Planning Proposal for Residential Zoning

1-5 Chester Street, Annandale

TRAFFIC AND PARKING ASSESSMENT REPORT

18 September 2017

Ref 17381

VARGA TRAFFIC PLANNING Pty Ltd
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LIST OF ILLUSTRATIONS

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1. INTRODUCTION

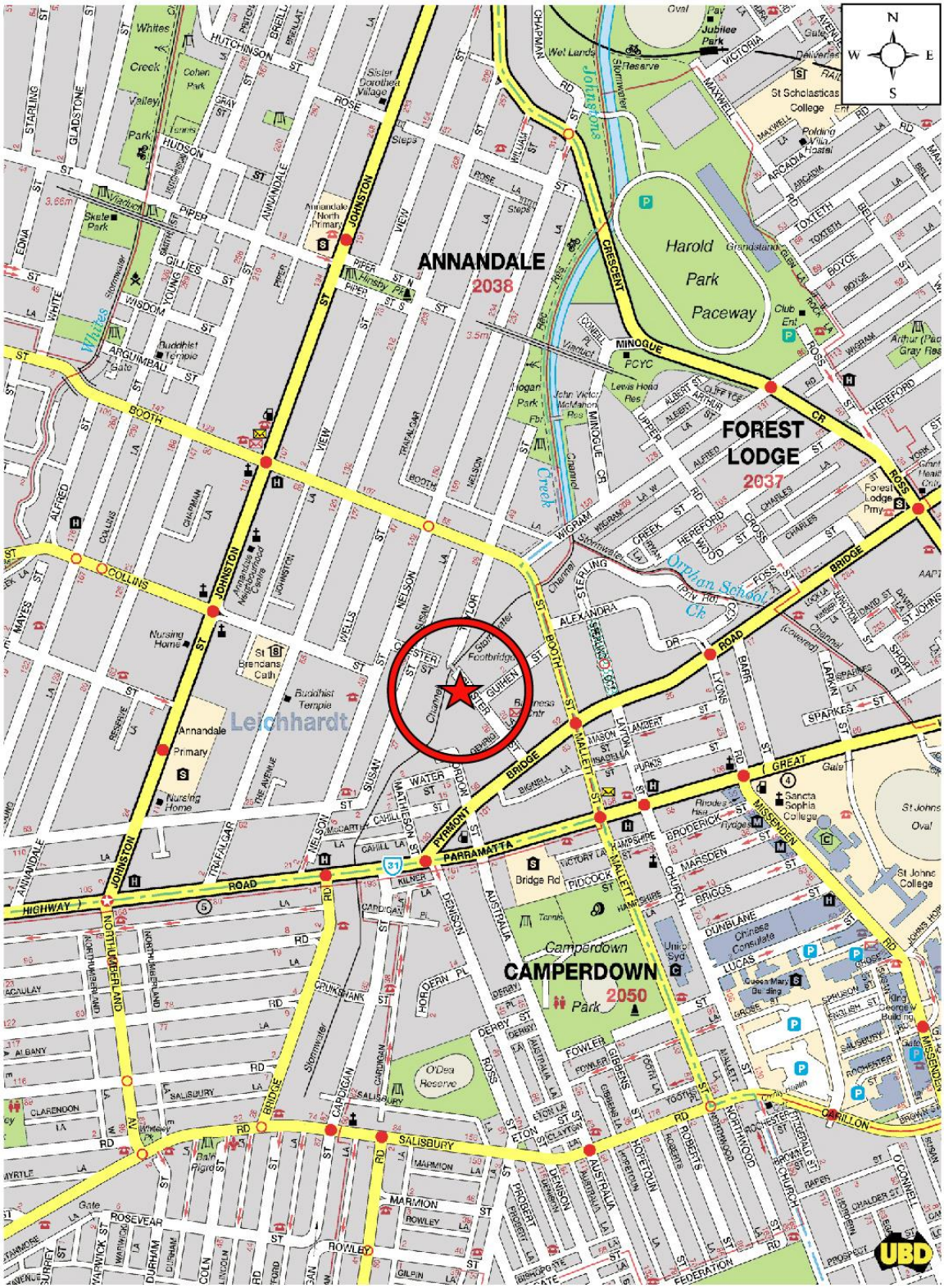
This report has been prepared to accompany a planning proposal to Council for a residential development to be located at 1-5 Chester Street, Annandale (Figures 1 and 2).

The planning proposal involves the rezoning of the land from *IN2 – Light Industrial* to *R3 – Medium Density Residential* and increasing the permissible FSR from 1:1 up to 2.6:1.

Off-street parking will be provided in a new basement car parking area located beneath the building and will ultimately be designed to comply with Council's requirements as well as the relevant Australian Standards. Vehicular access to the site is to be provided via a new entry/exit driveway located at the southern end of the Chester Street site frontage.

The purpose of this report is to assess the traffic and parking implications of the planning proposal and to that end this report:

- describes the sites and provides details of the planning proposal
- reviews the road network in the vicinity of the site, and the traffic conditions on that road network
- estimates the traffic generation potential of the planning proposal, and assigns that traffic generation to the road network serving the site
- assesses the traffic implications of the planning proposal in terms of road network capacity
- reviews the geometric design features of the proposed car parking facilities for compliance with the relevant codes and standards
- assesses the adequacy and suitability of the quantum of off-street car parking provided on the site.



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LOCATION
FIGURE 1


N
W
E
S
BOOTH
ST
BOOTH LN
NELSON
LN
JOHNSON LN
TAYLOR
LN
RD
WIGRAM
ST
TRAFALGAR
WELLS
NELSON
LN
ST
BOOTH
ALEXANDRA DR
SUSAN
TAYLOR
CHESTER
COLLINS
ST
GUIHEN
CHESTER
ST
LN
RD
GHERIG
PYRMONT BRIDGE
WATER
ST
NELSON
SUSAN
ALBION
ST
CAHILL
ST
BIGNELL
LN
Road Closure / Unformed Road
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
SITE
FIGURE 2

2. PLANNING PROPOSAL

Site

The subject site is located along the western side of Chester Street, at its far very northern end. The site has a street frontage of approximately 44 metres in length to Chester Street and occupies an area of approximately 1,307m^2.

The site is currently zoned *IN2 – Light Industrial* and is situated approximately 350m walking distance north of the *Parramatta Road Corridor*. The subject site is currently occupied by an industrial building operating as a panel beating and car repair workshop.

Informal off-street parking is provided on the site, with vehicular access provided via a single driveway located at the northern end of the Chester Street site frontage. A recent aerial image of the site and its surroundings is reproduced below.

Source: Nearmap

Existing Planning Controls

The current instrument that governs the mass and scale of the development on the site is contained within the *Leichhardt Local Environmental Plan (LEP) 2013*. The subject site is currently zoned *IN2 – Light Industrial* and subject to an FSR of 1:1 without height controls.

It is therefore envisaged that a light industrial development comprising a cumulative floor area of 1,307m^2 could be achieved under the current planning controls for the site, resulting in approximately 1,000m^2 GFA.

Planning Proposal

The planning proposal involves the rezoning of the land from *IN2 – Light Industrial* to *R3 – Medium Density Residential* and increasing the permissible FSR from 1:1 up to 2.6:1.
The proposed rezoning of the site has the potential to achieve approximately 43 apartments as follows:

1 bedroom apartments:	11
2 bedroom apartments:	26
3 bedroom apartments:	6
TOTAL APARTMENTS:	**43**

Off-street parking will be provided in a new single-level basement car parking area and will ultimately be designed in accordance with Council's requirements, as well as the relevant Australian Standards. Vehicular access to the site is to be provided via a new entry/exit driveway located at the southern end of the Chester Street site frontage.

Concept plans of the planning proposal have been prepared by *AE Design Partnership Pty Ltd* and are reproduced in the following pages.

7.6 Indicative Floor Plans

Basement Level

Lower Ground / Johnston's Creek Level

Architectural drawings subject to further design resolution at DA stage

Architectural drawings subject to further design resolution at DA stage

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8th September 2017

Architectural drawings subject to further design resolution at DA stage

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3. TRAFFIC ASSESSMENT

Road Hierarchy

The road hierarchy allocated to the road network in the vicinity of the site by the Roads and Maritime Services is illustrated on Figure 3.

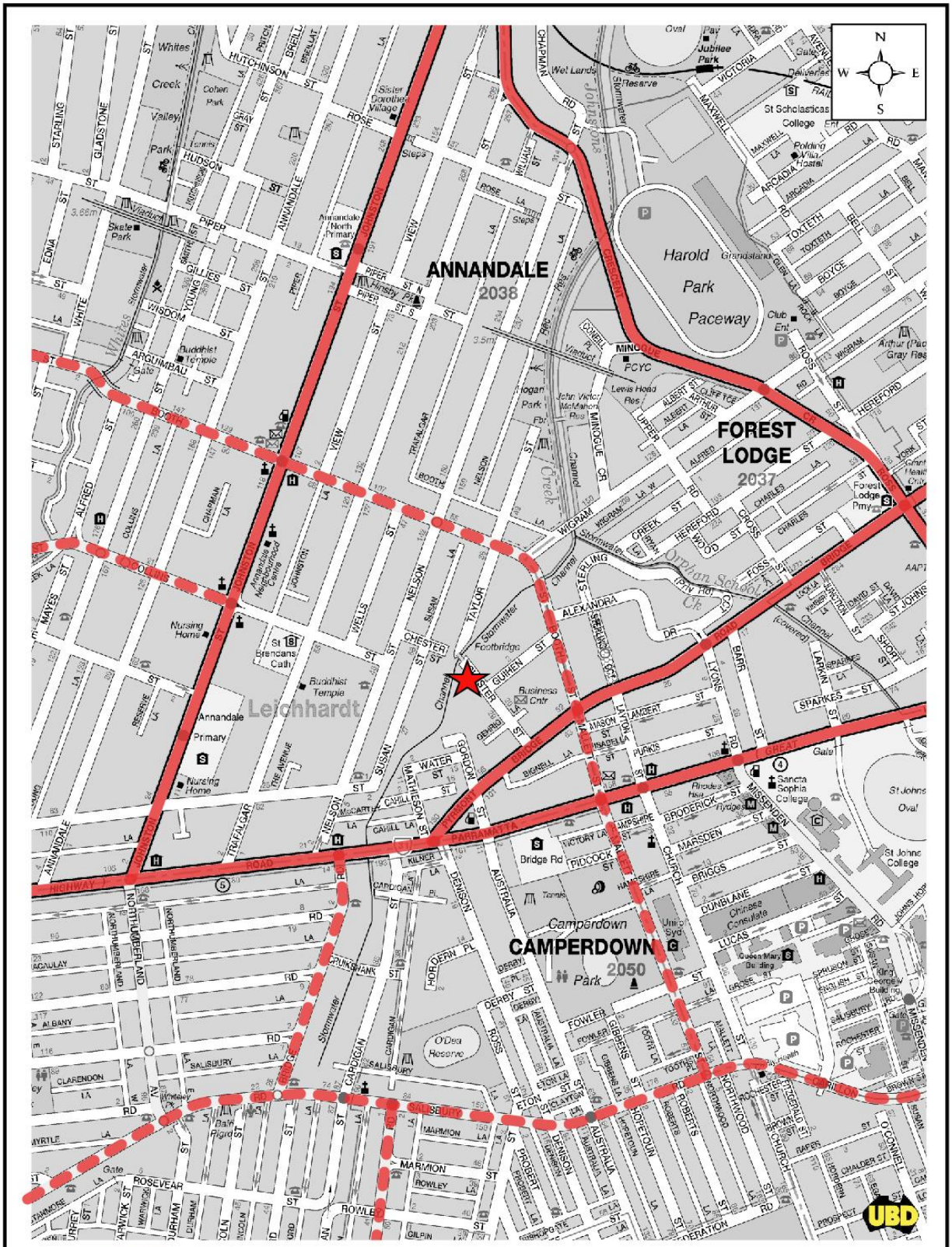
Parramatta Road is classified by the RMS as a *State Road* and provides a key east-west road link in the area, linking Parramatta and the Sydney CBD. It typically carries three traffic lanes in each in the vicinity of the site, including dedicated Bus Lanes during commuter peak periods.

Pyrmont Bridge Road is also classified by the RMS as a *State Road* and provides another key east-west road link in the area, linking Annandale and Pyrmont. It typically carries two traffic lanes in each in the vicinity of the site, with Clearway restrictions apply during commuter peak periods.

Johnston Street is also classified by the RMS as a *State Road* which provides a key north-south road link in the area, linking Parramatta Road to The Crescent. It typically carries two traffic lanes in each direction in the vicinity of the site, with kerbside parking generally permitted.

Moore Street and Booth Street are classified by the RMS as *Regional Roads* which provide a local north-south *collector route* through the area, linking Annandale to Lilyfield. They typically carry one traffic lane in each direction in the vicinity of the site, with kerbside parking generally permitted on both sides of the road, subject to sign posted restrictions.

Chester Street is a local, unclassified road which is primarily used to provide vehicular and pedestrian access to frontage properties. Unrestricted kerbside parking is generally permitted on both sides of the road.


ANNANDALE
2038
FOREST LODGE
2037
CAMPERDOWN
2050
Leichhardt
Harold Park Paceway
Regional Road
State Road
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
ROAD HIERARCHY
FIGURE 3

Existing Traffic Controls

The existing traffic controls which apply to the road network in the vicinity of the site are illustrated on Figure 4. Key features of those traffic controls are:

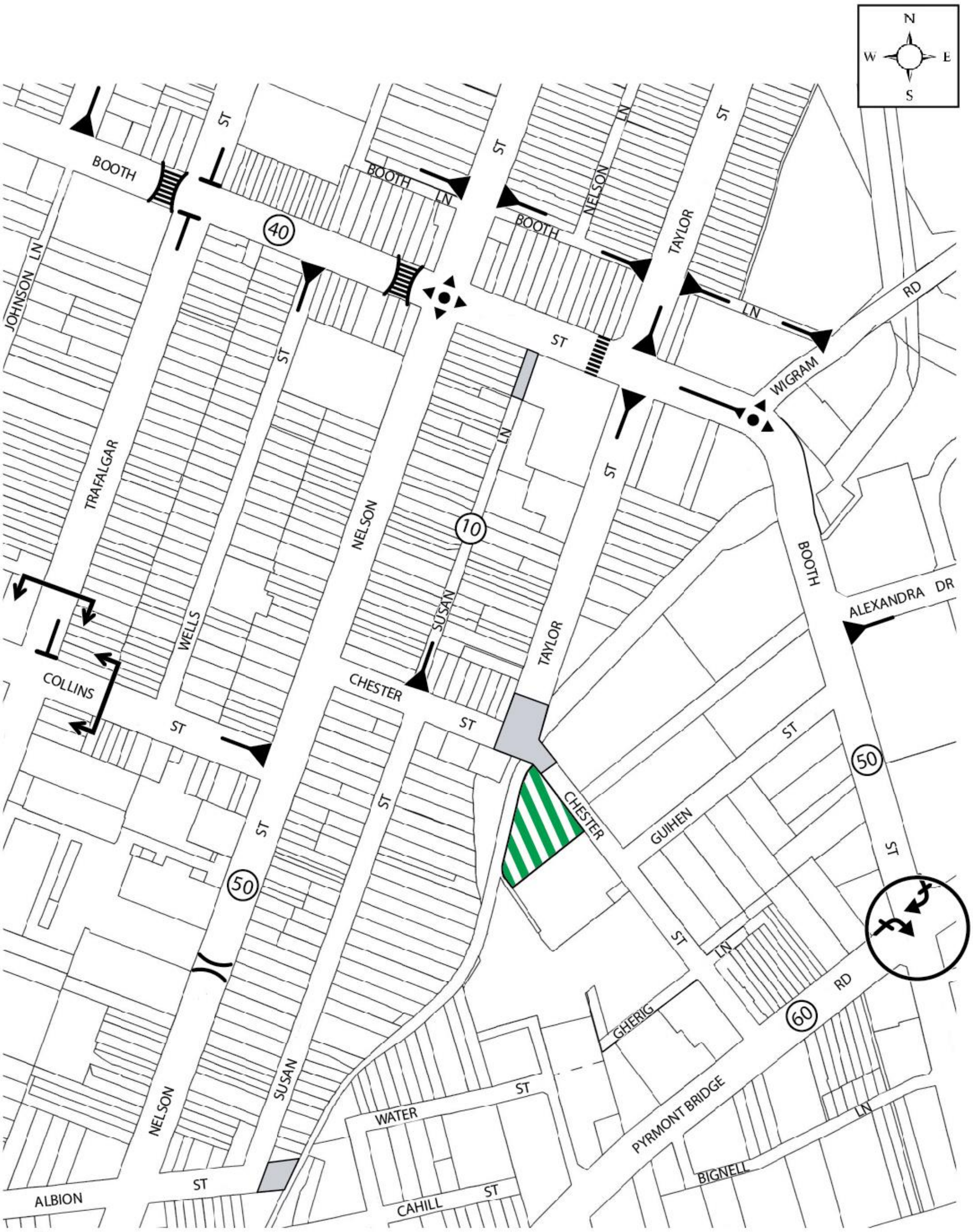
- a 60 km/h SPEED LIMIT which applies to Pyrmont Bridge Road
- a 50 km/h SPEED LIMIT which applies to Chester Street and all other local roads in the area
- a ROAD CLOSURE in Chester Street at its intersection with Taylor Street which precludes through traffic between Nelson Street and Pyrmont Bridge Road
- TRAFFIC SIGNALS in Pyrmont Bridge Road where it intersects with Booth Street
- a NO RIGHT TURN southbound restriction in Booth Street for traffic turning onto Pyrmont Bridge Road
- a NO RIGHT TURN eastbound restriction in Pyrmont Bridge Road for traffic turning onto Booth Street.

