Traffic Impact Assessment

Northside West Clinic
23-27 Lytton Street, Wentworthville NSW 2145

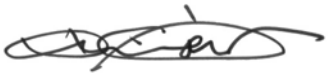
Stage 2 - Planning Proposal

Reference: 15.061 - 23-27 Lytton Street, Wentworthville - March 2015

traffix
traffic & transport planners

po box 1061
potts point nsw 1335
t: +61 2 8324 8700
f: +61 2 9380 4481
w: www.traffix.com.au
abn: 66065132961

Document Verification

Job Number:	15.061			
Project:	Northside West Clinic Stage 2, Lytton Street, Wentworthville – Planning Proposal			
Client:	Ramsey Health Care Ltd			
Revision		Initials	Date	Signature
15.061r01v01 - 23-27 Lytton Street, Wentworthville - TIA	Prepared by:	GH	06/03/2015	
	Approved by:	GP	12/03/2015	
15.061r01v02 - 23-27 Lytton Street, Wentworthville - TIA	Prepared by:	GH	06/03/2015	

traffix
traffic & transport planners

po box 1061
potts point nsw 1335
t: +61 2 8324 8700
f: +61 2 9380 4481
w: www.traffix.com.au
abn: 66065132961

Contents

1. Introduction 1

2. Location and Site 2

3. Existing Traffic Conditions 5

- 3.1 Road Network 5
- 3.2 Key Intersections 7
- 3.3 Public Transport 8
- 3.4 Existing Site Generation 9
- 3.5 Existing Peak Period Intersection Performance 10

4. Description of Proposed Development 13

5. Parking Requirements 14

- 5.1 Council Controls 14
- 5.2 Disabled Parking 15
- 5.3 Servicing 15

6. Traffic Impacts 16

- 6.1 Trip Generation 16
- 6.2 External Traffic Impacts 16
- 6.3 Residential Amenity 17

7. Access & Internal Design Aspects 19

- 7.1 Access 19
- 7.2 Internal Design 19

8. Conclusions 21

Appendix A: Photographic Record

Appendix B: Reduced Plans

Appendix C: Survey Results

Appendix D: Sidra Analysis

1. Introduction

TRAFFIX has been commissioned by Erilyan on behalf of Ramsay Health Care Ltd to undertake a traffic impact assessment in support of a planning proposal to enable an increase in the size of an existing health care facility at 23-27 Lytton Street, Wentworthville NSW 2065.

The proposal, known as Northside West Clinic 'Stage 2', will provide a Rehabilitation Clinic containing 60 beds on the southern portion of site. The existing health care facility on site has 43 beds and a development application has been approved for an extension to the existing facility. The approved extension is known as 'Stage 1' and provides a unit containing 30 beds. The total site consisting of the existing facility, the approved 'Stage 1' and the subject 'Stage 2' proposal results in a total of 133 beds on the site.

The development is located within the Holroyd Council LGA and has been assessed under that council's controls.

This report documents the findings of our investigations and should be read in the context of the Planning Proposal prepared separately. The development is a minor development and does not require referral to the RTA under the provisions of SEPP (Infrastructure) 2007.

The report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Documents existing traffic conditions
- Section 4: Describes the proposed development
- Section 5: Assesses the parking requirements
- Section 6: Assesses traffic impacts
- Section 7: Discusses access and internal design aspects
- Section 8: Presents the overall study conclusions.

2. Location and Site

The site is situated on the western side of Lytton Street and lies within the sector bounded by the main western rail corridor to the north, Cumberland Highway to the west and the Great Western Highway to the south. It is also south east of Wentworthville railway station (approximately 600 metres) and approximately 29 kilometres west of the Sydney CBD.

The site has a total area of approximately 6,500m^2 with an eastern frontage of approximately 107 metres to Lytton Street, a northern boundary to an adjacent residential property and a southern boundary to a recreation reserve. The western boundary at the rear of the site varies in alignment and adjoins an open space corridor.

There are four driveway crossings serving the facility. These are located as follows:

- At the southern boundary – a 6 metre wide two-way driveway to southern car park,
- 30 metres north of southern boundary - a 5.5 metre wide driveway to loading dock
- 80 metres north of southern boundary – a 6 metre wide driveway to northern car park
- 94 metres north of southern boundary – a 6 metre wide driveway to northern car park

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**. Reference should also be made to the Photographic Record presented in **Appendix A**, which provides an appreciation of the general character of roads and other key attributes in proximity to the site.

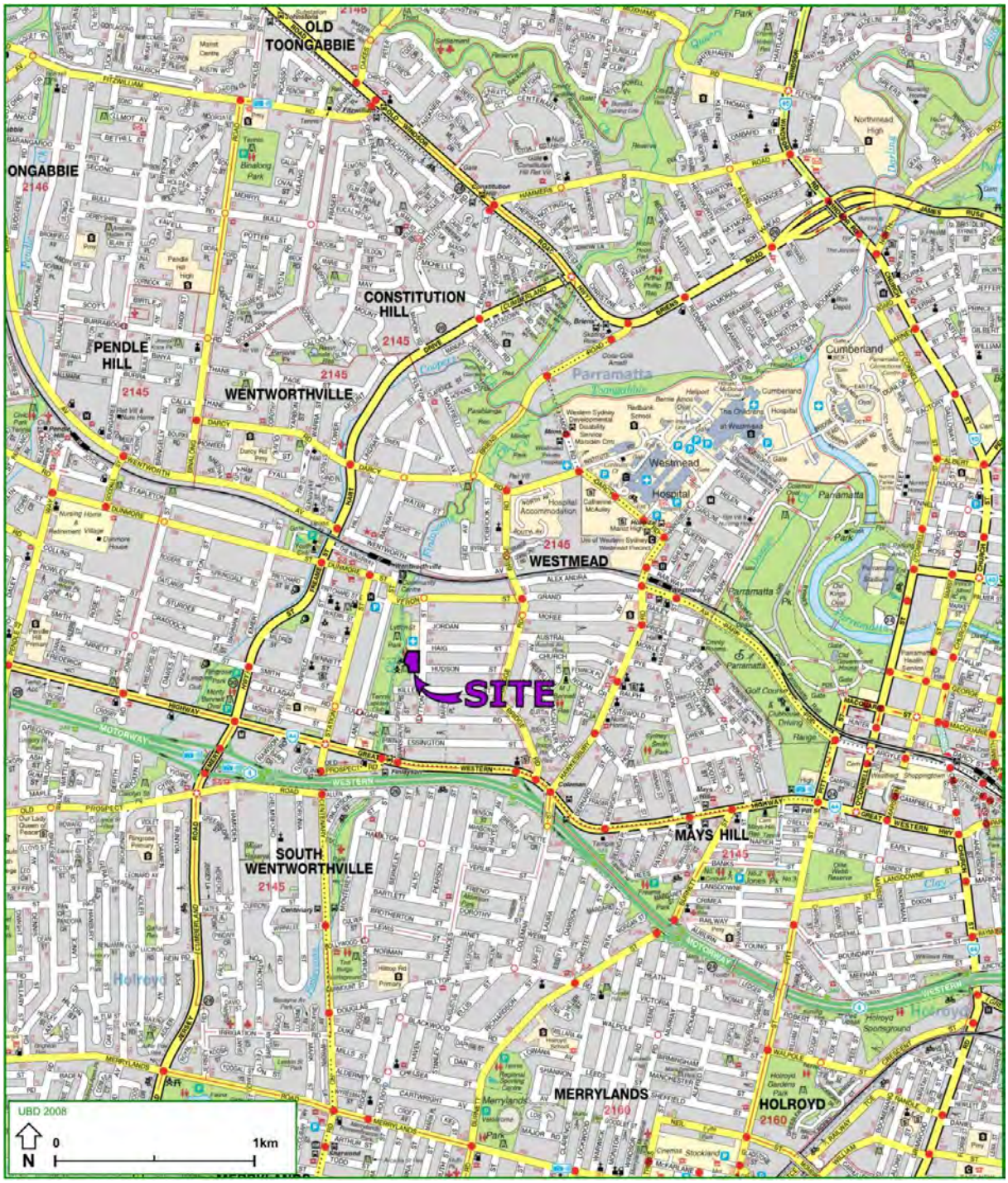


Figure 1: Location Plan

Figure 2: Site Plan

3. Existing Traffic Conditions

3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

- Great Western Highway: an arterial road (SH5) that lies to the south of the site and traverses an east-west direction, generally paralleling the M4 Motorway. It carries approximately 119,000 vpd in the general locality.
- Vernon Street: a local road to the east of the site that provides a collector road function, accessing Wentworthville Station to the north-west of the subject site and Bridge Street to the east of the site. It carries 8,000 vpd immediately east of Lytton Street.
- Bridge Street: a local road that provides a collector road function accessing Darcy Road in the north and the Great Western Highway in the south. There are multiple local connecting roads between Lytton Street and Bridge Street.
- Lytton Street: a local road that connects Vernon Street in the north and Fullagar Road in the south. It provides a local access function only and carries 2,300 vpd south of Vernon Street, which is moderate for a local road.

It can be seen from **Figure 3** that the site is conveniently located with respect to the arterial and local road systems serving the region. It is therefore able to effectively distribute traffic onto the wider road network, minimising traffic impacts.

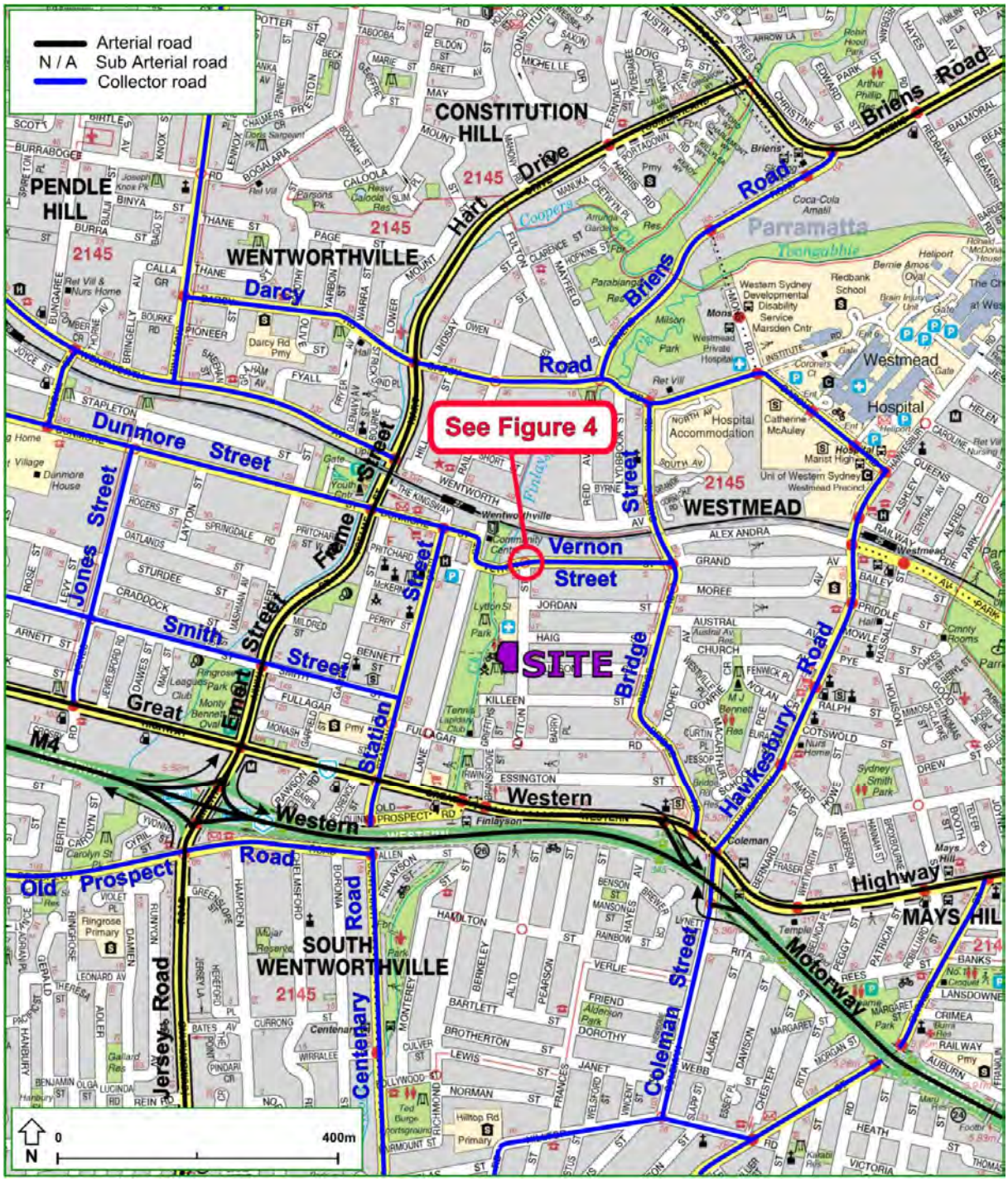


Figure 3: Road Hierarchy

3.2 Key Intersections

Based on surveys undertaken by TRAFFIX, 56% of all surveyed traffic associated with the existing site approaches/departs to/from the north along Lytton Street with this figure rising to almost 60% during the peak generation period of 8am to 9am. On this basis, the key intersection in the vicinity of the site is the intersection of Lytton Street with Vernon Street. This is shown below and provides an understanding of the existing road geometry and alignment:

Source: Near Map

Figure 4: intersection of Lytton Street and Vernon Street

It can be seen from **Figure 4** that the roundabout has a single circulating lane with single lane approaches and pedestrian refuges on all approaches. Footpaths are provided along both sides of Lytton Street and Vernon Street.

