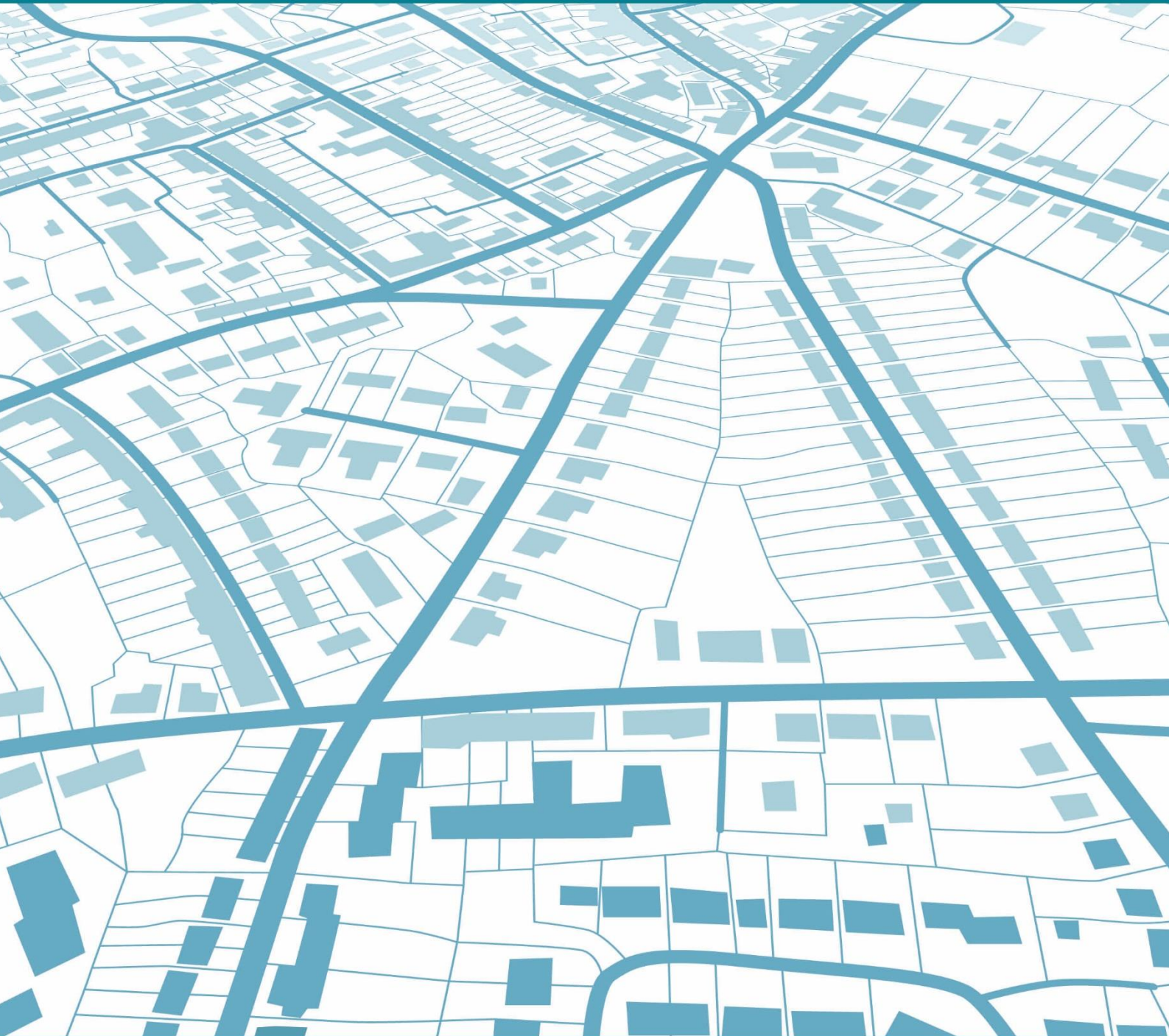




Frederick Street, Artarmon

S4.55(2) Modification

Traffic and Parking Impact Assessment

Ref: 14267

Date: June 2018

Issue: Rev B

Table of Contents

1.0	INTRODUCTION	1
2.0	PROPOSED DEVELOPMENT	4
2.1	Site, Context and Existing Use	4
2.2	Approved Development	4
2.3	Proposed S4.55(2) Modification	5
3.0	EXISTING ROAD NETWORK AND TRAFFIC CONDITIONS	6
3.1	Road Network.....	6
3.2	Traffic Controls	6
3.3	Traffic Conditions	7
3.4	Transport Services	8
3.5	Walking and Cycling Facilities	9
4.0	PARKING	10
5.0	TRAFFIC	12
6.0	ACCESS, INTERNAL CIRCULATION AND SERVICING	14
6.1	Access.....	14
6.2	Internal Circulation	14
6.3	Servicing	14
7.0	CONCLUSION	17

List of Figures

Figure 1	Location
Figure 2	Site
Figure 3	Road Network
Figure 4	Traffic Controls
Figure 5	Peak Traffic Movements

List of Appendices

Appendix A	Approved Development Plans
Appendix B	Proposed Modified Plans
Appendix C	Intersection Plans
Appendix D	Traffic Survey Results
Appendix E	Turning Path Assessment

1.0 Introduction

This report has been prepared to accompany a Development Application (SSD7588) to the Department of Planning and Environment for a proposed multi-function Mental Health Facility in Frederick Street at Artarmon (Figure 1).

The provision of mental health services is an increasingly important sphere of medical care and a significant effort is being made by government and private providers to reduce the current shortage of available facilities. The St Leonards / Artarmon area has developed as a significant hospital and medical precinct and this is advantaged by the available transport services, walking and cycling facilities and access to the arterial road system.

A Planning Proposal has been approved by Council to rezone the site to permit development of a mental health facility. A subsequent development scheme which was granted consent (SSD 7588) involves:

- ❖ A 7-level building over 2 levels of car parking
- ❖ 112 beds
- ❖ 25 suites

The proposed S4.55(2) scheme seeks to modify the carpark and add a new Level 8 on the currently approved scheme to accommodate a new In-Patient Unit (IPU) of 24 beds.

The approved scheme has been assessed on the basis of the Secretary's Environmental Assessment Requirements (SEARS) which included the following, and it is intended that assessment of the modified scheme would be based on similar principles:

5. Transport and Accessibility

Include a transport and accessibility assessment which details, but is not limited to, the following:

- the existing and proposed pedestrian and bicycle routes and facilities within the vicinity of and surrounding the site and to public transport facilities as well as measures to maintain road and personal safety in line with CPTED principles;*
- an estimate of the total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips;*
- the adequacy of public transport to meet the likely future demand of the proposed development;*
- impact of the proposed development on existing and future public transport and walking and cycling infrastructure within and surrounding the site;*
- measures to promote travel choices that support sustainable travel, such as a location-specific sustainable travel plan, provision of end-of-trip facilities, green travel plans and wayfinding strategies;*
- the daily and peak (AM, PM) vehicle movements impact on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for upgrading or road improvement works (if required);*
- the proposed walking and cycling access arrangements and connections to public transport services;*
- the proposed access arrangements, including car pick-up/drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and cycle networks;*
- proposed car and bicycle parking provision, including consideration of the availability of public transport and the requirements of the relevant parking codes and Australian Standards;*
- provision of end of trip facilities (i.e. showers, lockers, change rooms etc.) for the use of employees who choose to walk or cycle to/from work as well as undertake activities during work hours;*
- service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times); and*
- traffic and transport impacts during construction and how these impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking and public transport and the cumulative impact of nearby construction projects, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact.*

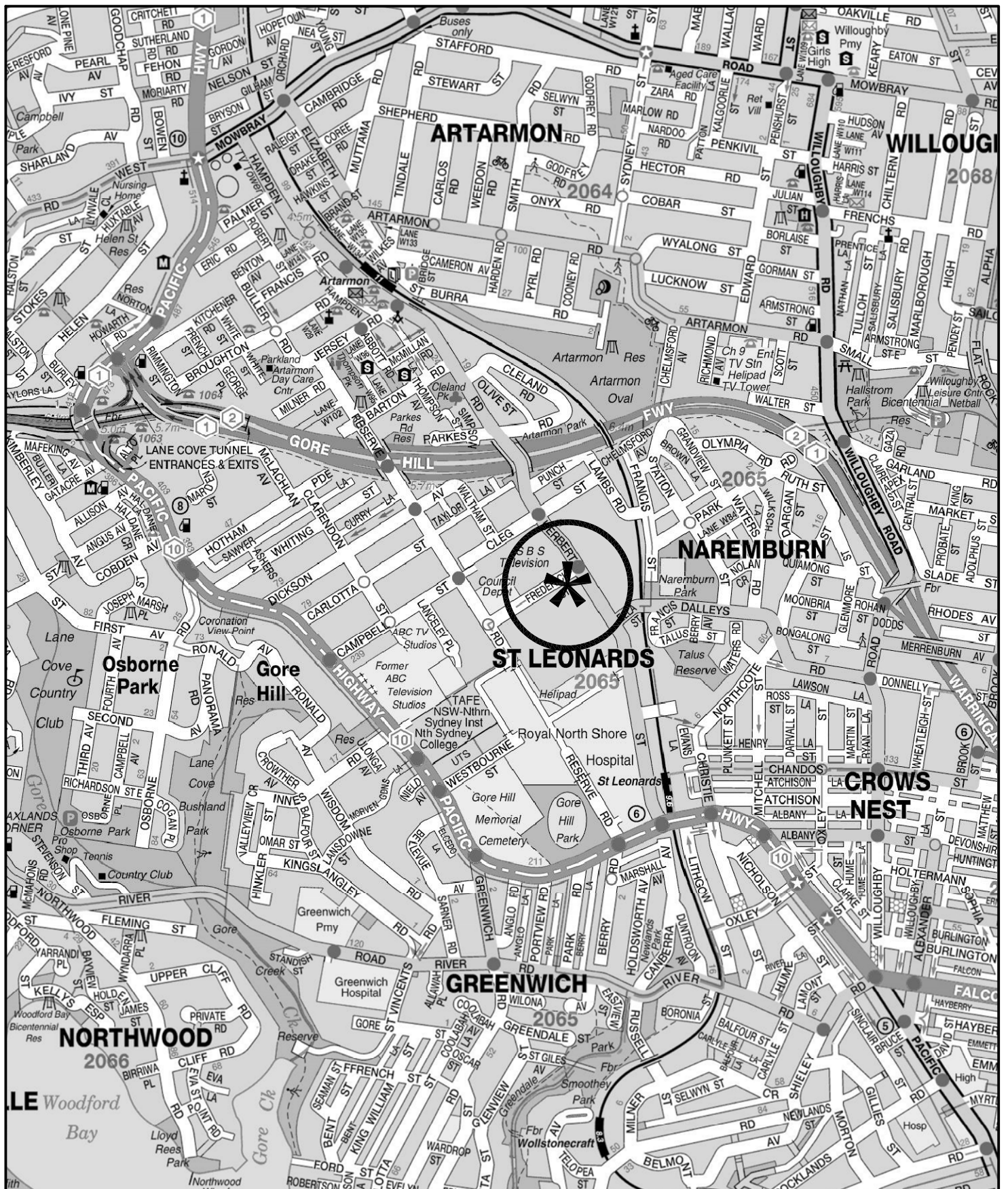
Transport and Traffic Planning Associates

→ *Relevant Policies and Guidelines:*

- *Guide to Traffic Generating Developments (Roads and Maritime Services)*
- *EIS Guidelines – Road and Related Facilities (DoPI)*
- *Cycling Aspects of Austroads Guides*
- *NSW Planning Guidelines for Walking and Cycling*
- *Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development*

The purpose of this report is to:

- ❖ describe the site, its context and the proposed development scheme
- ❖ describe the existing road network, the prevailing traffic conditions and the public transport services available
- ❖ assess the proposed parking provision
- ❖ assess the potential traffic implications
- ❖ assess the suitability of the proposed vehicle access, internal circulation and servicing arrangements.



