BARKER RYAN STEWART
TOTAL PROJECT SOLUTIONS

PLANNING
PROJECT MANAGEMENT
ENGINEERING
CERTIFICATION

Combined Projects (Westmead) Pty. Ltd.

Traffic and Parking Impact Assessment Report

Lot 4 158-164 Hawkesbury Road & 2a Darcy Road, Westmead

Our Ref: SY160028
December 2016

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1 Introduction

Barker Ryan Stewart have been engaged by Combined Projects (Westmead) Pty. Ltd. to prepare a Traffic and Parking Impact Assessment in accordance with the requirements of the Parramatta DCP 2011 (DCP) and the Road and Maritime Service's (RMS's) *'Guide to Traffic Generating Developments'* to accompany a Development Application for the residential apartment building development at Lot 4 DP 1202362, 158-164 Hawkesbury Road, Westmead.

The purpose of this report is to assess and address traffic, access, car parking and pedestrian impacts generated by the proposed development. This can be briefly outlined as follows:

- The expected traffic generation to/from the proposed development.
- The impact of the proposed development on the road network.
- Intersection analysis based on traffic counts.
- Vehicle parking provisions.
- Access design requirements.
- Delivery and Waste Collection.
- Provision for pedestrians.
- Availability of public transport.

This Traffic and Parking Impact Assessment Report concludes that the subject site is suitable for the proposed development in relation to traffic impact, car parking provision, vehicle and pedestrian access and safety considerations.

2 Existing Conditions

2.1 Site Location

The site is located at the Western Sydney University site in Westmead at 158-164 Hawkesbury Road and 2a Darcy Road, on newly created Lot 4 DP1202362 with a site are of 6,588m^2.

The site is on the corner of Hawkesbury Road and Darcy Road and is bound by a high school to the west, Westmead Hospital to the north and the T1 railway line to the south on which the Westmead railway station is located.

Figure 1: Aerial Photo of Site (nearmap.com, May 2016)

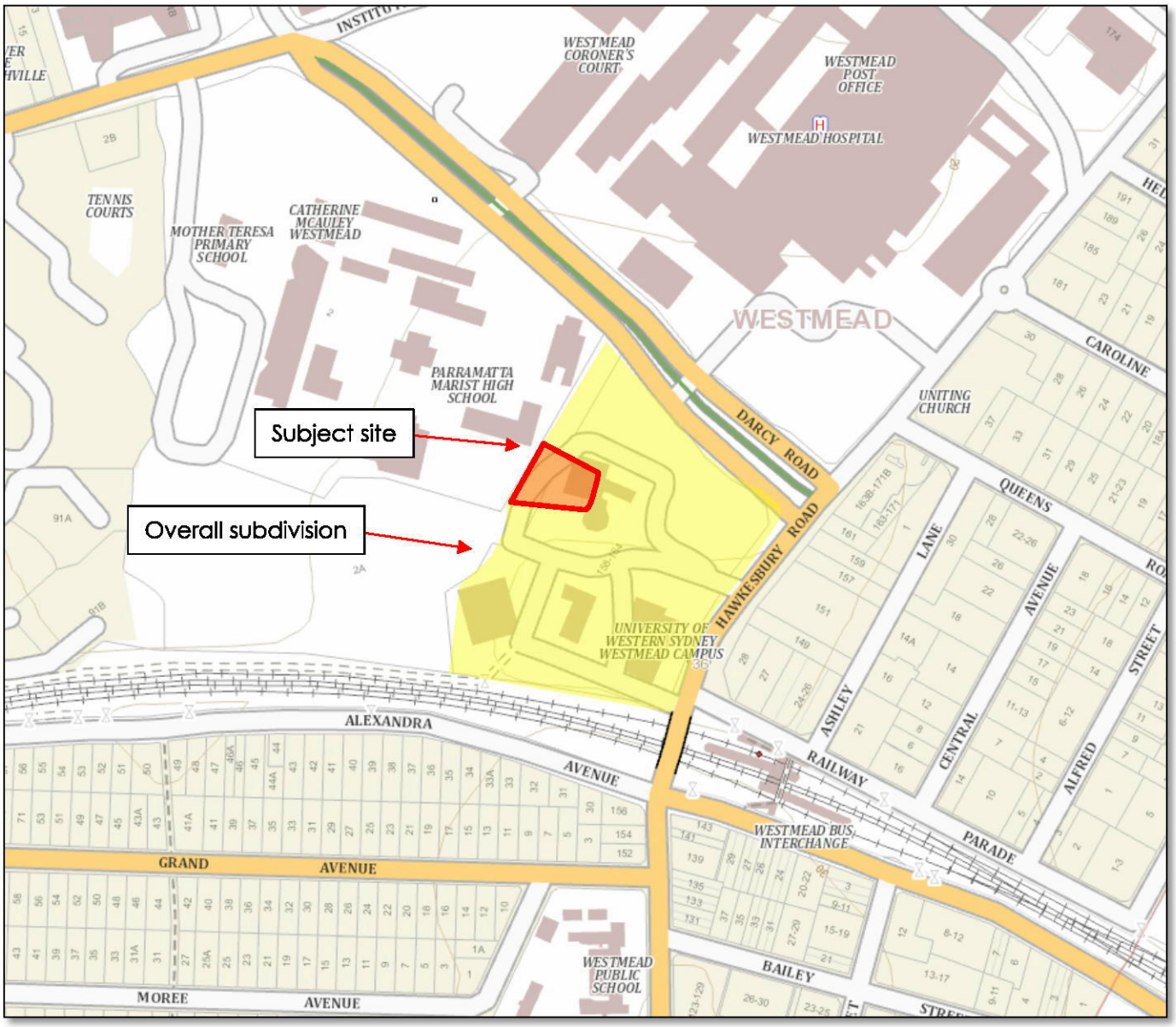


Figure 2: Site Location (maps.six.nsw.gov.au)

2.2 Existing Development

The site has been cleared and the circulation roads have been constructed as per the Stage 1 DA for the UWS 5 lot subdivision. The only remaining building on the whole site is the International English Language Testing System Centre which is on the corner of the railway line and Hawkesbury Road known as lot 1.

2.3 Existing Road Conditions

The adjacent roads to the site are Darcy Road to the north and Hawkesbury Road to the east. The intersection of these roads is signalised. The access on Darcy Road to Westmead Hospital to the north of the site is also signalised. Vehicle access to the site is via a left in/left out driveway off Hawkesbury Road. The speed limit of Hawkesbury Road is signposted 50km/h, while Darcy Road is 40km/h.

Vehicular access to the existing buildings on the site is via a left in/left out driveway on Hawkesbury Road.

Hawkesbury Road

In the immediate vicinity of the site, Hawkesbury Road is a six-lane, two-way road with a narrow painted median and kerb and gutter on both sides. Northbound there is a left turning lane and a through lane. About mid-block a dedicated left turning bus lane tapers out from between both northbound lanes which leads to the bus terminal and bus lane on Darcy Road. Southbound there are two through lanes that continue over the railway bridge, and a left turning lane into Railway Parade that allows the through movement of buses over the railway bridge.

The overall carriageway width is approximately 20m between kerbs adjacent to the site.

Directly to the south, Hawkesbury Road is a five-lane, two-way road with the additional lane southbound dedicated to buses. The bus lane is separated by a fully kerbed raised median.

Darcy Road

Darcy Road is segmented into three carriageways: north (west) bound, south (east) bound, and a two-way dedicated bus lane in the middle.

The northbound lane is generally two-lane, with an additional right turning lane that is almost the entire duration of the mid-block section. There is also an indented taxi zone adjacent to the left through lane.

The southbound lane is also two-lane with both lanes allowing right turns only, and a 30m long left turning lane at the intersection with Hawkesbury Road.

The bus lane in the centre of the road reserve is two-lane, two-way with extra parking width for the bus stop. The bus lanes have fully integrated signals at the access to the hospital and the intersection with Hawkesbury Road.

2.4 Public Transport, Pedestrians and Cyclists.

The *'UWS Westmead Estate Major Works Transport Assessment'* (UWS Transport Assessment) prepared by ARUP Pty Ltd (dated August 2014) referred to Journey to Work data from the 2011 Australian Bureau of Statistics Census. It demonstrated the existing modal split from the Westmead Precinct included 42% private vehicle use. The remaining 58% included bus (1%), train (41%), walking (10%), car passengers (4%) and other (2%). This is the latest census data available.

This is reflective of how well this site is connected to public transport with rail and bus connections located in close proximity to the site.

The site is located along a number of bus routes with a bus stop located adjacent to the site on Darcy Road. The buses that service this bus stop operated both directions on the following routes: 705, 708, 711, T60, T61, T62, T63, T64, T65 and T66. A bus route map is attached at Appendix A.

Westmead railway station is located less than 250m to the east and is situated on the T1 line which covers the west and north of Sydney. The Sydney trains network map is attached in Appendix B.

The site location is well serviced by existing pedestrian facilities with footpaths on both sides of the general road network around the site. There are pedestrian signals that directly connect the site to the bus stop and the railway station.

The site is linked with a number of existing cycle paths as shown on the Westmead & Parramatta Cycleways Map attached in Appendix C. In the immediate vicinity of the site, there is an on-road bicycle path on Hawkesbury Road and an off-road bicycle path on the north side of Darcy Road.

The site is very well located to all forms of public transport.

2.5 Traffic Counts

Traffic counts were undertaken by ROAR Data Pty Ltd on Thursday 21 July 2016 at the intersection of Darcy Road and the Westmead Hospital access during the peak morning hour at 8:00-9:00 and the peak afternoon hour at 5:00-6:00 and is summarised in the figure below. The full survey is attached in Appendix E.

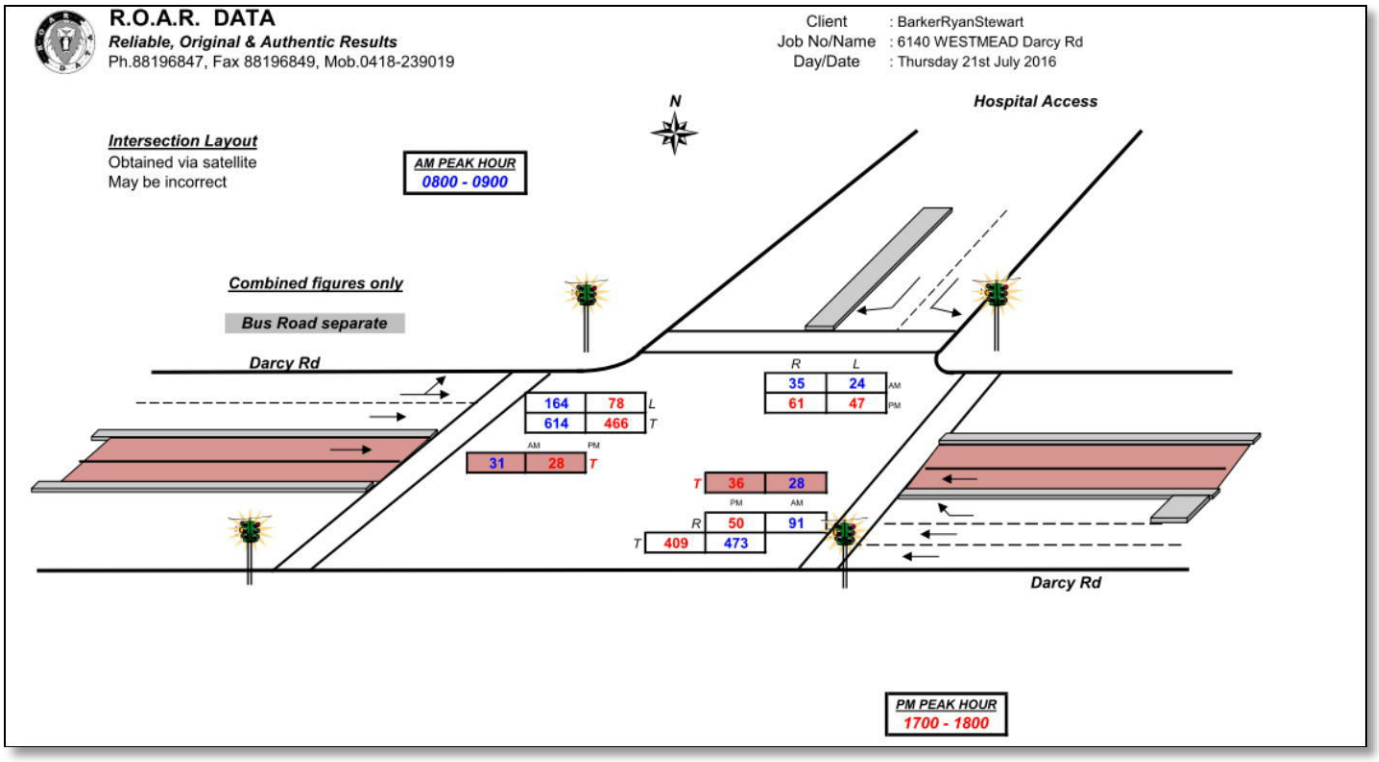


Figure 3: Traffic counts – Darcy Road and hospital/site access

In comparison to the counts utilised in the UWS Transport Assessment, the current midblock counts on Darcy Road between the hospital access and Hawkesbury Road is 1260 vehicles during the morning peak and 1036 vehicles in the afternoon peak. This is comparable to the volume in 2011 as shown in the figure below.

Location	Two-way Traffic Volume	
	8-9am	4-5pm
Hawkesbury Road between Railway Pde and Darcy Rd	1,820	1,440
Hawkesbury Road north of Darcy Rd	1,280	1,210
Darcy Road between Hawkesbury Rd and Westmead Hospital No.1 Access	1,200	990
Darcy Road between Mons Rd and Westmead Hospital No.7 Access	1,270	1,090
UWS site access on Hawkesbury Road	200	90

Figure 4: 2011 traffic counts from the UWS Transport Assessment

3 Proposed Development

3.1 Development Description

The proposal is for a residential development comprising 355 units. The development includes a 6m-wide right of access along the northern boundary. There is proposed to be 439 car parking spaces throughout 5 parking levels, including 71 visitor spaces, and 36 disability accessible spaces.

The waste and loading bay is located on the ground floor accessible from the right of access on the northern boundary.

3.2 Access

The proposed entry/exit to the car park is located 25m into the right of access. The waste collection access is located at the end of the right of access on the northwest corner.

The entry/exit driveways comply with *AS/NZS 2890.1-2004 Parking Facilities – Off Street Car Parking, AS 2890.2-2002 Parking Facilities – Off Street Commercial Vehicle Facilities* and Council's DCP requirements.

The proposed driveway locations comply with *Figure 3.3 – Minimum Sight Distance for Pedestrian Safety AS/NZS 2890.1* and the proposed driveway gradients comply with *AS/NZS 2890.1*.

3.3 Parking

As outlined above it is proposed to provide a total 439 car parking spaces including 36 accessible spaces, and 71 visitor spaces.

The development also incorporates 182 bicycle spaces in the secured car park in accordance with the requirements of the Parramatta DCP.

