		4838	0.0	0.768	6.8	LOS A	16.9	101.4	0.36	0.35	47.5

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).

Level of Service (Worst Movement): LOS D. LOS Method for individual vehicle movements: Delay (RTA NSW).

Approach LOS values are based on average delay for all vehicle movements.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	5.7	LOS A	0.0	0.0	0.36	0.36
P5	Across N approach	53	10.8	LOS B	0.1	0.1	0.49	0.49
P7	Across W approach	53	25.7	LOS C	0.1	0.1	0.76	0.76
All Pedestrians		159	14.0				0.53	0.53

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).

Level of Service (Worst Movement): LOS C. LOS Method for individual pedestrian movements: Delay (HCM).

APPENDIX C

TRAFFIC SURVEY RESULTS



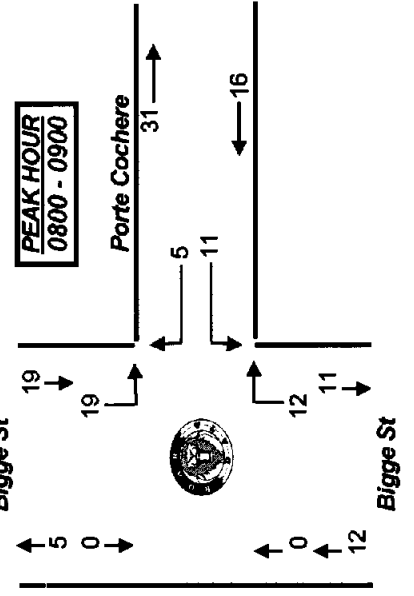
R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : T.T.P.A.
Job No/Name : 3218 LIVERPOOL Sydney Southwest Hospital
Day/Date : Tuesday 3rd August 2010

All Vehicles

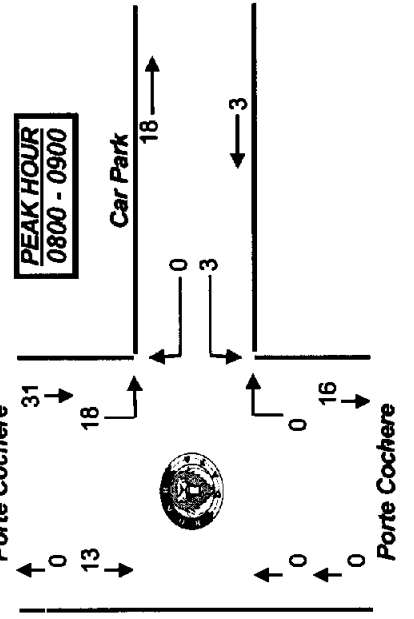
All Vehicles	NORTH		EAST		SOUTH		TOTAL
	Bigge St		Porte Cochere		Bigge St		
	I	L	R	L	R	I	
Time Per							
0700 - 0715		2	1	1	3		7
0715 - 0730		3	2	6	5		16
0730 - 0745		4	1	3	1		9
0745 - 0800		4	1	1	1		7
0800 - 0815		6	1	2	1		10
0815 - 0830		5	1	3	5		14
0830 - 0845		5	1	4	2		12
0845 - 0900		3	2	2	4		11
0900 - 0915		1	0	0	2		3
0915 - 0930		9	0	1	0		10
0930 - 0945		3	1	4	1		9
0945 - 1000		2	1	2	1		6
Period End	0	47	12	29	26	0	114

Peak Per	NORTH				EAST				SOUTH				TOTAL
	Bigge St				Porte Cochere				Bigge St				
	I	L	R	T	I	L	R	T	I	L	R	T	
0700 - 0800	0	13	5	11	10	0	0	0	0	0	0	0	39
0715 - 0815	0	17	5	12	8	0	0	0	0	0	0	0	42
0730 - 0830	0	19	4	9	8	0	0	0	0	0	0	0	40
0745 - 0845	0	20	4	10	9	0	0	0	0	0	0	0	43
0800 - 0900	0	19	5	11	12	0	0	0	0	0	0	0	47
0815 - 0915	0	14	4	9	13	0	0	0	0	0	0	0	40
0830 - 0930	0	18	3	7	8	0	0	0	0	0	0	0	36
0845 - 0945	0	16	3	7	7	0	0	0	0	0	0	0	33
0900 - 1000	0	15	2	7	4	0	0	0	0	0	0	0	28
PEAK HR	0	19	5	11	12	0	0	0	0	0	0	0	47



