

Planning Proposal for a Residential Development

**Killara Golf Club,  
556 Pacific Highway, Killara**

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**TRAFFIC AND PARKING ASSESSMENT REPORT**

13 December 2016

Ref 15654

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### Document Verification

<b>Location:</b>	10 London St & 43 North Pde, Campsie	<b>Job Number</b>		15635	
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		<b>By</b>	<b>Date</b>	<b>By</b>	<b>Date</b>
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## 1. INTRODUCTION

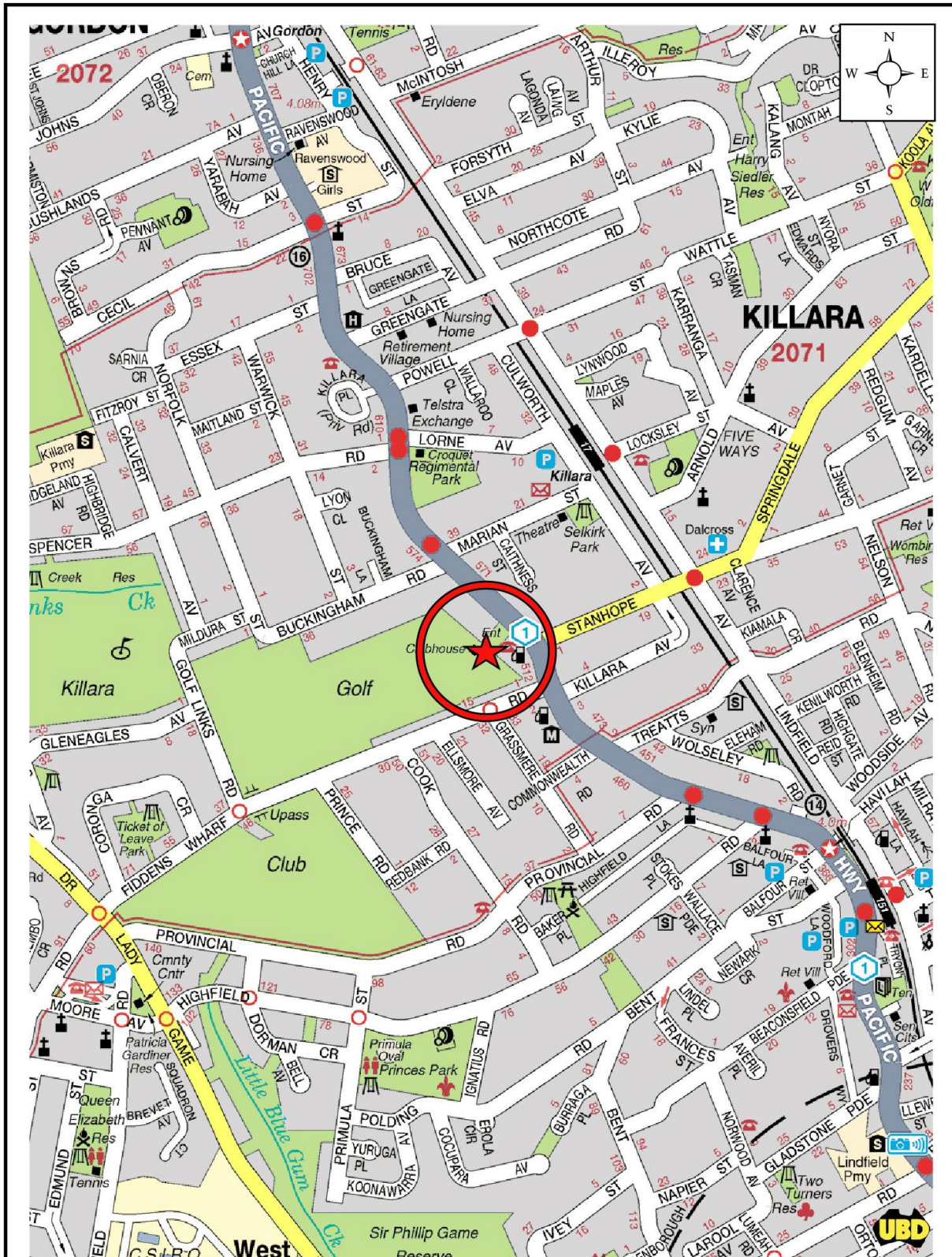
This report has been prepared to accompany a planning proposal for a residential development proposal to be located at Killara Golf Club, 556 Pacific Highway, Killara (Figures 1 and 2).

The site lies to the rear of existing *R4 High Density Residential* allotments fronting the Pacific Highway. The planning proposal therefore proposes to rezone a portion of the golf club land which backs onto these allotments from *R2 Low Density Residential* to *R4 High Density Residential*. The site is approximately 800m walking distance to/from Killara Railway Station and therefore ideally located to cater for higher density residential living.

The planning proposal envisages the construction of approximately 247 new residential dwellings in a number of new buildings. Off-street parking for the golf club, residents and their visitors is to be provided in basement car parking areas, with the number of spaces ultimately to be provided in accordance with Council's requirements.

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 site 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 off-street car parking requirements applicable to the planning proposal.



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Traffic and Parking Consultants



LOCATION  
FIGURE 1





## 2. PROPOSED DEVELOPMENT

### Site

Killara Golf Club lies on both sides of Fiddens Wharf Road, with the golf course extending between the Pacific Highway and Lady Game Drive. The portion of the site which forms the basis of the planning proposal is shown on the aerial image below.

The planning proposal has a street frontage approximately 52m in length to the Pacific Highway and occupies an area of approximately 44,651m<sup>2</sup>.

The subject site is currently occupied by the golf club clubhouse as well as two bowling greens, two tennis courts, a practice putting green and a commercial building fronting the Pacific Highway. Vehicular access to the site is provided via the golf club's entry/exit driveway which is located in the Pacific Highway.



Source: Nearmap

## Proposed Development

The planning proposal seeks to rezone a portion of the golf club land from *R2 Low Density Residential* to *R4 High Density Residential*. The remainder of Council’s “deferred zone” shall remain as *R2 Low Density Residential*.

