

Proposed Mixed-Use Development

**23-37 Lindfield Avenue,
Lindfield**

TRAFFIC AND PARKING ASSESSMENT REPORT

20 April 2011

Ref 10063

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1. INTRODUCTION

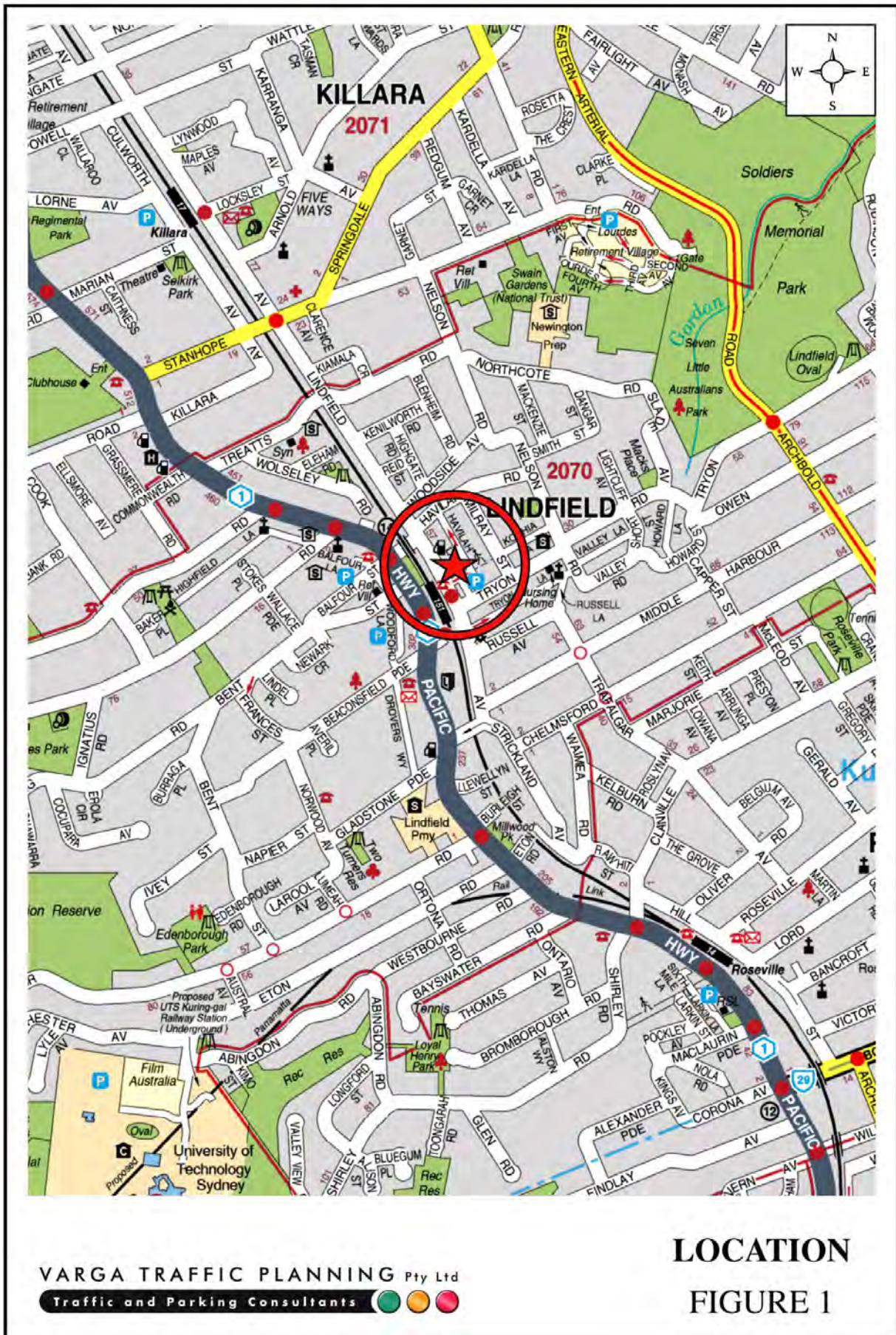
This report has been prepared to accompany a Project Application to the Department of Planning for a mixed-use retail/residential development proposal to be located at 23-37 Lindfield Avenue, Lindfield (Figures 1 and 2).

The site lies within Ku-ring-gai Council's new *Development Control Plan (Town Centres 2010), Part 2E Lindfield Town Centre, Key Site L4: Tryon Place and Lindfield Avenue Retail Area*.

The proposed development will involve the demolition of the existing shopping centre building on the site to facilitate the construction of a new mixed-use retail/residential development, with carparking to be provided in a new basement carparking area in accordance with Council's requirements.

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

- describes the site and provides details of the development 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 development proposal, and assigns that traffic generation to the road network serving the site
- assesses the traffic implications of the development proposal in terms of road network capacity
- reviews the geometric design features of the proposed basement carparking facilities for compliance with the relevant codes and standards
- assesses the adequacy and suitability of the quantum of off-street carparking provided on the site.





2. PROPOSED DEVELOPMENT

Site

The subject site is located on the north-eastern corner of the Lindfield Avenue and Kochia Lane intersection and has rear access via Havilah Lane. The site has a street frontage approximately 49m in length to Lindfield Avenue, 32m in length to Kochia Lane and 46m in length to Havilah Lane. The site occupies an area of approximately 3,099m².

The ground floor level of the subject site is currently occupied by a shopping centre comprising a Franklins Supermarket (821m² GLFA / 909m² GFA) and specialty stores such as a chemist, travel agency, bakery and green grocer (914m² GLFA / 1,484m² GFA). The cumulative floor area of the existing shopping centre is therefore approximately 1,735m² GLFA or 2,393m² GFA.

The first floor level is currently occupied by the Lindfield Bridge Club (647m² GFA), a research and marketing company office (213m² GFA) and a small yoga, fitness and martial arts gymnasium (378m² GFA). The cumulative floor area of the first floor level is therefore approximately 1,238m² GFA.

Off-street parking is currently provided on the site for 38 cars in two separate undercover carparking areas located towards the rear of the site, with vehicular access provided via Havilah Lane.

The existing development has also paid to Council a “contribution in lieu” for 25 parking spaces which are located adjacent to the site at No.9 Havilah Lane. The total parking spaces associated with the existing site is therefore 63 spaces.

Proposed Development

The proposed development will involve the demolition of the existing shopping centre on the site to facilitate the construction of a new mixed-use retail/residential comprising two buildings above a basement carparking area.

A total of 91 residential apartments are proposed in the two new buildings as follows:

Studio:	1
1 bedroom apartments:	45
2 bedroom apartments:	38
3 bedroom apartments:	7
TOTAL APARTMENTS:	91

A new Supermarket is proposed on level 1 with storage on the ground floor level, with a floor area of approximately 1,451m² GLFA.

Specialty retail areas are also proposed, on the ground floor level and on level 1, with a cumulative floor area of approximately 1,726m² GLFA, whilst a medical suite with a floor area of 293m² GLFA is proposed on level 1.

Off-street carparking is proposed for 206 cars in a new basement carparking area in accordance with Council's requirements. Vehicular access to the carparking facilities is to be provided via a new entry/exit driveway located towards the northern end of the Havilah Lane site frontage. With the addition of 25 spaces located adjacent to the site in Havilah Lane for which a "contribution in lieu" was made, the total proposed parking associated with the site is 231 spaces.

Two loading docks are also proposed at the rear of the site which are capable of accommodating a variety of trucks up to and including a 19m long articulated truck and a 12.5m long heavy rigid truck simultaneously. Vehicular access to the loading docks is via Havilah Lane.

Plans of the proposed development have been prepared by *PTI Architecture* and are reproduced in the following pages.