LEGEND



LOCATION

FIG 1

2.0 Proposed Development

2.1 Site, Context and Existing Use

The site (Figure 2) is Lot 2 in a proposed subdivision of Lot C in DP401303 being a rectangular shaped area of some 6,260m² which has a frontage of some 108m to the southern side of Frederick Street located just to the west of Herbert Street.

The site is located within the St Leonards / Artarmon Industrial Area and is adjoined by industrial buildings to the east, west and south. The SBS Television Studios are located on the northern side of Frederick Street (corner of Herbert Street) along with a large bulky goods complex (corner of Reserve Road).

The North Shore Hospitals (Public and Private) are located just to the south along with other ancillary medical facilities. There is a mix of industrial, commercial and residential apartment buildings along Herbert Street and the large former ABC Television Studios site just to the west is being redeveloped for contemporary mixed commercial uses. St Leonards Railway Station is located some 650m to the south and there are high frequency bus services operating along the Pacific Highway.

The total Lot C site was formerly occupied by a car dealership and the subject part is occupied by a large brick/metal building of some 5,000m² with an open carpark on the eastern side.

2.2 Approved Development

Consent has been granted (SSD 7588) in November 2016 for a development scheme which involves the demolition of the existing building and excavate the site to provide for two levels of car parking and a level building platform. A new 9-level building was subsequently constructed over the entire site and parking levels providing for:



SITE

LEGEND



SITE

FIG 2

Transport and Traffic Planning Associates

- ❖ 112 beds in-patients
- ❖ 85 staff (maximum daytime)
- ❖ 25 suites
- ❖ 30 practitioners and 8 staff

A total of 139 parking spaces plus loading dock are provided in the lower levels with vehicle accesses including a port cochere on the Frederick Street frontage towards the northern and southern site boundaries.

Details of the approved development scheme are provided on the plans prepared by Silver Thomas Hanley Architects which accompany the Development Application and are reproduced in Appendix A.

2.3 Proposed S4.55(2) Modification

It is proposed to lodge a S4.55 Modification scheme with the DOPE for additions of a new level 8 to the approved building accommodating a new In-Patient Unit (IPU). The additional IPU facility will have 24 beds with additional staffing needs being 10 FTE personnel and this would also result in addition of 16 spaces at the ground level car park.

The remainder of the scheme will be largely retained except for minor alterations to services / fire stairs to accommodate the new floor.

Details of the modified carparking level and the IPU are provided on the architectural plans prepared by STH in Appendix B.

3.0 Existing Road Network and Traffic Conditions

3.1 Road Network

The existing road network serving the site (Figure 3) comprises:

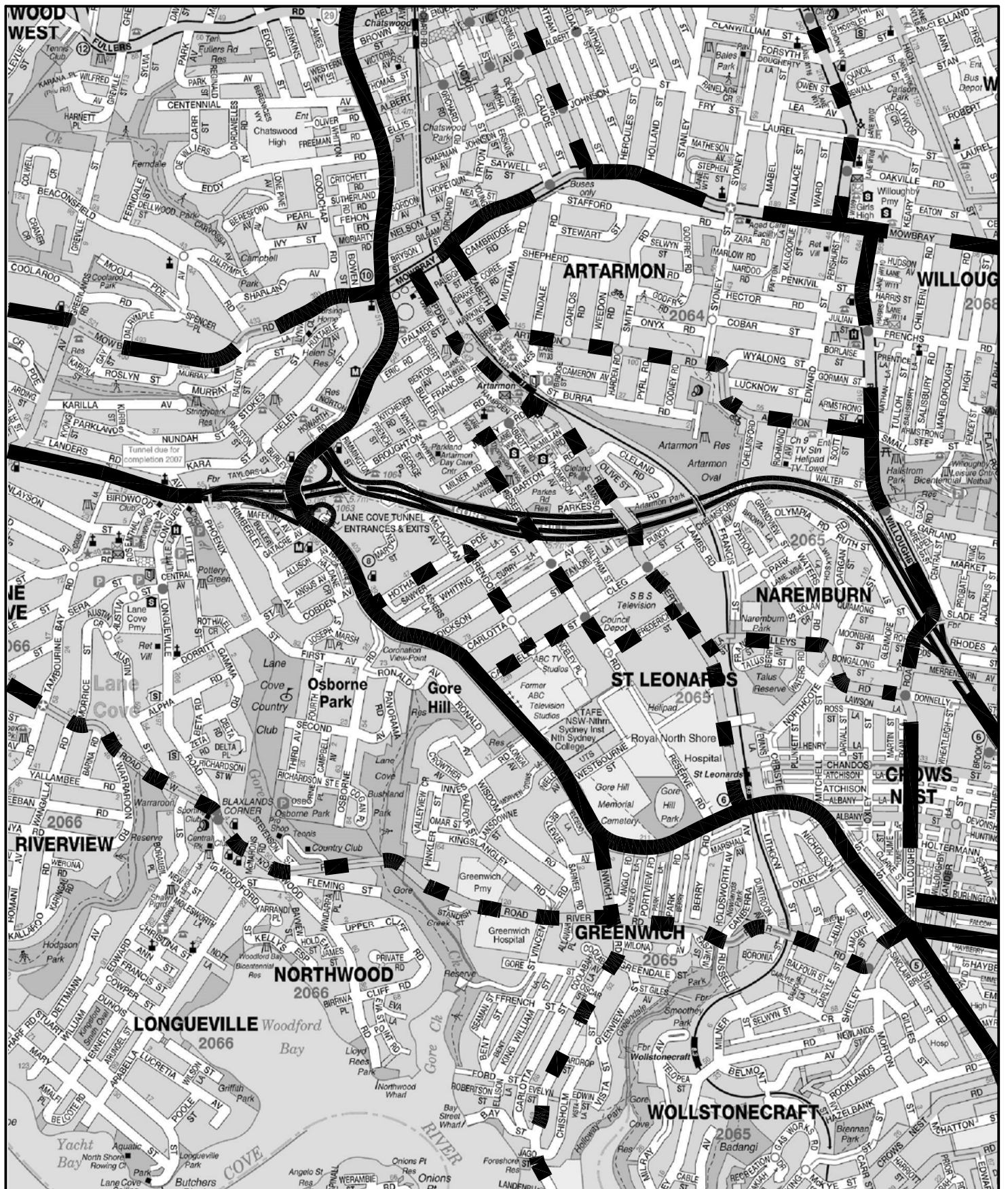
- ❖ *Gore Hill Freeway* – a major arterial route connecting between the harbour crossing and the Pacific Highway, Lane Cove Tunnel and M2 Motorway routes
- ❖ *Pacific Highway* – a State Road and arterial route providing the major north/south connection between Sydney and Hornsby
- ❖ *Herbert Street / Hampden Road* – a major ‘collector’ road which provides connection between Pacific Highway at St Leonards and Mowbray Road at Chatswood
- ❖ *Frederick Street, Reserve Road and Campbell Street* – collector road routes linking through St Leonards and Artarmon (Reserve Road is closed in the section through the hospital site)

Frederick Street is relatively straight and level with a 12.8 wide carriageway.

3.2 Traffic Controls

The existing traffic controls on the road network (Figure 4) comprise:

- ❖ the traffic signals at the Herbert Street and Frederick Street intersection. Details of this intersection are provided in Appendix B
- ❖ the roundabout at the Frederick Street and Reserve Road intersection. Details of this intersection are provided in Appendix B
- ❖ the traffic signals along the Pacific Highway at the Herbert Street, Westbourne Street and Reserve Road intersection



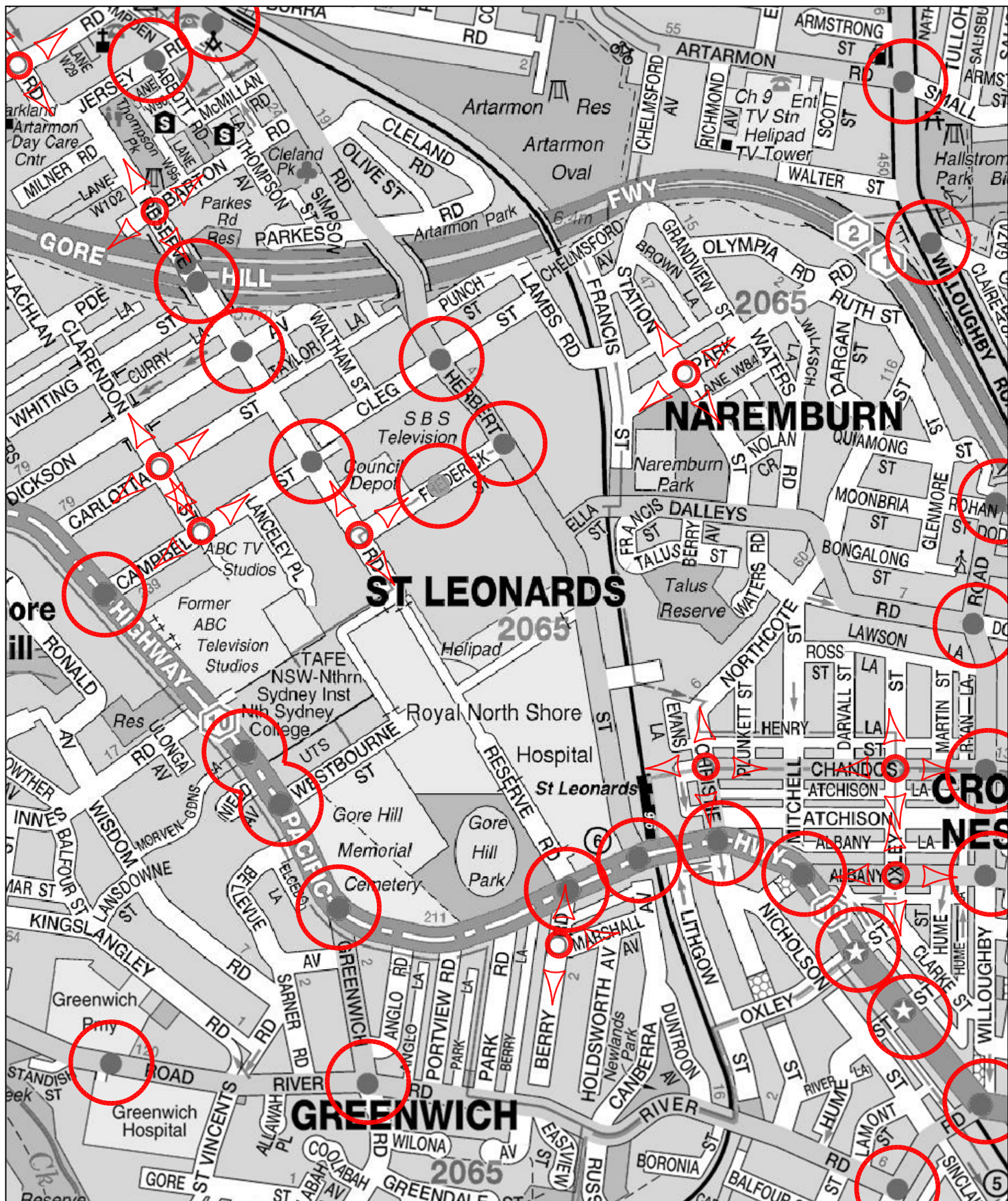
LEGEND

-  ARTERIAL
-  SUB-ARTERIAL
-  COLLECTOR



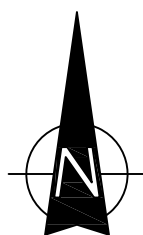
ROAD NETWORK

FIG 3



LEGEND

-  TRAFFIC SIGNAL CONTROL
-  ROUNDABOUT
-  RESTRICTED TURNING MOVEMENT



TRAFFIC CONTROLS

FIG 4

- ❖ the 60 kmph speed restriction on the Highway and 50 kmph speed restriction on the local and collector roads
- ❖ the CLEARWAY and the BUS ZONE restrictions along the Pacific Highway
- ❖ the traffic signals on Frederick Street at the bulky goods site access and at other intersections along Reserve Road and Herbert Street / Hampden Road