The proposed parking facilities have been designed generally in accordance with the requirements *AS/NZS 2890.1, AS 2890.2* and *AS/NZS 2890.6 Off-Street parking for people with disabilities.*

The only departure from AS/NZS 2890.1 is the parking space adjacent to the Comms Room on basement level 1 (and the spaces in the same location on the subsequent floors) with a one-way aisle width less than the required 5.8m across a portion of the space. Swept path analysis shows that the space is accessible by a vehicle in a forward and reverse direction. It is considered that this departure will not impede the safety or operation of the car park due to its location at the end of the aisle, and its use by familiar residents.

3.4 Circulation

The proposed ramps and circulation roadways have been designed in accordance with the requirements *AS/NZS 2890.1*.

A swept path assessment in accordance with *AS/NZS 2890.1* B85 vehicle through the car park was undertaken and the proposed car park arrangement was considered to be satisfactory. On the access ramps the swept paths of the B85 and B99 vehicles can by-pass each other simultaneously.

3.5 Service Vehicles

Residential waste will be collected by Private Residential Waste Contractor from the Waste Collection/Loading bay area on the ground floor via the right of access.

Waste and recycling bins will be stored in a designated refuse area and a holding area on the ground floor.

The Waste Collection Area and Loading Bay have been designed so that they can be serviced by a modified 10.5m-long Medium Rigid Vehicle (MRV) as defined within *AS 2890.2* and these vehicles can enter and exit the site via the right of access in a forward direction.

Note that the swept path shows that the drivers of vehicles will not need to cross the centre line of the new road to the east of the proposed building. The MRV Swept path sketch is attached at Appendix F.

3.6 Public Transport, Pedestrians and Cyclists

Parramatta's DCP requires a modal split of 35% public transport to 65% private transport. As stated above, the UWS Transport Assessment demonstrated the existing modal split from the Westmead Precinct included 46% private vehicle use including passengers, 42% public transport use, 10% walking and 2% other modes. This is the latest census data and it is considered that this travel modal split will continue post development of the residential building due to how well the site is serviced by alternate modes of travel.

To encourage this transport mode trend, pedestrian links within the overall subdivision to the Westmead railway station, bus stop and the wider road network are to be provided.

As stated above, ample bicycle storage is provided to encourage alternative modes of transport to be utilised by residents. The cycleways network on both adjacent roads is easily accessible from this site.

All other public transport services, as discussed in section 2.4 above, will be available to the proposed development. It is considered that the additional residents in the area would not have a significant effect on the capacity of the public transport infrastructure, rather it would add to the viability of these services.

4 Car Parking Assessment

4.1 Parking requirements

The proposed access and car parking provision has been assessed against Parramatta's DCP Chapter 4.3.4 Westmead, 3.4.2 Access for People with Disabilities, 3.6.2 Bicycle Parking, Building Code of Australia 2015 and the RMS *'Guide to Traffic Generating Developments'*. The required parking provision for the proposed different uses of the site are outlined below:

Parramatta DCP (Westmead precinct):

- Residential flat building
  - Studio apartments – Maximum of 0.6 spaces per apartment
  - 1, 2 & 3 bedrooms – Maximum of one space per dwelling
  - Visitors – 1 space per 5 dwellings (excluding studios)
  - Bicycle parking – 1 bicycle space per 2 dwellings

- Disabled Parking (DCP & Building Code of Australia)
  - Disability – Provide a proportionate number of accessible parking as there are accessible units (10%)

Parramatta DCP:

- Residential flat building within 400m of a transit way
  - 1 & 2 bedrooms – 1 space
  - 3 bedrooms – 1.2 spaces
  - Visitors – 0.25 spaces per dwelling
  - A car wash bay which may also be a visitor space

RMS Guide to Traffic Generating Developments:

- High density residential flat buildings, Metropolitan Regional (CBD) Centres:
  - 0.4 spaces per 1 bedroom unit
  - 0.7 spaces per 2 bedroom unit
  - 1.2 spaces per 3 bedroom unit
  - 1 space per 7 units (visitor parking)

	Parramatta DCP (Westmead)	Parramatta DCP	RMS Guide
Residential Flat Building (355 units)	Studios (10) = 0.6 × 10 = 6 Dwellings ex. studios (345) = 345 × 1 = 345 Visitor spaces = 355 ÷ 5 = 71 **Total = 422 max.** Disability accessible spaces 355 × 10% = 35.5 **(36)** Bicycle spaces = 355 ÷ 2 = 177.5 **(178)**	1 & 2 bedrooms (342) = 1 × 342= 342 3 bedrooms (13) = 1.2 × 13 = 15.6 Visitor spaces = 0.25 × 355 = 88.75 **Total = 447 min.** Disability accessible spaces 355 × 10% = 35.6 **(36)** Bicycle spaces = 355 ÷ 2 = 177.5 **(178)**	1 bedroom dwelling (210) = 210 × 0.4 = 84 2 bedroom dwelling (132) = 132 × 0.7 = 92.4 3 bedroom dwelling (13) = 13 × 1.2 = 15.6 Visitor spaces = 355 ÷ 7 = 50.7 **Total = 242.7 min.** Disability accessible spaces 355 × 10% = 35.6 **(36)**
Total Required	**422 car spaces max.** **36 accessible spaces** **178 bicycle spaces**	**447 car spaces min.** **36 accessible spaces** **178 bicycle spaces**	**243 car spaces min.** **36 accessible spaces**
Proposed Provision	**439 car spaces** **Including 36 accessible spaces** **Including 71 visitor spaces** **182 bicycle spaces**		

Table 1: Council DCP and RMS Parking calculations

4.2 Parking assessment

Based on the parking provisions the NSW Department of Planning and Environment's 'Apartment Design Guide' (SEPP65), it states:

'For development in the following locations:

- on sites that are within 800 metres of a railway station or light rail stop in the Sydney Metropolitan Area; or
- on land zoned, and sites within 400 metres of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre;

The **minimum** car parking requirement for residents and visitors is set out in the Guide to Traffic Generating Developments, or the car parking requirement prescribed by the relevant council, whichever is less. The car parking needs for a development must be provided off street.'

As the subject site is within 250m from Westmead railway station, the RMS minimum parking rates may be applied. The proposed car park comprises of 439 car spaces which exceeds and therefore meets the minimum RMS requirement of 243 spaces.

Note also that the 439 car spaces proposed has only 17 spaces more than the 422 maximum spaces required by the Parramatta DCP (Westmead) and only 6 spaces less than the minimum 447 spaces required by the general Parramatta DCP.

It is considered the proposed car and bicycle parking facilities will be adequate to meet the requirements of the development without impacting on the local road network. Although the Parramatta DCP (Westmead Precinct) refers to a maximum parking rate to discourage private car trips from the Westmead precinct, it is considered that the extra 17 car spaces (approximately only 4%) will unlikely affect the high rates of public transport use. The site is excellently placed to continue its well evidenced high rate of alternative transport methods.

5 Traffic Assessment

5.1 Traffic Generation

The RMS's *'Technical Direction 2013/04a – Traffic Generating Developments Updated Traffic Surveys'*, provides survey data of traffic generation rates for similar uses to this development. The predicted traffic generated from this development is outlined in Table 2 below using the Sydney average.

Use	Morning Peak Hour	Afternoon Peak Hour
High density residential flat buildings (355 units)	0.19 per unit = 67.45	0.15 per unit = 53.25
Total	**68**	**54**

Table 2: Proposed development – traffic generation

5.2 UWS Westmead Estate Major Works Transport Assessment

The *'UWS Westmead Estate Major Works Transport Assessment'* prepared by ARUP investigated the traffic impacts of the overall subdivision. The investigation concluded that there were no further infrastructure works that were required aside from the added access from the existing signalised intersection to the Westmead Hospital. The projected future impacts of the development are shown in the below figure.

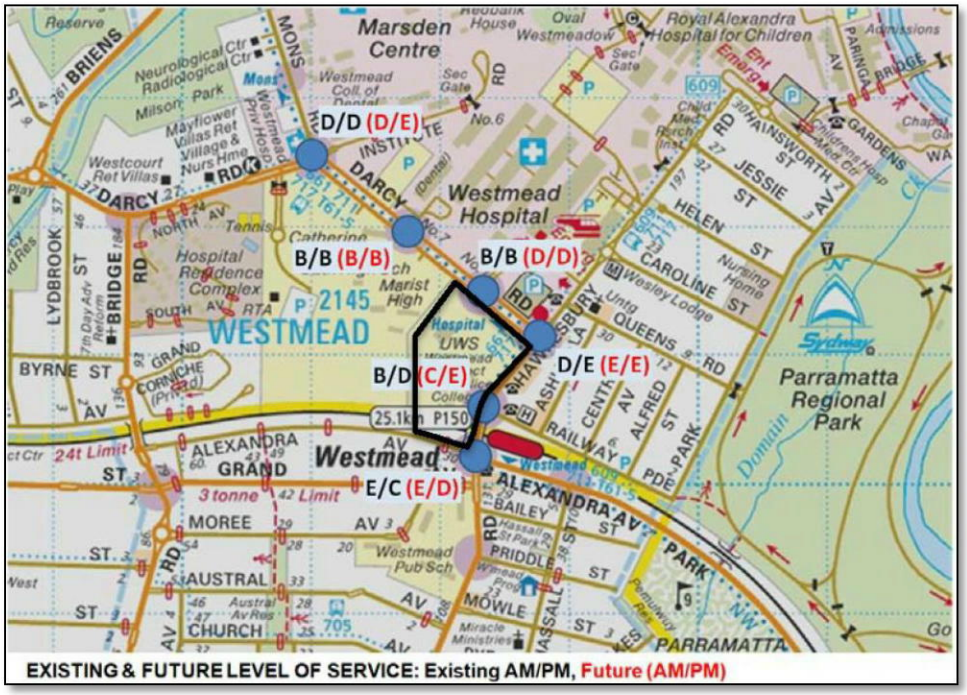


Figure 5: Projected post development Level of Service in 2021 (ARUP)

The upgrade to the signalised access had input from the RMS network operations team. A copy of the intersection design is attached in Appendix D.

The UWS Transport Assessment based the Sidra analysis on the residential component generating 135 peak hour movements as shown below. This was based on an estimated 713 units.

Land Use	GFA (m^2)	Traffic Generation* veh/hr per 100m^2 GFA (peak hour)		Total Peak Hour Traffic		*Notes
		AM (8-9am)	PM (5-6pm)	AM (8-9am)	PM (5-6pm)	
Residential	71,295	0.19	0.15	135	107	Average from surveys of 10 high density residential developments (RMS, 2013)
Commercial	28,900	1.19	0.82	344	237	Average from surveys of 10 office blocks (RMS, 2013)
Retail	7,600	1.48	7.38	112	561	Average from surveys of 7 retail developments (RMS, 2013)
Serviced Apartment	7,800	0.19	0.15	15	12	Traffic generation rate assumed to be equal to that of residential uses
Education	5,000	0.67	0.67	34	34	No RMS rate provided. Assume 2/3 of staff and students with parking arrive/depart in peak hour
Health Consulting	2,400	0.67	0.67	16	16	No RMS rate provided. Assume each parking space turns over once every hour
Total	**122,995**	**n/a**	**n/a**	**656**	**966**	

Figure 2: Westmead Estate traffic generation

5.3 Impact of Generated Traffic

It is considered that the traffic generated from this development will not exceed the projected impacts of the residential component as outlined in the UWS Transport Assessment. As the current peak period volume has not experienced any notable growth since 2011, it is considered that the traffic determinations from the previous report are still valid. The traffic generation rates are deemed to be proportionate to the estimate residential use component in the forecast, which would preclude any further remedial works to the accesses, or adjoining roads.

6 Conclusion/Recommendations

This Traffic and Parking Impact Assessment has been prepared in accordance with the requirements of the Parramatta City Council's DCP 2011 and the Road and Maritime Services (RMS) *'Guide to Traffic Generating Developments'* to accompany a Development Application to Parramatta City Council for the construction of a 355-unit residential development.

It is considered the proposed 439 car and 182 bicycle parking facilities will be adequate to meet the requirements of the development without impacting on the local road network and is in accordance with the car parking requirements of SEPP65 Apartment Design Guide and the RMS Guide to Traffic Generating Developments. Although the Parramatta DCP refers to a maximum parking rate to discourage private car trips from the Westmead precinct, it is considered that the extra 17 car spaces (approximately only 4%) will unlikely affect the high rates of public transport use. The site is excellently placed to continue its well evidenced high rate of alternative transport methods.

The proposed parking and loading facilities have been designed in accordance with the requirements of *AS/NZS 2890.1 – Off Street Car Parking, AS 2890.2 – Off-Street Commercial Vehicle Facilities* and *AS/NZS 2890.6 - Off-street Parking for People with Disabilities*. These facilities are also considered practical and safe ensuring that all traffic generated by the development can enter and exit the site in a forward direction.

Residential waste will be collected by a Private Waste Contractor from the Waste Collection bay within the development via the right of access along the northern boundary.

The development has good access to public transport. A number of public transport connections are available within walking distance of the proposed development. This would minimise the need of residents and visitors to the proposed development to drive their own vehicles to and from their various activities.

It is considered that the traffic generated from this development will not exceed the projected impacts of the residential component as outlined in the UWS Transport Assessment. The traffic generation rates are deemed to be proportionate to the estimate residential use component in the forecast, which would preclude any further remedial works to the accesses, or adjoining roads.

The Traffic and Parking Impact Assessment concludes that the subject site is suitable for the proposed development in relation to the impact of traffic, car parking provision, vehicle and pedestrian access and safety considerations.

7 References

Australian Standards, *'AS/NZS 2890.1:2004 Off-Street Car Parking'*.

Australian Standards, *'AS 2890.2:2002 Off-Street Commercial Vehicle Facilities'*.

Australian Standards, 'AS/NZS 2890.6:2002 Off-Street Parking for People with Disabilities'.

Roads and Maritime Services, *'Guide to Traffic Generating Developments'* Version 2.2 dated October 2002.

Roads and Maritime Services, *'Technical Direction 2013/04a – Guide to Traffic Generating Developments Updated Traffic Surveys'* published August 2013.