All Vehicles	NORTH				EAST				SOUTH				TOTAL
	Porte Cochere				Car Park				Porte Cochere				
	I	L	R	T	R	L	R	T	R	L	T		
Time Per													
0700 - 0715	1	4				1							6
0715 - 0730	3	5				5							13
0730 - 0745	2	3				2							7
0745 - 0800	2	3				0							5
0800 - 0815	2	5				1							8
0815 - 0830	4	6				0							10
0830 - 0845	5	2				0							7
0845 - 0900	2	5				2							9
0900 - 0915	0	3				0							3
0915 - 0930	3	6				1							10
0930 - 0945	2	2				0							4
0945 - 1000	3	0				0							3
Period End	29	44	0	12	0	0	0	0	0	0	0	0	85

	NORTH				EAST				SOUTH				TOTAL
	Porte Cochere				Car Park				Porte Cochere				
	I	L	R	T	I	L	R	T	I	L	R	T	
Peak Per													
0700 - 0800	8	15	0	8	0	8	0	0	0	0	0	0	31
0715 - 0815	9	16	0	8	0	8	0	0	0	0	0	0	33
0730 - 0830	10	17	0	3	0	3	0	0	0	0	0	0	30
0745 - 0845	13	16	0	1	0	1	0	0	0	0	0	0	30
0800 - 0900	13	18	0	3	0	3	0	0	0	0	0	0	34
0815 - 0915	11	16	0	2	0	2	0	0	0	0	0	0	29
0830 - 0930	10	16	0	3	0	3	0	0	0	0	0	0	29
0845 - 0945	7	16	0	3	0	3	0	0	0	0	0	0	26
0900 - 1000	8	11	0	1	0	1	0	0	0	0	0	0	20
PEAK HR	13	18	0	3	0	3	0	0	0	0	0	0	34



© Copyright ROAR DATA



R.O.A.R. DATA

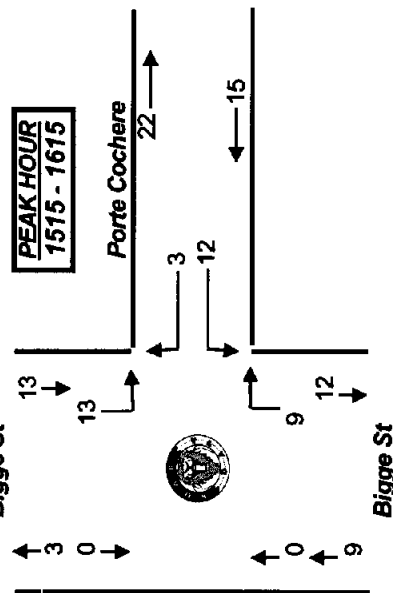
Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

All Vehicles

Time Per	NORTH			EAST			SOUTH		
	Bigge St	Porte Cochere	Bigge St	Bigge St	Porte Cochere	Bigge St	Bigge St	Porte Cochere	Bigge St
1500 - 1515	3	1	3	2	2	2	9		
1515 - 1530	4	1	2	3	3	3	10		
1530 - 1545	2	1	5	0	0	0	8		
1545 - 1600	2	1	2	3	3	3	8		
1600 - 1615	5	0	3	3	3	3	11		
1615 - 1630	1	0	0	0	0	0	1		
1630 - 1645	1	0	5	1	1	1	7		
1645 - 1700	1	0	1	2	2	2	4		
1700 - 1715	4	2	3	1	1	1	10		
1715 - 1730	3	0	5	3	3	3	11		
1730 - 1745	2	2	4	1	1	1	9		
1745 - 1800	2	1	1	0	0	0	4		
Period End	0	30	9	34	19	0	92		

Peak Per	NORTH			EAST			SOUTH		
	Bigge St	Porte Cochere	Bigge St	Bigge St	Porte Cochere	Bigge St	Bigge St	Porte Cochere	Bigge St
1500 - 1600	0	11	4	12	8	0	35		
1615 - 1615	0	13	3	12	9	0	37		
1530 - 1630	0	10	2	10	6	0	28		
1545 - 1645	0	9	1	10	7	0	27		
1600 - 1700	0	8	0	9	6	0	23		
1615 - 1715	0	7	2	9	4	0	22		
1630 - 1730	0	9	2	14	7	0	32		
1645 - 1745	0	10	4	13	7	0	34		
1700 - 1800	0	11	5	13	5	0	34		
PEAK HR	0	13	3	12	9	0	37		



© Copyright ROAR DATA

Client : T.T.P.A.