Existing Public Transport Services

The existing public transport services available to the site are illustrated on Figure 5.

There are currently eleven bus services which operate along Parramatta Road plus the 470 bus service which operates along Booth Street; all of which are located within approximately 400m walking distance from the site.

Notably, route M10 is part of the Sydney's *Metrobus* network that provides high-frequency, high-capacity links between key employment and growth centres across Sydney. The M10 links between Lilyfield, Leichhardt, Annandale, Pyrmont, Glebe, Haymarket and the Sydney CBD, operating at 10 minute intervals during commuter peak periods, 15 minute intervals during the day and 20 minute intervals at other times.



Key:

- Give Way Sign
- Roundabout
- Stop Sign
- Traffic Signal
- No Right-Turn
- Speed Hump
- School Zone
- (50) Speed Limit
- Pedestrian Crossing

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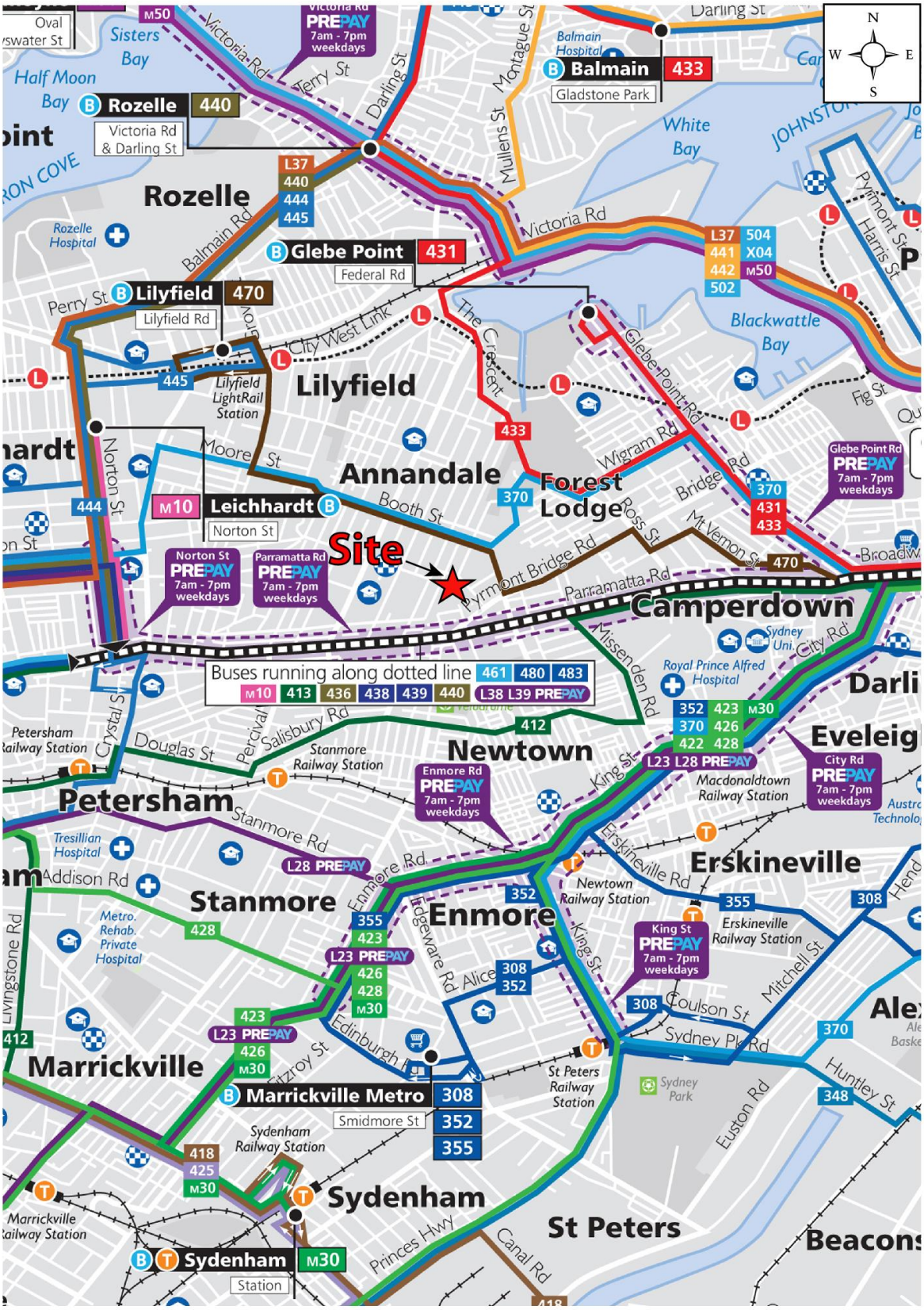
EXISTING TRAFFIC CONTROLS
FIGURE 4



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PUBLIC TRANSPORT
FIGURE 5

In summary there are more than 1,100 bus services operating in close proximity to the site on weekdays, decreasing to approximately 740 bus services per day on Saturdays and approximately 540 services on Sunday and public holidays, as set out below:

Bus Routes and Frequencies							
Route No.	**Route**	**Weekdays**		**Saturday**		**Sunday**	
		IN	**OUT**	**IN**	**OUT**	**IN**	**OUT**
413	Campsie to City via Canterbury	40	39	29	29	9	9
436	Five Dock & Rozelle to City via Leichhardt	43	40	35	35	24	25
438	Five Dock & Rozelle to City via Leichhardt	77	75	63	63	52	51
439	Five Dock & Rozelle to City via Leichhardt	23	22	22	24	16	16
440	Bronte to Rozelle	98	81	52	50	45	44
461	City Domain to Burwood	67	63	35	36	29	29
470	Lilyfield to City	87	100	58	59	40	40
480	Strathfield to Central	30	24	12	14	-	-
483	Strathfield to Central	34	31	25	27	18	21
L38	Five Dock & Rozelle to City via Leichhardt	16	15	-	-	-	-
L39	Five Dock & Rozelle to City via Leichhardt	5	8	-	-	-	-
M10	Pioneer Memorial Park to Maroubra Junction via City	65	64	38	38	37	37
TOTAL		**585**	**562**	**369**	**375**	**270**	**272**

The abovementioned bus services also connect with train services at numerous railway stations including Campsie, Burwood, Strathfield, Ashfield, Wynyard, Town Hall, Central, Martin Place and Bondi Junction Railway Stations.

In addition to the bus services, Jubilee Park Light Rail station is located approximately 1,300m walking distance north of the site with a shared Off-Road Pedestrian and Bicycle path running along Johnstons Creek which can be easily accessed directly from the northern end of Taylor Street.

On the above basis it is clear that the site is extremely well served by existing public transport and services and in an ideal location to accommodate additional residential yield.

WestConnex M4-M5 Link

In November 2016, updated design features for the M4-M5 Link were announced including a main tunnel consisting of four traffic lanes in each direction.

Whilst Government and the RMS were originally considering an on/off ramp in the Camperdown precinct, the updated design for the WestConnex M4 East no longer includes any on/off ramps in the immediate vicinity of the site. The future tunnel will be located several hundred metres to the west of the site and approximately 60m below ground. As such, there is *not* expected to be any permanent traffic implications on the proposed development as a consequence of the WestConnex.

Notwithstanding, it is understood that a strip of land located between 162-196 Parramatta Road has been acquired by the RMS for a temporary construction 'dive site'. Whilst the 'dive site' will prohibit the redevelopment of that part of the Camperdown precinct for several years it is also *not* expected to result in any unacceptable traffic implications on the proposed development.

Existing Traffic Conditions

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by peak period traffic surveys undertaken as part of this traffic study.

The traffic surveys were undertaken at the Pyrmont Bridge Road and Chester Street intersection as well as the Booth Street and Guihen Street intersection. The results of the traffic surveys are reproduced in full in Appendix A and reveal that:

- two-way traffic flows in Pyrmont Bridge Road are typically in the order of 800-1,000 vehicles per hour (vph) during peak periods

- two-way traffic flows in Booth Street are also typically in the order of 800-1,000 vph during peak periods.

- two-way traffic flows in Chester Street are significantly lower, typically in the order of 50-100 vph during commuter peak periods

Projected Traffic Generation

An indication of the traffic generation potential of the planning proposal is provided by reference to the Roads and Maritime Services publication *Guide to Traffic Generating Developments, Section 3 - Landuse Traffic Generation (October 2002)* and the updated traffic generation rates in the recently published RMS *Technical Direction (TDT 2013/04a)* document.

The *TDT 2013/04a* document specifies that it replaces those sections of the RMS *Guidelines* indicated, and that it must be followed when RMS is undertaken trip generation and/or parking demand assessments.

The RMS *Guidelines* and the updated *TDT 2013/04a* are based on extensive surveys of a wide range of land uses and nominate the following traffic generation rates which are applicable to the planning proposal:

High Density Residential Flat Dwellings

AM: 0.19 peak hour vehicle trips unit

PM: 0.15 peak hour vehicle trips unit

Application of the above traffic generation rates to the potential for 43 apartments as part of the planning proposal yields a traffic generation potential of approximately 8 vehicle trips per hour during the AM commuter peak period and approximately 7 vph during the PM commuter peak period.

That projected future traffic generation potential which could occur as a consequence of the planning proposal should however, be offset or *discounted* by the volume of traffic which could reasonably be expected to be generated by a development permitted under the current *Leichhardt LEP 2013* planning controls.

Application of the *industrial* traffic generation rate of "1.0 peak hour vehicle trips per 100m^2 GFA" nominated in the RMS *Guidelines* to the floor area permissible under the current *Leichhardt LEP 2013* planning controls (~1,000m²) yields a peak hour traffic generation potential of approximately 10 vph during the AM and PM commuter peak periods.

Accordingly, it is clear that the planning proposal would *not* result in *any* increase in the traffic generation potential of the site during both the AM and PM commuter peak periods when compared with a development permissible under the existing planning controls, as set out below:

Projected Nett Decrease in the Traffic Generation Potential of the Site as a Consequence of the Planning Proposal

	AM	**PM**
Projected Future Traffic Generation Potential (Proposed LEP Controls):	8.2 vph	6.5 vph
Less Existing Traffic Generation Potential (Current LEP Controls):	-10.0 vph	-10.0 vph
NETT DECREASE IN TRAFFIC GENERATION POTENTIAL:	**-1.8 vph**	**-3.5 vph**

Notwithstanding, for the purposes of this assessment it has been assumed that *all* of the projected future traffic flows of 8 vph and 7 vph in the AM and PM commuter peak periods respectively, will be new or *additional* to the existing traffic flows currently using the adjacent road network.

That projected "increase" in the traffic generation potential of the site as a consequence of the planning proposal is *minimal* and will clearly not have any unacceptable traffic implications in terms of road network capacity, as is demonstrated by the following section of this report.

Traffic Implications - Road Network Capacity

The traffic implications of development proposals primarily concern the effects that any *additional* traffic flows may have on the operational performance of the nearby road network. Those effects can be assessed using the SIDRA program which is widely used by the RMS and many LGA's for this purpose. Criteria for evaluating the results of SIDRA analysis are reproduced in the following pages.

The results of the SIDRA analysis of the in Pyrmont Bridge Road and Chester Street intersection are summarised on Table 3.1 below, revealing that:

- the Pyrmont Bridge Road and Chester Street intersection currently operates at *Level of Service "A"* under the existing traffic demands with total average vehicle delays in the order of ***less than*** 1 second/vehicle

- under the projected future traffic demands which could be generated by an industrial building development permitted under the *existing planning controls*, the intersection would continue to operate at *Level of Service "A"* during the AM and PM commuter peak periods, with ***zero*** increases in average vehicle delays.

- under the projected future traffic demands expected to be generated by the *planning proposal*, the intersection would also continue to operate at *Level of Service "A"* during the AM and PM commuter peak periods, with ***zero*** increases in average vehicle delays.

The results of the SIDRA analysis of the Booth Street and Guihen Street intersection are summarised on Table 3.2 below, revealing that:

- the Booth Street and Guihen Street intersection currently operates at *Level of Service "A"* under the existing traffic demands with total average vehicle delays in the order of ***less than*** 1 second/vehicle

- under the projected future traffic demands which could be generated by an industrial building development permitted under the *existing planning controls*, the intersection would continue to operate at *Level of Service "A"* during the AM and PM commuter peak periods, with increases in average vehicle delays of ***less than*** 1 second/vehicle.

- under the projected future traffic demands expected to be generated by the *planning proposal*, the intersection would also continue to operate at *Level of Service "A"* during the AM and PM commuter peak periods, with increases in average vehicle delays of ***less than*** 1 second/vehicle.

In the circumstances, it is clear that the proposed development will not have any unacceptable traffic implications in terms of road network capacity.

TABLE 3.1 - RESULTS OF SIDRA ANALYSIS OF PYRMONT BRIDGE ROAD & CHESTER STREET

Key Indicators		Existing Traffic Demand		Existing Planning Controls Traffic Demand		Planning Proposal Traffic Demands	
		AM	**PM**	**AM**	**PM**	**AM**	**PM**
Level of Service		A	A	A	A	A	A
Degree of Saturation		0.120	0.162	0.121	0.163	0.120	0.163
Average Vehicle Delay (secs/veh)							
Pyrmont Bridge Road (east)	T	0.2	0.1	0.2	0.1	0.2	0.1
	R	7.5	7.0	7.5	7.0	7.5	7.0
Chester Street (north)	L	5.5	5.2	5.5	5.2	5.5	5.2
	R	10.6	14.0	10.6	14.1	10.6	14.1
Chester Street (north)	L	5.5	5.5	5.5	5.5	5.5	5.5
	T	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL AVERAGE VEHICLE DELAY		**0.7**	**1.0**	**0.7**	**1.0**	**0.7**	**1.0**
		PBR_CHEX		PBR_CHEPermissible		PBR_CHEP	

TABLE 3.2 - RESULTS OF SIDRA ANALYSIS OF BOOTH STREET & GUIHEN STREET

Key Indicators		Existing Traffic Demand		Existing Planning Controls Traffic Demand		Planning Proposal Traffic Demands	
		AM	**AM**	**AM**	**PM**	**AM**	**PM**
Level of Service		A	A	A	A	A	A
Degree of Saturation		0.334	0.273	0.334	0.274	0.334	0.274
Average Vehicle Delay (secs/veh)							
Booth Street (south)	L	4.6	4.6	4.6	4.6	4.6	4.6
	T	0.0	0.0	0.0	0.0	0.0	0.0
Booth Street (north)	T	0.2	0.5	0.2	0.5	0.2	0.5
	R	6.2	7.3	6.2	7.3	6.2	7.3
Guihen Street (west)	L	5.5	6.5	5.5	6.5	5.5	6.5
	R	9.9	9.8	10.0	9.8	9.9	9.8
TOTAL AVERAGE VEHICLE DELAY		**0.4**	**0.8**	**0.5**	**0.8**	**0.5**	**0.8**
		BOO_GUIX		BOO_GUIPermissible		BOO_GUIP	

Criteria for Interpreting Results of Sidra Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good operation.	Good operation.
'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, Roundabout	Give Way and Stop Signs
A	less than 14	Good operation.	Good operation.
B	15 to 28	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
C	29 to 42	Satisfactory.	Satisfactory but accident study required.
D	43 to 56	Operating near capacity.	Near capacity and accident study required.
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.