NSW Department of Planning, *'SEPP (Infrastructure) 2007'*

Parramatta City Council's DCP 2011

National Construction Code (NCC) – Building Code of Australia Part A3 Classification of Buildings and Structures

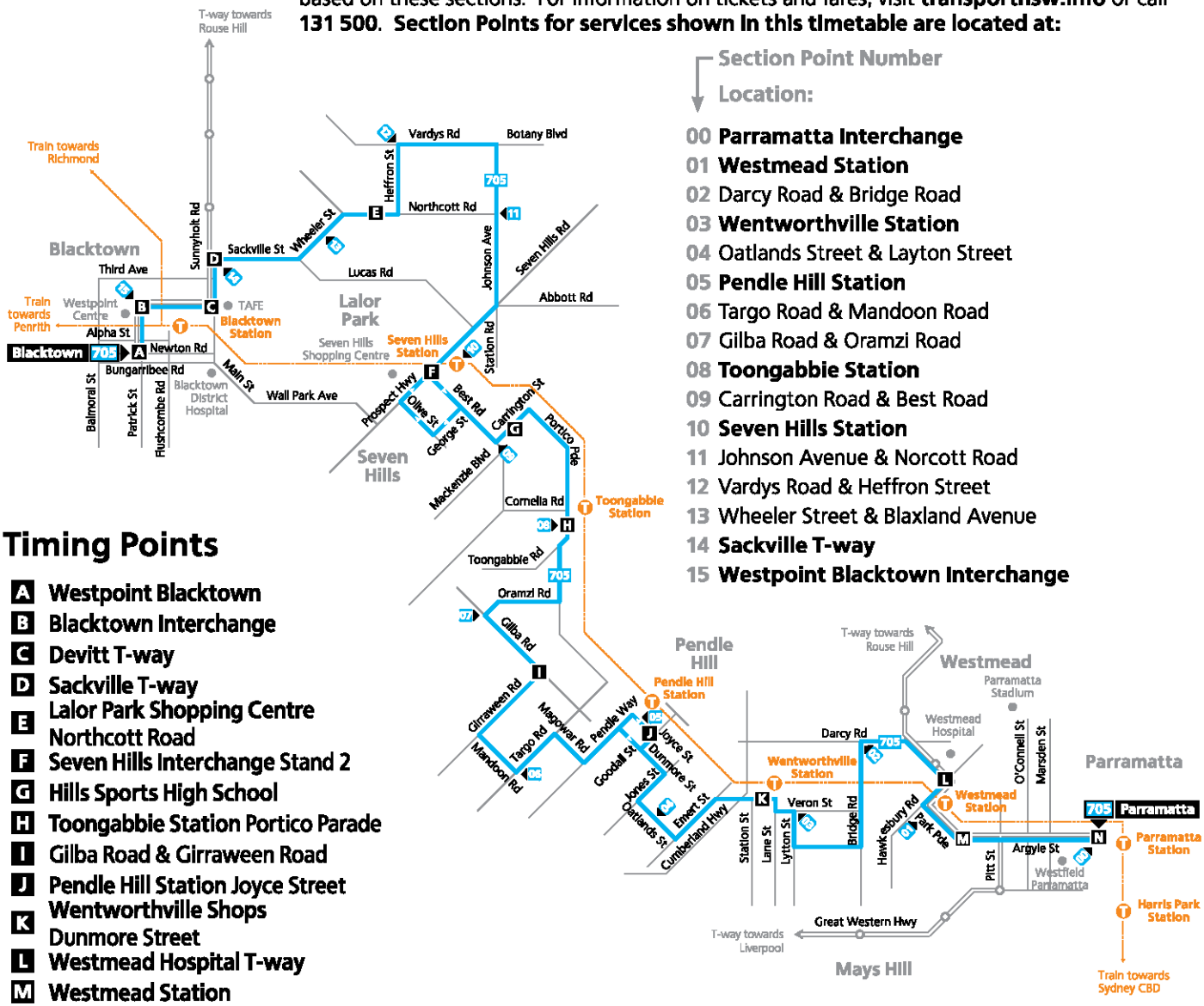
ARUP Pty Ltd, *'UWS Westmead: Estate Major Works Transport Assessment 2014'*

Appendix A

Bus Route Maps

Fare Sections

Bus routes are broken into sections, so you only pay for the distance you travel. MyBus tickets are based on these sections. For information on tickets and fares, visit **transportnsw.info** or call **131 500**. **Section Points for services shown in this timetable are located at:**



Section Point Number

Location:

00 **Parramatta Interchange**
01 **Westmead Station**
02 Darcy Road & Bridge Road
03 **Wentworthville Station**
04 Oatlands Street & Layton Street
05 **Pendle Hill Station**
06 Targo Road & Mandoon Road
07 Gilba Road & Oramzi Road
08 **Toongabbie Station**
09 Carrington Road & Best Road
10 **Seven Hills Station**
11 Johnson Avenue & Norcott Road
12 Vardys Road & Heffron Street
13 Wheeler Street & Blaxland Avenue
14 **Sackville T-way**
15 **Westpoint Blacktown Interchange**

Timing Points

- **A Westpoint Blacktown**
- **B Blacktown Interchange**
- **C Devitt T-way**
- **D Sackville T-way**
- **E Lalor Park Shopping Centre Northcott Road**
- **F Seven Hills Interchange Stand 2**
- **G Hills Sports High School**
- **H Toongabbie Station Portico Parade**
- **I Gilba Road & Girraween Road**
- **J Pendle Hill Station Joyce Street**
- **K Wentworthville Shops Dunmore Street**
- **L Westmead Hospital T-way**
- **M Westmead Station**
- **N Parramatta Interchange**

Diagrammatic Map Not to Scale

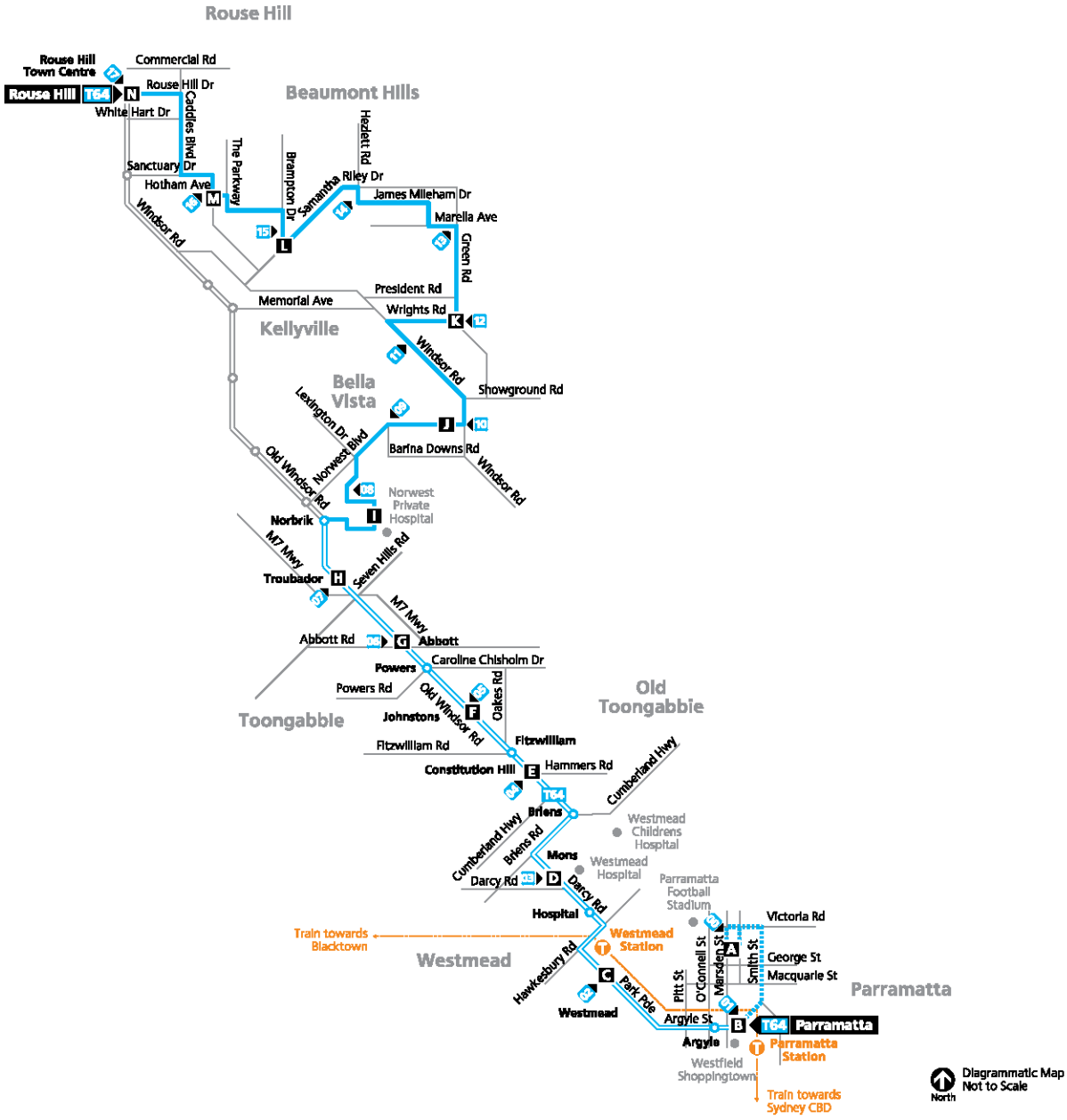
Legend

Bus route
705 Bus route number
A Timing point
04 Section point
Train line/station
F Ferry route/wharf
T-way/stop near route

Transport

Bus route map

T64



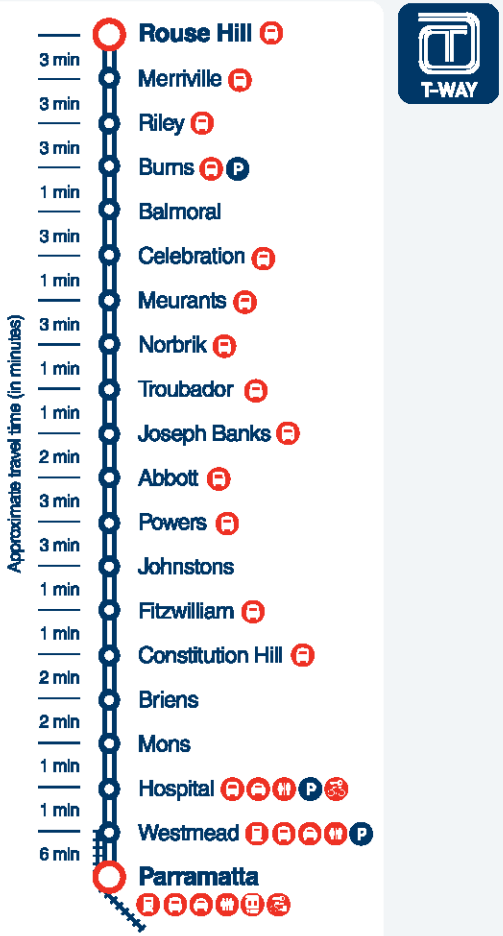
Legend

- Bus route
- T64 Bus route number
- A Timing point
- 24 Section point
- Train line/station
- Ferry route/wharf
- T-way/stop

Transport

Route T65/T66 Bus Route Map

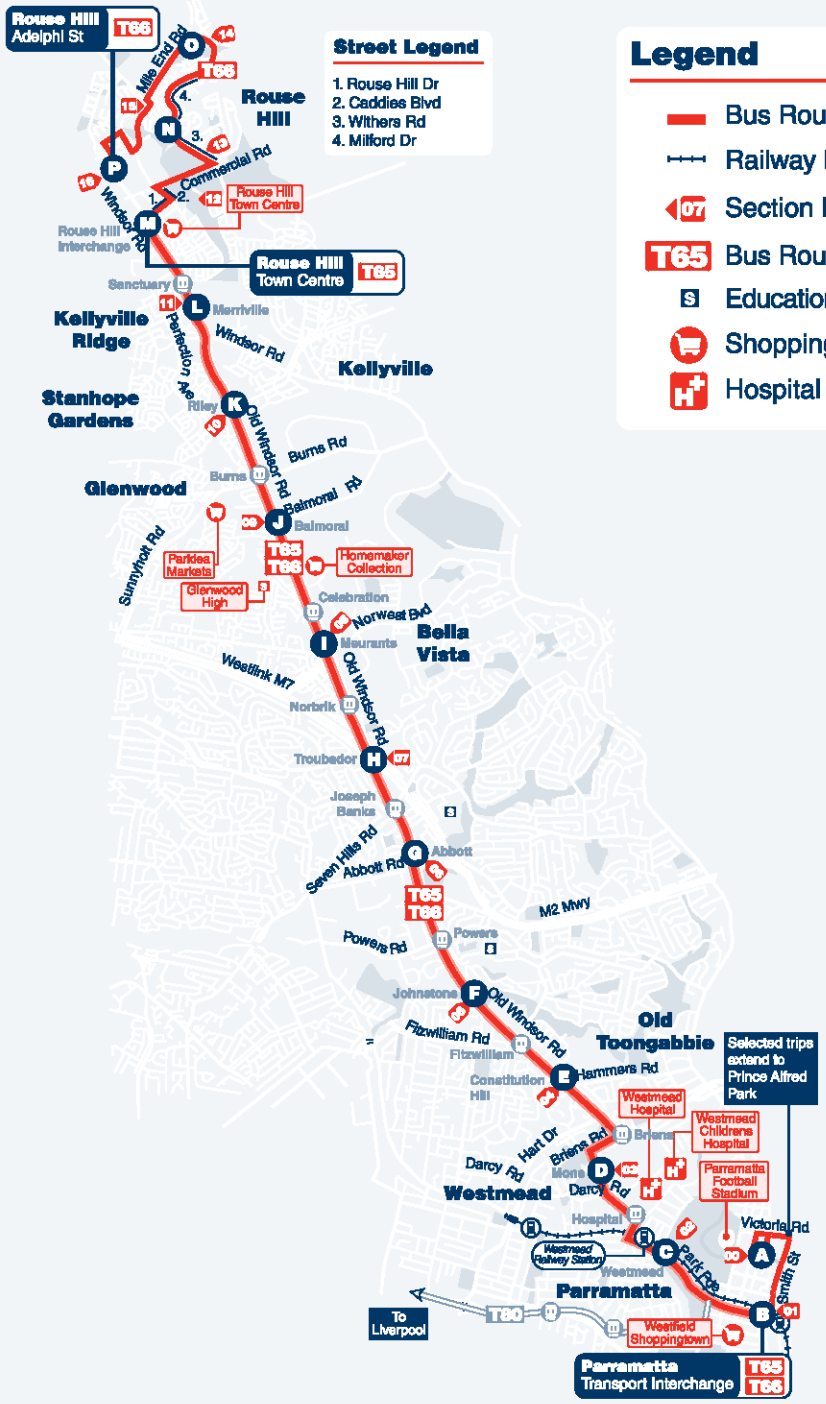
hillsbus



Legend

- Rouse Hill-Parramatta T-way
- CityRail Network
- T-way interchange
- Connecting bus
- Connecting T-way bus
- Train Interchange
- Taxi stand
- Bicycle lockers
- Toilets
- Commuter car park

T-WAY



Street Legend

1. Rouse Hill Dr
2. Caddies Blvd
3. Withers Rd
4. Milford Dr

Legend

- Bus Route
- Railway Line
- 07 Section Point
- T65 Bus Route Number
- S Educational Institution
- Shopping Centre
- Hospital
- N

Section Point Legend

- Bus Route T65/T66
- 00 Market St, Prince Alfred Park
- 01 Parramatta Railway Station
- 02 Westmead Railway Station
- 03 Mons T-Way
- 04 Constitution Hill T-Way
- 05 Johnstons T-Way
- 06 Abbott T-Way
- 07 Troubador T-Way
- 08 Meurants T-Way
- 09 Balmoral T-Way
- 10 Riley T-Way
- 11 Merriville T-Way
- 12 Caddies Blvd & Rouse Hill Dr
- 13 Withers Rd & Bentley Ave
- 14 Milford Dr & Chevron Pl
- 15 Mile End Dr & Clower Ave
- 16 Adelphi St & Mile End Rd

Base Map: UBD DG08/01

Explanation of definitions and symbols

B Bus terminates in Barina Downs Road near McKillop Drive 5 minutes later.

C Commences 4-6 minutes earlier in Barina Downs Road near McKillop Drive.