3.3 Public Transport

The existing bus and train services that operate in the locality are shown in **Figure 5**. It is evident that the site has excellent connectivity to public transport being only 400 metres south-east of Wentworthville Railway Station which provides services along the North Shore, Northern, Western and Cumberland lines. In addition to frequent train services numerous bus services operate in the vicinity of the site as also indicated on **Figure 5**.

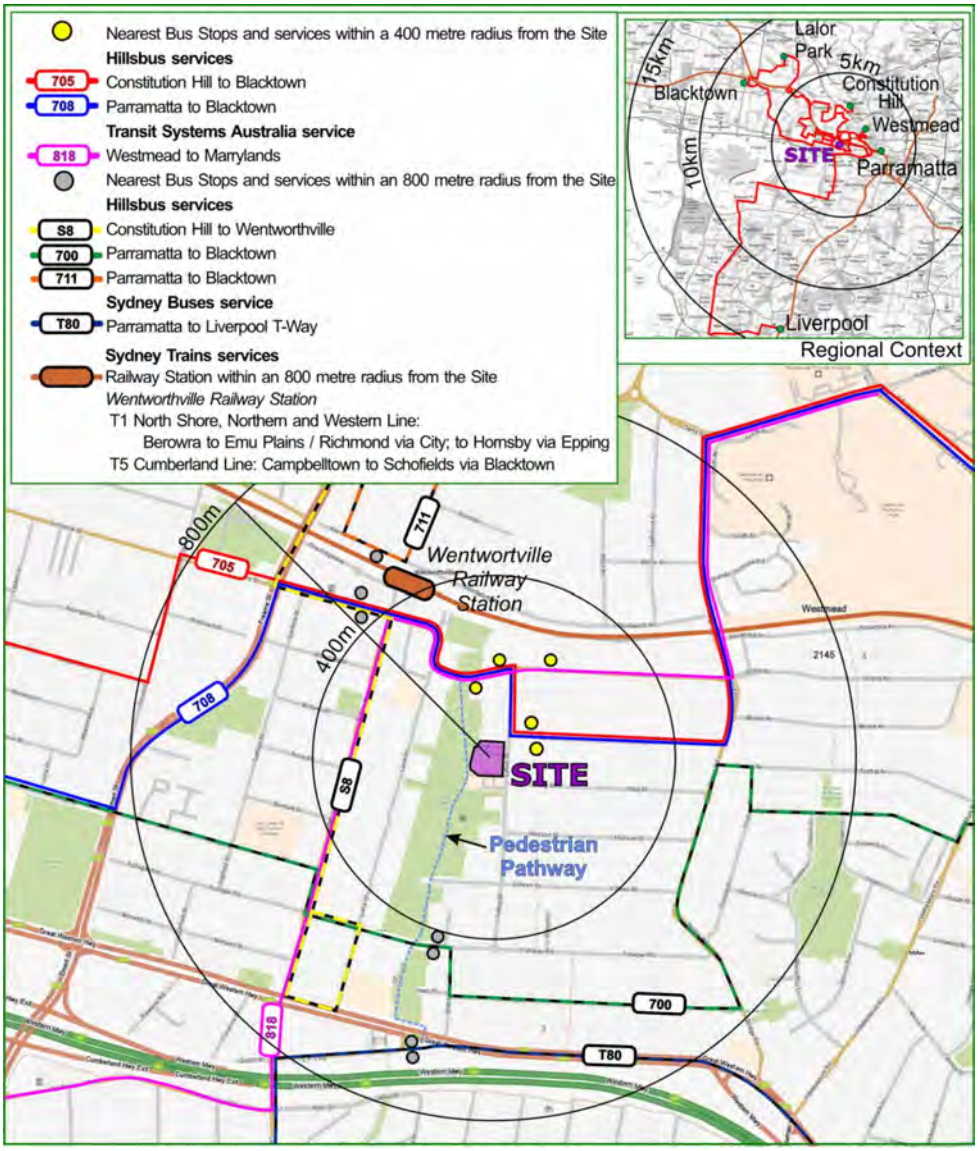


Figure 5: Public Transport

3.4 Existing Site Generation

The existing development on the site is the Northside West Clinic which is a 43 bed private hospital owned by Ramsay Health Care. In order to understand the existing site traffic generation, surveys were undertaken of the site accesses. These recorded the generation at all access driveways on a typical weekday and the results are provided in **Appendix C**. The survey was undertaken between

6am and noon, in the knowledge that this covers the morning peak on-street peak period which overlaps with staff changeovers. This may be contrasted with the afternoon, when staff changeovers occur at 2pm and 3pm and do not therefore coincide with the on-street commuter peak.

The surveys showed traffic generation was only 19 veh/hr throughout the morning on-street peak period of 7:30am and 8:30am; the peak generation for the existing site of 27 veh/hr occurred between 8:00am and 9:00am. This generation is associated with an existing facility that accommodates 90 staff in total, with this staff rostered over a 24 hour period and across all days of the week. Importantly, there estimated to be about 30 staff present at the peak time at 10.30am, including nursing staff, hospitality staff and administrative staff and this is confirmed by parking surveys undertaken of site.

3.5 Existing Peak Period Intersection Performance

For the purposes of the assessment of traffic impacts of this development, surveys were undertaken of the most critical intersection immediate adjacent to the site, being the intersection of Lytton Street with Vernon Street immediately north of the site. These were undertaken between the more critical 7-9AM, peak period, noting that there is no staff changeover during the PM peak period. It will also be noted from the survey results provided in **Appendix C** that 54% of all traffic arrives and departs to/from the north along Lytton Street, passing through this intersection.

The results of these surveys were analysed using the SIDRA computer program (Version 6.1) to determine their performance characteristics under existing traffic conditions. The SIDRA model produces a range of outputs, the most useful of which are the Degree of Saturation (DOS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LOS) criteria. These performance measures can be interpreted using the following explanations:

DOS - the DOS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DOS approaches 1, it is usual to attempt to keep DOS to less than 0.9. When DOS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. In this regard, a practical limit at

1.1 can be assumed. For intersections controlled by roundabout or give way/stop control, satisfactory intersection operation is generally indicated by a DOS of 0.8 or less.

AVD - the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).

LOS - this is a comparative measure which provides an indication of the operating performance of an intersection as shown below:

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

A summary of the modelled results are provided below. Reference should also be made to the SIDRA outputs provided in **Appendix D** which provide detailed results for individual lanes and approaches.

Table 1: Intersection Performance: AM Peak Hour

Intersection Description	Control Type	Model	Period	Degree of Saturation	Intersection Delay (secs)	Level of Service
Lytton Street/ Vernon Street	Roundabout	Existing	AM	0.521	9.0	A

It can be seen from **Table 1** that the intersection operates very satisfactorily under the existing 'base case' scenario, with a level of service A and with moderate delays. The impacts of the proposed development on this intersection is assessed in Section 6.

4. Description of Proposed Development

Approval is sought from Holroyd City Council for the rezoning of the 23-27 Lytton Street site to achieve an 'R4 – High Density Residential' designation over the combined 6,500m^2 site area. A detailed description of the proposed development is provided in the Planning Proposal report separately by McKenzie Group. In summary, the planning proposal is sought to allow the following components:

- The removal of the existing car park on the southern portion of site.
- Construction of a three storey Rehabilitation Clinic with capacity for 60 beds on the southern portion of site on the location currently occupied by the southern car park;
- Three levels of basement parking under the new clinic building with provision for up to 80 vehicles;
- The total number of parking spaces on the site to increase from 70 spaces presently available to potentially up to 112, comprising the potential 80 spaces in a new basement car park and 32 spaces in the approved northern car park;
- An overall increase of 28 staff from the approved Stage 1 development, bringing the total number of staff to 138, noting that these are not on-site at any one time and are rostered over a 24 hour day and over the week;

The traffic and parking impacts arising from this conceptual development (adopted for the purpose of the Planning proposal) are discussed in Sections 5 and 6. Reference should be made to these conceptual plans which are presented at reduced scale in **Appendix B.**

5. Parking Requirements

5.1 Council Controls

Proposal Parking Requirement

Holroyd Council DCP 2013 (specifically Table 3.1 refers) requires parking for Hospitals to be determined at the rate of 1 space per 3 beds, 1 space per 2 employees, plus 1 space per resident matron, in addition to an ambulance bay.

It is noted that the 'Stage 2' development proposes an additional 28 staff with no resident matron proposed. Not all of these staff will be present at one time, as staff are rostered over a 24 hour day and also over the week. The rehabilitation clinic proposes a peak of 24 day staff and 4 night staff on-site.

Application of the council DCP to the Stage 2 proposal gives an additional requirement of 32 spaces including 12 for staff and 20 patients and visitors.

Cumulative Parking Requirement

The existing staff associated with the Private Hospital and additional staff associated with 'Stage 1' development are associated with a maximum of 30 staff on-site at any one time (i.e. about 33% of total staff employed).

Therefore the maximum number of staff for the combined existing, Stage 1 (as approved) and Stage 2 (as now sought) expected on site at any one time is 58 employees.

Application of Council's DCP gives a minimum requirement of 74 vehicle spaces for the total site, including 29 for staff and 44 for patients and visitors.

In response the concept plans that underpin this Planning Proposal show available space for up to 138 cars, comprising 32 in the existing north car park and up to 80 in the proposed basement park of the 'Stage 2' development. The final layout of the basement parking will be further assessed at

development application stage but the parking requirements under the concept development demonstrate that the required parking will be able to be accommodated, with the prospect of spare capacity being available.

5.2 Disabled Parking

Council's DCP requires 2 disabled parking bays per 100 spaces. The plans incorporate 2 disabled spaces within the existing northern car park with sufficient space available to incorporate additional disabled spaces in the proposed 'Stage 2' development car park.

5.3 Servicing

The development is served by an existing loading dock which is sufficient to accommodate the needs of the existing Hospital as well as the new Clinic. The loading dock arrangements are to remain unchanged.

6. Traffic Impacts

6.1 Trip Generation

As discussed in Section 3, the existing 43 bed facility generates a maximum of 27 veh/hr during the critical AM peak hour of 8:00am to 9:00am based on surveys. This equates to 0.63 trips/bed/hr and application of this rate to the net increase of 30 beds of the approved 'Stage 1' and 60 beds of the proposed 'Stage 2' results in an additional 57 veh/hr over the existing. Therefore, the total site generation in the AM peak period is predicted to be as follows:

- *27 veh/hr* *existing; plus*
- *19 veh/hr* *approved 'Stage 1'; plus*
- *38 veh/hr* *as now sought under this Planning Proposal; giving*
- 84 veh/hr total site generation.