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.*

4. PARKING IMPLICATIONS

Existing Kerbside Parking Restrictions

The existing kerbside parking restrictions which apply to the road network in the vicinity of the site comprise:

- generally UNRESTRICTED kerbside parking along both sides of Chester Street and Guihen Street, including along the entire site frontage, and throughout the local area

- BUS ZONES located at regular intervals along both sides of Booth Street.

Off-Street Car Parking Provisions

The off-street parking requirements applicable to the development proposal are specified in Council's *Leichhardt Development Control Plan 2013 – Part C1.11, Parking* document in the following terms:

Residential Flat Buildings

One bedroom dwelling:	1 space per 3 dwellings (min)	&	0.5 spaces per dwelling (max)
Two bedroom dwelling:	1 space per 2 dwellings (min)	&	1 space per dwelling (max)
Three bedroom dwelling:	1 space per dwelling (min)	&	1.2 spaces per dwelling (max)
Visitors:	1 space per 11 dwellings (min)	&	0.125 spaces per dwelling (max)

Application of the above parking requirements to the 43 residential apartments of the development proposal yields an off-street car parking requirement of between 27 spaces and 44 spaces as set out below:

Residential (43 apartments):	22.7 spaces (min)	&	38.7 spaces (max)
Visitors:	3.9 spaces (min)	&	5.4 spaces (max)
TOTAL:	**26.6 spaces (min)**	**&**	**44.1 spaces (max)**

Preliminary plans prepared for the purpose of the planning proposal have confirmed that the above parking requirements can be satisfied on the subject site.

The geometric design layout of the future car parking facilities will ultimately be designed to comply with Standards Australia publication *Parking Facilities Part 1 - Off-Street Car Parking AS2890.1* and *Parking Facilities Part 6 - Off-Street Parking for People with Disabilities AS2890.6*.

Off-Street Bicycle Parking Provisions

The off-street bicycle parking requirements applicable to the development proposal are also specified in *Leichhardt Development Control Plan 2013 – Part C1.11, Parking* document in the following terms:

Bicycle		
Residential:	1 space per 2 dwellings	*plus*
Visitors:	1 space per 10 dwellings	

Application of the above bicycle parking requirements to the 43 residential apartments of the planning proposal yields an off-street parking requirement of 22 residential bicycle spaces and 4 visitor bicycle spaces.

The above *DCP 2013* bicycle parking requirements will also ultimately be satisfied and designed in accordance with Council and *AS2890.3* requirements, with detailed analysis to be undertaken at the future DA stage.

Conclusion

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

- the planning proposal seeks approval to amend the planning controls of the site to permit a high density residential development on the site, with a potential for approximately 43 apartments

- when compared to an industrial scheme permitted under the existing planning controls, the planning proposal will result in a *nett reduction* in the traffic generation potential of the site

- the SIDRA capacity analysis of the Pyrmont Bridge Road & Chester Street intersection and Booth Street & Guihen Street intersection indicates that:

  - the projected additional traffic flows as a consequence of the planning proposal will not have any adverse effects on the operational performance of the intersections, and

  - no road improvements or intersection upgrades would be required as a consequence of the planning proposal

- the future car parking facilities will ultimately be provided and designed in accordance with Council's requirements and the relevant Australian Standards

- the future bicycle parking facilities will also ultimately be provided and designed in accordance with Council's requirements

- the future vehicular access arrangements will be developed in close accordance with Council and RMS requirements.

It is therefore reasonable to conclude that the planning proposal will not have any unacceptable implications in terms of road network capacity or off-street parking requirements.

APPENDIX A

TRAFFIC SURVEY DATA

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning

Job No/Name : 6492 ANNANDALE Chester St

Day/Date : Tuesday 20th June 2017

Lights

	WEST		NORTH		EAST		
	Pyrmont Br		*Chester St*		*Pyrmont Br*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	114	3	4	4	1	48	**174**
0715 - 0730	104	8	5	3	1	45	**166**
0730 - 0745	125	1	10	5	1	53	**195**
0745 - 0800	132	2	6	2	2	74	**218**
0800 - 0815	94	1	7	2	6	78	**188**
0815 - 0830	105	2	7	2	4	58	**178**
0830 - 0845	109	2	5	4	1	66	**187**
0845 - 0900	115	3	7	4	9	63	**201**
Per End	**898**	**22**	**51**	**26**	**25**	**485**	**1507**

Heavies

	WEST		NORTH		EAST		
	Pyrmont Br		*Chester St*		*Pyrmont Br*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	2	0	0	0	0	0	**2**
0715 - 0730	3	0	0	0	0	0	**3**
0730 - 0745	2	0	0	0	0	1	**3**
0745 - 0800	0	0	0	0	0	0	**0**
0800 - 0815	1	0	0	0	0	3	**4**
0815 - 0830	1	0	0	0	0	1	**2**
0830 - 0845	0	0	0	0	0	2	**2**
0845 - 0900	2	0	0	0	0	1	**3**
Per End	**11**	**0**	**0**	**0**	**0**	**8**	**19**

Combined

	WEST		NORTH		EAST		
	Pyrmont Br		*Chester St*		*Pyrmont*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	116	3	4	4	1	48	**176**
0715 - 0730	107	8	5	3	1	45	**169**
0730 - 0745	127	1	10	5	1	54	**198**
0745 - 0800	132	2	6	2	2	74	**218**
0800 - 0815	95	1	7	2	6	81	**192**
0815 - 0830	106	2	7	2	4	59	**180**
0830 - 0845	109	2	5	4	1	68	**189**
0845 - 0900	117	3	7	4	9	64	**204**
Per End	**909**	**22**	**51**	**26**	**25**	**493**	**1526**

Lights

	WEST		NORTH		EAST		
	Pyrmont Br		*Chester St*		*Pyrmont Br*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	475	14	25	14	5	220	**753**
0715 - 0815	455	12	28	12	10	250	**767**
0730 - 0830	456	6	30	11	13	263	**779**
0745 - 0845	440	7	25	10	13	276	**771**
0800 - 0900	423	8	26	12	20	265	**754**
PEAK HR	**456**	**6**	**30**	**11**	**13**	**263**	**779**

Heavies

	WEST		NORTH		EAST		
	Pyrmont Br		*Chester St*		*Pyrmont Br*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	7	0	0	0	0	1	**8**
0715 - 0815	6	0	0	0	0	4	**10**
0730 - 0830	4	0	0	0	0	5	**9**
0745 - 0845	2	0	0	0	0	6	**8**
0800 - 0900	4	0	0	0	0	7	**11**
PEAK HR	**4**	**0**	**0**	**0**	**0**	**5**	**9**

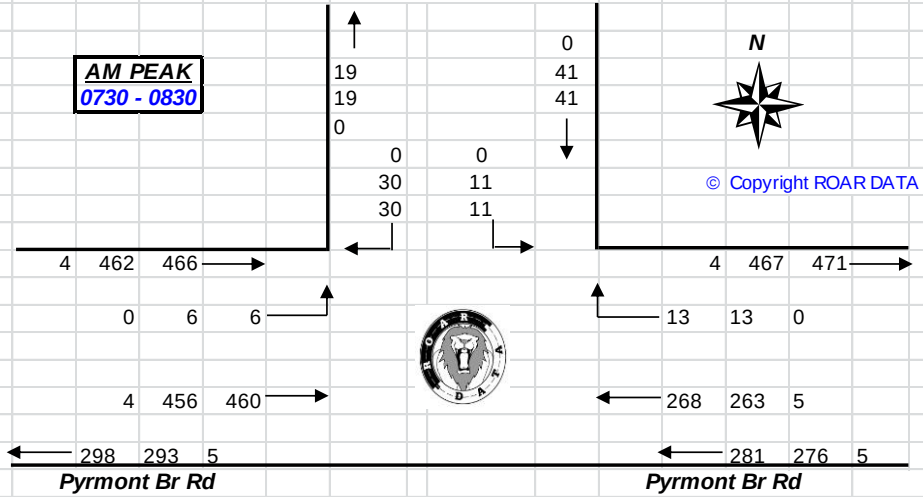
Combined

	WEST		NORTH		EAST		
	Pyrmont Br		*Chester St*		*Pyrmont*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	482	14	25	14	5	221	**761**
0715 - 0815	461	12	28	12	10	254	**777**
0730 - 0830	460	6	30	11	13	268	**788**
0745 - 0845	442	7	25	10	13	282	**779**
0800 - 0900	427	8	26	12	20	272	**765**
PEAK HR	**460**	**6**	**30**	**11**	**13**	**268**	**788**

Peds

	WEST	NORTH	EAST	
Time Per	Pyrmont Br	Chester St	Pyrmont Br	TOT
0700 - 0715	0	1	2	**3**
0715 - 0730	0	2	1	**3**
0730 - 0745	1	5	0	**6**
0745 - 0800	0	5	1	**6**
0800 - 0815	0	5	0	**5**
0815 - 0830	0	4	4	**8**
0830 - 0845	0	1	0	**1**
0845 - 0900	0	12	1	**13**
Per End	**1**	**35**	**9**	**45**

	WEST	NORTH	EAST	
Peak Per	Pyrmont Br	Chester St	Pyrmont Br	TOT
0700 - 0800	1	13	4	**18**
0715 - 0815	1	17	2	**20**
0730 - 0830	1	19	5	**25**
0745 - 0845	0	15	5	**20**
0800 - 0900	0	22	5	**27**
PEAK HR	**1**	**19**	**5**	**25**



R.O.A.R DATA

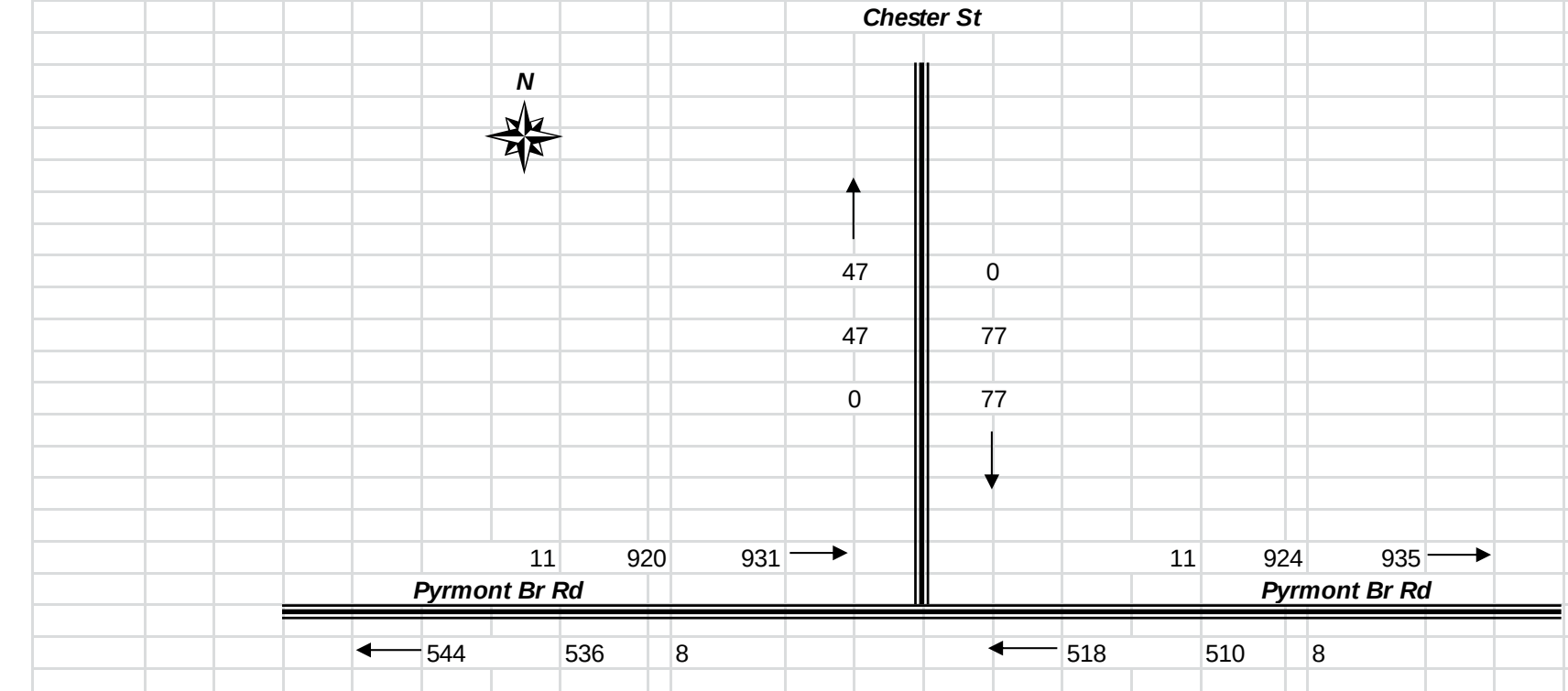
Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 6492 ANNANDALE Chester St
Day/Date	: Tuesday 20th June 2017

AM

TOTAL VOLUMES FOR COUNT PERIOD



R.O.A.R DATA

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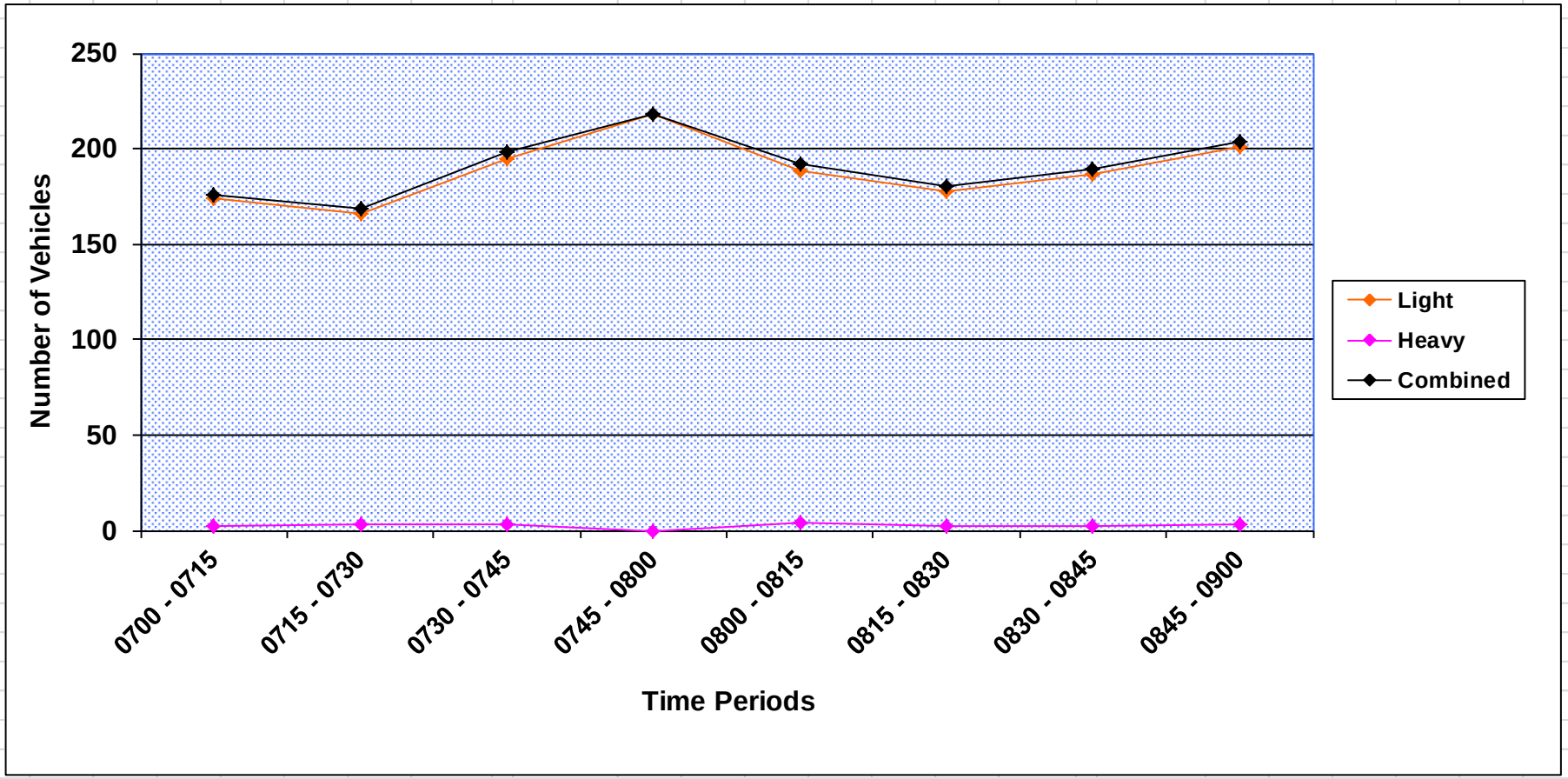
Job No/Name	: 6492 ANNANDALE Chester St
Day/Date	: Tuesday 20th June 2017

