



Royal Prince Alfred Hospital Lucas Street Multi-Storey Staff Car Park Transport Impact Assessment

Client // Health Infrastructure
Office // NSW
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Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
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1. Introduction

1.1 Background

A proposal is currently being considered to construct a Multi-Storey Staff Car Park (MSCP) on a site located on Lucas Street, in close proximity to the Royal Prince Alfred Hospital (RPAH), in Camperdown. The staff car park is to support future growth of the RAPH as well as alleviate existing issues associated with demand generated by hospital staff in existing facilities and on-street in the surrounding areas.

A State Significant Development Application is to be lodged with the Department of Planning and Environment (DPE). Health Infrastructure, engaged GTA Consultants in February 2016 to complete a transport impact assessment for the proposed MSCP.

1.2 Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

- i existing traffic and parking conditions surrounding the site
- ii suitability of the proposed parking in terms of supply (quantum) and layout
- iii service vehicle requirements
- iv the traffic generating characteristics of the proposed development
- v suitability of the proposed access arrangements for the site
- vi the transport impact of the development proposal on the surrounding road network.

This study has also considered the Secretary's Environmental Assessment Requirements (SEARs) for the Environmental Assessment of the proposed MSCP. The SEARs were issued by DPE for the construction of a multi-storey staff car park at Church Street, Camperdown (SSD 7542) on 29 March 2016. Section 6 of 'Key Issues' in the SEARs addresses the transport and accessibility requirements, as detailed in Table 1.1, along with the location that each issue is addressed in this report.

Table 1.1: Secretary's Environmental Assessment Requirements (SEARs)

Project Phase	SEAR Description	Relevant Section of this Report
6. Transport and Accessibility	Include a transport and accessibility assessment which details, but is not limited to, the following:	
	Details of the current daily and peak hour vehicle, public transport, pedestrian and bicycle movements and existing traffic and transport facilities provided on the road network adjacent to the proposed development	Section 2
	Provision of current staff and visitor car parking on the subject site	Section 2
	Current daily and hourly movements and duration of stay at the existing car park including on a typical weekday and weekend	Section 2.3
	An assessment of the existing and future transport needs associated with the hospital, including a clear understanding of the travel task for all modes at different times of the day (peak, off peak) and week	Various
	An estimate of the total daily and peak hour vehicle trips generated by the proposal, including details of assumptions made to determine/justify the amount of spaces sought to service the hospital, including estimated trip generation, car modal split, duration of stay etc.	Section 6.1
	An assessment of the existing and future performance of key intersections providing access to the site and any upgrades (road/intersections) required as a result of the development	Section 2.3 and Section 0
	An assessment of safety and convenient access for pedestrians between the proposed car park and hospital services	Section 5.1
	The impact on public transport services and infrastructure (existing and planned) and walking cycling access and facilities	Section 5
	The proposed access arrangements and measures to mitigate any associated impacts on road safety, walking and cycling, public transport services and traffic flows	Section 6
	Include a pricing policy for use of the car park to align public transport and active transport targets with private vehicle targets, with consideration given to formulating a Green Travel Plan for the hospital addressing ways in which sustainable and active transport modes will be encouraged	Section 5
	Traffic, transport and road safety impacts during construction and how these impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking (including the temporary loss of parking on the site) and public transport impacts. Detailed information should be provided on existing bus services and bus stops and measures to avoid impacts during the construction period. A draft Construction Traffic Management Plan should be included to demonstrate the proposed management and mitigation of the impacts. This Plan should also provide details of vehicle routes, number of construction vehicle movements, hours of operation, construction program, work zone location, access arrangements and traffic control measures for all construction activities.	Section 7 and Section 8

1.3 Stakeholder Consultation

Stakeholder consultation has included discussions with the City of Sydney in March 2016 in relation to the traffic related impacts on the surrounding areas. Specifics included Missenden Road impacts given existing constraints and traffic congestion. It is understood that minor works may be completed by the City of Sydney along Missenden Road to alleviate pedestrian risks at the marked pedestrian crossings.

The traffic related impacts on the regional road network, including Parramatta Road and King Street/ City Road at Missenden Road and further to the east are unlikely to be significant, as agreed by City of Sydney. Agreement was also reached on the scope of intersections to be surveyed and assessed.

Consultation with Roads and Maritime (RMS) was undertaken in May 2016, where it was agreed that the proposal did not provide direct impact on RMS assets. Agreement was similarly achieved

with respect to the extent of traffic surveys completed, noting that further assessment (if any) would only be necessary as part of the Public Exhibition process post-submission.

1.4 References

In preparing this report, reference has been made to the following:

- inspections of the site, the RPAH campus and surrounding areas
- City of Sydney Development Control Plan (DCP) 2012 and Local Environmental Plan (LEP) 2012
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004
- Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009
- Guide to Traffic Generating Developments, Roads and Maritime Services, 2002
- various traffic and car parking surveys as referenced in the context of this report
- plans for the proposed development prepared by Cardno, Drawing Number NA80812331-DA-0102 to NA80812331-DA-0106, Revision 4, dated 28 April 2016
- other documents and data as referenced in this report.

2. Existing Conditions

2.1 Subject Site

The subject site is located on the south-eastern corner of the intersection of Lucas Street and Church Street in Camperdown. The site of 5,000sq.m has frontages of approximately 144m to Lucas Street and 35m to Church Street, and is currently occupied by a childcare centre with small at-grade car park and other vacant buildings.

The surrounding properties predominantly include the RPAH Campus and associated medical facilities. The newly constructed Marie Bashir Centre is located immediately to the east, with St John's residential College located further east on the eastern side of Missenden Road. The University of Sydney campus is also located further east. The broader local and regional area predominantly comprises a mix of retail, commercial, educational and residential uses.

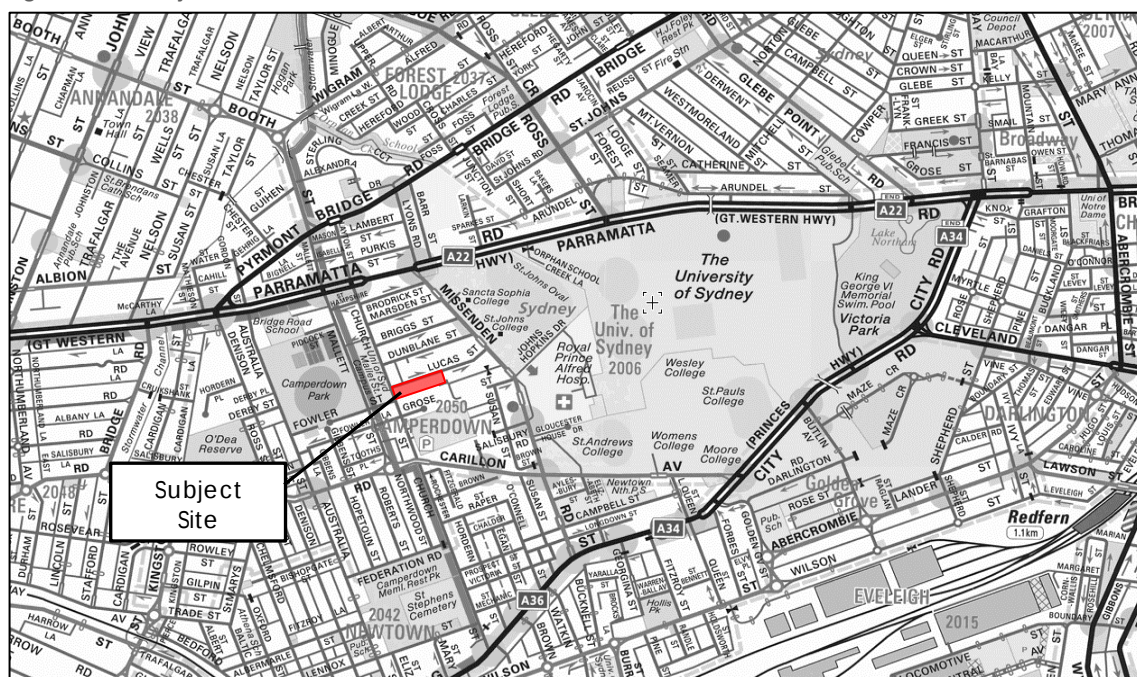
The Queen Mary Building is immediately to the south and has recently been refurbished to accommodate student housing for approximately 800 students and associated minor car parking. The main building access is located via the southern façade along Grose Street, with vehicles using Church Street to the west to access the small amount of on-site parking.

The Consulate-General of the People's Republic of China is located opposite the site on the northern side of Lucas Street.

Several car parking areas are available within the grounds of the RPAH Precinct with the main multi-storey staff and public car park located south of the site, with access provided along Hospital Road via Carillon Avenue and Grose Street.

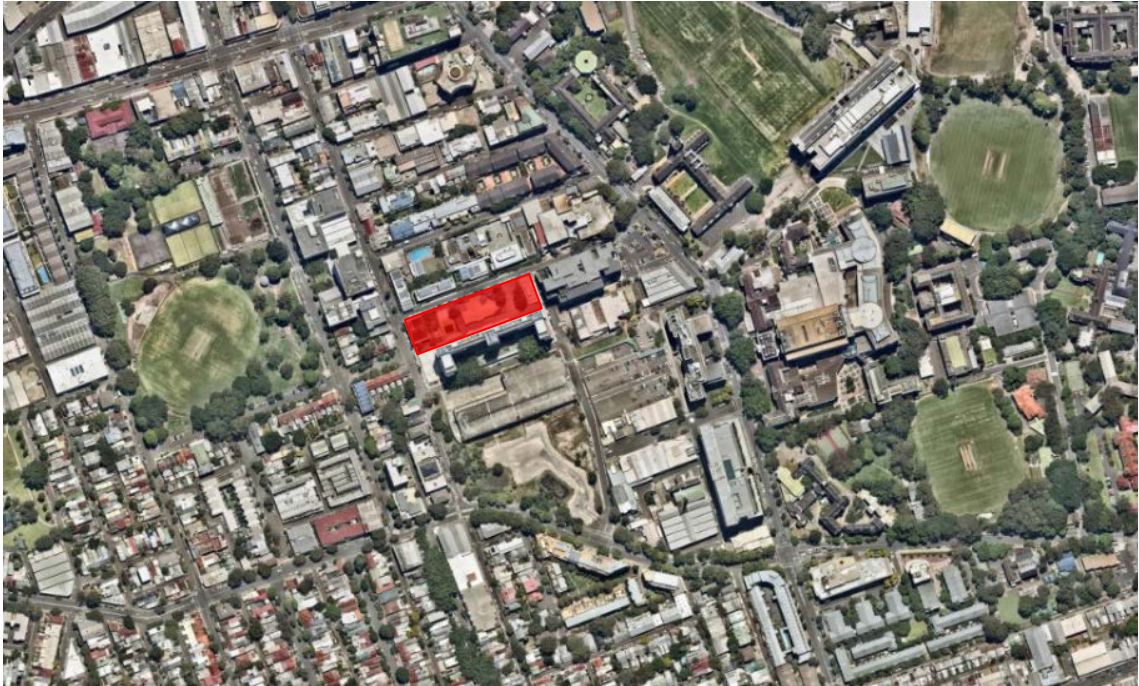
The location of the subject site and its surrounding environs is shown in Figure 2.1 and Figure 2.2, with the local area catchments illustrated in Figure 2.3.

Figure 2.1: Subject Site and Its Environs



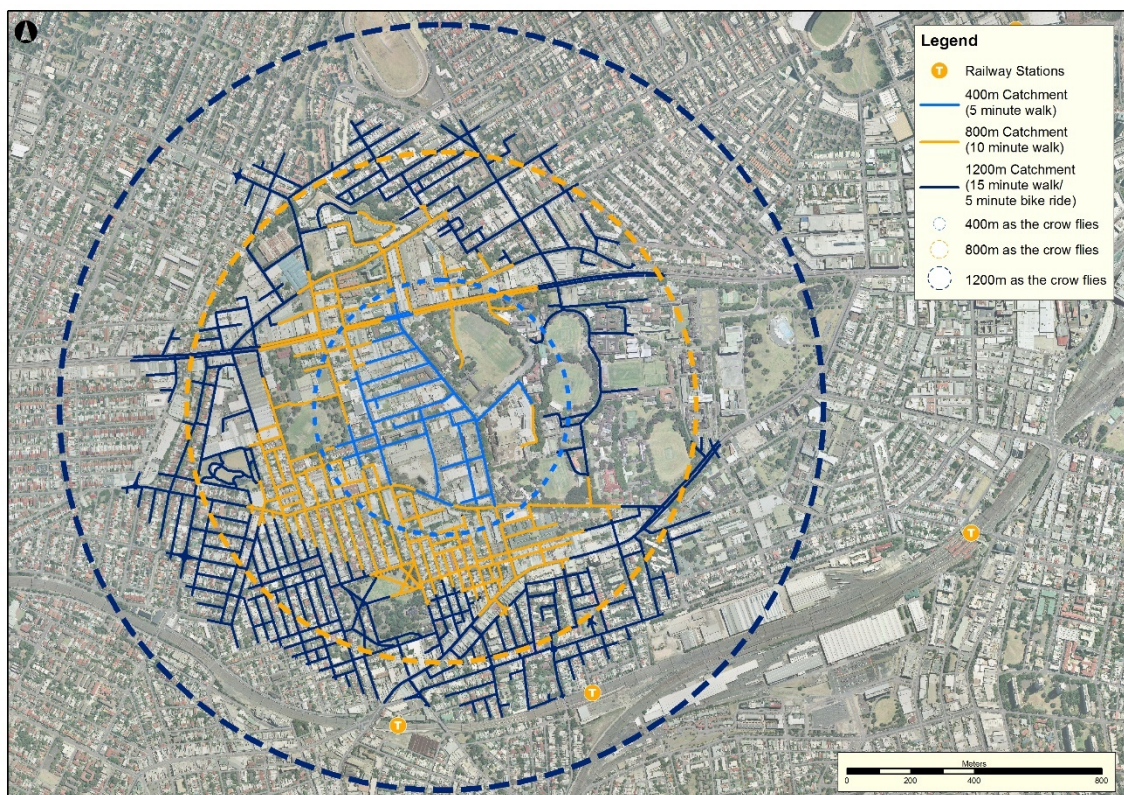
Basemap Source: Sydney

Figure 2.2: Site Location and Surrounding Context



Basemap Source: Nearmap

Figure 2.3: Site and Surrounding Active Travel Catchments



2.2 Road Network

The subject site is well served by a number of regional roads in the vicinity, with Parramatta Road and King Street/ City Road providing links to Missenden Road and Carillon Avenue to form the main traffic routes to/ from the RPAH Campus.

Parramatta Road is located to the north of the site and forms the major east-west traffic through the area linking Sydney's CBD in the east with Parramatta in the west. Carillon Avenue and Salisbury Road combine to provide a secondary east-west traffic route through the area and south of the site, effectively linking City Road with the suburbs of the Inner West.

2.2.1 Adjoining Roads

Lucas Street

Lucas Street is a local road and in the vicinity of the site is aligned in an east-west direction, travelling along the northern boundary of the site. It is a one-way eastbound road providing for one traffic lane and one parking lane within an approximate 6m wide carriageway.

Kerbside parking is permitted, subject to time restrictions on the southern side of Lucas Street along the site frontage, and on the northern side further to the east.

Lucas Street is shown in Figure 2.4 and Figure 2.5, and carries approximately 750-800 vehicles per day¹.

Figure 2.4: Lucas Street (looking west)



Figure 2.5: Lucas Street (looking east)



Church Street

Church Street is a local road and in the vicinity of the site is aligned in a north-south direction adjacent to the site's western boundary. It is a two-way road providing one traffic lane and one parking lane in each direction within an approximate 13m wide carriageway at the site.

Kerbside parking is variable and generally permitted on both sides of the carriageway in the immediate vicinity of the site and limited to one side only to the north and south as a result of a variable carriageway width.

Church Street is shown in Figure 2.6 and Figure 2.7, and carries approximately 3,000 vehicles per day¹.

¹ Based on the peak hour traffic counts undertaken by GTA in March 2016 and assuming a peak-to-daily ratio of 8% for arterial roads and 10% for local roads.

Figure 2.6: Church Street (looking north)



Figure 2.7: Church Street (looking south)



Brodie Street

Brodie Street is a private local road internal to the RPAH Precinct travelling in an east-west direction immediately east of the site. It traverses the Marie Bashir Centre providing for one-way westbound traffic through a Shared Zone with direct boomgate controlled access from Missenden Road.

Brodie Street generally provides one traffic lane and parking lane (east of The Marie Bashir Centre) and a one lane Shared Zone with adjacent parking at the western end, close to Hospital Road.

Brodie Street is shown in Figure 2.8 and Figure 2.9.

Figure 2.8: Brodie Street (looking east)



Figure 2.9: Brodie Street (looking west)



Grose Street (Hospital Road)

Grose Street travels in a north-south direction south of the site and is the key road internal to the RPAH north-west Precinct west of Missenden Road. It generally provides one traffic lane in each direction and for northbound vehicles only between Brodie Street and Lucas Street. It currently provides access to the existing MSCP south of the Queen Mary building and turns to run east-west and link back to Church Street to the west.

Grose Street is shown in Figure 2.10 and Figure 2.11.

Figure 2.10: Grose Street and New Road (looking south)



Figure 2.11: Grose Street (looking west)



2.2.2 Surrounding Roads

Carillon Avenue

Carillon Avenue (and Salisbury Avenue) is a classified regional road and is aligned in an east-west direction south of the site. It is a two-way road configured with a 2-lane, 12 metre wide carriageway, set within an approximate 20 metre wide road reserve. Kerbside parking is generally permitted, subject to varying time restrictions along its length.

Carillon Avenue is shown in Figure 2.12.

Missenden Road

Missenden Road is a classified regional road and aligned in a north-south direction east of the site. It is a two-way road configured with a 2-lane, 12 metre wide carriageway, set within an approximate 25 metre wide road reserve. Kerbside parking is permitted, subject to varying time restrictions along its length.

Missenden Road is shown in Figure 2.13.

Figure 2.12: Carillon Avenue (looking east from Grose Street)



Figure 2.13: Missenden Road at Carillon Avenue (looking north)



2.2.3 Surrounding Intersections

The following notable intersections currently exist in close proximity to the site, or within the Camperdown area more broadly:

- Lucas Street/ Church Street
- Lucas Street/ Missenden Road
- Carillon Avenue/ Missenden Road (signalised)
- Carillon Avenue/ Grose Street (signalised)
- Carillon Avenue/ Church Street (priority controlled)
- Church Street/ Fowler Lane (priority controlled)
- Church Street/ Fowler Street (priority controlled)
- Parramatta Road/ Church Street (signalised)
- Parramatta Road/ Missenden Road (signalised).

2.3 Traffic Volumes

GTA Consultants commissioned traffic movement counts on key roads in the vicinity of the site (including all intersections as detailed above) on Tuesday 15 March 2016 during the following peak periods:

- 6:30am to 9:30am
- 2:00pm to 6:00pm.

The survey data indicated that the road network peak hours were as follows:

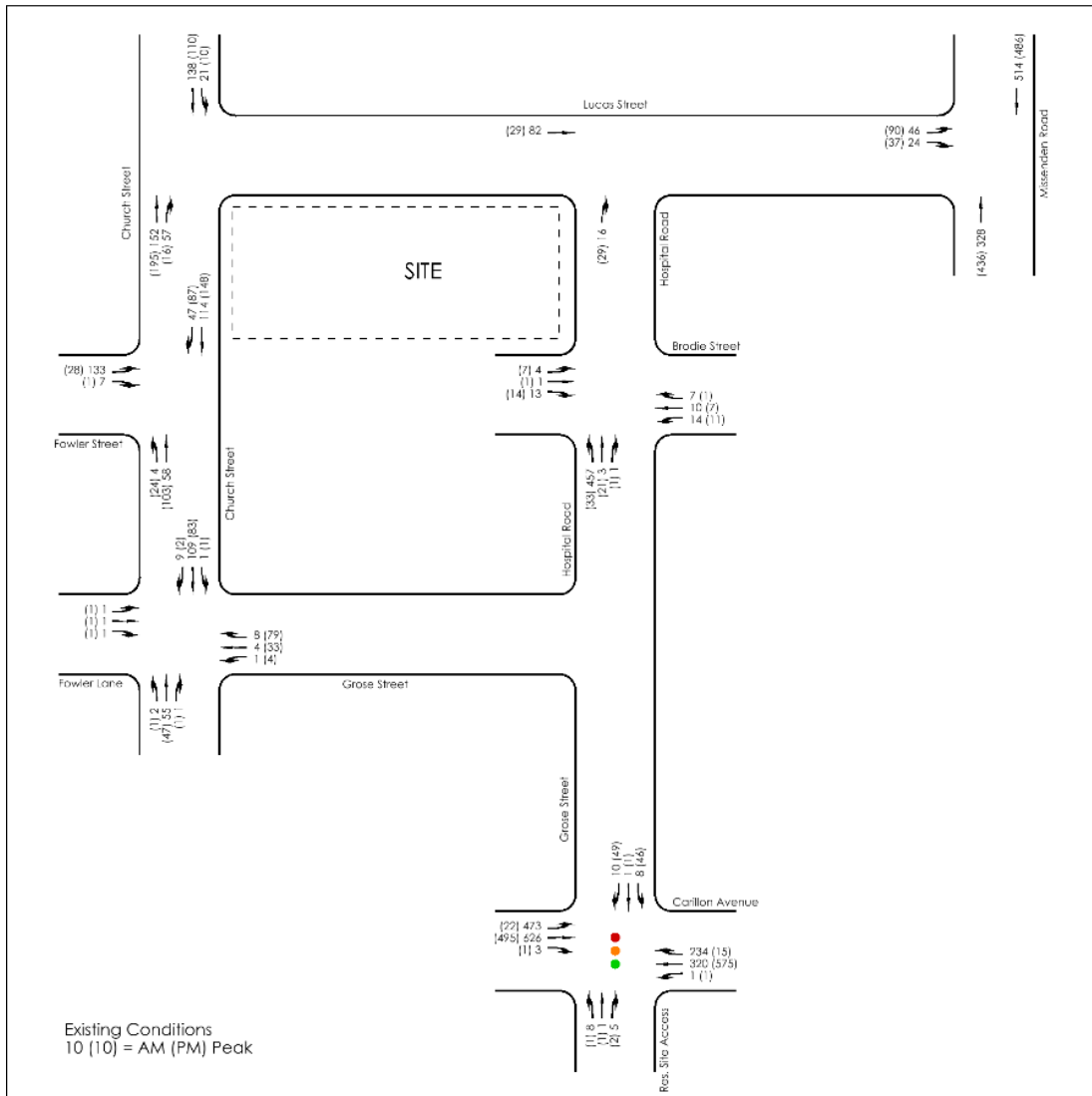
- AM Peak Hour: 7:45am to 8:45am
- PM Peak Hour: 4:30pm to 5:30pm.

With consideration for the above, it is noted that these peak hours do not specifically coincide with the peak RPAH staff activity periods, nor the proposed MSCP. This is particularly the case during the morning period when the majority of staff arrive for the start of the daytime shifts. Specific descriptions of these staff shift times and arrival peaks are detailed in Section 6 of this report, noting that for the purposes of assessing the greatest traffic related impacts, the following peak periods have been adopted:

- AM Peak Hour: 6:30am to 7:30am
- PM Peak Hour: 4:30pm to 5:30pm.

The traffic volumes for the site peak hours are summarised in Figure 2.14, with full results included in Appendix A.

Figure 2.14: Existing AM/ PM Peak Hour Traffic Volumes



2.4 Intersection Operation

The operation of the key intersections within the study area have been assessed using SIDRA INTERSECTION², a computer based modelling package which calculates intersection performance.

The commonly used measure of intersection performance, as defined by the RTA, is vehicle delay. SIDRA INTERSECTION determines the average delay that vehicles encounter and provides a measure of the level of service.

Table 2.1 shows the criteria that SIDRA INTERSECTION adopts in assessing the level of service.

Table 2.1: SIDRA INTERSECTION Level of Service Criteria

Level of Service (LOS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
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	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

Table 2.2 presents a summary of the existing operation of the intersection, with full results presented in Appendix B of this report.

Table 2.2: Existing Operating Conditions

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Lucas Street/ Church Street	AM	South	0.04	2	1	A
		North	0.05	2	0	A
		Total	0.05	2	1	A
	PM	South	0.07	1	1	A
		North	0.06	1	0	A
		Total	0.07	1	1	A
Lucas Street/ Missenden Road	AM	South	0.17	0	0	A
		North	0.23	0	0	A
		West	0.04	9	1	A
		Total	0.23	1	1	A
	PM	South	0.23	0	0	A
		North	0.27	0	0	A
		West	0.06	9	1	A
		Total	0.27	1	1	A

² Program used under license from Akcelik & Associates Pty Ltd.

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Church Street/ Fowler Street	AM	South	0.03	1	0	A
		North	0.04	2	1	A
		West	0.03	6	1	A
		Total	0.04	3	1	A
	PM	South	0.07	1	0	A
		North	0.07	5	2	A
		West	0.02	6	1	A
		Total	0.07	3	2	A
Church Street/ Grose Street/ Fowler Lane	AM	South	0.05	1	2	A
		East	0.01	4	0	A
		North	0.03	1	0	A
		West	0.01	8	0	A
		Total	0.05	1	2	A
	PM	South	0.04	0	1	A
		East	0.09	4	3	A
		Total	0.09	3	3	A
Lucas Street/ New Road	AM	South	0.01	6	0	A
		West	0.03	1	0	A
		Total	0.03	1	0	A
	PM	South	0.02	6	1	A
		Total	0.02	3	1	A
Brodie Street/ New Road	AM	South	0.01	5	0	A
		East	0.02	5	1	A
		North	0.01	2	0	A
		West	0.01	5	0	A
		Total	0.02	5	1	A
	PM	South	0.02	2	0	A
		East	0.01	5	0	A
		Total	0.02	4	1	A
Parramatta Road/ Mallett Street	AM	South	0.31	33	64	C
		East	0.43	21	128	B
		North	0.91	60	63	E
		West	0.84	29	355	C
		Total	0.91	30	355	C
	PM	South	0.80	57	108	E
		East	0.82	24	349	B
		North	0.79	54	96	D
		Total	0.82	27	349	B

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Parramatta Road/ Layton Road/ Church Street	AM	South	0.25	65	21	E
		East	0.30	5	60	A
		North	0.19	60	20	E
		West	0.60	7	174	A
		Total	0.60	8	174	A
	PM	South	0.62	67	51	E
		East	0.61	8	186	A
		North	0.43	65	36	E
		West	0.43	6	104	A
		Total	0.62	12	186	A
Salisbury Road/ Mallett Street	AM	East	0.21	7	9	A
		North	0.33	10	13	A
		West	0.66	6	61	A
		Total	0.66	7	61	A
	PM	East	0.75	12	73	A
		North	0.41	10	17	A
		West	0.50	6	37	A
		Total	0.75	9	73	A
Carillon Avenue/ Grose Street	AM	South	0.09	58	3	E
		East	0.15	4	7	A
		North	0.09	58	3	E
		West	0.24	4	28	A
		Total	0.24	5	28	A
	PM	South	0.02	46	1	D
		East	0.22	5	34	A
		North	0.21	48	17	D
		West	0.17	5	25	A
		Total	0.22	9	34	A
Carillon Avenue/ Missenden Road	AM	South	0.45	27	87	B
		East	0.42	54	41	D
		North	0.60	35	104	C
		West	0.61	35	136	C
		Total	0.61	36	136	C
	PM	South	0.53	27	105	B
		East	0.91	55	161	D
		North	0.92	49	194	D
		West	0.91	61	182	E
		Total	0.92	48	194	D

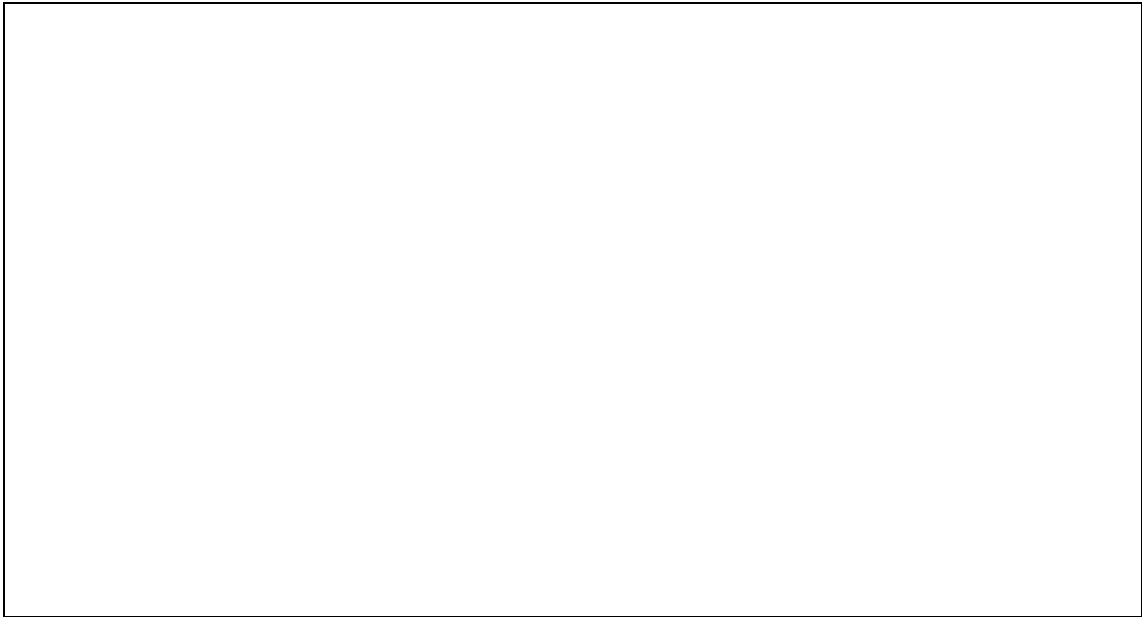
On the basis of the above assessment, the majority of the local priority controlled intersections operate within acceptable limits. The signalised intersections along Carillon Avenue and Parramatta Road experience some delay, particularly on the minor approaches during peak periods. This is regularly acceptable for such minor roads where they intersect with major road corridors and generally expected.

2.5 Existing Staff Movements

Details of RPAH typical staff shift times across a standard working week was provided for the purposes of this assessment. This information was used to understand staff start and finish times, and from there, estimate the likely staff arrival and departure periods for the purposes of assessing parking demand across the precinct, particularly for the future MSCP.

A summary of the staff start and finish shift times during each hour of a typical working day is illustrated in Figure 2.15.

Figure 2.15: RPAH Staff Shift Times



Data Source: RPAH/ HI

This staff shift data indicates that the majority of RPAH shifts commence between 7:00am and 7:30am with a corresponding completion time of between 3:30pm and 6:00pm. Other less prominent peaks associated with evening and night shifts occur between 1:00pm and 3:00pm and between 9:30pm and 11:00pm.

It is noted that the above reflects the total number of staff rather reflecting the number of vehicles arriving and departing the RPAH precinct over a typical day. This information has been used as an accurate and recent guide for estimating the future traffic generation of the MSCP.

2.6 Car Parking

2.6.1 On-Site

The site currently provides some 30 on-site formal car parking spaces. These spaces are reserved for use by the existing child care facility and not generally used by RPAH staff or visitors.

2.6.2 Off-Site

Several car parking areas are available within the north-west RPAH precinct. As discussed, the main existing multi-storey car park is located south of the site, with access provided along Grose Street. It is understood that this car park was once heavily utilised by RPAH staff though recent modifications by an adjacent landowner has effectively resulted in a reduction in the availability

of parking supply for use by staff. This has resulted in an even greater shortfall in staff parking within the precinct.