6.2 External Traffic Impacts

It is noted that 59% of the peak generation for existing traffic travels to/from the north and on that basis, the intersection of Lytton Street with Vernon Street will need to accommodate an additional 34 veh/hr (26 in and 8 out) from the predicted increase of 57 veh/h resulting from the 'Stage 1' and 'Stage 2' developments. This predicted increase equates to approximately one additional movement every two minutes. This is negligible and the proposed development raises no issues in terms of the external road network performance, with the levels of service reported upon in Section 3 remaining unchanged. **Table 2** below demonstrates this impact, with SIDRA recording an insignificant increase in the degree of saturation of 0.02.

Table 2: Intersection Performance: AM Peak Generation Hour (8am to 9am)

Intersection Description	Control Type	Model	Period	Degree of Saturation	Intersection Delay (secs)	Level of Service
Lytton Street/ Vernon Street	Roundabout	Existing	AM	0.456	9.3	A
Lytton Street/ Vernon Street	Roundabout	Existing + Proposal	AM	0.476	9.3	A

6.3 Residential Amenity

The potential impacts of the development on the amenity of existing residents is most appropriately assessed having regard to traffic volumes on affected road sections, based upon the concept of 'environmental capacity'. In doing so, it must be acknowledged that the concept of the 'environmental capacity' of a road is not an exact science. It is dependent upon many factors, including the function (classification) of the road, historic traffic levels, traffic composition (notably the percentage of heavy vehicles), vehicle speeds, road widths, road gradients, road surface conditions, distances to building façades and type of building construction. In addition, individual people have different responses to the prevailing conditions so that circumstances that one person finds unacceptable may be acceptable to another. These variables are set out in Section 4.3 of the Roads and Traffic Authority's Guide to Traffic Generating Developments. Nevertheless, the Roads and Traffic Authority has formulated design criteria for local and collector residential streets that take due account of amenity and safety considerations. These include an environmental goal and a maximum goal for a collector road as follows:

Road Class	Environmental Goal (veh/hr)	Maximum Volume (Veh/hr)
Local Street	200	300
Collector Street	300	500

Traffic surveys show that at the northern end Lytton Street carries a maximum of 222 veh/hr in the AM period. It will be noted that with an additional 34 veh/hr generated via this intersection above the current Stage 1 consent, the traffic volumes remain within the recommended maximum for this class of road (300 veh/hr). The proposal presents no adverse amenity impacts and the local roads in the area will continue to operate with volumes that are commensurate with their function.

7. Access & Internal Design Aspects

7.1 Access

The proposed development relies on the existing driveway system, with a combined entry-exit driveway of width 6.0 metres in compliance with AS 2890.1 (2004).

The ramp arrangements are to be further assessed at development application stage. The access ramp is to be designed in compliance with AS 2890.01 (2004) with a 5.5m minimum width between kerbs and a maximum gradient of up to 1 in 5.

7.2 Internal Design

The internal car park for the proposal are to comply with the requirements of AS 2890.1 (2004) and the following characteristics are noteworthy:

7.2.1 Parking Modules

- The initial design shows all parking spaces have been designed in accordance with a Class 3 user (hospital or medical centre) and are provided with a minimum space length of 5.4m a minimum width of 2.6m and an aisle width of 6.0m exceeding the requirement of 5.8m.
- All spaces located adjacent to obstructions of greater than 150mm in height are provided with an additional width of 300mm.
- Blind aisles are to extend a minimum of 1.0m beyond the last parking space.
- All disabled parking spaces are to be designed in accordance with AS2890.6. Spaces are to be provided with a clear width of 2.4m minimum and located adjacent to a minimum shared area of 2.4m.

7.2.2 Other Considerations

- All columns are required to be located outside of the parking space design envelope shown in Figure 5.2 of AS 2890.1 (2004).
- Appropriate visual splays are to be provided in accordance with the requirements of Figure 3.3 of AS2890.1 at all accesses.

7.2.3 Service Area Design

- The internal design of the service area is unchanged and can accommodate a standard 8.8m MRV as required under AS 2890.2.
- A minimum clear head height of 4.5m is provided within the service area
- A minimum bay width of 3.5m is provided for all service bays.

In summary the internal configuration of the car park shall be designed in accordance with design standards AS2890.1. Further design review will be undertaken at a future development application stage to ensure compliance with these standards.

8. Conclusions

In summary:

- The planning proposal to rezone required to allow an expansion of the existing approved clinic to provide a net additional 60 beds to be used for as a rehabilitation clinic, which is a low traffic impact land use category;
- The estimated traffic generation increase associated with the development concept adopted for this planning proposal will be 38 veh/hr during the critical morning peak period. These trips are split into both directions on Lytton Street and can be readily accommodated, with minimal impacts on the surrounding road system, even when account is taken of the approved Stage 1 development (19 veh/hr).
- No impacts arise in relation to environmental amenity of adjoining residential precincts having regard for cumulative impacts of the approved State 1 development and the concept development assessed under this Planning proposal.
- The parking requirement under Council's DCP for the concept development under this Planning Proposal is for an additional 32 spaces. When added to the existing and approved Stage 1 development, the DCP requires a cumulative total of 74 spaces. This is readily accommodated within the proposed basement parking and existing at grade parking spaces that are to be retained. Indeed, a slight parking surplus is anticipated.
- The concept plans demonstrate that the access and internal design aspects will be able to comply with AS 2890.1 (2004);

It is therefore concluded that the proposed development is supportable on traffic planning grounds and will not cause a significant impact on the local traffic network.

Appendix A

Photographic Record

View looking west towards the subject site southern access driveway

View looking west towards the northern access driveways of the subject site on Lytton Street ('Stage 1' under construction)

View looking west at the loading access driveway of the subject site on Lytton Street

View looking south-east from Lytton Street towards the intersection with Haig Street

View looking north-east from Lytton Street towards the intersection with Hudson Street

View looking east from Vernon Street towards the intersection with Lytton Street

Appendix B

Reduced Plans

PRELIMINARY

Sheet List

Sheet Number	Sheet Name	Current Revision	Drawn By	Checked By	Sheet Issue Date
SK-000	Cover Page	1	VM	RW	12/04/14
SK-001	Location Plan	1	VM	RW	12/04/14
SK-002	Site Plan	1	VM	RW	12/04/14
SK-100	Stage 2 - B3 Carpark Plan	1	VM	RW	12/04/14
SK-101	Stage 2 - B2 Carpark Plan	1	VM	RW	12/04/14
SK-102	Stage 2 - B1 Carpark Plan	1	VM	RW	12/04/14
SK-103	Stage 2 - Ground Floor Plan	1	VM	RW	12/04/14
SK-104	Stage 2 - Level 1 Floor Plan	1	VM	RW	12/04/14
SK-105	Stage 2 - Level 2 Floor Plan	1	VM	RW	12/04/14
SK-200	Stage 2 - Section	1	VM	RW	12/04/14
SK-300	Stage 2 - Street Elevation	1	VM	RW	12/04/14

DRAWING STATUS:
Sketch

Rev	Revision Description	Date
1	For Comment	04/12/14

ALL WORKS TO BE IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA AND TO THE SATISFACTION OF THE PRINCIPLE CERTIFYING AUTHORITY

KEY TO ARCHITECTURAL DRAWINGS.

RAMSAY HEALTH CARE

TEAM 2 ARCHITECTS
104/30 Atchison Street
ST LEONARDS NSW 2065
ABN: 72 104 833 507
T: + 61 2 9437 3166
F: + 61 2 9437 3644
E: contact@team2design.com

Client
Level 9, 154 Pacific Highway, NSW 2065

Project
Northside West Clinic, Stage 2
Wentworthville, NSW 2145

Title
Cover Page

Project No	533
Drawing No	SK-000
Scale @ A3	Rev 1

PRELIMINARY

1 Location Plan

DRAWING STATUS:
Sketch

Rev	Revision Description	Date
1	For Comment	04/12/14

ALL WORKS TO BE IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA AND TO THE SATISFACTION OF THE PRINCIPLE CERTIFYING AUTHORITY

KEY TO ARCHITECTURAL DRAWINGS.

RAMSAY HEALTH CARE

TEAM 2 ARCHITECTS
104/30 Atchison Street
ST LEONARDS NSW 2065
ABN: 72 104 833 507
T: + 61 2 9437 3166
F: + 61 2 9437 3644
E: contact@team2design.com

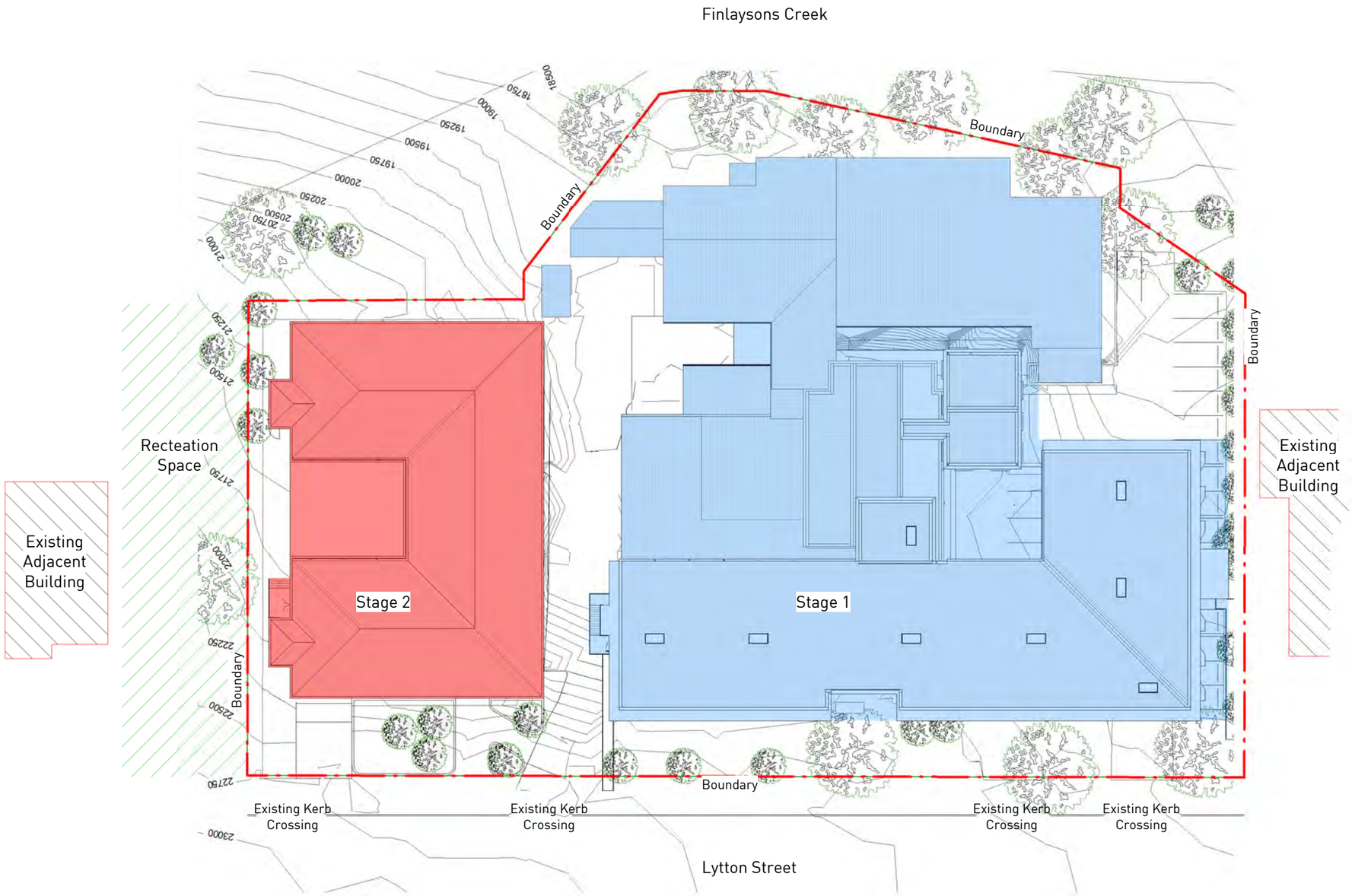
Client
Level 9, 154 Pacific Highway, NSW 2065

Project
Northside West Clinic, Stage 2
Wentworthville, NSW 2145

Title
Location Plan

Project No	533
Drawing No	SK-001
Scale	1 : 200 @ A3
Rev	1

PRELIMINARY



1 Site Plan
1 : 500

DRAWING STATUS:
Sketch

Rev	Revision Description	Date
1	For Comment	04/12/14

ALL WORKS TO BE IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA AND TO THE SATISFACTION OF THE PRINCIPLE CERTIFYING AUTHORITY

KEY TO ARCHITECTURAL DRAWINGS.