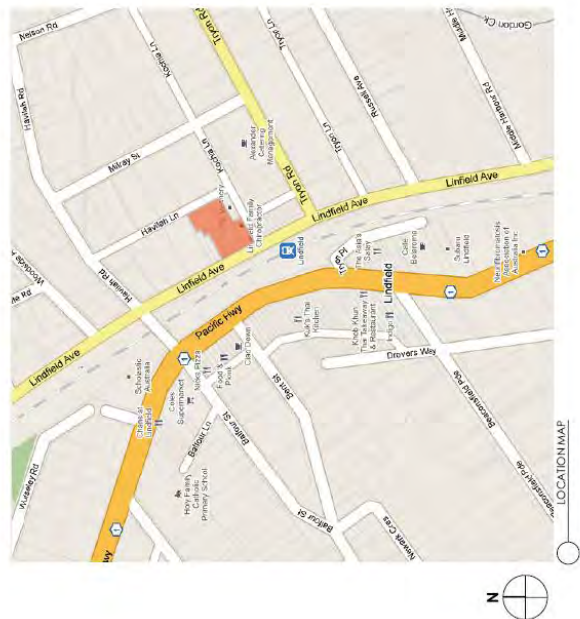
23-37 LINDFIELD AVE
LINDFIELD, NSW

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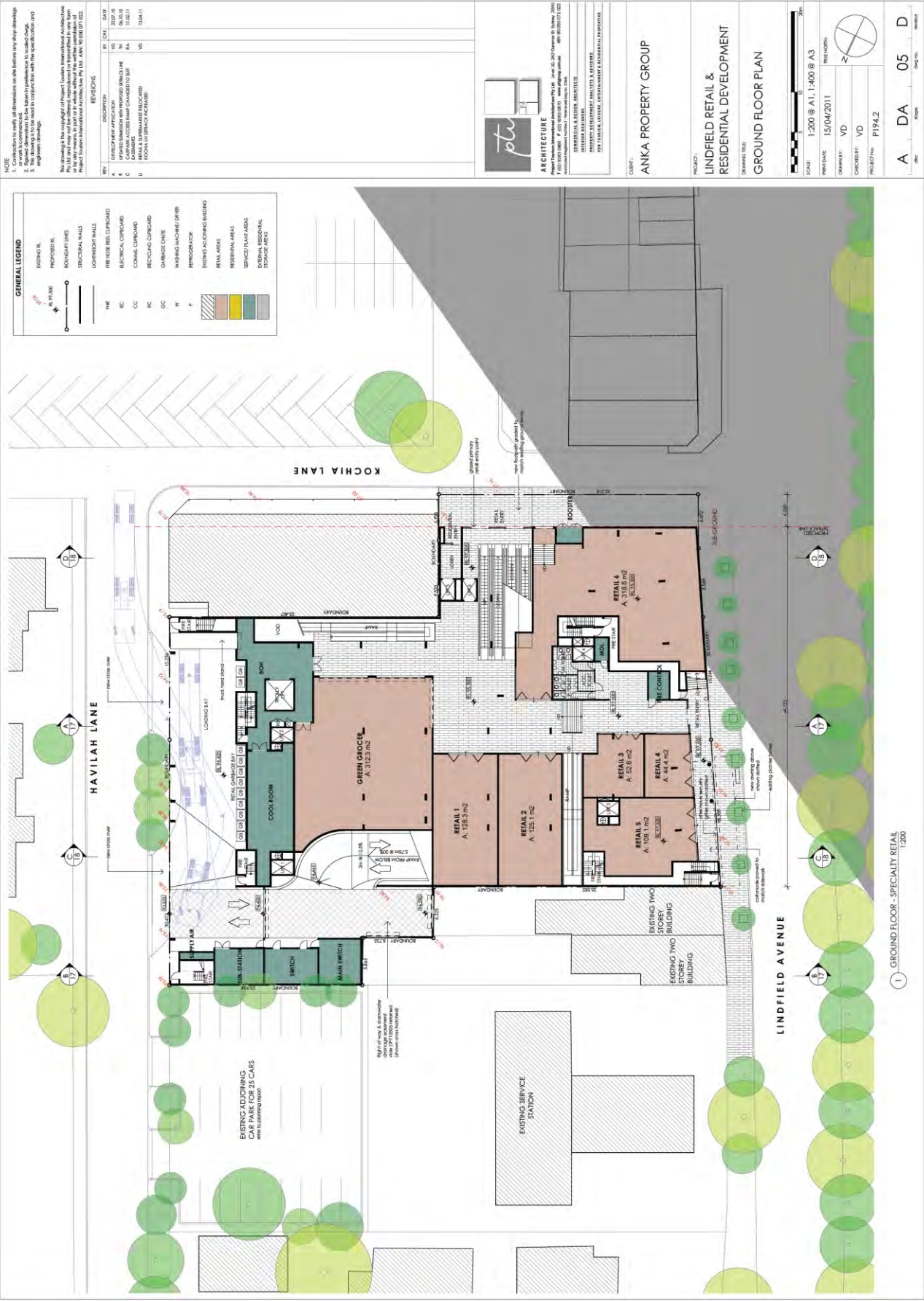
DRAWING SCHEDULE		APARTMENT SCHEDULE				
NUMBER	CONTENT	BUILDING A		BUILDING B		TOTAL
DA 00	COVER PAGE					
DA 01	SITE ANALYSIS					
DA 02	SITE PLAN					
DA 02.5	BASEMENT 3 PLAN					
DA 03	BASEMENT 2 PLAN					
DA 04	BASEMENT 1 PLAN					
DA 05	GROUND FLOOR PLAN					
DA 06	LEVEL 1 PLAN					
DA 07	LEVEL 2 PLAN					
DA 08	LEVEL 3 PLAN					
DA 09	LEVEL 4 PLAN					
DA 10	LEVEL 5 PLAN					
DA 11	LEVEL 6 PLAN					
DA 12	LEVEL 7 PLAN					
DA 13	ROOF LEVEL PLAN					
DA 14	ELEVATIONS SHEET 1					
DA 15	ELEVATIONS SHEET 2					
DA 16	ELEVATIONS SHEET 3					
DA 17	SECTIONS SHEET 1					
DA 18	SECTIONS SHEET 2					
DA 19	SHADOW DIAGRAMS - MARCH					
DA 20	SHADOW DIAGRAMS - JUNE					
DA 21	SHADOW DIAGRAMS - SEPTEMBER					
DA 22	SHADOW DIAGRAMS - DECEMBER					
DA 23	MISCELLANEOUS					
DA 24	PHOTOMONTAGE 1					
DA 25	PHOTOMONTAGE 2					
DA 26	PHOTOMONTAGE 3					
DA 27	PHOTOMONTAGE 4					
DA 28	PHOTOMONTAGE 5					
DA 29	PHOTOMONTAGE 6					
DA 30	PHOTOMONTAGE 7					
DA 31	PHOTOMONTAGE 8					
DA 32	MATERIALS AND FINISHES SCHEDULE					
DA 33	CONCEPTUAL FUTURE CORNER SITE DEVELOPMENT					

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DA 31	PHOTOMONTAGE 8					
DA 32	MATERIALS AND FINISHES SCHEDULE					
DA 33	CONCEPTUAL FUTURE CORNER SITE DEVELOPMENT					



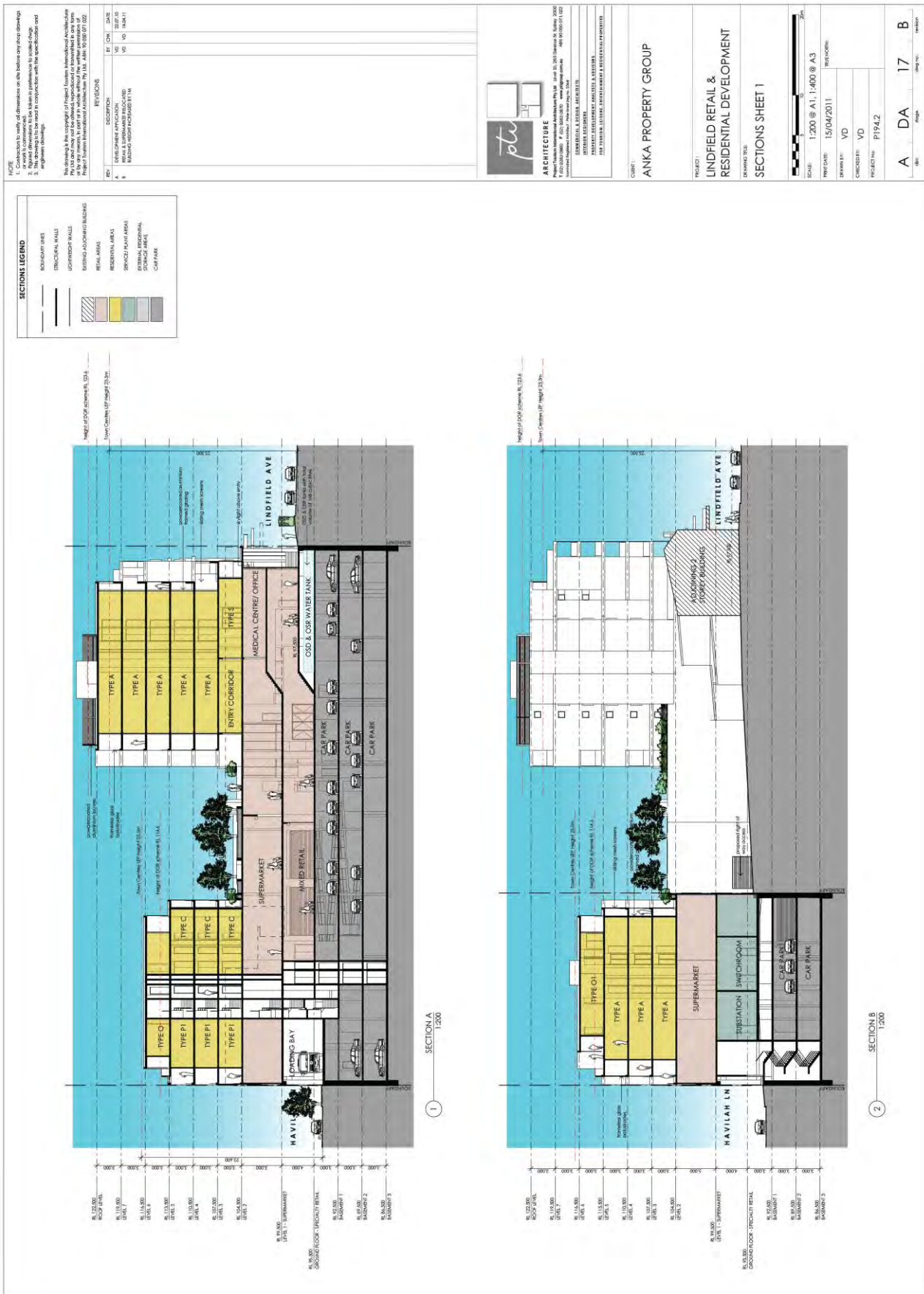














3. TRAFFIC ASSESSMENT

Road Hierarchy

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

The Pacific Highway is classified by the RTA as a *State Road* and provides the key north-south road link in the area, linking the City to Wahroonga and the F3 Freeway. It typically carries three traffic lanes in each direction in the vicinity of the site, with opposing traffic flows separated by a centre median island. Kerbside parking is permitted at selected locations outside of commuter peak periods.

Stanhope Road, Springdale Road, Eastern Arterial Road and Archbold Road are all classified by the RTA as *Regional Roads*. Eastern Arterial Road and Archbold Road typically carry two traffic lanes in each direction in the vicinity of the site, whilst Stanhope Road and Springdale Road typically carry one traffic lane in each direction.