AM

Chester St & Pyrmont Bridge Rd



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning

Job No/Name : 6492 ANNANDALE Chester St

Day/Date : Tuesday 20th June 2017

Lights	WEST		NORTH		EAST		
	Pyrmont Br		*Chester St*		*Pyrmont Br*		
Time Per	T	L	R	L	R	T	TOT
1630 - 1645	67	2	7	3	7	141	**227**
1645 - 1700	69	2	7	10	5	126	**219**
1700 - 1715	91	6	15	16	1	164	**293**
1715 - 1730	74	3	8	5	3	152	**245**
1730 - 1745	79	2	6	4	5	131	**227**
1745 - 1800	84	2	17	7	3	157	**270**
1800 - 1815	69	6	5	5	6	156	**247**
1815 - 1830	64	1	4	9	5	152	**235**
Per End	**597**	**24**	**69**	**59**	**35**	**1179**	**1963**

Heavies	WEST		NORTH		EAST		
	Pyrmont Br		*Chester St*		*Pyrmont Br*		
Time Per	T	L	R	L	R	T	TOT
1630 - 1645	0	0	0	0	0	2	**2**
1645 - 1700	5	0	0	0	0	0	**5**
1700 - 1715	0	0	0	0	0	2	**2**
1715 - 1730	0	0	0	0	0	0	**0**
1730 - 1745	0	0	0	0	0	1	**1**
1745 - 1800	0	0	0	0	0	0	**0**
1800 - 1815	0	0	0	0	0	0	**0**
1815 - 1830	1	0	0	0	0	0	**1**
Per End	**6**	**0**	**0**	**0**	**0**	**5**	**11**

Combined	WEST		NORTH		EAST		
	Pyrmont Br		*Chester St*		*Pyrmont*		
Time Per	T	L	R	L	R	T	TOT
1630 - 1645	67	2	7	3	7	143	**229**
1645 - 1700	74	2	7	10	5	126	**224**
1700 - 1715	91	6	15	16	1	166	**295**
1715 - 1730	74	3	8	5	3	152	**245**
1730 - 1745	79	2	6	4	5	132	**228**
1745 - 1800	84	2	17	7	3	157	**270**
1800 - 1815	69	6	5	5	6	156	**247**
1815 - 1830	65	1	4	9	5	152	**236**
Per End	**603**	**24**	**69**	**59**	**35**	**1184**	**1974**

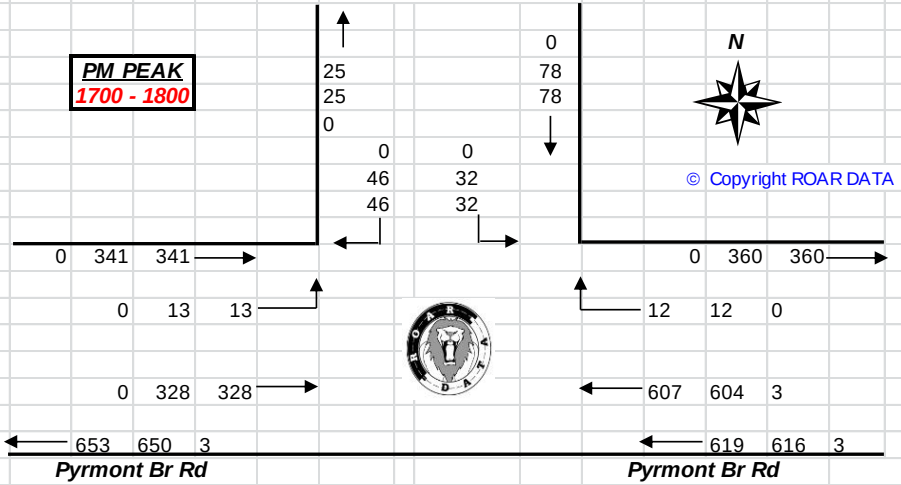
Lights	WEST		NORTH		EAST		
	Pyrmont Br		*Chester St*		*Pyrmont Br*		
Peak Per	T	L	R	L	R	T	TOT
1630 - 1730	301	13	37	34	16	583	**984**
1645 - 1745	313	13	36	35	14	573	**984**
1700 - 1800	328	13	46	32	12	604	**1035**
1715 - 1815	306	13	36	21	17	596	**989**
1730 - 1830	296	11	32	25	19	596	**979**
PEAK HR	**328**	**13**	**46**	**32**	**12**	**604**	**1035**

Heavies	WEST		NORTH		EAST		
	Pyrmont Br		*Chester St*		*Pyrmont Br*		
Peak Per	T	L	R	L	R	T	TOT
1630 - 1730	5	0	0	0	0	4	**9**
1645 - 1745	5	0	0	0	0	3	**8**
1700 - 1800	0	0	0	0	0	3	**3**
1715 - 1815	0	0	0	0	0	1	**1**
1730 - 1830	1	0	0	0	0	1	**2**
PEAK HR	**0**	**0**	**0**	**0**	**0**	**3**	**3**

Combined	WEST		NORTH		EAST		
	Pyrmont Br		*Chester St*		*Pyrmont*		
Peak Per	T	L	R	L	R	T	TOT
1630 - 1730	306	13	37	34	16	587	**993**
1645 - 1745	318	13	36	35	14	576	**992**
1700 - 1800	328	13	46	32	12	607	**1038**
1715 - 1815	306	13	36	21	17	597	**990**
1730 - 1830	297	11	32	25	19	597	**981**
PEAK HR	**328**	**13**	**46**	**32**	**12**	**607**	**1038**

Peds	WEST	NORTH	EAST	
Time Per	Pyrmont Br	Chester St	Pyrmont Br	TOT
1630 - 1645	3	6	1	**10**
1645 - 1700	3	1	0	**4**
1700 - 1715	2	3	1	**6**
1715 - 1730	3	3	0	**6**
1730 - 1745	3	6	0	**9**
1745 - 1800	1	4	1	**6**
1800 - 1815	1	6	3	**10**
1815 - 1830	2	6	3	**11**
Per End	**18**	**35**	**9**	**62**

	WEST	NORTH	EAST	
Peak Per	Pyrmont Br	Chester St	Pyrmont Br	TOT
1630 - 1730	11	13	2	**26**
1645 - 1745	11	13	1	**25**
1700 - 1800	9	16	2	**27**
1715 - 1815	8	19	4	**31**
1730 - 1830	7	22	7	**36**
PEAK HR	**9**	**16**	**2**	**27**



R.O.A.R DATA

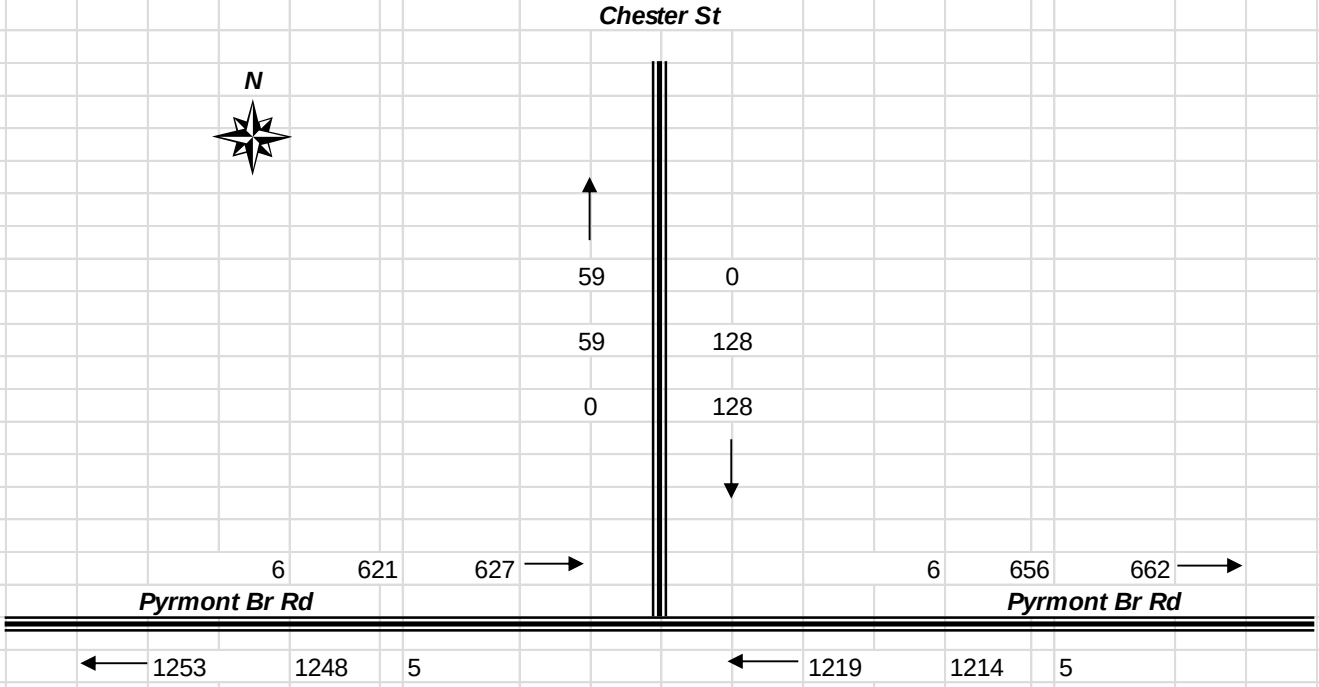
Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 6492 ANNANDALE Chester St
Day/Date	: Tuesday 20th June 2017

PM

TOTAL VOLUMES FOR COUNT PERIOD



R.O.A.R DATA

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Ph.88196847, Mob.0418-239019

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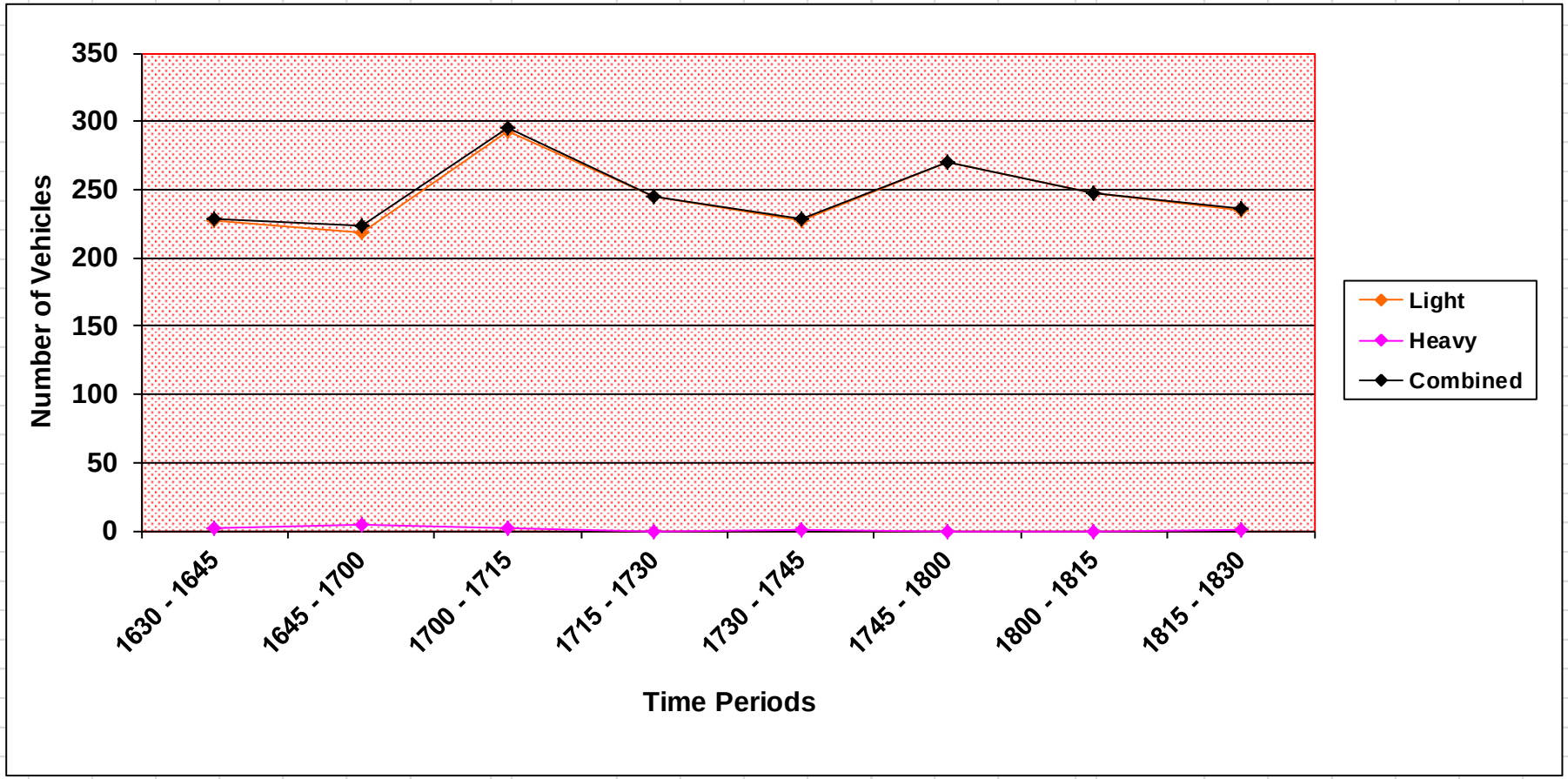
Job No/Name	: 6492 ANNANDALE Chester St
Day/Date	: Tuesday 20th June 2017

PM

Chester St & Pyrmont Bridge Rd



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

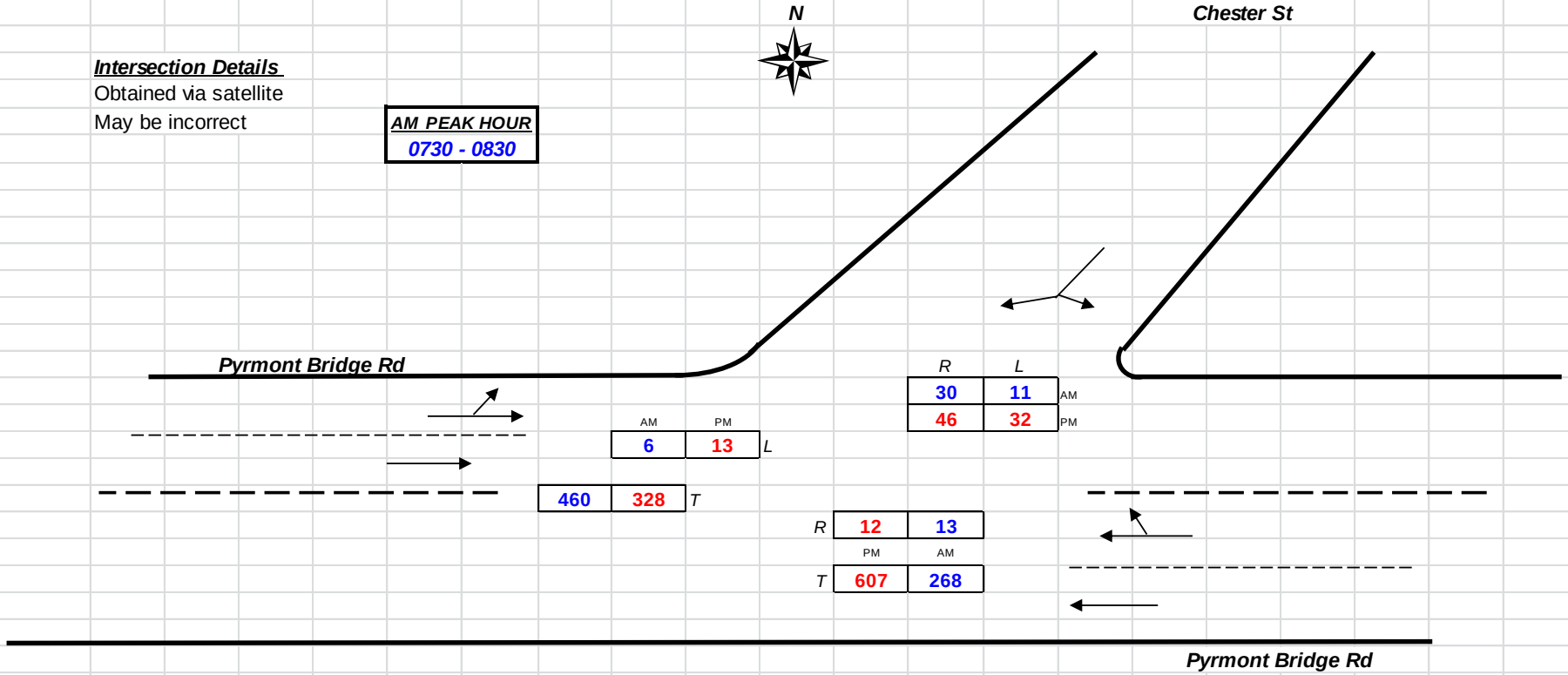
Client	: Varga Traffic Planning
Job No/Name	: 6492 ANNANDALE Chester St
Day/Date	: Tuesday 20th June 2017