On-street public parking in the area is generally subject to short-term time restrictions, with at-grade off-street public car parks located opposite the site (on the eastern side of Missenden Road) and south-east of the site, with access provided via Salisbury Road (along Missenden Road).

2.6.3 Car Park Pricing

It is well known that demand for parking by staff within the RPAH precinct is at high levels. Staff are typically issued a parking permit that allows them to park on-campus (without priority). It is likely these conditions where low (or free) parking heavily contributes to the high proportion of staff who drive, as well as the impact to the surrounding public parking availability.

Visitor parking prices vary, with the typical casual parking fees for the Secure Parking Grose Street car park being \$5.00 for up to 1-hour, rising to \$20.00 for 3 or more hours.

It is recognised that the proposed MSCP will comply with the Ministry of Health's Hospital Car Parking Fee Policy 2013. In this instance, weekly staff parking fees will amount to \$21 inclusive of GST.

The hospital precinct parking pricing policy broadly includes the following guiding principles:

- ensure the economic viability of new car park infrastructure
- allow for improvements in traffic management around health campuses
- ensure the fees policy complements the State Plan intent to encourage greater public transport usage
- recognise shift workers and the need for night-time travel by car for safety, lack of public transport availability etc.

2.7 Public Transport

Sydney's Inner West, including the RPAH and surrounding Precinct is well served by bus and rail transport. The precinct is serviced by the Route 412 bus (City to Campsie), which operates along Missenden Road and Carillon Avenue/ Salisbury Road at 15-20 minute headways during peak and off-peak periods. Numerous additional bus routes also run along Parramatta Road and King Street, effectively connecting the precinct to the CBD, Inner West and inner South West Sydney.

The RPAH precinct is also located within a 10-15 minute walk of both Macdonaldtown and Newtown stations, which are both located on the T1 and T2 lines and are serviced by regular frequency services both within and outside peak periods.

The 412 bus route and locations of bus stops proximate to the site and RPAH precinct are shown in Figure 2.16 with the broader regional area Sydney Buses routes highlighted in Figure 2.17.

A detailed map of the Camperdown area in Sydney, NSW. A blue line traces a route through the neighborhood, starting from the top left, passing through the center, and ending at the bottom right. A red rectangle highlights a specific area on Church St, just south of the intersection with Grose St. The map shows various streets including Susan St, Water St, Gordon St, Bignell Lane, Layton St, Lambert St, Purkis St, Broderick St, Marsden St, Briggs St, Dunblane St, Lucas St, Grose St, Susan St, Church St, Fowler St, Fowler Lane, Teeths Pl, Northwood St, Northwood Lane, Robert St, Robert Lane, Hope St, Hope Lane, Australia St, Hopwood Lane, Australia St, Marmion Lane, Marmion St, Robert Lane, Robert St, Duneaton Lane, Australia St, and Campbell St. Key landmarks include Camperdown Park, O'Dea Reserve, Grose Farm Lane, University of Sydney, and Royal Prince Alfred Hospital. The map also shows the A36 highway and the A36 road.

Image Source: www.transportsw.info (accessed May 2016)

Source: http://www.sydneybuses.info/routes/14054_STA_region_web_map_south.pdf, accessed May 2016

2.8 Pedestrian Infrastructure

Established pedestrian paths (>2m) are provided on both sides of Missenden Road, Parramatta Road and Carillon Avenue in the vicinity of the site. Narrower footpaths are also provided along Lucas and Church Streets (in the order of 1m wide), which provide direct connectivity between the site and the RPAH and University of Sydney campus.

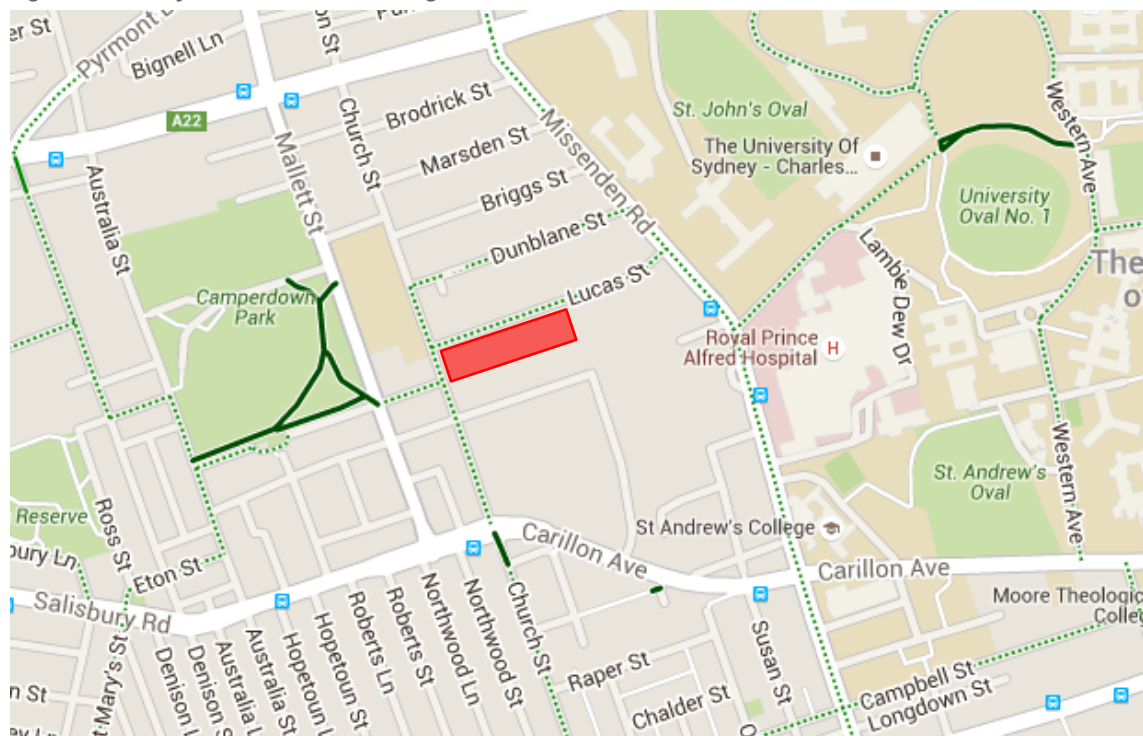
Several pedestrian crossing points (provided in the form of zebra crossings and signalised crossings) are located on Missenden Road, Parramatta Road and Carillon Avenue. The pedestrian footpaths on Lucas Street and Missenden Road, as well as the zebra crossing provided on Missenden Road south of Lucas Street, provide a direct pedestrian connection between the site and the main RPAH buildings. The total walking distance between these two locations via this route is in the order of 350m, or approximately 4-5 minutes' walk.

2.9 Cycle Infrastructure

There is an on-road bicycle route along Missenden Road which links the site to other routes to the north and south of Lucas Street. Lucas Street also forms part of the City of Sydney's cycle network and operates as mixed traffic conditions, however is currently unmarked. A contra-flow bicycle lane is proposed on Lucas Street to connect Missenden Road with Church Street, along the site frontage.

On-road cycle routes provide access through the University of Sydney, whilst surrounding low- to medium-trafficked roads provide on-road cycle options in close proximity to the site, as shown in Figure 2.18.

Figure 2.18: Bicycle Routes Surrounding the Site

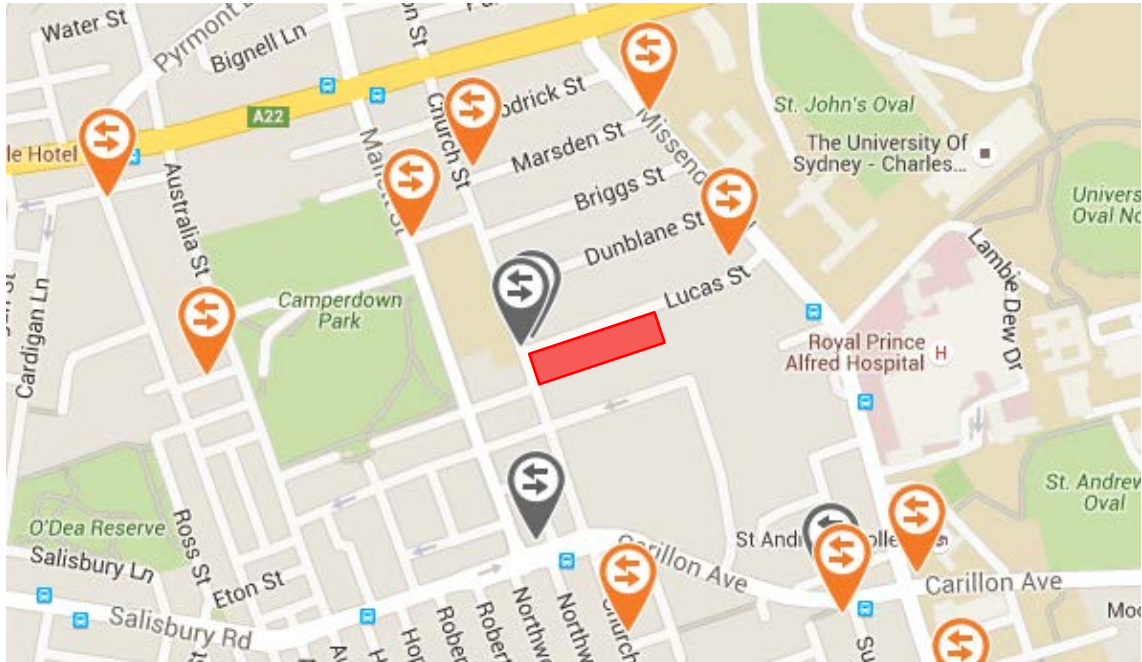


Source: <http://www.sydneycycleways.net/map/> (site visited May 2016)

2.10 Local Car Sharing Initiatives

There are several GoGet car sharing pods located within a short walking distance (~400m) of the subject site, including two pods located immediately adjacent to the site on Church Street, as shown in Figure 2.19.

Figure 2.19: GoGet Car Share Pod Locations



Source: <http://www.goget.com.au/find-cars> (site visited May 2016)

2.11 Existing Transport Use

The 2006 and 2011 Census Journey to Work (JTW) data provides the most robust picture of existing travel patterns to the RPA precinct and broader Camperdown Health precinct. The smallest geographical area for which JTW data is available is known as a Travel Zone (TZ).

RPAH and University of Sydney occupy two TZs, namely TZ 236 (referred to as TZ 239 in the 2006 Census) and 238, with the proposed staff car park located in TZ 238, as shown in Figure 2.20. In order to gain a more robust understanding of travel mode share to the entire precinct, data from both TZs has been assessed.

JTW data has been analysed for both of these zones from both the 2006 and 2011 Censuses so as to determine the current mode of travel to work for people employed within the precinct and to determine changes in travel patterns over the two periods. The results of this analysis is summarised in Table 2.3.

Figure 2.20: Travel Zones 236 and 238

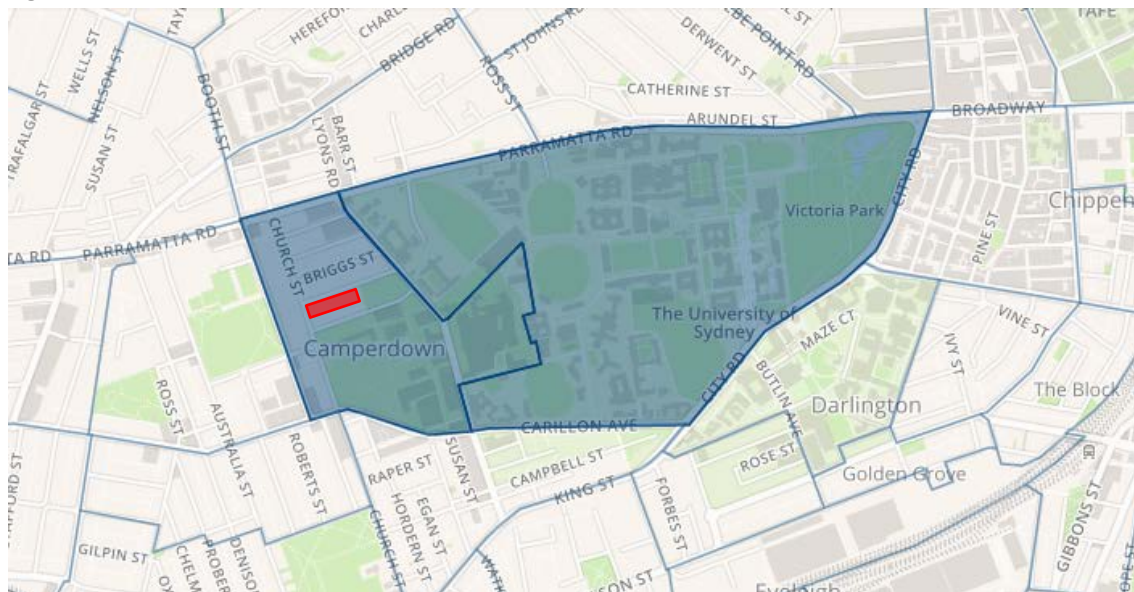


Image Source: NSW BTS JTW Explorer (<http://visual.bts.nsw.gov.au/tz>)

Table 2.3: 2006 and 2011 Census Journey to Work Data (TZ 236 & 238)

Mode	2006 Census	2011 Census
Car (as driver)	46.2%	44.7%
Car (as passenger)	4.5%	4.1%
Train	17.9%	19.0%
Walked only	13.5%	14.1%
Bus	12.1%	12.9%
Other*	5.8%	5.3%
Total	100%	100%

* Includes 'Mode not stated' but excludes 'Did not go to work'

Data Source: NSW BTS JTW Explorer

Analysis and comparison of the 2006 and 2011 Census JTW data for these two travel zones reveals the following:

- Car (as driver) is the dominant mode of travel to/ from work for people employed in the precinct, although this mode share was observed to fall between 2006 and 2011.
- Train was the most popular public transport mode, with an increasing mode share between 2006 and 2011.
- There was a slight increase in mode share for bus and walking between the two Census years, largely at the expense of car drivers and passengers.

While the increase in sustainable transport mode share indicates a slight shift away from car travel, the data still indicates that car travel is the predominant mode of travel to the precinct, with nearly 50% of all employees travelling to work via this mode. It can therefore be concluded that demand for parking in the area will continue to remain high without the purposeful and targeted implementation of a range of travel management schemes.

3. Development Proposal

3.1 Overview

The proposal includes the construction a nine-storey staff car park on the site located on the corner of Lucas Street and Church Street, Camperdown. The car park has been designed as a Class 1 car park and is to accommodate approximately 996 spaces for use by RPAH staff only.

The breakdown of all parking within the MSCP is illustrated in Table 3.1.

Table 3.1: MSCP Staff Car Parking Breakdown

Level	Car Space Type			Total
	Class 1 (standard)	Small Car Space	Disabled	
Level 0a	73	4	0	77
Level 0b	0	4	5	9
Level 1a	70	2	0	72
Level 1b	0	14	0	14
Level 2a	73	5	0	78
Level 2b	0	2	5	7
Level 3a	110	0	0	110
Level 4a	110	0	0	110
Level 5a	110	0	0	110
Level 6a	110	0	0	110
Level 7a	110	0	0	110
Level 8a	110	0	0	110
Level 9a	79	0	0	79
Total	955	31	10	996

The MSCP proposes entry via the south only along Grose Street/ Hospital Road and into Brodie Street via a one-way westbound traffic lane. Direct exit driveways to Church Street to the west and Lucas Street to the north are proposed to ensure a relatively even distribution of vehicles.

Further details relating to the site access arrangements are provided in Table 3.2 with the ground level plan shown in Figure 3.1.

Table 3.2: Proposed MSCP Access Arrangements

Direction	Location			
	Brodie Street	Church Street	Lucas Street	Summary
Entry	Two entry lanes and boom gates providing access to Level 1	No entry	No entry	Two entry lanes via a single entry location
Exit	No exit	One exit lane and boom gate from Level 0	One exit lane and boom gate from Level 0	Two exit lanes across two exit locations

Figure 3.1: Ground Level Plan



Source: Cardno

4. Car Parking

4.1 Car Parking Layout Review

The car park layout has been reviewed against the requirements of the Australian Standard for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009). This assessment included a review of the following:

- bay and aisle width
- adjacent structures
- circulation roads and ramps
- ramp grades
- height clearances
- internal queuing
- parking for persons with disabilities.

This review confirms that the proposed car parking layout is expected to operate satisfactorily and comply with the dimensional requirements of the relevant Standards for a Class 1 car park, noting that a Class 1 car park is acceptable for use as a long term staff car park only.

The car park layout has considered the site's location within a constrained high density urban area together with its specific limitations, most notably the narrow and long footprint. The layout has resulted in a proposed MSCP that ensures ample queuing area along Brodie Street to accommodate the peak staff arrivals during the weekday AM peak period, noting that queuing in excess of 10 vehicles is not anticipated at any time. This amount of queuing can largely be accommodated within the building footprint.

There will be no direct entry for vehicles from Church Street into Brodie Street and the MSCP. Appropriate measures, likely to be a boomgate, will be installed at the western end of Brodie Street to ensure vehicles are able to exit, though prevent vehicles from entering.

The amount of vehicle circulation has been minimised as much as practical throughout. The clockwise vehicle entry route ensures all vehicles pass available parking spaces by use of 'split' ramps at either end of the car park. The exit 'speed ramp' system will ensure vehicles are able to circulate efficiently when exiting the MSCP.

The location of the entry point results in minimal impact on the surrounding local streets and recognises the importance of maintaining Brodie Street for use by staff/ visitors to the adjacent Marie Bashir Centre only. In light of this, it is important that the existing boomgate infrastructure is activated daily to ensure no staff are able to enter the MSCP directly via Brodie Street and Missenden Road. The exit driveways spread car park traffic effectively between Church Street, Mallet Street and, to a lesser extent, Lucas Street.

An appropriate quantum of disabled car spaces (in the context of the role and function of the car park) has also been provided and is in accordance with AS2890.6:2009 and the Building Code of Australia (BCA).

A threshold parking guidance system is recommended to readily indicate to staff arriving, the amount of available spaces. This should include an electronic sign at the corner of Hospital Road/ Brodie Street and another at the entry point to ensure an accurate decision can be made prior to entering the MSCP and avoid unnecessary circulation and time.

A full compliance review and swept path assessment demonstrating the accessibility of the entry and exit locations, queuing capacity, as well as manoeuvrability at key locations within the car park is included in Appendix C.

5. Sustainable Transport Infrastructure

5.1 Walking and Cycling Network

The MSCP design will ensure easy use of the existing pedestrian infrastructure internal to the north-west precinct, which provides direct connectivity between the site and RPAH. Pedestrian connections are also provided via the Brodie Street shared zone, and along Lucas Street and Missenden Road, allowing the MSCP to be accessed via a range of direct, safe and well-utilised pedestrian routes. Cyclists are not expected to interface directly with the MSCP, however cyclist movements have been considered in the design of the MSCP access points.

5.2 Public Transport

As noted in Section 2.7, the site is serviced by bus services stopping along Missenden Road in close proximity to the site. Other bus services also operate along Parramatta Road to the north, providing access to the CBD and a number of areas within western Sydney. The precinct is also located via a 10-15 minute walk from Redfern, Macdonaldtown and Newtown railway stations, all of which provide a high level of public transport connectivity, particularly to the CBD and other Inner West suburbs.

5.3 Sustainable Transport Measures

While it is acknowledged that the MSCP is proposed to cater for and facilitate travel to the precinct by car, it is also intended to alleviate specific demand for parking further afield and address a recent and ongoing staff parking shortfall.

That said, the RPAH precinct more broadly is responsible for implementing strategies to encourage staff to travel to work by a range of transport modes, not just a private car, and champion a future mode shift away from private car travel. Some key examples relevant to the MSCP site include the following:

- i **Increase car-pooling/ car share use.**
 - Combined with other nearby activity and employment generators (i.e. the wider RPAH precinct, University of Sydney campus, St Andrew's College etc.) a car-pooling system is a viable option to encourage staff to join.
 - Staff could be provided access to corporate GoGet membership and car share for work related trips. Use of nearby car sharing pods (the number of which is likely to continue increasing) is also a viable alternative for staff that occasionally need to undertake a personal trip during the workday. A car share vehicle could also be located on-site, pending feasibility (noting the potential availability of hospital pool vehicles).
 - Access to the existing RPAH staff car pool system to reduce single driver private car usage rates.
- ii **Increase information available to staff and visitors.**
 - The MSCP is located within the RPAH precinct and an active system that encourages and facilitates walking, cycling and public transport travel would be beneficial. Partnering with RPAH and sharing available information is a viable option to encourage.

iii **Eliminate/ do not provide driving incentives.**

- The site will obviously provide car parking that is very much in demand by existing staff. There is potential to reduce or eliminate incentives to use a car for work purposes. For staff this has historically included car packaging, parking included in salary, petrol reimbursement, etc.

Specific programs to achieve travel behaviour change need to be measurable, through car parking occupancy surveys or through a staff travel survey. Using these metrics, performance can be tracked against any such broader precinct travel plan objectives; to recognise what programs are working and link program funding to results.

6. Traffic Impact Assessment

6.1 Traffic Generation

6.1.1 Preamble

The MSCP provides additional parking for staff working at the RPAH precinct. It could therefore be reasonably expected that the arrival patterns for vehicles accessing the staff car park would correlate with overall arrivals associated with RPAH staff shifts. As such, the following estimates draw on the staff shift information provided by RPAH as previously detailed.

6.1.2 Morning Peak Period

The trip generation of the proposed MSCP is expected to largely be determined by the available supply of car parking within the MSCP and its turnover during peak periods. In the case of the AM peak period, the capacity of the car park will be determined by the number of night shift staff vehicles remaining within the MSCP.

The predominant peak staff arrival occurs prior to 7:30am, where those staff that start their shift at 7:00am or 7:30am would be arriving prior to commencement of work. At this point there is overlap between these staff and the night shift staff, whose shifts typically finish at or after 7:30am in order to allow for handover to the day shift staff. As such, many night shift staff vehicles would still be parked at the time when day shift staff arrivals are at their peak.

The analysis of staff shift data indicates that some 640 staff shifts end between 6:30am and 9:30am. In terms of travel mode share, given that almost all of these shifts commence after 9:00pm, it would be expected that non-car mode shares would be lower than those during the day, as staff would be less likely to walk/ cycle after dark, and public transport services operate less frequently during these periods. As such, assuming a 70% car driver mode share (some 25% greater than that across the day period), it could be anticipated that approximately 450 cars would still be parked in the MSCP until after the peak AM arrival has occurred the next morning.

Based on this, it is assumed that the remaining 550 spaces would generate one vehicle movement prior to 7:30am, 500 of which would be expected to occur in the site generated peak hour (6:30am-7:30am). The directional split would also be heavily skewed to entering vehicles, with an anticipated 90:10 arrival: departure split.

Based on these assumptions, the MSCP would be expected to generate 450 entry and 50 exit movements during the AM peak hour. This AM peak hour is expected to occur between 6:30am and 7:30am, noting that this is earlier than the known broader road network peak hour that occurs between 7:45am and 8:45am.

6.1.3 Afternoon Peak Period

Given that the AM peak arrivals are governed by the number of vacancies, the number of departures during the PM peak period is also likely determined by the same measure. These PM vehicle departures are almost exclusively day staff who would have arrived during the AM peak period.

Analysis of the staff shift data indicates that the PM peak staff departure is expected to occur between approximately 4:00pm and 5:00pm. This period (and 15 minutes either side) see

approximately 1,350 shifts end, which compares to the nearly 2,500 shifts that start during the AM peak hour, or some 55% of the number of staff arriving in the morning.

Accordingly, it has been assumed that the number of departures during the PM peak is equivalent to 55% of the number of arrivals during the AM peak, and vice versa. This assumption is consistent with GTA experience of hospital staff arrival and departure patterns, the latter of which are typically more spread out across the whole afternoon (from 1:30pm through to 6:00pm), as opposed to the more concentrated AM start times.

Application of this to the previous estimates results in the MSCP being expected to generate some 275 vehicle movements in the PM peak hour, of which 250 would be departing and 25 arriving.

6.1.4 Traffic Generation Summary

Based on the assumptions detailed above, the anticipated traffic generation of the proposed MSCP during the AM and PM peak hours is summarised in Table 6.1.

Table 6.1: Estimated MSCP Traffic Generation

Proposed Use	No. of Spaces	Trip Generation (vehicles/ hour)					
		AM Peak (6:30am-7:30am)			PM Peak (4:30pm-5:30pm)		
		Arrivals	Departures	Total	Arrivals	Departures	Total
To/from carpark	996 spaces	450	50	500	25	250	275

This assessment also recognises that while the proposed MSCP will generate some vehicular activity during the typical weekday AM and PM peak periods, most staff traffic movements will occur prior to the broader road network peaks, particularly during the largest AM activity.

With this in mind, the proposal goes some way to recognising the requirements in relation to development specifically for the purposes of a car park, as detailed in Sydney Local Environmental Plan 2012 (Division 4 Clause 7.18). This includes not encouraging travel by private vehicles during the typical weekday AM and PM peak periods, together with the need to not adversely impact on the congestion of roads, particularly the movement of public transport services.

6.2 Distribution and Assignment

The directional distribution and assignment of traffic generated by the proposal will be influenced by a number of factors, including the:

- i configuration of the arterial road network in the immediate vicinity of the site
- ii existing operation of intersections providing access between the local and arterial road network
- iii distribution of households in the vicinity of the site
- iv likely distribution of RPAH employees' residences in relation to the site
- v configuration of access points to the site.

Given the one-way nature of many roads in the area and limitations on turning movements at intersections within the vicinity of the site, the entry and exit distributions vary. These assumptions adopted in this assessment, as they apply to the road network in the vicinity of the site are detailed in Figure 6.1.

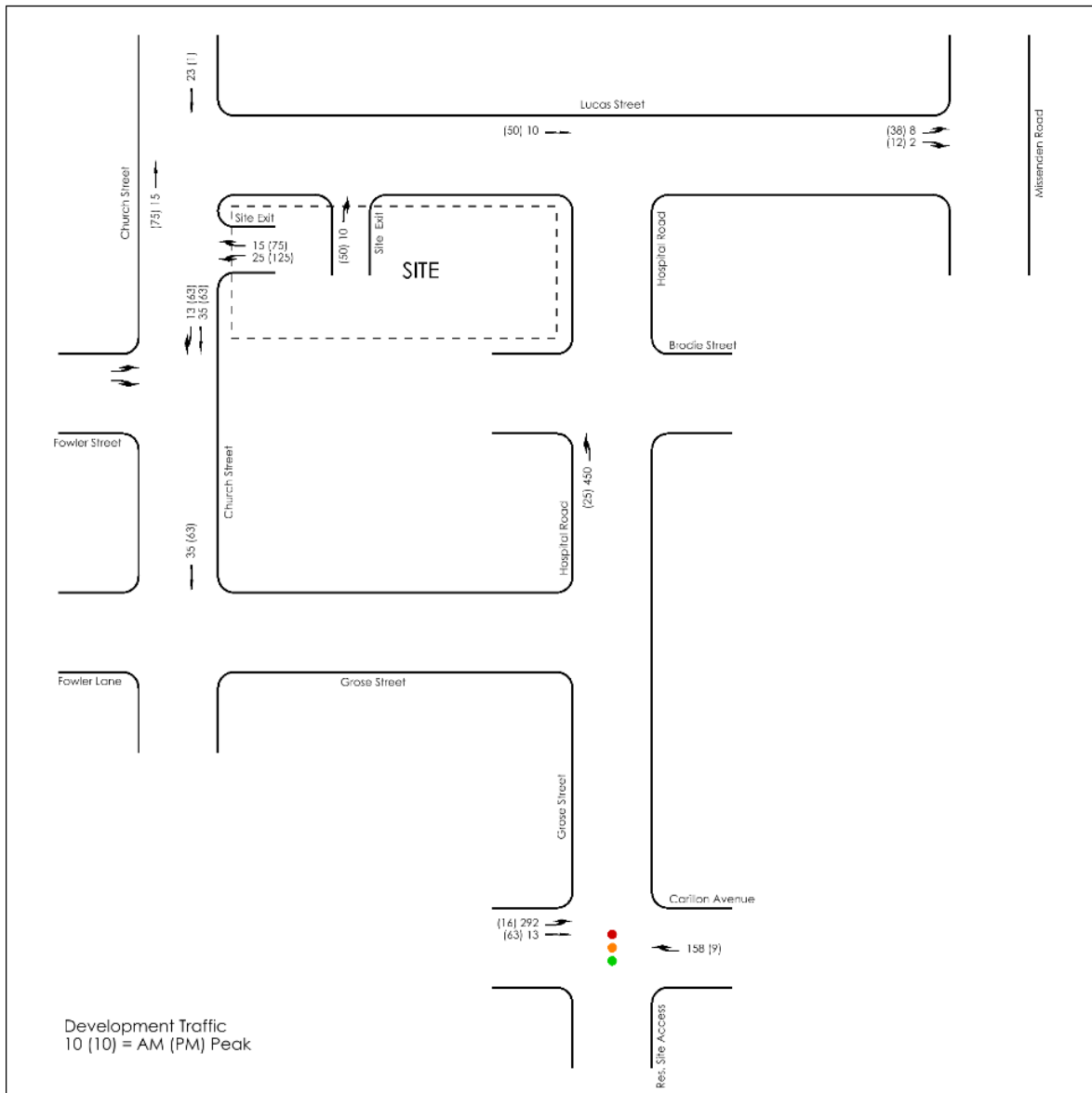
Based on these distribution assumptions and the estimated traffic generation as detailed above, the estimated AM and PM peak hour traffic volumes generated across the local road network by the proposed MSCP are shown in Figure 6.2.

Figure 6.1: Estimated MSCP Traffic Distributions



Basemap Source: Google Maps

Figure 6.2: Peak Hour Site Generated Traffic Volumes



It is noted that the volumes presented above detail the full traffic generation of the MSCP and do not consider any discount for traffic arising from the cessation of the existing use on-site, nor the redistribution of traffic currently parking in other areas within or near the precinct. Accordingly, these traffic volume estimates present a conservatively high estimate of the likely increase in traffic resulting from the proposed MSCP.

6.3 Traffic Impact

An assessment of the impacts that the additional MSCP traffic would have on the surrounding road network can be made by comparing intersection performance prior to and following completion of the MSCP.

The impact of this additional traffic on the intersections in the vicinity of the site and broader precinct has been assessed using SIDRA Intersection. Table 6.2 presents a summary of the anticipated future operation of the key intersections following the completion of the MSCP, with full results included in Appendix B.