3.3 Traffic Conditions

An indication of the prevailing traffic conditions in the area is provided by data published by RMS and surveys undertaken as part of this study. This RMS data is expressed in terms of Annual Average Daily Traffic (AADT) and the latest recorded volumes are as follows:

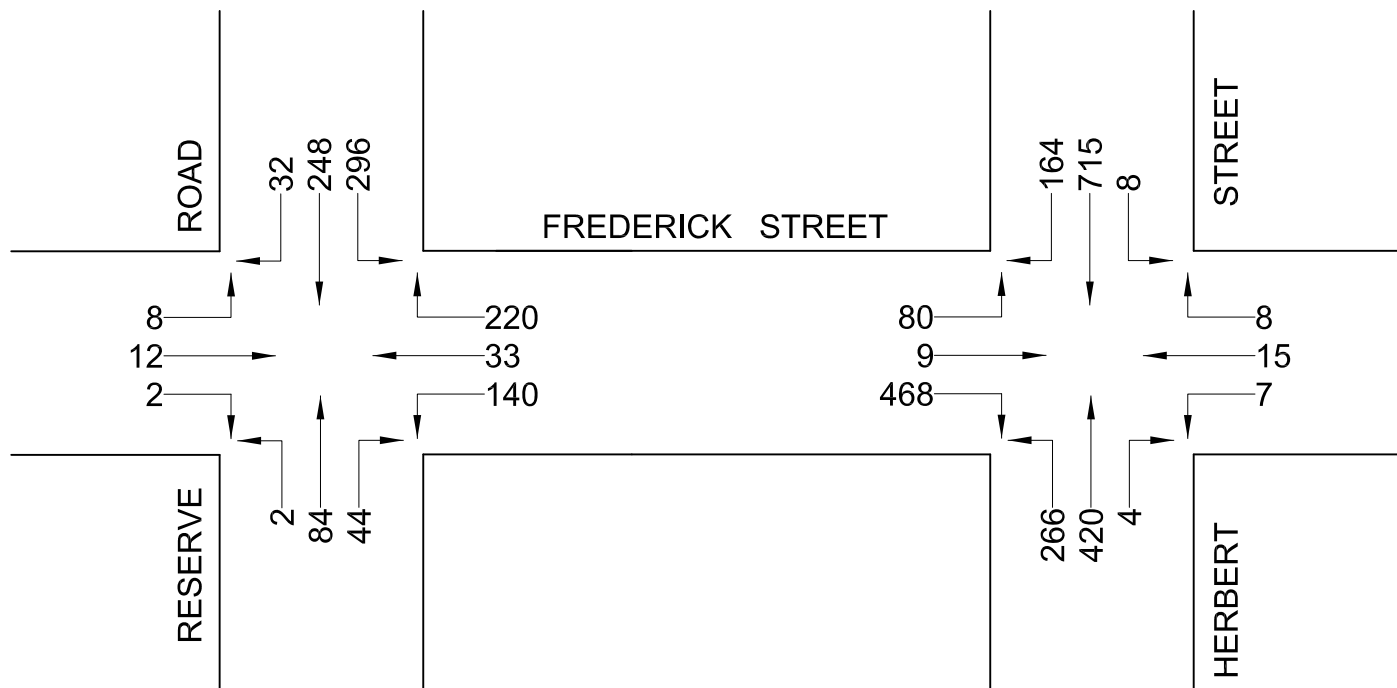
	AADT
Pacific Highway	41,885
Herbert Street	18,494

Traffic surveys have been undertaken at the Herbert Street/Frederick Street and Frederick Street / Reserve Road intersections during the morning and afternoon peak periods. The results of those surveys are provided in Appendix C and summarised on Figure 5. The operational performance of these intersections has been assessed using SIDRA and the results indicating satisfactory performances are provided in Appendix D and summarised in the following while the criteria for interpreting the results are reproduced overleaf:

	AM		PM	
	LOS	AVD	LOS	AVD
Herbert / Frederick	B	25.0	B	28.0
Frederick / Reserve	A	9.4	A	12.1

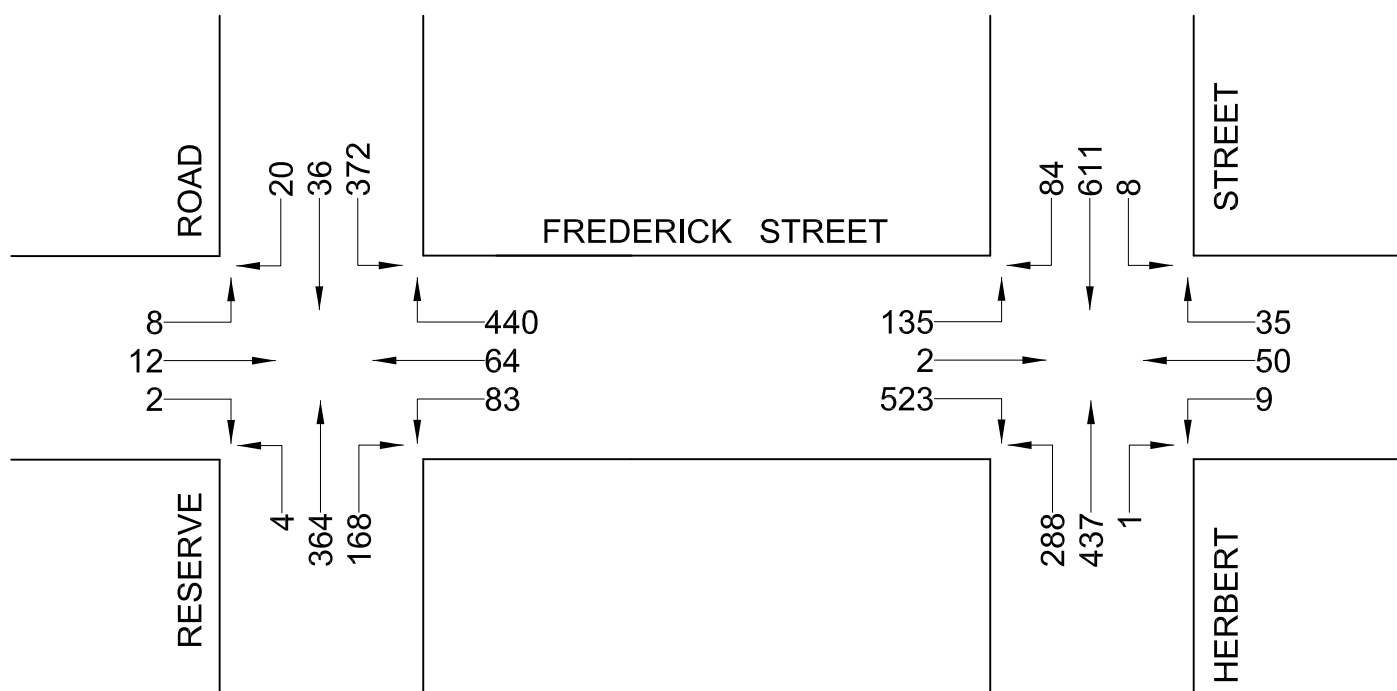
The results of the SIDRA assessments indicate that these intersections operate satisfactorily and traffic conditions in the area are also generally quite satisfactory with vehicle and pedestrian movements facilitated by the numerous traffic signal and roundabout controls.

ACCESS



AM PEAK

ACCESS



PM PEAK

LEGEND



PEAK
TRAFFIC MOVEMENTS

FIG 5

Criteria for Interpreting Results of SIDRA Analysis

1. Level of Service (LOS)

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

2. Average Vehicle Delay (AVD)

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

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

3. Degree of Saturation (DS)

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

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

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

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

3.4 Transport Services

The site is ideally located in relation to public transport services which include the St Leonards Railway Station and the numerous bus services which provide access to the surrounding areas of Lane Cove, Chatswood, Macquarie Centre, North Sydney and Sydney CBD etc (and connection to railway stations).

Train

St Leonards railway station on the Main Northern Line is located some 650m to the south of the site and can be accessed to/from the site by:

- ❖ walking along the paved and well-lit footway along Frederick Street and Herbert Street with crossings provided at traffic signal-controlled intersections
- ❖ using the M20 or Artarmon Loop bus services
- ❖ cycling or travelling by taxi

Artarmon Railway Station is some 800m to the north and can be accessed to/from the site by walking, taxi or the Artarmon Loop bus service.

Bus

The Sydney Buses M20 Route operates along the Pacific Highway and then loops around via Campbell Street and Reserve Road with a bus stop some 250m from the site.

The Artarmon Loop service operates along Frederick Street with a bus stop adjacent to the site frontage.

Sydney Buses Routes 140, 143, 144 and 200 operate along the Pacific Highway with Route 144 circuiting into the Royal North Shore Hospital site with a stop within easy walking distance to the site.

Details of these services are provided overleaf.

3.5 Walking and Cycling Facilities

Pedestrians will be able to conveniently walk to/from the site traversing the paved and well-lit footways along Frederick Street, Herbert Street and Campbell Street as well as the Reserve Road route through the hospital grounds. Whilst there are some graded sections along the routes Herbert Street in particular is relatively level in the section between Frederick Street and St Leonards.

Bicycle parking will be provided for staff and they will have showers and lockers provided. It is not appropriate for mentally ill patients to cycle and there will be relatively few visitors.

Cyclists will have good access to/from the site using the on-road marked route along Herbert Street which connects to other on and off-road routes as well as suggested unmarked routes. Details of these routes are provided overleaf.

artarmon LOOP

The Artarmon Loop is a free shuttle service travelling on a loop from St Leonards Station through the Artarmon industrial area.

Jump on the bus at any of the Artarmon Loop bus stops located on the map.

The Artarmon Loop runs every 10 minutes during peak times (Route A) and every 30 minutes during off peak periods from 6am to 7pm, Monday to Friday. The service incorporates Artarmon Station, Artarmon shops and the Royal North Shore Hospital (Route B) between 10am and 2.30pm, stopping at these locations every 30 minutes.