Intersection Details

Obtained via satellite

May be incorrect

AM PEAK HOUR
0730 - 0830



Combined Figures only

PM PEAK HOUR
1700 - 1800

Weather >>>

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning

Job No/Name : 6492 ANNANDALE Chester St

Day/Date : Tuesday 20th June 2017

Lights	NORTH		WEST		SOUTH		
	Booth St		*Guihen St*		*Booth St*		
Time Per	T	R	L	R	L	T	TOT
0700 - 0715	84	5	5	3	2	57	**156**
0715 - 0730	100	8	2	1	2	48	**161**
0730 - 0745	134	8	1	1	2	63	**209**
0745 - 0800	150	9	3	1	3	81	**247**
0800 - 0815	133	9	0	1	1	77	**221**
0815 - 0830	143	10	1	1	1	75	**231**
0830 - 0845	117	5	0	0	0	76	**198**
0845 - 0900	131	10	1	1	3	85	**231**
Per End	**992**	**64**	**13**	**9**	**14**	**562**	**1654**

Heavies	NORTH		WEST		SOUTH		
	Booth St		*Guihen St*		*Booth St*		
Time Per	T	R	L	R	L	T	TOT
0700 - 0715	2	0	0	0	0	1	**3**
0715 - 0730	3	0	0	0	0	1	**4**
0730 - 0745	8	0	0	0	0	1	**9**
0745 - 0800	4	0	0	0	0	2	**6**
0800 - 0815	6	0	0	0	0	1	**7**
0815 - 0830	6	0	0	0	0	2	**8**
0830 - 0845	5	0	0	0	0	1	**6**
0845 - 0900	5	0	0	0	0	4	**9**
Per End	**39**	**0**	**0**	**0**	**0**	**13**	**52**

Combined	NORTH		WEST		SOUTH		
	Booth St		*Guihen St*		*Booth St*		
Time Per	T	R	L	R	L	T	TOT
0700 - 0715	86	5	5	3	2	58	**159**
0715 - 0730	103	8	2	1	2	49	**165**
0730 - 0745	142	8	1	1	2	64	**218**
0745 - 0800	154	9	3	1	3	83	**253**
0800 - 0815	139	9	0	1	1	78	**228**
0815 - 0830	149	10	1	1	1	77	**239**
0830 - 0845	122	5	0	0	0	77	**204**
0845 - 0900	136	10	1	1	3	89	**240**
Per End	**1031**	**64**	**13**	**9**	**14**	**575**	**1706**

Lights	NORTH		WEST		SOUTH		
	Booth St		*Guihen St*		*Booth St*		
Peak Per	T	R	L	R	L	T	TOT
0700 - 0800	468	30	11	6	9	249	**773**
0715 - 0815	517	34	6	4	8	269	**838**
0730 - 0830	560	36	5	4	7	296	**908**
0745 - 0845	543	33	4	3	5	309	**897**
0800 - 0900	524	34	2	3	5	313	**881**
PEAK HR	**560**	**36**	**5**	**4**	**7**	**296**	**908**

Heavies	NORTH		WEST		SOUTH		
	Booth St		*Guihen St*		*Booth St*		
Peak Per	T	R	L	R	L	T	TOT
0700 - 0800	17	0	0	0	0	5	**22**
0715 - 0815	21	0	0	0	0	5	**26**
0730 - 0830	24	0	0	0	0	6	**30**
0745 - 0845	21	0	0	0	0	6	**27**
0800 - 0900	22	0	0	0	0	8	**30**
PEAK HR	**24**	**0**	**0**	**0**	**0**	**6**	**30**

Combined	NORTH		WEST		SOUTH		
	Booth St		*Guihen St*		*Booth St*		
Peak Per	T	R	L	R	L	T	TOT
0700 - 0800	485	30	11	6	9	254	**795**
0715 - 0815	538	34	6	4	8	274	**864**
0730 - 0830	584	36	5	4	7	302	**938**
0745 - 0845	564	33	4	3	5	315	**924**
0800 - 0900	546	34	2	3	5	321	**911**
PEAK HR	**584**	**36**	**5**	**4**	**7**	**302**	**938**

Peds	NORTH	WEST	SOUTH	
Time Per	Booth St	Guihen St	Booth St	TOT
0700 - 0715	1	6	2	**9**
0715 - 0730	1	9	2	**12**
0730 - 0745	0	7	0	**7**
0745 - 0800	4	10	0	**14**
0800 - 0815	1	11	1	**13**
0815 - 0830	1	12	0	**13**
0830 - 0845	3	4	1	**8**
0845 - 0900	1	6	1	**8**
Per End	**12**	**65**	**7**	**84**

	NORTH	WEST	SOUTH	
Peak Per	Booth St	Guihen St	Booth St	TOT
0700 - 0800	6	32	4	**42**
0715 - 0815	6	37	3	**46**
0730 - 0830	6	40	1	**47**
0745 - 0845	9	37	2	**48**
0800 - 0900	6	33	3	**42**
PEAK HR	**6**	**40**	**1**	**47**

Hours 1

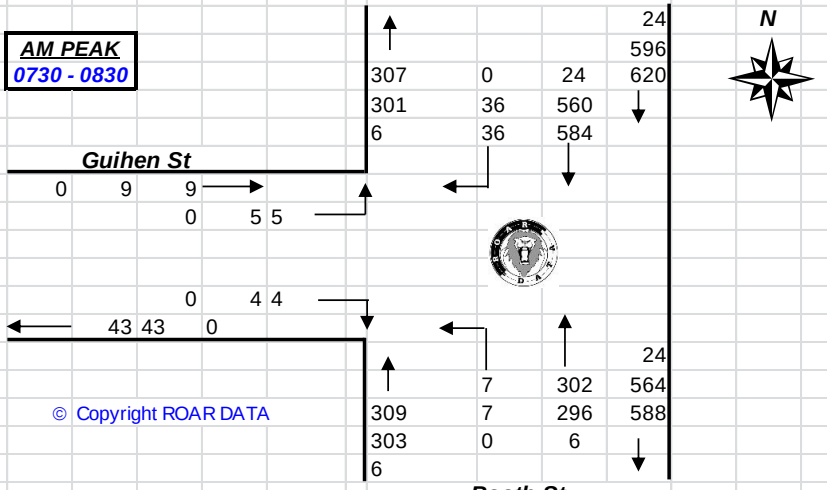
Hours 2

Hours 3

Hours 4

Hours 5

AM PEAK
0730 - 0830



R.O.A.R DATA

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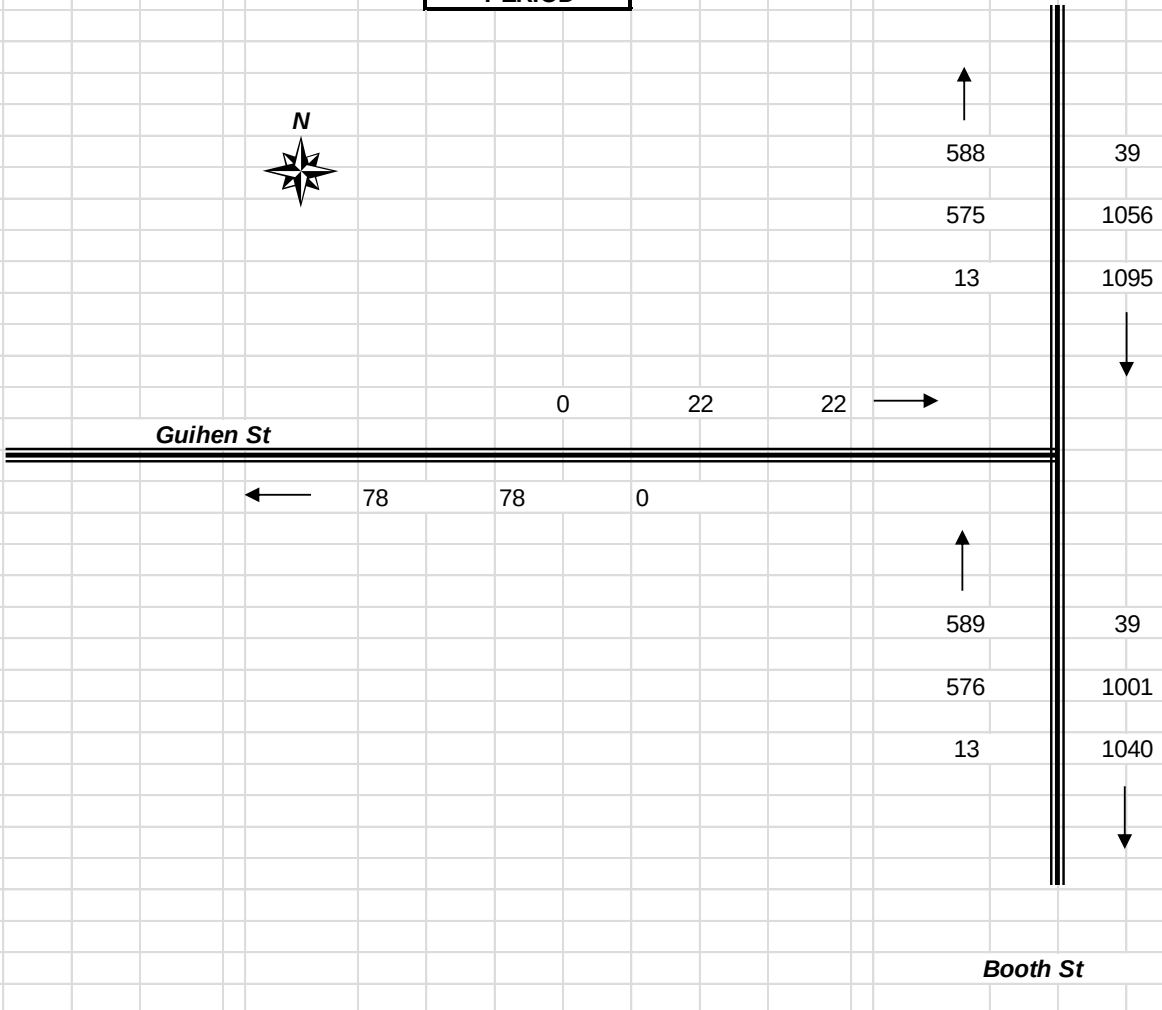
Ph.88196847, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 6492 ANNANDALE Chester St
Day/Date	: Tuesday 20th June 2017

AM

TOTAL VOLUMES FOR COUNT PERIOD



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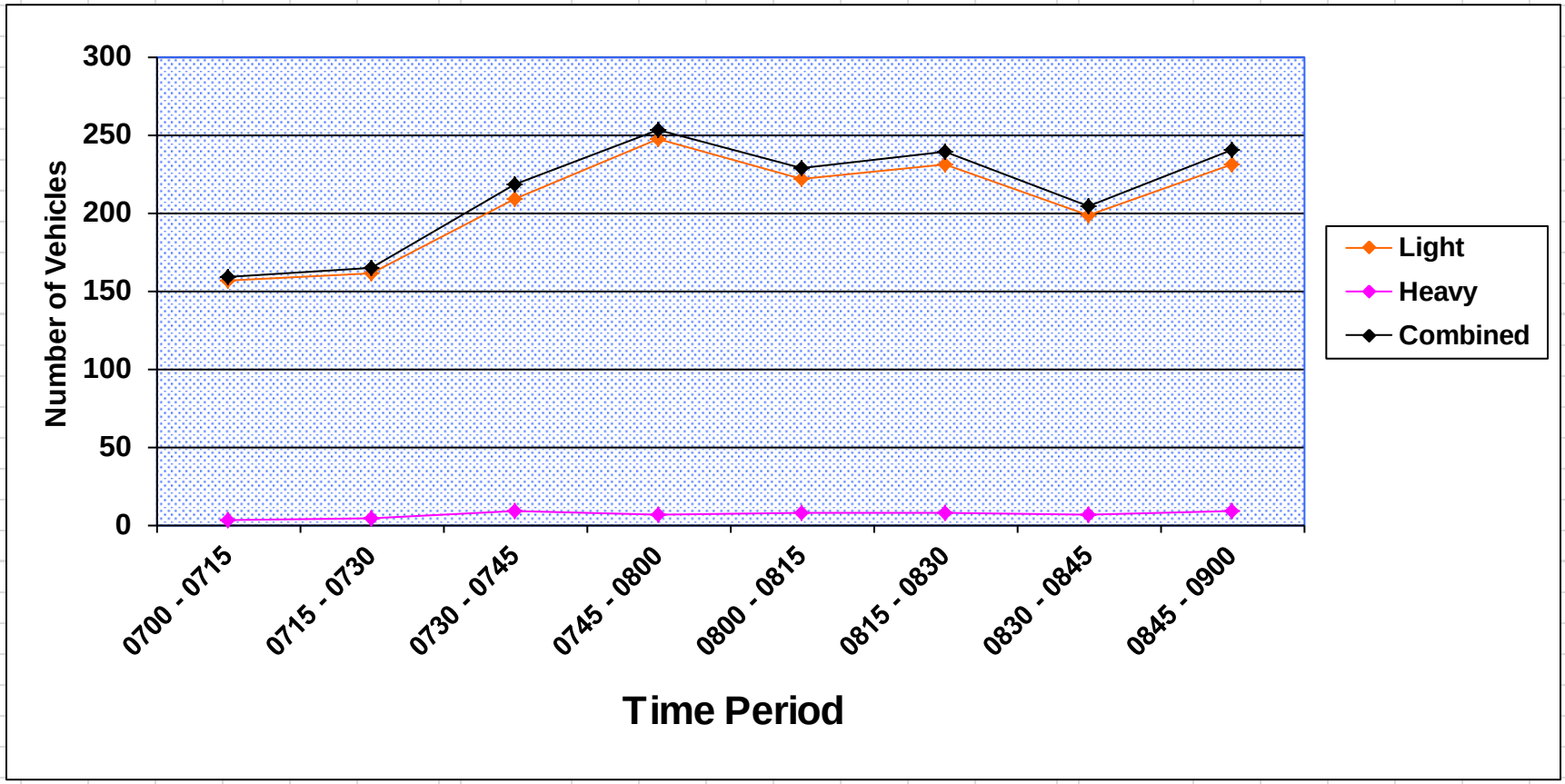
AM

Guihen St St & Booth St



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : Varga Traffic Planning

Job No/Name : 6492 ANNANDALE Chester St

Day/Date : Tuesday 20th June 2017

Lights

	NORTH		WEST		SOUTH		
	Booth St		*Guihen St*		*Booth St*		
Time Per	T	R	L	R	L	T	TOT
1630 - 1645	81	12	6	3	4	122	**228**
1645 - 1700	84	11	4	1	5	115	**220**
1700 - 1715	106	14	12	2	3	134	**271**
1715 - 1730	92	4	6	1	2	108	**213**
1730 - 1745	102	8	3	0	3	138	**254**
1745 - 1800	88	16	7	1	2	120	**234**
1800 - 1815	99	8	5	2	1	132	**247**
1815 - 1830	82	7	2	0	7	98	**196**
Per End	**734**	**80**	**45**	**10**	**27**	**967**	**1863**