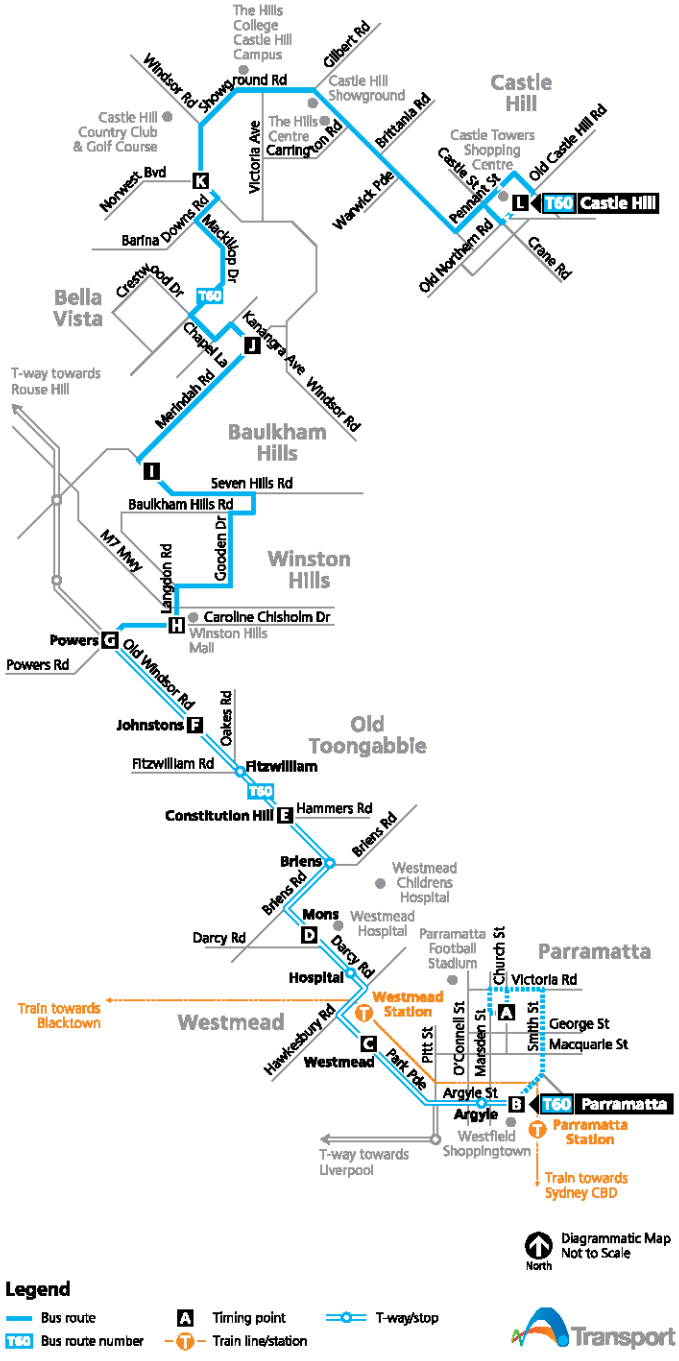
N Departs from Parramatta Interchange Stand 2 Nightsafe area.

S Diverts to St Michaels, Chapel Lane (School Days).

... Bus does not operate past this point.

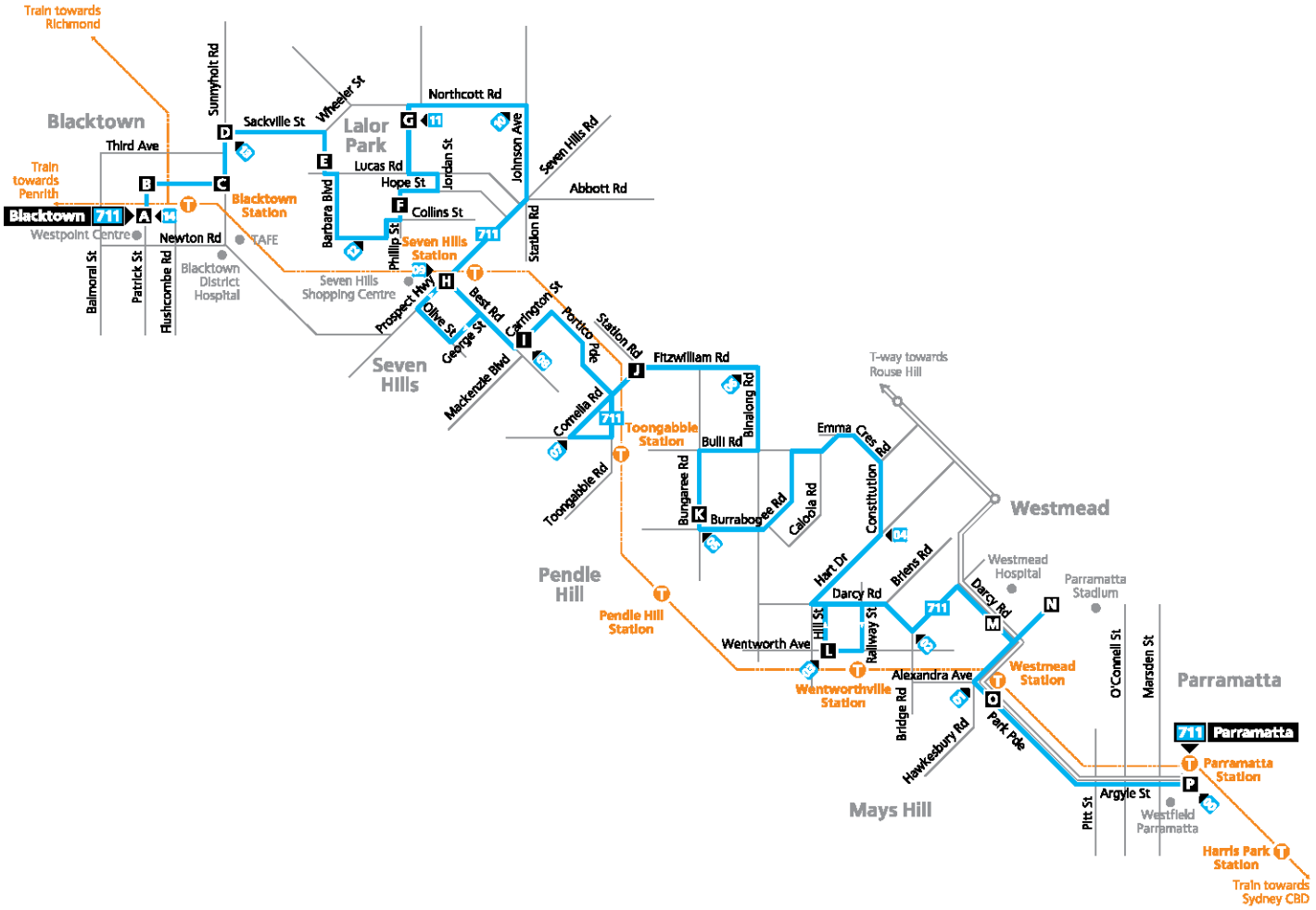
Timing Points

- **A Prince Alfred Park Market St**
- **B Parramatta Interchange Stand B4**
- **C Westmead Station Westmead T-way**
- **D Mons T-way**
- **E Constitution Hill T-way**
- **F Johnstons T-way**
- **G Powers T-way**
- **H Langdon Road & Caroline Chisholm Drive**
- **I Seven Hills Road & Merindah Road**
- **J Merindah Road & Kanangra Avenue**
- **K Windsor Road & Norwest Boulevard**
- **L Castle Hill Castle Towers**



Bus route map

711



Diagrammatic Map Not to Scale

North

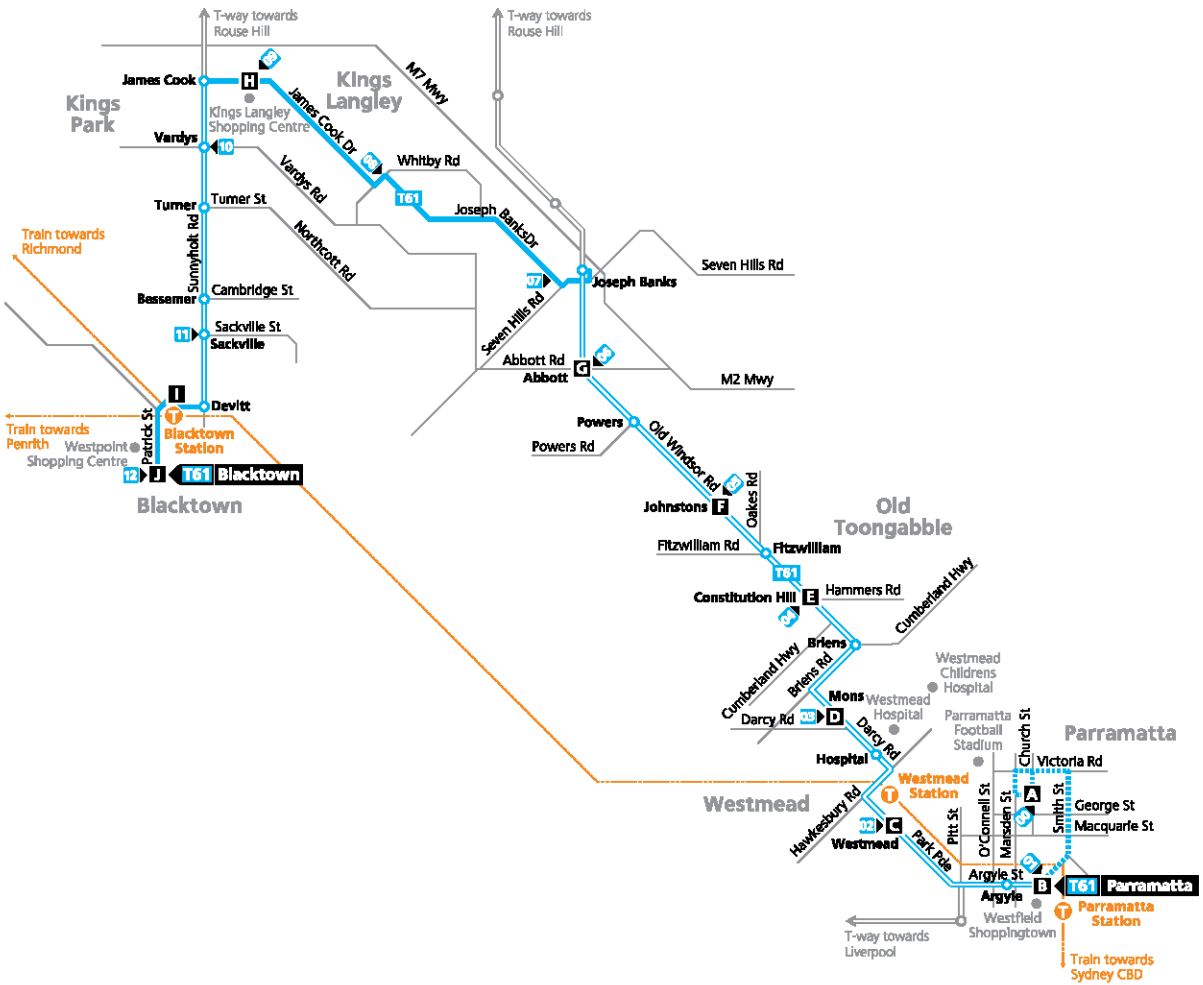
Legend

- Bus route
- 711 Bus route number
- A Timing point
- 04 Section point
- Train line/station
- Ferry route/wharf
- T-way/stop near route

Transport

Bus route map

T61



Legend

- Bus route
- T61 Bus route number
- A Timing point
- 24 Section point
- Train line/station
- Ferry route/wharf
- T-way/stop

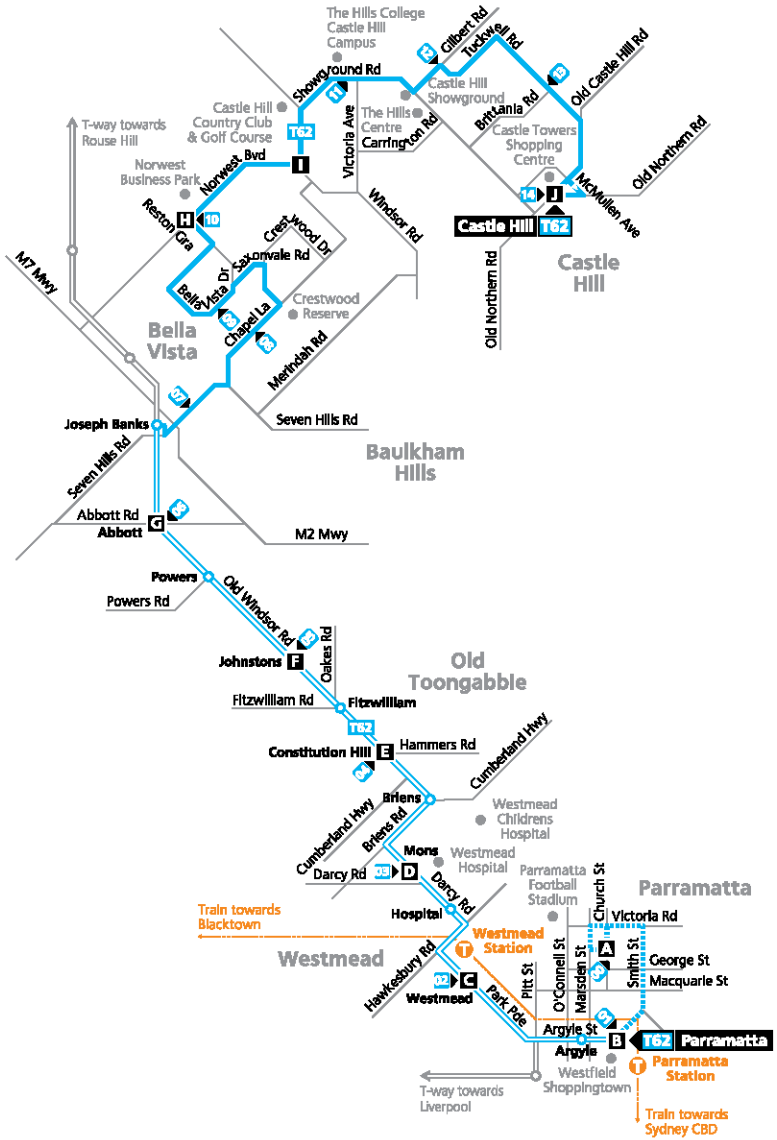
Diagrammatic Map Not to Scale

North

Transport

Bus route map

T62



Legend

- Bus route
- T62 Bus route number
- A Timing point
- 04 Section point
- Train line/station
- F Ferry route/wharf
- T-way/stop

Diagrammatic Map Not to Scale

North

Transport

Look for bus numbers

708
S8

Constitution Hill to Parramatta

Buses Serving
Centenary Village
Mayflower Village
Melrose Village
Edith Walker Village
Pendle Hill
Wentworthville
Westmead Hospital
Parramatta

See back cover for detailed route descriptions

Effective from 27 January 2012

hillsbus
Your Region 4 operator

Bus Route Numbers

708 Constitution Hill to Parramatta via Old Toongabbie, Pendle Hill, Wentworthville & Westmead Hospital. Service operates Monday-Friday.

S8 Constitution Hill to Wentworthville via Old Toongabbie. Service operates Monday-Friday.

Additional Services

Transport Info 131500.com.au

There are additional services operating in this area. Please call 131500 or visit Transport Info for details.