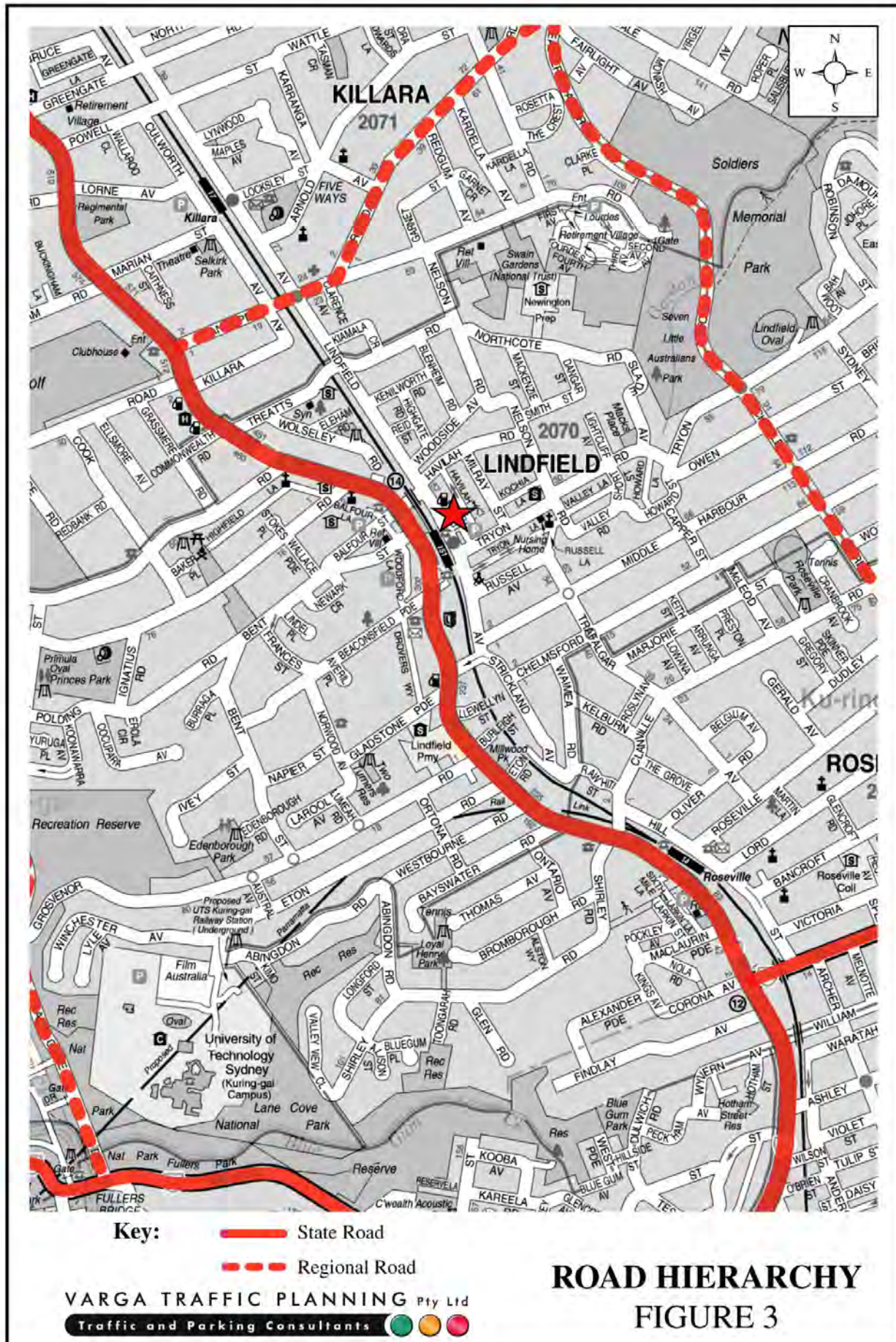
Lindfield Ave and Tryon Road are local, unclassified roads which perform the function of a “*collector route*”, providing a link between the local road network and the higher order classified RTA road network. Kerbside parking is generally permitted on both sides of both roads.

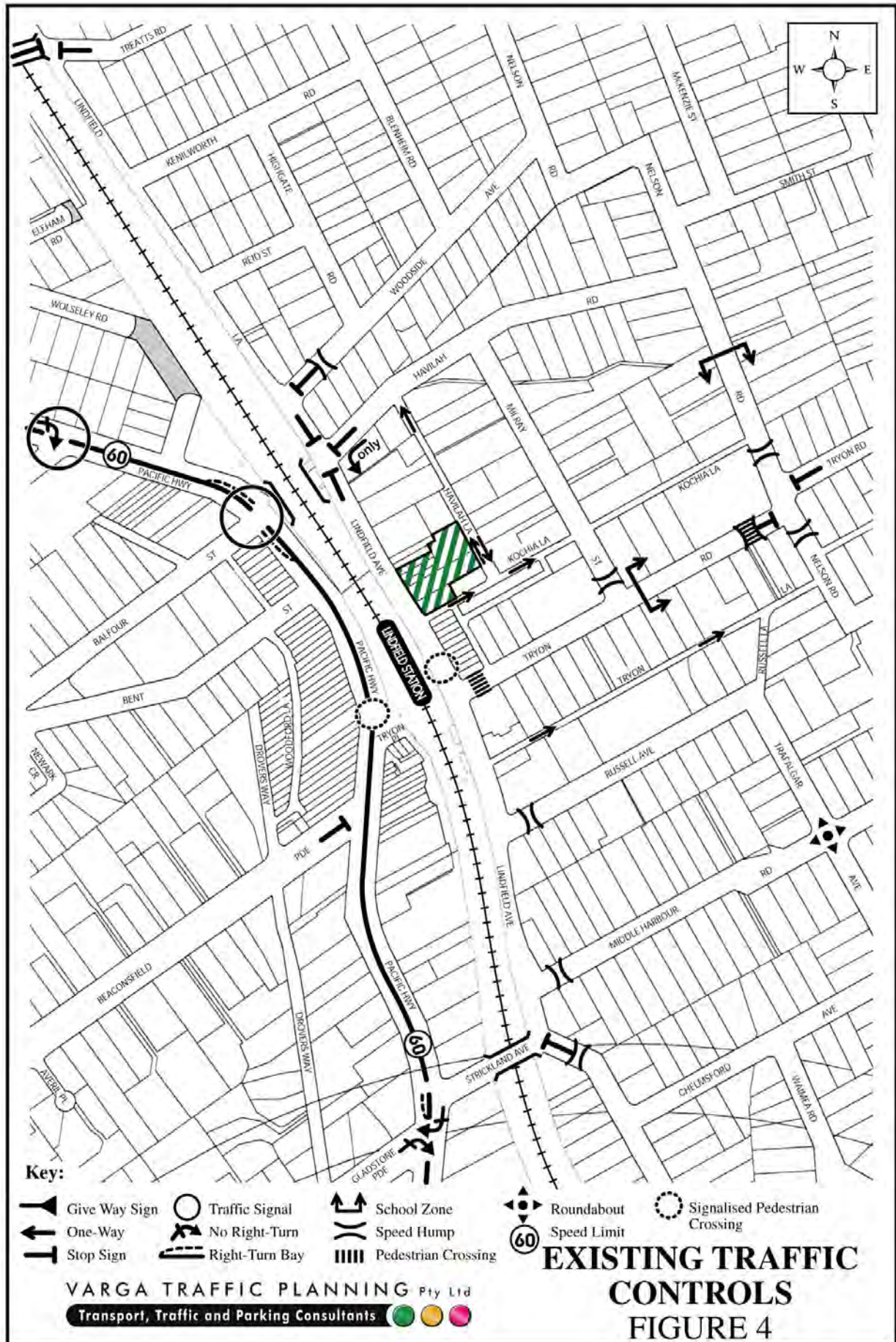
Kochia Lane and Havilah Lane are local, unclassified laneways which are primarily used to provide rear vehicular and pedestrian access to properties fronting Lindfield Avenue and Milray Street, as well as the Council carparking area. Kerbside parking is not permitted on either side of both laneways.

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 50 km/h SPEED LIMIT which applies to Lindfield Avenue and all other local roads in the area
- TRAFFIC SIGNALS in the Pacific Highway where it intersects with Balfour Street / Havilah Road
- PEDESTRIAN TRAFFIC SIGNALS in Lindfield Avenue just north of Tryon Road
- a ONE-WAY eastbound restriction in Kochia Lane (between Lindfield Avenue and Chapman Lane)
- a ONE-WAY northbound restriction in Havilah Lane (north of the site where the roadway reduces in width only)

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 following intersections:

- 1) The Pacific Highway & Balfour Street / Havilah Lane (AM & PM Peak)
- 2) Lindfield Avenue & Tryon Avenue (AM & PM Peak)
- 3) Havilah Street & Havilah Lane (PM Peak Only)
- 4) Kochia Lane & Havilah Lane (PM Peak Only)

The results of the traffic surveys are reproduced in full in Appendix A and reveal that:

- two-way traffic flows in the Pacific Highway are typically in the order of 3,300-3,800 vehicles per hour (vph) during the *morning* and *afternoon* peak periods
- two-way traffic flows in Havilah Street are typically in the order of 500-700 vph during the *morning* and *afternoon* peak periods
- two-way traffic flows in Lindfield Avenue are typically in the order of 750-1,200 vph during the *morning* and *afternoon* peak periods

- two-way traffic flows in Tryon Avenue are typically in the order of 400 vph during the *morning* and *afternoon* peak periods
- two-way traffic flows in Kochia Lane are typically in the order of 70-100 vph during the *afternoon* peak period
- northbound traffic flows in Havilah Lane are typically in the order of 60 vph during the *afternoon* peak period.