Two options have been prepared for the purposes of the planning proposal. This traffic report is based on Option 2 which proposes the highest number of dwellings as follows:

Area A:	5,192m <sup>2</sup>	52 apartments	Proposed R4 High Density Residential
Area B:	18,649m <sup>2</sup>	179 apartments	Proposed R4 High Density Residential
Area C:	20,810m <sup>2</sup>	16 dwelling house lots	Proposed R2 Low Density Residential

Area A fronts the Pacific Highway whilst Area B (which includes the Club House) is located behind Area A. Areas A & B are proposed to be rezoned as “R4 High Density Residential”. Area C is located immediately to the south of Area B and is proposed to be rezoned to R2 Low Density Residential, although the club intends to retain this area as part of the golf course.

Off-street parking for the golf club apartment, residents and their visitors is to be provided in basement car parking areas, with the number of spaces to ultimately be provided in accordance with Council’s requirements.

Loading/servicing for the proposed development is expected to be undertaken by a variety of light commercial vehicles up to and including 6.4m long small rigid trucks.

The only vehicular access available to the site is provided via the existing golf club’s entry/exit driveway located in the Pacific Highway.

Concept plans of the planning proposal have been prepared by *PMDL* and are reproduced in the following pages.



PLANNING DIAGRAM 1

ITEMS SHOWN	AREA A - R4	AREA B - R4	AREA C - R2
Site Area	5,192 sqm	18,649 sqm	20,810 sqm
Maximum Height	17.5 m	17.5 m	-
% site coverage	32%	22.3%	-
FSR	1.24:1	0.69:1	84.0 sqm Lots
Communal space	519 sqm	1,492 sqm	-
Unit yield	52	104	16 Lots
Parking required	62 plus 13 visitor	122 plus 26 visitor	-

Planning Diagram 1 illustrates the outcomes should the bowling greens and tennis courts remain undeveloped. Yield results is reflected in Table above.

Area A

- Vehicle access will remain near existing location. Blue gum forest pockets may impact building footprint. Future building will have a reduced Pacific Highway frontage due to natural land fall towards the Golf course.

Area B

- Proposed rezoning maximises development potential for the future and allows for opportunities to reduce if desired. For this block plan diagram, bowling greens and tennis courts remain undeveloped.

Area C

- Remainder for the Council Deferred Area to be rezoned R2 - Low Density Residential. At the time of this report being prepared, the club intends to maintain Area C as part of the golf course.

Note: Yield calculations based on quality indicatively shown in block plan and not maximisation of site.





PLANNING DIAGRAM 2

ITEM	AREA A - R4	AREA B - R4	AREA C - R2
Site Area	5,192 sqm	18,649 sqm	20,810 sqm
Maximum Height	17.5 m	17.5 m	-
% site coverage	32%	35%	-
FSR	1.24:1	1.18:1	84.0 sqm Lots
Communal space	519 sqm	1,491 sqm	-
Unit yield	52	179	16 Lots
Parking required	62 plus 13 visitor	211 plus 45 visitor	-

Planning Diagram 2 illustrates yield outcomes should AREA B be fully developed.



Area A

- Vehicle access will remain near existing location. Blue gum forest pockets may impact building footprint. Future building will have a reduced Pacific Highway frontage due to natural land fall towards the Golf course.

Area B

- R4 - High Density Residential building development to the overall area. Should the clubhouse activities relocate in the future, the adjacent Bowling greens and tennis courts will become problematic in their current location and should be relocated to be in close proximity to the new clubhouse activities, thus leaving the site for development opportunities.

Area C

- Remainder for the Council Deferred Area to be rezoned R2 - Low Density Residential. At the time of this report being prepared, the club intends to maintain Area C as part of the golf course.

Note: Yield calculations based on quality indicatively shown in block plan and not maximisation of site.

### 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.

The Pacific Highway is classified by the RMS as a *State Road* and provides the key north-south road link in the area, linking North Sydney to Hornsby and beyond. It typically carries three traffic lanes in each direction in the vicinity of the site, with opposing traffic flows separated by a central median island. Clearway restrictions apply along both sides of the road during commuter peak periods.

Lady Game Drive is classified by the RMS as a *Regional Road* which provides another key north-south road link in the local area, linking Delhi Road to Lane Cove Road. It typically carries one traffic lane in each direction in the vicinity of the site with additional lanes provided at key locations including its intersection with Fiddens Wharf Road.