Table 6.2: Future Development Traffic

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Lucas Street/ Church Street	AM	South	0.12	2	3	A
		North	0.08	1	0	A
		Total	0.12	1	3	A
	PM	South	0.11	1	1	A
		North	0.06	1	0	A
		Total	0.07	1	1	A
Lucas Street/ Missenden Road	AM	South	0.18	0	0	A
		North	0.28	0	0	A
		West	0.06	8	1	A
		Total	0.28	1	1	A
	PM	South	0.23	0	0	A
		North	0.27	0	0	A
		West	0.09	9	3	A
		Total	0.27	1	3	A
Church Street/ Fowler Street	AM	South	0.03	0	0	A
		North	0.09	2	2	A
		West	0.09	6	3	A
		Total	0.09	3	3	A
	PM	South	0.07	1	0	A
		North	0.14	4	5	A
		West	0.02	6	1	A
		Total	0.14	3	5	A
Church Street/ Grose Street/ Fowler Lane	AM	South	0.05	0	2	A
		East	0.01	4	0	A
		North	0.06	1	1	A
		West	0.01	9	0	A
		Total	0.06	1	2	A
	PM	South	0.04	0	1	A
		East	0.10	4	3	A
		North	0.05	0	0	A
		West	0.01	9	0	A
		Total	0.10	2	3	A

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Lucas Street/ New Road	AM	South	0.01	6	0	A
		West	0.04	6	0	A
		Total	0.04	1	0	A
	PM	South	0.02	6	1	A
		West	0.04	0	0	A
		Total	0.04	2	1	A
Brodie Street/ New Road	AM	South	0.29	6	0	A
		East	0.03	6	1	A
		North	0.01	5	0	A
		West	0.02	7	1	A
		Total	0.02	5	1	A
	PM	South	0.17	5	0	A
		East	0.02	6	0	A
		North	0.01	4	0	A
		West	0.02	6	1	A
		Total	0.17	5	1	A
Parramatta Road/ Mallett Street	AM	South	0.90	49	47	D
		East	0.48	25	144	B
		North	>1.00	213	168	F
		West	0.93	54	482	D
		Total	>1.00	60	482	E
	PM	South	0.88	61	127	E
		East	0.87	31	397	C
		North	0.80	53	95	D
		West	0.56	21	186	B
		Total	0.88	32	397	C
Parramatta Road/ Layton Road/ Church Street	AM	South	0.72	70	60	E
		East	0.37	6	86	A
		North	0.35	62	36	E
		West	0.75	10	291	A
		Total	0.75	13	291	A
	PM	South	0.63	61	67	E
		East	0.66	12	232	A
		North	0.34	59	34	E
		West	0.47	9	130	A
		Total	0.66	16	232	B
Salisbury Road/ Mallett Street	AM	East	0.40	8	22	A
		North	0.82	27	70	B
		West	0.98	28	325	B
		Total	0.98	24	325	B
	PM	East	0.77	14	80	A
		North	0.44	10	19	A
		West	0.51	6	38	A
		Total	0.77	10	80	A

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Carillon Avenue/ Grose Street	AM	South	0.15	59	5	E
		East	0.83	17	84	B
		North	0.11	59	4	E
		West	0.38	5	52	A
		Total	0.83	10	84	A
	PM	South	0.02	46	1	D
		East	0.22	5	34	A
		North	0.21	48	17	D
		West	0.20	5	30	A
		Total	0.22	8	34	A
Carillon Avenue/ Missenden Road	AM	South	0.50	30	80	C
		East	0.78	48	105	D
		North	0.78	38	110	C
		West	0.78	38	196	C
		Total	0.78	39	196	C
	PM	South	0.54	28	107	B
		East	0.93	57	168	E
		North	0.94	53	206	D
		West	0.95	71	221	E
		Total	0.95	52	221	D

The results of the analysis indicate that most intersections continue to operate within acceptable limits or similar to pre-development Levels of Service. The intersection of Parramatta Road/ Mallett Street experiences some additional congestion, particularly during the AM peak period, however future intersection function would be consistent with existing operation when noting the existing queuing and delays.

Some modifications to the intersection of Parramatta Road/ Mallett Street could include expanding the existing 'no stopping' zones on the northern and southern approaches to increase the throughput of vehicles while also reducing the effective queue length.

While it recognised that such measures would result in noticeable benefits to the intersection operation, the specific need or otherwise for such modifications would need to be investigated further, with any such implementation to be determined in consultation with relevant stakeholders.

7. Construction Traffic Impact

This overview of construction traffic impacts associated with construction activity aims to ensure the safety of all workers and road users in the vicinity of the MSCP construction site. The primary objectives of the Construction Traffic Management Plan (CTMP) outline below includes the following:

- To identify the need for adequate and compliant traffic management requirements within the vicinity of RPAH precinct.
- To ensure continuous, safe and efficient movement of traffic for both the general public and construction workers.
- Establishment of a safe pedestrian environment in the vicinity of the site
- To inform the Contractor and set the ground rules for managing the construction traffic associated with the construction site.

7.1 Overall Principles of Construction Traffic Management

The overall principles of traffic management during the construction activity include:

- provide an appropriate and convenient environment for pedestrians
- minimise the impact on pedestrian movements
- maintain appropriate capacity for pedestrians at all times on footpaths around the site
- maintain appropriate public transport access
- maintain current levels of parking within the precinct
- maintain permanent access to/ from the hospital accesses for emergency services
- restrict construction vehicle movements to designated routes to/ from the site
- manage and control construction vehicle activity in the vicinity of the site
- minimise impacts to general traffic in the vicinity of the site.

7.2 General Requirements

In accordance with RMS requirements, all vehicles transporting loose materials will be required to have the entire load covered and/ or secured to prevent any large items, excess dust or debris being deposited onto the roadway during travel to and from the site. All subcontractors and suppliers must be inducted by the Principal Contractor to ensure that the procedures are met for all vehicles entering and exiting the construction sites. The Principal Contractor will monitor the roads leading to and from the site and take all necessary steps to clean any debris deposited by construction vehicles.

Vehicles operating to, from and within the site shall do so in a manner which does not create unreasonable or unnecessary noise or vibration.

No tracked vehicles will be permitted on any paved roads. Public roads and access points will not be obstructed by any materials, vehicles, refuse skips or the like, under any circumstances.

7.3 Work Hours

The hours of operation will be as approved by the approval authority. No works will occur outside the nominated hours unless prior approval is granted by the Department of Planning and Environment and/ or City of Sydney.

7.4 Construction Worker Parking

Given that parking is in high demand within the RPAH precinct, construction workers should be encouraged to car pool and/ or make use of the available public transport for travel to and from the site. Some limited parking may be possible on-site, within the nominated construction compounds, which should be clearly separated from existing staff parking areas.

7.5 Construction Traffic Volumes

Traffic generated by the construction works will include construction worker light vehicles (including utility vans), as well as heavy vehicles for periodic delivery and removal of materials, including plant and equipment. Vehicle types and sizes would vary depending on the required use, but include medium and large rigid vehicles and articulated vehicles for import of bulk materials or minor spoil removal, as well as concrete trucks.

The level of construction vehicle activity is unknown at this stage but would be quantified prior to construction, once a contractor has been appointed.

Overall the construction works could not be expected to significantly impact intersection operation external to the site. This includes the Carillon Avenue/ Grose Street intersection. This also assumes that construction vehicle activity will be timed to mostly occur outside typical weekday AM and PM peak hours.

Any works on weekends would not present significant traffic related impacts, with no known specific restrictions limiting access and/ or the work hours as specified.

All works within the site and associated vehicle movements will be restricted to the permitted working hours of the site. Detailed site access will be set out in the detailed plan to be completed by the appointed contractor.

7.6 Site Access

Access to this site is anticipated to be to/ from Brodie Street via the signalised intersection of Carillon Avenue/ Grose Street to the south. While use of other local streets should not be encouraged, use of other routes can be assessed as part of a detailed Construction Traffic Management Plan.

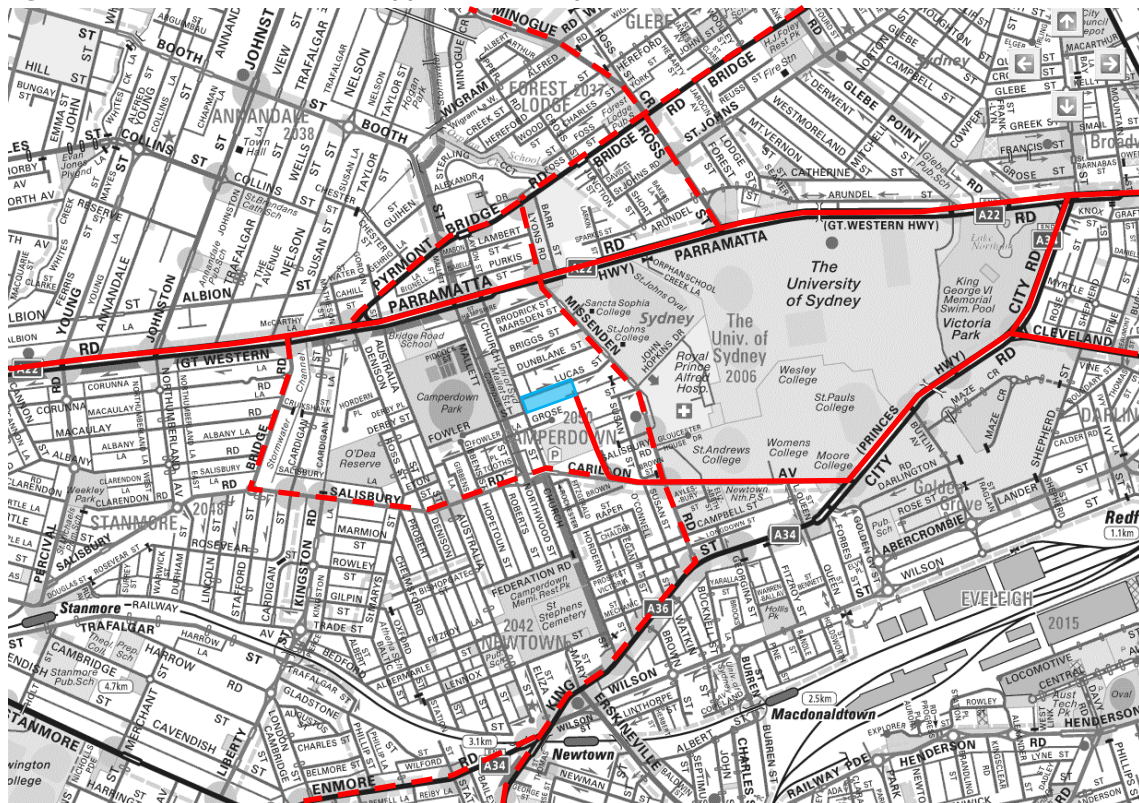
7.7 Construction Vehicle Routes

Generally, construction vehicles will have origins and destinations from a wide variety of locations throughout Sydney. However, all construction vehicles are to be restricted to the State and Regional Road network where possible. Construction vehicles should, where practical avoid use of local streets surrounding the site.

As such, likely construction vehicle routes have been developed with the aim to provide the shortest distances to/ from the arterial road network, whilst minimising the impact of construction traffic on streets in the vicinity of the site. Alternative routes would not be used without specific prior approval from the appropriate stakeholders. No trucks will be permitted to layover on approach to the work site.

Truck drivers will be advised of the designated truck routes to/ from the site. The primary and secondary truck routes are shown in Figure 7.1.

Figure 7.1: Construction Vehicle Approach and Departure Routes



It is recommended that a detailed CTMP be prepared prior to works commencing on-site.

7.8 On-street Works Zones

If the Principal Contractor requires the use of a Works Zone they would be required to liaise with and obtain approval from the relevant authority (Council, TfNSW/ RMS).

7.9 Special Deliveries

It is not anticipated that any special deliveries will be required however, if any vehicle larger than 19 metres in length is required to access the site, access will only be granted following an approval from the relevant authorities (Council, TfNSW/ RMS).

7.10 Traffic Control Plans

Notwithstanding the limited impacts of construction on traffic operation of the surrounding network, Traffic Control Plans (TCPs) would need to be prepared to appropriately manage the use of the designated construction routes and site interfaces, and submitted to Council and/ or RMS if required by a Section 138 permit under the Roads Act. TCPs would also be required to obtain any appropriate Road Occupancy Licences and Road Opening Permits required by RMS and/ or Council.

As part of implementation of the TCPs, standard signage warning approaching vehicles of the construction activity and heavy vehicle movements should be installed. This should include static signage to be in-place in advance of the works. Other possible mitigation measures to minimise traffic impacts during construction generally include:

- Appropriate traffic management, including static signs, manual traffic control and provision of temporary barriers to control the designated work areas and minimise delays.
- Establishment of safe access points to work areas from the adjacent road network including safety measures such as barriers and warnings to pedestrians, maintaining sight distance requirements and signage, and the provision of traffic management measures.
- Use of traffic controllers to negotiate pedestrian and construction vehicle priority and access, if required.

The TCPs should also outline how potential construction vehicle manoeuvres (and the size of the largest vehicle) could be accommodated in and out of the construction site.

7.11 Pedestrian Management

During the construction period, pedestrian movements throughout are to be maintained as much as feasible. Where works require the closure of an existing pedestrian route, a suitable alternative is to be provided. Class A hoarding/ fencing would be provided between pedestrian paths and any work site.

7.12 Public Transport

Given the infrequent heavy vehicle movements associated with the construction works, the overall impact to existing public transport services is expected to be negligible. This includes the impact on the identified local area bus services.

7.13 Emergency Vehicles and Heavy Vehicles

During construction, the Principal Contractor will ensure that there is no disruption to emergency vehicles on public and internal Hospital roads.

The sites location, well distanced from emergency services and departments associated with RPAH, will ensure any potential impacts on emergency access would be able to be effectively managed throughout the works.

7.14 Existing and Future Developments

It is the Principal Contractor's responsibility to liaise with Health Infrastructure and other landowners etc. should there be other potential future developments under construction at the same time. A coordinated approach to traffic management and wayfinding signage is logical in such instances.

7.15 Traffic Movements in Adjoining Areas

No adverse effects are expected from the movement of heavy vehicles through adjacent council areas.

8. Contractor Requirements

8.1 Construction Traffic Management Plan

Prior to the commencement of construction, a CTMP is to be prepared by the Principal Contractor. The CTMP should address the following:

- consultation with the consent authorities and relevant approvals
- the likely construction vehicle numbers and frequency
- approach and departure routes
- anticipated special out-of-hours or escorted deliveries
- parking access arrangements during construction
- contractor parking management measures
- construction work zone locations
- site entry and exit points
- proposed traffic control signage
- proposed traffic management at critical locations i.e. entrance to main Hospital
- provision of acceptable pedestrian management measures.

The Principal Contractor should implement, update and maintain the CTMP throughout the construction period and until completion.

8.2 Staff Induction

All workers and subcontractors engaged on-site would be required to undergo a site induction. The induction should include permitted access routes to and from the construction site for all vehicles, as well as standard environmental, WHS, driver protocols and emergency procedures. Additionally, the Principal Contractor will organise regular scheduled site inductions as required).

Any workers required to undertake works or traffic control within the public domain would be suitably trained and covered by adequate and appropriate insurances. All traffic control personnel would be required to hold RMS accreditation in accordance with Section 8 of *Traffic Control at Work Sites* (RMS, 2010).

8.3 Contact Details of the Site Manager(s)

Contact details should be provided by the Principal Contractor as part of their CTMP for the project.

8.4 Occupational Health and Safety

Any workers required to undertake works or traffic control within the public domain shall be suitably trained and will be covered by adequate and appropriate insurances. All traffic control personnel will be required to hold RMS accreditation in accordance with Section 8 of *Traffic Control at Worksites* (RMS, 2010).

8.5 Communications

The Principal Contractor is to prepare a communication plan to manage and provide updated to hospital staff/ visitors and the general public throughout the works. Appropriate site, warning and wayfinding signage are to be provided as necessary.

9. Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

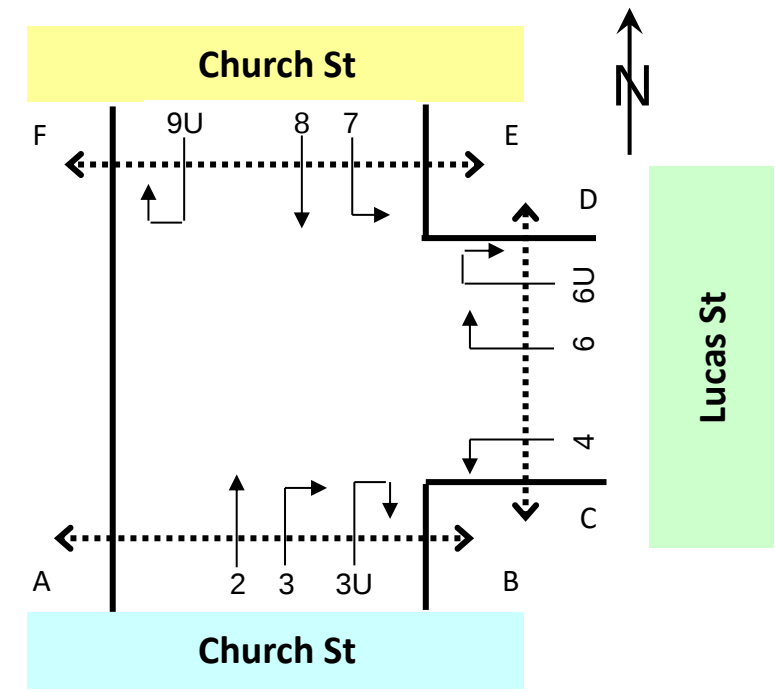
- i The proposed MSCP proposes 996 car spaces for use by RPAH staff and has been designed as a User Class 1 facility in accordance with AS2890.1:2004.
- ii The site is expected to generate up to 500 and 275 vehicle movements during the AM and PM peak hours respectively.
- iii The volumes of traffic entering the site at any one time will be influenced by the amount of available spaces and directly responds to RPAH staff shift times.
- iv The traffic generated by the proposed MSCP is not expected to adversely impact on surrounding local intersections in the area.
- v General traffic congestion through the area, particularly along Missenden Road should not be unreasonably impacted, assisted by the entry and exit locations and subsequent arrival and departure routes.
- vi The majority of the surrounding key intersections experience a minor change to operating conditions, noting the existing congestion levels at some key intersections.
- vii The MSCP has been designed in accordance with relevant Australian Standards, with boomgate capacity and circulation allowing for efficient use in a safe environment.
- viii Brodie Street will provide the only entry point, with the existing Marie Bashir Centre boomgate to ensure no direct access to the site via Missenden Road. Entry will be via Grose Street from the south only with exits to Church Street and Lucas Street.
- ix The site layout ensures pedestrian connections internal to the RPAH precinct and via the Brodie Street shared zone are strengthened. Safe crossing points, including where Brodie Street intersects with Hospital Road will be included as part of design development.
- x Staff should be encouraged to join the existing RPAH car pool services and other incentive programs to limit the upward pressure on parking demand within the precinct and associated ongoing issues.
- xi Construction vehicles should, where practical avoid use of local streets surrounding the site on approach and departure.
- xii Construction workers should be encouraged to car pool and/ or make use of the available public transport for travel to and from the site.
- xiii A detailed Construction Traffic Management Plan should be prepared for the development prior to commencement of work, building on the outline provided in this report.

Appendix A

Survey Results

Job No. : N2252
Client : GTA
Suburb : Camperdown
Location : 1. Lucas St / Church St

Day/Date : Tue, 15th March 2016
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

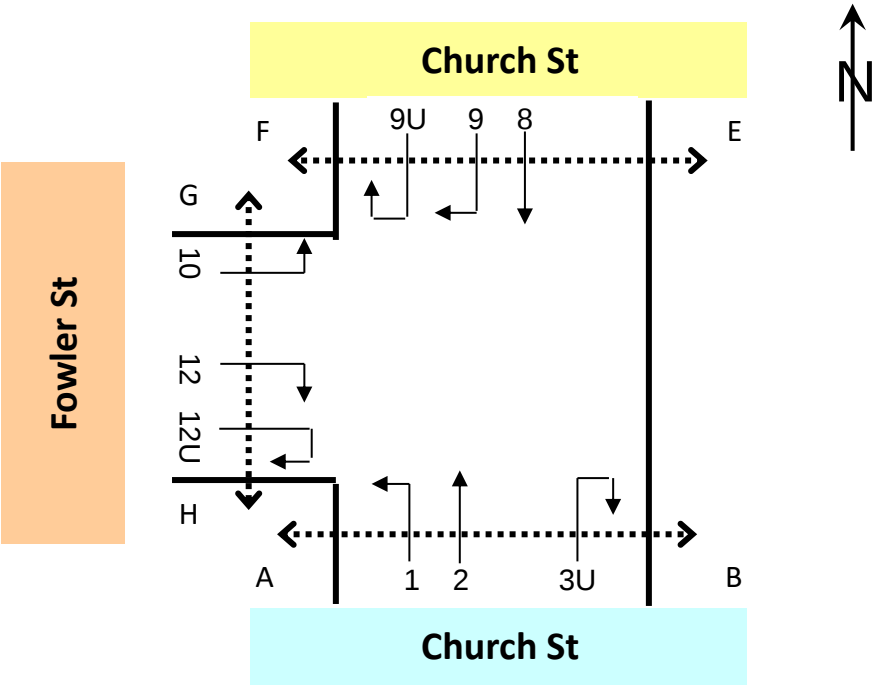


Approach		Church St				Lucas St				Church St				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
AM 7:45 to 8:45		192	1	1	194	0	0	0	0	136	1	0	137	
PM 17:00 to 18:00		136	0	0	136	0	0	0	0	130	3	0	133	269

Approach		Church St				Lucas St				Church St				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
6:30 to 7:30		76	2	0	78	0	0	0	0	90	1	0	91	169
6:45 to 7:45		91	2	0	93	0	0	0	0	101	2	0	103	196
7:00 to 8:00		119	2	0	121	0	0	0	0	129	2	0	131	252
7:15 to 8:15		134	2	0	136	0	0	0	0	138	2	0	140	276
7:30 to 8:30		157	1	1	159	0	0	0	0	140	2	0	142	301
7:45 to 8:45		192	1	1	194	0	0	0	0	136	1	0	137	331
8:00 to 9:00		190	1	1	192	0	0	0	0	120	1	0	121	313
8:15 to 9:15		187	2	1	190	0	0	0	0	120	1	0	121	311
8:30 to 9:30		170	1	0	171	0	0	0	0	107	2	0	109	280
AM Totals		403	4	1	408	0	0	0	0	337	5	0	342	750
14:00 to 15:00		78	1	0	79	0	0	0	0	113	2	0	115	194
14:15 to 15:15		89	1	0	90	0	0	0	0	108	1	0	109	199
14:30 to 15:30		89	0	0	89	0	0	0	0	111	0	0	111	200
14:45 to 15:45		90	1	0	91	0	0	0	0	104	2	0	106	197
15:00 to 16:00		92	1	0	93	0	0	0	0	108	2	0	110	203
15:15 to 16:15		106	1	0	107	0	0	0	0	116	2	0	118	225
15:30 to 16:30		109	1	0	110	0	0	0	0	105	2	0	107	217
15:45 to 16:45		115	1	0	116	0	0	0	0	100	0	0	100	216
16:00 to 17:00		126	1	0	127	0	0	0	0	98	0	0	98	225
16:15 to 17:15		121	1	0	122	0	0	0	0	104	0	0	104	226
16:30 to 17:30		136	1	0	137	0	0	0	0	119	1	0	120	257
16:45 to 17:45		139	0	0	139	0	0	0	0	123	1	0	124	263
17:00 to 18:00		136	0	0	136	0	0	0	0	130	3	0	133	269
PM Totals		432	3	0	435	0	0	0	0	449	7	0	456	891

Job No. : N2252
Client : GTA
Suburb : Camperdown
Location : 2. Fowler St / Church St

Day/Date : Tue, 15th March 2016
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

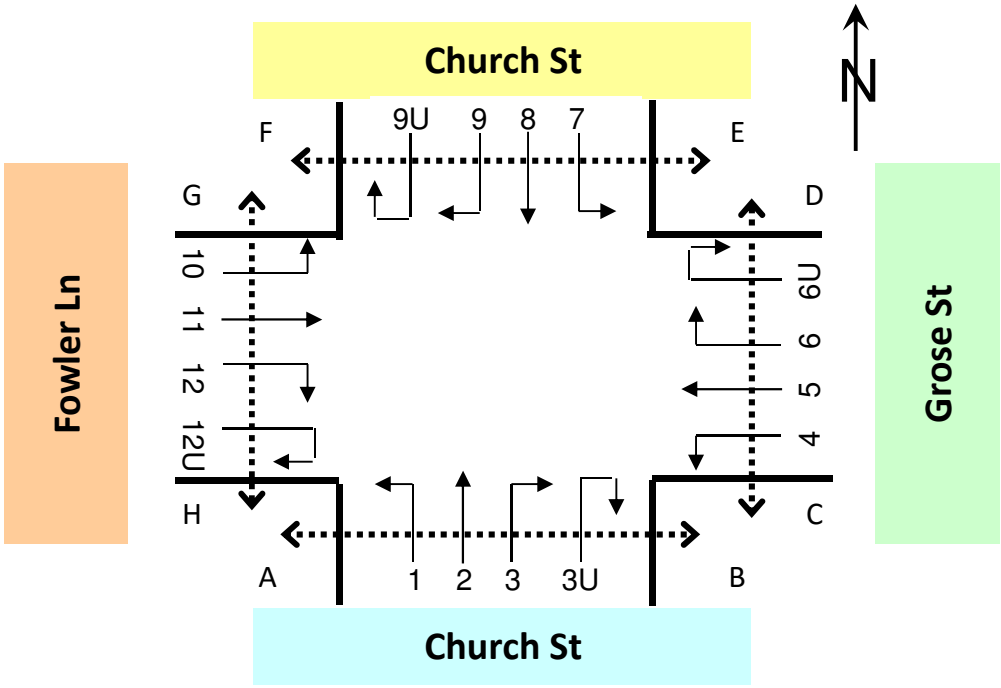


Approach		Church St				Church St				Fowler St				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
AM	7:45 to 8:45	61	1	0	62	113	1	0	114	140	0	1	141	317
PM	17:00 to 18:00	129	0	0	129	118	3	0	121	35	0	0	35	285

Approach		Church St				Church St				Fowler St				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
	6:30 to 7:30	58	1	0	59	65	1	0	66	40	2	0	42	167
	6:45 to 7:45	62	1	0	63	83	2	0	85	55	2	0	57	205
	7:00 to 8:00	67	1	0	68	110	2	0	112	79	2	0	81	261
	7:15 to 8:15	65	1	0	66	117	2	0	119	94	0	0	94	279
	7:30 to 8:30	56	1	0	57	118	2	0	120	117	0	1	118	295
	7:45 to 8:45	61	1	0	62	113	1	0	114	140	0	1	141	317
	8:00 to 9:00	70	1	0	71	100	1	0	101	130	1	1	132	304
	8:15 to 9:15	64	2	0	66	99	1	0	100	132	1	1	134	300
	8:30 to 9:30	68	1	0	69	85	2	0	87	109	1	0	110	266
AM Totals		182	3	0	185	268	5	0	273	266	3	1	270	728
	14:00 to 15:00	48	0	0	48	95	1	0	96	40	1	0	41	185
	14:15 to 15:15	60	0	0	60	93	0	0	93	40	1	0	41	194
	14:30 to 15:30	63	0	0	63	90	0	0	90	40	0	0	40	193
	14:45 to 15:45	65	0	0	65	83	1	0	84	37	1	0	38	187
	15:00 to 16:00	71	0	0	71	76	1	0	77	41	1	0	42	190
	15:15 to 16:15	88	0	0	88	85	1	0	86	41	1	0	42	216
	15:30 to 16:30	97	0	0	97	81	1	0	82	37	1	0	38	217
	15:45 to 16:45	102	0	0	102	80	0	0	80	35	1	0	36	218
	16:00 to 17:00	114	0	0	114	88	0	0	88	28	1	0	29	231
	16:15 to 17:15	118	0	0	118	93	0	0	93	24	1	0	25	236
	16:30 to 17:30	127	0	0	127	110	1	0	111	30	1	0	31	269
	16:45 to 17:45	131	0	0	131	115	1	0	116	29	0	0	29	276
	17:00 to 18:00	129	0	0	129	118	3	0	121	35	0	0	35	285
PM Totals		362	0	0	362	377	5	0	382	144	3	0	147	891

Job No. : N2252
Client : GTA
Suburb : Camperdown
Location : 3. Church St / Grose St / Fowler Ln

Day/Date : Tue, 15th March 2016
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

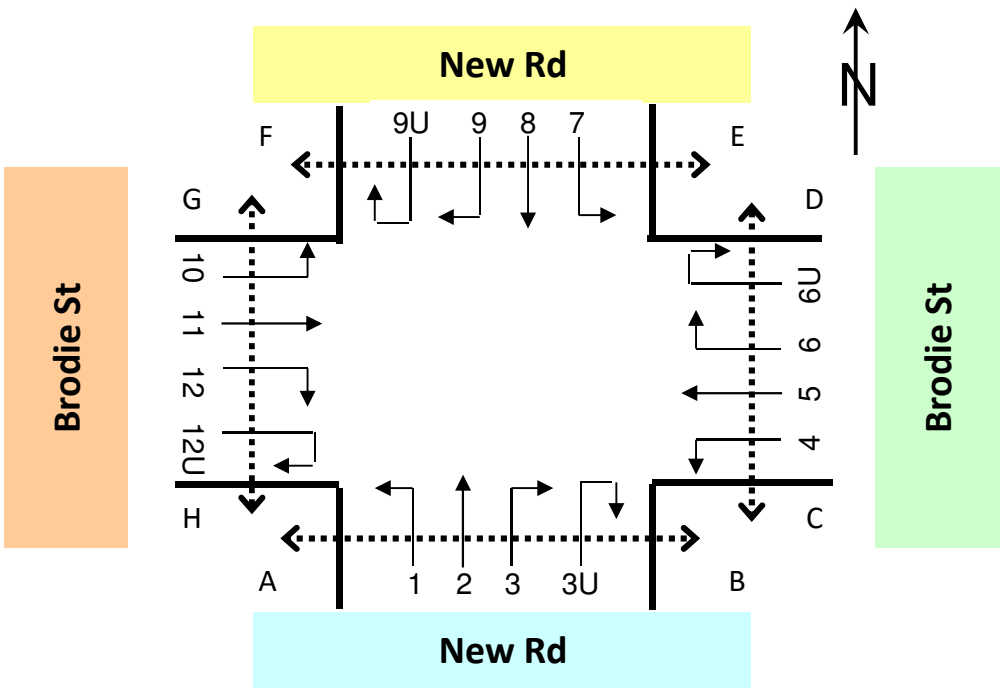


Approach		Church St				Grose St				Church St				Fowler Ln				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
AM	7:00 to 8:00	70	1	0	71	7	1	0	8	89	1	0	90	0	0	0	0	169
PM	16:30 to 17:30	47	0	0	47	116	0	0	116	22	0	0	22	1	0	0	1	186

Approach		Church St				Grose St				Church St				Fowler Ln				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
6:30	to 7:30	58	1	0	59	9	0	0	9	55	2	0	57	0	0	0	0	125
6:45	to 7:45	60	1	0	61	8	1	0	9	65	2	0	67	0	0	0	0	137
7:00	to 8:00	70	1	0	71	7	1	0	8	89	1	0	90	0	0	0	0	169
7:15	to 8:15	60	1	0	61	10	1	0	11	91	0	0	91	0	0	0	0	163
7:30	to 8:30	50	1	0	51	13	1	0	14	86	0	0	86	0	0	0	0	151
7:45	to 8:45	56	1	0	57	13	0	0	13	83	0	0	83	0	0	0	0	153
8:00	to 9:00	60	1	0	61	15	0	0	15	65	1	0	66	0	0	0	0	142
8:15	to 9:15	58	0	0	58	14	2	0	16	59	1	0	60	1	0	0	1	135
8:30	to 9:30	63	0	0	63	13	2	0	15	53	2	0	55	1	0	0	1	134
AM Totals		171	2	0	173	35	3	0	38	194	4	0	198	1	0	0	1	410
14:00	to 15:00	35	1	0	36	38	0	0	38	51	1	0	52	0	0	0	0	126
14:15	to 15:15	44	0	0	44	40	0	0	40	48	0	0	48	0	0	0	0	132
14:30	to 15:30	43	0	0	43	39	0	0	39	51	0	0	51	0	0	0	0	133
14:45	to 15:45	39	0	0	39	41	0	0	41	41	1	0	42	0	0	0	0	122
15:00	to 16:00	38	0	0	38	44	0	0	44	38	1	0	39	0	0	0	0	121
15:15	to 16:15	42	0	0	42	67	0	0	67	36	1	0	37	0	0	0	0	146
15:30	to 16:30	39	0	0	39	81	0	0	81	31	1	0	32	0	0	0	0	152
15:45	to 16:45	38	0	0	38	90	0	0	90	30	0	0	30	1	0	0	1	159
16:00	to 17:00	42	0	0	42	108	0	0	108	26	0	0	26	1	0	0	1	177
16:15	to 17:15	37	0	0	37	110	0	0	110	22	0	0	22	1	0	0	1	170
16:30	to 17:30	47	0	0	47	116	0	0	116	22	0	0	22	1	0	0	1	186
16:45	to 17:45	53	0	0	53	111	0	0	111	18	0	0	18	0	0	0	0	182
17:00	to 18:00	53	0	0	53	103	0	0	103	23	2	0	25	1	0	0	1	182
PM Totals		168	1	0	169	293	0	0	293	138	4	0	142	2	0	0	2	606