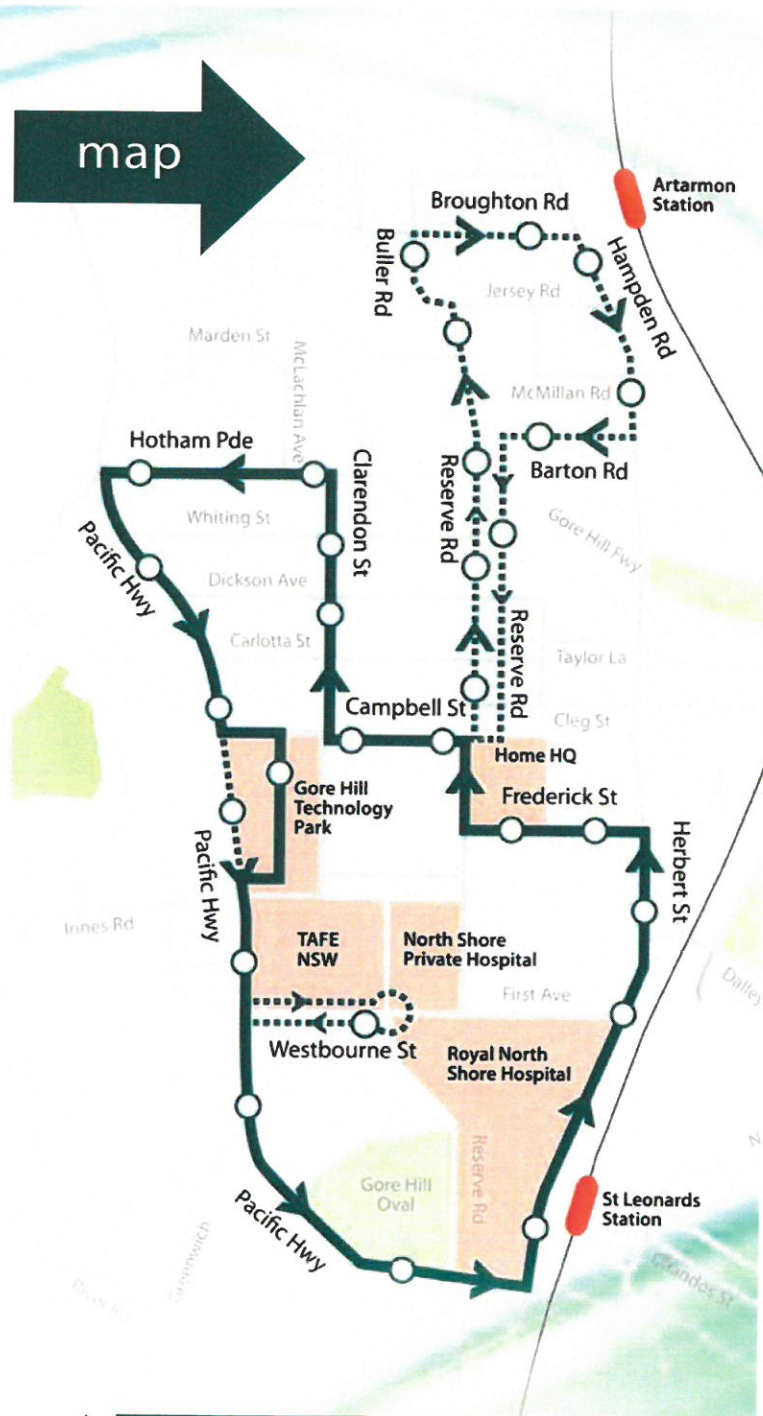
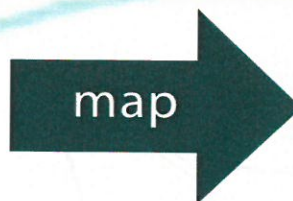
Bicycles can be carried on bike racks at the rear of the bus.

Buses depart from St Leonards Station at the following times:

ROUTE A ONLY:									
AM	6.00	6.15	6.30	6.45	6.55	7.00	7.10	7.20	
	7.30	7.37	7.45	7.54	8.02	8.11	8.19	8.28	
	8.36	8.45	8.53	9.02	9.10	9.20	9.30	9.45	
INCORPORATES ARTARMON STATION AND SHOPS (ROUTE B):									
	10.00	10.30	11.00	11.30					
PM	12.30	1.00	1.30	2.00	2.30				
ROUTE A ONLY:									
	3.00	3.18	3.36	3.54	4.15	4.30	4.39	4.46	4.55
	5.02	5.11	5.18	5.27	5.34	5.43	5.50	6.00	6.20
	6.40								

*The service does not run on public holidays.

Route B: Follows Route A and diverts to Artarmon Station + shops and the Royal North Shore Hospital (RNSH) via Westbourne St. It arrives at Artarmon Station 15 minutes after and at the RNSH approximately 25 minutes after departing St Leonards Station.



KEY	○	Artarmon Loop bus stops
	—	Route A (Peak period)
	—	Route B (Artarmon shops + RNSH)

metrobus m20 high frequency service connecting Gore Hill, Crows Nest, North Sydney, the City, Victoria Park, Mascot and Botany

Weekdays

Metrobuses depart every 10 minutes during morning and afternoon peak periods, every 15 minutes during the day and every 20 minutes at night and on weekends.

The first Metrobus m20 leaves from Botany Shops at 6:33am, the last service departs at 8:11pm.
The first Metrobus m20 leaves from Gore Hill at 6:28am, the last service departs at 8:13pm.

Saturday

The first Metrobus m20 leaves from Botany Shops at 7.31am and the last service departs at 7.30pm.
The first Metrobus m20 leaves from Gore Hill at 7.38am and the last service departs at 7.37pm.

Sunday

The first Metrobus m20 leaves from Botany Shops at 7.30am and the last service departs at 7.30pm.
The first Metrobus m20 leaves from Gore Hill at 7.38am and the last service departs at 7.35pm.

PrePay service

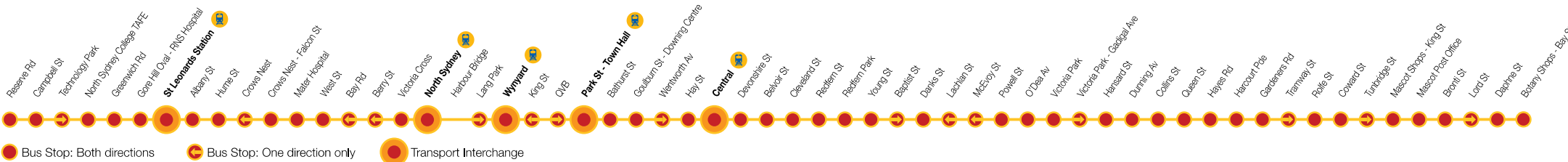
Metrobus m20 is a PrePay-only service. PrePay simply means purchasing a ticket before boarding the bus.
There are more than 100 PrePay ticket outlets located along the Metrobus m20 route.
Tickets can be purchased from ticket outlets displaying the MyZone/PrePay sign.

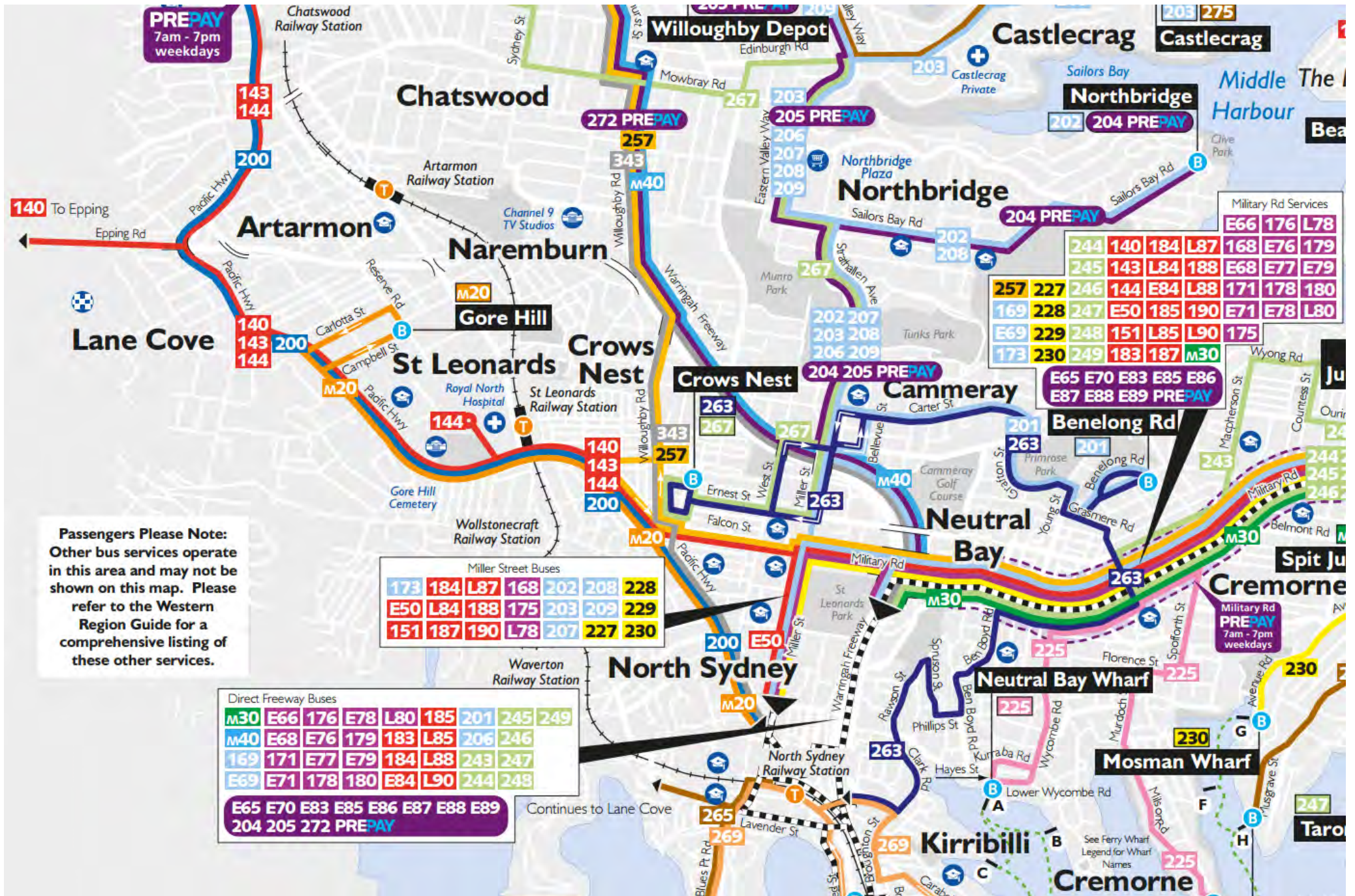


Section Information for Ticket Purchase

Metrobus m20 route section points are shown on the map. Count the sections within which you start your journey and all the sections you travel through (including part sections).