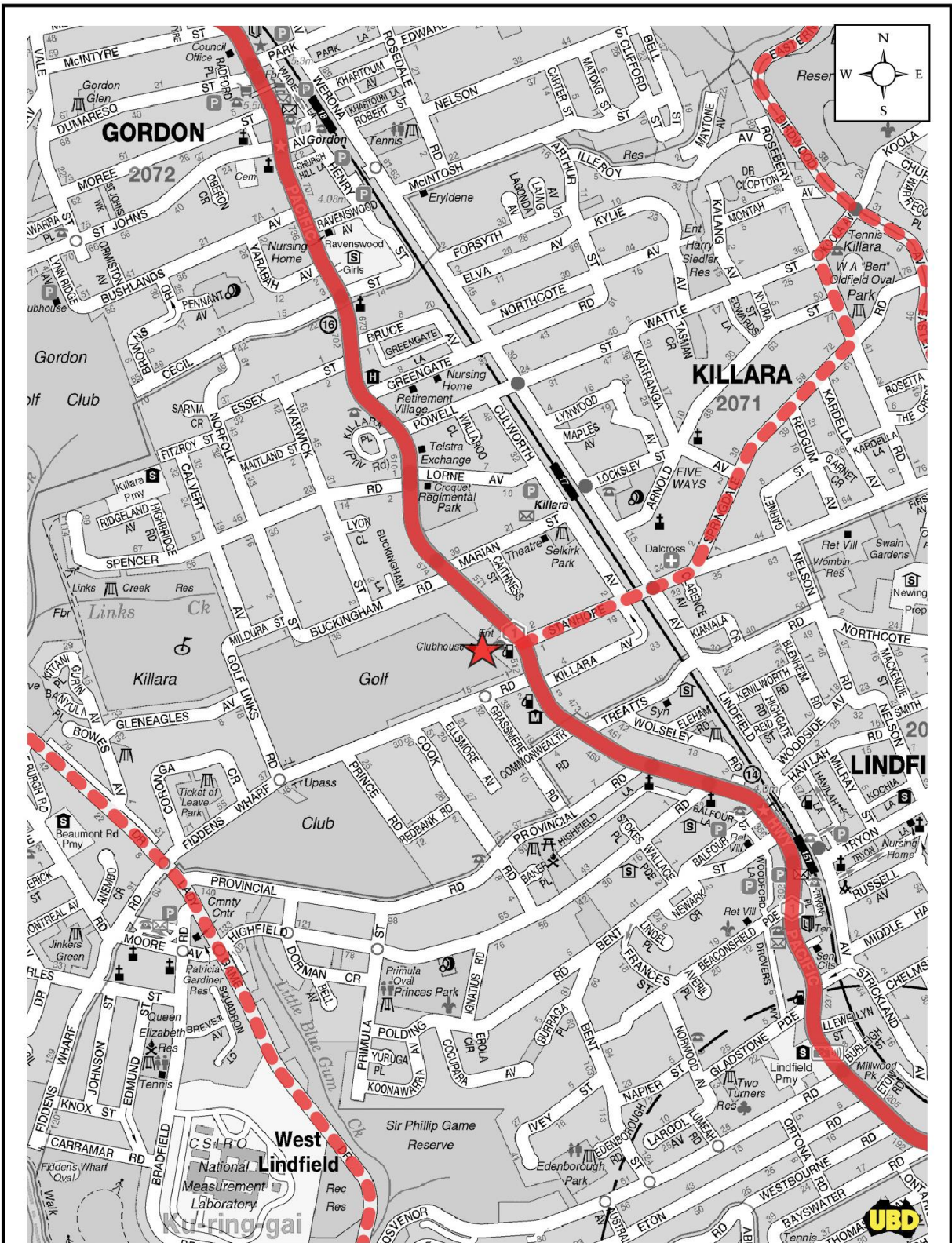
Fiddens Wharf Road is a local, unclassified road which performs the function of a *collector route* through the area. Kerbside parking is generally permitted along both sides of the road in the vicinity of the site.

#### 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 the Pacific Highway
- a CENTRAL MEDIAN ISLAND in the Pacific Highway which precludes right turn movements into and out of the site
- a 50 km/h SPEED LIMIT which applies to Fiddens Wharf Road and all other local roads in the area





Key: ——— State Road  
- - - - - Regional Road

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 Traffic and Parking Consultants

**ROAD HIERARCHY**  
**FIGURE 3**





- PEDESTRIAN TRAFFIC SIGNALS in the Pacific Highway just north of Marian Street and also just south of Provincial Road
- a RIGHT TURN HOLDING BAY in the Pacific Highway where it intersects with Fiddens Wharf Road
- NO RIGHT TURN eastbound restrictions in Fiddens Wharf Road turning onto the Pacific Highway during the morning and afternoon commuter peak periods.

### **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 golf club's existing vehicular access driveway in the Pacific Highway. The results of the traffic surveys are also reproduced in full in Appendix A and reveal that:

- two-way traffic flows into and out of the golf club are in the order of 23 vph during the AM "on-road" commuter peak period, comprising 3 trips IN and 20 trips OUT
- two-way traffic flows into and out of the golf club are in the order of 35 vph during the PM "on-road" commuter peak period, comprising 19 trips IN and 16 trips OUT.

### **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 *Technical Direction TDT 2013/04a (August 2013)* which notes that the Technical Direction *must* be followed when the RMS is undertaking trip generation assessments.

The *Technical Direction* is based on extensive surveys of a wide range of land uses and nominates the following traffic generation rates which are applicable to the planning proposal:

**High Density Residential Flat Buildings**

AM: 0.19 peak hour vehicle trips per dwelling

PM: 0.15 peak hour vehicle trips per dwelling

**Low Density Residential Dwellings**

AM: 0.99 peak hour vehicle trips per dwelling

PM: 0.95 peak hour vehicle trips per dwelling

Application of the above traffic generation rates to the 231 residential apartments and 16 dwelling houses outlined in the planning proposal yields a traffic generation potential of approximately 60 vehicle trips per hour during the AM commuter peak period and 50 vehicle trips per hour during the PM commuter peak period.

That projected increase in traffic activity 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 planning 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 Pacific Highway & the site access driveway intersection are summarised on Table 3.1 below, revealing that:

- the Pacific Highway & the site access driveway 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 expected to be generated by the development proposal, the Pacific Highway & the site access driveway intersection





## 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<sup>1</sup> 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.

<sup>1</sup> 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 are illustrated on Figure 5 and comprise:

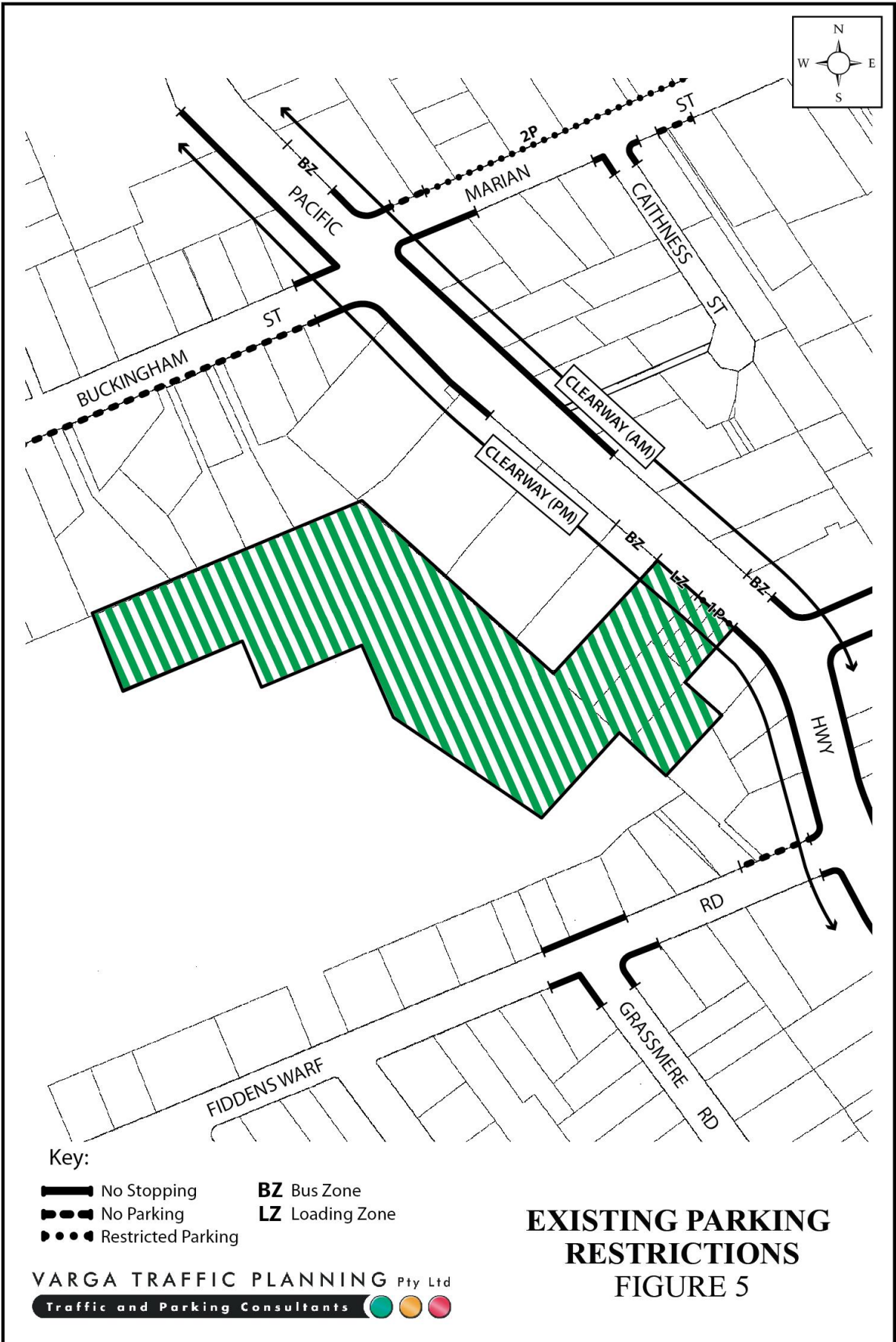
- CLEARWAY restrictions along both sides of the Pacific Highway during commuter peak periods
- 1 HOUR PARKING restrictions along the southern half of the Pacific Highway site frontage
- a LOADING ZONE located along the northern half of the Pacific Highway site frontage
- NO PARKING restrictions along the western side of Fiddens Wharf Road on approach to the Pacific Highway intersection
- generally UNRESTRICTED kerbside parking elsewhere in Fiddens Wharf Road and throughout the local area
- BUS ZONES located at regular intervals along both sides of the Pacific Highway.

### Off-Street Parking Provisions

The off-street car parking requirements applicable to the planning proposal are specified in Council's *Development Control Plan, Part 23R.2 – Car Parking Rates* document in the following terms:

1 bedroom unit:	1 space per unit
2 bedroom unit:	1 space per unit
3 bedroom unit:	1.5 spaces per unit
Visitors:	1 space per 4 units for visitor parking





Whilst the precise unit mix of the planning proposal is not yet known, it is expected that Council's numerical requirements for parking spaces will be satisfied, and that the design layout of all off-street car parking areas will comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 1 - Off-Street Car Parking AS2890.1*.

In addition, the future layout will be designed to accommodate the swept path and manoeuvring requirements of Council's small rigid garbage truck with an overhead clearance requirement of 2.6m.

Parking for the dwelling house allotments is to be provided on each of the individual allotments, and will be designed to comply with the requirements of *AS2809.1*.

It is therefore concluded that the planning proposal will not have any unacceptable parking, access or servicing implications and is recommended for approval.

**APPENDIX A**

**TRAFFIC SURVEY DATA**



# R.O.A.R. DATA

*Reliable, Original & Authentic Results*

Ph.88196847, Fax 88196849.

Mobile.0418239019

Client : Varga Traffic Planning  
 Job No/Name : 5975 KILLARA Golf Club Access  
 Day/Date : Wednesday 9th March 2016

PEDS	NORTH	WEST	SOUTH	TOT
Time Per	Pacific Hwy	GC Access	Pacific Hwy	TOT
0630 - 0645	0	1	1	2
0645 - 0700	0	1	0	1
0700 - 0715	2	4	0	6
0715 - 0730	0	1	1	2
0730 - 0745	5	8	2	15
0745 - 0800	0	7	1	8
0800 - 0815	1	2	0	3
0815 - 0830	0	6	0	6
0830 - 0845	0	2	0	2
0845 - 0900	1	5	0	6
0900 - 0915	2	7	1	10
0915 - 0930	0	2	0	2
<b>Per End</b>	<b>11</b>	<b>46</b>	<b>6</b>	<b>63</b>

PEDS	NORTH	WEST	SOUTH	TOT
Peak Per	Pacific Hwy	GC Access	Pacific Hwy	TOT
0630 - 0730	2	7	2	11
0645 - 0745	7	14	3	24
0700 - 0800	7	20	4	31
0715 - 0815	6	18	4	28
0730 - 0830	6	23	3	32
0745 - 0845	1	17	1	19
0800 - 0900	2	15	0	17
0815 - 0915	3	20	1	24
0830 - 0930	3	16	1	20
<b>PEAK HR</b>	<b>3</b>	<b>16</b>	<b>1</b>	<b>20</b>