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by reference to the RTA's *Annual Average Daily Traffic* data. The relevant count stations nearest to the subject site are summarised below:

Station No.	Location	1996	1999	2002	2005
00.925	Pacific Highway & Highfield Rd (TCS)	-	54,696	-	54,938
00.924	Pacific Highway & Havilah Rd (TCS)	-	58,902	-	-
00.923	Pacific Highway & Grosvenor Rd (TCS)	58,077	31,289	56,746	-

Projected Traffic Generation

An indication of the traffic generation potential of the development proposal is provided by reference to the Roads and Traffic Authority's publication *Guide to Traffic Generating Developments, Section 3 - Landuse Traffic Generation (October 2002)*.

The RTA *Guidelines* are based on extensive surveys of a wide range of land uses and nominates the following traffic generation rates which are applicable to the development proposal:

Shopping Centres (vehicle trips per 1,000m²)

Thursday: $V(P) = 155 A(SM) + 46 A(SS) + 22 A(OM)$

where A(SM) = Supermarket GLFA, A(SS) = Specialty Shops GLFA and A(OM) = Medical/Office GLFA

High Density Residential Flat Buildings in Sub-Regional Centres

0.29 peak hour vehicle trips/dwelling

Application of the above traffic generation rates to the supermarket, retail and residential components of the development proposal yields a traffic generation potential of approximately 108 vehicles per hour during the *morning* commuter peak period (ie. assuming 25% of the PM rates for the retail uses), and 361 vehicles per hour during the *afternoon* commuter peak period as set out below:

Projected Future Traffic Generation Potential		
	Thursday Morning	Thursday Afternoon
Supermarket (1,451m ² GLFA)	56 vph	250 vph
Retail (1,726m ² GLFA)	20 vph	79 vph
Medical (293m ² GLFA)	6 vph	6 vph
Residential (91 apartments)	26 vph	26 vph
TOTAL	108 vph	361 vph

That projected future level of traffic generation potential should however, be offset or *discounted* by the volume of traffic which could reasonably be expected to be generated by the existing uses of the site, in order to determine the *nett increase (or decrease)* in traffic generation potential expected to occur as a consequence of the development proposal.

The RTA *Guidelines* nominates the following traffic generation rates which are applicable to the existing development on the site:

Shopping Centres (vehicle trips per 1,000m²)

Thursday: $V(P) = 155 A(SM) + 46 A(SS)$

where A(SM) = Supermarket GLFA, and A(SS) = Specialty Shops GLFA

Gymnasiums (Metropolitan Sub-Regional Areas)

9 peak hour vehicle trips / 100m² GFA

Commercial Premises

2.0 peak hour vehicle trips per 100m² GFA

For the purposes of this assessment, the “commercial” traffic generation rate nominated in the RTA *Guidelines* has been applied to the Bridge Club on the first floor level of the existing development.

Application of the above traffic generation rates to the existing development on the site yields a traffic generation potential of approximately 94 vehicle trips per during the *morning*

commuter peak period (assuming 25% of the PM rates for the retail uses), and 220 vehicle trips per hour during the *afternoon* commuter peak period as set out below:

Existing Traffic Generation Potential		
	Thursday Morning	Thursday Afternoon
Supermarket (821m ² GLFA)	32 vph	127 vph
Retail (914m ² GLFA)	11 vph	42 vph
Gymnasium (378m ² GFA)	34 vph	34 vph
Bridge Club & Office (860m ² GFA)	17 vph	17 vph
TOTAL	94 vph	220 vph

Accordingly, it is likely that the proposed development will result in an *increase* in the traffic generation potential the site of approximately 14 vph during the *morning* commuter peak, and 141 vph during the *afternoon* commuter peak period as set out below:

Projected Nett Increase in Peak Hour Traffic Generation Potential of the Site as a consequence of the development proposal		
	Thursday Morning	Thursday Afternoon
Projected Future Traffic Generation Potential	108 vph	361 vph
Existing Traffic Generation Potential	-94 vph	-220 vph
NETT INCREASE IN TRAFFIC GENERATION POTENTIAL:	+14 vph	+141 vph

Notwithstanding the above, for the purposes of providing a more *rigorous* traffic assessment, it has been assumed that the site is currently vacant and that all of the projected future traffic flows will be new or *additional* to the existing traffic flows on the adjacent road network.

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 INTANAL program which is widely used by the RTA and many LGA's for this purpose. Criteria for evaluating the results of INTANAL analysis are reproduced in the following pages.

The results of the INTANAL analysis of the Pacific Highway & Havilah Street / Balfour Street intersection are summarised on Table 3.1 below, revealing that:

- the Pacific Highway & Havilah Street / Balfour Street intersection currently operates at *Level of Service “F”* under the existing *morning* traffic demands and *Level of Service “C”* under the existing *afternoon* traffic demands, with total average vehicle delays in the order of 28-32 seconds/vehicle
- under the projected future traffic demands expected to be generated by the development proposal, the Pacific Highway & Havilah Street / Balfour Street intersection will continue to operate at *Level of Service “F”* under the existing *morning* traffic demands and *Level of Service “C”* under the existing *afternoon* traffic demands, with increases in average vehicle delays of 3-4 seconds/vehicle.

The results of the INTANAL analysis of the Lindfield Avenue & Tryon Avenue intersection are summarised on Table 3.2 below, revealing that:

- the Lindfield Avenue & Tryon Avenue intersection currently operates at at *Level of Service “B”* under the existing *morning* traffic demands and *Level of Service “A”* under the existing *afternoon* traffic demands with total average vehicle delays in the order of 5-9 seconds/vehicle
- under the projected future traffic demands expected to be generated by the development proposal, the Lindfield Avenue & Tryon Avenue intersection will continue to operate at *Level of Service “B”* under the existing *morning* traffic demands and *Level of Service “A”* under the existing *afternoon* traffic demands, 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, and
- the proposed development does not require any upgrades to nearby roads and intersections.

TABLE 3.1 - RESULTS OF INTANAL ANALYSIS OF PACIFIC HIGHWAY & HAVILAH STREET & BALFOUR STREET					
Key Indicators		Existing Traffic Demand		Projected Development Traffic Demand	
		AM	PM	AM	PM
Level of Service		F	C	F	C
Degree of Saturation		0.90	0.79	0.91	0.84
Average Vehicle Delay (secs/veh)					
Pacific Highway (north)	L	15.2	20.6	16.5	23.8
	T	27.4	19.2	30.2	22.7
	R	133.2	84.2	145.8	106.5
Balfour Street (west)	L	37.2	30.3	39.0	27.9
	T	46.2	37.9	48.3	34.7
	R	98.0	78.1	112.2	94.6
Pacific Highway (south)	L	19.9	17.9	21.7	20.1
	T	18.4	26.8	20.3	31.4
	R	145.8	68.9	194.2	68.9
Havilah Street (east)	L	44.4	35.6	47.9	33.6
	T	50.6	40.9	54.8	39.6
	R	100.9	61.9	106.4	64.7
TOTAL AVERAGE VEHICLE DELAY		32.1	28.3	35.9	32.8

PAC_HAVX

PAC_HAVQ

TABLE 3.2 - RESULTS OF INTANAL ANALYSIS OF LINDFIELD AVENUE & TRYON AVENUE				
Key Indicators	Existing Traffic Demand		Projected Development Traffic Demand	
	AM	PM	AM	PM
Level of Service	B	A	B	A
Degree of Saturation	0.30	0.24	0.36	0.26
Average Vehicle Delay (secs/veh)				
Lindfield Avenue (north) L	2.9	2.9	2.9	2.9
T	0.0	0.0	0.0	0.0
Lindfield Avenue (south) T	0.0	0.0	0.0	0.0
R	5.7	4.7	5.9	5.0
Tryon Avenue (east) L	11.6	5.0	12.4	5.5
R	15.8	7.8	16.5	8.4
TOTAL AVERAGE VEHICLE DELAY	8.8	5.0	8.9	5.0

LIN_TRYX

LIN_TRYQ

Criteria for Interpreting Results of Intanal 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 signals¹ 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 are illustrated on Figure 5 and comprise:

- NO STOPPING / NO PARKING restrictions along both sides of Kochia Lane (in between Lindfield Avenue and Chapman Lane) and also Havilah Lane
- ½ HOUR PARKING restrictions along both sides of Lindfield Avenue including along the site frontage
- 1 HOUR PARKING restrictions in Kochia Lane, adjacent to the Council carparking area, in a sawtooth arrangement
- 2 HOUR PARKING restrictions in the Council carparking area located on the northern side of Tryon Avenue
- 2 HOUR PARKING restrictions along both sides of Tryon Avenue
- 4 HOUR PARKING restrictions in the carparking area to the north of the site on No.9 Havilah Lane
- BUS ZONES located on both sides of the Pacific Highway and also Lindfield Avenue

Parking Accumulation Surveys

In order to gain an accurate appreciation of the general availability of carparking on the subject site and on the adjacent road network, a detailed survey of carparking accumulation was undertaken between 8:00am-8:00pm on a Thursday and Saturday.