Heavies

	NORTH		WEST		SOUTH		
	Booth St		*Guihen St*		*Booth St*		
Time Per	T	R	L	R	L	T	TOT
1630 - 1645	2	0	0	0	0	2	**4**
1645 - 1700	3	0	0	0	0	5	**8**
1700 - 1715	0	0	0	0	0	3	**3**
1715 - 1730	1	0	0	0	0	3	**4**
1730 - 1745	2	0	0	0	0	2	**4**
1745 - 1800	0	0	0	0	0	5	**5**
1800 - 1815	1	0	0	0	0	4	**5**
1815 - 1830	1	0	0	0	0	3	**4**
Per End	**10**	**0**	**0**	**0**	**0**	**27**	**37**

Combined

	NORTH		WEST		SOUTH		
	Booth St		*Guihen St*		*Booth St*		
Time Per	T	R	L	R	L	T	TOT
1630 - 1645	83	12	6	3	4	124	**232**
1645 - 1700	87	11	4	1	5	120	**228**
1700 - 1715	106	14	12	2	3	137	**274**
1715 - 1730	93	4	6	1	2	111	**217**
1730 - 1745	104	8	3	0	3	140	**258**
1745 - 1800	88	16	7	1	2	125	**239**
1800 - 1815	100	8	5	2	1	136	**252**
1815 - 1830	83	7	2	0	7	101	**200**
Per End	**744**	**80**	**45**	**10**	**27**	**994**	**1900**

Lights

	NORTH		WEST		SOUTH		
	Booth St		*Guihen St*		*Booth St*		
Peak Per	T	R	L	R	L	T	TOT
1630 - 1730	363	41	28	7	14	479	**932**
1645 - 1745	384	37	25	4	13	495	**958**
1700 - 1800	388	42	28	4	10	500	**972**
1715 - 1815	381	36	21	4	8	498	**948**
1730 - 1830	371	39	17	3	13	488	**931**
PEAK HR	**388**	**42**	**28**	**4**	**10**	**500**	**972**

Heavies

	NORTH		WEST		SOUTH		
	Booth St		*Guihen St*		*Booth St*		
Peak Per	T	R	L	R	L	T	TOT
1630 - 1730	6	0	0	0	0	13	**19**
1645 - 1745	6	0	0	0	0	13	**19**
1700 - 1800	3	0	0	0	0	13	**16**
1715 - 1815	4	0	0	0	0	14	**18**
1730 - 1830	4	0	0	0	0	14	**18**
PEAK HR	**3**	**0**	**0**	**0**	**0**	**13**	**16**

Combined

	NORTH		WEST		SOUTH		
	Booth St		*Guihen St*		*Booth St*		
Peak Per	T	R	L	R	L	T	TOT
1630 - 1730	369	41	28	7	14	492	**951**
1645 - 1745	390	37	25	4	13	508	**977**
1700 - 1800	391	42	28	4	10	513	**988**
1715 - 1815	385	36	21	4	8	512	**966**
1730 - 1830	375	39	17	3	13	502	**949**
PEAK HR	**391**	**42**	**28**	**4**	**10**	**513**	**988**

Peds

	NORTH	WEST	SOUTH	
Time Per	Booth St	Guihen St	Booth St	TOT
1630 - 1645	0	11	2	**13**
1645 - 1700	1	16	4	**21**
1700 - 1715	2	33	5	**40**
1715 - 1730	0	15	2	**17**
1730 - 1745	3	19	1	**23**
1745 - 1800	1	25	2	**28**
1800 - 1815	2	8	1	**11**
1815 - 1830	0	20	2	**22**
Per End	**9**	**147**	**19**	**175**

	NORTH	WEST	SOUTH	
Peak Per	Booth St	Guihen St	Booth St	TOT
1630 - 1730	3	75	13	**91**
1645 - 1745	6	83	12	**101**
1700 - 1800	6	92	10	**108**
1715 - 1815	6	67	6	**79**
1730 - 1830	6	72	6	**84**
PEAK HR	**6**	**92**	**10**	**108**

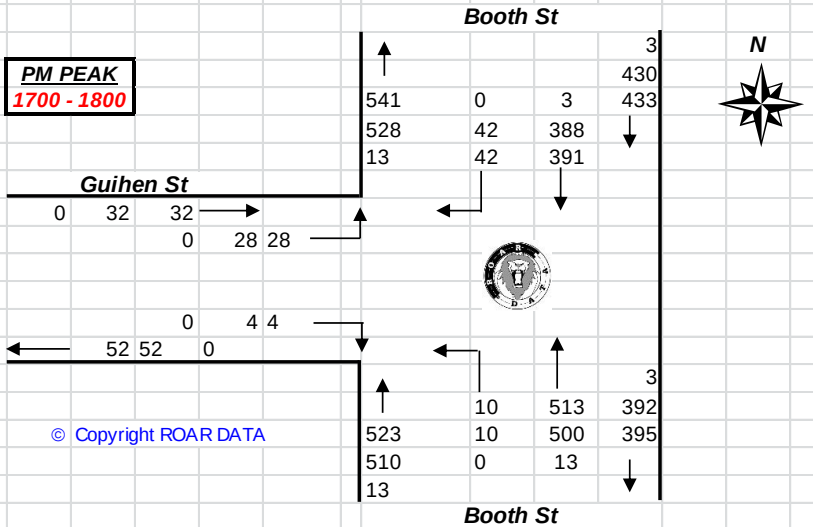
Hours 1

Hours 2

Hours 3

Hours 4

Hours 5



R.O.A.R DATA

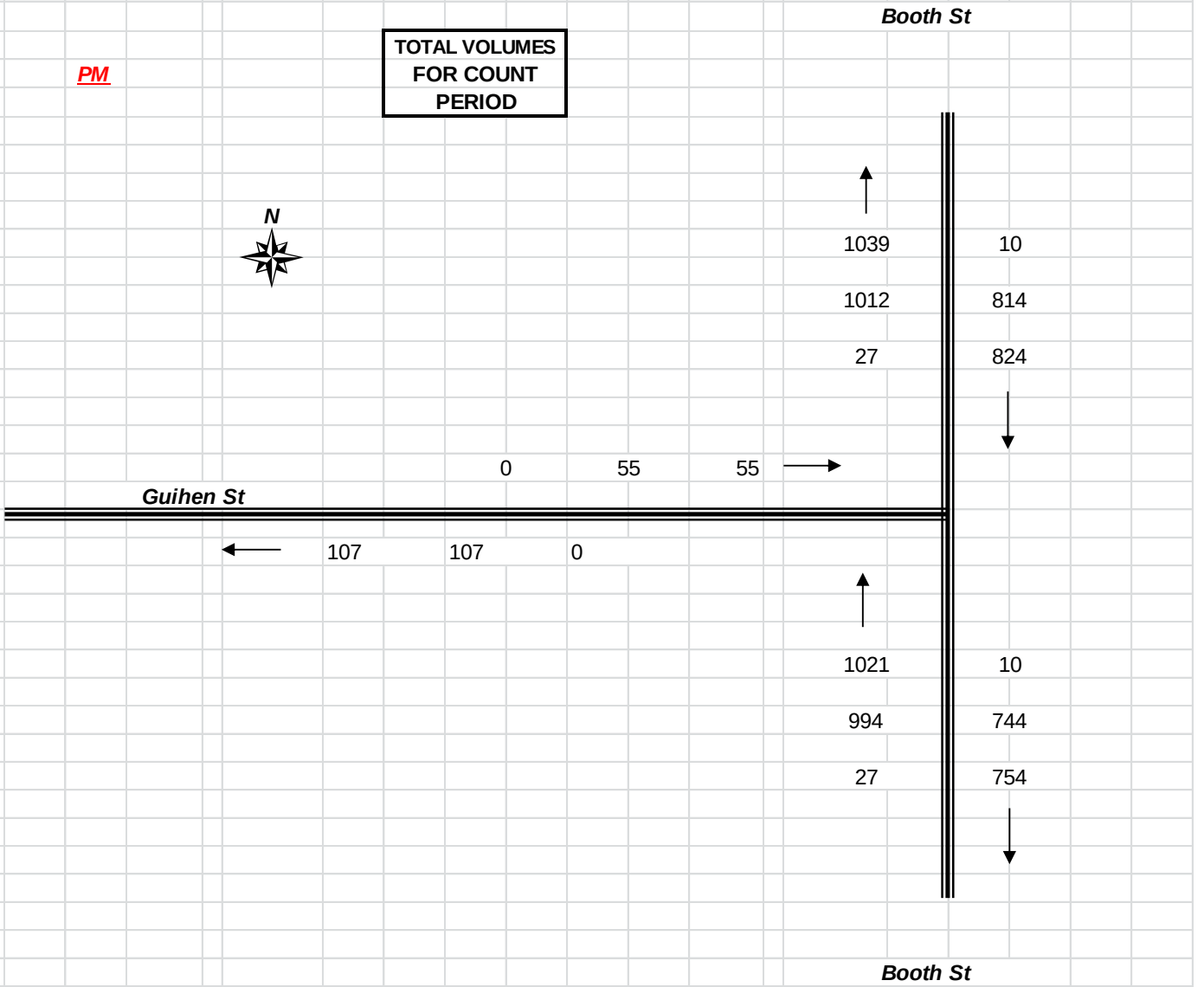
Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 6492 ANNANDALE Chester St
Day/Date	: Tuesday 20th June 2017

PM

TOTAL VOLUMES FOR COUNT PERIOD



R.O.A.R DATA

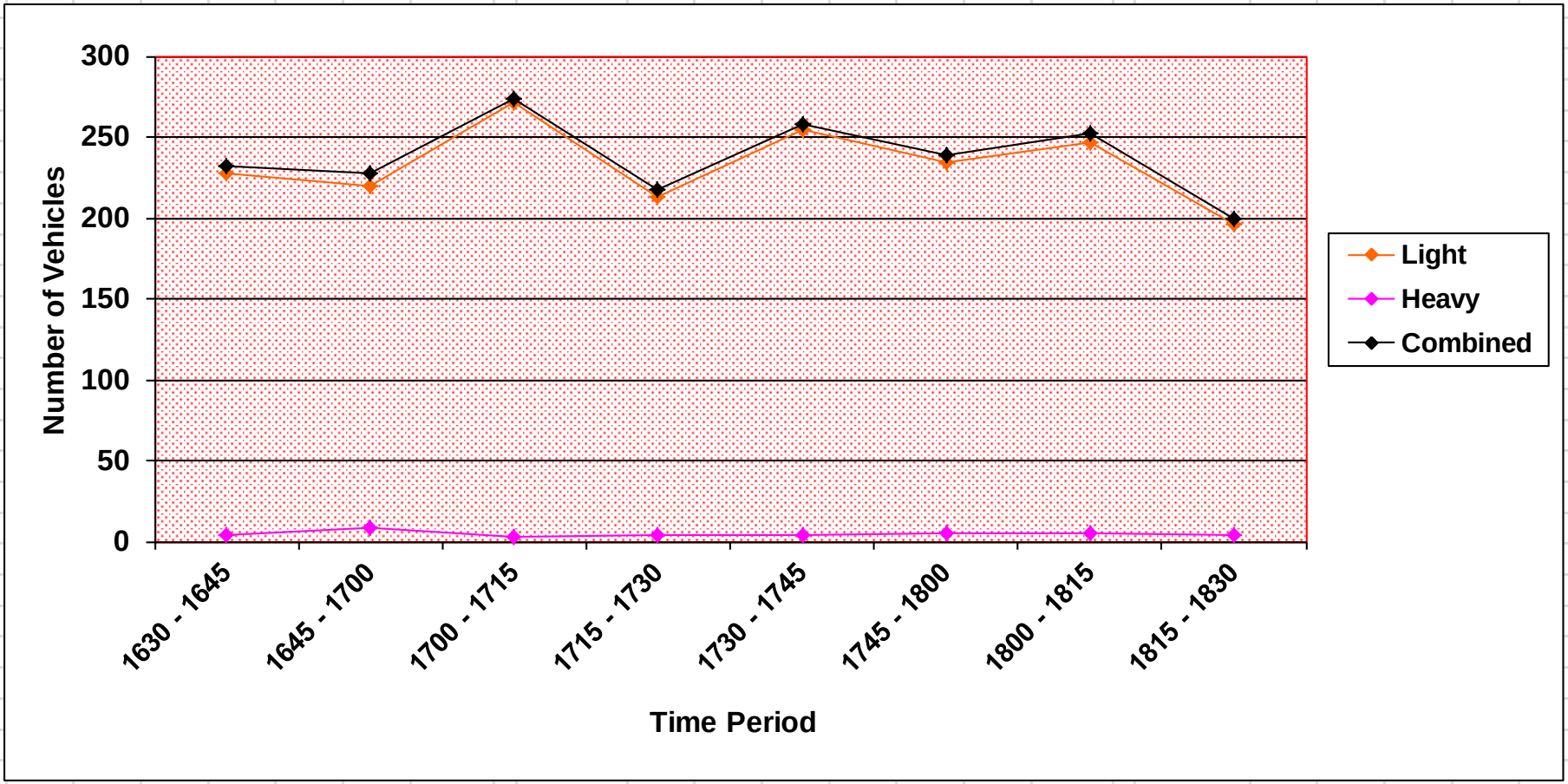
Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 6492 ANNANDALE Chester St
Day/Date	: Tuesday 20th June 2017

PM

Guihen St St & Booth St



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 6492 ANNANDALE Chester St
Day/Date	: Tuesday 20th June 2017

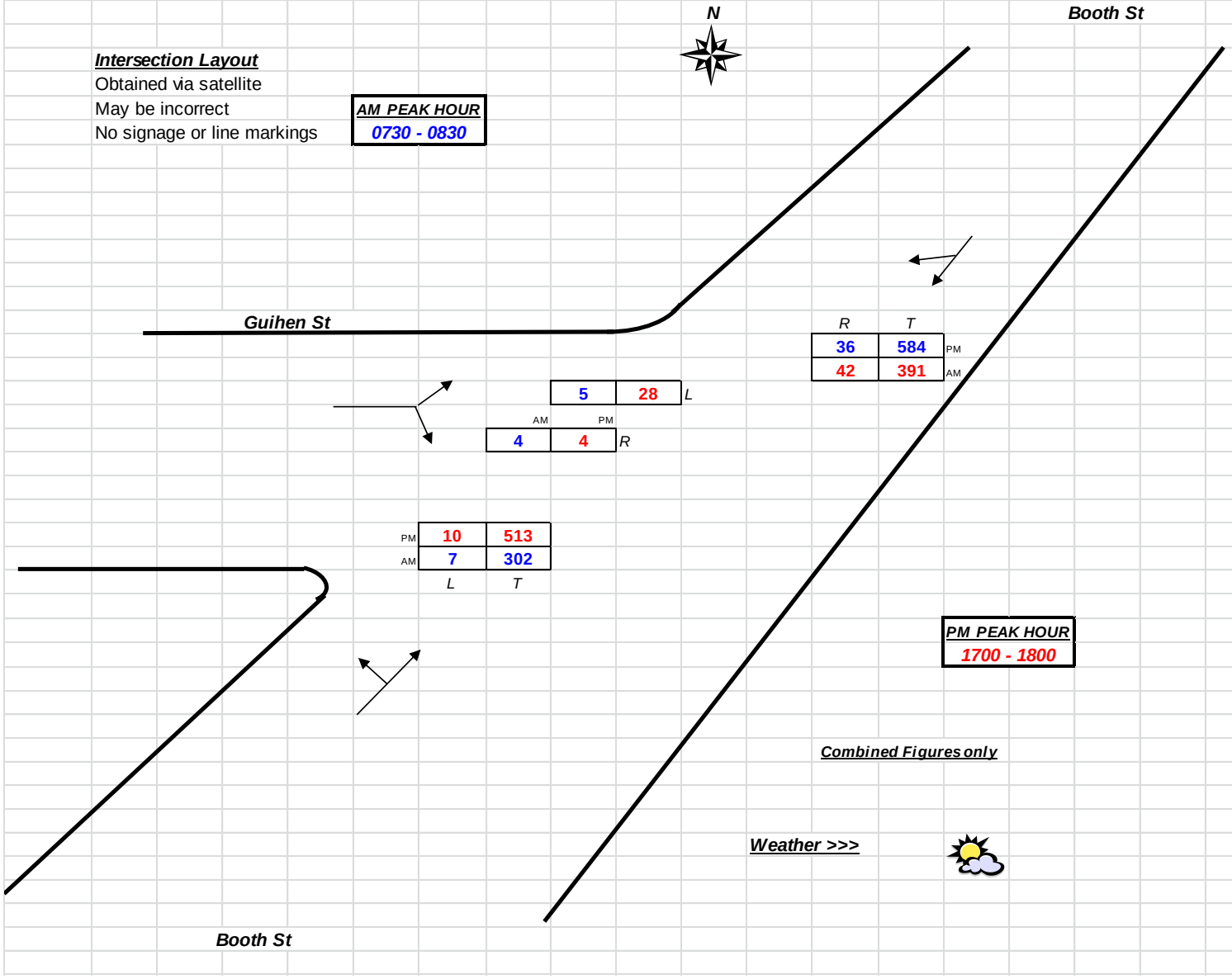
Intersection Layout

Obtained via satellite

May be incorrect

No signage or line markings

AM PEAK HOUR
0730 - 0830



VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants
ACN 071 762 537 ABN 88 071 762 537

27 November 2017
Ref 17381

Mr Alex Sicari
Director
Level 2, 210 Clarence Street
SYDNEY NSW 2000

Dear Alex,

PLANNING PROPOSAL FOR 1-5 CHESTER STREET, ANNANDALE

I refer to the recent letter from *Transport for NSW* requesting additional information in respect of the abovementioned planning proposal.