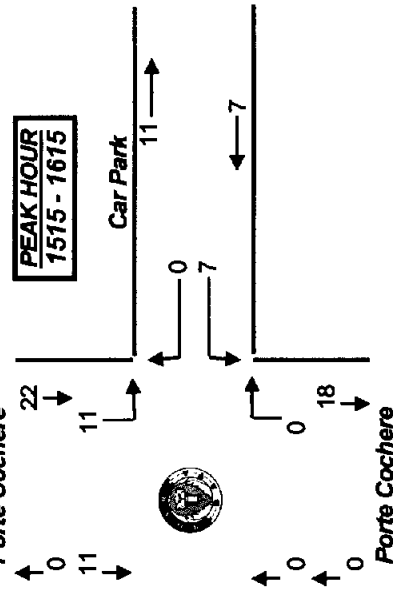
Job No/Name : 3218 LIVERPOOL Sydney Southwest Hospital

Day/Date : Tuesday 3rd August 2010

All Vehicles

Time Per	NORTH			EAST			SOUTH		
	Porte Cochere	Car Park	Porte Cochere	Car Park	Porte Cochere	Car Park	Porte Cochere	Car Park	Porte Cochere
1500 - 1515	3	2	1	1	1	1	6		
1515 - 1530	5	2	2	2	2	2	9		
1530 - 1545	0	2	2	2	2	2	4		
1545 - 1600	2	3	1	1	1	1	6		
1600 - 1615	4	4	2	2	2	2	10		
1615 - 1630	1	0	0	0	0	0	1		
1630 - 1645	1	1	2	2	2	2	4		
1645 - 1700	2	1	0	0	0	0	3		
1700 - 1715	3	2	0	0	0	0	5		
1715 - 1730	5	1	1	1	1	1	7		
1730 - 1745	3	0	1	1	1	1	4		
1745 - 1800	1	1	1	1	1	1	3		
Period End	30	19	0	13	0	0	62		

Peak Per	NORTH			EAST			SOUTH		
	Porte Cochere	Car Park	Porte Cochere	Car Park	Porte Cochere	Car Park	Porte Cochere	Car Park	Porte Cochere
1500 - 1600	10	9	0	6	0	0	25		
1615 - 1615	11	11	0	7	0	0	29		
1530 - 1630	7	9	0	5	0	0	21		
1545 - 1645	8	8	0	5	0	0	21		
1600 - 1700	8	6	0	4	0	0	18		
1615 - 1715	7	4	0	2	0	0	13		
1630 - 1730	11	5	0	3	0	0	19		
1645 - 1745	13	4	0	2	0	0	19		
1700 - 1800	12	4	0	3	0	0	19		
PEAK HR	11	11	0	7	0	0	29		





R.O.A.R. DATA

Reliable, Original & Authentic Results

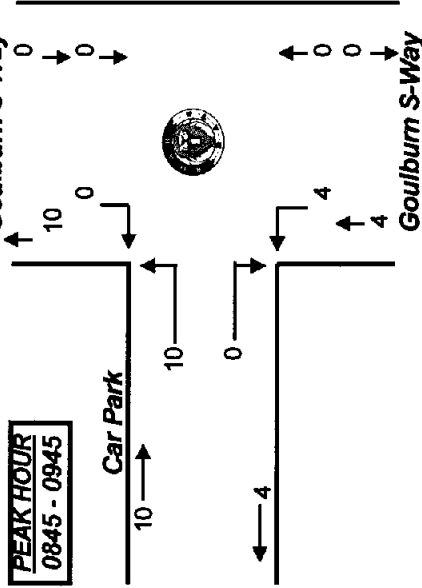
Ph.88196847, Fax 88196849, Mob.0418-239019