RAMSAY HEALTH CARE

TEAM 2 ARCHITECTS
104/30 Atchison Street
ST LEONARDS NSW 2065
ABN: 72 104 833 507
T: + 61 2 9437 3166
F: + 61 2 9437 3644
E: contact@team2design.com

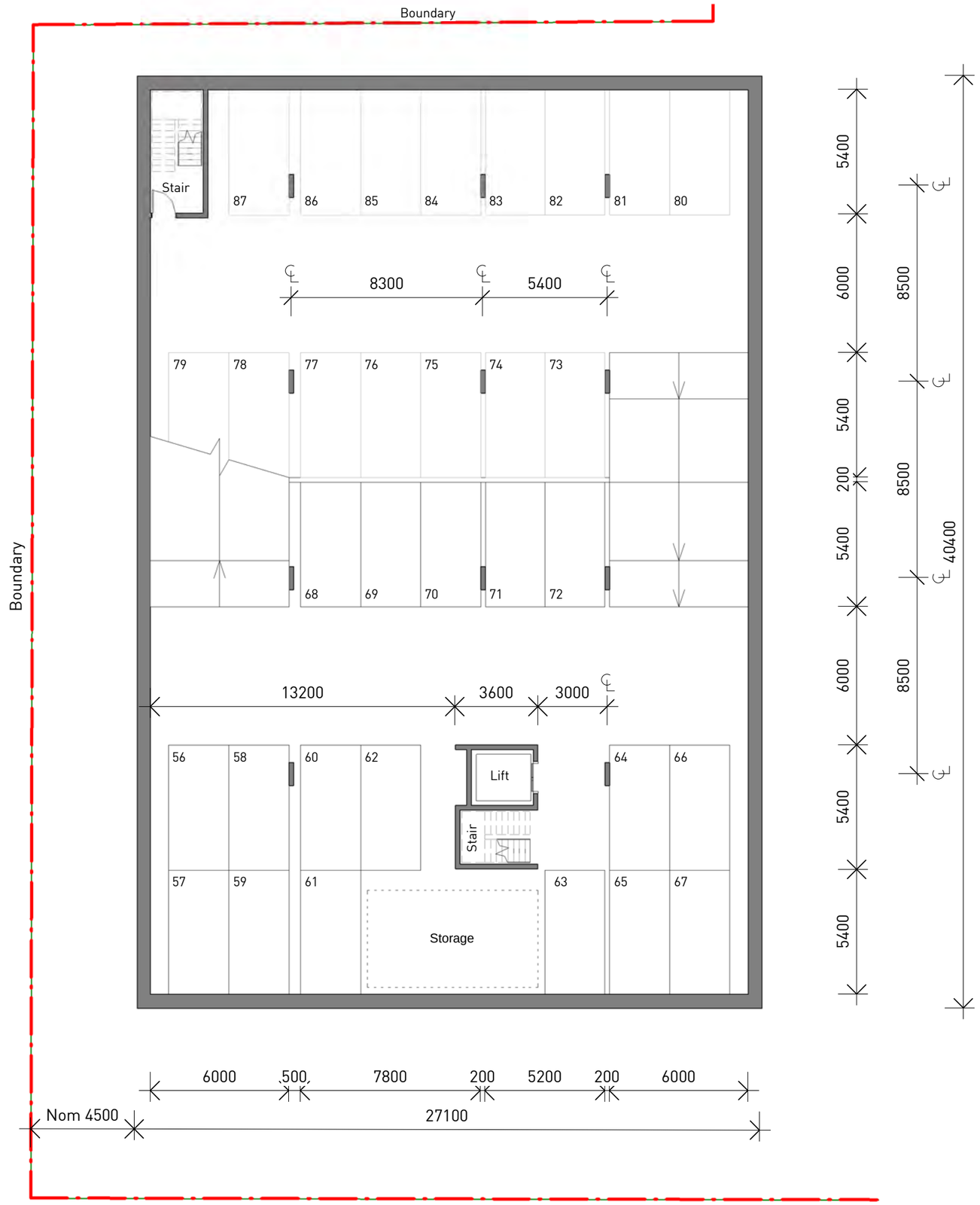
Client
Level 9, 154 Pacific Highway, NSW 2065

Project
Northside West Clinic, Stage 2
Wentworthville, NSW 2145

Title
Site Plan

Project No	533
Drawing No	SK-002
Scale	1 : 500 @ A3
Rev	1

PRELIMINARY



1 B3 - Carpark

1 : 200

DRAWING STATUS:

Sketch

Rev	Revision Description	Date
1	For Comment	04/12/14

ALL WORKS TO BE IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA AND TO THE SATISFACTION OF THE PRINCIPLE CERTIFYING AUTHORITY

KEY TO ARCHITECTURAL DRAWINGS.

RAMSAY HEALTH CARE

TEAM 2 ARCHITECTS
104/30 Atchison Street
ST LEONARDS NSW 2065
ABN: 72 104 833 507
T: + 61 2 9437 3166
F: + 61 2 9437 3644
E: contact@team2design.com

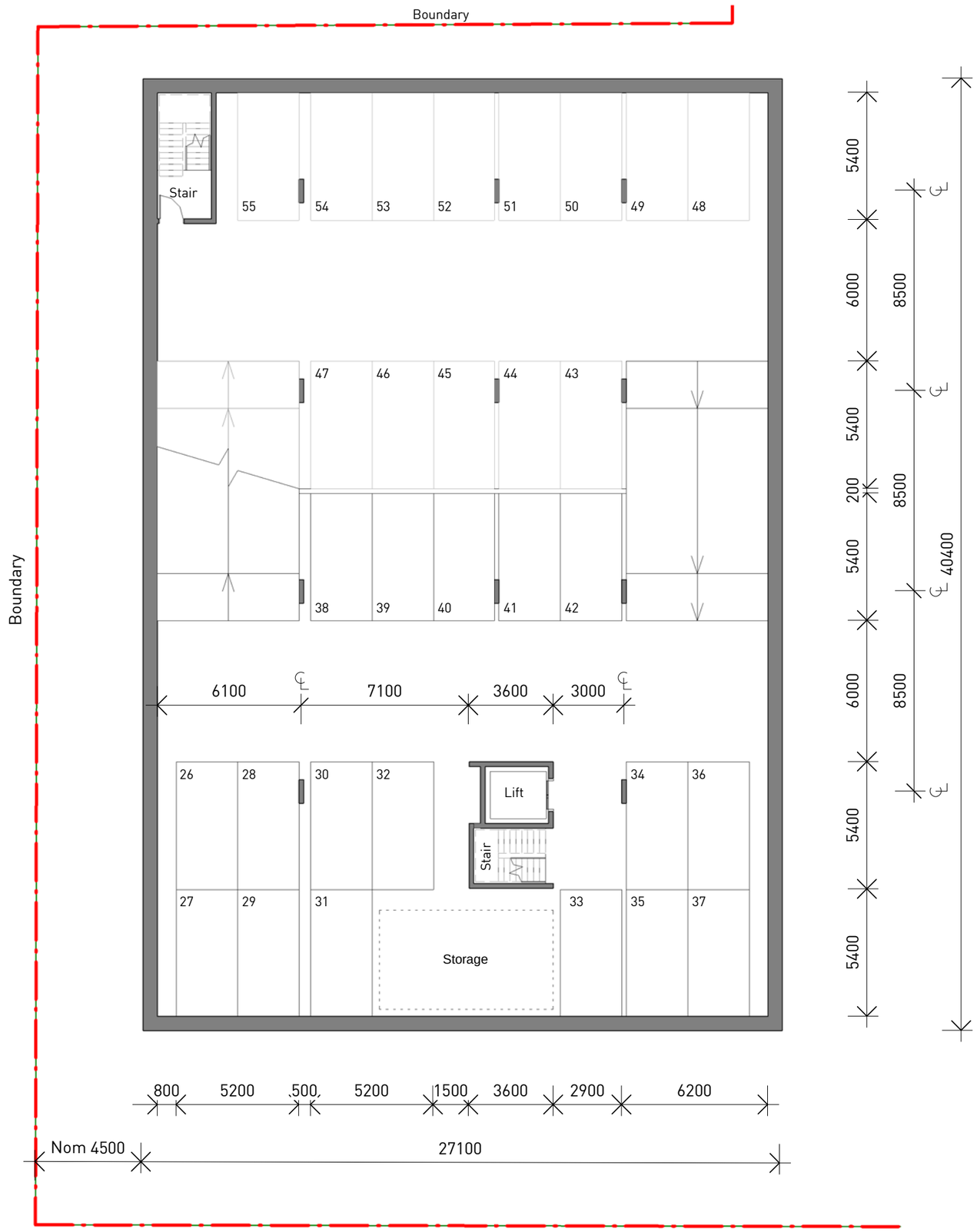
Client
Level 9, 154 Pacific Highway, NSW 2065

Project
Northside West Clinic, Stage 2
Wentworthville, NSW 2145

Title
Stage 2 - B3 Carpark Plan

Project No	533
Drawing No	SK-100
Scale	1 : 200 @ A3
Rev	1

PRELIMINARY



1 B2 - Carpark
1 : 200

DRAWING STATUS:
Sketch

Rev	Revision Description	Date
1	For Comment	04/12/14

ALL WORKS TO BE IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA AND TO THE SATISFACTION OF THE PRINCIPLE CERTIFYING AUTHORITY

KEY TO ARCHITECTURAL DRAWINGS.

RAMSAY HEALTH CARE

TEAM 2 ARCHITECTS
104/30 Atchison Street
ST LEONARDS NSW 2065
ABN: 72 104 833 507
T: + 61 2 9437 3166
F: + 61 2 9437 3644
E: contact@team2design.com

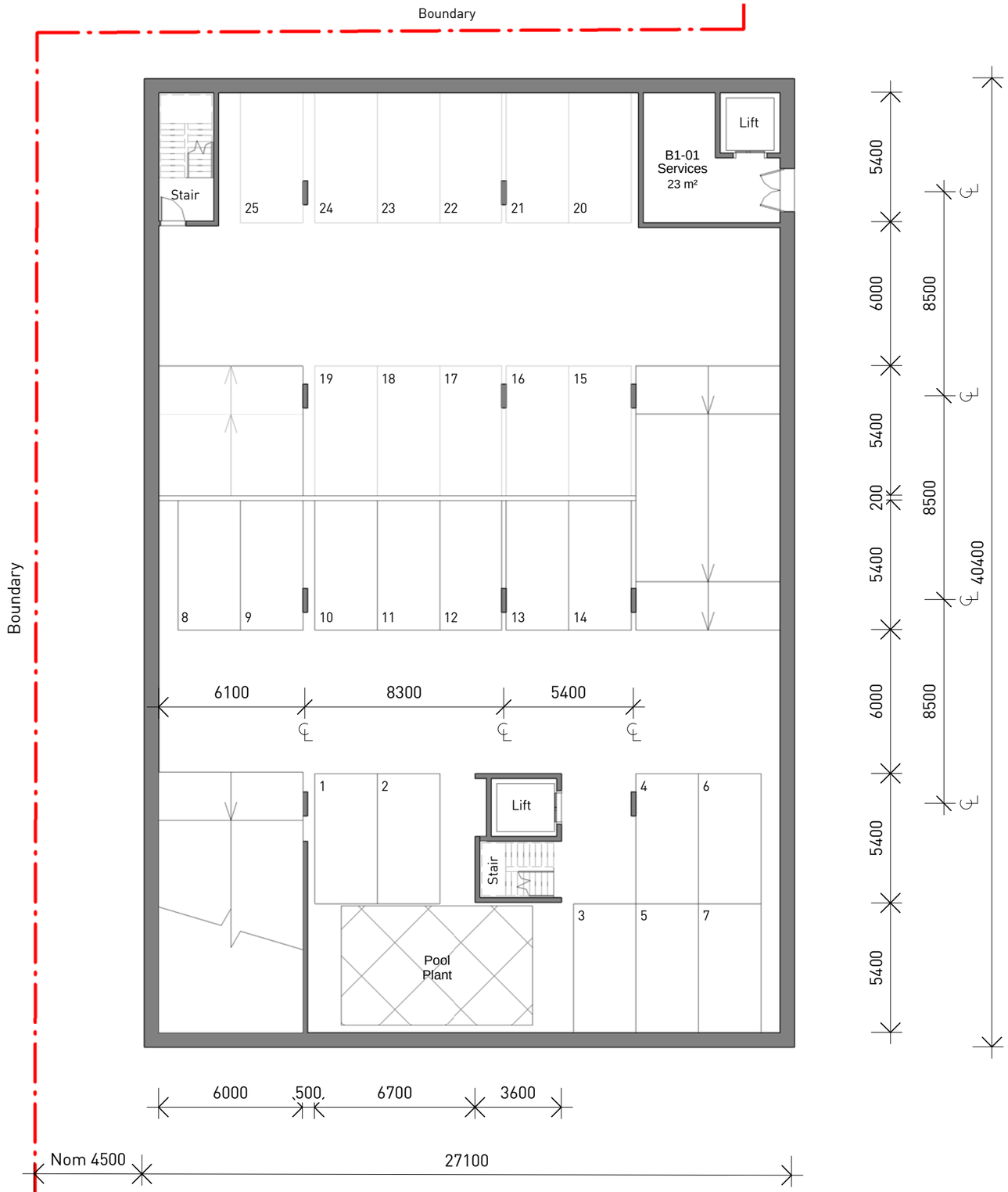
Client
Level 9, 154 Pacific Highway, NSW 2065