Sections	MyBus TravelTen
1-2	MyBus 1
3-5	MyBus 2
6+	MyBus 3







Legend

- Off-Road Bike Route / Shared Path
- On-Road Marked Bike Route
- Suggested Unmarked Bike Route
- Steep Hill
- Chatswood Railway, with Station
- Traffic Light or Pedestrian Crossing
- Bike Shop
- Bike Locker
- Police Station
- Willoughby Council name and boundary

CYCLE MAP

4.0 Parking

Willoughby Council's DCP in relation to a "hospital" use specifies the following:

Practitioners	- 1 space each
Staff	- 1 space for 2 persons
Beds	- 1 space per 3 beds (for visitors)
Patients	- 1 per suite

Application of this to the proposed new IPU would indicate the following:

Practitioners x 3	- 3 spaces
Staff x 10	- 5 spaces
Beds x 24	- 8 spaces
Patients	Not applicable
Total	- 16 spaces

The Ramsay Health Care experience with the mental health facilities which they operate is that the parking demand is lower than a normal hospital because:

- Mental health patients have less visitors
- Ramsay prohibits in-patients from self-driving to/from these facilities (for safety reasons)

As with most hospitals there will be staff shifts with overlapping changeover times and during the early afternoon change-over (when there are visitors and patient cars present) there will be a congregation of parked cars. It is proposed to provide a total of 155 parking spaces which represents a suitably "constrained provision" on the basis that only 50% of staff will have a parking space and there will only be parking for 1 patient per consulting suite at a time. Accordingly provision of the additional 16 spaces will be made in the ground level car park to satisfy the DCP requirements.

As with the approved scheme, staff members will be subject to some support and encouragement measures and be provided with location specific travel plans and Transport Access Guide which were prepared and submitted during the previous scheme.

Having regard for the above, it is assessed that the provision will be consistent with the DCP criteria and will have no undue implications on the carparking operation.

5.0 Traffic

The traffic generation assessment for the approved scheme has regard for both the RMS Guidelines and the specific circumstances which are unique to mental health facilities, and eventuated in the following peak outcome:

AM		PM	
IN	OUT	IN	OUT
40	8	15	45

These movements which were distributed amongst Reserve Road / Gore Hill Freeway (60%) and Herbert Street (40%) were assessed using traffic modelling program SIDRA and its satisfactory outcome reproduced as follows:

	AM		PM	
	LOS	AVD	LOS	AVD
Herbert / Frederick	B	25.9	C	29.1
Frederick / Reserve	A	9.4	A	12.4

Traffic generation rate of the proposed IPU can be assessed based on the RMS rates which are reproduced in the following:

AM Peak	=	- 10.21	+	0.47 Beds	+	0.06	Day Staff
PM Peak	=	- 2.84	+	0.25 Beds	+	0.4	Day Staff

On this basis, the 24-bed facility with a typical FTE staffing level of 10 nurses and 1-2 doctors will have the following peak traffic generation outcome:

AM Peak	-	1.8 vtp (2)
PM Peak	-	7.9 vtp (8)

Traffic generation of this order of magnitude is equivalent to some 1 vt every 7-8 minutes during the peak and when distributed to the external network is equivalent to some 5 vtpd on Reserve Road / Gore Hill Freeway and 3 vtpd on Herbert Street.

Traffic generation of this nature is quite minor and will not have any material impact on the assessed intersections operations, which have satisfactory levels of service.

6.0 Access, Internal Circulation and Servicing

6.1 Access

The proposed vehicle access arrangement for the development will be consistent with that approved and comprises:

- ❖ a combined ingress/egress driveway near the eastern boundary for visitor parking and set down/pick up movements
- ❖ a combined ingress/egress driveway near the western boundary for staff parking and service vehicles

These accesses comply with the requirements of AS2890.1 & 2.

6.2 Internal Circulation

The only change which will be introduced to the carpark under this scheme is the addition of 16 spaces and these are accessed via the western driveway where there are generous manoeuvring provisions consistent with the AS design requirements.

The layout of the carpark areas will comply with the design criteria of AS 2890.1 & 6 including bays, aisles and manoeuvring areas.

6.3 Servicing

Provision for servicing will be accommodated by the approved arrangement. The loading dock area on western side of the building will provide for trucks up to 11.5m long trucks (the largest which will require to access) as well as ambulances and other small service vehicles. Details of the turning path assessment for the longest vehicle is provided in Appendix E indicating satisfactory provision for turning and manoeuvring with ingress and egress in a forward direction.

In relation to type and frequency of delivery vehicle movements Ramsay operates a

very similar size facility at Greenwich and the recorded movement of service vehicles at that site are provided overleaf.

Sita

Waste Monday – Saturday

RJ Goon

Fruit & Vegetables Monday – Saturday

Tip Top

Bread Monday – Saturday

Andrews Meat

Red Meat Monday – Friday

Trent Keys

Poultry 3 times a week

Bidvest

Frozen & Dry Goods 4 times a week

Spotless

Linen 3 times a week

Bunzl

Disposable & Paper Goods Twice a week

Lion

Juice & Low-Fat Yoghurt 3 times a week

Milk & Full Cream Yoghurt 3 times a week

Douwe Egberts

Coffee Once a week

Transport and Traffic Planning Associates

These movements are programmed to avoid concurrent arrivals and it is apparent that the projected similar movements at the proposed Artarmon facility will not present any traffic problems.

7.0 Conclusion

Assessment of the proposed Ramsay Health Care In-Patient facility has concluded that:

- ❖ there will not be any adverse traffic implications
- ❖ the parking provision will be adequate and appropriate
- ❖ the vehicle access, internal circulation and servicing arrangements will be suitable and the design will comply with Australian Standards

Appendix A

Approved Development Plans



FREDRICK STREET



NOTE:
FLOOR PLAN UNDER REVIEW - ISSUED FOR INFORMATION ONLY

LEGEND:
NOTE: DRAWINGS TO BE PRINTED IN COLOUR

- LIFT - CONSULTING
- LIFT - DAY PATIENTS
- LIFT - INPATIENTS / STAFF
- LIFT - BOH / STRETCHER
- RECEPTION
- STAIRS
- CIRCULATION

WALL TYPES :
NOTE: DRAWINGS TO BE PRINTED IN COLOUR

- 2 HR FR WALLS
- 1 HR FR WALLS
- SMOKE WALLS
- AFS WALLS
- BLOCKWORK WALLS
- CONCRETE WALLS
- PLASTERBOARD WALLS WITH METAL STUDS

ACOUSTIC, WATER-PROOFING AND HIGH IMPACT LININGS ARE TBC

ALLOW FOR IMPACKCHEK LININGS TO WARD ROOMS

ALLOW FOR LEAD LINING TO 2400mm HIGH IN ECT AND TMS ROOMS

PLYWOOD BACKING FROM FLOOR TO CEILING IN ALL DIRTY AND CLEAN UTILITY ROOMS AND STORE ROOMS

DRAWING CAN BE PRINTED AT 1:200 @ A2

CLIENT:



PROJECT MANAGER:



NORTHSIDE CLINIC
SCHEMATIC DESIGN PHASE 2

FLOOR PLAN - LEVEL 01

ARCHITECT:



ABN: 21 134 478 865
LVN 4, 89 YORK STREET
SYDNEY NSW 2000
PH: (02) 8299 4000
FAX: (02) 8299 4646

THIS ARCHITECTURAL DESIGN
IS THE COPYRIGHT OF
SILVER THORP HANLEY (AUSTRALIA) PTY LTD
ABN 21 134 478 865
& SHALL NOT BE REPRODUCED WITHOUT
THEIR WRITTEN PERMISSION

REVISION	DESCRIPTION	DATE	DWN
A	Information Only	13/05/16	CLIENT
B	User Group 6 Review	18/05/16	CLIENT
C	Schematic Design Phase 2	18/05/16	CLIENT

PROJECT No: 10271
DATE: 18/05/16
SCALE: 1 : 100 @ A0
DRAWING: A2.202
REVISION: C



NOTE:
FLOOR PLAN UNDER REVIEW - ISSUED FOR INFORMATION ONLY

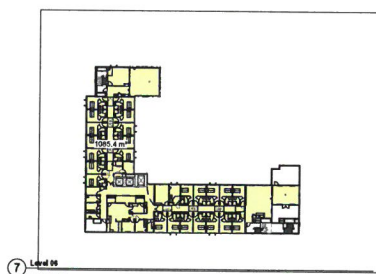
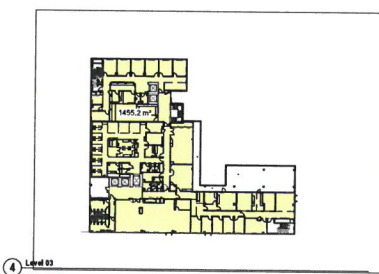
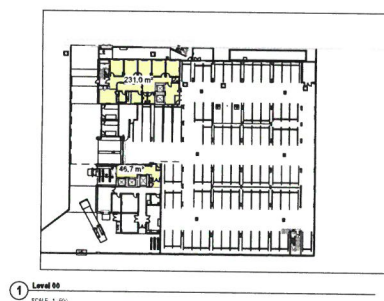
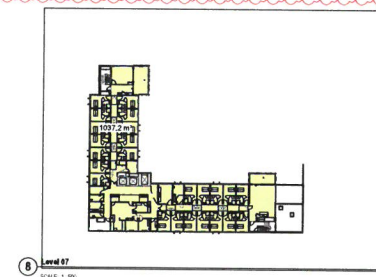
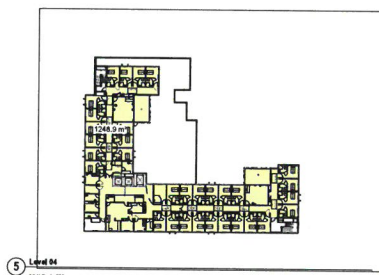
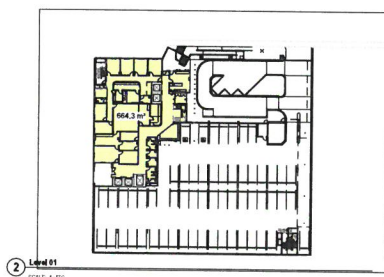
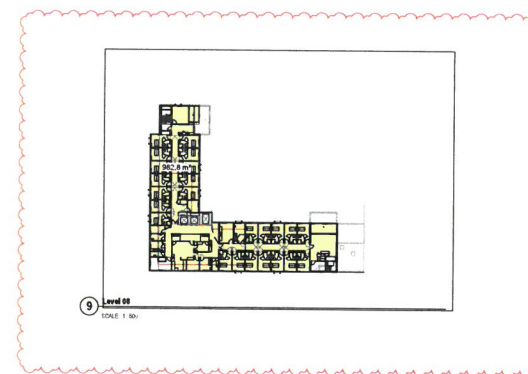
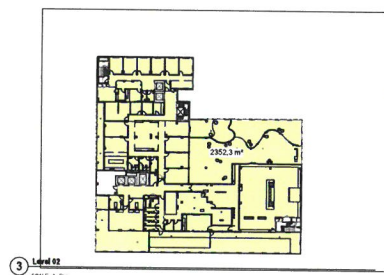
- LEGEND:
- NOTE: DRAWINGS TO BE PRINTED IN COLOUR
- LIFT - CONSULTING
 - LIFT - DAY PATIENTS
 - LIFT - INPATIENTS / STAFF
 - LIFT - BOH / STRETCHER
 - RECEPTION
 - STAIRS
 - CIRCULATION