Lights	NORTH		WEST		SOUTH		TOT
	Pacific Hwy	GC Access	Pacific Hwy	GC Access	Pacific Hwy	GC Access	
Time Per	I	R	L	R	L	I	TOT
0630 - 0645			1		5	212	218
0645 - 0700			3		16	227	246
0700 - 0715			1		18	223	242
0715 - 0730			0		14	250	264
0730 - 0745			0		8	249	257
0745 - 0800			0		5	258	263
0800 - 0815			3		3	225	231
0815 - 0830			0		4	267	271
0830 - 0845			2		7	279	288
0845 - 0900			1		11	245	257
0900 - 0915			1		1	239	241
0915 - 0930			1		0	287	288
<b>Per End</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>92</b>	<b>2961</b>	<b>3066</b>

Heavies	NORTH		WEST		SOUTH		TOT
	Pacific Hwy	GC Access	Pacific Hwy	GC Access	Pacific Hwy	GC Access	
Time Per	I	R	L	R	L	I	TOT
0630 - 0645			0		0	3	3
0645 - 0700			0		0	6	6
0700 - 0715			0		0	6	6
0715 - 0730			0		0	5	5
0730 - 0745			0		0	9	9
0745 - 0800			0		0	17	17
0800 - 0815			0		0	13	13
0815 - 0830			0		0	15	15
0830 - 0845			0		0	16	16
0845 - 0900			0		1	12	13
0900 - 0915			0		1	13	14
0915 - 0930			1		0	14	15
<b>Per End</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>129</b>	<b>132</b>

Combined	NORTH		WEST		SOUTH		TOT
	Pacific Hwy	GC Access	Pacific Hwy	GC Access	Pacific Hwy	GC Access	
Time Per	I	R	L	R	L	I	TOT
0630 - 0645	0	0	1	0	5	215	221
0645 - 0700	0	0	3	0	16	233	252
0700 - 0715	0	0	1	0	18	229	248
0715 - 0730	0	0	0	0	14	255	269
0730 - 0745	0	0	0	0	8	258	266
0745 - 0800	0	0	0	0	5	275	280
0800 - 0815	0	0	3	0	3	238	244
0815 - 0830	0	0	0	0	4	282	286
0830 - 0845	0	0	2	0	7	295	304
0845 - 0900	0	0	1	0	12	257	270
0900 - 0915	0	0	1	0	2	252	255
0915 - 0930	0	0	2	0	0	301	303
<b>Per End</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>94</b>	<b>3090</b>	<b>3198</b>

Lights	NORTH		WEST		SOUTH		TOT
	Pacific Hwy	GC Access	Pacific Hwy	GC Access	Pacific Hwy	GC Access	
Peak Per	I	R	L	R	L	I	TOT
0630 - 0730	0	0	5	0	53	912	970
0645 - 0745	0	0	4	0	56	949	1009
0700 - 0800	0	0	1	0	45	980	1026
0715 - 0815	0	0	3	0	30	982	1015
0730 - 0830	0	0	3	0	20	999	1022
0745 - 0845	0	0	5	0	19	1029	1053
0800 - 0900	0	0	6	0	25	1016	1047
0815 - 0915	0	0	4	0	23	1030	1057
0830 - 0930	0	0	5	0	19	1050	1074

Heavies	NORTH		WEST		SOUTH		TOT
	Pacific Hwy	GC Access	Pacific Hwy	GC Access	Pacific Hwy	GC Access	
Peak Per	I	R	L	R	L	I	TOT
0630 - 0730	0	0	0	0	0	20	20
0645 - 0745	0	0	0	0	0	26	26
0700 - 0800	0	0	0	0	0	37	37
0715 - 0815	0	0	0	0	0	44	44
0730 - 0830	0	0	0	0	0	54	54
0745 - 0845	0	0	0	0	0	61	61
0800 - 0900	0	0	0	0	1	56	57
0815 - 0915	0	0	0	0	2	56	58
0830 - 0930	0	0	1	0	2	55	58

Combined	NORTH		WEST		SOUTH		TOT
	Pacific Hwy	GC Access	Pacific Hwy	GC Access	Pacific Hwy	GC Access	
Peak Per	I	R	L	R	L	I	TOT
0630 - 0730	0	0	5	0	53	932	990
0645 - 0745	0	0	4	0	56	975	1035
0700 - 0800	0	0	1	0	45	1017	1063
0715 - 0815	0	0	3	0	30	1026	1059
0730 - 0830	0	0	3	0	20	1053	1076
0745 - 0845	0	0	5	0	19	1090	1114
0800 - 0900	0	0	6	0	26	1072	1104
0815 - 0915	0	0	4	0	25	1086	1115
0830 - 0930	0	0	6	0	21	1105	1132

<b>PEAK HR</b>			<b>5</b>		<b>19</b>	<b>1050</b>	<b>1074</b>
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<b>PEAK HR</b>			<b>1</b>		<b>2</b>	<b>55</b>	<b>58</b>
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<b>PEAK HR</b>			<b>6</b>		<b>21</b>	<b>1105</b>	<b>1132</b>
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# R.O.A.R. DATA