Project
Northside West Clinic, Stage 2
Wentworthville, NSW 2145

Title
Stage 2 - B2 Carpark Plan

Project No	533		
Drawing No	SK-101		
Scale	1 : 200 @ A3	Rev	1

PRELIMINARY



1 B1 - Carpark
1 : 200

DRAWING STATUS:
Sketch

Rev	Revision Description	Date
1	For Comment	04/12/14

ALL WORKS TO BE IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA AND TO THE SATISFACTION OF THE PRINCIPLE CERTIFYING AUTHORITY

KEY TO ARCHITECTURAL DRAWINGS.

RAMSAY HEALTH CARE

TEAM 2 ARCHITECTS
104/30 Atchison Street
ST LEONARDS NSW 2065
ABN: 72 104 833 507
T: + 61 2 9437 3166
F: + 61 2 9437 3644
E: contact@team2design.com

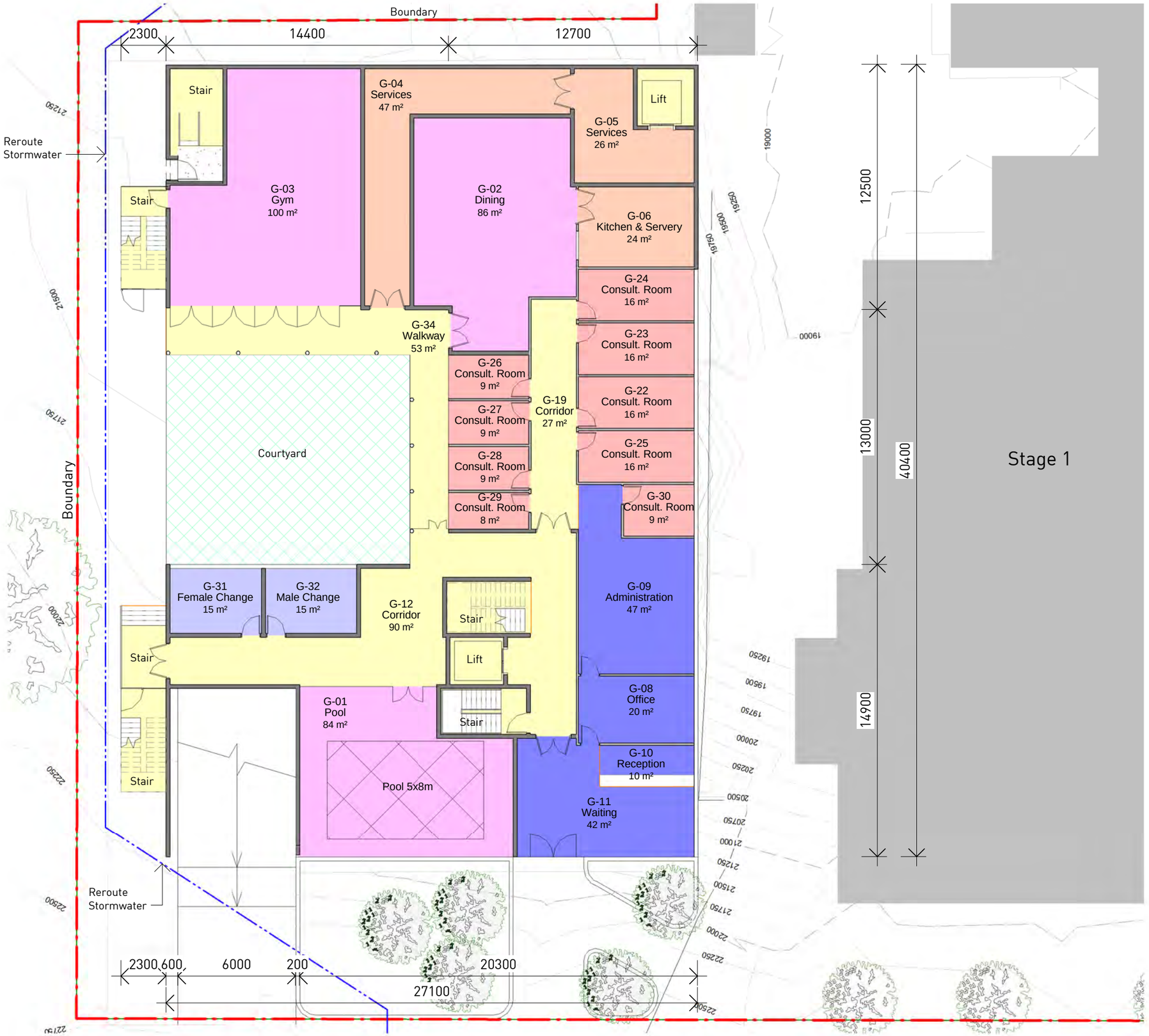
Client
Level 9, 154 Pacific Highway, NSW 2065

Project
Northside West Clinic, Stage 2
Wentworthville, NSW 2145

Title
Stage 2 - B1 Carpark Plan

Project No	533
Drawing No	SK-102
Scale	1 : 200 @ A3
Rev	1

PRELIMINARY



1 Ground Floor Plan
1 : 200

DRAWING STATUS:
Sketch

Rev	Revision Description	Date
1	For Comment	04/12/14

ALL WORKS TO BE IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA AND TO THE SATISFACTION OF THE PRINCIPLE CERTIFYING AUTHORITY

KEY TO ARCHITECTURAL DRAWINGS.

- Bedroom
- Bathroom/Change
- Circulation
- Patient Activity
- Services
- Administration
- Consultation Rooms

RAMSAY HEALTH CARE

TEAM2 ARCHITECTS
104/30 Atchison Street
ST LEONARDS NSW 2065
ABN: 72 104 833 507
T: + 61 2 9437 3166
F: + 61 2 9437 3644
E: contact@team2design.com

Client
Level 9, 154 Pacific Highway, NSW 2065

Project
Northside West Clinic, Stage 2
Wentworthville, NSW 2145

Title
Stage 2 - Ground Floor Plan

Project No	533		
Drawing No	SK-103		
Scale	1 : 200 @ A3	Rev	1

PRELIMINARY

1 Level 1 Plan
1 : 200

DRAWING STATUS:
Sketch

Rev	Revision Description	Date
1	For Comment	04/12/14

ALL WORKS TO BE IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA AND TO THE SATISFACTION OF THE PRINCIPLE CERTIFYING AUTHORITY

KEY TO ARCHITECTURAL DRAWINGS.

- Bedroom
- Bathroom/Change
- Circulation
- Patient Activity
- Services
- Administration
- Consultation Rooms

RAMSAY HEALTH CARE

TEAM2 ARCHITECTS
104/30 Atchison Street
ST LEONARDS NSW 2065
ABN: 72 104 833 507
T: + 61 2 9437 3166
F: + 61 2 9437 3644
E: contact@team2design.com

Client
Level 9, 154 Pacific Highway, NSW 2065

Project
Northside West Clinic, Stage 2
Wentworthville, NSW 2145

Title
Stage 2 - Level 1 Floor Plan

Project No	533
Drawing No	SK-104
Scale	1 : 200 @ A3
Rev	1

PRELIMINARY

1 Level 2 Plan
1 : 200

DRAWING STATUS:
Sketch

Rev	Revision Description	Date
1	For Comment	04/12/14

ALL WORKS TO BE IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA AND TO THE SATISFACTION OF THE PRINCIPLE CERTIFYING AUTHORITY

KEY TO ARCHITECTURAL DRAWINGS.

- Bedroom
- Bathroom/Change
- Circulation
- Patient Activity
- Services
- Administration
- Consultation Rooms

RAMSAY HEALTH CARE

TEAM2 ARCHITECTS
104/30 Atchison Street
ST LEONARDS NSW 2065
ABN: 72 104 833 507
T: + 61 2 9437 3166
F: + 61 2 9437 3644
E: contact@team2design.com

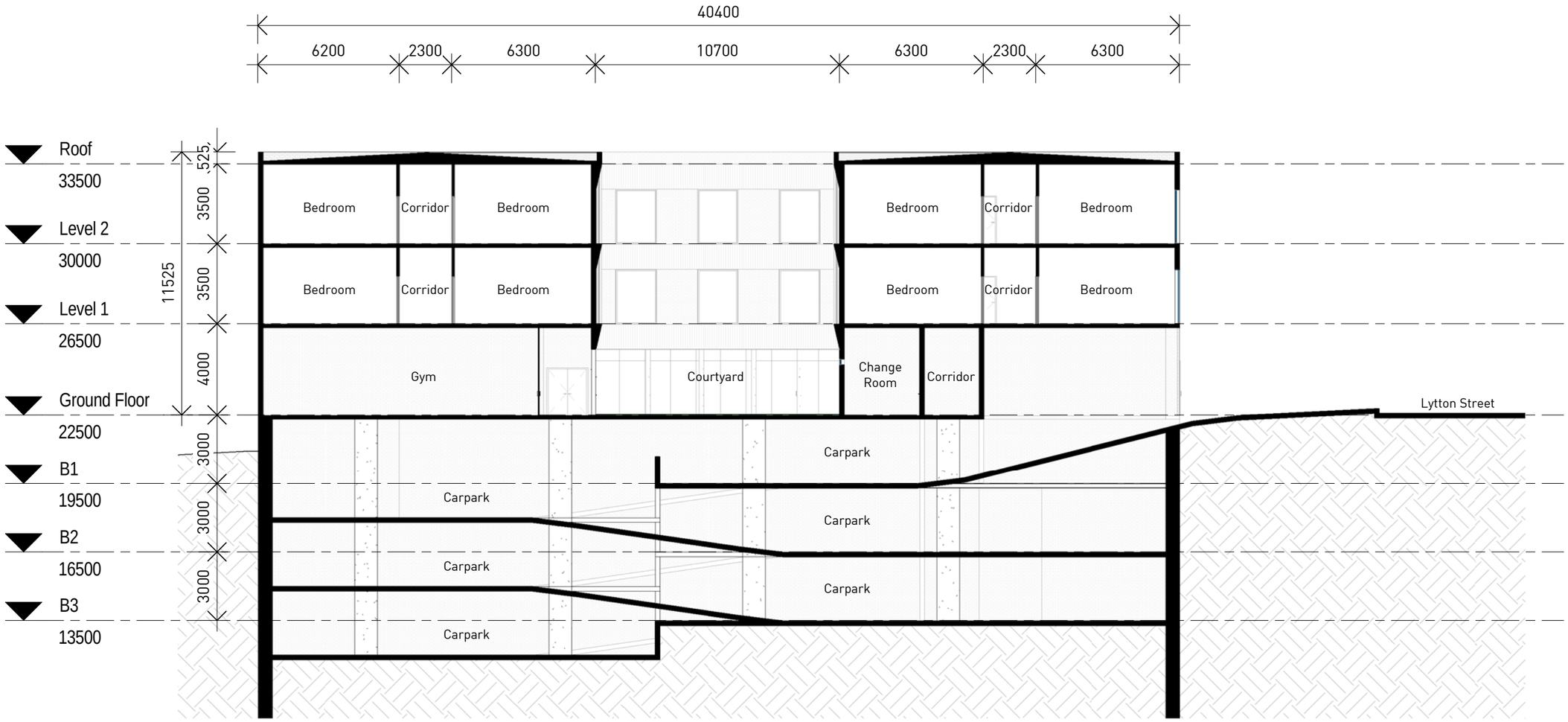
Client
Level 9, 154 Pacific Highway, NSW 2065

Project
Northside West Clinic, Stage 2
Wentworthville, NSW 2145

Title
Stage 2 - Level 2 Floor Plan

Project No	533
Drawing No	SK-105
Scale	1 : 200 @ A3
Rev	1

PRELIMINARY



1 Stage 2 - Cross Section
1 : 200

DRAWING STATUS:
Sketch

Rev	Revision Description	Date
1	For Comment	04/12/14

ALL WORKS TO BE IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA AND TO THE SATISFACTION OF THE PRINCIPLE CERTIFYING AUTHORITY

KEY TO ARCHITECTURAL DRAWINGS.