- WALL TYPES :
- NOTE: DRAWINGS TO BE PRINTED IN COLOUR
- 2 HR FR WALLS
 - 1 HR FR WALLS
 - SMOKE WALLS
 - AFS WALLS
 - BLOCKWORK WALLS
 - CONCRETE WALLS
 - PLASTERBOARD WALLS WITH METAL STUDS
- ACOUSTIC, WATER-PROOFING AND HIGH IMPACT LININGS ARE TBC
- ALLOW FOR IMPACKCHEK LININGS TO WARD ROOMS
- ALLOW FOR LEAD LINING TO 2400mm HIGH IN ECT AND TMS ROOMS
- PLYWOOD BACKING FROM FLOOR TO CEILING IN ALL DIRTY AND CLEAN UTILITY ROOMS AND STORE ROOMS
- DRAWING CAN BE PRINTED AT 1:200 @ A2

Appendix B

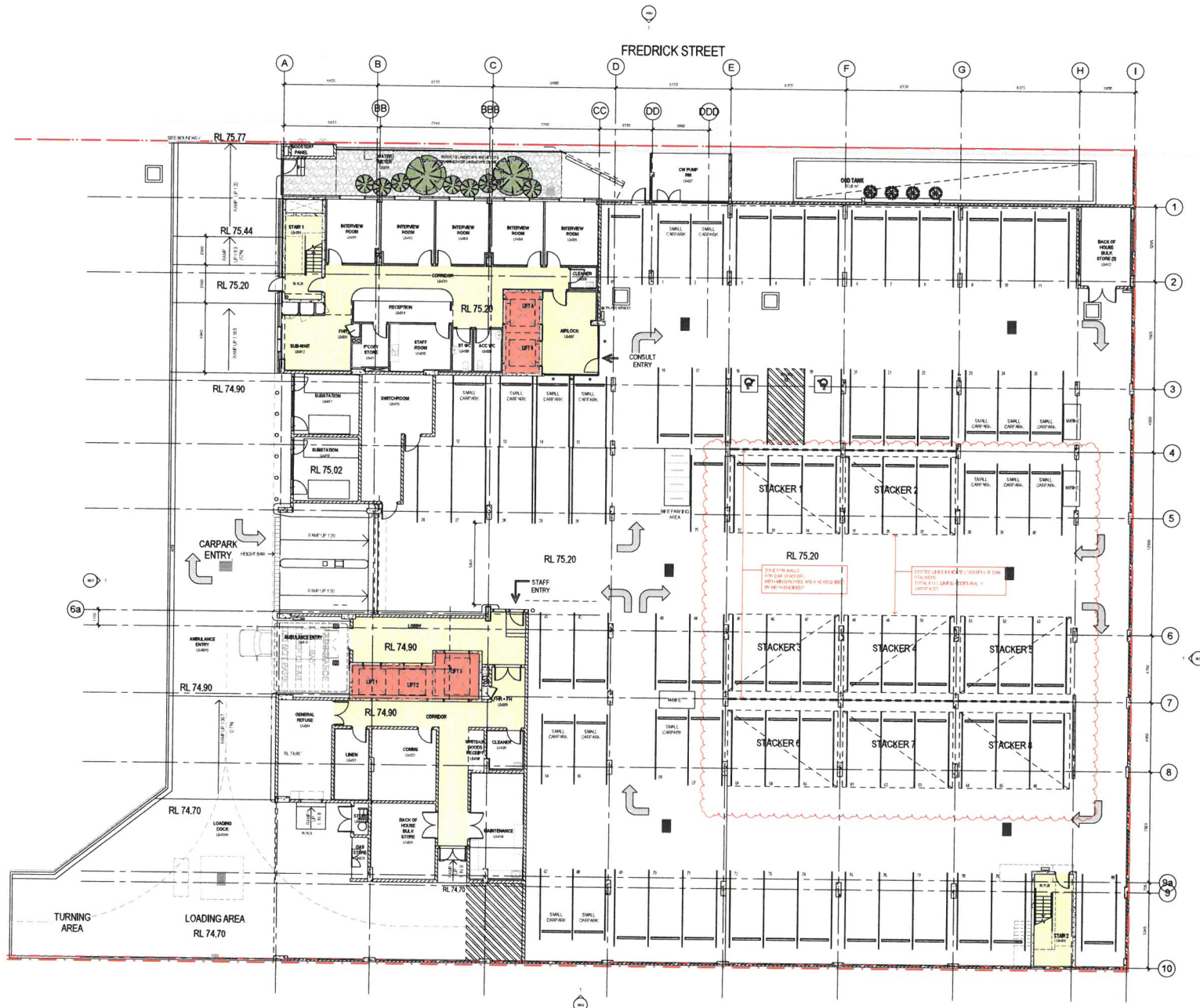
Proposed Modified Plans

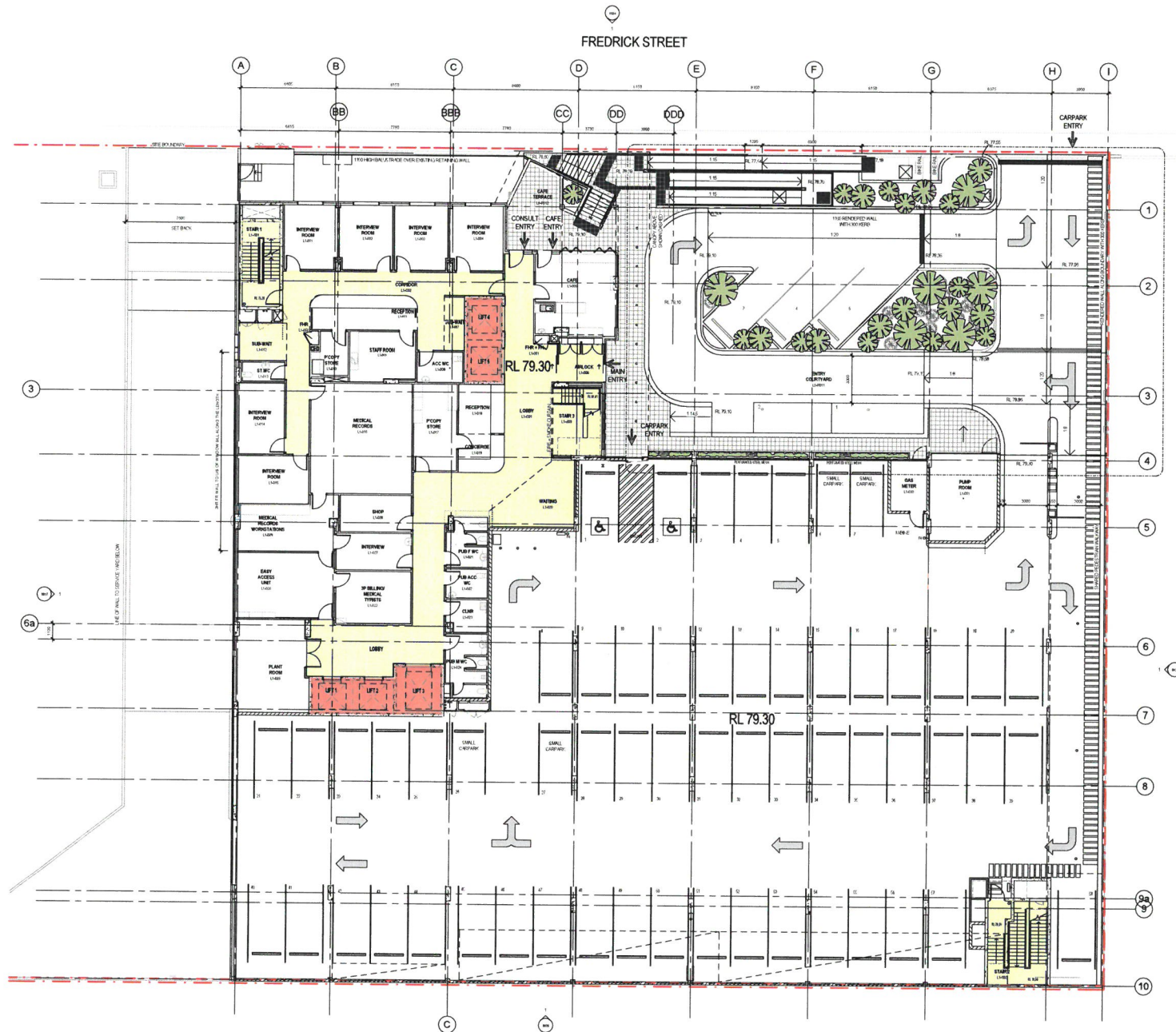


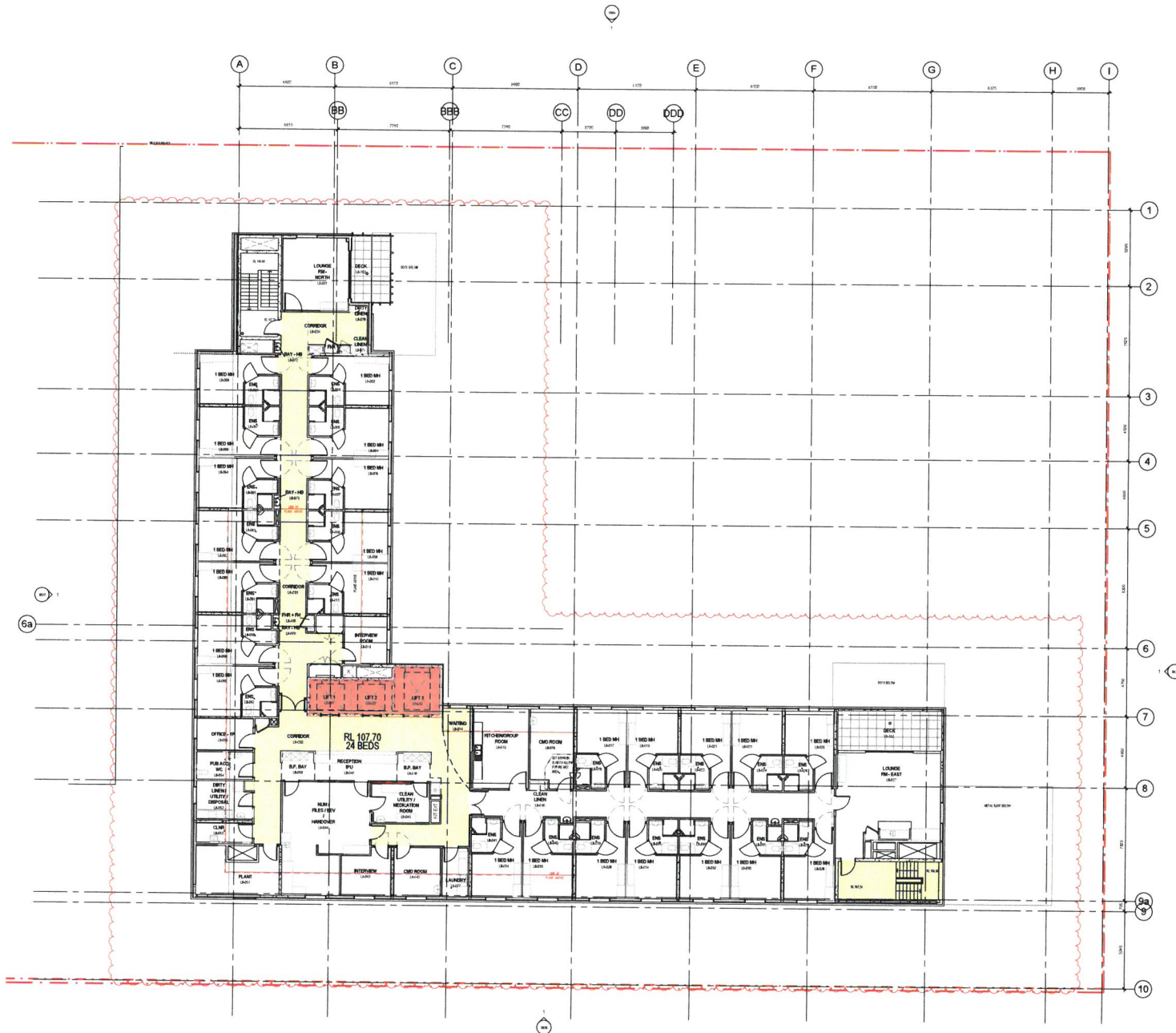


Area Schedule (Gross Floor Area)	
Level	Area
Level 00	278
Level 01	664
Level 02	2352
Level 03	1455
Level 04	1249
Level 05	1237
Level 06	1085
Level 07	1037
Level 08	983
Grand total	10341