Job No. : N2252
Client : GTA
Suburb : Camperdown
Location : 4. RPA Internal Rd (Brodie St / New Rd) just sth of Lucas St

Day/Date : Tue, 15th March 2016
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

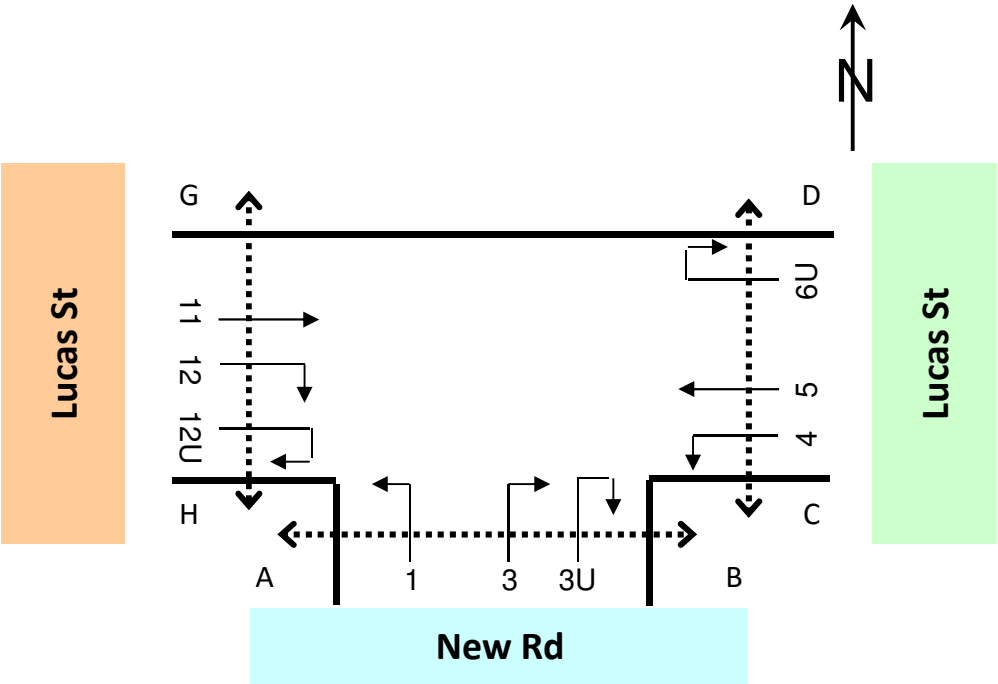


Approach		New Rd				Brodie St				New Rd				Brodie St				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
AM	7:30 to 8:30	12	0	0	12	37	2	0	39	2	0	0	2	18	1	0	19	72
PM	16:00 to 17:00	34	0	0	34	24	0	0	24	0	0	0	0	22	0	0	22	80

Approach		New Rd				Brodie St				New Rd				Brodie St				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
6:30 to 7:30		4	0	0	4	25	3	0	28	5	0	0	5	6	1	0	7	44
6:45 to 7:45		7	0	0	7	36	2	0	38	3	0	0	3	7	1	0	8	56
7:00 to 8:00		7	0	0	7	35	3	0	38	2	0	0	2	10	0	0	10	57
7:15 to 8:15		11	0	0	11	33	2	0	35	2	0	0	2	14	1	0	15	63
7:30 to 8:30		12	0	0	12	37	2	0	39	2	0	0	2	18	1	0	19	72
7:45 to 8:45		10	0	0	10	28	3	0	31	2	0	0	2	17	1	0	18	61
8:00 to 9:00		9	0	0	9	26	2	0	28	2	0	0	2	11	1	0	12	51
8:15 to 9:15		5	0	0	5	30	2	0	32	1	0	0	1	9	0	0	9	47
8:30 to 9:30		5	0	0	5	32	2	0	34	1	0	0	1	7	0	0	7	47
AM Totals		21	0	0	21	94	7	0	101	8	0	0	8	31	2	0	33	163
14:00 to 15:00		12	0	0	12	14	0	0	14	0	0	0	0	0	0	0	0	26
14:15 to 15:15		9	0	0	9	14	0	0	14	0	0	0	0	1	0	0	1	24
14:30 to 15:30		5	0	0	5	12	0	0	12	0	0	0	0	2	0	0	2	19
14:45 to 15:45		3	0	0	3	11	0	0	11	1	0	0	1	3	0	0	3	18
15:00 to 16:00		13	0	0	13	10	0	0	10	1	0	0	1	3	0	0	3	27
15:15 to 16:15		22	0	0	22	14	0	0	14	1	0	0	1	10	0	0	10	47
15:30 to 16:30		32	0	0	32	18	0	0	18	1	0	0	1	12	0	0	12	63
15:45 to 16:45		38	0	0	38	22	0	0	22	0	0	0	0	18	0	0	18	78
16:00 to 17:00		34	0	0	34	24	0	0	24	0	0	0	0	22	0	0	22	80
16:15 to 17:15		32	0	0	32	21	0	0	21	0	0	0	0	18	0	0	18	71
16:30 to 17:30		30	0	0	30	19	0	0	19	0	0	0	0	21	0	0	21	70
16:45 to 17:45		25	0	0	25	12	0	0	12	0	0	0	0	17	0	0	17	54
17:00 to 18:00		21	0	0	21	10	0	0	10	0	0	0	0	14	0	0	14	45
PM Totals		80	0	0	80	58	0	0	58	1	0	0	1	39	0	0	39	178

Job No. : N2252
Client : GTA
Suburb : Camperdown
Location : 5. Lucas St / RPA Access (New Rd)

Day/Date : Tue, 15th March 2016
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

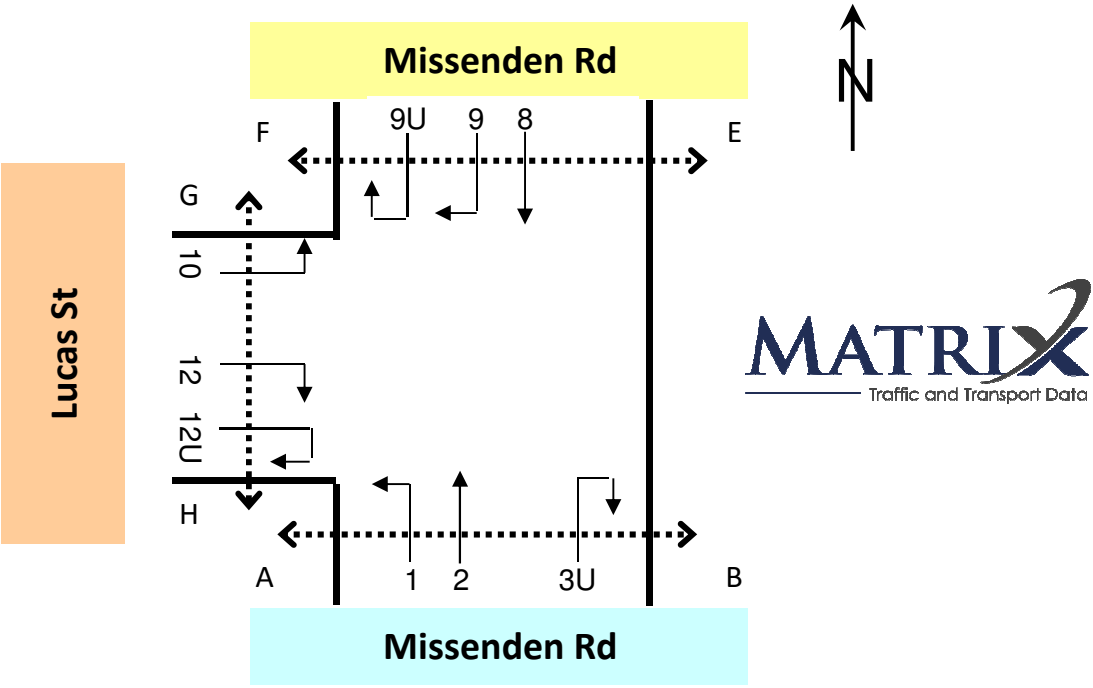


Approach		New Rd				Lucas St				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
AM 7:45 to 8:45		15	1	0	16	0	0	0	0	
PM 14:15 to 15:15		14	0	0	14	0	0	0	0	90
		72	1	1	74	48	1	0	49	63

Approach		New Rd				Lucas St				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
6:30 to 7:30		6	2	0	8	0	0	0	0	64
6:45 to 7:45		11	2	0	13	0	0	0	0	65
7:00 to 8:00		12	2	0	14	0	0	0	0	76
7:15 to 8:15		15	1	0	16	0	0	0	0	72
7:30 to 8:30		17	1	0	18	0	0	0	0	84
7:45 to 8:45		15	1	0	16	0	0	0	0	90
8:00 to 9:00		12	0	0	12	0	0	0	0	81
8:15 to 9:15		11	0	0	11	0	0	0	0	86
8:30 to 9:30		8	0	0	8	0	0	0	0	80
AM Totals		31	3	0	34	0	0	0	0	190
14:00 to 15:00		14	0	0	14	0	0	0	0	60
14:15 to 15:15		14	0	0	14	0	0	0	0	63
14:30 to 15:30		10	0	0	10	0	0	0	0	63
14:45 to 15:45		4	0	0	4	0	0	0	0	54
15:00 to 16:00		8	0	0	8	0	0	0	0	61
15:15 to 16:15		11	0	0	11	0	0	0	0	61
15:30 to 16:30		19	0	0	19	0	0	0	0	58
15:45 to 16:45		29	0	0	29	0	0	0	0	61
16:00 to 17:00		33	0	0	33	0	0	0	0	61
16:15 to 17:15		32	0	0	32	0	0	0	0	57
16:30 to 17:30		29	0	0	29	0	0	0	0	58
16:45 to 17:45		23	0	0	23	0	0	0	0	51
17:00 to 18:00		21	0	0	21	0	0	0	0	50
PM Totals		76	0	0	76	0	0	0	0	154
		45	1	0	46	48	1	0	49	232

Job No. : N2252
Client : GTA
Suburb : Camperdown
Location : 6. Lucas St / Missenden Rd

Day/Date : Tue, 15th March 2016
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

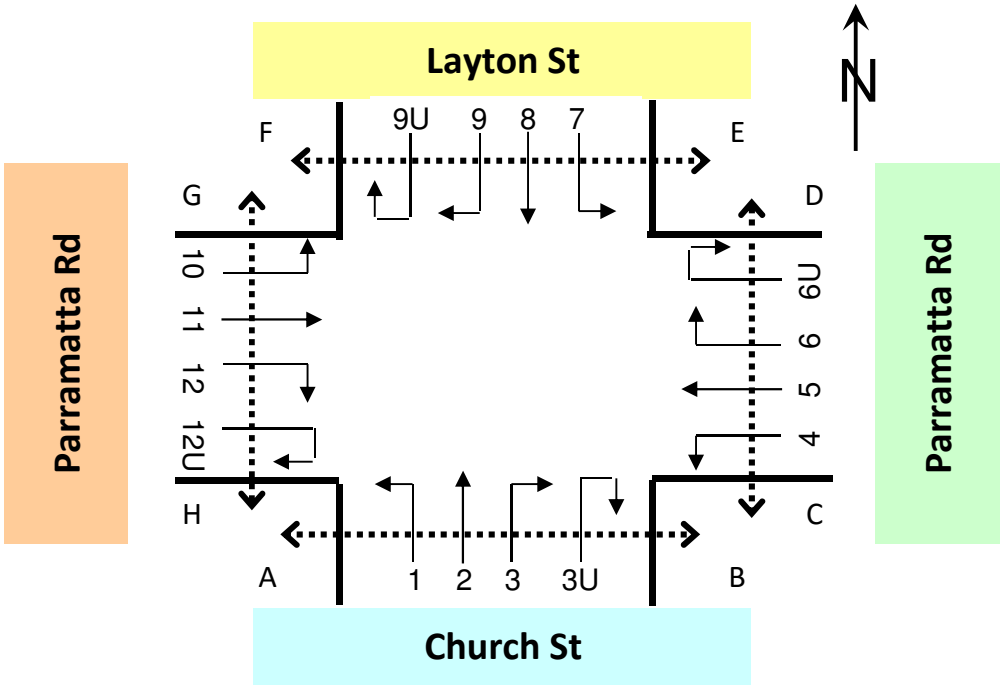


Approach		Missenden Rd				Missenden Rd				Lucas St				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
AM	8:15 to 9:15	330	14	5	349	509	18	3	530	64	1	0	65	944
PM	16:30 to 17:30	423	7	6	436	475	11	4	490	76	0	0	76	1,002

Approach		Missenden Rd				Missenden Rd				Lucas St				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
6:30	to 7:30	299	13	3	315	402	11	1	414	37	3	0	40	769
6:45	to 7:45	316	14	3	333	420	14	3	437	41	3	0	44	814
7:00	to 8:00	318	9	5	332	438	16	4	458	49	2	0	51	841
7:15	to 8:15	303	11	4	318	460	19	3	482	45	2	0	47	847
7:30	to 8:30	316	13	5	334	490	19	4	513	52	2	0	54	901
7:45	to 8:45	312	11	5	328	493	19	3	515	57	2	0	59	902
8:00	to 9:00	308	15	5	328	498	18	2	518	53	1	0	54	900
8:15	to 9:15	330	14	5	349	509	18	3	530	64	1	0	65	944
8:30	to 9:30	320	12	5	337	489	18	2	509	64	0	0	64	910
AM Totals		935	38	13	986	1,381	48	7	1,436	153	5	0	158	2,580
14:00	to 15:00	436	19	4	459	399	15	4	418	60	0	0	60	937
14:15	to 15:15	450	21	4	475	410	14	4	428	55	0	0	55	958
14:30	to 15:30	452	20	4	476	411	10	3	424	58	0	0	58	958
14:45	to 15:45	446	19	4	469	407	10	2	419	56	0	0	56	944
15:00	to 16:00	461	16	3	480	419	11	3	433	60	0	0	60	973
15:15	to 16:15	461	7	3	471	414	10	4	428	65	0	0	65	964
15:30	to 16:30	468	8	4	480	415	8	4	427	63	0	0	63	970
15:45	to 16:45	442	8	5	455	437	10	5	452	67	0	0	67	974
16:00	to 17:00	447	8	5	460	429	9	5	443	75	0	0	75	978
16:15	to 17:15	448	7	7	462	441	9	5	455	72	0	0	72	989
16:30	to 17:30	423	7	6	436	475	11	4	490	76	0	0	76	1,002
16:45	to 17:45	433	4	4	441	453	9	6	468	68	0	0	68	977
17:00	to 18:00	410	4	4	418	460	6	5	471	56	0	0	56	945
PM Totals		1,754	47	16	1,817	1,707	41	17	1,765	251	0	0	251	3,833

Job No. : N2252
Client : GTA
Suburb : Camperdown
Location : 7. Parramatta Rd / Church St

Day/Date : Tue, 15th March 2016
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

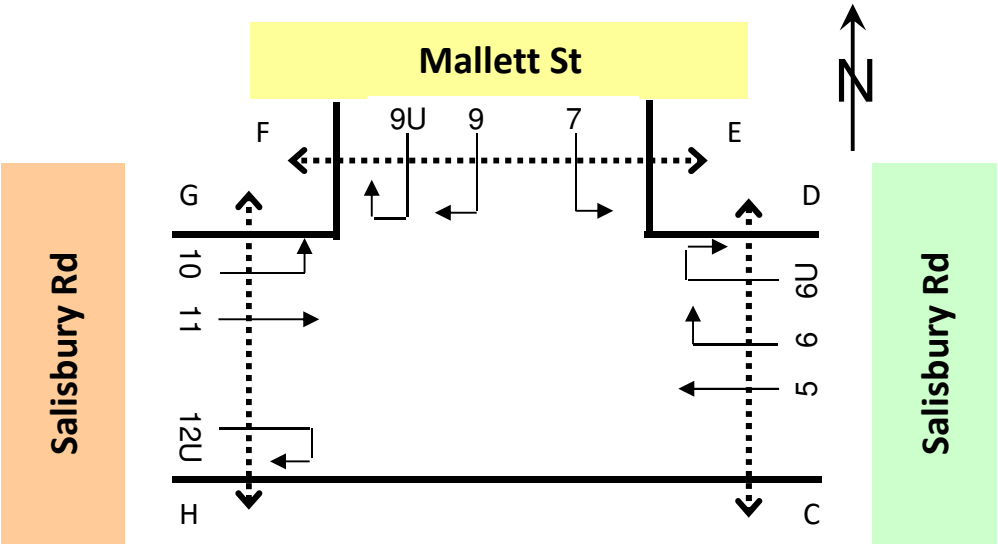


Approach		Church St				Parramatta Rd				Layton St				Parramatta Rd				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
AM	7:45 to 8:45	145	2	0	147	1,033	53	31	1,117	87	1	0	88	2,092	72	56	2,220	3,572
PM	16:15 to 17:15	148	2	0	150	1,724	45	43	1,812	89	2	0	91	1,330	17	41	1,388	3,441

Approach		Church St				Parramatta Rd				Layton St				Parramatta Rd				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
6:30 to 7:30		57	2	0	59	846	40	17	903	52	3	0	55	1,651	129	36	1,816	2,833
6:45 to 7:45		61	4	0	65	876	43	20	939	62	4	0	66	1,754	114	39	1,907	2,977
7:00 to 8:00		84	5	0	89	937	43	22	1,002	77	4	0	81	1,899	90	44	2,033	3,205
7:15 to 8:15		111	4	0	115	983	49	26	1,058	71	3	0	74	2,045	78	47	2,170	3,417
7:30 to 8:30		125	4	0	129	1,003	51	27	1,081	80	2	0	82	2,084	73	52	2,209	3,501
7:45 to 8:45		145	2	0	147	1,033	53	31	1,117	87	1	0	88	2,092	72	56	2,220	3,572
8:00 to 9:00		149	1	0	150	1,022	56	30	1,108	85	3	0	88	2,058	85	56	2,199	3,545
8:15 to 9:15		123	2	0	125	1,020	56	33	1,109	87	4	0	91	1,971	86	59	2,116	3,441
8:30 to 9:30		106	1	0	107	982	61	38	1,081	75	4	0	79	1,915	90	55	2,060	3,327
AM Totals		288	7	0	295	2,831	152	82	3,065	207	9	0	216	5,650	292	143	6,085	9,661
14:00 to 15:00		86	1	0	87	1,619	72	26	1,717	73	5	0	78	1,143	44	28	1,215	3,097
14:15 to 15:15		94	1	0	95	1,667	72	28	1,767	69	3	0	72	1,179	40	29	1,248	3,182
14:30 to 15:30		103	0	0	103	1,748	72	28	1,848	76	2	0	78	1,175	32	32	1,239	3,268
14:45 to 15:45		111	1	0	112	1,727	66	30	1,823	75	2	0	77	1,184	28	32	1,244	3,256
15:00 to 16:00		112	1	0	113	1,727	62	30	1,819	72	2	0	74	1,233	26	33	1,292	3,298
15:15 to 16:15		132	1	0	133	1,655	55	35	1,745	77	1	0	78	1,249	19	37	1,305	3,261
15:30 to 16:30		138	2	0	140	1,626	56	36	1,718	70	2	0	72	1,286	20	36	1,342	3,272
15:45 to 16:45		141	2	0	143	1,626	52	38	1,716	72	1	0	73	1,312	20	42	1,374	3,306
16:00 to 17:00		156	2	0	158	1,652	47	44	1,743	81	1	0	82	1,343	17	41	1,401	3,384
16:15 to 17:15		148	2	0	150	1,724	45	43	1,812	89	2	0	91	1,330	17	41	1,388	3,441
16:30 to 17:30		160	1	0	161	1,758	40	48	1,846	99	2	0	101	1,272	13	39	1,324	3,432
16:45 to 17:45		162	0	0	162	1,825	39	48	1,912	104	2	0	106	1,208	12	38	1,258	3,438
17:00 to 18:00		154	0	0	154	1,775	32	51	1,858	96	2	0	98	1,170	11	41	1,222	3,332
PM Totals		508	4	0	512	6,773	213	151	7,137	322	10	0	332	4,889	98	143	5,130	13,111

Job No. : N2252
Client : GTA
Suburb : Camperdown
Location : 8. Salisbury Rd / Mallett St

Day/Date : Tue, 15th March 2016
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

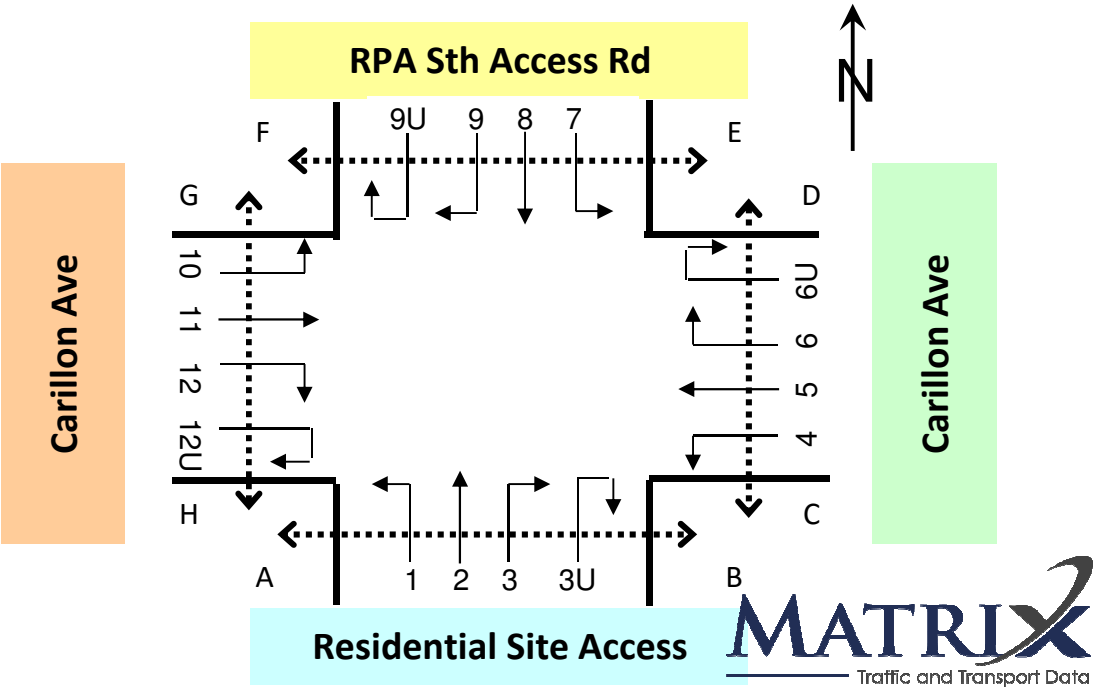


Approach		Salisbury Rd				Mallett St				Salisbury Rd				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
AM 7:30 to 8:30		378	3	3	384	292	5	0	297	856	9	6	871	
PM 16:45 to 17:45		692	1	3	696	416	1	0	417	578	1	2	581	1,694

Approach		Salisbury Rd				Mallett St				Salisbury Rd				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
6:30 to 7:30		211	3	1	215	229	4	0	233	803	6	2	811	1,259
6:45 to 7:45		270	5	2	277	264	7	0	271	834	8	4	846	1,394
7:00 to 8:00		303	5	3	311	276	6	0	282	904	10	3	917	1,510
7:15 to 8:15		340	4	2	346	292	7	0	299	872	11	4	887	1,532
7:30 to 8:30		378	3	3	384	292	5	0	297	856	9	6	871	1,552
7:45 to 8:45		380	1	3	384	293	3	0	296	843	9	6	858	1,538
8:00 to 9:00		379	0	3	382	284	3	0	287	829	8	6	843	1,512
8:15 to 9:15		407	3	4	414	288	1	0	289	801	12	7	820	1,523
8:30 to 9:30		381	3	4	388	274	1	0	275	748	14	5	767	1,430
AM Totals		970	9	8	987	795	10	0	805	2,407	29	13	2,449	4,241
14:00 to 15:00		547	4	3	554	340	7	1	348	492	4	3	499	1,401
14:15 to 15:15		568	7	3	578	321	5	1	327	507	4	3	514	1,419
14:30 to 15:30		575	8	3	586	331	4	1	336	533	5	4	542	1,464
14:45 to 15:45		582	9	2	593	317	4	1	322	536	3	3	542	1,457
15:00 to 16:00		604	10	3	617	303	6	0	309	527	2	2	531	1,457
15:15 to 16:15		629	7	3	639	335	5	0	340	524	1	3	528	1,507
15:30 to 16:30		641	5	3	649	329	6	0	335	525	2	4	531	1,515
15:45 to 16:45		655	3	4	662	341	4	0	345	547	2	7	556	1,563
16:00 to 17:00		657	2	3	662	357	3	0	360	582	2	7	591	1,613
16:15 to 17:15		656	3	3	662	371	3	0	374	581	2	6	589	1,625
16:30 to 17:30		696	1	3	700	410	1	0	411	576	1	4	581	1,692
16:45 to 17:45		692	1	3	696	416	1	0	417	578	1	2	581	1,694
17:00 to 18:00		677	2	3	682	417	1	0	418	570	1	2	573	1,673
PM Totals		2,485	18	12	2,515	1,417	17	1	1,435	2,171	9	14	2,194	6,144

Job No. : N2252
Client : GTA
Suburb : Camperdown
Location : 9. Carillon Ave / RPA Sth Access Rd / residential site access

Day/Date : Tue, 15th March 2016
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

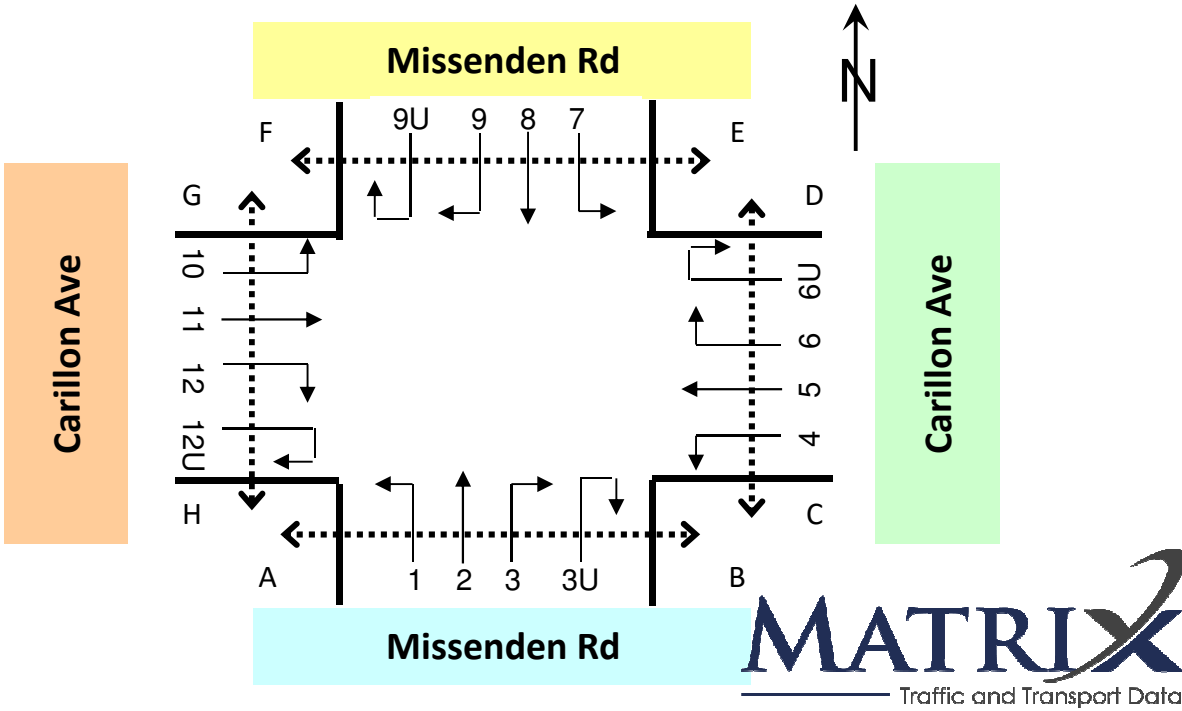


Approach		Residential Site Access				Carillon Ave				RPA Sth Access Rd				Carillon Ave				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
AM	7:15 to 8:15	10	0	0	10	398	5	2	405	14	0	0	14	789	9	4	802	1,231
PM	17:00 to 18:00	0	0	0	0	667	1	4	672	98	0	0	98	454	2	2	458	1,228

Approach		Residential Site Access				Carillon Ave				RPA Sth Access Rd				Carillon Ave				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
6:30 to 7:30		7	0	0	7	266	3	1	270	8	0	0	8	692	9	2	703	988
6:45 to 7:45		4	0	0	4	332	5	1	338	11	0	0	11	721	12	2	735	1,088
7:00 to 8:00		10	0	0	10	377	5	1	383	16	0	0	16	781	12	3	796	1,205
7:15 to 8:15		10	0	0	10	398	5	2	405	14	0	0	14	789	9	4	802	1,231
7:30 to 8:30		12	0	0	12	404	3	3	410	18	0	0	18	777	7	4	788	1,228
7:45 to 8:45		13	0	0	13	393	1	4	398	17	1	0	18	786	5	5	796	1,225
8:00 to 9:00		8	0	0	8	376	1	5	382	13	1	0	14	746	4	5	755	1,159
8:15 to 9:15		8	0	0	8	405	4	5	414	17	1	0	18	727	8	6	741	1,181
8:30 to 9:30		7	0	0	7	400	4	4	408	22	1	0	23	728	12	6	746	1,184
AM Totals		26	0	0	26	1,070	10	8	1,088	48	1	0	49	2,197	28	12	2,237	3,400
14:00 to 15:00		0	0	0	0	540	4	3	547	34	0	0	34	444	7	3	454	1,035
14:15 to 15:15		1	0	0	1	546	6	3	555	26	0	0	26	419	6	4	429	1,011
14:30 to 15:30		1	0	0	1	562	8	3	573	38	0	0	38	433	7	3	443	1,055
14:45 to 15:45		4	0	0	4	540	9	3	552	56	0	0	56	438	7	3	448	1,060
15:00 to 16:00		4	0	0	4	534	10	3	547	73	0	0	73	412	6	2	420	1,044
15:15 to 16:15		4	0	0	4	556	7	3	566	102	0	0	102	418	7	3	428	1,100
15:30 to 16:30		4	0	0	4	550	4	3	557	119	0	0	119	426	4	4	434	1,114
15:45 to 16:45		1	0	0	1	559	2	4	565	127	0	0	127	423	2	6	431	1,124
16:00 to 17:00		3	0	0	3	567	2	3	572	115	0	0	115	455	1	7	463	1,153
16:15 to 17:15		2	0	0	2	565	2	4	571	106	0	0	106	444	0	6	450	1,129
16:30 to 17:30		2	0	0	2	577	1	3	581	95	0	0	95	432	1	5	438	1,116
16:45 to 17:45		2	0	0	2	606	1	3	610	94	0	0	94	439	1	3	443	1,149
17:00 to 18:00		0	0	0	0	667	1	4	672	98	0	0	98	454	2	2	458	1,228
PM Totals		7	0	0	7	2,308	17	13	2,338	320	0	0	320	1,765	16	14	1,795	4,460