RAMSAY HEALTH CARE

TEAM2 ARCHITECTS
104/30 Atchison Street
ST LEONARDS NSW 2065
ABN: 72 104 833 507
T: + 61 2 9437 3166
F: + 61 2 9437 3644
E: contact@team2design.com

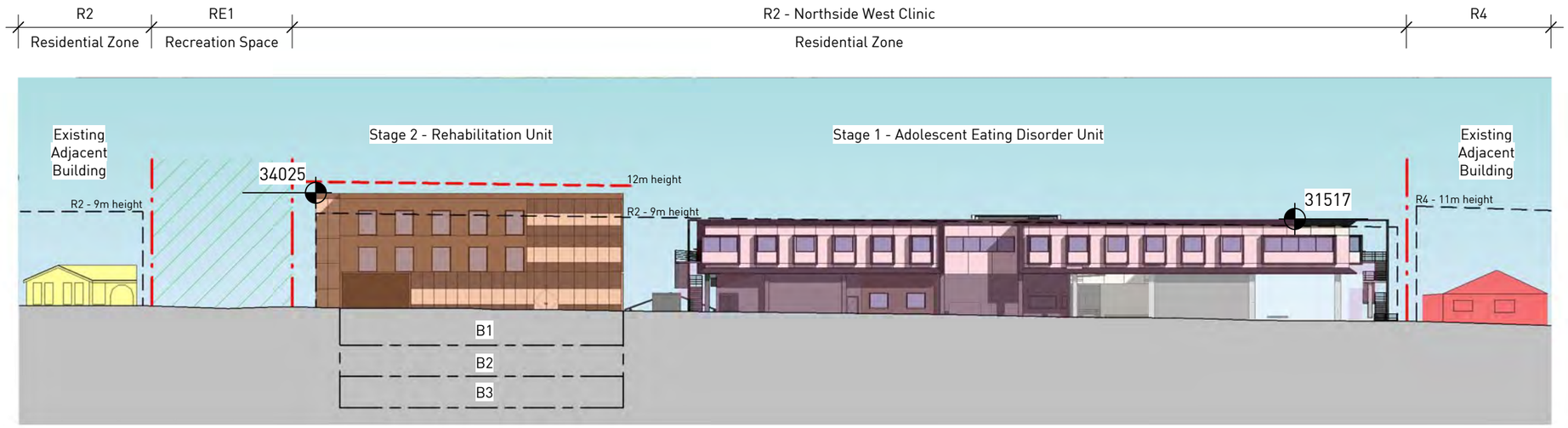
Client
Level 9, 154 Pacific Highway, NSW 2065

Project
Northside West Clinic, Stage 2
Wentworthville, NSW 2145

Title
Stage 2 - Section

Project No	533
Drawing No	SK-200
Scale	1 : 200 @ A3
Rev	1

PRELIMINARY



1 Street Elevation
1 : 500

DRAWING STATUS:
Sketch

Rev	Revision Description	Date
1	For Comment	04/12/14

ALL WORKS TO BE IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA AND TO THE SATISFACTION OF THE PRINCIPLE CERTIFYING AUTHORITY

KEY TO ARCHITECTURAL DRAWINGS.

RAMSAY HEALTH CARE

TEAM 2 ARCHITECTS
104/30 Atchison Street
ST LEONARDS NSW 2065
ABN: 72 104 833 507
T: + 61 2 9437 3166
F: + 61 2 9437 3644
E: contact@team2design.com

Client
Level 9, 154 Pacific Highway, NSW 2065

Project
Northside West Clinic, Stage 2
Wentworthville, NSW 2145

Title
Stage 2 - Street Elevation

Project No	533
Drawing No	SK-300
Scale	1 : 500 @ A3
Rev	1

Appendix C

Survey Results

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

Client : Traffix
Job No/Name : 5083 WENTWORTHVILLE 23-27 Lytton St
Day/Date : Tuesday / 25th March 2014

All Vehicles

Capacity: 38

Start: **2**

	NORTH		WEST		SOUTH			
	Lytton St		*NORTH Car Park*		*Lytton St*			
Time Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**	***Accum***
0600 - 0615		0	0	0	0		**0**	2
0615 - 0630		0	0	0	0		**0**	2
0630 - 0645		0	0	0	0		**0**	2
0645 - 0700		2	0	0	1		**3**	5
0700 - 0715		3	1	0	0		**4**	7
0715 - 0730		0	0	0	0		**0**	7
0730 - 0745		1	0	0	0		**1**	8
0745 - 0800		2	1	1	2		**6**	10
0800 - 0815		0	1	1	1		**3**	9
0815 - 0830		3	0	0	2		**5**	14
0830 - 0845		1	0	1	1		**3**	15
0845 - 0900		4	2	0	2		**8**	19
0900 - 0915		1	0	0	0		**1**	20
0915 - 0930		3	0	2	4		**9**	25
0930 - 0945		3	2	0	0		**5**	26
0945 - 1000		0	0	0	1		**1**	27
1000 - 1015		2	0	1	1		**4**	29
1015 - 1030		1	0	0	0		**1**	30
1030 - 1045		0	0	0	2		**2**	32
1045 - 1100		1	0	0	0		**1**	33
1100 - 1115		0	0	1	0		**1**	32
1115 - 1130		0	2	0	1		**3**	31
1130 - 1145		0	0	0	0		**0**	31
1145 - 1200		0	0	1	0		**1**	30
Period End	**0**	**27**	**9**	**8**	**18**	**0**	**62**	

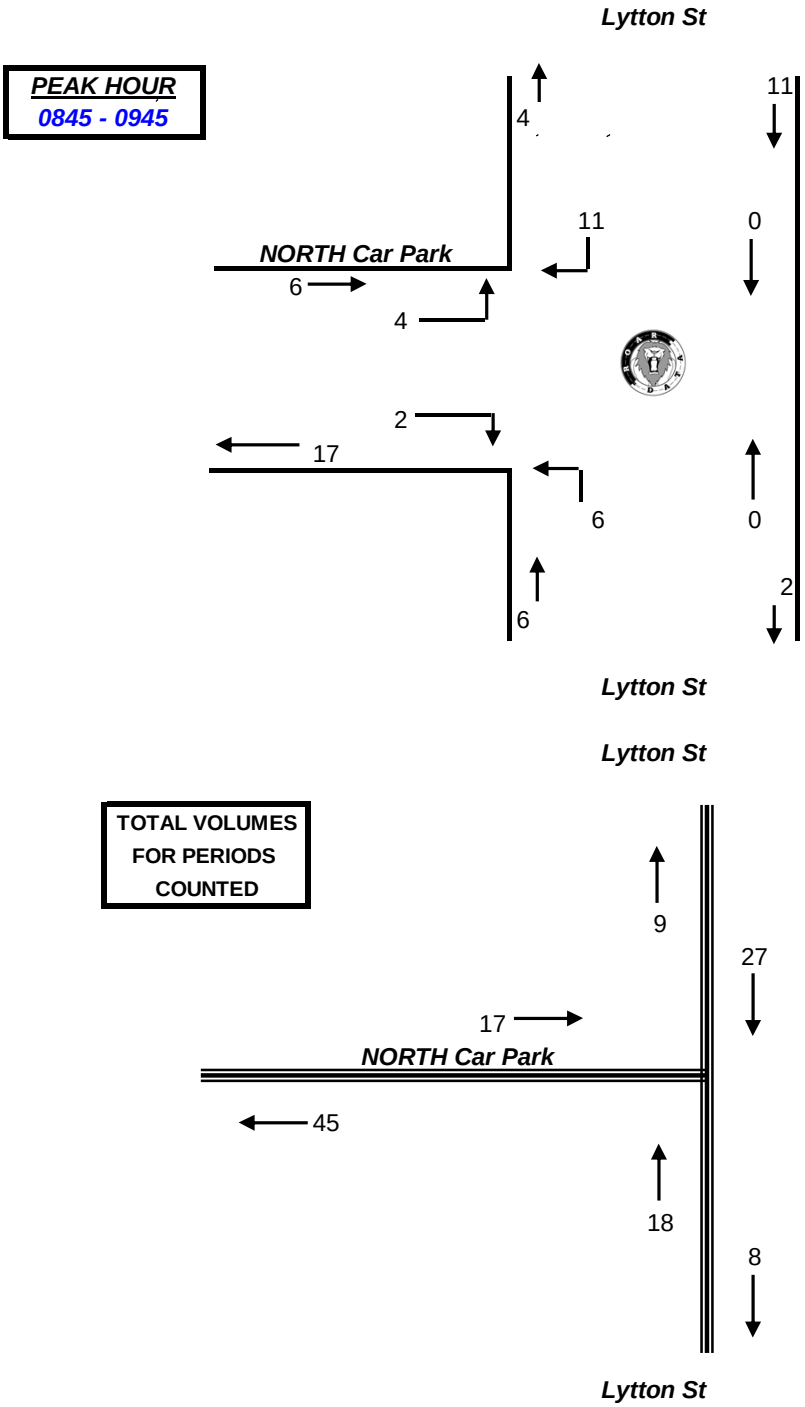
End: **30**

	NORTH		WEST		SOUTH		
	Lytton St		*NORTH Car Park*		*Lytton St*		
Peak Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
0600 - 0700	0	2	0	0	1	0	**3**
0615 - 0715	0	5	1	0	1	0	**7**
0630 - 0730	0	5	1	0	1	0	**7**
0645 - 0745	0	6	1	0	1	0	**8**
0700 - 0800	0	6	2	1	2	0	**11**
0715 - 0815	0	3	2	2	3	0	**10**
0730 - 0830	0	6	2	2	5	0	**15**
0745 - 0845	0	6	2	3	6	0	**17**
0800 - 0900	0	8	3	2	6	0	**19**
0815 - 0915	0	9	2	1	5	0	**17**
0830 - 0930	0	9	2	3	7	0	**21**
0845 - 0945	0	11	4	2	6	0	**23**
0900 - 1000	0	7	2	2	5	0	**16**
0915 - 1015	0	8	2	3	6	0	**19**
0930 - 1030	0	6	2	1	2	0	**11**
0945 - 1045	0	3	0	1	4	0	**8**
1000 - 1100	0	4	0	1	3	0	**8**
1015 - 1115	0	2	0	1	2	0	**5**
1030 - 1130	0	1	2	1	3	0	**7**
1045 - 1145	0	1	2	1	1	0	**5**
1100 - 1200	0	0	2	2	1	0	**5**

PEAK HR	**0**	**11**	**4**	**2**	**6**	**0**	**23**

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

Client : Traffix
Job No/Name : 5083 WENTWORTHVILLE 23-27 Lytton St
Day/Date : Tuesday / 25th March 2014



Lytton St

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

Client : Traffix
Job No/Name : 5083 WENTWORTHVILLE 23-27 Lytton St
Day/Date : Tuesday / 25th March 2014