This service is operated by

hillsbus

Hillsbus
PO Box 2147
North Parramatta 1750
Telephone 9890 0000
www.cdcbus.com.au

ComfortDelGro Cabcharge

Hillsbus is a member of ComfortDelGro Cabcharge

Hillsbus Timetable 708/S8 | Version 3 | 27 January 2012

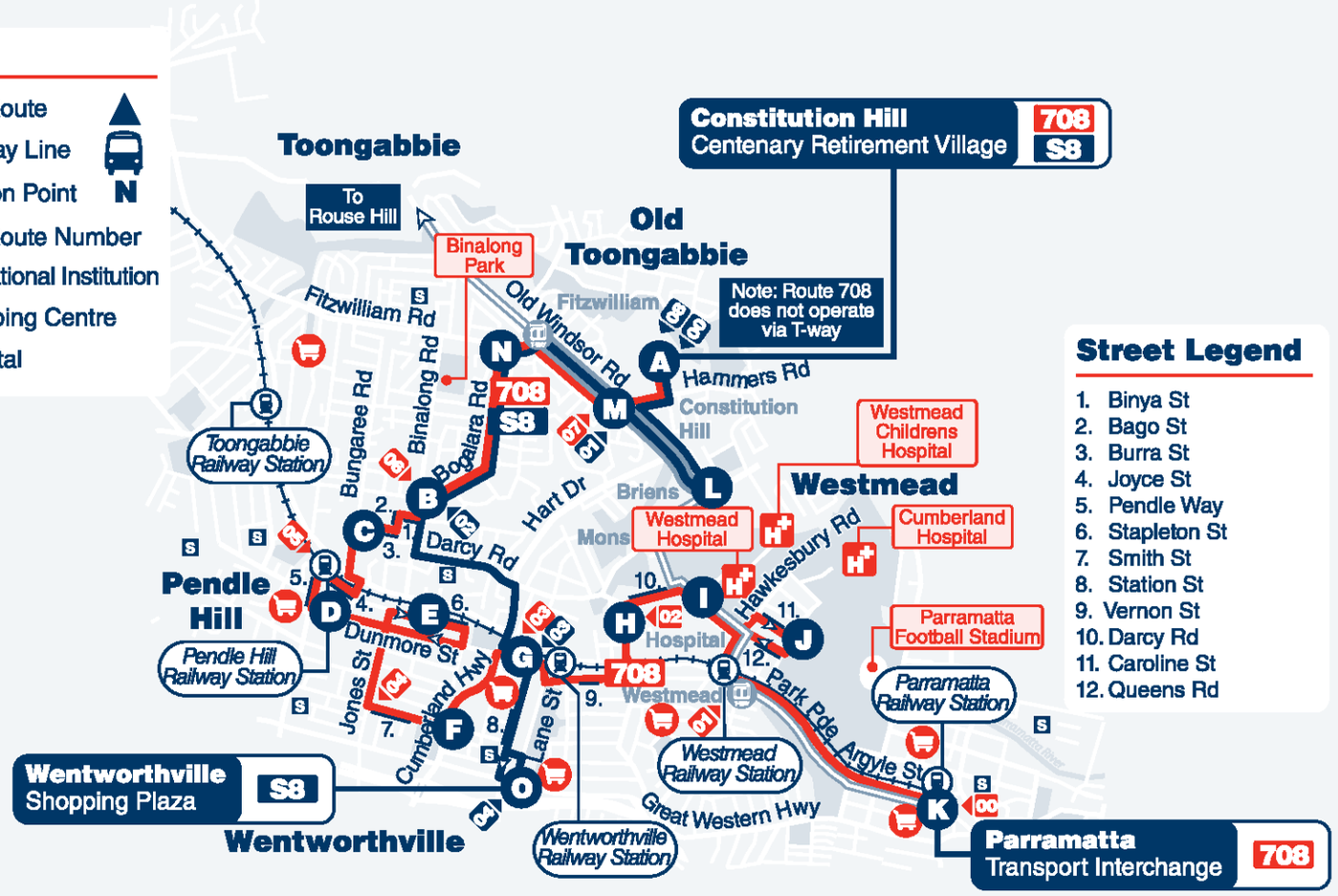
Routes **708/S8**

Bus Route Map

hillsbus

Legend

- Bus Route
- Railway Line
- Section Point
- 708 Bus Route Number
- S Educational Institution
- Shopping Centre
- Hospital
- N



Street Legend

1. Binya St
2. Bago St
3. Burra St
4. Joyce St
5. Pendle Way
6. Stapleton St
7. Smith St
8. Station St
9. Vernon St
10. Darcy Rd
11. Caroline St
12. Queens Rd

Section Point Legend

Bus Route 708

- 08 Parramatta Station
- 01 Westmead Railway Station
- 02 Darcy Rd & Bridge Rd
- 03 Wentworthville Station
- 04 Smith St & Jones St
- 05 Pendle Hill Station
- 06 Binalong Rd & Bogalara Rd
- 07 Old Windsor Rd & Hammers Rd
- 08 Centenary Village

Section Point Legend

Bus Route S8

- 08 Centenary Retirement Village
- 01 Constitution Hill T-way Station
- 02 Binalong Rd & Bogalara Rd
- 03 Wentworthville Station
- 04 Wentworthville Shopping Plaza

Base Map: UBD DG08/01

Timing Points

- **A** Prince Alfred Park Market Street
- **B** Parramatta Interchange
- **C** Westmead Station Westmead T-way
- **D** Mons T-way
- **E** Constitution Hill T-way
- **F** Johnstons T-way
- **G** Abbott T-way
- **H** Troubadour T-way
- **I** Glenwood Drive & Forman Avenue
- **J** Sorrento Drive & Sunnyholt Road
- **K** Stanhope Village Sentry Drive
- **L** Merriville Road & Perfection Avenue
- **M** Rouse Hill Town Centre

Diagrammatic Map Not to Scale

North

Legend

- Bus route
- T63 Bus route number
- A Timing point
- 04 Section point
- Train line/station
- Ferry route/wharf
- T-way/stop

Transport

Appendix B

Sydney Train Network Map

Sydney Trains Network

Transport Sydney Trains

It's easy to travel with us

Plan your trip

Visit **transportnsw.info**

Opal is your ticket to travel

Get it before you travel from a shop nearby or visit **opal.com.au**

Appendix C

Cycleways Map

CYCLING – BUILD IT INTO YOUR DAILY LIFE!

Riding a bike is a fun, healthy activity.

This map is designed to help people who ride, or want to ride a bike, to find the best route to the Westmead Hospitals and Parramatta CBD. A 2008 Federal Health Department report says the Federal Government saves more than $220 million a year in health costs alone through people riding bicycles.

The map shows you the best cycle connections, the least hilly routes and where to park your bike. With today's congested major roads, cycling can often be quicker than driving a car or using public transport. And substituting cycling for driving trips will ease the strain on the budget as petrol prices head relentlessly north.

Cycling will also help you keep fit and healthy. Everyone can experience significant health benefits by doing 30 minutes of moderate physical activity a day. An easy way of achieving this level of activity is to build it into your lifestyle, through activities like cycling to work or to social or sporting events. Building cycling into your day will also help to improve the urban environment we live in and travel around every day.

About the Map Routes

Routes have been selected by experienced cyclists and are, wherever possible, on quieter suburban streets or on off-road pathways, although the shoulders of some motorways are also shown because they are open to competent adult cyclists. At all times and in all places, though, riders using this map must be aware of surrounding traffic and conditions and be responsible for their own safety.

Many of the routes have been signposted by local councils as part of their bike plans. Not all such routes are necessarily shown on the map – isolated or disconnected facilities have often been ignored if they don't directly assist commuters, particularly those on route to Westmead or Parramatta. In some cases, pedestrian laneways and subways are used to connect useful cycling streets – consider walkers by wheeling bikes when necessary here and beware of flights of steps in some of these locations.

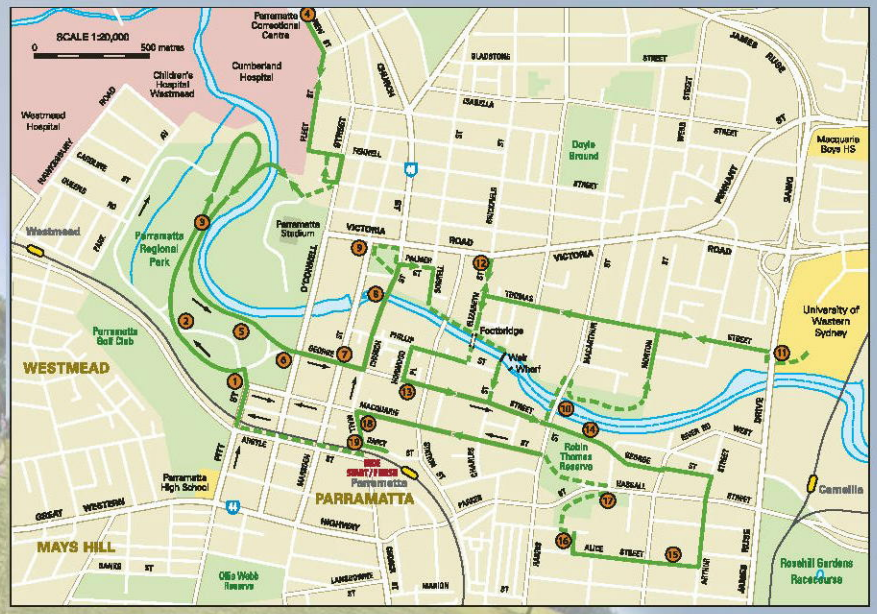
Cycling at Sydney Olympic Park (SOP)

SOP has over 35km of cycleways. The Kids in the Park Program offers cycling skills education for children 8 to 12. Phone 9714 7888 or visit www.kidsinthepark.com.au. Specially designed short circuits for children are located on the Village Green at Bicentennial Park, Concord West and Wentworth Common. Three colour-coded circuits of 5, 8 and 15km allow cyclists to explore the Olympic precinct and Bicentennial Park with its heritage features, woodlands and wildlife refuges.

Bike Hire is available 7 days a week from the Visitor Gateway, and at Bicentennial Park on weekends, public and school holidays. Adult from $12/hr, Child from $10/hr. See www.sydneyolympicpark.com.au/cycling.

PARRAMATTA HERITAGE RIDE

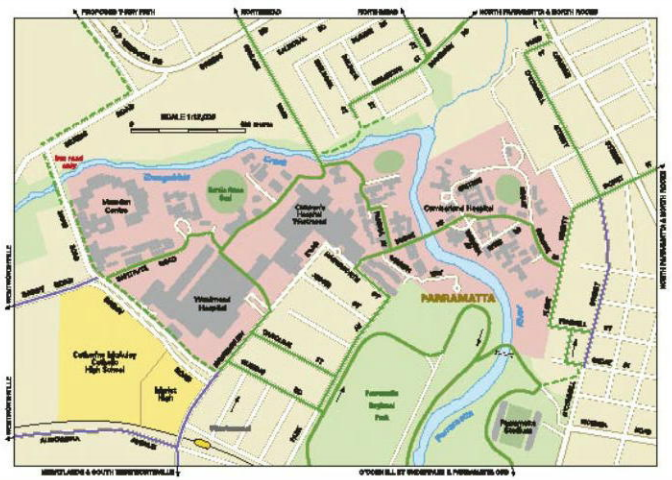
Many more historic features exist than can fit on this map. Follow the marked route and discover others, most with interesting information plaques.



1. Macquarie St Gatehouse & Rumsey Rose Garden
2. Observatory site, Bath House, Boer War Memorial & Hart Flight Memorial
3. Dairy Precinct
4. Parramatta Gaol, built between 1837 & 1848
5. Old Government House, Australia's oldest publicly-owned building dates from 1799
6. Tudor Gatehouse, built 1885
7. Bridlington and Courthouse Tower
8. Lennox Bridge, 1839
9. St Patrick's Catholic Cathedral
10. MacArthur St ("Sawworks") Bridge, 1865
11. Boundary stone, below James Ruse Dr. bridge, & Female Orphan School
12. All Saints Church, 1847
13. Roxy Cinema, unique example of Spanish Mission architecture
14. Queens Wharf where paddle steamers and overseas sailing ships landed trade goods in 19th Century
15. Elizabeth Farm, commenced 1793. Australia's oldest European building
16. Experiment Farm Cottage on the site of Australia's first land grant
17. Hambledon Cottage, 1824, second house on Elizabeth Farm estate
18. Centenary Square's sandstone clock and drinking fountain mark Parramatta's 1688 centenary
19. Town Hall, St John's Anglican Cathedral, World War I Memorial

Visit http://carmwest.pps.com.au/heritage/ for more details and to join a Heritage Cycle Tour with cycling advocacy group, CAMWEST.

WESTMEAD HOSPITAL MAP



SYDNEY SOUTH WEST AREA HEALTH SERVICE NSW HEALTH

SYDNEY WEST AREA HEALTH SERVICE NSW HEALTH

Text: Neil Irvine
Design: Mike Rossi
Maps: Will Pringle
Images: Neil Irvine, CADmonkey Design
Project Manager: Ian Connellan

This bike map has been produced by Sydney South West Area Health service in partnership with the Sydney West Area Health Service, September 2008.
Thanks to the regional Bicycle User Groups (BUGs) CAMWEST and CHWBUG, and the area's local councils for information on the bike routes.
For extra copies of this map, and others in the series (*Get to Sydney Olympic Park by bicycle, Discover Fairfield and Liverpool by bike*) phone the Health Promotion Service on 8616 9055, email hpureception@email.cs.nsw.gov.au or visit: www.cs.nsw.gov.au/pophealth (click on Health Promotion).

CYCLING SAFETY & TIPS

Avoiding road hazards

- Be seen – wear bright visible clothing
- Be predictable
- Assertively take your space on the road
- Ride out from opening car doors

Your rights as a cyclist

- Occupy a whole lane
- Ride two abreast, no more than 1.5m apart
- Travel on footpath where indicated by signs
- Travel in Bus Lanes and Transit Lanes, except for Bus Only lanes
- Ride on the footpath if you are less than 12 years old (or an adult accompanying a child under 12)
- Travel to the front of a line of traffic on the left hand side
- Turn right from the left lane of a multi-lane roundabout

Things to remember

- Wear an approved bike helmet.
- A bike must have at least one working brake and either a bell or horn.
- At night, a bike must have a steady or flashing white light at the front and, at the rear, a steady or flashing red light and red reflector.
- Your bike is a vehicle: failing to obey road or bike rules may result in a fine.

For more information on bike safety and regulations contact your local council.

Cycling skills courses

If you're new to cycling or want to improve your skills, why not join a cycling group? Practise stopping and starting, riding through narrow gaps, manoeuvring and taking tight turns, using gears and cycling in traffic. Beginner and intermediate levels available for adults 17 and over. Contact Sydney Community College on 8752 7555, www.sydneycommunitycollege.com.au.

WHY CYCLE?

It's good for your health!

Get active – your way.

People need to be active to be healthy. Your health can be improved by building physical activity into your daily life, and the good news is, it doesn't take much to make a difference.

Physical activity has numerous benefits:

- Feel more energetic
- Enhance your level of concentration, learning and memory
- Help manage weight
- Feel more confident, happy, relaxed
- Sleep better and improve your sense of well-being
- Reduce your chance of heart disease and cancer

It's good for the environment!

Cycle for a sustainable future.