Job No. : N2252
Client : GTA
Suburb : Camperdown
Location : 10. Carillon Ave / Missenden Rd

Day/Date : Tue, 15th March 2016
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

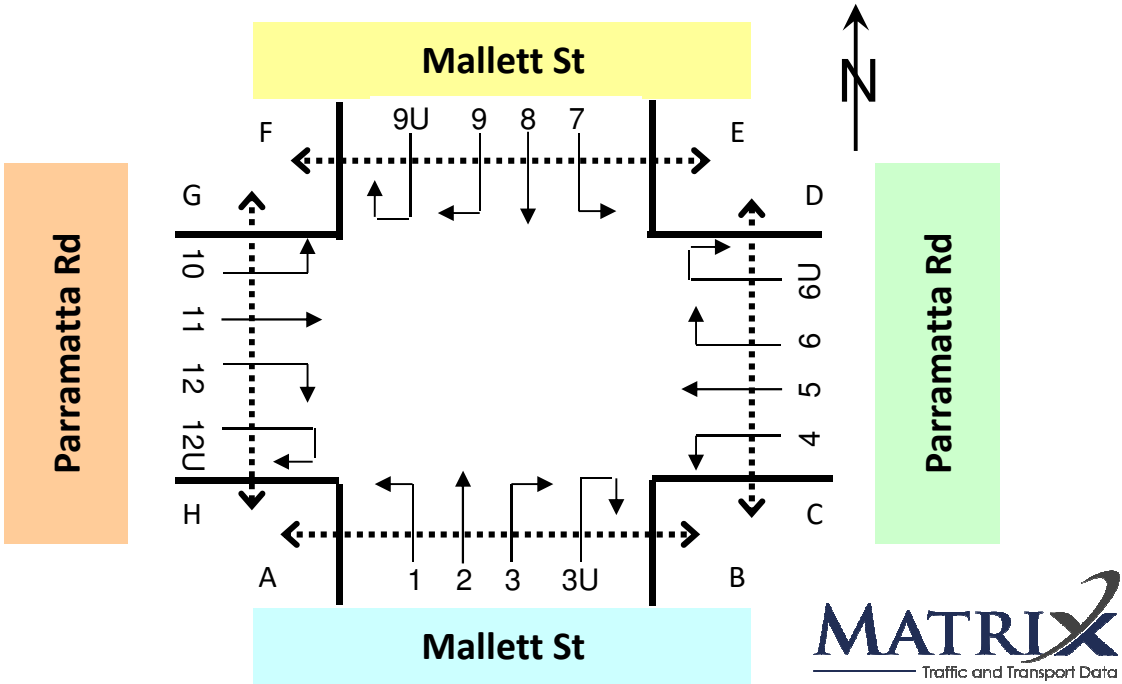


Approach		Missenden Rd				Carillon Ave				Missenden Rd				Carillon Ave				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
AM	8:30 to 9:30	335	16	1	352	364	8	2	374	426	21	2	449	620	13	6	639	1,814
PM	16:30 to 17:30	386	5	0	391	558	2	3	563	542	8	5	555	447	1	5	453	1,962

Approach		Missenden Rd				Carillon Ave				Missenden Rd				Carillon Ave				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
6:30 to 7:30		363	14	0	377	187	7	0	194	353	15	1	369	466	9	2	477	1,417
6:45 to 7:45		384	13	0	397	248	7	0	255	374	14	3	391	503	12	2	517	1,560
7:00 to 8:00		374	11	0	385	299	7	0	306	390	13	4	407	548	11	4	563	1,661
7:15 to 8:15		358	11	0	369	327	6	0	333	423	14	3	440	580	9	4	593	1,735
7:30 to 8:30		356	15	0	371	366	2	0	368	426	16	4	446	577	7	4	588	1,773
7:45 to 8:45		342	12	0	354	349	2	1	352	432	17	3	452	595	6	5	606	1,764
8:00 to 9:00		329	18	1	348	359	4	1	364	406	18	2	426	597	5	5	607	1,745
8:15 to 9:15		345	16	1	362	381	7	1	389	418	20	3	441	594	8	6	608	1,800
8:30 to 9:30		335	16	1	352	364	8	2	374	426	21	2	449	620	13	6	639	1,814
AM Totals		1,054	45	1	1,100	917	17	2	936	1,205	52	7	1,264	1,663	29	12	1,704	5,004
14:00 to 15:00		334	17	1	352	496	8	0	504	436	15	4	455	402	8	4	414	1,725
14:15 to 15:15		350	19	1	370	491	9	0	500	455	15	4	474	390	7	3	400	1,744
14:30 to 15:30		344	19	1	364	491	11	0	502	462	11	3	476	395	8	3	406	1,748
14:45 to 15:45		351	17	1	369	489	12	0	501	457	11	2	470	419	9	3	431	1,771
15:00 to 16:00		353	12	0	365	456	10	0	466	468	13	3	484	409	5	2	416	1,731
15:15 to 16:15		338	6	0	344	477	8	0	485	455	11	5	471	426	5	4	435	1,735
15:30 to 16:30		323	7	0	330	478	5	1	484	492	9	6	507	428	2	4	434	1,755
15:45 to 16:45		308	8	0	316	503	3	2	508	496	9	7	512	423	1	5	429	1,765
16:00 to 17:00		329	9	0	338	519	3	2	524	508	7	7	522	460	0	7	467	1,851
16:15 to 17:15		367	8	0	375	543	3	2	548	547	7	7	561	433	0	6	439	1,923
16:30 to 17:30		386	5	0	391	558	2	3	563	542	8	5	555	447	1	5	453	1,962
16:45 to 17:45		398	2	0	400	546	4	2	552	541	7	7	555	436	1	4	441	1,948
17:00 to 18:00		386	1	0	387	576	3	3	582	508	4	6	518	459	3	2	464	1,951
PM Totals		1,402	39	1	1,442	2,047	24	5	2,076	1,920	39	20	1,979	1,730	16	15	1,761	7,258

Job No. : N2252
Client : GTA
Suburb : Camperdown
Location : 11. Parramatta Rd / Mallett St

Day/Date : Tue, 15th March 2016
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

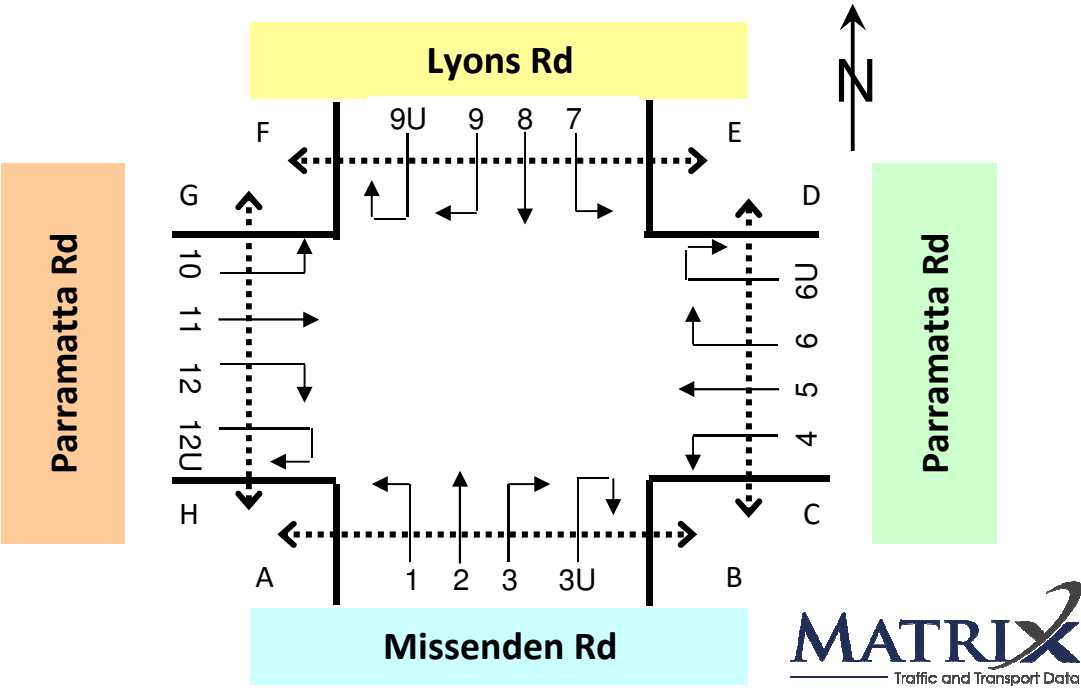


Approach		Mallett St				Parramatta Rd				Mallett St				Parramatta Rd				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
AM	8:00 to 9:00	270	4	0	274	1,045	57	31	1,133	319	4	0	323	1,937	84	56	2,077	3,807
PM	16:15 to 17:15	331	1	0	332	1,813	44	43	1,900	299	4	1	304	1,259	17	38	1,314	3,850

Approach		Mallett St				Parramatta Rd				Mallett St				Parramatta Rd				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
6:30 to 7:30		225	3	0	228	861	38	18	917	245	4	0	249	1,609	127	35	1,771	3,165
6:45 to 7:45		251	3	0	254	887	38	20	945	275	6	0	281	1,738	112	40	1,890	3,370
7:00 to 8:00		281	6	0	287	950	39	23	1,012	293	7	0	300	1,834	91	43	1,968	3,567
7:15 to 8:15		298	8	0	306	992	45	24	1,061	305	6	0	311	1,897	74	49	2,020	3,698
7:30 to 8:30		286	8	0	294	1,021	50	29	1,100	315	5	0	320	1,949	67	54	2,070	3,784
7:45 to 8:45		287	6	0	293	1,053	54	31	1,138	323	5	0	328	1,912	70	58	2,040	3,799
8:00 to 9:00		270	4	0	274	1,045	57	31	1,133	319	4	0	323	1,937	84	56	2,077	3,807
8:15 to 9:15		253	3	0	256	1,051	61	33	1,145	330	3	0	333	1,861	89	58	2,008	3,742
8:30 to 9:30		250	5	0	255	1,003	65	34	1,102	323	2	0	325	1,842	91	53	1,986	3,668
AM Totals		761	16	0	777	2,885	153	81	3,119	883	11	0	894	5,400	285	142	5,827	10,617
14:00 to 15:00		232	3	0	235	1,641	77	26	1,744	245	10	1	256	1,157	43	29	1,229	3,464
14:15 to 15:15		255	4	0	259	1,647	77	26	1,750	260	10	1	271	1,150	37	29	1,216	3,496
14:30 to 15:30		260	3	0	263	1,740	78	27	1,845	255	7	1	263	1,147	28	29	1,204	3,575
14:45 to 15:45		280	4	0	284	1,725	77	29	1,831	253	8	1	262	1,121	23	32	1,176	3,553
15:00 to 16:00		317	4	0	321	1,741	69	31	1,841	258	7	0	265	1,163	23	33	1,219	3,646
15:15 to 16:15		301	2	0	303	1,708	61	35	1,804	249	6	0	255	1,168	16	37	1,221	3,583
15:30 to 16:30		318	1	0	319	1,698	59	34	1,791	282	6	1	289	1,201	18	38	1,257	3,656
15:45 to 16:45		306	0	0	306	1,733	54	38	1,825	281	4	1	286	1,264	21	40	1,325	3,742
16:00 to 17:00		303	1	0	304	1,765	47	41	1,853	280	3	1	284	1,281	17	40	1,338	3,779
16:15 to 17:15		331	1	0	332	1,813	44	43	1,900	299	4	1	304	1,259	17	38	1,314	3,850
16:30 to 17:30		321	1	0	322	1,841	42	48	1,931	301	2	0	303	1,204	15	36	1,255	3,811
16:45 to 17:45		337	1	0	338	1,838	39	49	1,926	313	1	0	314	1,135	12	38	1,185	3,763
17:00 to 18:00		319	1	0	320	1,790	33	53	1,876	321	3	0	324	1,123	11	40	1,174	3,694
PM Totals		1,171	9	0	1,180	6,937	226	151	7,314	1,104	23	2	1,129	4,724	94	142	4,960	14,583

Job No. : N2252
Client : GTA
Suburb : Camperdown
Location : 12. Parramatta Rd / Missenden Rd / Lyons Rd

Day/Date : Tue, 15th March 2016
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

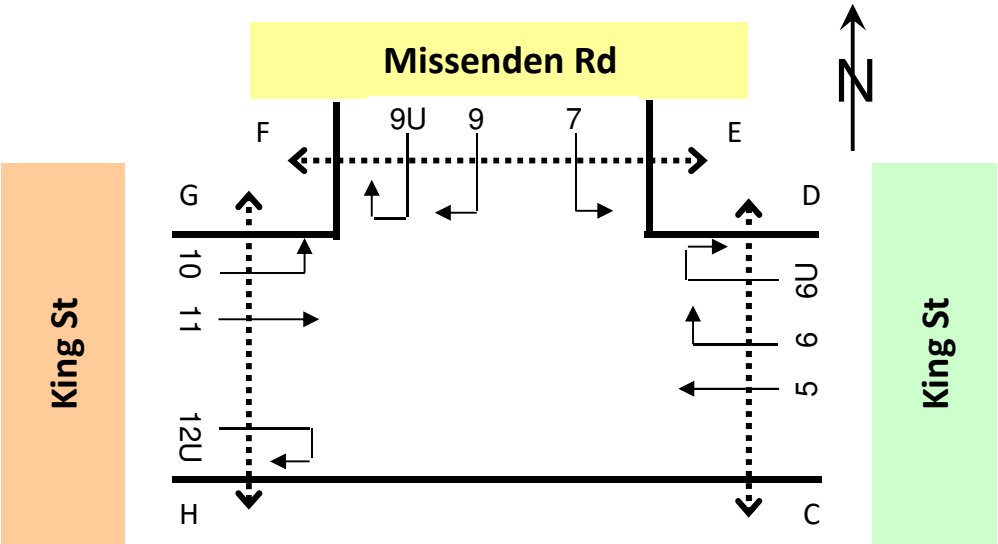


Approach		Missenden Rd				Parramatta Rd				Lyons Rd				Parramatta Rd				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
AM	7:45 to 8:45	339	17	7	363	1,044	51	34	1,129	315	9	0	324	2,192	70	56	2,318	4,134
PM	16:30 to 17:30	449	8	5	462	1,748	36	50	1,834	160	4	0	164	1,358	13	37	1,408	3,868

Approach		Missenden Rd				Parramatta Rd				Lyons Rd				Parramatta Rd				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
6:30 to 7:30		299	11	3	313	840	43	18	901	192	5	0	197	1,701	130	35	1,866	3,277
6:45 to 7:45		317	11	2	330	870	47	23	940	220	4	1	225	1,824	120	41	1,985	3,480
7:00 to 8:00		296	10	4	310	952	47	27	1,026	249	4	1	254	1,963	100	43	2,106	3,696
7:15 to 8:15		321	12	3	336	967	50	27	1,044	289	5	1	295	2,097	90	49	2,236	3,911
7:30 to 8:30		320	16	4	340	1,018	50	32	1,100	308	7	1	316	2,180	76	52	2,308	4,064
7:45 to 8:45		339	17	7	363	1,044	51	34	1,129	315	9	0	324	2,192	70	56	2,318	4,134
8:00 to 9:00		328	17	7	352	1,037	54	34	1,125	309	8	0	317	2,194	84	55	2,333	4,127
8:15 to 9:15		311	16	7	334	1,065	54	36	1,155	277	7	0	284	2,097	83	61	2,241	4,014
8:30 to 9:30		329	12	7	348	966	63	38	1,067	269	4	0	273	2,018	90	56	2,164	3,852
AM Totals		948	39	14	1,001	2,824	156	88	3,068	769	16	1	786	5,899	296	143	6,338	11,193
14:00 to 15:00		426	20	5	451	1,611	71	29	1,711	151	3	0	154	1,201	48	26	1,275	3,591
14:15 to 15:15		453	23	4	480	1,585	71	32	1,688	172	2	0	174	1,224	41	28	1,293	3,635
14:30 to 15:30		439	20	4	463	1,643	74	31	1,748	179	1	0	180	1,236	31	30	1,297	3,688
14:45 to 15:45		426	21	4	451	1,635	73	31	1,739	169	2	0	171	1,228	28	32	1,288	3,649
15:00 to 16:00		454	16	3	473	1,658	69	33	1,760	165	2	0	167	1,288	24	35	1,347	3,747
15:15 to 16:15		451	7	2	460	1,609	63	37	1,709	166	2	0	168	1,289	17	37	1,343	3,680
15:30 to 16:30		464	8	3	475	1,618	64	39	1,721	164	1	0	165	1,311	18	40	1,369	3,730
15:45 to 16:45		458	9	4	471	1,635	55	44	1,734	171	1	0	172	1,364	14	42	1,420	3,797
16:00 to 17:00		470	8	5	483	1,620	46	48	1,714	157	3	0	160	1,375	15	40	1,430	3,787
16:15 to 17:15		469	7	7	483	1,715	42	49	1,806	142	4	0	146	1,375	15	40	1,430	3,865
16:30 to 17:30		449	8	5	462	1,748	36	50	1,834	160	4	0	164	1,358	13	37	1,408	3,868
16:45 to 17:45		447	5	3	455	1,781	35	51	1,867	165	3	0	168	1,268	15	39	1,322	3,812
17:00 to 18:00		402	6	3	411	1,765	28	54	1,847	178	1	0	179	1,244	12	43	1,299	3,736
PM Totals		1,752	50	16	1,818	6,654	214	164	7,032	651	9	0	660	5,108	99	144	5,351	14,861

Job No. : N2252
Client : GTA
Suburb : Camperdown
Location : 13. King St / Missenden Rd

Day/Date : Tue, 15th March 2016
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



Approach		King St				Missenden Rd				King St				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
AM 7:15 to 8:15		459	46	21	526	245	12	1	258	1,564	62	32	1,658	
PM 16:15 to 17:15		1,035	18	38	1,091	305	7	1	313	940	18	48	1,006	2,410

Approach		King St				Missenden Rd				King St				Grand Total
Time Period		Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	
6:30 to 7:30		406	35	14	455	213	21	0	234	1,512	104	27	1,643	2,332
6:45 to 7:45		404	37	18	459	221	17	1	239	1,549	95	27	1,671	2,369
7:00 to 8:00		450	43	21	514	224	11	1	236	1,550	81	26	1,657	2,407
7:15 to 8:15		459	46	21	526	245	12	1	258	1,564	62	32	1,658	2,442
7:30 to 8:30		464	47	24	535	239	11	1	251	1,522	55	38	1,615	2,401
7:45 to 8:45		497	45	22	564	221	15	0	236	1,456	57	45	1,558	2,358
8:00 to 9:00		508	39	24	571	223	17	0	240	1,437	56	53	1,546	2,357
8:15 to 9:15		519	40	30	589	213	15	0	228	1,383	68	49	1,500	2,317
8:30 to 9:30		544	39	33	616	233	20	0	253	1,323	80	51	1,454	2,323
AM Totals		1,414	121	71	1,606	685	52	1	738	4,357	239	116	4,712	7,056
14:00 to 15:00		691	44	33	768	237	13	1	251	800	38	29	867	1,886
14:15 to 15:15		755	43	33	831	252	12	1	265	762	40	24	826	1,922
14:30 to 15:30		800	40	31	871	278	13	1	292	775	34	26	835	1,998
14:45 to 15:45		825	39	34	898	286	11	0	297	830	32	28	890	2,085
15:00 to 16:00		869	35	35	939	286	13	0	299	865	35	27	927	2,165
15:15 to 16:15		864	24	34	922	276	12	0	288	894	26	33	953	2,163
15:30 to 16:30		917	24	40	981	291	7	0	298	907	26	34	967	2,246
15:45 to 16:45		952	18	36	1,006	296	9	0	305	879	26	39	944	2,255
16:00 to 17:00		979	16	38	1,033	306	6	0	312	897	20	41	958	2,303
16:15 to 17:15		1,035	18	38	1,091	305	7	1	313	940	18	48	1,006	2,410
16:30 to 17:30		1,032	15	38	1,085	299	9	1	309	902	17	47	966	2,360
16:45 to 17:45		1,095	12	41	1,148	299	8	1	308	889	10	38	937	2,393
17:00 to 18:00		1,102	10	42	1,154	299	7	1	307	895	8	39	942	2,403
PM Totals		3,641	105	148	3,894	1,128	39	2	1,169	3,457	101	136	3,694	8,757

Appendix B

SIDRA INTERSECTION Results

MOVEMENT SUMMARY

▽ Site: AM - PRE - Church St and Lucas St

Three-way intersection with 2-lane major road (Stop control)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Church Street											
11	T1	52	0.0	0.043	0.1	LOS A	0.1	1.0	0.13	0.21	57.7
12	R2	26	1.7	0.043	6.0	LOS A	0.1	1.0	0.13	0.21	55.4
Approach		78	0.6	0.043	2.1	NA	0.1	1.0	0.13	0.21	56.9
North: Church Street											
4	L2	27	0.0	0.048	5.5	LOS A	0.0	0.0	0.00	0.18	56.9
5	T1	64	0.9	0.048	0.0	LOS A	0.0	0.0	0.00	0.18	58.4
Approach		91	0.6	0.048	1.6	NA	0.0	0.0	0.00	0.18	57.9
All Vehicles		169	0.6	0.048	1.8	NA	0.1	1.0	0.06	0.19	57.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: PM - PRE - Church St and Lucas St

Three-way intersection with 2-lane major road (Stop control)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Church Street											
11	T1	120	0.0	0.072	0.1	LOS A	0.1	0.7	0.06	0.08	59.1
12	R2	16	1.7	0.072	6.1	LOS A	0.1	0.7	0.06	0.08	56.6
Approach		136	0.2	0.072	0.8	NA	0.1	0.7	0.06	0.08	58.8
North: Church Street											
4	L2	10	0.0	0.062	5.5	LOS A	0.0	0.0	0.00	0.05	57.9
5	T1	109	0.9	0.062	0.0	LOS A	0.0	0.0	0.00	0.05	59.5
Approach		119	0.8	0.062	0.5	NA	0.0	0.0	0.00	0.05	59.4
All Vehicles		255	0.5	0.072	0.6	NA	0.1	0.7	0.03	0.06	59.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ **Site: AM - POST - Church St and Lucas St**

Three-way intersection with 2-lane major road (Stop control)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Church Street											
11	T1	152	0.0	0.116	0.2	LOS A	0.4	2.6	0.16	0.17	57.9
12	R2	57	1.7	0.116	6.2	LOS A	0.4	2.6	0.16	0.17	55.5
Approach		209	0.5	0.116	1.9	NA	0.4	2.6	0.16	0.17	57.2
North: Church Street											
4	L2	21	0.0	0.082	5.5	LOS A	0.0	0.0	0.00	0.08	57.7
5	T1	138	0.9	0.082	0.0	LOS A	0.0	0.0	0.00	0.08	59.3
Approach		159	0.8	0.082	0.7	NA	0.0	0.0	0.00	0.08	59.0
All Vehicles		368	0.6	0.116	1.4	NA	0.4	2.6	0.09	0.13	58.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: PM - POST - Church St and Lucas St

Three-way intersection with 2-lane major road (Stop control)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Church Street											
11	T1	195	0.0	0.110	0.0	LOS A	0.1	0.8	0.04	0.05	59.4
12	R2	16	1.7	0.110	6.1	LOS A	0.1	0.8	0.04	0.05	56.9
Approach		211	0.1	0.110	0.5	NA	0.1	0.8	0.04	0.05	59.2
North: Church Street											
4	L2	10	0.0	0.062	5.5	LOS A	0.0	0.0	0.00	0.05	57.9
5	T1	110	0.9	0.062	0.0	LOS A	0.0	0.0	0.00	0.05	59.5
Approach		120	0.8	0.062	0.5	NA	0.0	0.0	0.00	0.05	59.4
All Vehicles		331	0.4	0.110	0.5	NA	0.1	0.8	0.03	0.05	59.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: AM - PRE - Church St and Fowler St

Three-way intersection with 2-lane major road (Stop control)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: Church Street											
4	L2	10	0.0	0.030	5.5	LOS A	0.0	0.0	0.00	0.10	57.5
5	T1	48	2.1	0.030	0.0	LOS A	0.0	0.0	0.00	0.10	59.0
Approach		58	1.7	0.030	1.0	NA	0.0	0.0	0.00	0.10	58.8
North: Church Street											
11	T1	46	0.0	0.036	0.1	LOS A	0.1	0.8	0.09	0.18	58.1
12	R2	20	5.0	0.036	5.7	LOS A	0.1	0.8	0.09	0.18	55.7
Approach		66	1.5	0.036	1.8	NA	0.1	0.8	0.09	0.18	57.4
West: Fowler Street											
1	L2	31	0.0	0.029	5.7	LOS A	0.1	0.8	0.12	0.55	53.3
3	R2	11	0.0	0.029	5.8	LOS A	0.1	0.8	0.12	0.55	52.7
Approach		42	0.0	0.029	5.7	LOS A	0.1	0.8	0.12	0.55	53.1
All Vehicles		166	1.2	0.036	2.5	NA	0.1	0.8	0.07	0.25	56.7

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: PM - PRE - Church St and Fowler St

Three-way intersection with 2-lane major road (Stop control)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: Church Street											
4	L2	24	0.0	0.066	5.5	LOS A	0.0	0.0	0.00	0.11	57.4
5	T1	103	1.0	0.066	0.0	LOS A	0.0	0.0	0.00	0.11	59.0
Approach		127	0.8	0.066	1.1	NA	0.0	0.0	0.00	0.11	58.7
North: Church Street											
11	T1	23	0.0	0.065	0.4	LOS A	0.3	2.2	0.24	0.45	55.3
12	R2	85	1.2	0.065	5.8	LOS A	0.3	2.2	0.24	0.45	53.3
Approach		108	0.9	0.065	4.7	NA	0.3	2.2	0.24	0.45	53.7
West: Fowler Street											
1	L2	28	0.0	0.020	5.8	LOS A	0.1	0.5	0.19	0.54	53.0
3	R2	1	0.0	0.020	6.2	LOS A	0.1	0.5	0.19	0.54	52.5
Approach		29	0.0	0.020	5.8	LOS A	0.1	0.5	0.19	0.54	53.0
All Vehicles		264	0.8	0.066	3.1	NA	0.3	2.2	0.12	0.30	55.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160324_16S1251000_SITE 2_Fowler St & Church St.sip6

MOVEMENT SUMMARY

Site: AM - POST - Church St and Fowler St

Three-way intersection with 2-lane major road (Stop control)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		Total veh/h	HV %	v/c	sec		veh	m		per veh	km/h
South: Church Street											
4	L2	4	0.0	0.032	5.5	LOS A	0.0	0.0	0.00	0.04	58.0
5	T1	58	1.7	0.032	0.0	LOS A	0.0	0.0	0.00	0.04	59.6
Approach		62	1.6	0.032	0.4	NA	0.0	0.0	0.00	0.04	59.5
North: Church Street											
11	T1	114	0.0	0.087	0.1	LOS A	0.3	1.9	0.10	0.17	58.1
12	R2	47	2.1	0.087	5.7	LOS A	0.3	1.9	0.10	0.17	55.9
Approach		161	0.6	0.087	1.7	NA	0.3	1.9	0.10	0.17	57.4
West: Fowler Street											
1	L2	133	0.0	0.093	5.7	LOS A	0.4	2.7	0.14	0.55	53.2
3	R2	8	0.0	0.093	6.3	LOS A	0.4	2.7	0.14	0.55	52.7
Approach		141	0.0	0.093	5.8	LOS A	0.4	2.7	0.14	0.55	53.2
All Vehicles		364	0.5	0.093	3.0	NA	0.4	2.7	0.10	0.29	56.0

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160324_16S1251000_SITE 2_Fowler St & Church St.sip6

MOVEMENT SUMMARY

▽ Site: PM - POST - Church St and Fowler St

Three-way intersection with 2-lane major road (Stop control)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Church Street											
4	L2	24	0.0	0.066	5.5	LOS A	0.0	0.0	0.00	0.11	57.4
5	T1	103	1.0	0.066	0.0	LOS A	0.0	0.0	0.00	0.11	59.0
Approach		127	0.8	0.066	1.1	NA	0.0	0.0	0.00	0.11	58.7
North: Church Street											
11	T1	87	0.0	0.138	0.4	LOS A	0.7	4.8	0.24	0.36	56.0
12	R2	148	0.7	0.138	5.9	LOS A	0.7	4.8	0.24	0.36	54.0
Approach		235	0.4	0.138	3.8	NA	0.7	4.8	0.24	0.36	54.7
West: Fowler Street											
1	L2	28	0.0	0.021	5.8	LOS A	0.1	0.6	0.19	0.54	53.0
3	R2	2	0.0	0.021	6.8	LOS A	0.1	0.6	0.19	0.54	52.5
Approach		30	0.0	0.021	5.9	LOS A	0.1	0.6	0.19	0.54	53.0
All Vehicles		392	0.5	0.138	3.1	NA	0.7	4.8	0.16	0.30	55.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 **Site: AM - PRE - Church St, Grose St and Fowler Ln**

Four-way intersection with 2-lane major road (Stop control)

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Church St											
1	L2	5	0.0	0.050	5.6	LOS A	0.2	1.6	0.03	0.06	57.7
2	T1	54	1.9	0.050	0.0	LOS A	0.2	1.6	0.03	0.06	59.3
3	R2	1	0.0	0.050	5.7	LOS A	0.2	1.6	0.03	0.06	57.1
Approach		60	1.7	0.050	0.6	NA	0.2	1.6	0.03	0.06	59.1
East: Grose St											
4	L2	1	0.0	0.007	5.7	LOS A	0.0	0.2	0.17	0.39	54.6
5	T1	3	0.0	0.007	0.3	LOS A	0.0	0.2	0.17	0.39	56.0
6	R2	5	0.0	0.007	5.8	LOS A	0.0	0.2	0.17	0.39	54.0
Approach		9	0.0	0.007	4.0	NA	0.0	0.2	0.17	0.39	54.7
North: Church St											
7	L2	1	0.0	0.031	5.7	LOS A	0.0	0.3	0.03	0.06	57.7
8	T1	52	0.0	0.031	0.0	LOS A	0.0	0.3	0.03	0.06	59.3
9	R2	5	0.0	0.031	5.7	LOS A	0.0	0.3	0.03	0.06	57.1
Approach		58	0.0	0.031	0.6	NA	0.0	0.3	0.03	0.06	59.1
West: Fowlers Ln											
10	L2	1	0.0	0.003	8.2	LOS A	0.0	0.1	0.20	0.89	51.8
11	T1	1	0.0	0.003	8.4	LOS A	0.0	0.1	0.20	0.89	51.6
12	R2	1	0.0	0.003	8.3	LOS A	0.0	0.1	0.20	0.89	51.3
Approach		3	0.0	0.003	8.3	LOS A	0.0	0.1	0.20	0.89	51.6
All Vehicles		130	0.8	0.050	1.0	NA	0.2	1.6	0.04	0.10	58.6

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160324_16S1251000_SITE 3_Church St & Grose St & Fowler Ln.sip6

MOVEMENT SUMMARY

 **Site: PM - PRE - Church St, Grose St and Fowler Ln**

Four-way intersection with 2-lane major road (Stop control)