The updated traffic generation rates published by Roads and Maritime in its *Technical Direction TDT 2013/04A (August 2013)* provides minimum, average and maximum traffic generation rates which reflect a site's accessibility to public transport. For example, the lowest traffic generation rates were recorded near train stations, whilst the highest rates were recorded by sites which were more difficult to access by either bus or train.

The minimum, average and maximum traffic generation rates are summarised in the table below, with the volume of traffic which could be generated by the planning proposal shown on the right-hand side of the table for each of the traffic generation rates.

TABLE 1 – COMPARISON OF TDT 2013/04A TRAFFIC GENERATION RATES

	TDT 2013/04A Traffic Generation Rates		**Planning Proposal Projected Traffic Generation Potential**	
	AM	**PM**	**AM**	**PM**
Minimum:	0.07 vph	0.06 vph	3.0 vph	2.6 vph
Average:	0.19 vph	0.15 vph	8.2 vph	6.5 vph
Maximum:	0.32 vph	0.41 vph	13.8 vph	17.6 vph

It is noted also that the existing uses of the site have a traffic generation potential of approximately 10 vph during peak periods.

Thus, the *nett change* in the traffic generation potential of the site as a consequence of the planning proposal can by summarised in the table below.

TABLE 2 – NETT CHANGE IN TRAFFIC GENERATION POTENTIAL OF THE SITE AS A CONSEQUENCE OF THE PLANNING PROPOSAL

	Minimum Rates		**Average Rates**		**Maximum Rates**	
	AM	**PM**	**AM**	**PM**	**AM**	**PM**
Projected Future Traffic Generation Potential:	3.0 vph	2.6 vph	8.2 vph	6.5 vph	13.8 vph	17.6 vph
Existing Traffic Generation Potential:	-10.0 vph	-10.0 vph	-10.0 vph	-10.0 vph	-10.0 vph	-10.0 vph
Nett Change:	**-7.0 vph**	**-7.4 vph**	**-1.8 vph**	**-3.5 vph**	**+3.8 vph**	**+7.6 vph**

The analysis shown in Table 2 above shows that if the average traffic generation rates are used the planning proposal would result in a *slight decrease* in traffic generation potential of the site, whereas if the maximum traffic generation rates are used the planning proposal would result in a *slight increase* in the traffic generation potential of the site.

Irrespective of which traffic generation rate is used, it can be seen that the *nett change* in the traffic generation potential of the site as a consequence of the planning proposal is *statistically insignificant*, and will clearly not have any unacceptable traffic implications in terms of road network capacity.

Existing Public Transport Services

The existing public transport services available to the site are illustrated on Figure 1.

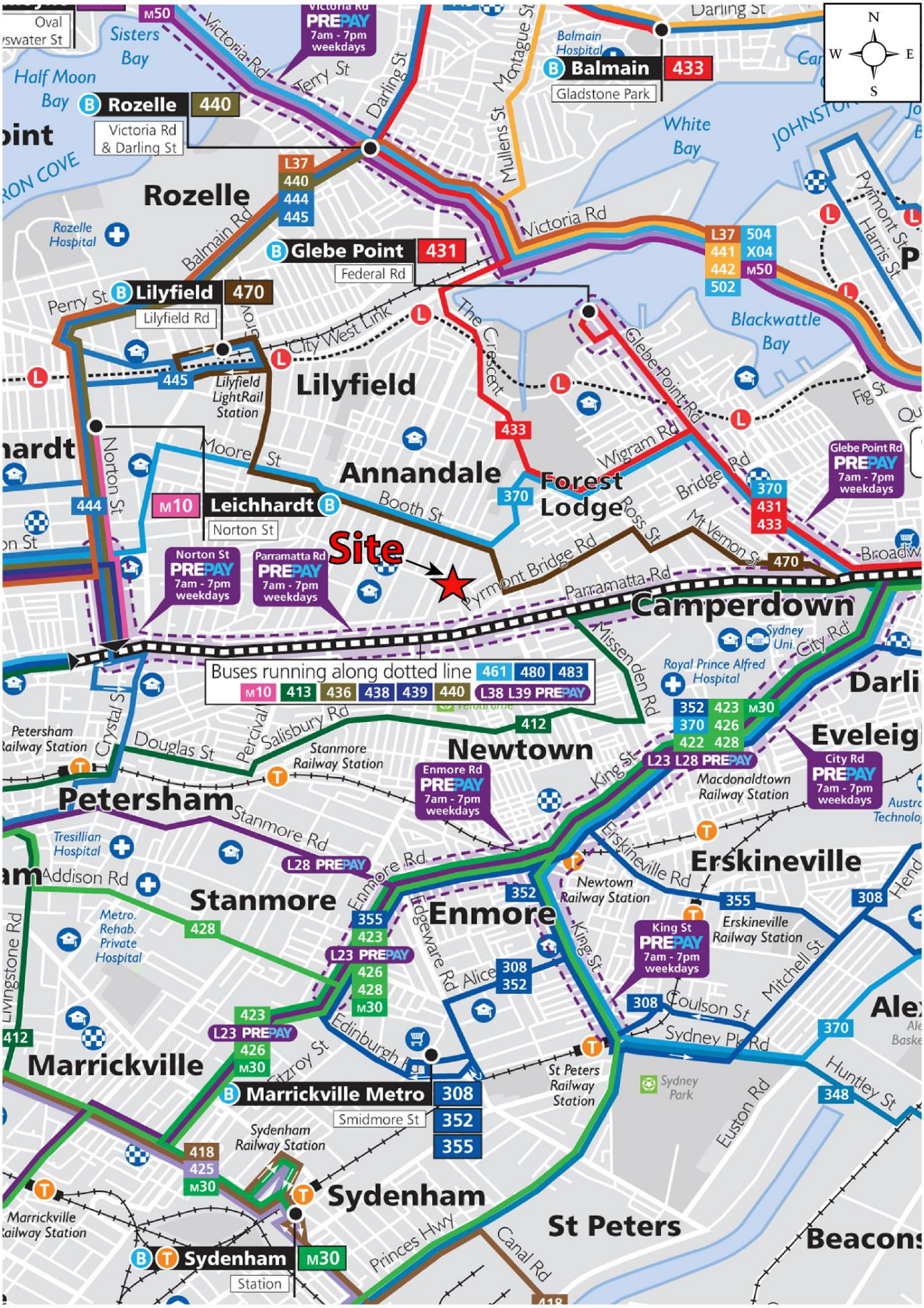
There are currently eleven bus services which operate along Parramatta Road plus the 470 bus service which operates along Booth Street; all of which are located within approximately 400m walking distance from the site.

Notably, route M10 is part of the Sydney's *Metrobus* network that provides high-frequency, high-capacity links between key employment and growth centres across Sydney. The M10 links between Lilyfield, Leichhardt, Annandale, Pyrmont, Glebe, Haymarket and the Sydney CBD, operating at 10 minute intervals during commuter peak periods, 15 minute intervals during the day and 20 minute intervals at other times.

In summary there are more than 1,100 bus services operating in close proximity to the site on weekdays, decreasing to approximately 740 bus services per day on Saturdays and approximately 540 services on Sunday and public holidays, as set out below:

Bus Routes and Frequencies							
Route No.	**Route**	**Weekdays**		**Saturday**		**Sunday**	
		IN	**OUT**	**IN**	**OUT**	**IN**	**OUT**
413	Campsie to City via Canterbury	40	39	29	29	9	9
436	Five Dock & Rozelle to City via Leichhardt	43	40	35	35	24	25
438	Five Dock & Rozelle to City via Leichhardt	77	75	63	63	52	51
439	Five Dock & Rozelle to City via Leichhardt	23	22	22	24	16	16
440	Bronte to Rozelle	98	81	52	50	45	44
461	City Domain to Burwood	67	63	35	36	29	29
470	Lilyfield to City	87	100	58	59	40	40
480	Strathfield to Central	30	24	12	14	-	-
483	Strathfield to Central	34	31	25	27	18	21
L38	Five Dock & Rozelle to City via Leichhardt	16	15	-	-	-	-
L39	Five Dock & Rozelle to City via Leichhardt	5	8	-	-	-	-
M10	Pioneer Memorial Park to Maroubra Junction via City	65	64	38	38	37	37
TOTAL		**585**	**562**	**369**	**375**	**270**	**272**

The abovementioned bus services also connect with train services at numerous railway stations including Campsie, Burwood, Strathfield, Ashfield, Wynyard, Town Hall, Central, Martin Place and Bondi Junction Railway Stations.



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Traffic and Parking Consultants

PUBLIC TRANSPORT
FIGURE 1

In addition to the bus services, Jubilee Park Light Rail station is located approximately 1,300m walking distance north of the site with a shared Off-Road Pedestrian and Bicycle path running along Johnstons Creek which can be easily accessed directly from the northern end of Taylor Street.

On the above basis it is clear that the site is readily accessible by existing public transport services, especially buses, and is therefore ideally located to accommodate the needs of future residents.

Local Bicycle Routes

The existing bicycle routes located in the vicinity of the site are illustrated on Figure 2a and 2b. The bicycle routes are readily accessible from the subject site and provide a number of on-road bicycle routes linking the local area with the following destinations:

- Annandale Public School via Chester Street, Nelson Street and Albion Street
- TAFE Petersham via Nelson Street, Albion street, Catherine Street and Parramatta Road
- Sancta Sophia College via Pyrmont Bridge Road and Missenden Road
- Royal Prince Alfred Hospital via Pyrmont Bridge Road and Missenden Road
- Camperdown Park via Pyrmont Bridge Road and Australia Street
- University of Sydney via Guihen Street, Alexandria Drive, Pyrmont Bridge Road and Ross Street
- Glebe via Pyrmont Bridge Road
- Annandale via Chester Street and Nelson Street

In addition to the existing routes above the *NSW Government* is working with the Australian Government, Councils and the community to plan, prioritise and deliver better connected cycling infrastructure. A number of regional bicycle routes are proposed in the vicinity of the site as illustrated on Figure 2c *(Sydney CBD Regional Bike Network Map).*

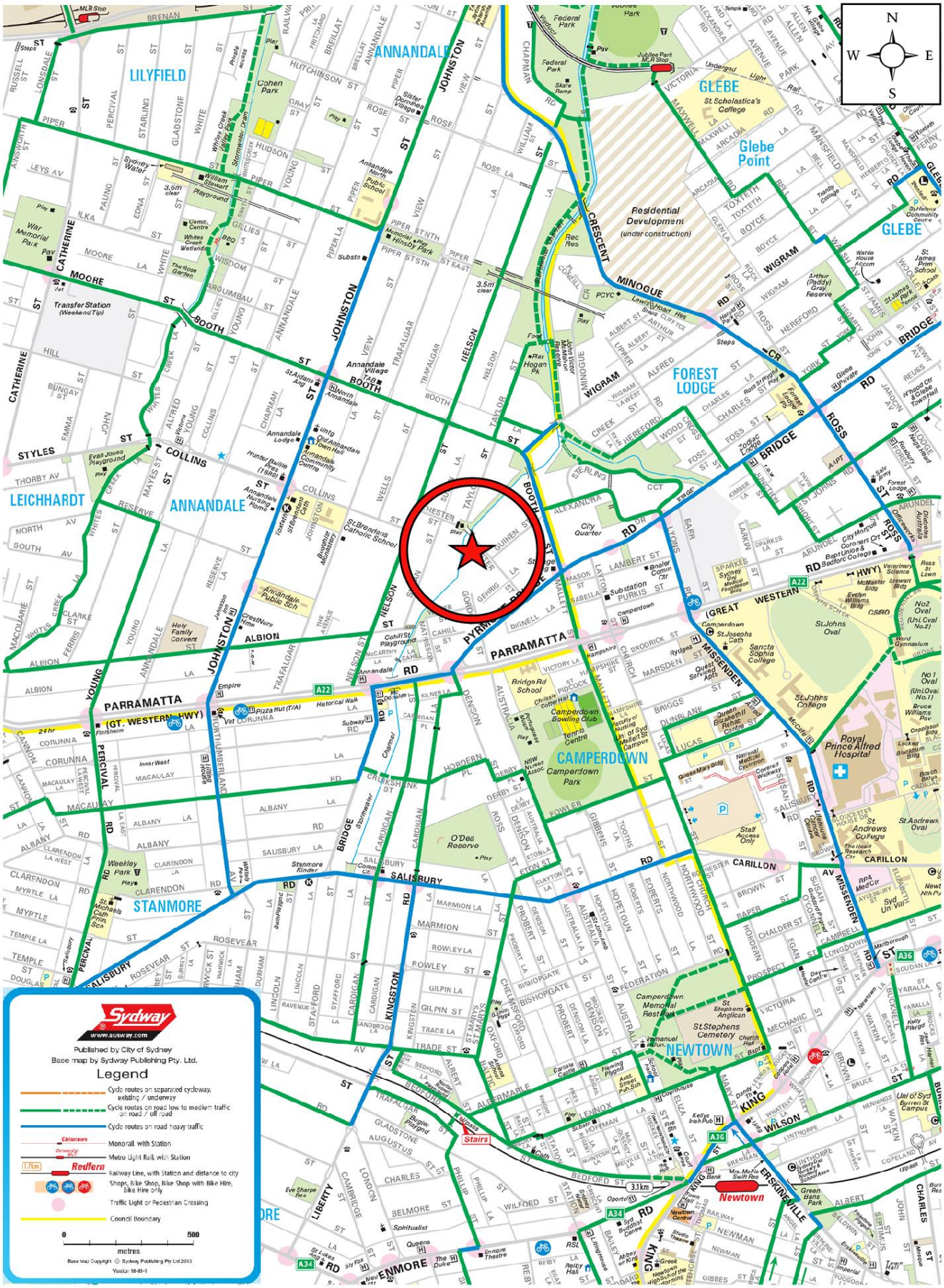
Sydney's major employment centres attract many people travelling short distance to reach their destination. Investing in connected bike routes that are within 5km of major centres and public transport interchanges will help to increase bike riding for short trips such as the proposed site. In the longer term, a connected network of cycleways will be built to provide access to centres from a 10 kilometre catchment area which extends past the site and through to Leichhardt employment areas.

These proposed regional bicycle routes are intended to facilitate the needs of the people on bikes by connecting them to major destinations on cycleways that are separate from motor vehicles and pedestrians, thereby facilitating a quick and direct mode of transport for commuters travelling short trips (i.e. travelling to work, study, shop or socialise).

The regional bicycle routes proposed in the vicinity of the site include Leichhardt to City South / Broadway and also University of Sydney to University of NSW.

It is also noted that Sydney City Council has plans to provide more bicycle parking areas across the City to provide secure bicycle parking near locations such as:

- railway stations and major bus stops servicing across regional routes
- recreational, cultural and community facilities
- major and local shopping districts and centres
- tertiary education facilities
- dining and entertainment facilities
- around places of worship.