All Vehicles	NORTH		WEST		SOUTH			Capacity: 2	
	Lytton St		*Loading Area*		*Lytton St*			*Start:*	0
Time Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**		***Accum***
0600 - 0615		0	0	0	1		**1**		1
0615 - 0630		0	1	0	1		**2**		1
0630 - 0645		0	0	1	0		**1**		0
0645 - 0700		0	0	0	0		**0**		0
0700 - 0715		0	0	0	0		**0**		0
0715 - 0730		0	0	0	0		**0**		0
0730 - 0745		0	0	0	0		**0**		0
0745 - 0800		0	0	0	0		**0**		0
0800 - 0815		1	0	0	0		**1**		1
0815 - 0830		0	1	0	0		**1**		0
0830 - 0845		0	0	0	0		**0**		0
0845 - 0900		0	0	0	0		**0**		0
0900 - 0915		0	0	0	0		**0**		0
0915 - 0930		0	0	0	0		**0**		0
0930 - 0945		1	0	0	0		**1**		1
0945 - 1000		0	0	0	0		**0**		1
1000 - 1015		0	0	0	0		**0**		1
1015 - 1030		0	0	0	0		**0**		1
1030 - 1045		0	0	0	0		**0**		1
1045 - 1100		0	0	0	0		**0**		1
1100 - 1115		0	0	0	1		**1**		2
1115 - 1130		0	0	2	0		**2**		0
1130 - 1145		0	0	0	0		**0**		0
1145 - 1200		0	0	0	0		**0**		0
Period End	**0**	**2**	**2**	**3**	**3**	**0**	**10**	***End:***	**0**

	NORTH		WEST		SOUTH		
	Lytton St		*Loading Area*		*Lytton St*		
Peak Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
0600 - 0700	0	0	1	1	2	0	**4**
0615 - 0715	0	0	1	1	1	0	**3**
0630 - 0730	0	0	0	1	0	0	**1**
0645 - 0745	0	0	0	0	0	0	**0**
0700 - 0800	0	0	0	0	0	0	**0**
0715 - 0815	0	1	0	0	0	0	**1**
0730 - 0830	0	1	1	0	0	0	**2**
0745 - 0845	0	1	1	0	0	0	**2**
0800 - 0900	0	1	1	0	0	0	**2**
0815 - 0915	0	0	1	0	0	0	**1**
0830 - 0930	0	0	0	0	0	0	**0**
0845 - 0945	0	1	0	0	0	0	**1**
0900 - 1000	0	1	0	0	0	0	**1**
0915 - 1015	0	1	0	0	0	0	**1**
0930 - 1030	0	1	0	0	0	0	**1**
0945 - 1045	0	0	0	0	0	0	**0**
1000 - 1100	0	0	0	0	0	0	**0**
1015 - 1115	0	0	0	0	1	0	**1**
1030 - 1130	0	0	0	2	1	0	**3**
1045 - 1145	0	0	0	2	1	0	**3**
1100 - 1200	0	0	0	2	1	0	**3**

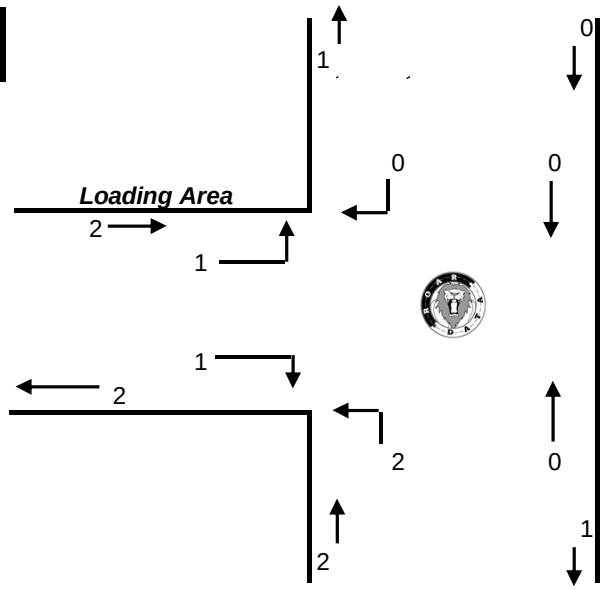
PEAK HR	**0**	**0**	**1**	**1**	**2**	**0**	**4**

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

Client : Traffix
Job No/Name : 5083 WENTWORTHVILLE 23-27 Lytton St
Day/Date : Tuesday / 25th March 2014

Lytton St

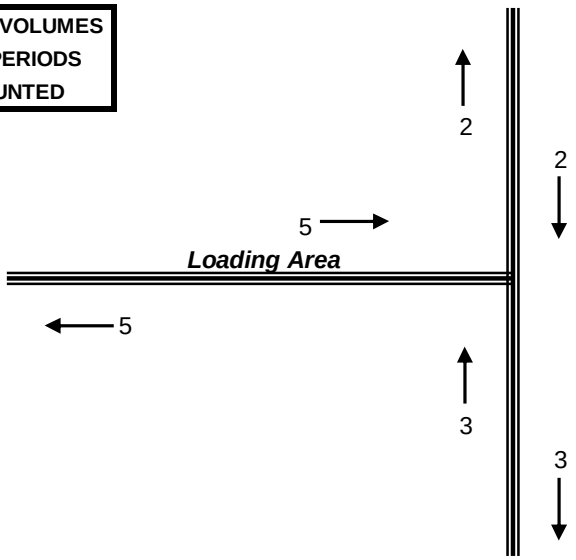
PEAK HOUR
0600 - 0700



Lytton St

Lytton St

TOTAL VOLUMES FOR PERIODS COUNTED



Lytton St

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

Client : Traffix
Job No/Name : 5083 WENTWORTHVILLE 23-27 Lytton St
Day/Date : Tuesday / 25th March 2014

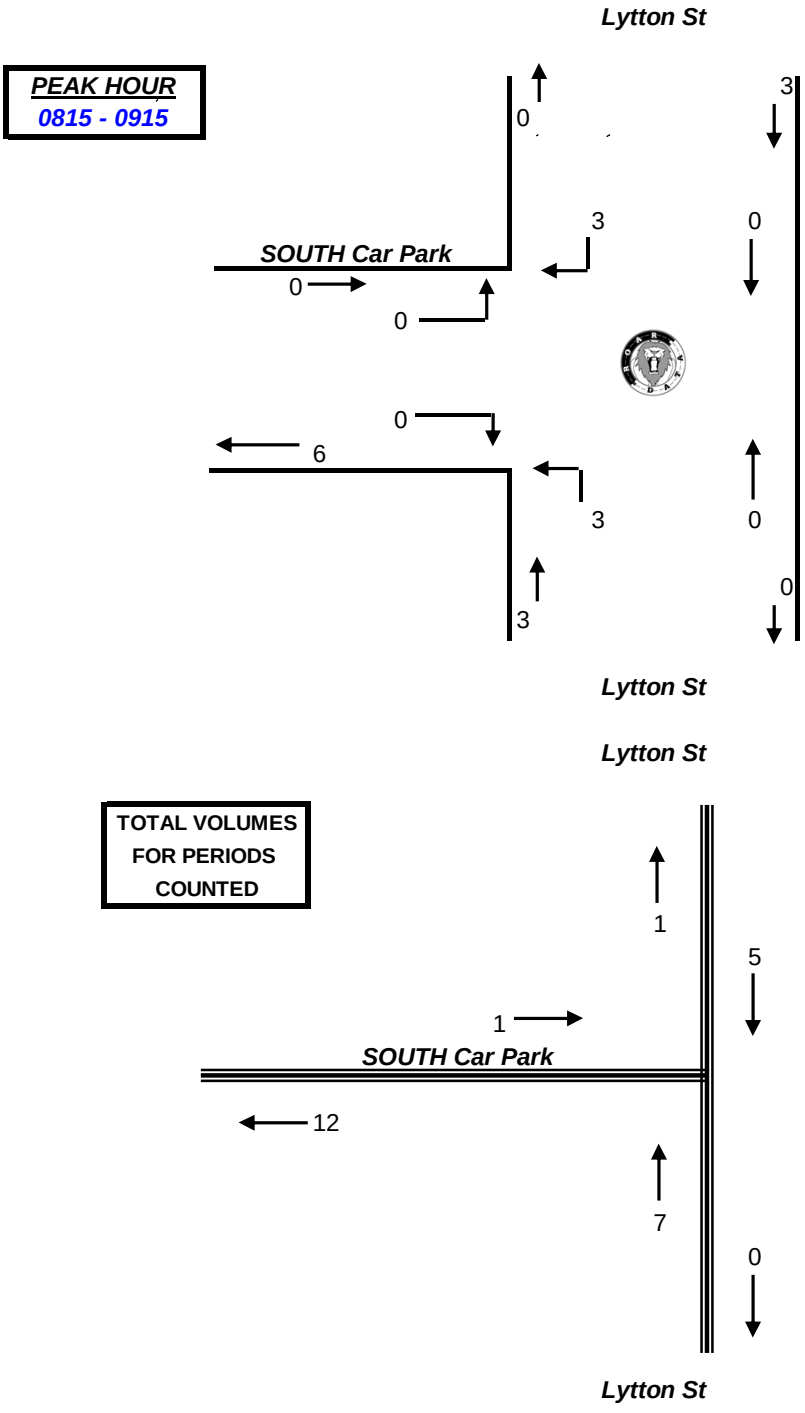
All Vehicles	NORTH		WEST		SOUTH			Capacity: 32	
	Lytton St		*SOUTH Car Park*		*Lytton St*			*Start:*	6
Time Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**		***Accum***
0600 - 0615		0	0	0	1		**1**		7
0615 - 0630		0	0	0	0		**0**		7
0630 - 0645		0	0	0	0		**0**		7
0645 - 0700		0	0	0	1		**1**		8
0700 - 0715		0	0	0	0		**0**		8
0715 - 0730		0	0	0	0		**0**		8
0730 - 0745		0	0	0	0		**0**		8
0745 - 0800		0	0	0	1		**1**		9
0800 - 0815		0	0	0	0		**0**		9
0815 - 0830		0	0	0	1		**1**		10
0830 - 0845		2	0	0	2		**4**		14
0845 - 0900		1	0	0	0		**1**		15
0900 - 0915		0	0	0	0		**0**		15
0915 - 0930		0	0	0	0		**0**		15
0930 - 0945		0	0	0	0		**0**		15
0945 - 1000		0	0	0	0		**0**		15
1000 - 1015		0	1	0	1		**2**		15
1015 - 1030		1	0	0	0		**1**		16
1030 - 1045		0	0	0	0		**0**		16
1045 - 1100		0	0	0	0		**0**		16
1100 - 1115		0	0	0	0		**0**		16
1115 - 1130		0	0	0	0		**0**		16
1130 - 1145		0	0	0	0		**0**		16
1145 - 1200		1	0	0	0		**1**		17
Period End	**0**	**5**	**1**	**0**	**7**	**0**	**13**	***End:***	**17**

	NORTH		WEST		SOUTH		
	Lytton St		*SOUTH Car Park*		*Lytton St*		
Peak Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
0600 - 0700	0	0	0	0	2	0	**2**
0615 - 0715	0	0	0	0	1	0	**1**
0630 - 0730	0	0	0	0	1	0	**1**
0645 - 0745	0	0	0	0	1	0	**1**
0700 - 0800	0	0	0	0	1	0	**1**
0715 - 0815	0	0	0	0	1	0	**1**
0730 - 0830	0	0	0	0	2	0	**2**
0745 - 0845	0	2	0	0	4	0	**6**
0800 - 0900	0	3	0	0	3	0	**6**
0815 - 0915	0	3	0	0	3	0	**6**
0830 - 0930	0	3	0	0	2	0	**5**
0845 - 0945	0	1	0	0	0	0	**1**
0900 - 1000	0	0	0	0	0	0	**0**
0915 - 1015	0	0	1	0	1	0	**2**
0930 - 1030	0	1	1	0	1	0	**3**
0945 - 1045	0	1	1	0	1	0	**3**
1000 - 1100	0	1	1	0	1	0	**3**
1015 - 1115	0	1	0	0	0	0	**1**
1030 - 1130	0	0	0	0	0	0	**0**
1045 - 1145	0	0	0	0	0	0	**0**
1100 - 1200	0	1	0	0	0	0	**1**

PEAK HR	**0**	**3**	**0**	**0**	**3**	**0**	**6**

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

Client : Traffix
Job No/Name : 5083 WENTWORTHVILLE 23-27 Lytton St
Day/Date : Tuesday / 25th March 2014