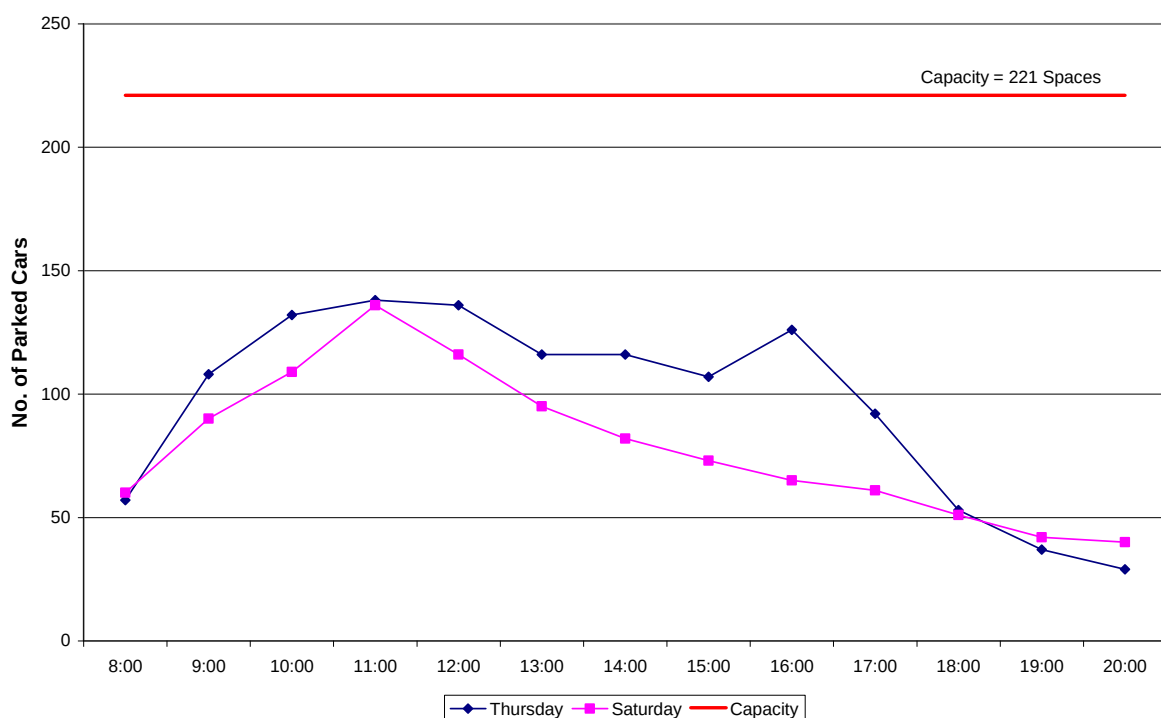
The results of the parking accumulation surveys are reproduced in full in Appendix A and reveal that:



- the site has a carparking capacity of approximately 38 spaces
- there are an additional 25 spaces adjacent to the site at No.9 Havilah Lane (which are associated with the site)
- there are 122 spaces in the Tryon Avenue and Kochia Lane public carparking areas
- there are a further 36 kerbside spaces along both sides of Lindfield Avenue in the vicinity of the site
- Thursday's peak parking demand occurred at 11:00am when there was 138 parked cars recorded, leaving 83 vacant spaces
- Saturday's peak parking demand also occurred at 11:00am when there was 136 parked cars recorded, leaving 85 vacant spaces

The cumulative results of the parking accumulation surveys are summarised on the graph below, confirming that substantial spare carparking capacity is readily available in the vicinity of the site at all times, both during business hours and after hours.

Lindfield Parking Accumulation Survey Results



Off-Street Parking Provisions

The off-street parking requirements applicable to the development proposal are specified in Council's *Development Control Plan (Town Centres) 2010, Section 3A.27 – Mixed-Use Development Car Parking Provision* document in the following terms:

Residential Component within Mixed-Use Development

Studio:	0.0 spaces per dwelling (min)	0.5 spaces per dwelling (max)
1-Bedroom Apartments:	0.6 spaces per dwelling (min)	1.0 spaces per dwelling (max)
2-Bedroom Apartments:	1.0 spaces per dwelling (min)	1.25 spaces per dwelling (max)
3-Bedroom Apartments:	1.0 spaces per dwelling (min)	1.5 spaces per dwelling (max)
Visitors:	1.0 spaces per 6 dwellings	1.0 spaces per 6 dwellings

Shops	1.0 spaces per 33m ² GFA (min)	1.0 spaces per 26m ² GFA (max)
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Office & Business Premises

Including Professional Suites:	1.0 spaces per 45m ² GFA (min)	1.0 spaces per 33m ² GFA (max)
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Application of the above parking requirements to the retail and residential components of the development proposal yields an off-street parking requirement of between 213 spaces and 279 spaces as set out below:

Off-Street Parking Requirements

Retail (3,938m ²):	119.3spaces (min)	151.4 spaces (max)
Medical (293m ²):	6.5 spaces (min)	8.9 spaces (max)
Residential (91 apartments):	72.0 spaces (min)	103.5 spaces (max)
Residential Visitors:	15.2 spaces (min)	15.2 spaces (max)
TOTAL	213.0 spaces (min)	279.0 spaces (max)

The proposed development makes provision for a total of 231 off-street carparking spaces, comprising 93 retail spaces and 113 resident spaces within the basement carparking area, plus a further 25 parking spaces in the existing carparking area located adjacent to the site as part of the “contribution in lieu” scheme. That proposed parking provision falls within the range specified in Council's Parking Code, (albeit with a nominal shortfall of 7.8 spaces for the retail/medical component) thereby satisfying Council's parking requirements as detailed in the *Town Centre DCP*.

By way of comparison, it is pertinent to note that the *existing* uses of the site generate a substantial *shortfall* in carparking when assessed under Council's Parking Code.

The off-street parking requirements applicable to the *existing* development are specified in Council's *Development Control Plan No.43 – Car Parking* document in the following terms:

Retail – Shops (within 400m of a Railway Station):

1 space per 26m² GFA

Office & Commercial:

1 space per 33m² GFA

Gymnasiums:

1 space per 17m² GFA

Application of the above parking requirements to the *existing* development on the site yields an off-street parking requirement of 140 spaces as set out below:

Retail (2,393m ² GFA):	92.0 spaces
Gymnasium (378m ² GFA):	22.2 spaces
Bridge Club & Office (860m ² GFA):	26.0 spaces
TOTAL	140.2 spaces

The existing development makes provision for a total of 63 off-street parking spaces, comprising 38 spaces located on-site, plus a further 25 spaces located adjacent to the site provided by the existing development as part of the “contribution in lieu” scheme, yielding **an existing “shortfall” of 77 parking spaces** when assessed under Council's Parking.

Accordingly, the proposed development will *eliminate that existing shortfall in carparking*.

In any event, the *actual* parking demands likely to be generated by the site is expected to be somewhat *less* than is suggested by the carparking code, as a substantial proportion of retail customers are expected to be railway and bus commuters who will stop at the shops or supermarket when walking home from the bus/rail station to purchase smaller, “daily needs” items such as bread, milk or fresh food and vegetables which may be required for the evening meal.

In the circumstances, it is reasonable to conclude that the proposed provision of 231 off-street carparking spaces will comfortably satisfy the needs of the development.

The geometric design layout of the proposed carparking facilities have been designed to comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 1 - Off-Street Carparking AS2890.1* in respect of parking bay dimensions, ramp gradients and aisle widths.

Loading/servicing for the proposed development is expected to be undertaken by vehicles up to and including 19.0m long articulated trucks. The loading dock is to be located at the rear of the site in Havilah Lane and is capable of holding a 19.0m semi trailer and a 12.5m long heavy rigid truck side by side. The loading dock has been designed to accommodate the swept path turning requirements of these trucks.

In summary, the proposed parking facilities satisfy the relevant requirements specified in both Council's Parking Code as well as the Australian Standards and it is therefore concluded that the proposed development will not have any unacceptable parking implications.

APPENDIX A

TRAFFIC & PARKING SURVEY DATA



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

Client : Varga Traffic Planning
Job No/Name : 3106 Linfield Linfield Av Counts
Day/Date : Thursday 20th May 2010

Lights

	NORTH				WEST				SOUTH				EAST			
	Pacific Hwy		Balfour St		Pacific Hwy		Havilah St		Pacific Hwy		Havilah St		Pacific Hwy		Havilah St	
Time Per	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT
0630 - 0645	19	522	7	5	3	158	13	0	3	16	755					
0645 - 0700	22	557	13	1	5	3	6	182	7	2	14	0	812			
0700 - 0715	44	626	15	1	7	14	4	163	8	7	11	0	900			
0715 - 0730	50	619	12	1	20	14	4	226	9	4	10	26	995			
0730 - 0745	55	545	19	5	21	8	7	298	17	10	13	27	1025			
0745 - 0800	83	565	23	12	30	9	6	331	15	3	10	25	1112			
0800 - 0815	78	443	27	10	29	7	11	269	11	6	26	25	942			
0815 - 0830	83	470	42	15	37	8	17	263	19	2	21	35	1012			
0830 - 0845	75	421	40	14	37	8	22	273	17	7	17	20	951			
0845 - 0900	65	536	36	14	33	16	5	276	21	9	19	21	1051			
0900 - 0915	46	507	34	11	26	11	3	266	22	4	20	30	980			
0915 - 0930	53	449	17	8	15	12	8	237	29	9	26	31	894			
Period End	673	6260	285	94	267	115	96	2942	188	63	190	256	11429			

Heavies

	NORTH				WEST				SOUTH				EAST			
	Pacific Hwy		Balfour St		Pacific Hwy		Havilah St		Pacific Hwy		Havilah St		Pacific Hwy		Havilah St	
Time Per	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT
0630 - 0645	0	8	0	0	0	0	0	0	4	1	0	0	13			
0645 - 0700	1	7	2	1	0	1	0	4	0	0	0	0	16			
0700 - 0715	1	6	0	0	0	0	0	0	4	0	0	0	11			
0715 - 0730	0	2	0	0	0	0	0	0	9	0	0	0	11			
0730 - 0745	0	5	2	1	0	0	0	0	8	0	0	0	16			
0745 - 0800	0	4	0	0	0	0	0	0	6	0	0	0	10			
0800 - 0815	0	7	0	0	0	0	0	0	5	0	0	0	12			
0815 - 0830	0	6	0	0	0	0	0	0	7	0	0	0	13			
0830 - 0845	0	7	0	0	0	0	0	0	4	0	0	2	13			
0845 - 0900	0	7	0	0	0	0	0	0	7	1	0	0	15			
0900 - 0915	0	10	0	1	0	0	0	1	6	0	0	0	18			
0915 - 0930	1	7	0	0	0	0	0	1	6	0	0	0	15			
Period End	3	76	4	3	0	1	2	70	2	0	0	2	163			