*Reliable, Original & Authentic Results*

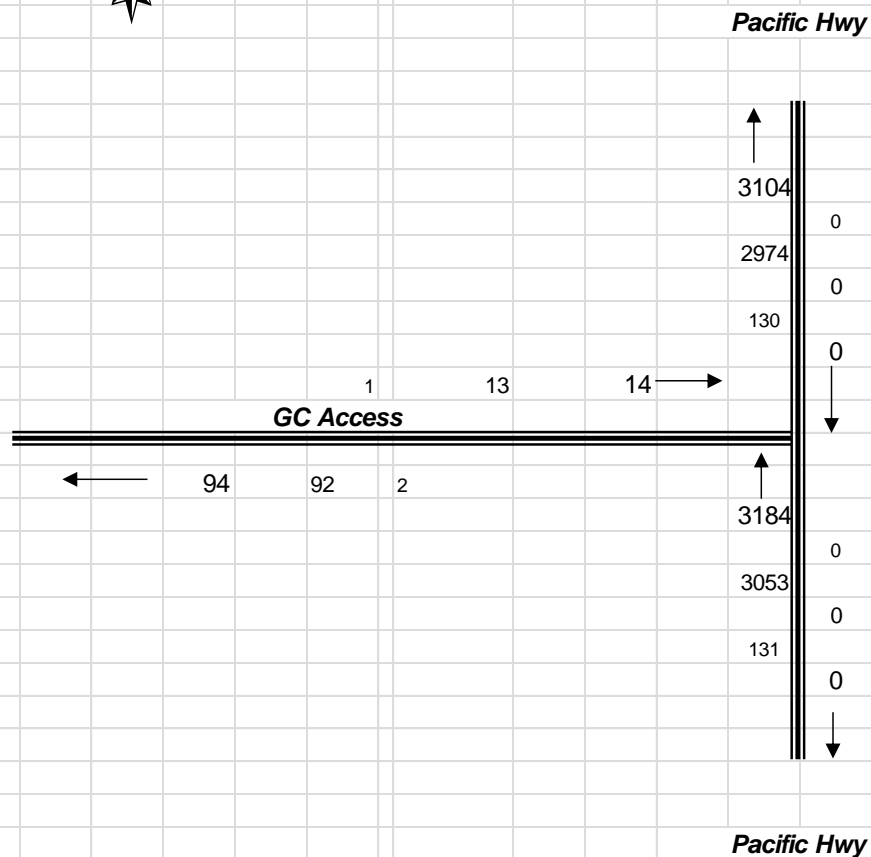
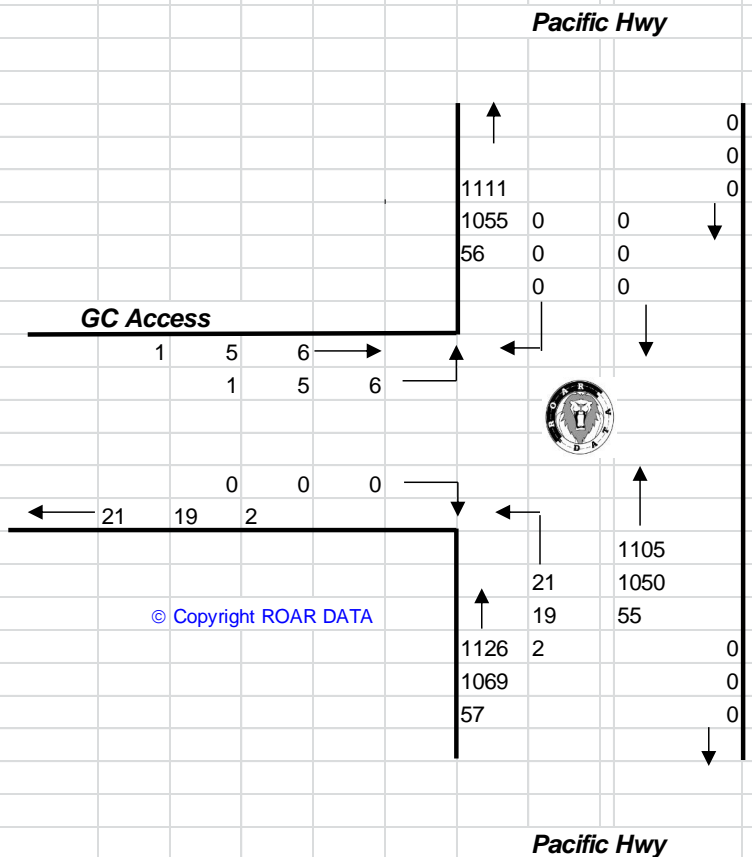
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning  
Job No/Name : 5975 KILLARA Golf Club Access  
Day/Date : Wednesday 9th March 2016

1	2	3
4	5	6
7	8	9

**AM PEAK**  
0830 - 0930

**TOTAL VOLUMES FOR COUNT PERIOD**







# R.O.A.R. DATA

**Reliable, Original & Authentic Results**

Ph.88196847, Fax 88196849.

Mobile.0418239019

Client : Varga Traffic Planning  
 Job No/Name : 5975 KILLARA Golf Club Access  
 Day/Date : Tuesday 8th March 2016

PEDS	NORTH	WEST	SOUTH	TOT
Time Per	Pacific Hwy	GC Access	Pacific Hwy	
1530 - 1545	0	1	0	1
1545 - 1600	0	3	0	3
1600 - 1615	0	3	0	3
1615 - 1630	0	3	1	4
1630 - 1645	0	9	0	9
1645 - 1700	1	4	0	5
1700 - 1715	0	2	0	2
1715 - 1730	1	0	0	1
1730 - 1745	0	5	0	5
1745 - 1800	1	5	0	6
1800 - 1815	0	4	0	4
1815 - 1830	0	4	1	5
<b>Per End</b>	<b>3</b>	<b>43</b>	<b>2</b>	<b>48</b>

PEDS	NORTH	WEST	SOUTH	TOT
Peak Per	Pacific Hwy	GC Access	Pacific Hwy	
1530 - 1630	0	10	1	11
1545 - 1645	0	18	1	19
1600 - 1700	1	19	1	21
1615 - 1715	1	18	1	20
1630 - 1730	2	15	0	17
1645 - 1745	2	11	0	13
1700 - 1800	2	12	0	14
1715 - 1815	2	14	0	16
<b>1730 - 1830</b>	<b>1</b>	<b>18</b>	<b>1</b>	<b>20</b>
<b>PEAK HR</b>	<b>1</b>	<b>18</b>	<b>1</b>	<b>20</b>

Lights	NORTH		WEST		SOUTH		TOT
	Pacific Hwy	GC Access	Pacific Hwy	GC Access	Pacific Hwy	GC Access	
Time Per	I	R	L	R	L	I	
1530 - 1545			5		5	419	429
1545 - 1600			7		7	428	442
1600 - 1615			4		4	447	455
1615 - 1630			6		2	377	385
1630 - 1645			5		2	282	289
1645 - 1700			2		13	262	277
1700 - 1715			9		8	190	207
1715 - 1730			1		1	384	386
1730 - 1745			3		7	480	490
1745 - 1800			3		3	477	483
1800 - 1815			9		4	460	473
1815 - 1830			11		1	405	417
<b>Per End</b>	<b>0</b>	<b>0</b>	<b>65</b>	<b>0</b>	<b>57</b>	<b>4611</b>	<b>4733</b>