When you cycle or walk you help the local and global environment. For every litre of fossil fuel used a motor vehicle produces a staggering 10,000L of carbon dioxide, a gas that contributes to global warming.

It's good for your wallet!

Petrol prices will only go one way, so why not use your own fuel? (Kilojoules, that is.)

As little as 30 minutes of moderate physical activity a day, like cycling or walking, can help you improve and maintain good health.

USEFUL CYCLING INFORMATION

Bicycle NSW
Phone 9218 5400, www.bicyclensw.org.au

Bike Rides Around Sydney,
Open Spaces Publishing, www.osp.com.au.
At bike shops and better book shops.

Council bike maps
Auburn: 9735 1222, www.auburn.nsw.gov.au
Baulkham Hills: 9843 0555, www.baulkhamhills.nsw.gov.au
Blacktown City: 9839 6000, www.blacktown.nsw.gov.au
City of Canada Bay: 9911 6555, www.canadabay.nsw.gov.au
City of Ryde: 9952 8222, www.ryde.nsw.gov.au
Holroyd City: 9840 9840, www.holroyd.nsw.gov.au
Parramatta City: 9806 5050, www.parracity.nsw.gov.au
Strathfield: 9748 9999, www.strathfield.nsw.gov.au

RTA Cycling maps
Phone 1800 060 607, www.rta.nsw.gov.au/bicycles.htm

Local bicycle user groups (BUGS)
Ashfield: AshBUG, 9263 4604, www.ashbug.org.au
Canada Bay: BayBUG, 8765 9719, www.baybug.org.au
Ryde: Bike North, 9872 2583, www.bikenorth.org.au
Western suburbs:
CAMWEST, 9633 9185, www.camwest.org.au
WSCN, 0422 933 612, westernsydneycyclingnetwork.com.au

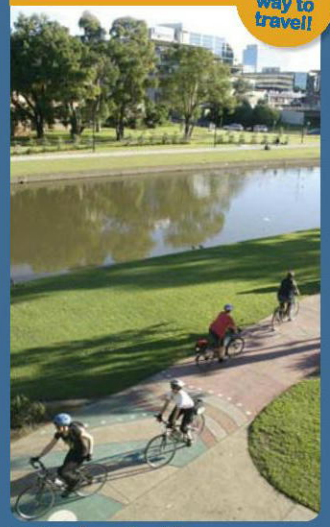
Public transport
You can take a bike by CityRail train (free off-peak & weekends, child fare at other times), or Sydney ferry (free 24/7).
For trip planning, fares and timetables phone 131 500 or visit www.131500.com.au

Park and ride
If you'd like to cycle part of the way and take public transport the rest, secure bike lockers are available at the following locations in the map area:
Train stations: Auburn, Lidcombe, Regents Park, Blacktown, Marayong, Seven Hills, North Strathfield, Merrylands, Beecroft, Epping, Granville, Parramatta, Pendle Hill, Westmead, Meadowbank.
Ferry wharves: Abbotsford, Cabarita, Kissing Point, Meadowbank, Parramatta, Rydalmere.

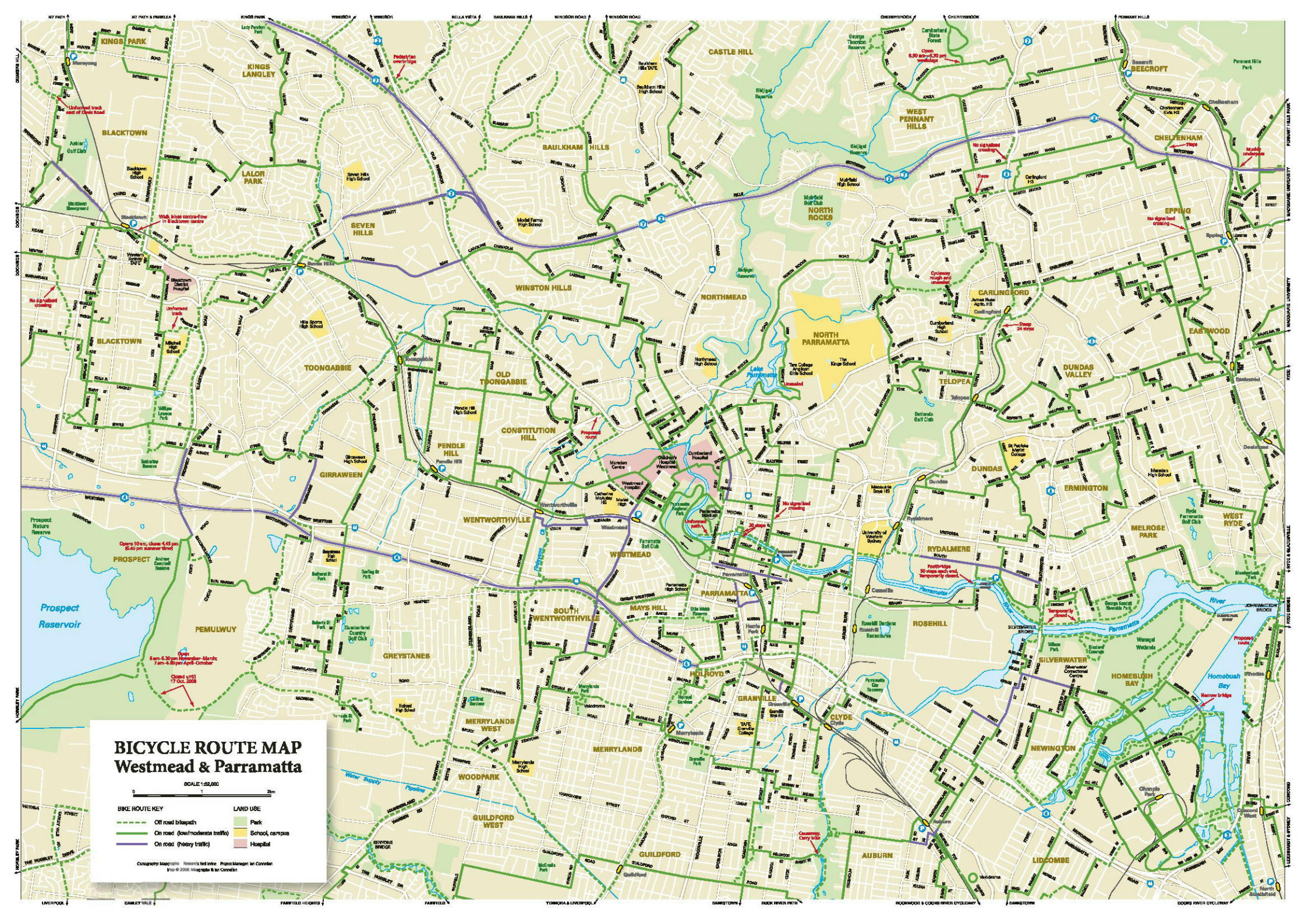
Contact Bicycle NSW for hire information.

GET TO WORK IN WESTMEAD & PARRAMATTA BY BICYCLE

the perfect way to travel!



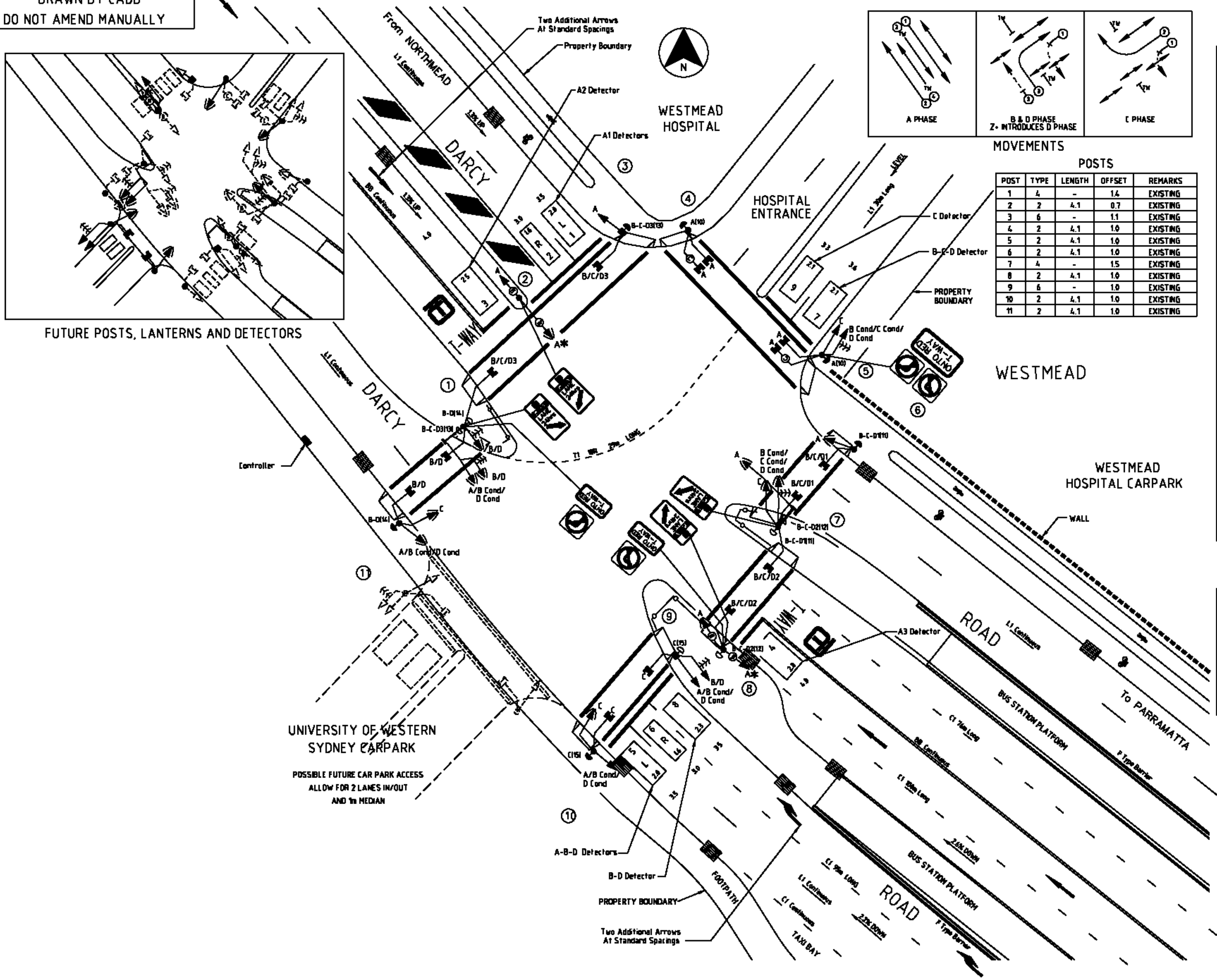
Local cycling routes with access from the north, south, east & west


BICYCLE ROUTE MAP
Westmead & Parramatta
SCALE 1:22,000
BIKE ROUTE KEY
Off road bikepath
On road (low/moderate traffic)
On road (heavy traffic)
LAND USE
Park
School, campus
Hospital
KINGS PARK
KINGS LANGLEY
BLACKTOWN
LALOR PARK
BAULKHAM HILLS
CASTLE HILL
WEST PENNANT HILLS
BEECROFT
CHELTENHAM
SEVEN HILLS
NORTH ROCKS
EPPING
WINSTON HILLS
NORTHMEAD
CARLINGFORD
EASTWOOD
NORTH PARRAMATTA
DUNDAS VALLEY
TOONGABBIE
OLD TOONGABBIE
TELOPEA
CONSTITUTION HILL
PENDLE HILL
GIRRAWEEN
DUNDAS
ERMINGTON
WEST RYDE
WENTWORTHVILLE
WESTMEAD
RYDALMERE
MELROSE PARK
PROSPECT
PARRAMATTA
MAYS HILL
SOUTH WENTWORTHVILLE
ROSEHILL
SILVERWATER
HOMEBUSH BAY
Prospect Reservoir
PEMULWUY
GREYSTANES
HOLROYD
GRANVILLE
CLYDE
NEWINGTON
MERRYLANDS WEST
MERRYLANDS
WOODPARK
GUILDFORD WEST
GUILDFORD
AUBURN
LIDCOMBE

Appendix D

Site Access Signal Plan

DRAWN BY CADD
DO NOT AMEND MANUALLY



FUTURE POSTS, LANTERNS AND DETECTORS

A PHASE
B & D PHASE
Z+ INTRODUCES D PHASE
C PHASE

MOVEMENTS

DATE IN SERVICE : 27/05/98

POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS
1	4	-	1.4	EXISTING
2	2	4.1	0.7	EXISTING
3	6	-	1.1	EXISTING
4	2	4.1	1.0	EXISTING
5	2	4.1	1.0	EXISTING
6	2	4.1	1.0	EXISTING
7	4	-	1.5	EXISTING
8	2	4.1	1.0	EXISTING
9	6	-	1.0	EXISTING
10	2	4.1	1.0	EXISTING
11	2	4.1	1.0	EXISTING

DETECTOR SPECIFICATION

DETECTOR	SPECIFICATIONS					
A1	FN	A(L)	A(E1)			
	SG/PS	$\overline{A}$	A			
	DS	-	-			
A2	FN	A(L)	A(E3)			
	SG/PS	$\overline{A}$	A			
	DS	-	-			
A3	FN	A(L)	A(E4)			
	SG/PS	$\overline{A}$	A			
	DS	-	-			
A-B-D	FN	A(L)		A(E2)	B(E2)	D(E2)
	SG/PS	$\overline{\text{A/B Cond/D Cond}}$		A	B	D
	DS	-		$\overline{B}$(NEXT). $\overline{D}$(NEXT)	$\overline{A}$(NEXT). $\overline{D}$(NEXT)	$\overline{A}$(NEXT). $\overline{B}$(NEXT)
B-C-D	FN	B(PR)	D(PR)	B(E1)	C(E1)	D(E1)
	SG/PS	$\overline{B}.\overline{C}.\overline{D}$	$\overline{B}.\overline{C}.\overline{D}$	B	C	D
	DS	$\overline{C}$	Z+ .$\overline{C}$	$\overline{C}$(NEXT). $\overline{D}$(NEXT)	$\overline{B}$(NEXT). $\overline{D}$(NEXT)	$\overline{B}$(NEXT). $\overline{C}$(NEXT)
B-D	FN	B(L)	D(L)	B(E3)	D(E3)	
	SG/PS	$\overline{B/D}$	$\overline{B/D}$	B	D	
	DS	-	Z+	$\overline{D}$(NEXT)	$\overline{B}$(NEXT)	
C	FN	C(L)	C(E2)			
	SG/PS	$\overline{C}$	C			
	DS	-	-			
A P.B.	FN	A(PB)	C(L)			
	SG/PS	$\overline{A}$(WALK)	A. $\overline{A}$(WALK)			
	DS	-	$\overline{B}.\overline{C}.\overline{D}$			
B-C-D1 P.B.	FN	B(PB)	A(L)			
	SG/PS	$\overline{B/C/D}$. $\overline{B/C/D1}$(WALK)	B/C/D. $\overline{B/C/D1}$(WALK)			
	DS	$\overline{C}.\overline{D}$	$\overline{A}$			
B-C-D2 P.B.	FN	B(PB)	A(L)			
	SG/PS	$\overline{B/C/D}$. $\overline{B/C/D2}$(WALK)	B/C/D. $\overline{B/C/D2}$(WALK)			
	DS	$\overline{C}.\overline{D}$	$\overline{A}$			
B-C-D3 P.B.	FN	B(PB)	A(L)			
	SG/PS	$\overline{B/C/D}$. $\overline{B/C/D3}$(WALK)	B/C/D. $\overline{B/C/D3}$(WALK)			
	DS	$\overline{C}.\overline{D}$	$\overline{A}$			
B-D P.B.	FN	B(PB)	A(L)			
	SG/PS	$\overline{B/D}$. $\overline{B/D}$(WALK)	B/D . $\overline{B/D}$(WALK)			
	DS	$\overline{D}$	$\overline{A}.\overline{C}$			
C P.B.	FN	C(PB)	A(L)			
	SG/PS	$\overline{C}$(WALK)	C. $\overline{C}$(WALK)			
	DS	-	$\overline{A}.\overline{B}.\overline{D}$			