All Vehicles

Time Per	NORTH			WEST			SOUTH			TOTAL
	Goulburn S-Way	R	I	Car Park	L	R	Goulburn S-Way	L	I	
0700 - 0715					0			1		1
0715 - 0730					2			0		2
0730 - 0745					1			0		1
0745 - 0800					1			0		1
0800 - 0815					2			0		2
0815 - 0830					1			0		1
0830 - 0845					2			1		3
0845 - 0900					3			1		4
0900 - 0915					2			1		3
0915 - 0930					2			0		2
0930 - 0945					3			2		5
0945 - 1000					0			0		0
Period End		0	0		19	0		6	0	25

Peak Per	NORTH			WEST			SOUTH			TOTAL
	Goulburn S-Way	R	I	Car Park	L	R	Goulburn S-Way	L	I	
0700 - 0800		0	0	4	0	0		1	0	5
0715 - 0815		0	0	6	0	0		0	0	6
0730 - 0830		0	0	5	0	0		0	0	5
0745 - 0845		0	0	6	0	0		1	0	7
0800 - 0900		0	0	8	0	0		2	0	10
0815 - 0915		0	0	8	0	0		3	0	11
0830 - 0930		0	0	9	0	0		3	0	12
0845 - 0945		0	0	10	0	0		4	0	14
0900 - 1000		0	0	7	0	0		3	0	10

PEAK HR	0	0	0	10	0	4	0	0	14
---------	---	---	---	----	---	---	---	---	----



Client : T.T.P.A.

Job No/Name : 3218 LIVERPOOL Sydney Southwest Hospital

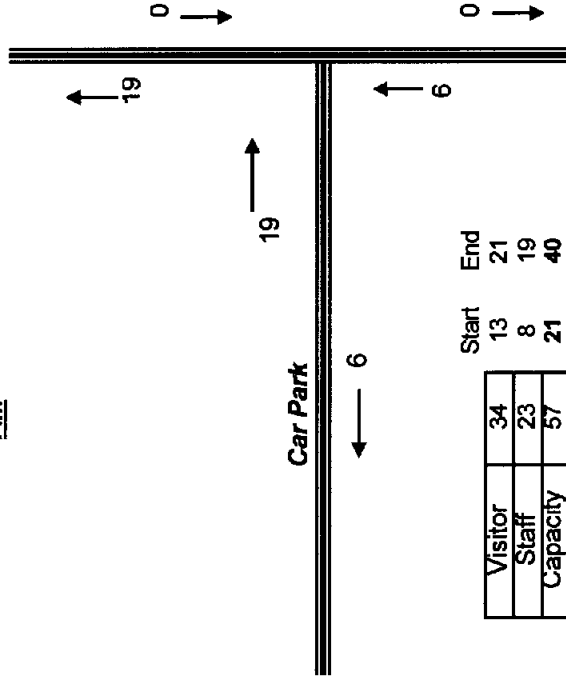
Day/Date : Tuesday 3rd August 2010

TOTAL VOLUMES
FOR PERIOD
COUNTED

AM



Goulburn S-Way



Visitor	34	13	21
Staff	23	8	19
Capacity	57	21	40

Time Per	Car Park	Accum
0700 - 0715	25	
0715 - 0730	23	
0730 - 0745	23	
0745 - 0800	25	
0800 - 0815	27	
0815 - 0830	32	
0830 - 0845	33	
0845 - 0900	34	
0900 - 0915	36	
0915 - 0930	39	
0930 - 0945	40	
0945 - 1000	40	



R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

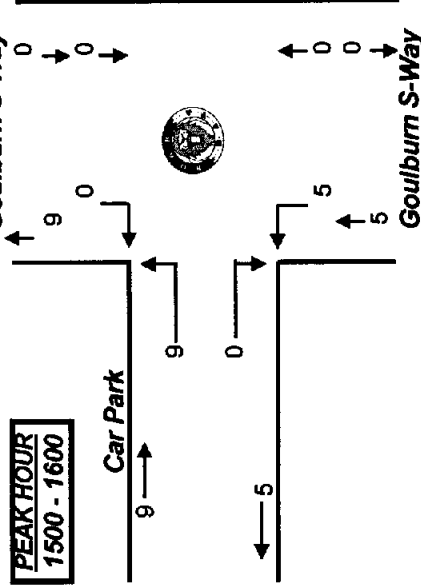
Client : T.T.P.A.
Job No/Name : 3218 LIVERPOOL Sydney Southwest Hospital
Day/Date : Tuesday 3rd August 2010