SITE AREA	=	5789 SOM
FSR	=	1.81







NORTHSIDE CLINIC
SECTION 4.55(2)

PROPOSED FLOOR PLAN - LEVEL 08



ARCHITECT:



AKAN 12104 ALBANY
12104 ALBANY STREET
ST. ALBANS, QUEENSLAND
4105
TEL: 07 555 5555
FAX: 07 555 5555

NO.	REVISION	DATE
1	ISSUED FOR PERMIT	03/05/2018
2	ISSUED FOR PERMIT	03/05/2018
3	ISSUED FOR PERMIT	03/05/2018
4	ISSUED FOR PERMIT	03/05/2018
5	ISSUED FOR PERMIT	03/05/2018
6	ISSUED FOR PERMIT	03/05/2018
7	ISSUED FOR PERMIT	03/05/2018
8	ISSUED FOR PERMIT	03/05/2018
9	ISSUED FOR PERMIT	03/05/2018
10	ISSUED FOR PERMIT	03/05/2018

PROJECT No: 10271-03
DATE: 03/05/2018
SCALE: 1 : 100 @ A0
DRAWING: STH-AR-DWG-0021
REVISION: A

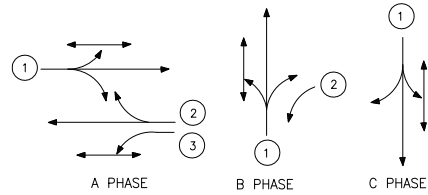
Appendix C

Intersection Plans

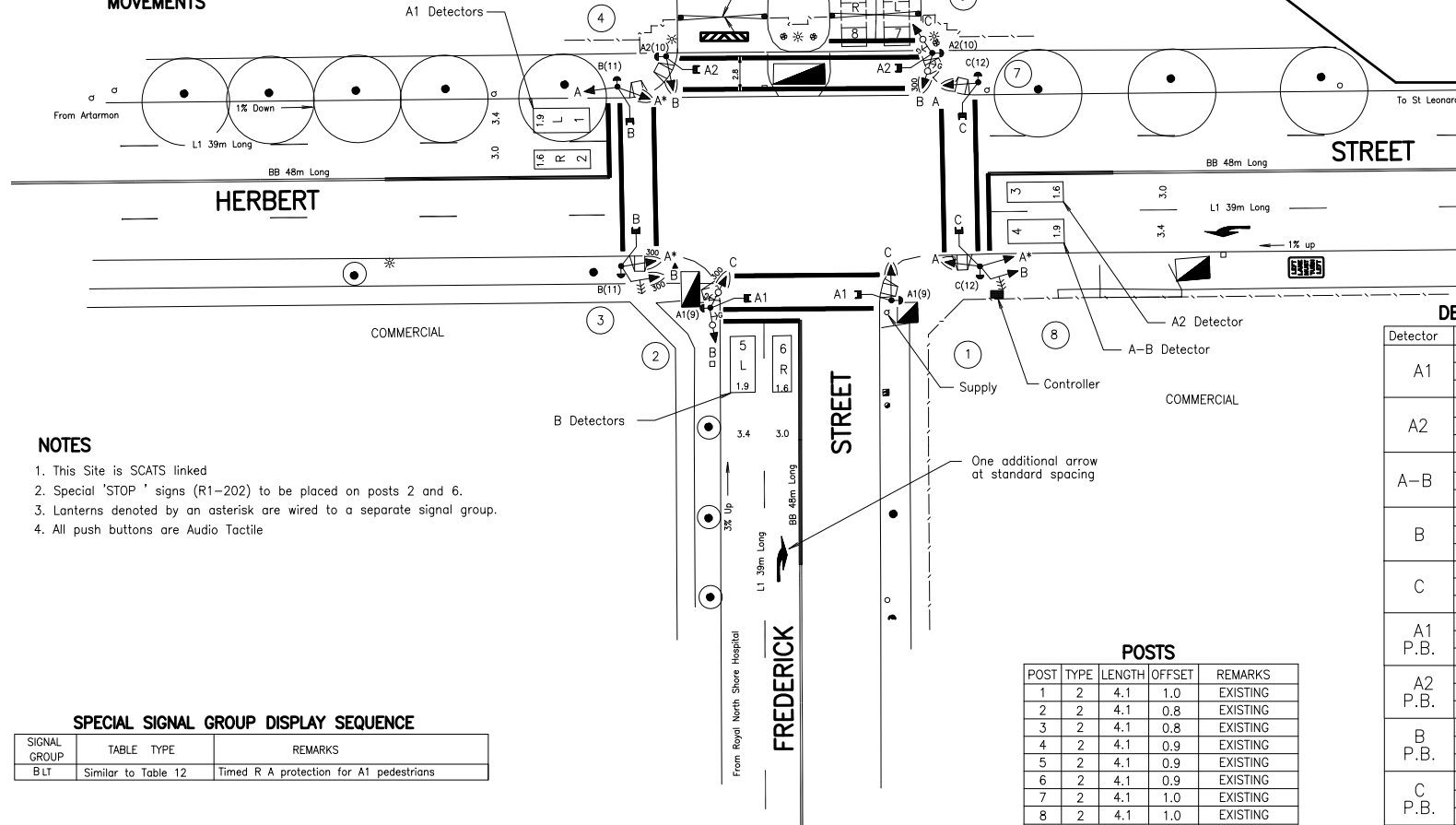


DRAWN BY CADD
DO NOT AMEND MANUALLY

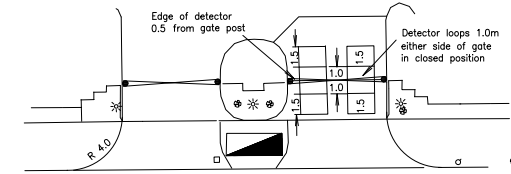
DATE IN SERVICE : 00/00/00



MOVEMENTS



SETOUT 'A'



NOTES

1. This Site is SCATS linked
2. Special 'STOP' signs (R1-202) to be placed on posts 2 and 6.
3. Lanterns denoted by an asterisk are wired to a separate signal group.
4. All push buttons are Audio Tactile

SPECIAL SIGNAL GROUP DISPLAY SEQUENCE

SIGNAL GROUP	TABLE TYPE	REMARKS
BLT	Similar to Table 12	Timed R A protection for A1 pedestrians

DETECTOR SPECIFICATION

Detector	Specifications			
A1	FN	A(L)	A(E1)	
	SG/PS	A	A	
A2	FN	A(L)	A(E2)	
	SG/PS	A	A	
A-B	FN	B(PR)	B(CL)	A(E3)
	SG/PS	A-B	A	B
B	FN	A+A1(PB)	A-B(NG)	B(NEXT)
	SG/PS	B(L)	B(E1)	A1(PB)
C	FN	B	B	
	SG/PS	C(L)	C(E1)	
A1 P.B.	FN	A1(PB)	B(L)	
	SG/PS	A1(WALK)	A.A(WALK)	
A2 P.B.	FN	A2(PB)	B(L)	
	SG/PS	A2(WALK)	A.A(WALK)	
B P.B.	FN	B(PB)	A(L)	
	SG/PS	B(WALK)	B.B(WALK)	
C P.B.	FN	C(PB)	A(L)	
	SG/PS	C(WALK)	C.C(WALK)	

POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS
1	2	4.1	1.0	EXISTING
2	2	4.1	0.8	EXISTING
3	2	4.1	0.8	EXISTING
4	2	4.1	0.9	EXISTING
5	2	4.1	0.9	EXISTING
6	2	4.1	0.9	EXISTING
7	2	4.1	1.0	EXISTING
8	2	4.1	1.0	EXISTING

A ORIGINAL ISSUE
B Issue Office Instruction
C Issue - Signal Contractor
D Issue - Signal Contractor
E Issue - Signal Contractor
F Issue - Signal Contractor
G Issue - Signal Contractor
H Issue - Signal Contractor
I Issue - Signal Contractor
J Issue - Signal Contractor
K Issue - Signal Contractor
L Issue - Signal Contractor
M Issue - Signal Contractor
N Issue - Signal Contractor
O Issue - Signal Contractor
P Issue - Signal Contractor
Q Issue - Signal Contractor
R Issue - Signal Contractor
S Issue - Signal Contractor
T Issue - Signal Contractor
U Issue - Signal Contractor
V Issue - Signal Contractor
W Issue - Signal Contractor
X Issue - Signal Contractor
Y Issue - Signal Contractor
Z Issue - Signal Contractor

22/4/99
TMAX P/L 9/99

PUBLIC UTILITY LEGEND
HYDRANT
STOP VALVE
GAS VALVE
SEWER MANHOLE
TELECOM PIT
ELECT LIGHT POLE
POWER POLE
STAY POLE
TELEPHONE BOX
TELECOM PILLAR

REFERENCE PLANS
SYMBOLS/ABRS
STD POST
DET SCHED EXP
PRES DETECT
SSG DIS. SEQ
DESIGNED
CHECKED
SURVEYOR
DATE

U.S.D. Ref. MAP 215 M2
I.S.G. E: 317 845
CO-ORDS N: 1 248 365
G P REYNOLDS
M. A. CLEVER
J J ZOUTENDYK
DATE

APPROVED
F D REID
MANAGER, URBAN
CIVIL DESIGN
DATE 20/10/98
THIS DRAWING IS
RECOMMENDED FOR
ADVICE
NETWORK OPERATIONS
TEAM LEADER
DATE 15/11/98
Manager Local Network
Services
DATE 15/11/98
Roads and Traffic Authority, N.S.W.
WILLOUGHBY CITY COUNCIL
TRAFFIC SIGNALS AT THE JUNCTION OF
HERBERT STREET AND FREDERICK STREET
ST LEONARDS
DESIGN LAYOUT
TCS No 3518

DESIGN OFFICE PARRAMATTA - SYDNEY TECHNICAL SERVICES
CADD FILE: W3518_1C.dgn
SCALE 5 0 (1:200) 5 10
FILE 480 TS 303
SUPERSEDES SHEET/ISSUE 1/B
REGN. 7000.490.W.3518
SHEET 1
COPYRIGHT ROADS AND TRAFFIC AUTHORITY



Appendix D

Traffic Survey Results



Location Herbert Street and Frederick Street, St. Leonard
 Client T/T.P.A.
 Job No/Name 14011
 Day/Date Thursday, 13/11/2014