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Church St											
1	L2	1	0.0	0.043	5.7	LOS A	0.2	1.4	0.13	0.06	57.6
2	T1	47	2.1	0.043	0.2	LOS A	0.2	1.4	0.13	0.06	59.2
3	R2	1	0.0	0.043	5.9	LOS A	0.2	1.4	0.13	0.06	57.0
Approach		49	2.0	0.043	0.4	NA	0.2	1.4	0.13	0.06	59.1
East: Grose St											
4	L2	4	0.0	0.089	5.6	LOS A	0.4	2.7	0.11	0.42	54.6
5	T1	33	0.0	0.089	0.1	LOS A	0.4	2.7	0.11	0.42	56.0
6	R2	79	0.0	0.089	5.7	LOS A	0.4	2.7	0.11	0.42	54.0
Approach		116	0.0	0.089	4.1	NA	0.4	2.7	0.11	0.42	54.6
North: Church St											
7	L2	1	0.0	0.012	5.7	LOS A	0.0	0.1	0.04	0.08	57.5
8	T1	19	0.0	0.012	0.0	LOS A	0.0	0.1	0.04	0.08	59.1
9	R2	2	0.0	0.012	5.7	LOS A	0.0	0.1	0.04	0.08	56.9
Approach		22	0.0	0.012	0.8	NA	0.0	0.1	0.04	0.08	58.8
West: Fowlers Ln											
10	L2	1	0.0	0.003	8.4	LOS A	0.0	0.1	0.25	0.86	51.8
11	T1	1	0.0	0.003	8.6	LOS A	0.0	0.1	0.25	0.86	51.6
12	R2	1	0.0	0.003	8.2	LOS A	0.0	0.1	0.25	0.86	51.3
Approach		3	0.0	0.003	8.4	LOS A	0.0	0.1	0.25	0.86	51.6
All Vehicles		190	0.5	0.089	2.9	NA	0.4	2.7	0.11	0.30	56.1

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160324_16S1251000_SITE 3_Church St & Grose St & Fowler Ln.sip6

MOVEMENT SUMMARY

 **Site: AM - POST - Church St, Grose St and Fowler Ln**

Four-way intersection with 2-lane major road (Stop control)

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Church St											
1	L2	2	0.0	0.049	5.6	LOS A	0.2	1.6	0.03	0.03	58.0
2	T1	55	1.8	0.049	0.0	LOS A	0.2	1.6	0.03	0.03	59.6
3	R2	1	0.0	0.049	5.9	LOS A	0.2	1.6	0.03	0.03	57.3
Approach		58	1.7	0.049	0.3	NA	0.2	1.6	0.03	0.03	59.5
East: Grose St											
4	L2	1	0.0	0.011	5.9	LOS A	0.0	0.3	0.26	0.42	54.2
5	T1	4	0.0	0.011	0.7	LOS A	0.0	0.3	0.26	0.42	55.6
6	R2	8	0.0	0.011	6.1	LOS A	0.0	0.3	0.26	0.42	53.7
Approach		13	0.0	0.011	4.4	NA	0.0	0.3	0.26	0.42	54.3
North: Church St											
7	L2	1	0.0	0.063	5.8	LOS A	0.1	0.5	0.03	0.05	57.8
8	T1	109	0.0	0.063	0.0	LOS A	0.1	0.5	0.03	0.05	59.4
9	R2	9	0.0	0.063	5.7	LOS A	0.1	0.5	0.03	0.05	57.2
Approach		119	0.0	0.063	0.5	NA	0.1	0.5	0.03	0.05	59.2
West: Fowlers Ln											
10	L2	1	0.0	0.003	8.2	LOS A	0.0	0.1	0.23	0.89	51.6
11	T1	1	0.0	0.003	8.8	LOS A	0.0	0.1	0.23	0.89	51.4
12	R2	1	0.0	0.003	8.8	LOS A	0.0	0.1	0.23	0.89	51.1
Approach		3	0.0	0.003	8.6	LOS A	0.0	0.1	0.23	0.89	51.4
All Vehicles		193	0.5	0.063	0.8	NA	0.2	1.6	0.05	0.08	58.8

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160324_16S1251000_SITE 3_Church St & Grose St & Fowler Ln.sip6

MOVEMENT SUMMARY

 **Site: PM - POST - Church St, Grose St and Fowler Ln**

Four-way intersection with 2-lane major road (Stop control)

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Church St											
1	L2	1	0.0	0.043	5.7	LOS A	0.2	1.4	0.13	0.06	57.6
2	T1	47	2.1	0.043	0.2	LOS A	0.2	1.4	0.13	0.06	59.2
3	R2	1	0.0	0.043	6.2	LOS A	0.2	1.4	0.13	0.06	57.0
Approach		49	2.0	0.043	0.4	NA	0.2	1.4	0.13	0.06	59.1
East: Grose St											
4	L2	4	0.0	0.096	5.9	LOS A	0.4	2.9	0.24	0.45	54.2
5	T1	33	0.0	0.096	0.6	LOS A	0.4	2.9	0.24	0.45	55.6
6	R2	79	0.0	0.096	6.0	LOS A	0.4	2.9	0.24	0.45	53.6
Approach		116	0.0	0.096	4.4	NA	0.4	2.9	0.24	0.45	54.2
North: Church St											
7	L2	1	0.0	0.045	5.8	LOS A	0.0	0.1	0.01	0.02	58.1
8	T1	83	0.0	0.045	0.0	LOS A	0.0	0.1	0.01	0.02	59.8
9	R2	2	0.0	0.045	5.7	LOS A	0.0	0.1	0.01	0.02	57.5
Approach		86	0.0	0.045	0.2	NA	0.0	0.1	0.01	0.02	59.7
West: Fowlers Ln											
10	L2	1	0.0	0.003	8.4	LOS A	0.0	0.1	0.29	0.85	51.7
11	T1	1	0.0	0.003	9.0	LOS A	0.0	0.1	0.29	0.85	51.4
12	R2	1	0.0	0.003	8.7	LOS A	0.0	0.1	0.29	0.85	51.2
Approach		3	0.0	0.003	8.7	LOS A	0.0	0.1	0.29	0.85	51.4
All Vehicles		254	0.4	0.096	2.3	NA	0.4	2.9	0.14	0.23	56.8

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160324_16S1251000_SITE 3_Church St & Grose St & Fowler Ln.sip6

MOVEMENT SUMMARY

▽ Site: AM - PRE - New Rd and Brodie St

New Site

Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	Flows 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: New Road											
1	L2	4	0.0	0.003	5.5	LOS A	0.0	0.0	0.02	0.48	54.3
2	T1	1	0.0	0.003	0.0	LOS A	0.0	0.0	0.02	0.48	55.7
3	R2	1	0.0	0.003	5.5	LOS A	0.0	0.0	0.02	0.48	53.8
Approach		6	0.0	0.003	4.6	NA	0.0	0.0	0.02	0.48	54.5
East: Brodie Street											
4	L2	17	0.0	0.020	5.6	LOS A	0.1	0.5	0.03	0.56	53.8
5	T1	6	0.0	0.020	4.2	LOS A	0.1	0.5	0.03	0.56	53.9
6	R2	5	0.0	0.020	5.5	LOS A	0.1	0.5	0.03	0.56	53.2
Approach		28	0.0	0.020	5.2	LOS A	0.1	0.5	0.03	0.56	53.7
North: New Road											
7	L2	1	0.0	0.004	5.5	LOS A	0.0	0.0	0.01	0.17	56.9
8	T1	5	0.0	0.004	0.0	LOS A	0.0	0.0	0.01	0.17	58.4
9	R2	1	0.0	0.004	5.5	LOS A	0.0	0.0	0.01	0.17	56.3
Approach		7	0.0	0.004	1.6	NA	0.0	0.0	0.01	0.17	57.9
West: Brodie Street											
10	L2	3	0.0	0.007	5.5	LOS A	0.0	0.2	0.01	0.58	53.7
11	T1	1	0.0	0.007	4.2	LOS A	0.0	0.2	0.01	0.58	53.9
12	R2	4	0.0	0.007	5.6	LOS A	0.0	0.2	0.01	0.58	53.2
Approach		8	0.0	0.007	5.4	LOS A	0.0	0.2	0.01	0.58	53.5
All Vehicles		51	0.0	0.020	4.7	NA	0.1	0.5	0.02	0.49	54.3

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 4_New Road & Brodie St.sip6

MOVEMENT SUMMARY

▽ Site: PM - PRE - New Rd and Brodie St

New Site

Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: New Road											
1	L2	8	0.0	0.016	5.5	LOS A	0.0	0.1	0.00	0.18	56.8
2	T1	22	0.0	0.016	0.0	LOS A	0.0	0.1	0.00	0.18	58.4
3	R2	1	0.0	0.016	5.5	LOS A	0.0	0.1	0.00	0.18	56.2
Approach		32	0.0	0.016	1.7	NA	0.0	0.1	0.00	0.18	57.9
East: Brodie Street											
4	L2	12	0.0	0.014	5.5	LOS A	0.1	0.4	0.01	0.56	54.0
5	T1	7	0.0	0.014	4.2	LOS A	0.1	0.4	0.01	0.56	54.2
6	R2	1	0.0	0.014	5.6	LOS A	0.1	0.4	0.01	0.56	53.5
Approach		20	0.0	0.014	5.1	LOS A	0.1	0.4	0.01	0.56	54.0
North: New Road											
7	L2	1	0.0	0.002	5.6	LOS A	0.0	0.0	0.07	0.37	54.9
8	T1	1	0.0	0.002	0.0	LOS A	0.0	0.0	0.07	0.37	56.3
9	R2	1	0.0	0.002	5.5	LOS A	0.0	0.0	0.07	0.37	54.3
Approach		3	0.0	0.002	3.7	NA	0.0	0.0	0.07	0.37	55.2
West: Brodie Street											
10	L2	7	0.0	0.019	5.6	LOS A	0.1	0.5	0.09	0.56	53.4
11	T1	1	0.0	0.019	4.2	LOS A	0.1	0.5	0.09	0.56	53.6
12	R2	15	0.0	0.019	5.6	LOS A	0.1	0.5	0.09	0.56	52.9
Approach		23	0.0	0.019	5.6	LOS A	0.1	0.5	0.09	0.56	53.1
All Vehicles		78	0.0	0.019	3.8	NA	0.1	0.5	0.03	0.40	55.3

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 4_New Road & Brodie St.sip6

MOVEMENT SUMMARY

▽ Site: AM - POST - New Rd and Brodie St

New Site

Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: New Road											
1	L2	534	0.0	0.290	5.5	LOS A	0.0	0.1	0.00	0.57	53.7
2	T1	3	0.0	0.290	0.0	LOS A	0.0	0.1	0.00	0.57	55.0
3	R2	1	0.0	0.290	5.4	LOS A	0.0	0.1	0.00	0.57	53.1
Approach		538	0.0	0.290	5.5	NA	0.0	0.1	0.00	0.57	53.7
East: Brodie Street											
4	L2	15	0.0	0.030	5.5	LOS A	0.1	0.7	0.00	0.57	53.3
5	T1	11	0.0	0.030	6.9	LOS A	0.1	0.7	0.00	0.57	53.4
6	R2	7	0.0	0.030	5.5	LOS A	0.1	0.7	0.00	0.57	52.7
Approach		33	0.0	0.030	6.0	LOS A	0.1	0.7	0.00	0.57	53.2
North: New Road											
7	L2	1	0.0	0.002	7.0	LOS A	0.0	0.1	0.42	0.31	53.7
8	T1	1	0.0	0.002	1.5	LOS A	0.0	0.1	0.42	0.31	55.1
9	R2	1	0.0	0.002	7.4	LOS A	0.0	0.1	0.42	0.31	53.2
Approach		3	0.0	0.002	5.3	NA	0.0	0.1	0.42	0.31	54.0
West: Brodie Street											
10	L2	4	0.0	0.020	5.6	LOS A	0.1	0.5	0.02	0.59	52.8
11	T1	1	0.0	0.020	5.2	LOS A	0.1	0.5	0.02	0.59	53.0
12	R2	14	0.0	0.020	6.9	LOS A	0.1	0.5	0.02	0.59	52.3
Approach		19	0.0	0.020	6.5	LOS A	0.1	0.5	0.02	0.59	52.5
All Vehicles		593	0.0	0.290	5.6	NA	0.1	0.7	0.00	0.57	53.6

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 4_New Road & Brodie St.sip6

MOVEMENT SUMMARY

▽ Site: PM - POST - New Rd and Brodie St

New Site

Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	Flows 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: New Road											
1	L2	298	0.0	0.172	5.5	LOS A	0.0	0.1	0.00	0.54	53.9
2	T1	22	0.0	0.172	0.0	LOS A	0.0	0.1	0.00	0.54	55.3
3	R2	1	0.0	0.172	5.4	LOS A	0.0	0.1	0.00	0.54	53.4
Approach		321	0.0	0.172	5.2	NA	0.0	0.1	0.00	0.54	54.0
East: Brodie Street											
4	L2	12	0.0	0.016	5.5	LOS A	0.1	0.4	0.00	0.56	53.6
5	T1	7	0.0	0.016	5.5	LOS A	0.1	0.4	0.00	0.56	53.8
6	R2	1	0.0	0.016	5.6	LOS A	0.1	0.4	0.00	0.56	53.1
Approach		20	0.0	0.016	5.5	LOS A	0.1	0.4	0.00	0.56	53.7
North: New Road											
7	L2	1	0.0	0.002	6.2	LOS A	0.0	0.1	0.31	0.32	54.1
8	T1	1	0.0	0.002	0.7	LOS A	0.0	0.1	0.31	0.32	55.5
9	R2	1	0.0	0.002	6.4	LOS A	0.0	0.1	0.31	0.32	53.6
Approach		3	0.0	0.002	4.4	NA	0.0	0.1	0.31	0.32	54.4
West: Brodie Street											
10	L2	7	0.0	0.021	5.6	LOS A	0.1	0.5	0.10	0.57	53.2
11	T1	1	0.0	0.021	4.8	LOS A	0.1	0.5	0.10	0.57	53.4
12	R2	15	0.0	0.021	6.3	LOS A	0.1	0.5	0.10	0.57	52.7
Approach		23	0.0	0.021	6.0	LOS A	0.1	0.5	0.10	0.57	52.9
All Vehicles		367	0.0	0.172	5.2	NA	0.1	0.5	0.01	0.54	53.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 4_New Road & Brodie St.sip6

MOVEMENT SUMMARY

▽ Site: AM - PRE - Lucas St and RPA Access

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: New Road											
3	R2	8	0.0	0.006	5.7	LOS A	0.0	0.1	0.11	0.58	52.6
Approach		8	0.0	0.006	5.7	LOS A	0.0	0.1	0.11	0.58	52.6
West: Lucas Street (West)											
11	T1	49	0.0	0.028	0.0	LOS A	0.0	0.0	0.00	0.09	59.3
12	R2	7	0.0	0.028	5.7	LOS A	0.0	0.0	0.00	0.09	56.9
Approach		57	0.0	0.028	0.7	NA	0.0	0.0	0.00	0.09	58.9
All Vehicles		65	0.0	0.028	1.4	NA	0.0	0.1	0.01	0.15	58.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: PM - PRE - Lucas St and RPA Access

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: New Road											
3	R2	31	0.0	0.022	5.7	LOS A	0.1	0.5	0.08	0.59	52.7
Approach		31	0.0	0.022	5.7	LOS A	0.1	0.5	0.08	0.59	52.7
West: Lucas Street (West)											
11	T1	31	0.0	0.015	0.0	LOS A	0.0	0.0	0.00	0.02	59.8
12	R2	1	0.0	0.015	5.7	LOS A	0.0	0.0	0.00	0.02	57.4
Approach		32	0.0	0.015	0.2	NA	0.0	0.0	0.00	0.02	59.7
All Vehicles		62	0.0	0.022	2.9	NA	0.1	0.5	0.04	0.30	56.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: AM - POST - Lucas St and RPA Access

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total	HV	v/c	sec		Vehicles	Distance	per veh	km/h	
		veh/h	%				veh	m			
South: New Road											
3	R2	17	0.0	0.012	5.8	LOS A	0.0	0.3	0.14	0.58	52.5
Approach		17	0.0	0.012	5.8	LOS A	0.0	0.3	0.14	0.58	52.5
West: Lucas Street (West)											
11	T1	86	0.0	0.043	0.0	LOS A	0.0	0.0	0.00	0.02	59.9
12	R2	2	0.0	0.043	5.7	LOS A	0.0	0.0	0.00	0.02	57.4
Approach		88	0.0	0.043	0.1	NA	0.0	0.0	0.00	0.02	59.8
All Vehicles		105	0.0	0.043	1.0	NA	0.0	0.3	0.02	0.11	58.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: PM - POST - Lucas St and RPA Access

New Site

Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		Total veh/h	HV %	v/c	sec		Vehicles veh	m		per veh	km/h
South: New Road											
3	R2	31	0.0	0.023	5.8	LOS A	0.1	0.5	0.14	0.58	52.6
Approach		31	0.0	0.023	5.8	LOS A	0.1	0.5	0.14	0.58	52.6
West: Lucas Street (West)											
11	T1	83	0.0	0.041	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
12	R2	1	0.0	0.041	5.7	LOS A	0.0	0.0	0.00	0.01	57.5
Approach		84	0.0	0.041	0.1	NA	0.0	0.0	0.00	0.01	59.9
All Vehicles		115	0.0	0.041	1.6	NA	0.1	0.5	0.04	0.16	57.7

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 5_Lucas St & RPA Access.sip6

MOVEMENT SUMMARY

▽ Site: AM - PRE - Lucas St and Missenden Rd

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Prop. Queued Distance m	Effective Stop Rate per veh	Average Speed km/h	
South: Missenden Road (South)											
2	T1	332	5.1	0.169	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		332	5.1	0.169	0.0	NA	0.0	0.0	0.00	0.00	60.0
North: Missenden Road (North)											
8	T1	436	5.3	0.230	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		436	5.3	0.230	0.0	NA	0.0	0.0	0.00	0.00	60.0
West: Lucas Street											
10	L2	21	0.0	0.018	6.6	LOS A	0.1	0.5	0.38	0.58	52.4
12	R2	21	10.0	0.040	10.3	LOS A	0.1	0.9	0.58	0.81	49.3
Approach		42	5.0	0.040	8.5	LOS A	0.1	0.9	0.48	0.70	50.8
All Vehicles		809	5.2	0.230	0.5	NA	0.1	0.9	0.02	0.04	59.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: PM - PRE - Lucas St and Missenden Rd

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Missenden Road (South)											
2	T1	459	3.0	0.230	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		459	3.0	0.230	0.0	NA	0.0	0.0	0.00	0.00	60.0
North: Missenden Road (North)											
8	T1	512	2.9	0.266	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		512	2.9	0.266	0.0	NA	0.0	0.0	0.00	0.00	59.9
West: Lucas Street											
10	L2	55	0.0	0.053	7.3	LOS A	0.2	1.4	0.46	0.66	52.2
12	R2	25	8.3	0.062	12.5	LOS A	0.2	1.4	0.68	0.88	47.9
Approach		80	2.6	0.062	8.9	LOS A	0.2	1.4	0.53	0.73	50.8
All Vehicles		1051	2.9	0.266	0.7	NA	0.2	1.4	0.04	0.06	59.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: AM - POST - Lucas St and Missenden Rd

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Missenden Road (South)											
2	T1	345	4.9	0.175	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		345	4.9	0.175	0.0	NA	0.0	0.0	0.00	0.00	60.0
North: Missenden Road (North)											
8	T1	541	4.3	0.284	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		541	4.3	0.284	0.0	NA	0.0	0.0	0.00	0.00	59.9
West: Lucas Street											
10	L2	48	0.0	0.041	6.7	LOS A	0.2	1.1	0.39	0.61	52.4
12	R2	25	8.3	0.057	11.6	LOS A	0.2	1.3	0.65	0.86	48.4
Approach		74	2.9	0.057	8.4	LOS A	0.2	1.3	0.48	0.70	51.0
All Vehicles		960	4.4	0.284	0.7	NA	0.2	1.3	0.04	0.05	59.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: PM - POST - Lucas St and Missenden Rd

New Site

Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Missenden Road (South)											
2	T1	459	3.0	0.230	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		459	3.0	0.230	0.0	NA	0.0	0.0	0.00	0.00	60.0
North: Missenden Road (North)											
8	T1	512	2.9	0.266	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		512	2.9	0.266	0.0	NA	0.0	0.0	0.00	0.00	59.9
West: Lucas Street											
10	L2	95	0.0	0.091	7.4	LOS A	0.4	2.5	0.47	0.68	52.2
12	R2	39	5.4	0.093	12.3	LOS A	0.3	2.1	0.69	0.88	48.1
Approach		134	1.6	0.093	8.8	LOS A	0.4	2.5	0.53	0.74	50.9
All Vehicles		1104	2.8	0.266	1.1	NA	0.4	2.5	0.06	0.09	58.7

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: GTA CONSULTANTS | Processed: Tuesday, 26 April 2016 3:47:29 PM

Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 6_Lucas Street and Missenden Road.sip6

MOVEMENT SUMMARY

 **Site: AM - PRE - Church St, Layton St & Paramatta Rd**

New Site
Signals - Fixed Time Isolated Cycle Time = 140 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Church Street											
1	L2	11	9.1	0.050	62.5	LOS E	0.7	5.3	0.90	0.68	29.2
2	T1	8	12.5	0.248	60.3	LOS E	3.0	21.2	0.94	0.74	29.0
3	R2	40	0.0	0.248	66.2	LOS E	3.0	21.2	0.94	0.75	28.6
Approach		59	3.4	0.248	64.7	LOS E	3.0	21.2	0.93	0.73	28.8
East: Paramatta Road											
4	L2	30	3.3	0.056	9.3	LOS A	0.9	9.5	0.24	0.34	52.9
5	T1	873	9.5	0.295	4.6	LOS A	8.1	59.5	0.31	0.28	55.7
Approach		903	9.3	0.295	4.7	LOS A	8.1	59.5	0.31	0.28	55.6
North: Layton Street											
7	L2	9	0.0	0.040	62.1	LOS E	0.6	4.1	0.90	0.67	29.4
8	T1	36	0.0	0.194	58.6	LOS E	2.8	19.8	0.92	0.71	30.4
9	R2	10	10.0	0.194	64.3	LOS E	2.8	19.8	0.93	0.71	29.9
Approach		55	1.8	0.194	60.2	LOS E	2.8	19.8	0.92	0.70	30.1
West: Paramatta Road											
10	L2	14	7.1	0.071	9.4	LOS A	1.1	13.0	0.25	0.25	54.1
11	T1	1802	7.0	0.595	6.6	LOS A	24.0	174.1	0.44	0.41	54.1
Approach		1816	7.0	0.595	6.6	LOS A	24.0	174.1	0.44	0.41	54.1
All Vehicles		2833	7.6	0.595	8.3	LOS A	24.0	174.1	0.42	0.38	52.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	26	6.0	LOS A	0.0	0.0	0.29	0.29	
P2	East Full Crossing	16	64.2	LOS F	0.1	0.1	0.96	0.96	
P3	North Full Crossing	51	5.7	LOS A	0.1	0.1	0.29	0.29	
P4	West Full Crossing	55	64.3	LOS F	0.2	0.2	0.96	0.96	
All Pedestrians		148	33.9	LOS D			0.61	0.61	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: PM - PRE Church St, Layton St & Paramatta Rd**

New Site

Signals - Fixed Time Isolated Cycle Time = 140 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Church Street											
1	L2	54	1.9	0.197	62.2	LOS E	3.3	23.2	0.91	0.75	29.3
2	T1	42	0.0	0.623	66.5	LOS E	7.3	51.0	1.00	0.81	28.0
3	R2	65	0.0	0.623	72.1	LOS F	7.3	51.0	1.00	0.81	27.7
Approach		161	0.6	0.623	67.3	LOS E	7.3	51.0	0.97	0.79	28.3
East: Paramatta Road											
4	L2	38	0.0	0.082	9.9	LOS A	1.4	14.9	0.27	0.34	52.7
5	T1	1808	4.9	0.612	7.6	LOS A	26.1	186.2	0.48	0.45	53.3
Approach		1846	4.8	0.612	7.6	LOS A	26.1	186.2	0.47	0.44	53.3
North: Layton Street											
7	L2	19	0.0	0.089	60.9	LOS E	1.4	10.1	0.89	0.70	29.9
8	T1	46	2.2	0.433	63.2	LOS E	5.0	36.0	0.97	0.76	28.9
9	R2	36	2.8	0.433	69.9	LOS E	5.0	36.0	0.98	0.77	28.3
Approach		101	2.0	0.433	65.2	LOS E	5.0	36.0	0.96	0.75	28.9
West: Paramatta Road											
10	L2	22	0.0	0.059	9.8	LOS A	1.0	10.8	0.26	0.31	53.1
11	T1	1302	4.0	0.430	6.0	LOS A	14.8	104.3	0.38	0.35	54.6
Approach		1324	3.9	0.430	6.0	LOS A	14.8	104.3	0.38	0.35	54.5
All Vehicles		3432	4.2	0.623	11.5	LOS A	26.1	186.2	0.47	0.43	50.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	26	6.6	LOS A	0.0	0.0	0.31	0.31
P2	East Full Crossing	16	64.2	LOS F	0.1	0.1	0.96	0.96
P3	North Full Crossing	51	6.3	LOS A	0.1	0.1	0.30	0.30
P4	West Full Crossing	55	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		148	34.2	LOS D			0.62	0.62

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160324_16S1251000_SITE 7_Paramatta Rd & Layton Rd & Church St.sip6

MOVEMENT SUMMARY



Site: AM - POST - Church St, Layton St & Paramatta Rd

New Site

Signals - Fixed Time Isolated Cycle Time = 140 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Church Street											
1	L2	36	2.8	0.144	60.6	LOS E	2.4	17.6	0.90	0.73	29.8
2	T1	39	2.6	0.722	67.7	LOS E	8.5	60.1	0.99	0.84	27.6
3	R2	88	0.0	0.722	75.3	LOS F	8.5	60.1	1.00	0.86	26.9
Approach		163	1.2	0.722	70.2	LOS E	8.5	60.1	0.97	0.83	27.7
East: Paramatta Road											
4	L2	51	2.0	0.073	10.1	LOS A	1.4	13.1	0.27	0.42	51.8
5	T1	1075	7.7	0.373	6.0	LOS A	11.8	86.2	0.36	0.33	54.6
Approach		1126	7.5	0.373	6.1	LOS A	11.8	86.2	0.36	0.34	54.4
North: Layton Street											
7	L2	16	0.0	0.074	59.7	LOS E	1.2	8.7	0.88	0.69	30.3
8	T1	65	0.0	0.358	60.7	LOS E	5.1	36.2	0.95	0.75	29.8
9	R2	20	5.0	0.358	66.9	LOS E	5.1	36.2	0.96	0.75	29.3
Approach		102	1.0	0.358	61.8	LOS E	5.1	36.2	0.94	0.74	29.7
West: Paramatta Road											
10	L2	13	7.7	0.073	10.2	LOS A	1.2	14.1	0.27	0.27	53.6
11	T1	2207	5.8	0.750	9.9	LOS A	40.4	290.8	0.61	0.57	51.6
Approach		2220	5.8	0.750	9.9	LOS A	40.4	290.8	0.60	0.57	51.6
All Vehicles		3610	6.0	0.750	12.9	LOS A	40.4	290.8	0.55	0.51	49.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	26	6.9	LOS A	0.0	0.0	0.31	0.31
P2	East Full Crossing	16	64.2	LOS F	0.1	0.1	0.96	0.96
P3	North Full Crossing	51	6.6	LOS A	0.1	0.1	0.31	0.31
P4	West Full Crossing	55	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		148	34.3	LOS D			0.62	0.62

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160324_16S1251000_SITE 7_Paramatta Rd & Layton Rd & Church St.sip6

MOVEMENT SUMMARY



Site: PM - POST - Church St, Layton St & Paramatta Rd

New Site

Signals - Fixed Time Isolated Cycle Time = 140 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Church Street											
1	L2	92	1.1	0.242	55.5	LOS D	5.3	37.1	0.88	0.77	30.9
2	T1	55	0.0	0.634	61.0	LOS E	9.5	66.6	0.98	0.82	29.2
3	R2	90	0.0	0.634	66.6	LOS E	9.5	66.6	0.98	0.82	28.9
Approach		237	0.4	0.634	61.0	LOS E	9.5	66.6	0.94	0.80	29.7
East: Paramatta Road											
4	L2	39	0.0	0.089	12.3	LOS A	1.8	18.7	0.33	0.39	50.9
5	T1	1808	4.9	0.661	11.7	LOS A	32.5	231.8	0.59	0.55	50.3
Approach		1847	4.8	0.661	11.7	LOS A	32.5	231.8	0.59	0.55	50.3
North: Layton Street											
7	L2	19	0.0	0.070	53.2	LOS D	1.4	10.2	0.84	0.68	32.0
8	T1	47	2.1	0.339	56.9	LOS E	4.7	33.8	0.92	0.74	30.4
9	R2	36	2.8	0.339	64.3	LOS E	4.7	33.8	0.94	0.75	29.6
Approach		102	2.0	0.339	58.8	LOS E	4.7	33.8	0.91	0.74	30.4
West: Paramatta Road											
10	L2	22	0.0	0.064	12.1	LOS A	1.2	13.5	0.32	0.35	51.3
11	T1	1302	4.0	0.465	9.3	LOS A	18.4	129.9	0.47	0.43	52.0
Approach		1324	3.9	0.465	9.3	LOS A	18.4	129.9	0.47	0.43	52.0
All Vehicles		3510	4.1	0.661	15.5	LOS B	32.5	231.8	0.57	0.53	47.7

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	26	9.3	LOS A	0.0	0.0	0.36	0.36	
P2	East Full Crossing	16	57.6	LOS E	0.1	0.1	0.91	0.91	
P3	North Full Crossing	51	8.9	LOS A	0.1	0.1	0.36	0.36	
P4	West Full Crossing	55	57.7	LOS E	0.2	0.2	0.91	0.91	
All Pedestrians		148	32.4	LOS D			0.62	0.62	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160324_16S1251000_SITE 7_Paramatta Rd & Layton Rd & Church St.sip6

MOVEMENT SUMMARY



Site: AM - PRE - Salisbury Rd and Mallett St

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows 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
East: Salisbury Rd (East)											
5	T1	146	2.2	0.209	5.8	LOS A	1.3	9.4	0.40	0.59	52.5
6	R2	65	1.6	0.209	8.5	LOS A	1.3	9.4	0.40	0.59	52.1
6u	U	15	0.0	0.209	9.9	LOS A	1.3	9.4	0.40	0.59	52.5
Approach		226	1.9	0.209	6.9	LOS A	1.3	9.4	0.40	0.59	52.4
North: Mallett St											
7	L2	113	0.9	0.327	8.9	LOS A	1.8	13.0	0.69	0.85	49.8
9	R2	132	1.6	0.327	11.0	LOS A	1.8	13.0	0.69	0.85	50.2
9u	U	1	0.0	0.327	12.4	LOS A	1.8	13.0	0.69	0.85	50.6
Approach		245	1.3	0.327	10.0	LOS A	1.8	13.0	0.69	0.85	50.0
West: Salisbury Rd (West)											
10	L2	203	0.0	0.655	6.2	LOS A	8.6	60.9	0.57	0.52	51.9
11	T1	643	1.5	0.655	6.1	LOS A	8.6	60.9	0.57	0.52	52.5
12u	U	7	0.0	0.655	10.2	LOS A	8.6	60.9	0.57	0.52	52.5
Approach		854	1.1	0.655	6.2	LOS A	8.6	60.9	0.57	0.52	52.4
All Vehicles		1325	1.3	0.655	7.0	LOS A	8.6	60.9	0.56	0.59	51.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 **Site: PM - PRE - Salisbury Rd and Mallett St**