Combined

	NORTH				WEST				SOUTH				EAST			
	Pacific Hwy		Balfour St		Pacific Hwy		Havilah St		Pacific Hwy		Havilah St		Pacific Hwy		Havilah St	
Time Per	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT
0630 - 0645	19	530	7	2	7	5	3	162	14	0	3	16	768			
0645 - 0700	23	564	15	2	5	4	6	186	7	2	14	0	828			
0700 - 0715	45	632	15	1	7	14	4	167	8	7	11	0	911			
0715 - 0730	50	621	12	1	20	14	4	235	9	4	10	26	1006			
0730 - 0745	55	550	21	6	21	8	7	306	17	10	13	27	1041			
0745 - 0800	83	569	23	12	30	9	6	337	15	3	10	25	1122			
0800 - 0815	78	450	27	10	29	7	11	274	11	6	26	25	954			
0815 - 0830	83	476	42	15	37	8	17	270	19	2	21	35	1025			
0830 - 0845	75	428	40	14	37	8	22	277	17	7	17	22	964			
0845 - 0900	65	543	36	14	33	16	5	283	22	9	19	21	1066			
0900 - 0915	46	517	34	12	26	11	4	272	22	4	20	30	998			
0915 - 0930	54	456	17	8	15	12	9	243	29	9	26	31	909			
Period End	676	6336	289	97	267	116	98	3012	190	63	190	258	11592			

	NORTH				WEST				SOUTH				EAST			
	Pacific Hwy		Balfour St		Pacific Hwy		Havilah St		Pacific Hwy		Havilah St		Pacific Hwy		Havilah St	
Peak Time	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT
0630 - 0730	135	2324	47	5	39	36	17	729	37	13	38	42	3462			
0645 - 0745	171	2347	59	8	53	39	21	869	41	23	48	53	3732			
0700 - 0800	232	2355	69	19	78	45	21	1018	49	24	44	78	4032			
0715 - 0815	266	2172	81	28	100	38	28	1124	52	23	59	103	4074			
0730 - 0830	299	2023	111	42	117	32	41	1161	62	21	70	112	4091			
0745 - 0845	319	1899	132	51	133	32	56	1136	62	18	74	105	4017			
0800 - 0900	301	1870	145	53	136	39	55	1081	68	24	83	101	3956			
0815 - 0915	269	1934	152	54	133	43	47	1078	79	22	77	106	3994			
0830 - 0930	239	1913	127	47	111	47	38	1052	89	29	82	102	3876			
PEAK HOUR	299	2023	111	42	117	32	41	1161	62	21	70	112	4091			

Heavies

	NORTH				WEST				SOUTH				EAST			
	Pacific Hwy		Balfour St		Pacific Hwy		Havilah St		Pacific Hwy		Havilah St		Pacific Hwy		Havilah St	
Peak Per	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT
0630 - 0730	2	23	2	1	0	1	0	21	1	0	0	0	51			
0645 - 0745	2	20	4	2	0	1	0	25	0	0	0	0	54			
0700 - 0800	1	17	2	1	0	0	0	27	0	0	0	0	48			
0715 - 0815	0	18	2	1	0	0	0	28	0	0	0	0	49			
0730 - 0830	0	22	2	1	0	0	0	26	0	0	0	0	51			
0745 - 0845	0	24	0	0	0	0	0	22	0	0	0	2	48			
0800 - 0900	0	27	0	0	0	0	0	23	1	0	0	2	53			
0815 - 0915	0	30	0	1	0	0	1	24	1	0	0	2	59			
0830 - 0930	1	31	0	1	0	0	2	23	1	0	0	2	61			
PEAK HOUR	0	22	2	1	0	0	0	26	0	0	0	0	51			

Combined

	NORTH				WEST				SOUTH				EAST			
	Pacific Hwy		Balfour St		Pacific Hwy		Havilah St		Pacific Hwy		Havilah St		Pacific Hwy		Havilah St	
Peak Per	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT
0630 - 0730	137	2347	49	6	39	37	17	750	38	13	38	42	3513			
0645 - 0745	173	2367	63	10	53	40	21	894	41	23	48	53	3786			
0700 - 0800	233	2372	71	20	78	45	21	1045	49	24	44	78	4080			
0715 - 0815	266	2190	83	29	100	38	28	1152	52	23	59	103	4123			
0730 - 0830	299	2045	113	43	117	32	41	1187	62	21	70	112	4142			
0745 - 0845	319	1923	132	51	133	32	56	1158	62	18	74	107	4065			
0800 - 0900	301	1897	145	53	136	39	55	1104	69	24	83	103	4009			
0815 - 0915	269	1964	152	55	133	43	48	1102	80	22	77	108	4053			
0830 - 0930	240	1944	127	48	111	47	40	1075	90	29	82	104	3937			
PEAK HOUR	299	2045	113	43	117	32	41	1187	62	21	70	112	4142			

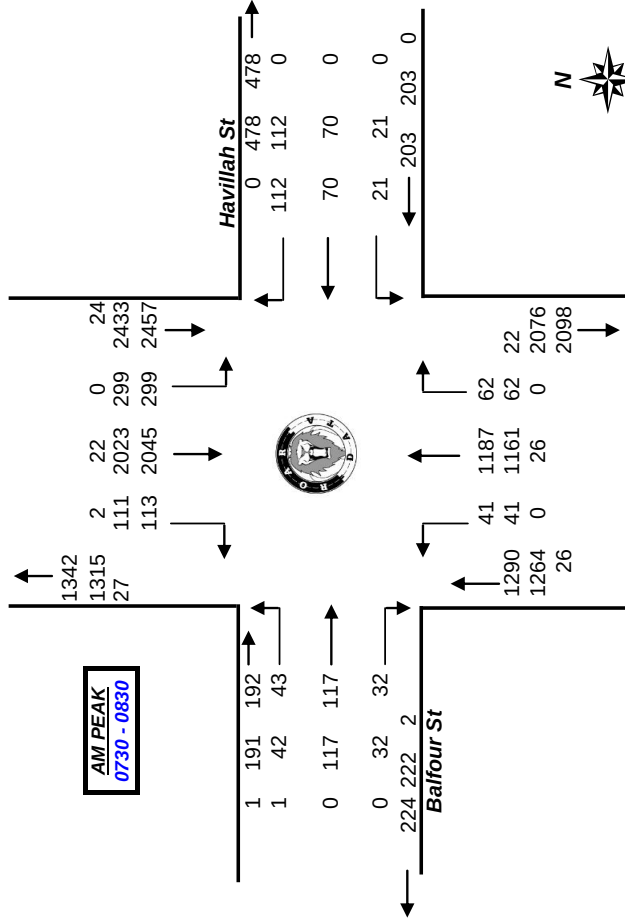


R.O.A.R DATA

Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Plt
Job No/Name : 3106 Linfield Linfield Av Counts
Day/Date : Thursday 20th May 2010

Pacific Hwy

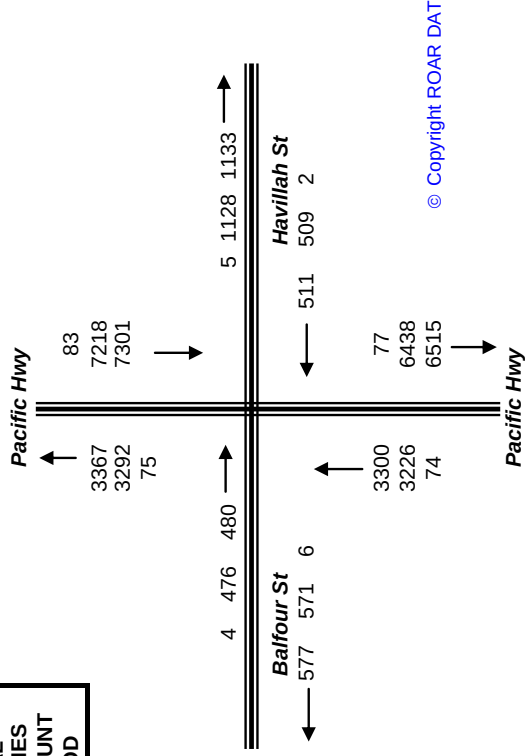


TOTAL
VOLUMES
FOR COUNT
PERIOD

Peds	NORTH		WEST		SOUTH		EAST	
	Pacific Hwy	UNCLASSIFIED	Balfour St	UNCLASSIFIED	Pacific Hwy	UNCLASSIFIED	Havillah St	UNCLASSIFIED
Time Per	UNCLASSIFIED		UNCLASSIFIED		UNCLASSIFIED		UNCLASSIFIED	
0630 - 0645	1	1	6	6	0	0	1	1
0645 - 0700	1	1	10	10	0	0	4	4
0700 - 0715	1	1	4	4	1	1	5	5
0715 - 0730	2	2	12	12	1	1	4	4
0730 - 0745	3	3	12	12	1	1	13	13
0745 - 0800	2	2	17	17	1	1	10	10
0800 - 0815	4	4	24	24	10	10	17	17
0815 - 0830	5	5	20	20	1	1	11	11
0830 - 0845	17	17	19	19	5	5	10	10
0845 - 0900	8	8	11	11	0	0	3	3
0900 - 0915	1	1	22	22	1	1	1	1
0915 - 0930	1	1	25	25	1	1	7	7
Period End	46	46	182	182	22	22	86	86