SPECIAL SIGNAL GROUP DISPLAY SEQUENCE CHART

SIGNAL GROUP	TABLE TYPE	REMARKS
A/B Cond/D Cond	15	TIMED PED PROTECTION FOR B/D WALK & CLEARANCE
B Cond/C Cond/D Cond (LT)	Similar 45	TIMED RA PROTECTION FOR B/C/D1 PEDESTRIAN
B/D (RT)	34	
B/C/D1 P.B.	PED	WALK & CLEARANCE OVERLAP PERMITTED B←→C←→D
B/C/D2 P.B.	PED	WALK & CLEARANCE OVERLAP PERMITTED B←→C←→D
B/C/D3 P.B.	PED	WALK & CLEARANCE OVERLAP PERMITTED B←→C←→D

NOTES

1. THIS SITE IS SCATS LINKED.
2. SPECIAL STOP SIGN R1-4 IS PLACED ON POST 5.
3. ALL PUSH BUTTONS ARE AUDIO TACTILE (POSTS 1,7,8 & 9 ARE TACTILE ONLY BUTTONS).
4. PROVISION MADE IN CABLING AND DUCTING FOR FUTURE UNIVERSITY OF WESTERN SYDNEY ACCESS OPPOSITE HOSPITAL ACCESS AND SINGLE DIAMOND OVERLAP PHASING IN ACCORDANCE WITH VDQ18-5. AN ADDITIONAL DETECTOR SCREEN CABLE PROVIDED FOR FUTURE RIGHT TURN DETECTOR ON DARCY ROAD NORTHERN APPROACH.

U.B.D Ref. 190 M15 — I.S.G. CO-ORDS. E 298 784 N 1 257 927
DESIGNED B.A. — CHECKED T.B.
SURVEYOR: LCPL — DATE 2005

DESIGN APPROVAL — APPROVED — POSITION PROJECT MANAGER — DESIGN PREPARED BY MAUNSELL | AECOM
RTA RECOMMENDED — RECOMMENDED — POSITION NETWORK OPERATIONS LEADER — DATE 1.8.8.08
RTA ACCEPTANCE — CONFIRMATION — ACCEPTED — DATE 14.8.08

Roads and Traffic Authority, N.S.W

PARRAMATTA CITY COUNCIL AREA
TRAFFIC SIGNALS AT
DARCY ROAD, WESTMEAD HOSPITAL ACCESS
AND NORTH WEST T-WAY
WESTMEAD

DESIGN LAYOUT — TCS No 3281

EXISTING [X] PROPOSED [ ]
CADD FILE: VV.3281_7B.dgn
SCALE 1:200
FILE 354 TS 545 — SUPERSEDES SHEET/ISSUE 1 A
ISSUE B
REGN. 7000.354.VV.3281
SHEET 7

Appendix E

Traffic Counts

Darcy Rd & Hospital Access

To

Earl Aninipoc

at ***BarkerRyanStewart***

your results for

WESTMEAD Darcy Rd

supplied by

R.O.A.R. DATA Pty. Ltd.

www.roardata.com.au

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

Client : BarkerRyanStewart
Job No/Name : 6140 WESTMEAD Darcy Rd
Day/Date : Thursday 21st July 2016

Others

	WEST		NORTH		EAST		
	Darcy Rd		*Hospital Access*		*Darcy Rd*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	82	21	7	7	10	69	**196**
0715 - 0730	95	19	12	2	24	101	**253**
0730 - 0745	92	32	9	8	20	92	**253**
0745 - 0800	114	42	14	5	29	98	**302**
0800 - 0815	160	40	8	2	25	151	**386**
0815 - 0830	128	37	15	5	23	141	**349**
0830 - 0845	158	56	6	10	17	72	**319**
0845 - 0900	166	31	6	7	25	107	**342**
Per End	**995**	**278**	**77**	**46**	**173**	**831**	**2400**

Buses

	WEST		NORTH		EAST		
	Darcy Rd		*Hospital Access*		*Darcy Rd*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	3	0	0	0	0	1	**4**
0715 - 0730	1	0	0	0	0	1	**2**
0730 - 0745	0	0	0	0	0	0	**0**
0745 - 0800	0	0	0	0	0	1	**1**
0800 - 0815	0	0	0	0	0	0	**0**
0815 - 0830	0	0	0	0	0	0	**0**
0830 - 0845	2	0	0	0	0	0	**2**
0845 - 0900	0	0	0	0	0	2	**2**
Per End	**6**	**0**	**0**	**0**	**0**	**5**	**11**

Buses

	WEST		NORTH		EAST		
	Darcy Rd Bus Rd		*Hospital Access*		*Darcy Rd Bus Rd*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	8	0	0	0	0	5	**200**
0715 - 0730	2	0	0	0	0	6	**255**
0730 - 0745	10	0	0	0	0	4	**253**
0745 - 0800	9	0	0	0	0	7	**303**
0800 - 0815	9	0	0	0	0	7	**386**
0815 - 0830	6	0	0	0	0	10	**349**
0830 - 0845	9	0	0	0	0	3	**321**
0845 - 0900	7	0	0	0	0	8	**344**
Per End	**60**	**0**	**0**	**0**	**0**	**50**	**2411**

Others

	WEST		NORTH		EAST		
	Darcy Rd		*Hospital Access*		*Darcy Rd*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	383	114	42	22	83	360	**1004**
0715 - 0815	461	133	43	17	98	442	**1194**
0730 - 0830	494	151	46	20	97	482	**1290**
0745 - 0845	560	175	43	22	94	462	**1356**
0800 - 0900	612	164	35	24	90	471	**1396**
PEAK HR	**612**	**164**	**35**	**24**	**90**	**471**	**1396**

Buses

	WEST		NORTH		EAST		
	Darcy Rd		*Hospital Access*		*Darcy Rd*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	4	0	0	0	0	3	**7**
0715 - 0815	1	0	0	0	0	2	**3**
0730 - 0830	0	0	0	0	0	1	**1**
0745 - 0845	2	0	0	0	0	1	**3**
0800 - 0900	2	0	0	0	0	2	**4**
PEAK HR	**2**	**0**	**0**	**0**	**0**	**2**	**4**

Buses

	WEST		NORTH		EAST		
	Darcy Rd Bus Rd		*Hospital Access*		*Darcy Rd Bus Rd*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	29	0	0	0	0	22	**51**
0715 - 0815	30	0	0	0	0	24	**54**
0730 - 0830	34	0	0	0	0	28	**62**
0745 - 0845	33	0	0	0	0	27	**60**
0800 - 0900	31	0	0	0	0	28	**59**
PEAK HR	**31**	**0**	**0**	**0**	**0**	**28**	**59**

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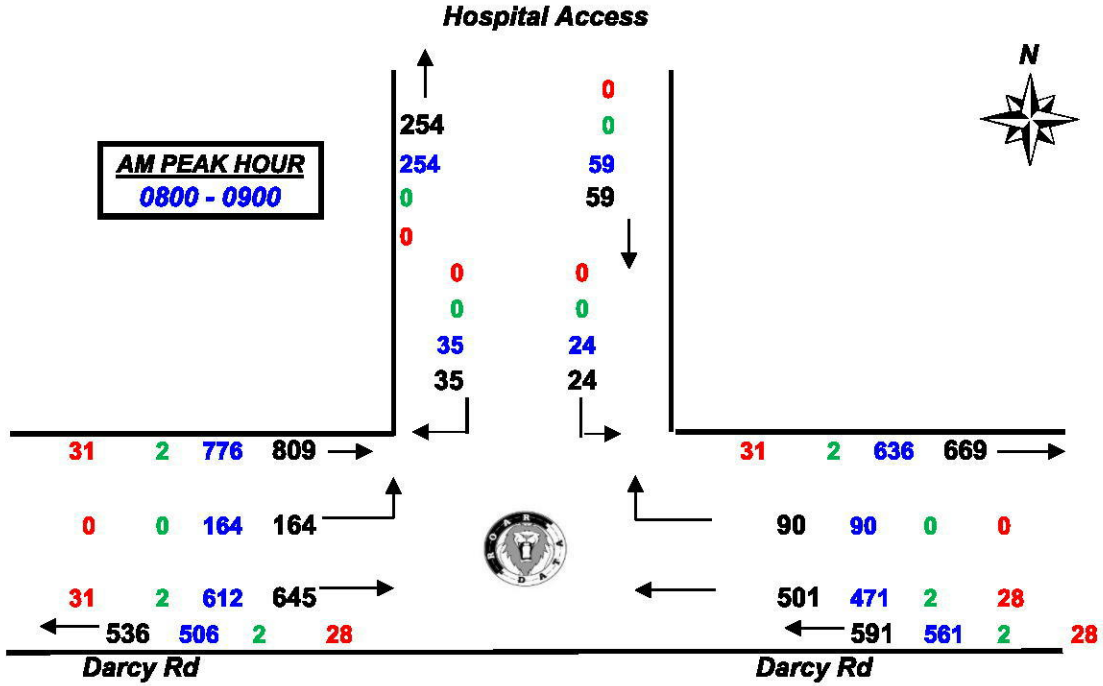
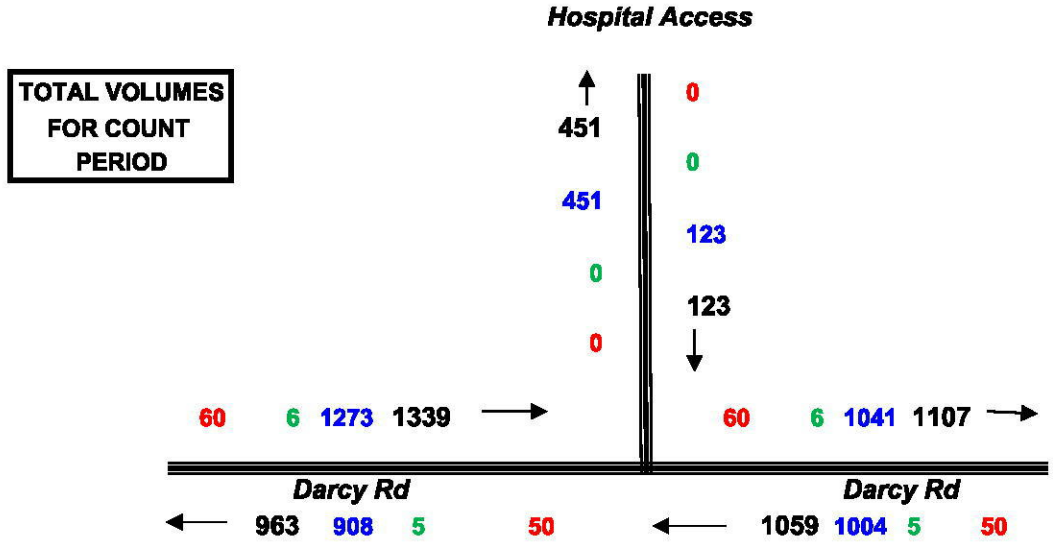
Client : BarkerRyanStewart
Job No/Name : 6140 WESTMEAD Darcy Rd
Day/Date : Thursday 21st July 2016

Combined	WEST		NORTH		EAST		
	Darcy Rd		Hospital		Darcy Rd		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	93	21	7	7	10	75	213
0715 - 0730	98	19	12	2	24	108	263
0730 - 0745	102	32	9	8	20	96	267
0745 - 0800	123	42	14	5	29	106	319
0800 - 0815	169	40	8	2	25	158	402
0815 - 0830	134	37	15	5	23	151	365
0830 - 0845	169	56	6	10	17	75	333
0845 - 0900	173	31	6	7	25	117	359
Per End	1061	278	77	46	173	886	2521



Combined	WEST		NORTH		EAST		
	Darcy Rd		Hospital		Darcy Rd		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	416	114	42	22	83	385	1062
0715 - 0815	492	133	43	17	98	468	1251
0730 - 0830	528	151	46	20	97	511	1353
0745 - 0845	595	175	43	22	94	490	1419
0800 - 0900	645	164	35	24	90	501	1459

PEAK HR	645	164	35	24	90	501	1459



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Client : BarkerRyanStewart
Job No/Name : 6140 WESTMEAD Darcy Rd
Day/Date : Thursday 21st July 2016

Others	WEST		NORTH		EAST		
	Darcy Rd		*Hospital Access*		*Darcy Rd*		
Time Per	T	L	R	L	R	T	TOT
1600 - 1615	88	12	20	9	9	97	235
1615 - 1630	95	21	17	14	10	106	263
1630 - 1645	73	12	33	11	14	110	253
1645 - 1700	66	9	18	16	15	99	223
1700 - 1715	123	25	20	10	11	93	282
1715 - 1730	101	17	13	13	18	123	285
1730 - 1745	106	18	17	15	9	108	273
1745 - 1800	132	18	11	9	12	84	266
Per End	784	132	149	97	98	820	2080

Buses	WEST		NORTH		EAST		
	Darcy Rd		*Hospital Access*		*Darcy Rd*		
Time Per	T	L	R	L	R	T	TOT
1600 - 1615	5	0	0	0	0	0	5
1615 - 1630	2	0	0	0	0	0	2
1630 - 1645	0	0	0	0	0	1	1
1645 - 1700	0	0	0	0	0	0	0
1700 - 1715	0	0	0	0	0	0	0
1715 - 1730	2	0	0	0	0	0	2
1730 - 1745	1	0	0	0	0	1	2
1745 - 1800	1	0	0	0	0	0	1
Per End	11	0	0	0	0	2	13

Buses	WEST		NORTH		EAST		
	Darcy Rd Bus Rd		*Hospital Access*		*Darcy Rd Bus Rd*		
Time Per	T	L	R	L	R	T	TOT
1600 - 1615	6	0	0	0	0	8	240
1615 - 1630	9	0	0	0	0	6	265
1630 - 1645	7	0	0	0	0	14	254
1645 - 1700	7	0	0	0	0	8	223
1700 - 1715	6	0	0	0	0	6	282
1715 - 1730	8	0	0	0	0	9	287
1730 - 1745	7	0	0	0	0	9	275
1745 - 1800	7	0	0	0	0	12	267
Per End	57	0	0	0	0	72	2093

Others	WEST		NORTH		EAST		
	Darcy Rd		*Hospital Access*		*Darcy Rd*		
Peak Per	T	L	R	L	R	T	TOT
1600 - 1700	322	54	88	50	48	412	974
1615 - 1715	357	67	88	51	50	408	1021
1630 - 1730	363	63	84	50	58	425	1043
1645 - 1745	396	69	68	54	53	423	1063
1700 - 1800	462	78	61	47	50	408	1106
PEAK HR	462	78	61	47	50	408	1106