Heavies	NORTH		WEST		SOUTH		TOT
	Pacific Hwy	GC Access	Pacific Hwy	GC Access	Pacific Hwy	GC Access	
Time Per	I	R	L	R	L	I	
1530 - 1545			0		0	10	10
1545 - 1600			0		0	6	6
1600 - 1615			0		0	8	8
1615 - 1630			0		0	7	7
1630 - 1645			0		0	3	3
1645 - 1700			0		0	5	5
1700 - 1715			0		0	3	3
1715 - 1730			0		0	6	6
1730 - 1745			0		0	1	1
1745 - 1800			0		0	1	1
1800 - 1815			0		0	0	0
1815 - 1830			0		0	0	0
<b>Per End</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>50</b>	<b>50</b>

Combined	NORTH		WEST		SOUTH		TOT
	Pacific Hwy	GC Access	Pacific Hwy	GC Access	Pacific Hwy	GC Access	
Time Per	I	R	L	R	L	I	
1530 - 1545	0	0	5	0	5	429	439
1545 - 1600	0	0	7	0	7	434	448
1600 - 1615	0	0	4	0	4	455	463
1615 - 1630	0	0	6	0	2	384	392
1630 - 1645	0	0	5	0	2	285	292
1645 - 1700	0	0	2	0	13	267	282
1700 - 1715	0	0	9	0	8	193	210
1715 - 1730	0	0	1	0	1	390	392
1730 - 1745	0	0	3	0	7	481	491
1745 - 1800	0	0	3	0	3	478	484
1800 - 1815	0	0	9	0	4	460	473
1815 - 1830	0	0	11	0	1	405	417
<b>Per End</b>	<b>0</b>	<b>0</b>	<b>65</b>	<b>0</b>	<b>57</b>	<b>4661</b>	<b>4783</b>

Lights	NORTH		WEST		SOUTH		TOT
	Pacific Hwy	GC Access	Pacific Hwy	GC Access	Pacific Hwy	GC Access	
Peak Per	I	R	L	R	L	I	
1530 - 1630	0	0	22	0	18	1671	1711
1545 - 1645	0	0	22	0	15	1534	1571
1600 - 1700	0	0	17	0	21	1368	1406
1615 - 1715	0	0	22	0	25	1111	1158
1630 - 1730	0	0	17	0	24	1118	1159
1645 - 1745	0	0	15	0	29	1316	1360
1700 - 1800	0	0	16	0	19	1531	1566
1715 - 1815	0	0	16	0	15	1801	1832
<b>1730 - 1830</b>	<b>0</b>	<b>0</b>	<b>26</b>	<b>0</b>	<b>15</b>	<b>1822</b>	<b>1863</b>
<b>PEAK HR</b>	<b>0</b>	<b>0</b>	<b>26</b>	<b>0</b>	<b>15</b>	<b>1822</b>	<b>1863</b>

Heavies	NORTH		WEST		SOUTH		TOT
	Pacific Hwy	GC Access	Pacific Hwy	GC Access	Pacific Hwy	GC Access	
Peak Per	I	R	L	R	L	I	
1530 - 1630	0	0	0	0	0	31	31
1545 - 1645	0	0	0	0	0	24	24
1600 - 1700	0	0	0	0	0	23	23
1615 - 1715	0	0	0	0	0	18	18
1630 - 1730	0	0	0	0	0	17	17
1645 - 1745	0	0	0	0	0	15	15
1700 - 1800	0	0	0	0	0	11	11
1715 - 1815	0	0	0	0	0	8	8
<b>1730 - 1830</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>
<b>PEAK HR</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>

Combined	NORTH		WEST		SOUTH		TOT
	Pacific Hwy	GC Access	Pacific Hwy	GC Access	Pacific Hwy	GC Access	
Peak Per	I	R	L	R	L	I	
1530 - 1630	0	0	22	0	18	1702	1742
1545 - 1645	0	0	22	0	15	1558	1595
1600 - 1700	0	0	17	0	21	1391	1429
1615 - 1715	0	0	22	0	25	1129	1176
1630 - 1730	0	0	17	0	24	1135	1176
1645 - 1745	0	0	15	0	29	1331	1375
1700 - 1800	0	0	16	0	19	1542	1577
1715 - 1815	0	0	16	0	15	1809	1840
<b>1730 - 1830</b>	<b>0</b>	<b>0</b>	<b>26</b>	<b>0</b>	<b>15</b>	<b>1824</b>	<b>1865</b>
<b>PEAK HR</b>	<b>0</b>	<b>0</b>	<b>26</b>	<b>0</b>	<b>15</b>	<b>1824</b>	<b>1865</b>