Peds	NORTH		WEST		SOUTH		EAST	
	Pacific Hwy	UNCLASSIFIED	Balfour St	UNCLASSIFIED	Pacific Hwy	UNCLASSIFIED	Havillah St	UNCLASSIFIED
Peak Per	UNCLASSIFIED		UNCLASSIFIED		UNCLASSIFIED		UNCLASSIFIED	
0630 - 0730	5	5	32	32	2	2	14	14
0645 - 0745	7	7	38	38	3	3	26	26
0700 - 0800	8	8	45	45	4	4	32	32
0715 - 0815	11	11	65	65	13	13	44	44
0730 - 0830	14	14	73	73	13	13	51	51
0745 - 0845	28	28	80	80	17	17	48	48
0800 - 0900	34	34	74	74	16	16	41	41
0815 - 0915	31	31	72	72	7	7	25	25
0830 - 0930	27	27	77	77	7	7	21	21
PEAK HR	14	14	73	73	13	13	51	51

Pacific Hwy



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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 : 3106 Linfield Linfield Av Counts
Day/Date : Thursday 20th May 2010

Lights

Time Per	NORTH			WEST			SOUTH			EAST		
	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St
1530 - 1545	38	300	24	12	25	11	13	451	16	13	27	45
1545 - 1600	34	299	23	19	26	11	7	403	9	8	30	28
1600 - 1615	32	289	18	12	19	7	11	429	20	8	19	33
1615 - 1630	32	277	17	12	17	12	8	407	14	10	21	22
1630 - 1645	31	346	23	10	27	11	17	476	15	10	15	24
1645 - 1700	37	309	24	8	25	17	10	465	12	2	25	33
1700 - 1715	32	313	15	15	20	14	9	427	10	6	31	33
1715 - 1730	39	320	24	11	28	13	21	471	18	8	13	23
1730 - 1745	39	333	26	16	25	6	16	459	14	4	24	25
1745 - 1800	36	280	22	22	31	21	9	446	10	3	14	31
1800 - 1815	45	315	15	15	14	14	19	439	22	12	19	23
1815 - 1830	37	241	23	11	28	21	17	472	14	4	33	19
Period End	432	3622	254	163	285	158	157	5345	174	88	271	339

Heavies

Time Per	NORTH			WEST			SOUTH			EAST		
	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St
1530 - 1545	0	4	0	0	0	0	1	6	0	0	0	1
1545 - 1600	0	3	0	1	0	0	0	4	0	0	0	0
1600 - 1615	0	4	1	1	0	0	0	4	0	0	0	0
1615 - 1630	0	2	0	0	0	0	0	4	0	0	0	0
1630 - 1645	0	2	0	2	0	0	0	6	0	0	0	0
1645 - 1700	0	4	0	1	0	0	0	3	0	0	0	0
1700 - 1715	0	3	0	0	0	0	0	6	0	0	0	0
1715 - 1730	0	2	0	0	0	0	0	3	0	0	0	0
1730 - 1745	0	2	0	0	0	0	0	0	0	0	0	0
1745 - 1800	0	4	0	0	0	0	0	1	0	0	0	0
1800 - 1815	0	1	0	0	0	0	0	6	0	0	0	0
1815 - 1830	0	4	0	0	0	0	0	2	0	0	0	0
Period End	0	35	1	5	0	0	1	45	0	0	0	1

Combined

Time Per	NORTH			WEST			SOUTH			EAST		
	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St
1530 - 1545	38	304	24	12	25	11	14	457	16	13	27	46
1545 - 1600	34	302	23	20	26	11	7	407	9	8	30	28
1600 - 1615	32	293	19	13	19	7	11	433	20	8	19	33
1615 - 1630	32	279	17	12	17	12	8	411	14	10	21	22
1630 - 1645	31	348	23	12	27	11	17	482	15	10	15	24
1645 - 1700	37	313	24	9	25	17	10	468	12	2	25	33
1700 - 1715	32	316	15	15	20	14	9	433	10	6	31	33
1715 - 1730	39	322	24	11	28	13	21	474	18	8	13	23
1730 - 1745	39	335	26	16	25	6	16	459	14	4	24	25
1745 - 1800	36	284	22	22	31	21	9	447	10	3	14	31
1800 - 1815	45	316	15	15	14	14	19	445	22	12	19	23
1815 - 1830	37	245	23	11	28	21	17	474	14	4	33	19
Period End	432	3657	255	168	285	158	158	5390	174	88	271	340

Lights

Peak Time	NORTH			WEST			SOUTH			EAST		
	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St
1530 - 1630	136	1165	82	55	87	41	39	1690	59	39	97	128
1545 - 1645	129	1211	81	53	89	41	43	1715	58	36	85	107
1600 - 1700	132	1221	82	42	88	47	46	1777	61	30	80	112
1615 - 1715	132	1245	79	45	89	54	44	1775	51	28	92	112
1630 - 1730	139	1288	86	44	100	55	57	1839	55	26	84	113
1645 - 1745	147	1275	89	50	98	50	56	1822	54	20	93	114
1700 - 1800	146	1246	87	64	104	54	55	1803	52	21	82	112
1715 - 1815	159	1248	87	64	98	54	65	1815	64	27	70	102
1730 - 1830	157	1169	86	64	98	62	61	1816	60	23	90	98
PEAK HOUR	139	1288	86	44	100	55	57	1839	55	26	84	113

Heavies

Peak Per	NORTH			WEST			SOUTH			EAST		
	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St
1530 - 1630	0	13	1	2	0	0	1	18	0	0	0	1
1545 - 1645	0	11	1	4	0	0	0	18	0	0	0	0
1600 - 1700	0	12	1	4	0	0	0	17	0	0	0	0
1615 - 1715	0	11	0	3	0	0	0	19	0	0	0	0
1630 - 1730	0	11	0	3	0	0	0	18	0	0	0	0
1645 - 1745	0	11	0	1	0	0	0	12	0	0	0	0
1700 - 1800	0	11	0	0	0	0	0	10	0	0	0	0
1715 - 1815	0	9	0	0	0	0	0	10	0	0	0	0
1730 - 1830	0	11	0	0	0	0	0	9	0	0	0	0
PEAK HOUR	0	11	0	3	0	0	0	18	0	0	0	0

Combined

Peak Per	NORTH			WEST			SOUTH			EAST		
	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St	Pacific Hwy	Balfour St	Havilah St
1530 - 1630	136	1178	83	57	87	41	40	1708	59	39	97	129
1545 - 1645	129	1222	82	57	89	41	43	1733	58	36	85	107
1600 - 1700	132	1233	83	46	88	47	46	1794	61	30	80	112
1615 - 1715	132	1256	79	48	89	54	44	1794	51	28	92	112
1630 - 1730	139	1299	86	47	100	55	57	1857	55	26	84	113
1645 - 1745	147	1286	89	51	98	50	56	1834	54	20	93	114
1700 - 1800	146	1257	87	64	104	54	55	1813	52	21	82	112
1715 - 1815	159	1257	87	64	98	54	65	1825	64	27	70	102
1730 - 1830	157	1180	86	64	98	62	61	1825	60	23	90	98
PEAK HOUR	139	1299	86	47	100	55	57	1857	55	26	84	113

1530 - 1545	38	304	24	12	25	11	14	457	16	13	27	46
1545 - 1600	34	302	23	20	26	11	7	407	9	8	30	28
1600 - 1615	32	293	19	13	19	7	11	433	20	8	19	33
1615 - 1630	32	279	17	12	17	12	8	411	14	10	21	22
1630 - 1645	31	348	23	12	27	11	17	482	15	10	15	24
1645 - 1700	37	313	24	9	25	17	10	468	12	2	25	33
1700 - 1715	32	316	15	15	20	14	9	433	10	6	31	33
1715 - 1730	39	322	24	11	28	13	21	474	18	8	13	23
1730 - 1745	39	335	26	16	25	6	16	459	14	4	24	25
1745 - 1800	36	284	22	22	31	21	9	447	10	3	14	31
1800 - 1815	45	316	15	15	14	14	19	445	22	12	19	23
1815 - 1830	37	245	23	11	28	21	17	474	14	4	33	19
Period End	432	3657	255	168	285	158	158	5390	174	88	271	340

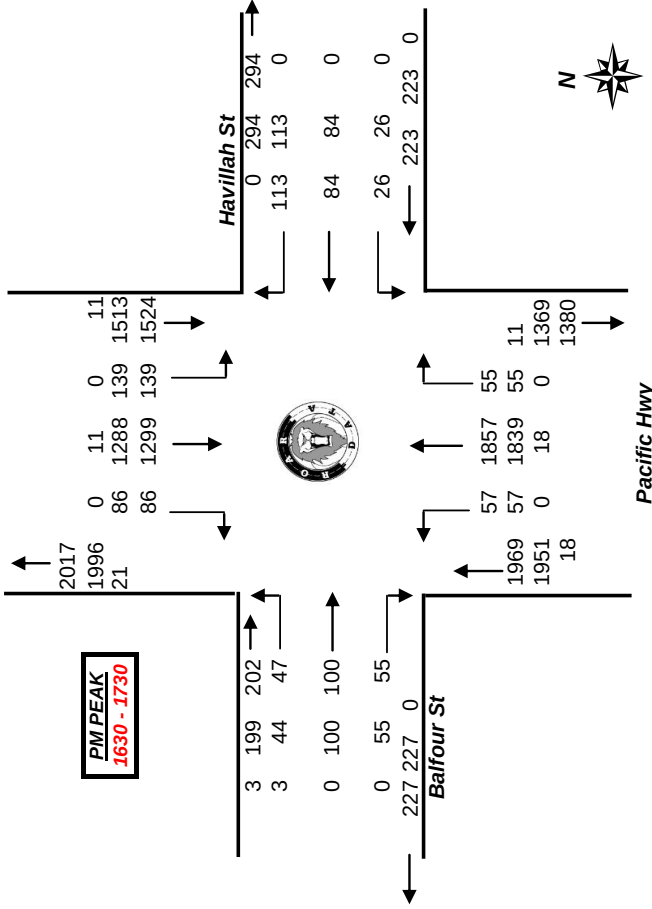


R.O.A.R DATA

Reliable, Original & Authentic Results

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

Client : Varga Traffic P
Job No/Name : 3106 Linfield Linfield Av Counts
Day/Date : Thursday 20th May 2010