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EXISTING BICYCLE ROUTES

FIGURE 2a

EXISTING BICYCLE ROUTES

FIGURE 2b

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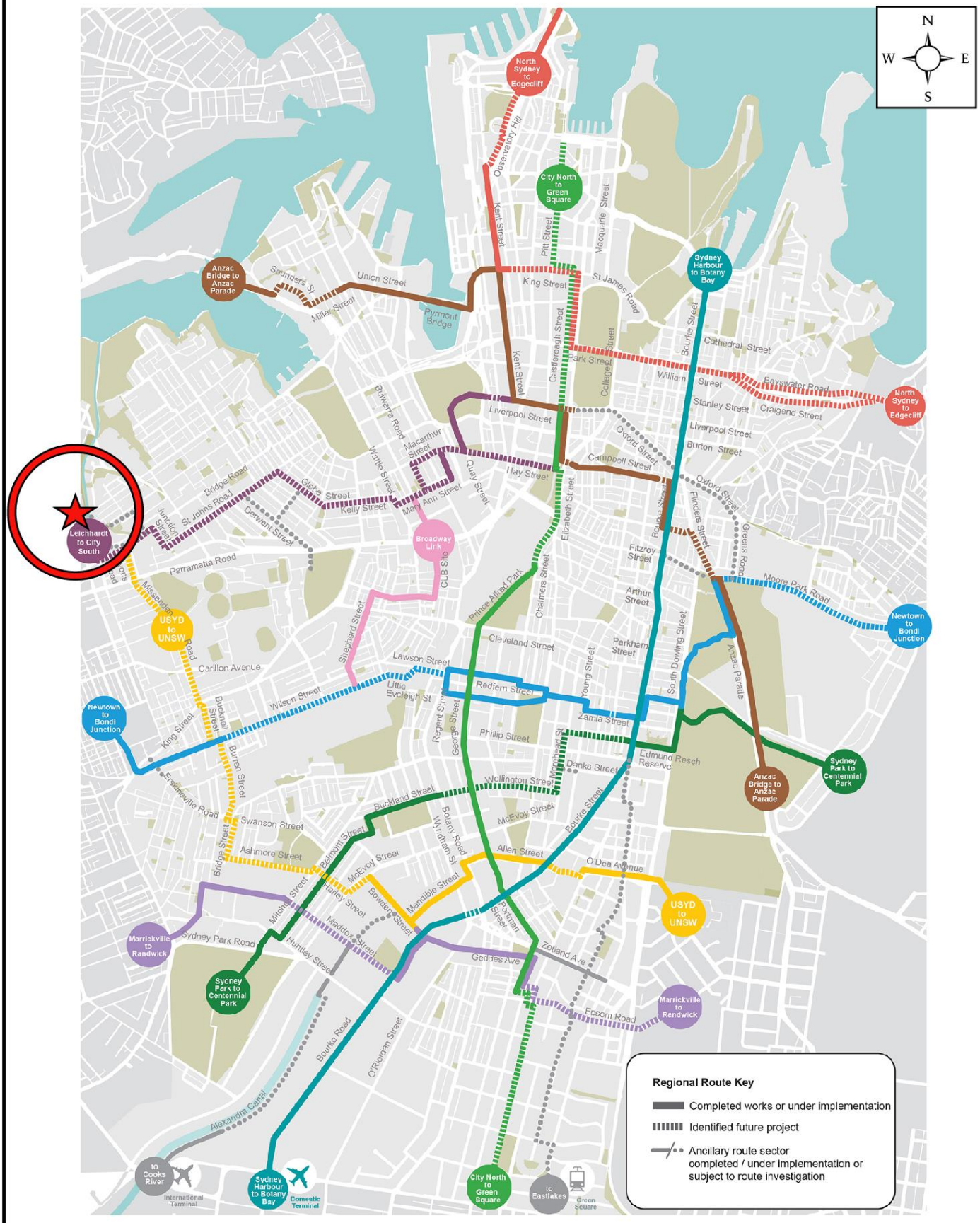

City of Sydney

PROPOSED REGIONAL BIKE NETWORK MAP

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Traffic and Parking Consultants

PROPOSED BICYCLE ROUTES

FIGURE 2c

Parramatta Road Corridor Urban Transformation Strategy

The Parramatta Road Corridor Urban Transformation Strategy (PRCUTS) has identified a number of active transport linkages in the vicinity of the site.

A number of improvements are proposed to the active transport linkages, consistent with those improvements already identified by the State Government, City of Sydney and Leichhardt Council's. The improvement strategy identified by PRCUTS is illustrated on Figure 3 below and include the following:

- C4 Pyrmont Bridge Road public domain improvements including new street trees, paving and bike parking

- C5 Australia Street improvements to pedestrian amenity to connect with Newtown Station

- C6 improve Chester Street and Taylor Street connection to Johnston Creek

- C7 improve north-south regional cycle connections across Parramatta Road and

- C8 pedestrian access improvements to Booth Street between Wigram Road and Pyrmont Bridge Road.

The PRCUTS also proposes to provide improved bus priority measures wherever possible along Parramatta Road to further enhance the efficiency of the extensive high frequency bus routes provided in that important corridor.

The subject site is located in close proximity to many of the active transport linkages which have been identified by PRCUTS. In particular, it is noted that:

- the subject site is located directly adjacent to the active transport linkages proposed along Johnstons Creek and the improved linkages proposed between Chester Street and Taylor Street. These improvements would facilitate reduced private car dependency of future residents of the site by providing improved access to alternate and active forms of transport such as walking and cycling, as well as improved access to bus services along Parramatta Road

- improvements to pedestrian amenity along Australia Street would encourage active and alternate forms of transport by enhancing the opportunities for future residents to walk the 1.4 km distance to Newtown Railway Station, and

- improved north-south regional cycle connections across Parramatta Road would also reduce private car dependency of future residents by providing improved opportunities for intra-regional cycling.

In summary, the proposal is consistent with the aims and objectives of the State Government to reduce private car dependency and to encourage an increase in the use of active and alternate forms of transport such as walking, cycling and public transport.

Please do not hesitate to contact me on telephone 9904 3224 should you have any enquiries.

Yours sincerely

Robert Varga
Director/Varga Traffic Planning Pty Ltd

NEW PARRAMATTA RD

VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants

Camperdown | Transport Improvements

ID	Potential Improvements
C1	Improve east-west connections by extending Cardigan Place and Hordern Place
C2	Investigate formalising Bignell Lane as an east-west connection
C3	Formalise Pyrmont Bridge Road, Mallett Street and Booth Street as local streets with one general traffic lane and one on-street parking lane on each side.
C4*	Pyrmont Bridge Road public domain improvements between Parramatta Road and Mallett Street including new street tree planting, paving and bike parking.
C5	Australia Street improvements to pedestrian amenity to connect to Newtown Station
C6	Improve Chester Street and Taylor Street connections to Johnstons Creek
C7	Improve north-south regional cycle connections across Parramatta Road
C8	Pedestrian access improvements to Booth Street between Wigram Road and Pyrmont Bridge Road.
C9	Provide bus priority measures where possible along Parramatta Road from Burwood to the Sydney CBD
C10	Delivery of Parramatta Road on-street Rapid Transit between Strathfield / Burwood and the Sydney CBD including more frequent services across the peak, weekdays and weekends, more reliable services with consolidated rapid transit stops every 800m to 1km.

Legend			
Potential Active Transport Improvement		Existing Open Space	
Potential Public Transport Improvement		Community	
Potential Road/Intersection Improvement		Employment	
Precinct Boundary		Commercial	
Parramatta Road Corridor Boundary		Residential	
M4 Motorway		Mixed Use	
Rail	T	Train Stations	
Indicative Zone of Future Super Stop Envelope			

* Infrastructure improvements suggested for Potential Urban Amenity Improvement Plan.

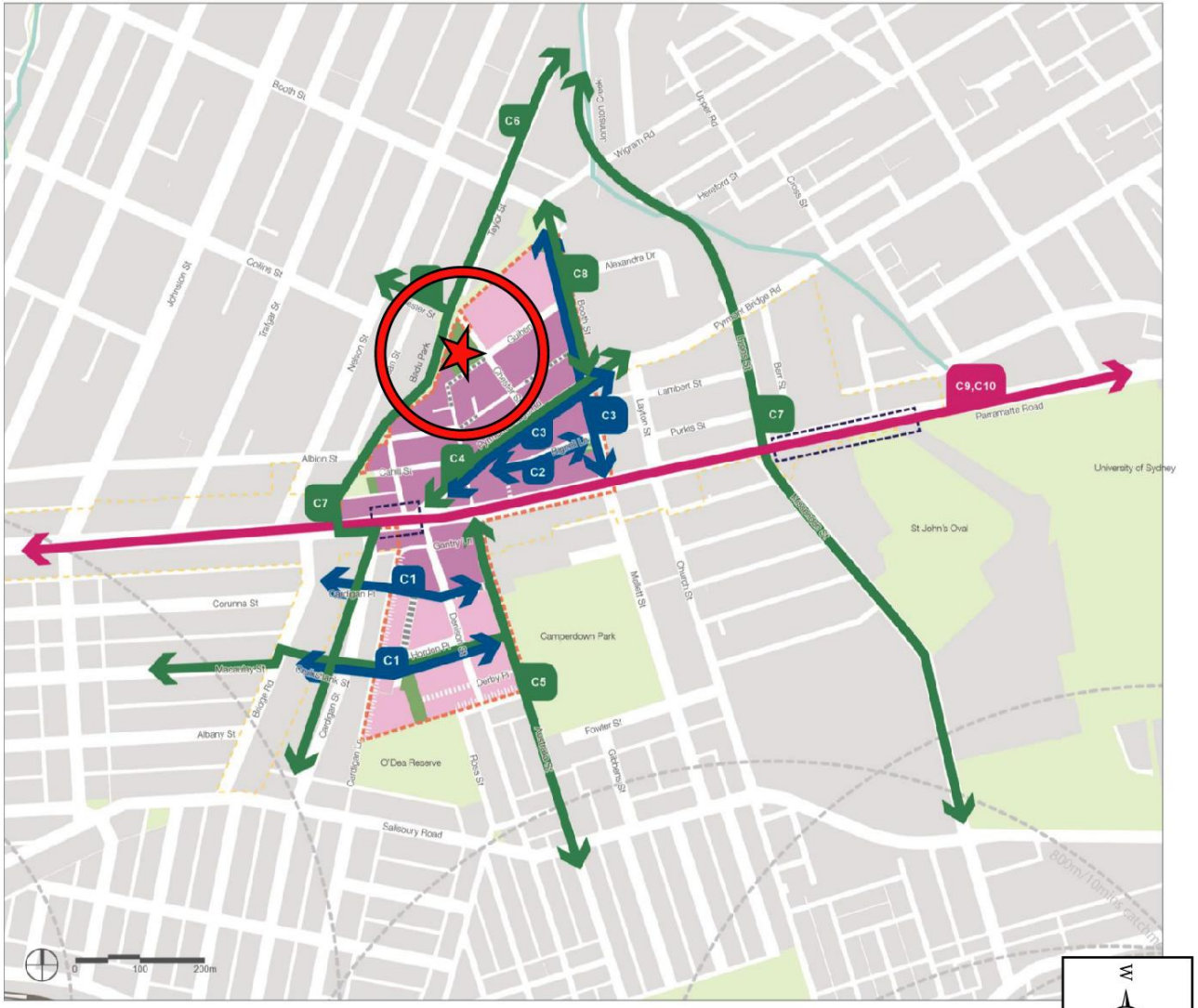

Figure 85 Camperdown Precinct transport improvements (Source: AECOM, 2015 and Basemap - Cox, Oculus, CM+, 2015)

IMPROVEMENT STRATEGY
FIGURE 3

VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants
ACN 071 762 537 ABN 88 071 762 537

29 May 2018
Ref 17381

Inner West Council
PO Box 14
PETERSHAM NSW 2049

Attn: Gunika Singh

Dear Gunika,

1-5 CHESTER STREET, ANNANDALE
PLANNING PROPOSAL

I refer to your letter dated 4 May 2018 addressed to AE Design requesting additional information in respect of the abovementioned planning proposal. The following advice is provided in response to the parking matters raised in your letter.

1. Proposed new Pedestrian Bridge

We note that the new pedestrian bridge across Johnstons Creek is not required.

2. Car Parking Numbers

The car parking numbers can be assessed against the Leichhardt DCP or the Parramatta Road Corridor Urban Transformation Strategy as outlined below. The concept design has proven that adequate off-street parking can be accommodated within the site. Ultimate car parking numbers would be subject to future Development Application.

a. Leichhardt DCP

The off-street parking requirements applicable to the development proposal are specified in Council's *Leichhardt Development Control Plan 2013 – Part C1.11, Parking* document in the following terms:

Residential Flat Buildings			
One bedroom dwelling:	1 space per 3 dwellings (min)	&	0.5 spaces per dwelling (max)
Two bedroom dwelling:	1 space per 2 dwellings (min)	&	1 space per dwelling (max)
Three bedroom dwelling:	1 space per dwelling (min)	&	1.2 spaces per dwelling (max)
Visitors:	1 space per 11 dwellings (min)	&	0.125 spaces per dwelling (max)

Application of the above parking requirements to the 41 residential apartments of the development proposal yields an off-street car parking requirement of between 26 spaces and 43 spaces as set out below:

Residential (41 apartments):	22.0 spaces (min)	&	37.7 spaces (max)
Visitors:	3.7 spaces (min)	&	5.1 spaces (max)
TOTAL:	**25.7 spaces (min)**	**&**	**42.8 spaces (max)**

b. Parramatta Road Corridor Urban Transformation Strategy (PRUTS)

Alternatively, the off-street parking requirements applicable to the development proposal under the *Parramatta Road Corridor Urban Transformation Strategy: Planning and Design Guidelines (Nov 2016)* document in the following terms:

Residential (Max Spaces per Dwelling)	
Studio dwelling:	Nil spaces per dwelling (max)
One bedroom dwelling:	0.3 spaces per dwelling (max)
Two bedroom dwelling:	0.7 space per dwelling (max)
Three bedroom dwelling:	1 space per dwelling (max)
Visitors:	Nil spaces per dwelling (max)

Application of the above parking requirements to the 41 residential apartments of the development proposal yields an off-street car parking requirement of up to a maximum of 25.5 spaces as set out below:

Residential (41 apartments):	25.5 spaces (max)
Visitors:	Nil spaces (max)
TOTAL:	**25.5 spaces (max)**

Note in both instances above, the SOHO units are considered the equivalent to two bedroom apartments.

The concept design included in the Proposal includes 24 car parking bays, less than either of the maximums outlined above.

Car Share, unbundled or decoupled parking could be possible ways of reducing car parking numbers and could be considered at future Development Application.

We also note Stakeholder Engagement Report, prepared by Ethos Urban notes strong feedback from community consultation suggesting existing on street parking is an issue in the area, and that more off street parking within the development would reduce on street parking pressure.

3. Waste Collection

Council's suggestion that provision be made for garbage trucks to reverse into the site is accepted. This will then allow trucks to depart via Chester Street in a forward direction. This turning facility will also be suitable for visitor traffic and will be included in future Development Application plans.

4. PRUTS Precinct Wide Traffic Study

We note the requirement in the PRUTS for a Camperdown-Precinct Wide Traffic Study and supporting modelling to be completed prior to commencement of any Planning Proposals. We understand that this study is underway however make the following comments:

- we make reference to the Traffic Assessment Report lodged with the subject Planning Proposal dated 18 September 2017 and an addendum Report dated 27 November 2017, and confirm that the subject Planning Proposal would not result in any increase in the traffic generation potential of the site when compared to a development permissible under the current controls

- in any event, the traffic generation potential of the Planning Proposal is *statistically insignificant* and would clearly not have any unacceptable traffic implications in terms of road network capacity. This is clearly demonstrated in the analysis included in the reports.

As such, due to the above relatively unique circumstance where a rezoning generates negligible increase in traffic demand, it is appropriate for the subject Planning Proposal to proceed prior to completion of the Precinct Traffic Study and any physical traffic infrastructure upgrades.

5. In summary

Preliminary plans prepared for the purpose of the planning proposal have confirmed that the above traffic requirements can be satisfied on the subject site. The final number of car parking spaces, shared spaces, bundled or other, and details around circulation and waste collection would typically be determined at the future Development Application stage.

Please do not hesitate to contact me on telephone 9904 3224 should you have any enquiries.

Yours sincerely

Robert Varga
Director
Varga Traffic Planning Pty Ltd