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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
East: Salisbury Rd (East)											
5	T1	594	0.7	0.746	11.2	LOS A	10.3	72.6	0.92	0.95	50.7
6	R2	125	0.0	0.746	15.8	LOS B	10.3	72.6	0.92	0.95	50.7
6u	U	18	0.0	0.746	17.9	LOS B	10.3	72.6	0.92	0.95	51.5
Approach		737	0.6	0.746	12.2	LOS A	10.3	72.6	0.92	0.95	50.7
North: Mallett St											
7	L2	48	0.0	0.410	5.8	LOS A	2.4	16.9	0.58	0.75	50.7
9	R2	380	0.3	0.410	10.5	LOS A	2.4	16.9	0.58	0.75	51.8
9u	U	4	0.0	0.410	12.6	LOS A	2.4	16.9	0.58	0.75	52.7
Approach		433	0.2	0.410	10.0	LOS A	2.4	16.9	0.58	0.75	51.7
West: Salisbury Rd (West)											
10	L2	203	0.0	0.498	5.2	LOS A	5.2	36.7	0.61	0.54	53.0
11	T1	399	1.3	0.498	5.6	LOS A	5.2	36.7	0.61	0.54	54.2
12u	U	9	0.0	0.498	12.2	LOS A	5.2	36.7	0.61	0.54	55.2
Approach		612	0.9	0.498	5.5	LOS A	5.2	36.7	0.61	0.54	53.8
All Vehicles		1781	0.6	0.746	9.4	LOS A	10.3	72.6	0.73	0.76	52.0

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 8_Salisbury Rd and Mallett St.sip6

MOVEMENT SUMMARY



Site: AM - POST - Salisbury Rd and Mallett St

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	Flows 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
East: Salisbury Rd (East)											
5	T1	249	1.3	0.400	6.5	LOS A	3.1	21.9	0.58	0.65	51.9
6	R2	118	0.9	0.400	9.2	LOS A	3.1	21.9	0.58	0.65	51.5
6u	U	37	0.0	0.400	10.6	LOS A	3.1	21.9	0.58	0.65	51.9
Approach		404	1.0	0.400	7.7	LOS A	3.1	21.9	0.58	0.65	51.8
North: Mallett St											
7	L2	189	0.6	0.815	25.5	LOS B	9.9	69.7	1.00	1.25	40.6
9	R2	193	1.1	0.815	27.7	LOS B	9.9	69.7	1.00	1.25	40.9
9u	U	6	0.0	0.815	29.1	LOS C	9.9	69.7	1.00	1.25	41.1
Approach		388	0.8	0.815	26.7	LOS B	9.9	69.7	1.00	1.25	40.7
West: Salisbury Rd (West)											
10	L2	240	0.0	0.978	28.1	LOS B	46.1	325.2	1.00	0.98	40.1
11	T1	871	1.1	0.978	28.1	LOS B	46.1	325.2	1.00	0.98	40.5
12u	U	6	0.0	0.978	32.1	LOS C	46.1	325.2	1.00	0.98	40.5
Approach		1117	0.8	0.978	28.1	LOS B	46.1	325.2	1.00	0.98	40.4
All Vehicles		1909	0.9	0.978	23.5	LOS B	46.1	325.2	0.91	0.97	42.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 **Site: PM - POST - Salisbury Rd and Mallett St**

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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
East: Salisbury Rd (East)											
5	T1	594	0.7	0.770	12.5	LOS A	11.3	79.8	0.96	1.01	49.8
6	R2	125	0.0	0.770	17.1	LOS B	11.3	79.8	0.96	1.01	49.8
6u	U	18	0.0	0.770	19.2	LOS B	11.3	79.8	0.96	1.01	50.7
Approach		737	0.6	0.770	13.5	LOS A	11.3	79.8	0.96	1.01	49.9
North: Mallett St											
7	L2	53	0.0	0.443	5.9	LOS A	2.7	18.9	0.61	0.77	50.6
9	R2	406	0.3	0.443	10.7	LOS A	2.7	18.9	0.61	0.77	51.7
9u	U	4	0.0	0.443	12.7	LOS A	2.7	18.9	0.61	0.77	52.6
Approach		463	0.2	0.443	10.1	LOS A	2.7	18.9	0.61	0.77	51.6
West: Salisbury Rd (West)											
10	L2	203	0.0	0.508	5.2	LOS A	5.4	38.1	0.62	0.54	52.9
11	T1	411	1.3	0.508	5.6	LOS A	5.4	38.1	0.62	0.54	54.2
12u	U	9	0.0	0.508	12.3	LOS A	5.4	38.1	0.62	0.54	55.1
Approach		623	0.8	0.508	5.6	LOS A	5.4	38.1	0.62	0.54	53.8
All Vehicles		1823	0.6	0.770	9.9	LOS A	11.3	79.8	0.75	0.79	51.6

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 8_Salisbury Rd and Mallett St.sip6

MOVEMENT SUMMARY



Site: AM - PRE - Carillon St and Hospital Access

New Site

Signals - Fixed Time Isolated Cycle Time = 105 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: Lane 1											
1	L2	7	0.0	0.093	58.9	LOS E	0.5	3.4	0.97	0.67	30.2
2	T1	1	0.0	0.093	53.4	LOS D	0.5	3.4	0.97	0.67	30.7
3	R2	1	0.0	0.093	58.9	LOS E	0.5	3.4	0.97	0.67	30.2
Approach		9	0.0	0.093	58.3	LOS E	0.5	3.4	0.97	0.67	30.3
East: Carillon Avenue (East)											
4	L2	1	0.0	0.064	7.2	LOS A	0.9	6.4	0.19	0.16	56.8
5	T1	201	0.5	0.064	1.7	LOS A	0.9	6.4	0.19	0.16	58.3
6	R2	82	0.0	0.150	8.3	LOS A	1.0	7.0	0.25	0.65	51.3
Approach		284	0.4	0.150	3.6	LOS A	1.0	7.0	0.21	0.30	56.1
North: Grose Street (North)											
7	L2	1	100.0	0.018	59.8	LOS E	0.1	0.7	0.96	0.60	29.4
8	T1	1	0.0	0.090	53.3	LOS D	0.5	3.4	0.97	0.66	30.7
9	R2	8	0.0	0.090	58.8	LOS E	0.5	3.4	0.97	0.67	30.3
Approach		11	10.0	0.090	58.4	LOS E	0.5	3.4	0.97	0.66	30.3
West: Carillon Avenue (West)											
10	L2	209	0.0	0.239	7.6	LOS A	3.9	27.3	0.23	0.46	53.9
11	T1	527	1.0	0.239	2.0	LOS A	4.0	28.1	0.23	0.28	57.2
12	R2	3	0.0	0.003	7.3	LOS A	0.0	0.2	0.19	0.60	52.0
Approach		740	0.7	0.239	3.6	LOS A	4.0	28.1	0.23	0.33	56.2
All Vehicles		1044	0.7	0.239	4.7	LOS A	4.0	28.1	0.24	0.33	55.3

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	86	2.5	LOS A	0.1	0.1	0.22	0.22
P2	East Full Crossing	14	46.7	LOS E	0.0	0.0	0.94	0.94
P3	North Full Crossing	46	3.7	LOS A	0.0	0.0	0.27	0.27
All Pedestrians		146	7.0	LOS A			0.30	0.30

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 9_Carillon Street and Hospital Access.sip6

MOVEMENT SUMMARY



Site: PM - PRE - Carillon St and Hospital Access

New Site

Signals - Fixed Time Isolated Cycle Time = 105 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: Lane 1											
1	L2	1	0.0	0.018	47.5	LOS D	0.2	1.3	0.88	0.63	33.6
2	T1	1	0.0	0.018	41.9	LOS C	0.2	1.3	0.88	0.63	34.2
3	R2	2	0.0	0.018	47.5	LOS D	0.2	1.3	0.88	0.63	33.6
Approach		4	0.0	0.018	46.1	LOS D	0.2	1.3	0.88	0.63	33.7
East: Carillon Avenue (East)											
4	L2	1	0.0	0.218	10.2	LOS A	4.8	33.7	0.34	0.30	54.3
5	T1	605	0.0	0.218	4.7	LOS A	4.8	33.7	0.34	0.30	55.7
6	R2	6	0.0	0.010	10.4	LOS A	0.1	0.7	0.31	0.62	49.9
Approach		613	0.0	0.218	4.7	LOS A	4.8	33.7	0.34	0.30	55.6
North: Hospital Access											
7	L2	48	0.0	0.174	48.1	LOS D	2.2	15.4	0.91	0.74	33.0
8	T1	1	0.0	0.212	43.1	LOS D	2.4	17.0	0.91	0.74	33.4
9	R2	52	0.0	0.212	48.6	LOS D	2.4	17.0	0.91	0.74	33.0
Approach		101	0.0	0.212	48.3	LOS D	2.4	17.0	0.91	0.74	33.0
West: Carillon Avenue (West)											
10	L2	6	0.0	0.166	10.0	LOS A	3.5	24.5	0.32	0.29	54.4
11	T1	455	0.0	0.166	4.5	LOS A	3.5	24.5	0.32	0.28	55.8
12	R2	1	0.0	0.002	11.0	LOS A	0.0	0.1	0.32	0.60	49.5
Approach		462	0.0	0.166	4.6	LOS A	3.5	24.5	0.32	0.28	55.8
All Vehicles		1180	0.0	0.218	8.5	LOS A	4.8	33.7	0.38	0.33	52.5

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	45	5.2	LOS A	0.0	0.0	0.31	0.31	
P2	East Full Crossing	7	46.7	LOS E	0.0	0.0	0.94	0.94	
P3	North Full Crossing	31	6.9	LOS A	0.0	0.0	0.36	0.36	
All Pedestrians		83	9.5	LOS A			0.39	0.39	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 9_Carillon Street and Hospital Access.sip6

MOVEMENT SUMMARY

 **Site: AM - POST - Carillon St and Hospital Access**

New Site

Signals - Fixed Time Isolated Cycle Time = 105 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Lane 1											
1	L2	8	0.0	0.153	59.6	LOS E	0.8	5.4	0.98	0.69	30.0
2	T1	1	0.0	0.153	54.1	LOS D	0.8	5.4	0.98	0.69	30.4
3	R2	5	0.0	0.153	59.6	LOS E	0.8	5.4	0.98	0.69	30.0
Approach		15	0.0	0.153	59.2	LOS E	0.8	5.4	0.98	0.69	30.0
East: Carillon Avenue (East)											
4	L2	1	0.0	0.108	7.3	LOS A	1.6	11.1	0.20	0.17	56.7
5	T1	337	0.3	0.108	1.8	LOS A	1.6	11.1	0.20	0.17	58.3
6	R2	246	0.0	0.828	36.8	LOS C	11.9	83.5	0.64	0.91	36.6
Approach		584	0.2	0.828	16.6	LOS B	11.9	83.5	0.39	0.48	46.7
North: Grose Street (North)											
7	L2	8	12.5	0.088	59.2	LOS E	0.4	3.4	0.97	0.67	29.9
8	T1	1	0.0	0.111	53.4	LOS D	0.6	4.2	0.98	0.68	30.6
9	R2	11	0.0	0.111	59.0	LOS E	0.6	4.2	0.98	0.68	30.2
Approach		20	5.3	0.111	58.8	LOS E	0.6	4.2	0.97	0.67	30.1
West: Carillon Avenue (West)											
10	L2	498	0.0	0.377	7.9	LOS A	7.1	49.8	0.27	0.62	52.3
11	T1	659	0.8	0.377	2.4	LOS A	7.3	51.7	0.27	0.28	57.3
12	R2	3	0.0	0.004	7.3	LOS A	0.0	0.2	0.19	0.60	52.0
Approach		1160	0.5	0.377	4.8	LOS A	7.3	51.7	0.27	0.43	55.0
All Vehicles		1779	0.4	0.828	9.7	LOS A	11.9	83.5	0.32	0.45	51.2

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	86	2.5	LOS A	0.1	0.1	0.22	0.22	
P2	East Full Crossing	14	46.7	LOS E	0.0	0.0	0.94	0.94	
P3	North Full Crossing	46	3.7	LOS A	0.0	0.0	0.27	0.27	
All Pedestrians		146	7.0	LOS A			0.30	0.30	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 9_Carillon Street and Hospital Access.sip6

MOVEMENT SUMMARY

 **Site: PM - POST - Carillon St and Hospital Access**

New Site

Signals - Fixed Time Isolated Cycle Time = 105 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: Lane 1											
1	L2	1	0.0	0.018	47.5	LOS D	0.2	1.3	0.88	0.63	33.6
2	T1	1	0.0	0.018	41.9	LOS C	0.2	1.3	0.88	0.63	34.2
3	R2	2	0.0	0.018	47.5	LOS D	0.2	1.3	0.88	0.63	33.6
Approach		4	0.0	0.018	46.1	LOS D	0.2	1.3	0.88	0.63	33.7
East: Carillon Avenue (East)											
4	L2	1	0.0	0.218	10.2	LOS A	4.8	33.7	0.34	0.30	54.3
5	T1	605	0.0	0.218	4.7	LOS A	4.8	33.7	0.34	0.30	55.7
6	R2	16	0.0	0.026	10.8	LOS A	0.2	1.7	0.32	0.64	49.6
Approach		622	0.0	0.218	4.8	LOS A	4.8	33.7	0.34	0.30	55.5
North: Hospital Access											
7	L2	48	0.0	0.174	48.1	LOS D	2.2	15.4	0.91	0.74	33.0
8	T1	1	0.0	0.212	43.1	LOS D	2.4	17.0	0.91	0.74	33.4
9	R2	52	0.0	0.212	48.6	LOS D	2.4	17.0	0.91	0.74	33.0
Approach		101	0.0	0.212	48.3	LOS D	2.4	17.0	0.91	0.74	33.0
West: Carillon Avenue (West)											
10	L2	23	0.0	0.196	10.1	LOS A	4.2	29.6	0.33	0.32	54.0
11	T1	521	0.0	0.196	4.6	LOS A	4.3	29.8	0.33	0.30	55.6
12	R2	1	0.0	0.002	11.0	LOS A	0.0	0.1	0.32	0.60	49.5
Approach		545	0.0	0.196	4.8	LOS A	4.3	29.8	0.33	0.30	55.5
All Vehicles		1273	0.0	0.218	8.4	LOS A	4.8	33.7	0.38	0.34	52.6

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	45	5.2	LOS A	0.0	0.0	0.31	0.31	
P2	East Full Crossing	7	46.7	LOS E	0.0	0.0	0.94	0.94	
P3	North Full Crossing	31	6.9	LOS A	0.0	0.0	0.36	0.36	
All Pedestrians		83	9.5	LOS A			0.39	0.39	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 9_Carillon Street and Hospital Access.sip6

MOVEMENT SUMMARY



Site: AM - PRE - Carillon St and Missenden Rd

New Site

Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Missended Road (Sth)											
1	L2	86	0.0	0.066	9.4	LOS A	1.2	8.6	0.31	0.65	50.7
2	T1	277	4.6	0.453	30.2	LOS C	12.0	87.1	0.79	0.68	40.2
3	R2	34	0.0	0.136	48.0	LOS D	1.6	11.5	0.85	0.73	33.1
Approach		397	3.2	0.453	27.2	LOS B	12.0	87.1	0.69	0.67	41.3
East: Carillon Avenue (East)											
4	L2	15	0.0	0.140	55.7	LOS D	1.8	12.9	0.92	0.70	31.8
5	T1	126	0.8	0.417	52.2	LOS D	5.8	41.2	0.96	0.75	32.2
6	R2	63	1.7	0.262	57.0	LOS E	3.4	24.1	0.94	0.76	30.5
Approach		204	1.0	0.417	54.0	LOS D	5.8	41.2	0.95	0.75	31.7
North: Missended Road (Nth)											
7	L2	101	6.3	0.126	20.2	LOS B	3.1	22.6	0.57	0.69	44.1
8	T1	217	5.3	0.603	38.5	LOS C	14.3	104.3	0.90	0.79	36.3
9	R2	71	4.5	0.603	44.5	LOS D	14.3	104.3	0.91	0.79	35.4
Approach		388	5.4	0.603	34.8	LOS C	14.3	104.3	0.82	0.77	37.9
West: Carillon Avenue (West)											
10	L2	103	8.2	0.171	34.4	LOS C	4.1	31.0	0.73	0.74	37.6
11	T1	352	0.0	0.607	34.5	LOS C	19.2	135.5	0.88	0.78	38.1
12	R2	47	6.7	0.607	40.2	LOS C	19.2	135.5	0.88	0.78	37.4
Approach		502	2.3	0.607	35.1	LOS C	19.2	135.5	0.85	0.77	37.9
All Vehicles		1492	3.2	0.607	35.5	LOS C	19.2	135.5	0.81	0.74	37.7

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	33.8	LOS D	0.1	0.1	0.75	0.75
P3	North Full Crossing	53	33.1	LOS D	0.1	0.1	0.74	0.74
P4	West Full Crossing	53	31.6	LOS D	0.1	0.1	0.73	0.73
All Pedestrians		211	38.2	LOS D			0.79	0.79

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 10_Carillon Street and Missenden Road.sip6

MOVEMENT SUMMARY



Site: PM - PRE - Carillon St and Missenden Rd

New Site

Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Missended Road (Sth)											
1	L2	129	0.0	0.116	13.7	LOS A	2.8	19.3	0.45	0.68	47.8
2	T1	341	1.2	0.531	29.7	LOS C	14.9	105.3	0.80	0.69	40.4
3	R2	36	2.9	0.206	54.7	LOS D	1.9	13.6	0.91	0.74	31.2
Approach		506	1.0	0.531	27.4	LOS B	14.9	105.3	0.72	0.69	41.2
East: Carillon Avenue (East)											
4	L2	51	0.0	0.307	45.8	LOS D	6.7	47.0	0.86	0.73	34.9
5	T1	433	0.2	0.914	59.0	LOS E	23.0	161.3	0.96	1.00	30.4
6	R2	109	2.9	0.253	45.2	LOS D	5.2	37.2	0.85	0.77	33.9
Approach		593	0.7	0.914	55.3	LOS D	23.0	161.3	0.93	0.94	31.3
North: Missended Road (Nth)											
7	L2	205	0.5	0.195	13.5	LOS A	4.5	31.4	0.45	0.69	47.9
8	T1	260	3.2	0.919	65.8	LOS E	27.0	194.2	1.00	1.11	28.5
9	R2	119	2.7	0.919	71.4	LOS F	27.0	194.2	1.00	1.11	28.1
Approach		584	2.2	0.919	48.6	LOS D	27.0	194.2	0.81	0.96	33.1
West: Carillon Avenue (West)											
10	L2	61	8.6	0.232	46.7	LOS D	4.5	32.9	0.86	0.74	34.1
11	T1	351	0.0	0.905	61.5	LOS E	26.0	181.8	0.99	1.04	29.6
12	R2	65	0.0	0.905	69.1	LOS E	26.0	181.8	1.00	1.07	28.9
Approach		477	1.1	0.905	60.6	LOS E	26.0	181.8	0.97	1.00	30.0
All Vehicles		2160	1.3	0.919	48.1	LOS D	27.0	194.2	0.86	0.90	33.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	53	46.0	LOS E	0.2	0.2	0.88	0.88
P2	East Full Crossing	53	32.3	LOS D	0.1	0.1	0.73	0.73
P3	North Full Crossing	53	45.2	LOS E	0.2	0.2	0.87	0.87
P4	West Full Crossing	53	30.2	LOS D	0.1	0.1	0.71	0.71
All Pedestrians		211	38.4	LOS D			0.80	0.80

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 10_Carillon Street and Missenden Road.sip6

MOVEMENT SUMMARY



Site: AM - POST - Carillon St and Missenden Rd

New Site

Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Missended Road (Sth)											
1	L2	166	0.0	0.144	12.8	LOS A	3.4	23.8	0.43	0.68	48.4
2	T1	224	5.6	0.502	38.7	LOS C	10.9	79.6	0.88	0.73	36.7
3	R2	35	0.0	0.211	57.5	LOS E	1.9	13.2	0.93	0.74	30.5
Approach		425	3.0	0.502	30.1	LOS C	10.9	79.6	0.70	0.71	39.8
East: Carillon Avenue (East)											
4	L2	35	0.0	0.263	47.8	LOS D	5.3	36.9	0.87	0.72	34.3
5	T1	336	0.3	0.784	48.5	LOS D	15.0	105.0	0.94	0.85	33.3
6	R2	104	1.0	0.265	47.8	LOS D	5.1	36.0	0.87	0.77	33.0
Approach		475	0.4	0.784	48.3	LOS D	15.0	105.0	0.92	0.82	33.3
North: Missended Road (Nth)											
7	L2	223	2.8	0.256	21.5	LOS B	6.9	49.8	0.62	0.74	43.4
8	T1	184	6.3	0.767	51.1	LOS D	15.0	110.3	1.00	0.91	32.2
9	R2	72	4.4	0.767	56.6	LOS E	15.0	110.3	1.00	0.91	31.7
Approach		479	4.4	0.767	38.1	LOS C	15.0	110.3	0.82	0.83	36.5
West: Carillon Avenue (West)											
10	L2	80	10.5	0.200	34.0	LOS C	5.1	37.7	0.73	0.70	38.7
11	T1	489	0.0	0.779	37.2	LOS C	27.9	196.2	0.93	0.85	36.9
12	R2	82	3.8	0.779	43.7	LOS D	27.9	196.2	0.96	0.87	36.0
Approach		651	1.8	0.779	37.6	LOS C	27.9	196.2	0.91	0.84	37.0
All Vehicles		2030	2.3	0.784	38.7	LOS C	27.9	196.2	0.85	0.81	36.5

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	53	48.7	LOS E	0.2	0.2	0.90	0.90
P2	East Full Crossing	53	42.6	LOS E	0.2	0.2	0.84	0.84
P3	North Full Crossing	53	32.3	LOS D	0.1	0.1	0.73	0.73
P4	West Full Crossing	53	40.1	LOS E	0.1	0.1	0.82	0.82
All Pedestrians		211	40.9	LOS E			0.82	0.82

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160329sidra16S1251000_SITE 10_Carillon Street and Missenden Road.sip6

MOVEMENT SUMMARY



Site: PM - POST - Carillon St and Missenden Rd

New Site

Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Missended Road (Sth)											
1	L2	133	0.0	0.119	13.8	LOS A	2.8	19.8	0.45	0.68	47.8
2	T1	341	1.2	0.543	30.5	LOS C	15.1	106.8	0.81	0.70	40.0
3	R2	36	2.9	0.216	55.8	LOS D	1.9	13.8	0.92	0.74	30.9
Approach		509	1.0	0.543	27.9	LOS B	15.1	106.8	0.72	0.70	40.9
East: Carillon Avenue (East)											
4	L2	51	0.0	0.310	45.8	LOS D	6.8	47.7	0.86	0.73	34.9
5	T1	439	0.2	0.925	61.2	LOS E	23.9	167.5	0.96	1.02	29.9
6	R2	109	2.9	0.253	45.2	LOS D	5.2	37.2	0.85	0.77	33.9
Approach		599	0.7	0.925	57.0	LOS E	23.9	167.5	0.93	0.95	30.9
North: Missended Road (Nth)											
7	L2	214	0.5	0.196	14.2	LOS A	4.9	34.5	0.49	0.70	47.6
8	T1	265	3.2	0.940	72.1	LOS F	28.7	206.3	0.99	1.15	27.2
9	R2	119	2.7	0.940	78.7	LOS F	28.7	206.3	1.00	1.16	26.6
Approach		598	2.1	0.940	52.7	LOS D	28.7	206.3	0.81	0.99	31.9
West: Carillon Avenue (West)											
10	L2	61	8.6	0.245	46.0	LOS D	4.9	35.8	0.85	0.73	34.4
11	T1	396	0.0	0.954	72.4	LOS F	31.6	221.1	0.98	1.13	27.2
12	R2	65	0.0	0.954	81.7	LOS F	31.6	221.1	1.00	1.17	26.3
Approach		522	1.0	0.954	70.5	LOS E	31.6	221.1	0.97	1.09	27.8
All Vehicles		2228	1.2	0.954	52.4	LOS D	31.6	221.1	0.86	0.94	32.1

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	53	46.0	LOS E	0.2	0.2	0.88	0.88
P2	East Full Crossing	53	33.1	LOS D	0.1	0.1	0.74	0.74
P3	North Full Crossing	53	44.3	LOS E	0.2	0.2	0.86	0.86
P4	West Full Crossing	53	30.9	LOS D	0.1	0.1	0.72	0.72
All Pedestrians		211	38.6	LOS D			0.80	0.80

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY



Site: AM - PRE - Paramatta Rd & Mallett St

New Site

Signals - Fixed Time Isolated Cycle Time = 140 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Mallett Street											
1	L2	32	3.1	0.064	16.2	LOS B	1.0	7.3	0.55	0.61	47.4
2	T1	161	0.6	0.314	34.3	LOS C	9.1	63.8	0.76	0.68	37.9
3	R2	35	0.0	0.314	42.4	LOS C	9.1	63.8	0.79	0.68	36.5
Approach		228	0.9	0.314	33.0	LOS C	9.1	63.8	0.74	0.67	38.8
East: Paramatta Road											
4	L2	34	2.9	0.086	22.2	LOS B	2.1	21.1	0.51	0.51	44.5
5	T1	883	9.4	0.433	20.6	LOS B	17.3	127.8	0.65	0.57	44.8
Approach		917	9.2	0.433	20.6	LOS B	17.3	127.8	0.64	0.57	44.8
North: Mallett Street											
7	L2	41	0.0	0.187	41.1	LOS C	6.2	43.6	0.70	0.69	36.7
8	T1	180	0.0	0.912	59.2	LOS E	8.9	62.8	0.73	0.82	30.1
9	R2	28	3.6	0.912	90.8	LOS F	8.9	62.8	0.77	0.96	24.6
Approach		249	0.4	0.912	59.7	LOS E	8.9	62.8	0.73	0.81	30.3
West: Paramatta Road											
10	L2	16	6.3	0.106	22.5	LOS B	2.4	28.0	0.52	0.46	45.3
11	T1	1755	7.2	0.842	29.4	LOS C	49.0	355.1	0.91	0.84	40.5
Approach		1771	7.2	0.842	29.4	LOS C	49.0	355.1	0.90	0.84	40.5
All Vehicles		3165	6.8	0.912	29.5	LOS C	49.0	355.1	0.80	0.75	40.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

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	South Full Crossing	26	20.1	LOS C	0.1	0.1	0.54	0.54
P2	East Full Crossing	16	37.9	LOS D	0.0	0.0	0.74	0.74
P3	North Full Crossing	51	19.6	LOS B	0.1	0.1	0.53	0.53
P4	West Full Crossing	55	38.0	LOS D	0.2	0.2	0.74	0.74
All Pedestrians		148	28.5	LOS C			0.63	0.63

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160324_16S1251000_SITE 11_Paramatta Rd & Mallett St.sip6

MOVEMENT SUMMARY



Site: PM - PRE - Paramatta Rd & Mallett St

New Site

Signals - Fixed Time Isolated Cycle Time = 140 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows 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: Mallett Street											
1	L2	48	2.1	0.164	41.0	LOS C	4.8	33.8	0.75	0.67	36.3
2	T1	236	0.4	0.797	58.2	LOS E	15.4	108.3	0.94	0.87	30.4
3	R2	38	0.0	0.797	70.2	LOS E	15.4	108.3	1.00	0.92	28.6
Approach		322	0.6	0.797	57.0	LOS E	15.4	108.3	0.92	0.85	31.0
East: Paramatta Road											
4	L2	95	1.1	0.136	19.3	LOS B	3.8	32.3	0.48	0.58	45.4
5	T1	1836	4.5	0.822	24.3	LOS B	48.6	348.7	0.86	0.80	42.9
Approach		1931	4.4	0.822	24.0	LOS B	48.6	348.7	0.84	0.79	43.0
North: Mallett Street											
7	L2	54	0.0	0.162	40.9	LOS C	4.7	33.0	0.75	0.68	36.2
8	T1	227	0.0	0.786	56.2	LOS D	13.7	96.2	0.93	0.85	31.0
9	R2	22	4.5	0.786	67.0	LOS E	13.7	96.2	0.97	0.89	29.5
Approach		303	0.3	0.786	54.3	LOS D	13.7	96.2	0.90	0.82	31.7
West: Paramatta Road											
10	L2	32	3.1	0.112	19.1	LOS B	2.6	28.4	0.47	0.45	46.8
11	T1	1223	10.4	0.535	18.2	LOS B	23.6	174.0	0.64	0.58	46.1
Approach		1255	10.2	0.535	18.2	LOS B	23.6	174.0	0.64	0.58	46.1
All Vehicles		3811	5.6	0.822	27.3	LOS B	48.6	348.7	0.79	0.73	41.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	26	16.5	LOS B	0.1	0.1	0.49	0.49	
P2	East Full Crossing	16	43.2	LOS E	0.1	0.1	0.79	0.79	
P3	North Full Crossing	51	16.1	LOS B	0.1	0.1	0.48	0.48	
P4	West Full Crossing	55	43.3	LOS E	0.2	0.2	0.79	0.79	
All Pedestrians		148	29.2	LOS C			0.63	0.63	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160324_16S1251000_SITE 11_Paramatta Rd & Mallett St.sip6

MOVEMENT SUMMARY

 **Site: AM - POST Upgrade - Paramatta Rd & Mallett St**

New Site

Signals - Fixed Time Isolated Cycle Time = 140 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Mallett Street											
1	L2	35	2.9	0.261	44.3	LOS D	6.1	43.2	0.84	0.73	35.6
2	T1	166	0.6	0.658	52.1	LOS D	7.6	53.6	0.91	0.77	32.0
3	R2	35	0.0	0.658	73.5	LOS F	7.6	53.6	1.00	0.83	27.7
Approach		236	0.8	0.658	54.1	LOS D	7.6	53.6	0.92	0.77	31.7
East: Paramatta Road											
4	L2	43	2.3	0.077	14.3	LOS A	1.7	16.7	0.37	0.45	49.0
5	T1	891	9.3	0.352	10.7	LOS A	12.6	93.0	0.47	0.42	50.9
Approach		934	9.0	0.352	10.8	LOS A	12.6	93.0	0.46	0.42	50.8
North: Mallett Street											
7	L2	41	0.0	0.281	52.0	LOS D	6.7	46.7	0.85	0.77	33.1
8	T1	239	0.0	0.709	57.7	LOS E	11.8	82.8	0.94	0.82	30.6
9	R2	28	3.6	0.709	70.6	LOS F	11.8	82.8	1.00	0.85	28.6
Approach		308	0.3	0.709	58.1	LOS E	11.8	82.8	0.93	0.82	30.7
West: Paramatta Road											
10	L2	16	6.3	0.085	14.4	LOS A	1.7	20.1	0.38	0.35	50.3
11	T1	1755	7.2	0.679	14.9	LOS B	34.8	252.3	0.66	0.61	48.2
Approach		1771	7.2	0.679	14.9	LOS B	34.8	252.3	0.65	0.61	48.2
All Vehicles		3249	6.6	0.709	20.7	LOS B	34.8	252.3	0.64	0.59	44.7

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	26	11.6	LOS B	0.0	0.0	0.41	0.41	
P2	East Full Crossing	16	52.3	LOS E	0.1	0.1	0.86	0.86	
P3	North Full Crossing	51	11.2	LOS B	0.1	0.1	0.40	0.40	
P4	West Full Crossing	55	52.4	LOS E	0.2	0.2	0.87	0.87	
All Pedestrians		148	31.0	LOS D			0.63	0.63	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160324_16S1251000_SITE 11_Paramatta Rd & Mallett St.sip6