Buses	WEST		NORTH		EAST		
	Darcy Rd		*Hospital Access*		*Darcy Rd*		
Peak Per	T	L	R	L	R	T	TOT
1600 - 1700	7	0	0	0	0	1	8
1615 - 1715	2	0	0	0	0	1	3
1630 - 1730	2	0	0	0	0	1	3
1645 - 1745	3	0	0	0	0	1	4
1700 - 1800	4	0	0	0	0	1	5
PEAK HR	4	0	0	0	0	1	5

Buses	WEST		NORTH		EAST		
	Darcy Rd Bus Rd		*Hospital Access*		*Darcy Rd Bus Rd*		
Peak Per	T	L	R	L	R	T	TOT
1600 - 1700	29	0	0	0	0	36	65
1615 - 1715	29	0	0	0	0	34	63
1630 - 1730	28	0	0	0	0	37	65
1645 - 1745	28	0	0	0	0	32	60
1700 - 1800	28	0	0	0	0	36	64
PEAK HR	28	0	0	0	0	36	64

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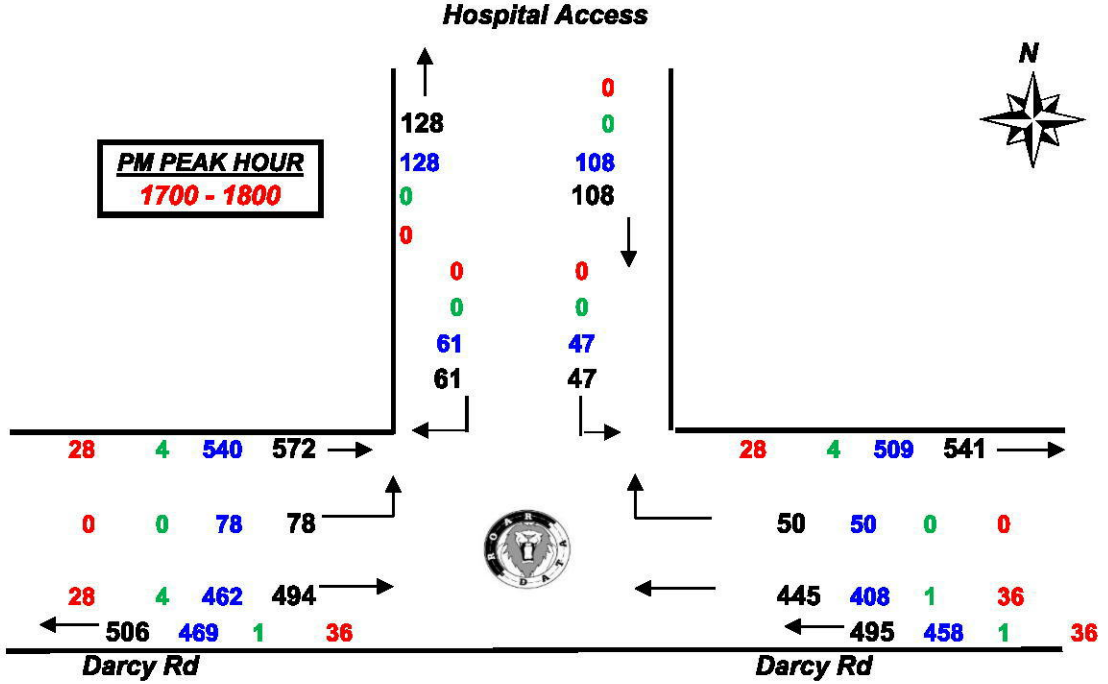
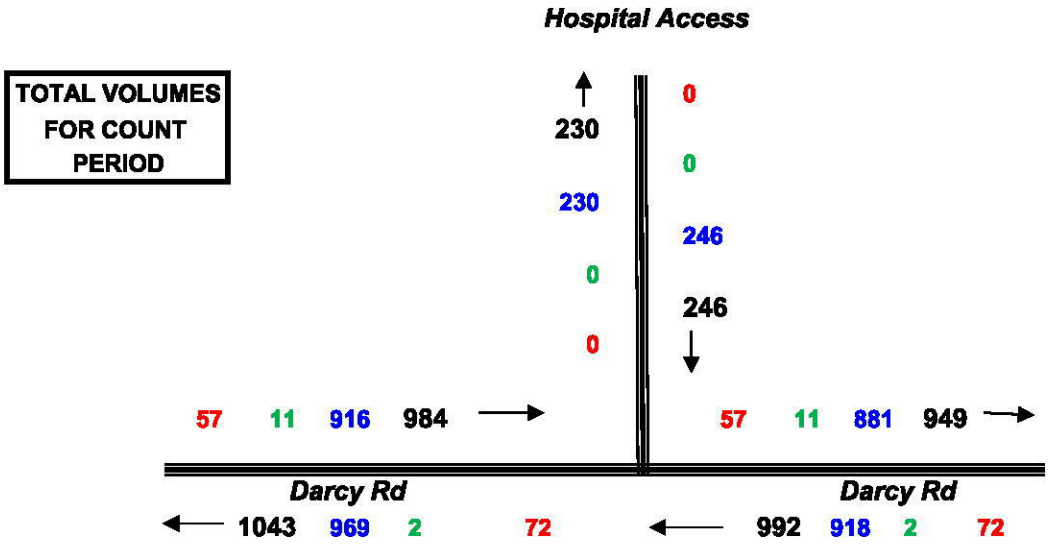
Client : BarkerRyanStewart
Job No/Name : 6140 WESTMEAD Darcy Rd
Day/Date : Thursday 21st July 2016

Combined	WEST		NORTH		EAST		
	Darcy Rd		Hospital		Darcy Rd		
Time Per	T	L	R	L	R	T	TOT
1600 - 1615	99	12	20	9	9	105	254
1615 - 1630	106	21	17	14	10	112	280
1630 - 1645	80	12	33	11	14	125	275
1645 - 1700	73	9	18	16	15	107	238
1700 - 1715	129	25	20	10	11	99	294
1715 - 1730	111	17	13	13	18	132	304
1730 - 1745	114	18	17	15	9	118	291
1745 - 1800	140	18	11	9	12	96	286
Per End	852	132	149	97	98	894	2222



Combined	WEST		NORTH		EAST		
	Darcy Rd		Hospital		Darcy Rd		
Peak Per	T	L	R	L	R	T	TOT
1600 - 1700	358	54	88	50	48	449	1047
1615 - 1715	388	67	88	51	50	443	1087
1630 - 1730	393	63	84	50	58	463	1111
1645 - 1745	427	69	68	54	53	456	1127
1700 - 1800	494	78	61	47	50	445	1175

PEAK HR	494	78	61	47	50	445	1175



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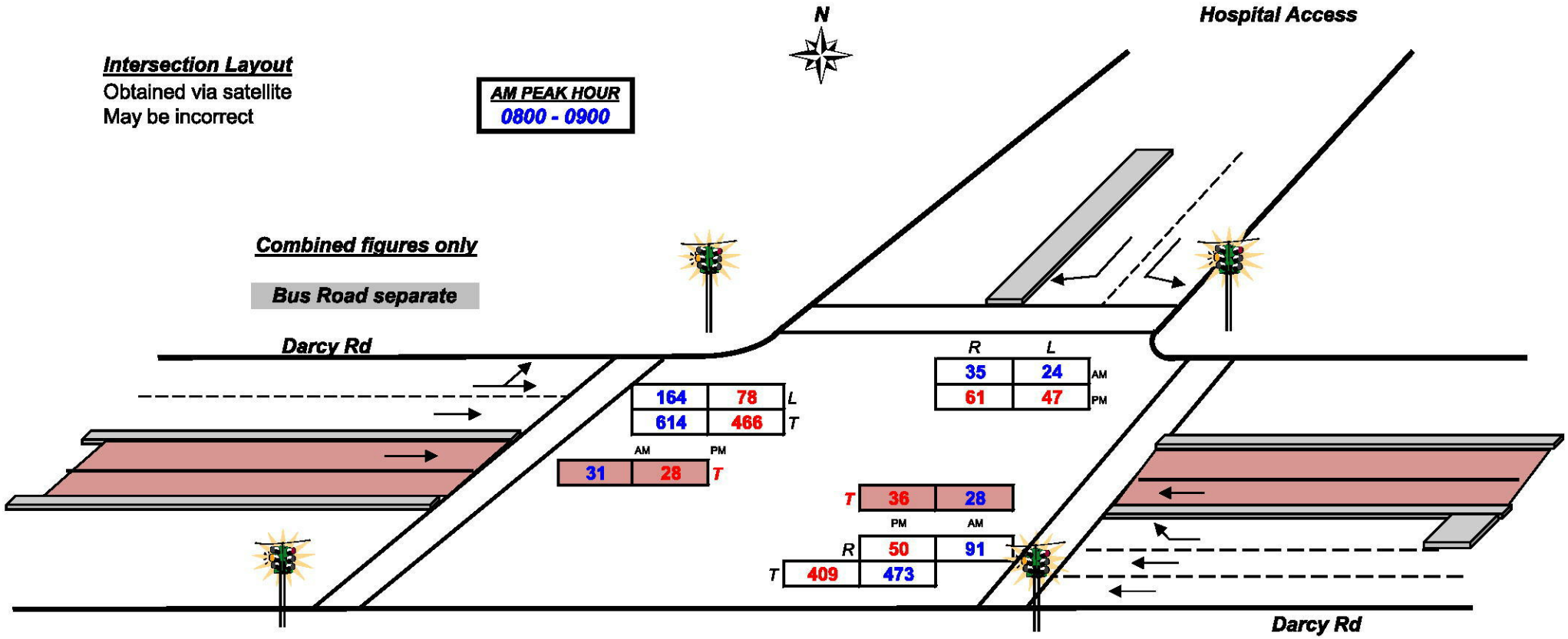
Client : BarkerRyanStewart
Job No/Name : 6140 WESTMEAD Darcy Rd
Day/Date : Thursday 21st July 2016

Intersection Layout
Obtained via satellite
May be incorrect

AM PEAK HOUR
0800 - 0900

Combined figures only

Bus Road separate



PM PEAK HOUR
1700 - 1800

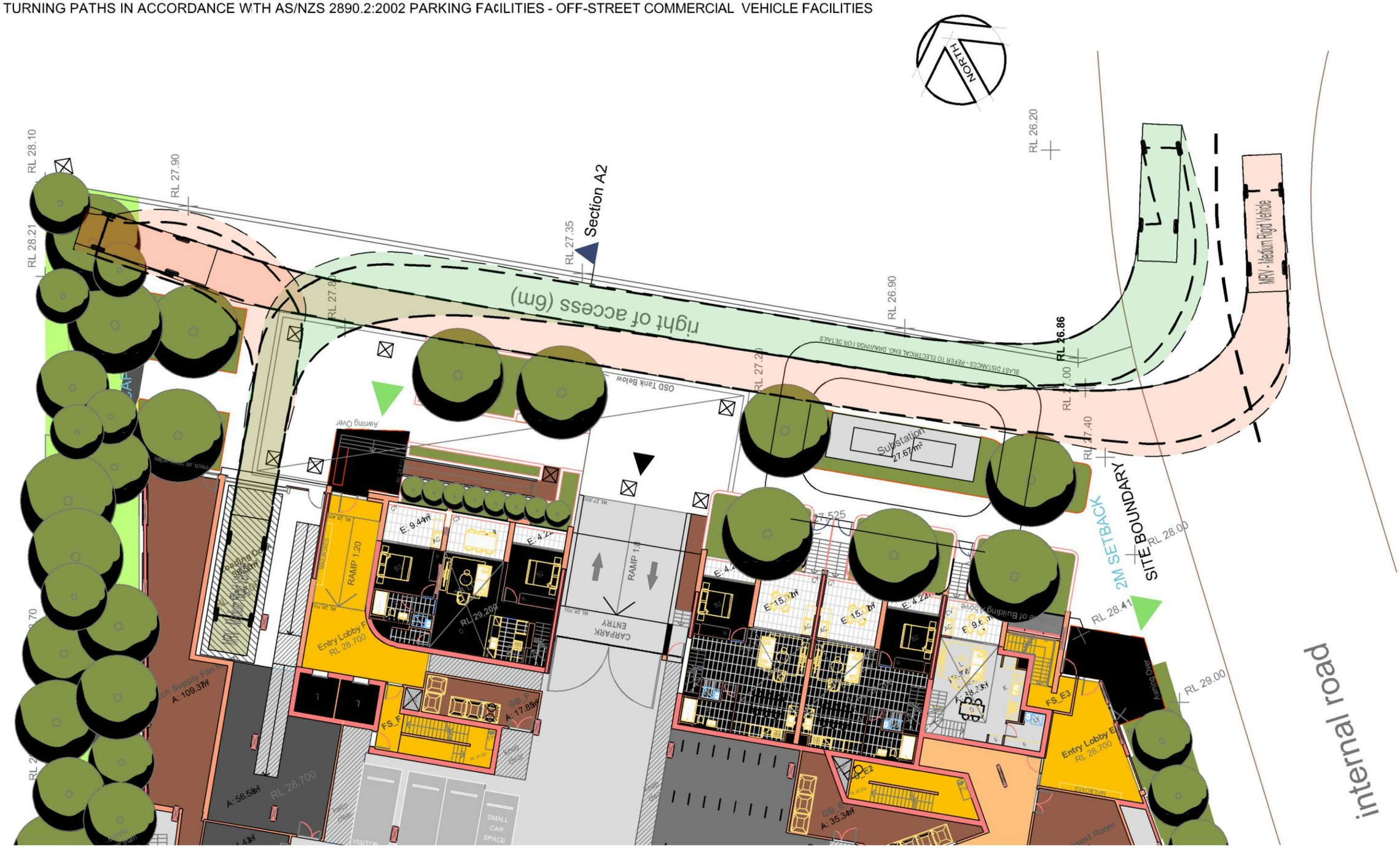
Weather >>>

Appendix F

MRV Swept path

A3

TURNING PATHS IN ACCORDANCE WTH AS/NZS 2890.2:2002 PARKING FACILITIES - OFF-STREET COMMERCIAL VEHICLE FACILITIES



5 0 5 10 15 20 25

METRES

1:250

No.	DATE	AMENDMENT
A	16/12/16	FIRST ISSUE

BARKER RYAN STEWART
TOTAL PROJECT SOLUTIONS
PLANNING - PROJECT MANAGEMENT - ENGINEERING - CERTIFICATION

SYDNEY
P: 02 9659 0005
CENTRAL COAST
P: 02 4325 5255
HUNTER
P: 02 4966 8388
ABN: 26 134 067 842
barkerryanstewart.com.au
mail@barkerryanstewart.com.au

Designed: JB
Drawn: JB
Checked: GB

Scales: Plan 1:250
Horiz.
Vert.
X-Sect.

Datum: A.H.D.

Client: DEICORP

LGA: PARRAMATTA
Council Ref:

LOT 4 158-164 HAWKESBURY ROAD
WESTMEAD

MRV TURNING PATHS

Plan No. SP2
REV. A
File Ref. SY16028SP2
SHEET 1 OF 1 SHEETS