Lytton St

R.O.A.R. DATA

Reliable, Original & Authentic Results

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

Client : Traffix

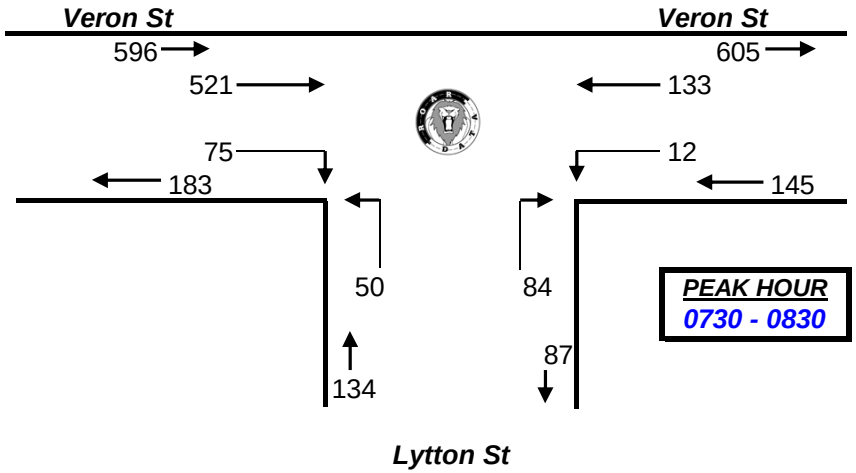
Job No/Name : 5083 WENTWORTHVILLE 23-27 Lytton St

Day/Date : Tuesday / 25th March 2014

All Vehicles	WEST		SOUTH		EAST		
	Veron St		*Lytton St*		*Veron St*		
Time Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
0700 - 0715	75	9	7	4	2	19	**116**
0715 - 0730	11	12	12	21	2	20	**78**
0730 - 0745	129	12	11	26	2	22	**202**
0745 - 0800	134	26	10	24	4	30	**228**
0800 - 0815	146	19	13	16	4	39	**237**
0815 - 0830	112	18	16	18	2	42	**208**
0830 - 0845	98	16	14	14	8	32	**182**
0845 - 0900	115	17	13	15	9	60	**229**
Period End	**820**	**129**	**96**	**138**	**33**	**264**	**1480**

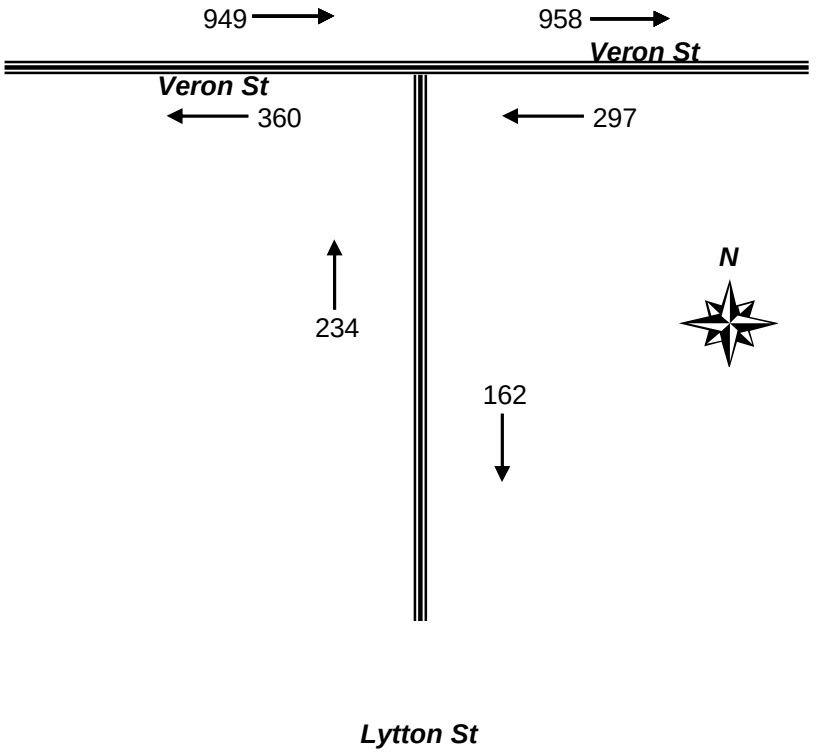
	WEST		SOUTH		EAST		
	Veron St		*Lytton St*		*Veron St*		
Peak Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
0700 - 0800	349	59	40	75	10	91	**624**
0715 - 0815	420	69	46	87	12	111	**745**
0730 - 0830	521	75	50	84	12	133	**875**
0745 - 0845	490	79	53	72	18	143	**855**
0800 - 0900	471	70	56	63	23	173	**856**

PEAK HR	**521**	**75**	**50**	**84**	**12**	**133**	**875**



PEAK HOUR
0730 - 0830

TOTAL VOLUMES FOR COUNT PERIODS



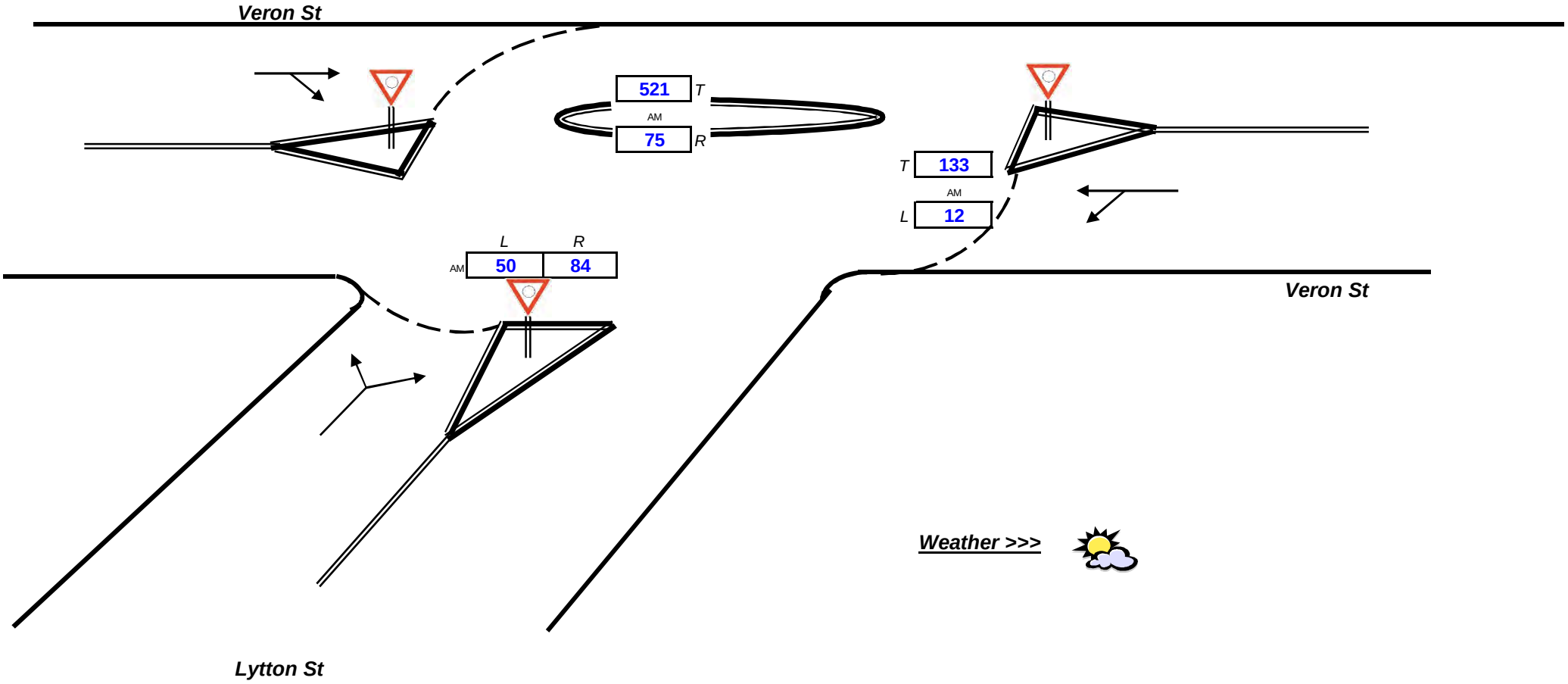
R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Traffix
Job No/Name : 5083 WENTWORTHVILLE 23-27 Lytton St
Day/Date : Tuesday / 25th March 2014

Intersection Layout

N

AM PEAK HOUR
0730 - 0830



Weather >>>

Appendix D

Sidra Results

MOVEMENT SUMMARY

Site: Lytton Street and Veron Street

Period: AM Peak Period 7:30 to 8:30
Scenario: Exisitng

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	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Lytton Street (south)											
1	L2	53	3.0	0.144	5.6	LOS A	0.8	5.4	0.35	0.62	51.6
3	R2	88	3.0	0.144	9.0	LOS A	0.8	5.4	0.35	0.62	52.2
Approach		141	3.0	0.144	7.7	LOS A	0.8	5.4	0.35	0.62	52.0
East: Veron Street east)											
4	L2	13	3.0	0.152	5.2	LOS A	0.8	6.0	0.28	0.48	53.2
5	T1	140	3.0	0.152	5.2	LOS A	0.8	6.0	0.28	0.48	54.1
Approach		153	3.0	0.152	5.2	LOS A	0.8	6.0	0.28	0.48	54.0
West: veron street (west)											
11	T1	548	3.0	0.521	5.5	LOS A	4.4	31.7	0.41	0.52	53.3
12	R2	79	3.0	0.521	8.9	LOS A	4.4	31.7	0.41	0.52	53.0
Approach		627	3.0	0.521	5.9	LOS A	4.4	31.7	0.41	0.52	53.3
All Vehicles		921	3.0	0.521	6.1	LOS A	4.4	31.7	0.38	0.53	53.2

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.
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: Lytton Street and Veron Street

Period: AM Period 8am to 9am
Scenario: Exisitng

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	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Lytton Street (south)											
1	L2	59	2.7	0.133	5.9	LOS A	0.7	4.9	0.39	0.63	51.8
3	R2	66	4.0	0.133	9.3	LOS A	0.7	4.9	0.39	0.63	52.3
Approach		125	3.4	0.133	7.7	LOS A	0.7	4.9	0.39	0.63	52.0
East: Veron Street east)											
4	L2	24	1.6	0.196	5.1	LOS A	1.1	7.9	0.27	0.48	53.3
5	T1	182	2.3	0.196	5.2	LOS A	1.1	7.9	0.27	0.48	54.1
Approach		206	2.2	0.196	5.2	LOS A	1.1	7.9	0.27	0.48	54.0
West: veron street (west)											
11	T1	496	3.3	0.456	5.2	LOS A	3.6	26.2	0.33	0.50	53.6
12	R2	74	3.2	0.456	8.6	LOS A	3.6	26.2	0.33	0.50	53.3
Approach		569	3.3	0.456	5.6	LOS A	3.6	26.2	0.33	0.50	53.6
All Vehicles		901	3.1	0.456	5.8	LOS A	3.6	26.2	0.32	0.51	53.5

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.
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: Lytton Street and Veron Street

Period: AM Period 8:00 to 9:00
Scenario: Exisitng + Development

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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Lytton Street (south)											
1	L2	63	2.5	0.143	5.9	LOS A	0.7	5.4	0.40	0.63	51.8
3	R2	71	3.8	0.143	9.3	LOS A	0.7	5.4	0.40	0.63	52.3
Approach		134	3.2	0.143	7.7	LOS A	0.7	5.4	0.40	0.63	52.0
East: Veron Street east)											
4	L2	31	1.2	0.211	5.3	LOS A	1.2	8.6	0.32	0.50	53.1
5	T1	182	2.3	0.211	5.4	LOS A	1.2	8.6	0.32	0.50	54.0
Approach		213	2.2	0.211	5.4	LOS A	1.2	8.6	0.32	0.50	53.9
West: veron street (west)											
11	T1	496	3.3	0.476	5.3	LOS A	3.9	28.0	0.35	0.51	53.5
12	R2	95	2.5	0.476	8.7	LOS A	3.9	28.0	0.35	0.51	53.2
Approach		591	3.2	0.476	5.8	LOS A	3.9	28.0	0.35	0.51	53.4
All Vehicles		937	2.9	0.476	6.0	LOS A	3.9	28.0	0.35	0.52	53.3

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.
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.