MOVEMENT SUMMARY

 **Site: PM - POST Upgrade - Paramatta Rd & Mallett St**

New Site

Signals - Fixed Time Isolated Cycle Time = 140 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Mallett Street											
1	L2	61	1.7	0.302	51.0	LOS D	7.7	54.2	0.83	0.79	33.2
2	T1	261	0.4	0.762	57.8	LOS E	13.7	96.3	0.93	0.85	30.5
3	R2	38	0.0	0.762	71.1	LOS F	13.7	96.3	1.00	0.89	28.4
Approach		359	0.6	0.762	58.0	LOS E	13.7	96.3	0.92	0.85	30.7
East: Paramatta Road											
4	L2	96	1.0	0.126	16.2	LOS B	3.4	28.5	0.42	0.56	47.2
5	T1	1847	4.5	0.762	18.9	LOS B	43.2	309.5	0.76	0.71	45.8
Approach		1943	4.3	0.762	18.7	LOS B	43.2	309.5	0.75	0.71	45.9
North: Mallett Street											
7	L2	54	0.0	0.241	38.7	LOS C	5.5	38.6	0.81	0.74	37.3
8	T1	230	0.0	0.607	50.8	LOS D	11.4	80.0	0.92	0.79	32.5
9	R2	22	4.5	0.607	65.1	LOS E	11.4	80.0	0.98	0.81	29.9
Approach		306	0.3	0.607	49.7	LOS D	11.4	80.0	0.91	0.78	33.0
West: Paramatta Road											
10	L2	32	3.1	0.103	16.0	LOS B	2.3	24.9	0.41	0.42	48.7
11	T1	1223	10.4	0.493	14.1	LOS A	20.7	152.7	0.57	0.52	48.7
Approach		1255	10.2	0.493	14.1	LOS A	20.7	152.7	0.56	0.51	48.7
All Vehicles		3864	5.6	0.762	23.3	LOS B	43.2	309.5	0.72	0.66	43.3

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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	South Full Crossing	26	13.3	LOS B	0.0	0.0	0.44	0.44	
P2	East Full Crossing	16	48.9	LOS E	0.1	0.1	0.84	0.84	
P3	North Full Crossing	51	12.9	LOS B	0.1	0.1	0.43	0.43	
P4	West Full Crossing	55	49.0	LOS E	0.2	0.2	0.84	0.84	
All Pedestrians		148	30.3	LOS D			0.63	0.63	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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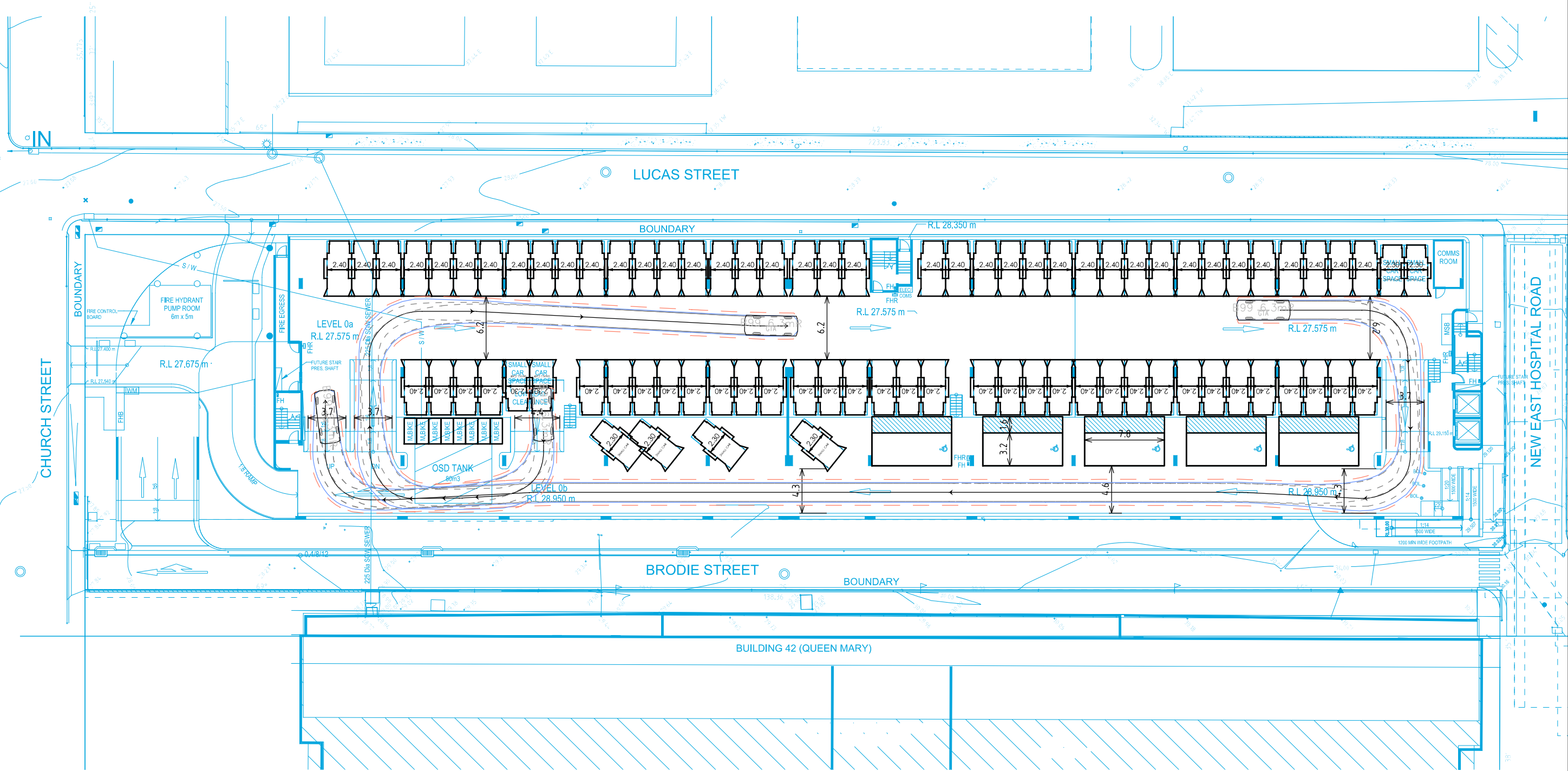
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Project: P:\16S1200-1299\16S1251000 RPA Hospital - Lucas Street Car Park Planning\Modelling\160324_16S1251000_SITE 11_Paramatta Rd & Mallett St.sip6

Appendix C

Compliance Review and Swept Path Assessment

- NOTES:
- MAXIMUM SUMMIT CHANGE IN GRADE FOR CARS SHOULD BE 1:8 OVER 2m
 - MAXIMUM SAG CHANGE IN GRADE FOR CARS SHOULD BE 1:6.7 OVER 2m
 - A MINIMUM HEIGHT CLEARANCE OF 2.2m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE CIRCULATION AISLES AND PARKING SPACES.
 - A MINIMUM HEIGHT CLEARANCE OF 2.5m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE DISABLED PARKING SPACES
 - HEIGHT CLEARANCE ABOVE A SAG CHANGE IN GRADES SHOULD BE MEASURED IN ACCORDANCE WITH FIGURE 5.3 AS2890.1-2004.



CAR PARK LEVEL 0

- NOTES:
- APPROPRIATE BARRIERS WILL BE PROVIDED ALONG RAMPS AND BETWEEN PARKING LEVELS AS SHOWN ON CAR PARK LEVELS 3-8 PLAN

Metbourne
Sydney
Brisbane
Canberra
Adelaide
Gold Coast
Townsville
Perth

03 9851 9600
02 8448 1800
07 3113 5000
02 6243 9400
08 8334 3600
07 5510 4814
07 4722 2765
08 6316 4634



PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT
NOTIFICATION

RPA HOSPITAL LUCAS STREET CAR PARK
LUCAS STREET, CAMPERDOWN
CAR PARK COMPLIANCE REVIEW

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6/05/2016

SCALE:
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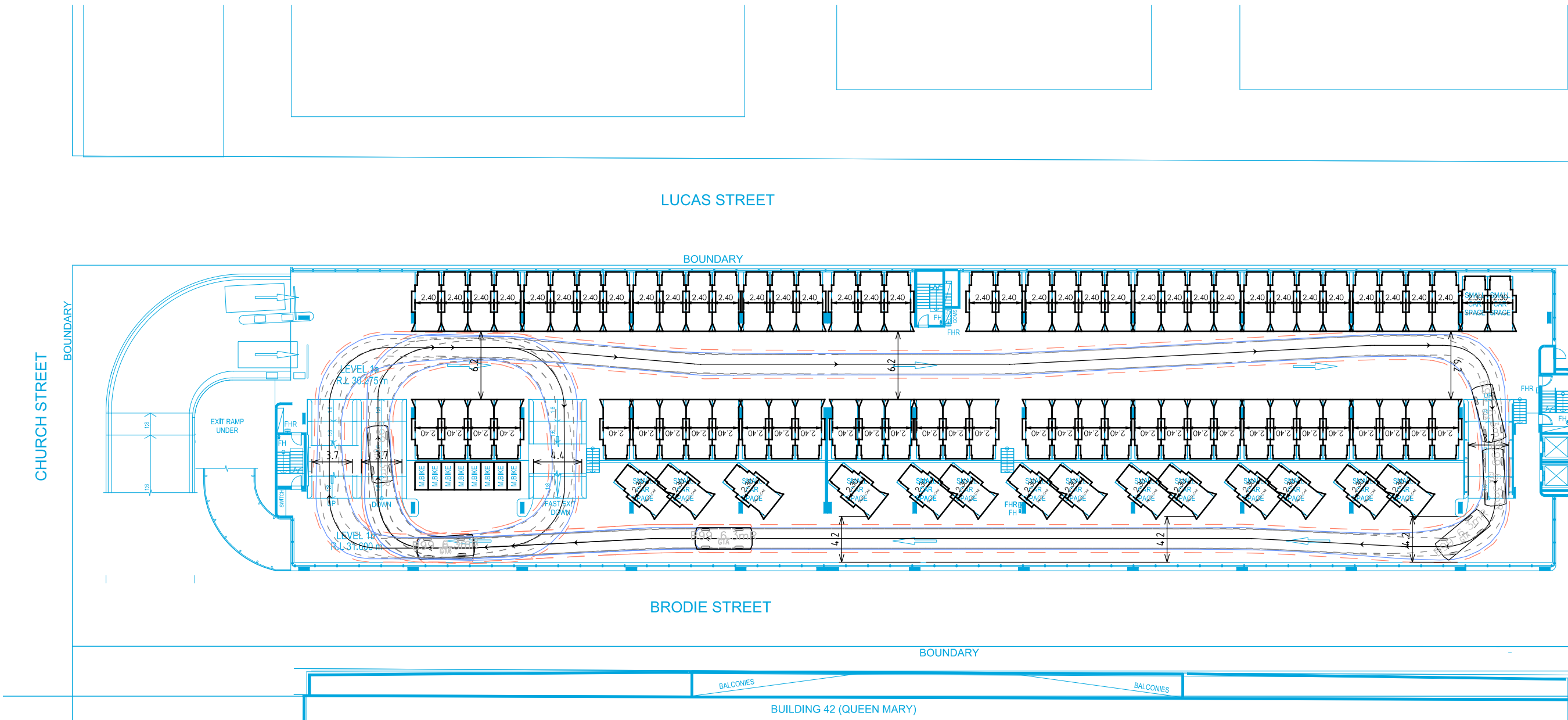


APPROVED:
RMH

DRAWING NO.
16S1251000-04-01-P1

SHEET:
01 OF 07

- NOTES:
- MAXIMUM SUMMIT CHANGE IN GRADE FOR CARS SHOULD BE 1:8 OVER 2m
 - MAXIMUM SAG CHANGE IN GRADE FOR CARS SHOULD BE 1:6.7 OVER 2m
 - A MINIMUM HEIGHT CLEARANCE OF 2.2m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE CIRCULATION AISLES AND PARKING SPACES.
 - A MINIMUM HEIGHT CLEARANCE OF 2.5m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE DISABLED PARKING SPACES
 - HEIGHT CLEARANCE ABOVE A SAG CHANGE IN GRADES SHOULD BE MEASURED IN ACCORDANCE WITH FIGURE 5.3 AS2890.1-2004.



- NOTES:
- APPROPRIATE BARRIERS WILL BE PROVIDED ALONG RAMPS AND BETWEEN PARKING LEVELS AS SHOWN ON CAR PARK LEVELS 3-8 PLAN

CAR PARK LEVEL 1

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Sydney 02 8448 1800
Brisbane 07 3113 5000
Canberra 02 6243 9400
Adelaide 08 8334 3600
Gold Coast 07 5510 4814
Townsville 07 4722 2765
Perth 08 6316 4634



PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT
NOTIFICATION

RPA HOSPITAL LUCAS STREET CAR PARK
LUCAS STREET, CAMPERDOWN
CAR PARK COMPLIANCE REVIEW

DATE:
6/05/2016

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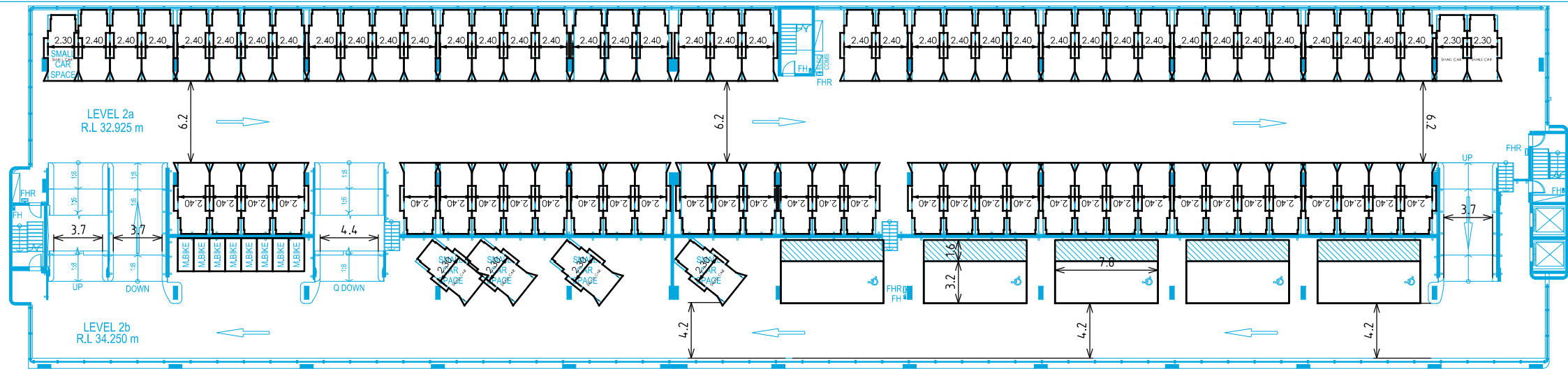


APPROVED:
RMH

DRAWING NO.
16S1251000-04-02-P1

SHEET:
02 OF 07

- NOTES:
- MAXIMUM SUMMIT CHANGE IN GRADE FOR CARS SHOULD BE 1:8 OVER 2m
 - MAXIMUM SAG CHANGE IN GRADE FOR CARS SHOULD BE 1:6.7 OVER 2m
 - A MINIMUM HEIGHT CLEARANCE OF 2.2m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE CIRCULATION AISLES AND PARKING SPACES.
 - A MINIMUM HEIGHT CLEARANCE OF 2.5m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE DISABLED PARKING SPACES
 - HEIGHT CLEARANCE ABOVE A SAG CHANGE IN GRADES SHOULD BE MEASURED IN ACCORDANCE WITH FIGURE 5.3 AS2890.1-2004.

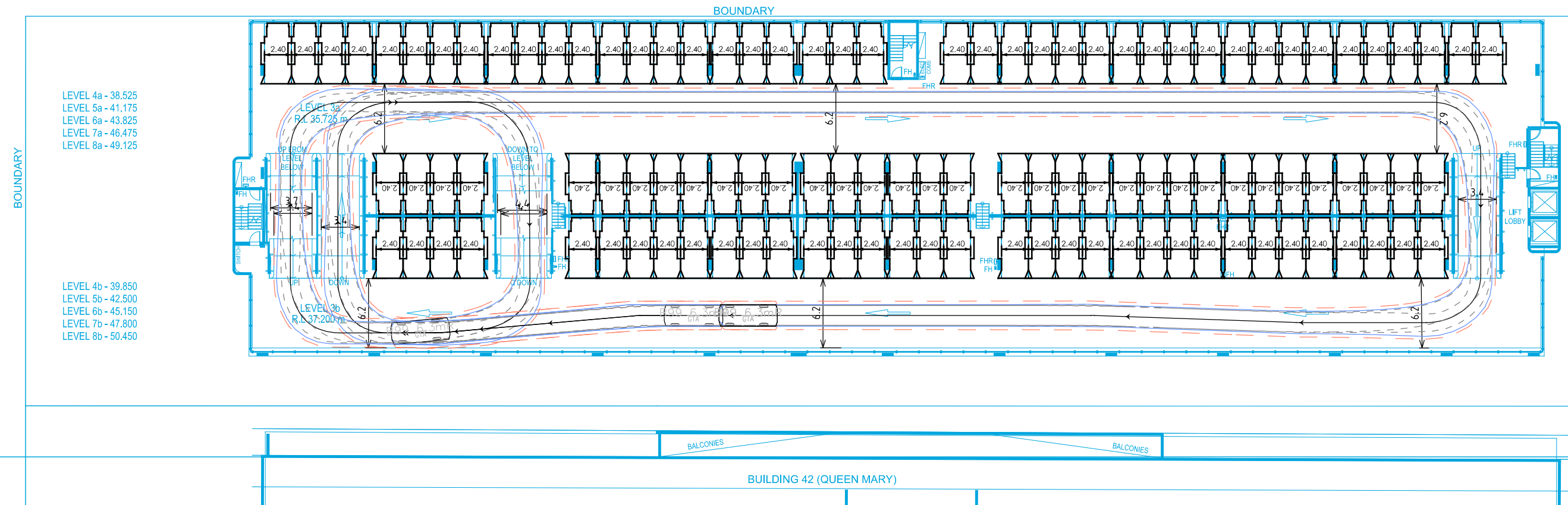


CAR PARK LEVEL 2

RPA HOSPITAL LUCAS STREET CAR PARK
LUCAS STREET, CAMPERDOWN
CAR PARK COMPLIANCE REVIEW

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APPROVED: RMH
DRAWING NO. 16S1251000-04-03-P1
SHEET: 03 OF 07

- NOTES:
- MAXIMUM SUMMIT CHANGE IN GRADE FOR CARS SHOULD BE 1:8 OVER 2m
 - MAXIMUM SAG CHANGE IN GRADE FOR CARS SHOULD BE 1:6.7 OVER 2m
 - A MINIMUM HEIGHT CLEARANCE OF 2.2m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE CIRCULATION AISLES AND PARKING SPACES.
 - A MINIMUM HEIGHT CLEARANCE OF 2.5m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE DISABLED PARKING SPACES
 - HEIGHT CLEARANCE ABOVE A SAG CHANGE IN GRADES SHOULD BE MEASURED IN ACCORDANCE WITH FIGURE 5.3 AS2890.1-2004.



CAR PARK LEVELS 3-8

PLOTTED BY : Helko Obermaier ON 6/05/2016 AT 3:56:08 PM 16S1251000-04-P2.dgn

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Sydney 02 8448 1800
Brisbane 07 3113 5000
Canberra 02 6243 9400
Adelaide 08 8334 3600
Gold Coast 07 5510 4814
Townsville 07 4722 2765
Perth 08 6316 4634



PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT
NOTIFICATION

RPA HOSPITAL LUCAS STREET CAR PARK
LUCAS STREET, CAMPERDOWN
CAR PARK COMPLIANCE REVIEW

DATE:
6/05/2016

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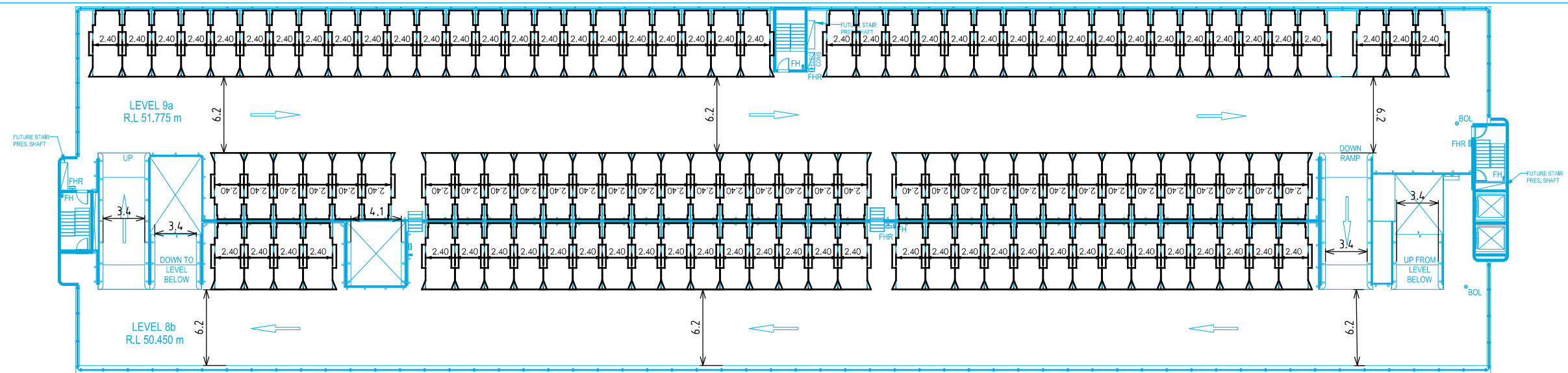


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DRAWING NO.
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SHEET:
04 OF 07

- NOTES:
- MAXIMUM SUMMIT CHANGE IN GRADE FOR CARS SHOULD BE 1:8 OVER 2m
 - MAXIMUM SAG CHANGE IN GRADE FOR CARS SHOULD BE 1:6.7 OVER 2m
 - A MINIMUM HEIGHT CLEARANCE OF 2.2m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE CIRCULATION AISLES AND PARKING SPACES.
 - A MINIMUM HEIGHT CLEARANCE OF 2.5m (TO SERVICES AND STRUCTURE) SHOULD BE PROVIDED ABOVE DISABLED PARKING SPACES
 - HEIGHT CLEARANCE ABOVE A SAG CHANGE IN GRADES SHOULD BE MEASURED IN ACCORDANCE WITH FIGURE 5.3 AS2890.1-2004.



CAR PARK LEVEL 9

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Gold Coast 07 5510 4814
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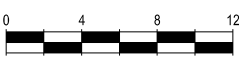


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RPA HOSPITAL LUCAS STREET CAR PARK
LUCAS STREET, CAMPERDOWN
CAR PARK COMPLIANCE REVIEW

DATE:
6/05/2016

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Brisbane 07 3113 5000
Canberra 02 6243 9400
Adelaide 08 8334 3600
Gold Coast 07 5510 4814
Townsville 07 4722 2765
Perth 08 6316 4634



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RPA HOSPITAL LUCAS STREET CAR PARK
LUCAS STREET, CAMPERDOWN
B99 CAR SEPT PATH ASSESSMENT

DATE:
6/05/2016

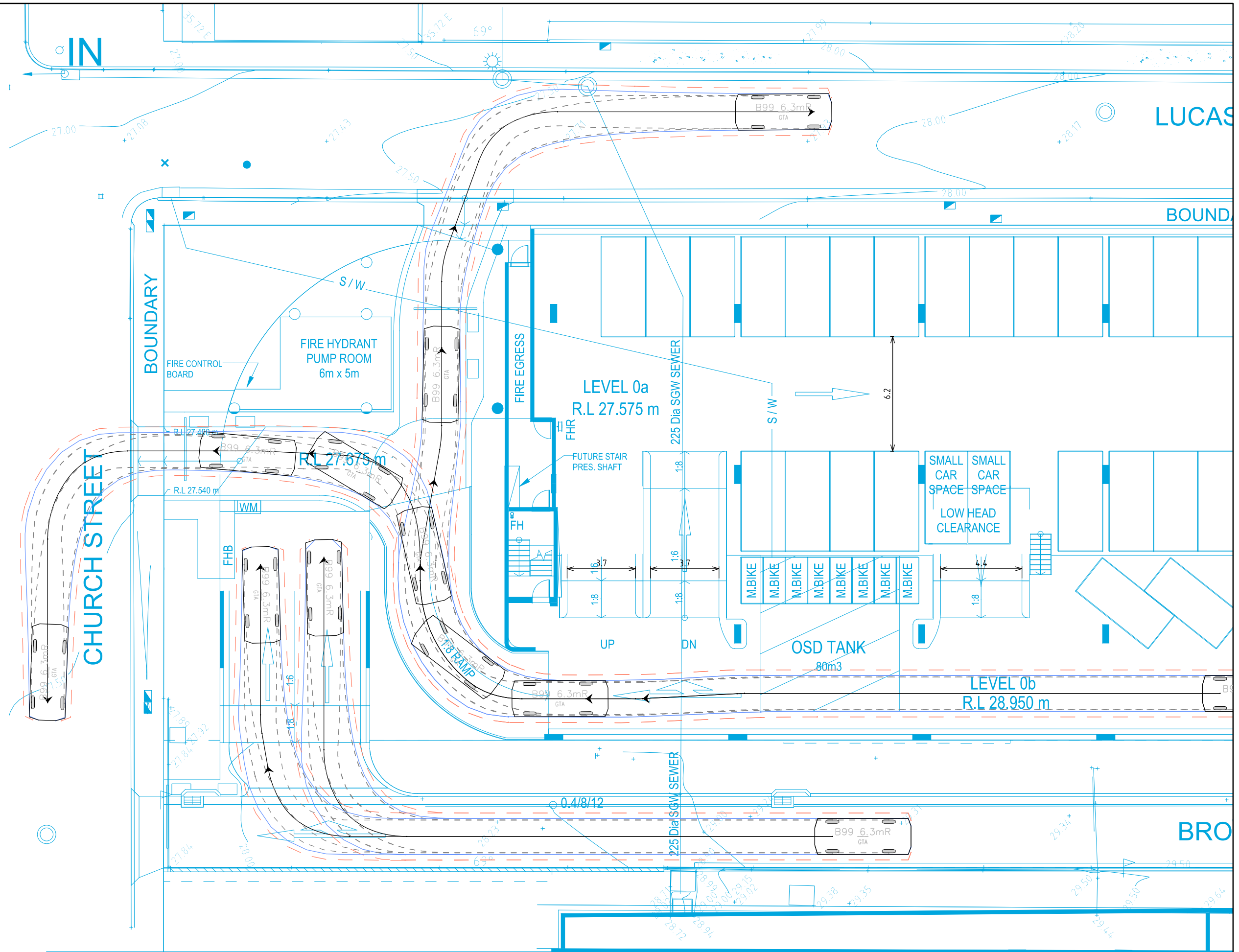
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Sydney 02 8448 1800
Brisbane 07 3113 5000
Canberra 02 6243 9400
Adelaide 08 8334 3600
Gold Coast 07 5510 4814
Townsville 07 4722 2765
Perth 08 6316 4634



PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT
NOTIFICATION

RPA HOSPITAL LUCAS STREET CAR PARK
LUCAS STREET, CAMPERDOWN
B99 CAR SWEEP PATH ASSESSMENT

DATE:
6/05/2016

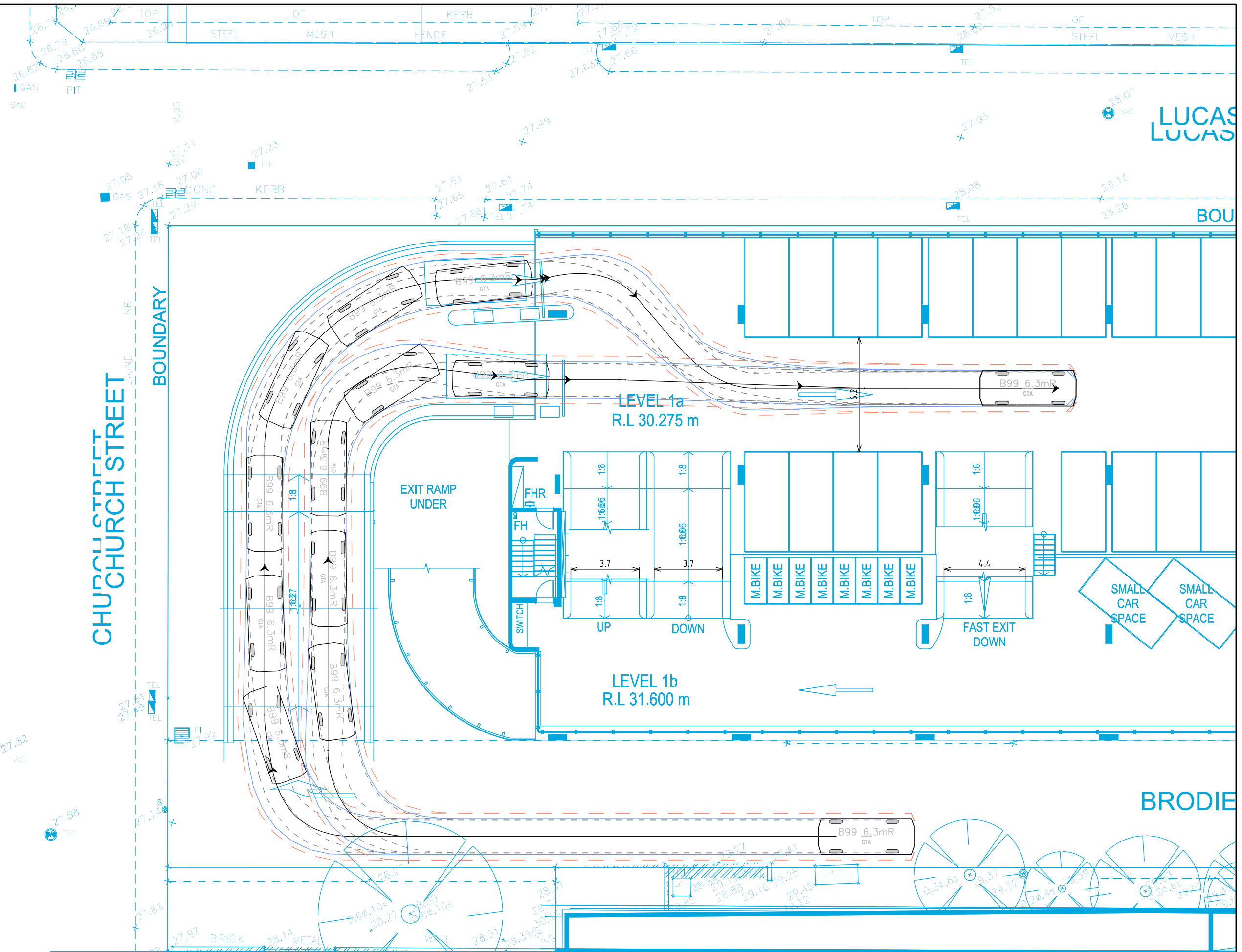
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07 OF 07



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Sydney A Level 6, 15 Help Street CHATSWOOD NSW 2067 PO Box 5254 WEST CHATSWOOD NSW 1515 P +612 8448 1800 E sydney@gta.com.au	Canberra A Tower A, Level 5, 7 London Circuit Canberra ACT 2600 P +612 6243 4826 E canberra@gta.com.au	Gold Coast A Level 9, Corporate Centre 2 Box 37, 1 Corporate Court BUNDALL QLD 4217 P +617 5510 4800 F +617 5510 4814 E goldcoast@gta.com.au	Perth A Level 27, 44 St Georges Terrace PERTH WA 6000 P +618 6361 4634 E perth@gta.com.au