Client : T.T.P.A.
Job No/Name : 3218 LIVERPOOL Sydney Southwest Hospital
Day/Date : Tuesday 3rd August 2010

All Vehicles

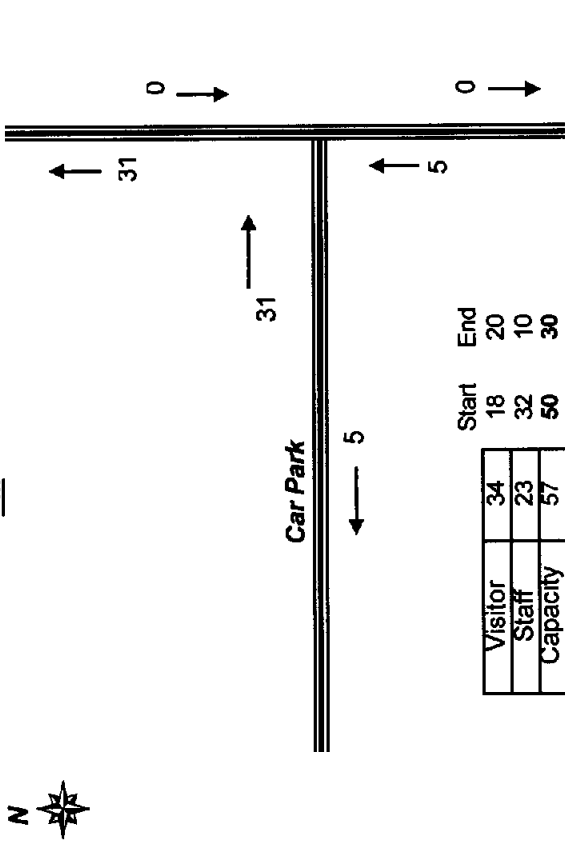
Time Per	NORTH		WEST		SOUTH		TOTAL
	Goulburn S-Way	Car Park	Goulburn S-Way	Car Park	Goulburn S-Way	Car Park	
1500 - 1515	0	3	1	1	0	0	4
1515 - 1530	0	2	2	2	0	0	4
1530 - 1545	0	2	2	2	0	0	4
1545 - 1600	0	2	2	2	0	0	2
1600 - 1615	0	3	3	3	0	0	3
1615 - 1630	0	3	3	3	0	0	3
1630 - 1645	0	2	2	2	0	0	2
1645 - 1700	0	3	3	3	0	0	3
1700 - 1715	0	1	1	1	0	0	1
1715 - 1730	0	1	1	1	0	0	1
1730 - 1745	0	5	5	5	0	0	5
1745 - 1800	0	4	4	4	0	0	4
Period End	0	31	0	5	0	0	36

Peak Per	NORTH		WEST		SOUTH		TOTAL
	Goulburn S-Way	Car Park	Goulburn S-Way	Car Park	Goulburn S-Way	Car Park	
1500 - 1600	0	9	0	5	0	0	14
1515 - 1615	0	9	0	4	0	0	13
1530 - 1630	0	10	0	2	0	0	12
1545 - 1645	0	10	0	0	0	0	10
1600 - 1700	0	11	0	0	0	0	11
1615 - 1715	0	9	0	0	0	0	9
1630 - 1730	0	7	0	0	0	0	7
1645 - 1745	0	10	0	0	0	0	10
1700 - 1800	0	11	0	0	0	0	11
PEAK HR	0	9	0	5	0	0	14



TOTAL VOLUMES
FOR PERIOD
COUNTED

PM



Visitor	34	18	20
Staff	23	32	10
Capacity	57	50	30

Time Per	Car Park	Accum
1500 - 1515	49	49
1515 - 1530	49	49
1530 - 1545	49	49
1545 - 1600	49	49
1600 - 1615	48	48
1615 - 1630	45	45
1630 - 1645	42	42
1645 - 1700	40	40
1700 - 1715	41	41
1715 - 1730	40	40
1730 - 1745	34	34
1745 - 1800	30	30