# R.O.A.R. DATA

Reliable, Original & Authentic Results

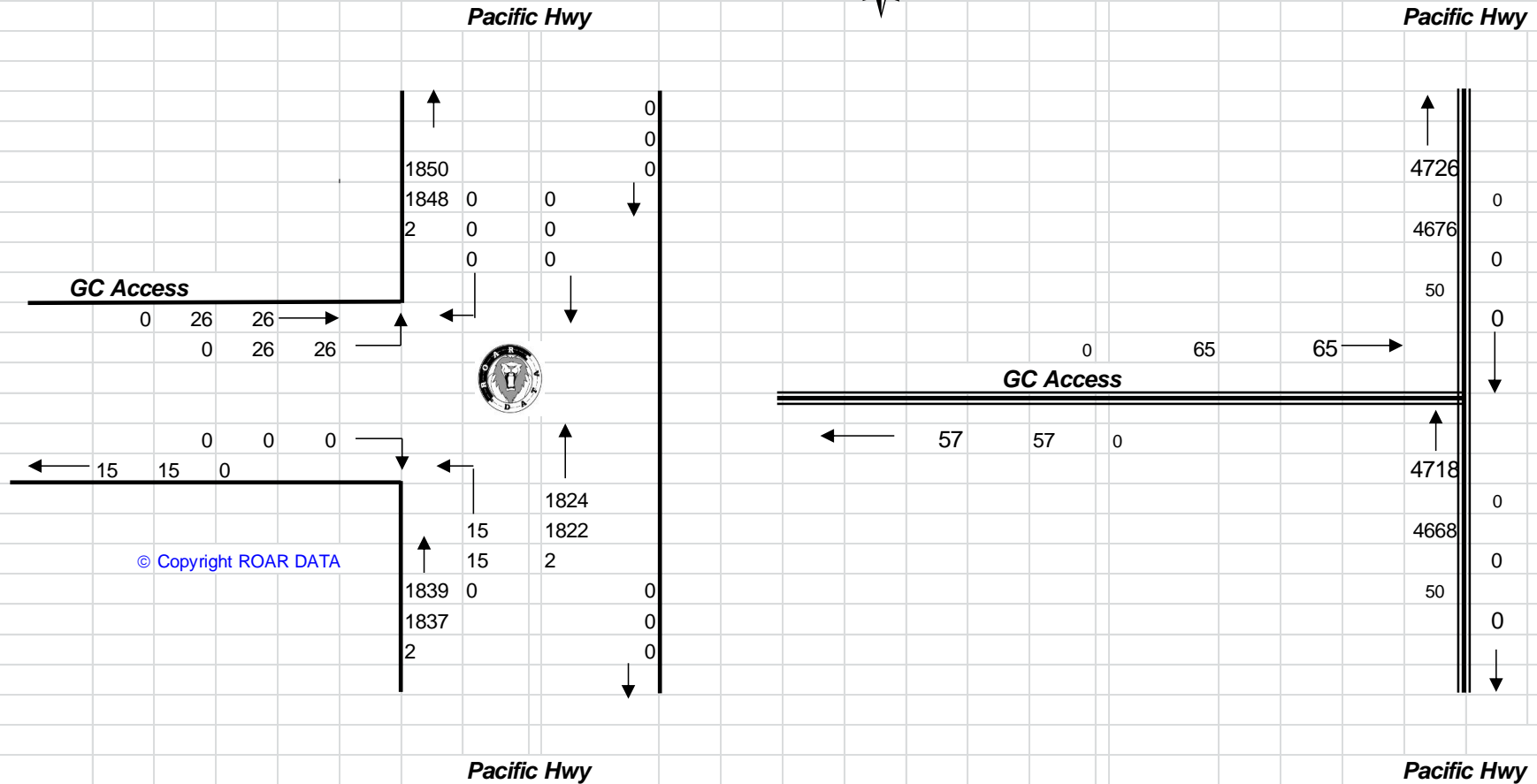
Ph.88196847, Fax 88196849, Mob.0418-239019

Client	: Varga Traffic Planning
Job No/Name	: 5975 KILLARA Golf Club Access
Day/Date	: Tuesday 8th March 2016

1	2	3
4	5	6
7	8	9

**PM PEAK**  
1730 - 1830

**TOTAL VOLUMES  
FOR COUNT  
PERIOD**





# R.O.A.R. DATA

**Reliable, Original & Authentic Results**

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

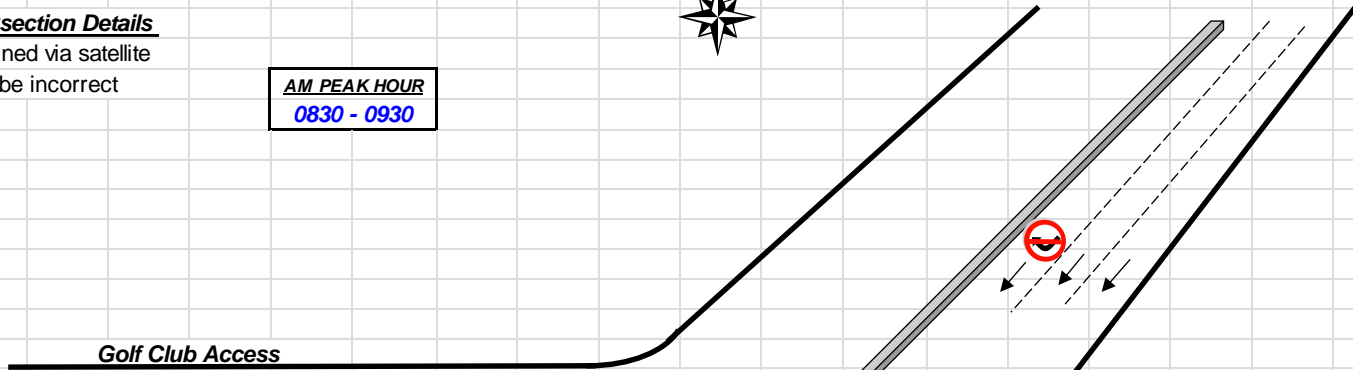
Client : Varga Traffic Planning  
Job No/Name : 5975 KILLARA Golf Club Access  
Day/Date : Tuesday 8th & Wednesday 9th March 2016

### Intersection Details

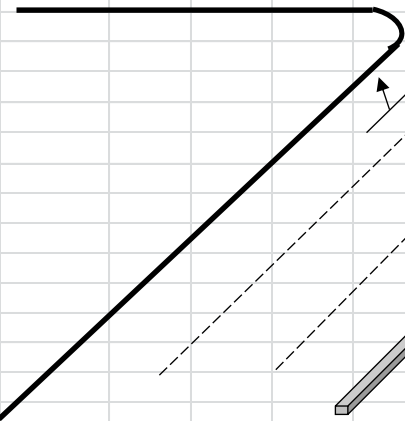
Obtained via satellite  
May be incorrect



**AM PEAK HOUR**  
0830 - 0930



6	26	L
AM	PM	



PM	15	1824
AM	21	1105
	L	T

**PM PEAK HOUR**  
1730 - 1830

Combined figures only

Weather >>>



Pacific Hwy