Roundabout

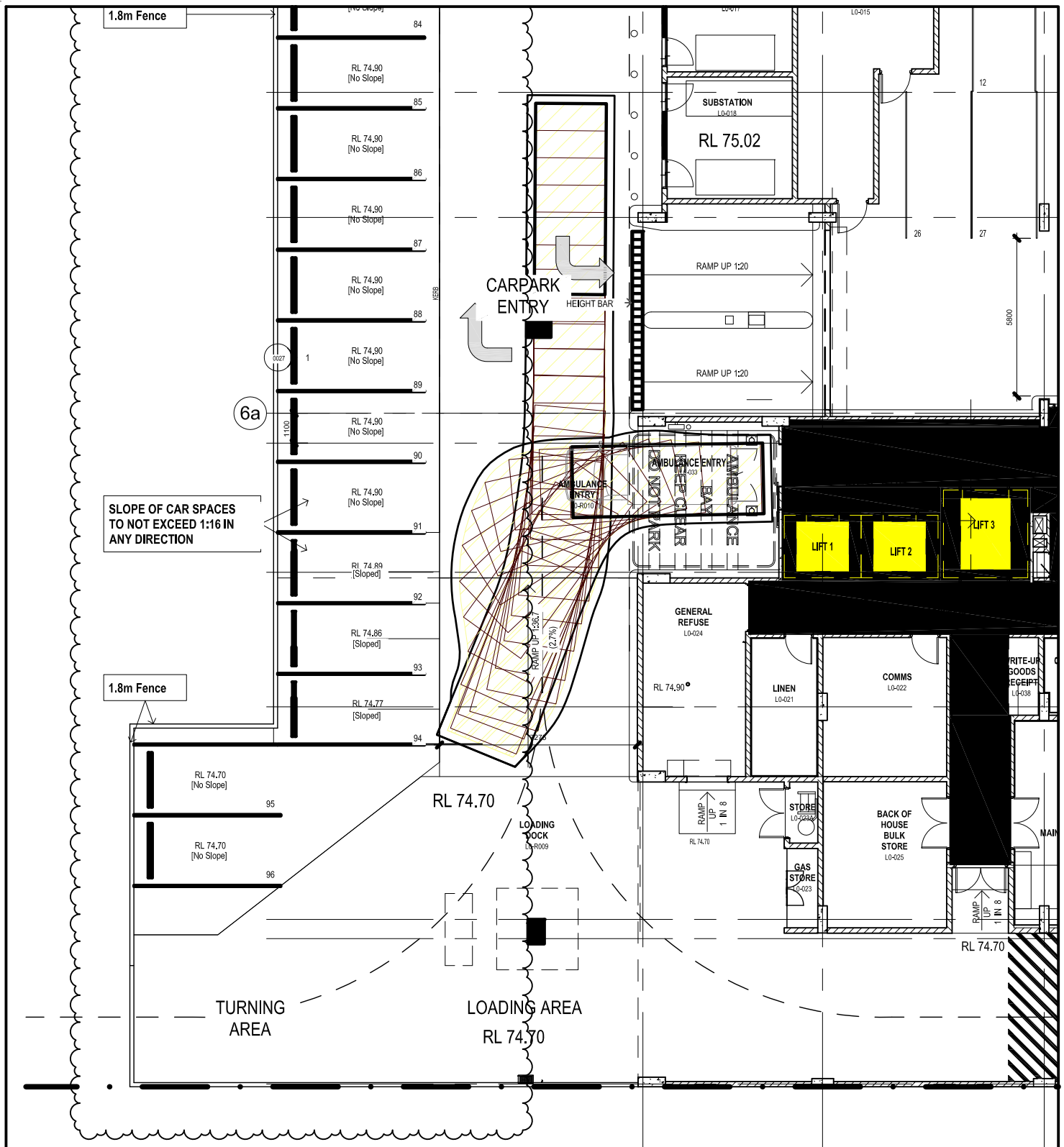
All Vehicles	NORTH Reserve Road				EAST Frederick Street				SOUTH Reserve Road				WEST Commercial Buildings				TOTAL
15 MIN (SAMPLE)	L	T	U	R	L	T	U	R	L	T	U	R	L	T	U	R	
0700 - 0715																	0
0715 - 0730																	0
0730 - 0745																	0
0745 - 0800																	0
0800 - 0815					35	8	2	55									100
0815 - 0830	74	62	1	8													145
0830 - 0845									0	21	0	11					32
0845 - 0900													2	3	0	0	5
Period End	74	62	1	8	35	8	2	55	0	21	0	11	2	3	0	0	
1500 - 1515																	0
1515 - 1530																	0
1530 - 1545																	0
1545 - 1600	93	9	0	5													107
1600 - 1615					21	16	0	110									147
1615 - 1630									1	91	3	42					137
1630 - 1645													2	3	0	0	5
1645 - 1700																	0
1700 - 1715																	0
1715 - 1730																	0
1730 - 1745																	0
1745 - 1800																	0
Period End	93	9	0	5	21	16	0	110	1	91	3	42	2	3	0	0	678

All Vehicles	NORTH Herbert Street			WEST Sitas			SOUTH Herbert Street			EAST Frederick Street			TOTAL
Time Per.	L	T	R	L	T	R	L	T	R	L	T	R	
0700 - 0715	1	81	48	1	0	0	44	45	0	23	2	91	335
0715 - 0730	0	89	27	0	0	1	59	67	0	15	2	101	362
0730 - 0745	1	106	37	1	4	0	53	70	0	8	2	107	388
0745 - 0800	1	114	24	0	2	1	54	62	3	15	1	94	370
0800 - 0815	1	126	34	1	4	0	58	73	1	15	2	125	443
0815 - 0830	2	198	49	0	5	2	61	104	1	15	2	107	545
0830 - 0845	2	176	42	4	2	3	68	106	1	25	2	120	553
0845 - 0900	3	210	39	2	4	3	79	137	1	25	3	117	623
Period End	11	1105	300	9	21	10	476	664	7	140	16	861	3619
1500 - 1515	1	111	13	0	10	7	56	90	0	48	1	104	440
1515 - 1530	1	141	16	2	9	3	68	76	0	48	2	109	476
1530 - 1545	1	114	23	1	6	0	71	106	1	43	2	114	482
1545 - 1600	1	137	18	2	8	9	75	134	0	45	1	109	541
1600 - 1615	4	184	26	3	11	14	79	109	0	30	0	125	567
1615 - 1630	1	157	19	2	14	7	61	104	0	43	0	133	540
1630 - 1645	2	153	18	2	17	5	73	90	0	18	1	156	534
1645 - 1700	1	159	21	1	14	2	69	76	0	20	0	138	500
1700 - 1715	2	167	14	0	11	12	66	118	0	15	1	153	561
1715 - 1730	2	156	22	0	6	11	71	92	0	18	1	169	548
1730 - 1745	0	146	14	1	4	3	63	108	0	20	0	151	511
1745 - 1800	0	134	9	0	3	1	66	116	0	28	0	133	490
Period End	16	1739	218	14	113	74	822	1218	1	373	9	1594	13429

Appendix E

Turning Path Assessment





LEGEND

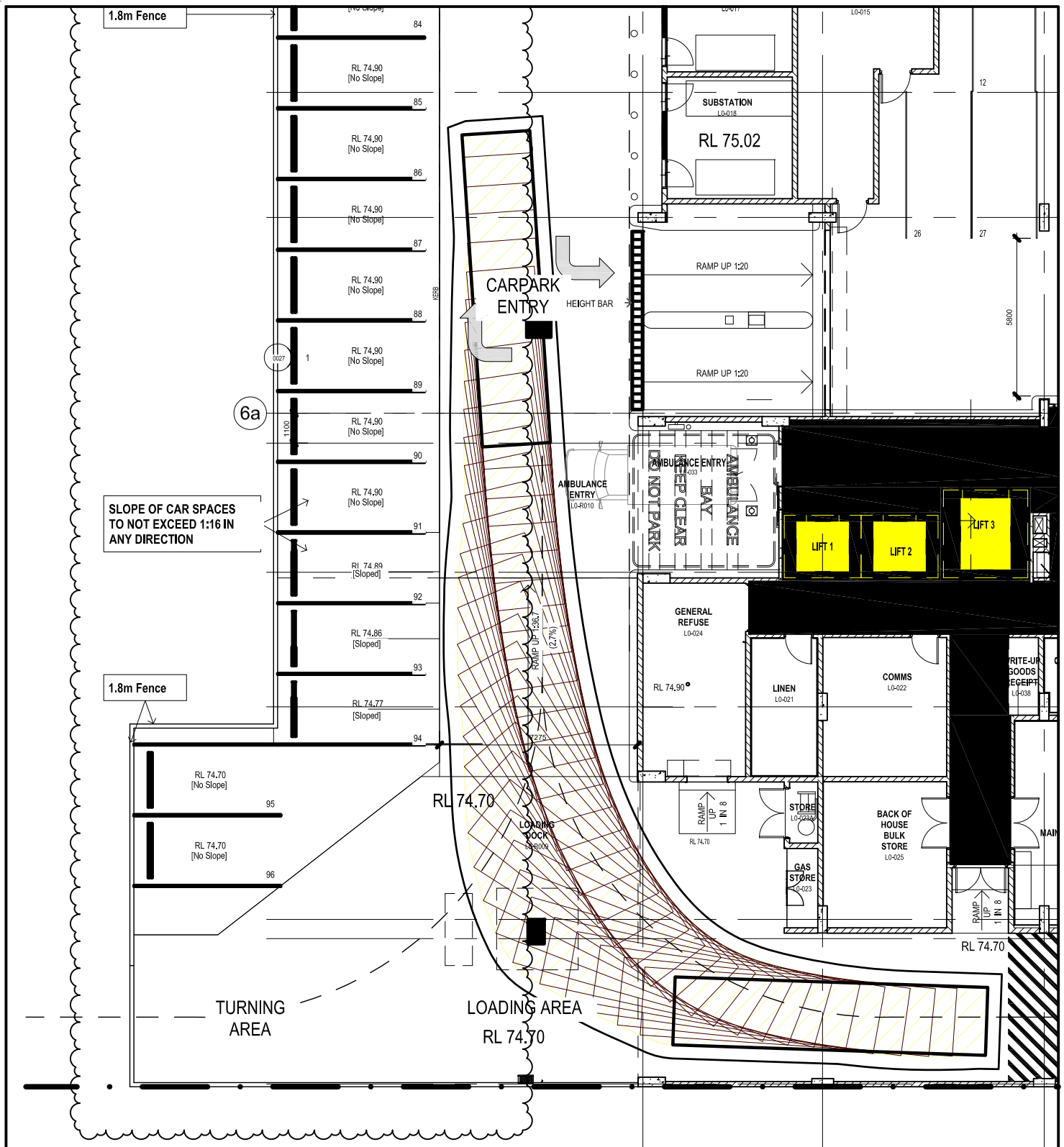
This drawing has been prepared using vehicle modelling computer software AutoTrack V9.21 in conjunction with AutoCAD 2013. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.



SWEPT PATH ANALYSIS OF A 7.020m BARIATRIC AMBULANCE ENTERING THE SITE

SP 1

SP 2



LEGEND

This drawing has been prepared using vehicle modelling computer software AutoTrack V9.21 in conjunction with AutoCAD 2013. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.



SWEPT PATH ANALYSIS OF AN 11.5m RIGID VEHICLE EXITING THE SITE

SP 4