PM PEAK
1630 - 1730

TOTAL
VOLUMES
FOR COUNT
PERIOD

Peds	NORTH		WEST		SOUTH		EAST		TOT
	Pacific Hwy	UNCLASSIFIED	Balfour St	UNCLASSIFIED	Pacific Hwy	UNCLASSIFIED	Havillah St	UNCLASSIFIED	
1530 - 1545	4		32		2		6		44
1545 - 1600	1		51		1		7		60
1600 - 1615	0		52		0		5		57
1615 - 1630	8		27		0		6		41
1630 - 1645	4		25		5		3		37
1645 - 1700	6		38		1		4		49
1700 - 1715	1		37		0		4		42
1715 - 1730	0		35		1		6		42
1730 - 1745	5		43		0		3		51
1745 - 1800	11		50		3		5		69
1800 - 1815	8		29		3		5		45
1815 - 1830	5		30		0		7		42
Period End	53		449		16		61		579

Peds	NORTH		WEST		SOUTH		EAST		TOT
	Pacific Hwy	UNCLASSIFIED	Balfour St	UNCLASSIFIED	Pacific Hwy	UNCLASSIFIED	Havillah St	UNCLASSIFIED	
1530 - 1630	13		0		0		0		13
1545 - 1645	13		32		2		6		53
1600 - 1700	18		83		3		13		117
1615 - 1715	19		135		3		18		175
1630 - 1730	11		162		3		24		200
1645 - 1745	12		155		6		21		194
1700 - 1800	17		142		6		18		183
1715 - 1815	24		127		6		17		174
1730 - 1830	29		135		7		17		188
PEAK HR	11		162		3		24		200



R.O.A.R. DATA

Reliable, Original & Authentic Results

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

Client : Varga Traffic Planning
Job No/Name : 3106 Linfield Linfield AV Counts
Day/Date : Thursday 20th May 2010



Pacific Hwy

Intersection Details

Obtained via satellite
May be incorrect

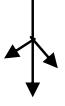
AM PEAK HOUR
0730 - 0830

Combined figures only

Balfour St

Havillah St

Pacific Hwy



	L			
	R	T	L	
AM	113	2045	299	
PM	86	1299	139	

	L			
	AM	PM	L	
AM	43	47	117	100
PM	32	55	100	55

	57	1857	55
PM			
	41	1187	62
AM			

R	113	112
T	84	70
L	26	21

PM PEAK HOUR
1630 - 1730



Weather >>>



R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849,
Mobile.0418239019

Client : Varga Traffic Planning
Job No/Name : 3106 Linfield Linfield Av Counts
Day/Date : Thursday 20th May 2010

PEDS		NORTH		EAST		SOUTH		TOT	
Time Per	Peak Per	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av
0630 - 0645	0630 - 0730	0	1	1	3	4			
0645 - 0700	0645 - 0745	1	1	1	7	9			
0700 - 0715	0700 - 0800	25	3	3	11	39			
0715 - 0730	0715 - 0815	30	1	1	5	36			
0730 - 0745	0730 - 0830	25	3	3	10	38			
0745 - 0800	0745 - 0845	32	5	5	13	50			
0800 - 0815	0800 - 0900	25	5	5	15	45			
0815 - 0830	0815 - 0915	18	1	1	12	31			
0830 - 0845	0830 - 0930	15	2	2	8	25			
0845 - 0900		10	5	5	10	25			
0900 - 0915		15	2	2	10	27			
0915 - 0930		10	0	0	0	10			
Per End		206	29		104	339			

PEDS		NORTH		EAST		SOUTH		TOT	
Time Per	Peak Per	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av
0630 - 0645	0630 - 0730	0	1	1	3	4			
0645 - 0700	0645 - 0745	1	1	1	7	9			
0700 - 0715	0700 - 0800	25	3	3	11	39			
0715 - 0730	0715 - 0815	30	1	1	5	36			
0730 - 0745	0730 - 0830	25	3	3	10	38			
0745 - 0800	0745 - 0845	32	5	5	13	50			
0800 - 0815	0800 - 0900	25	5	5	15	45			
0815 - 0830	0815 - 0915	18	1	1	12	31			
0830 - 0845	0830 - 0930	15	2	2	8	25			
0900 - 0915		10	5	5	10	25			
0915 - 0930		15	2	2	10	27			
Per End		206	29		104	339			

PEDS		NORTH		EAST		SOUTH		TOT	
Time Per	Peak Per	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av
0630 - 0645	0630 - 0730	0	1	1	3	4			
0645 - 0700	0645 - 0745	1	1	1	7	9			
0700 - 0715	0700 - 0800	25	3	3	11	39			
0715 - 0730	0715 - 0815	30	1	1	5	36			
0730 - 0745	0730 - 0830	25	3	3	10	38			
0745 - 0800	0745 - 0845	32	5	5	13	50			
0800 - 0815	0800 - 0900	25	5	5	15	45			
0815 - 0830	0815 - 0915	18	1	1	12	31			
0830 - 0845	0830 - 0930	15	2	2	8	25			
0900 - 0915		10	5	5	10	25			
0915 - 0930		15	2	2	10	27			
Per End		206	29		104	339			

PEDS		NORTH		EAST		SOUTH		TOT	
Time Per	Peak Per	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av
0630 - 0645	0630 - 0730	0	1	1	3	4			
0645 - 0700	0645 - 0745	1	1	1	7	9			
0700 - 0715	0700 - 0800	25	3	3	11	39			
0715 - 0730	0715 - 0815	30	1	1	5	36			
0730 - 0745	0730 - 0830	25	3	3	10	38			
0745 - 0800	0745 - 0845	32	5	5	13	50			
0800 - 0815	0800 - 0900	25	5	5	15	45			
0815 - 0830	0815 - 0915	18	1	1	12	31			
0830 - 0845	0830 - 0930	15	2	2	8	25			
0900 - 0915		10	5	5	10	25			
0915 - 0930		15	2	2	10	27			
Per End		206	29		104	339			

PEDS		NORTH		EAST		SOUTH		TOT	
Time Per	Peak Per	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av
0630 - 0645	0630 - 0730	0	1	1	3	4			
0645 - 0700	0645 - 0745	1	1	1	7	9			
0700 - 0715	0700 - 0800	25	3	3	11	39			
0715 - 0730	0715 - 0815	30	1	1	5	36			
0730 - 0745	0730 - 0830	25	3	3	10	38			
0745 - 0800	0745 - 0845	32	5	5	13	50			
0800 - 0815	0800 - 0900	25	5	5	15	45			
0815 - 0830	0815 - 0915	18	1	1	12	31			
0830 - 0845	0830 - 0930	15	2	2	8	25			
0900 - 0915		10	5	5	10	25			
0915 - 0930		15	2	2	10	27			
Per End		206	29		104	339			

PEDS		NORTH		EAST		SOUTH		TOT	
Time Per	Peak Per	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av
0630 - 0645	0630 - 0730	0	1	1	3	4			
0645 - 0700	0645 - 0745	1	1	1	7	9			
0700 - 0715	0700 - 0800	25	3	3	11	39			
0715 - 0730	0715 - 0815	30	1	1	5	36			
0730 - 0745	0730 - 0830	25	3	3	10	38			
0745 - 0800	0745 - 0845	32	5	5	13	50			
0800 - 0815	0800 - 0900	25	5	5	15	45			
0815 - 0830	0815 - 0915	18	1	1	12	31			
0830 - 0845	0830 - 0930	15	2	2	8	25			
0900 - 0915		10	5	5	10	25			
0915 - 0930		15	2	2	10	27			
Per End		206	29		104	339			

PEDS		NORTH		EAST		SOUTH		TOT	
Time Per	Peak Per	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av
0630 - 0645	0630 - 0730	0	1	1	3	4			
0645 - 0700	0645 - 0745	1	1	1	7	9			
0700 - 0715	0700 - 0800	25	3	3	11	39			
0715 - 0730	0715 - 0815	30	1	1	5	36			
0730 - 0745	0730 - 0830	25	3	3	10	38			
0745 - 0800	0745 - 0845	32	5	5	13	50			
0800 - 0815	0800 - 0900	25	5	5	15	45			
0815 - 0830	0815 - 0915	18	1	1	12	31			
0830 - 0845	0830 - 0930	15	2	2	8	25			
0900 - 0915		10	5	5	10	25			
0915 - 0930		15	2	2	10	27			
Per End		206	29		104	339			

PEDS		NORTH		EAST		SOUTH		TOT	
Time Per	Peak Per	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av	Linfield Av	Tyron Av
0630 - 0645	0630 - 0730	0	1	1	3	4			
0645 - 0700	0645 - 0745	1	1	1	7	9			
0700 - 0715	0700 - 0800	25	3	3	11	39			
0715 - 0730	0715 - 0815	30	1	1	5	36			
0730 - 0745	0730 - 0830	25	3	3	10	38			
0745 - 0800	0745 - 0845	32	5	5	13	50			
0800 - 0815	0800 - 0900	25	5	5	15	45			
0815 - 0830	0815 - 0915	18	1	1	12	31			
0830 - 0845	0830 - 0930	15	2	2	8	25			
0900 - 0915		10	5	5	10	25			
0915 - 0930		15	2	2	10	27			
Per End		206	29		104	339			



R.O.A.R. DATA

Reliable, Original & Authentic Results

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

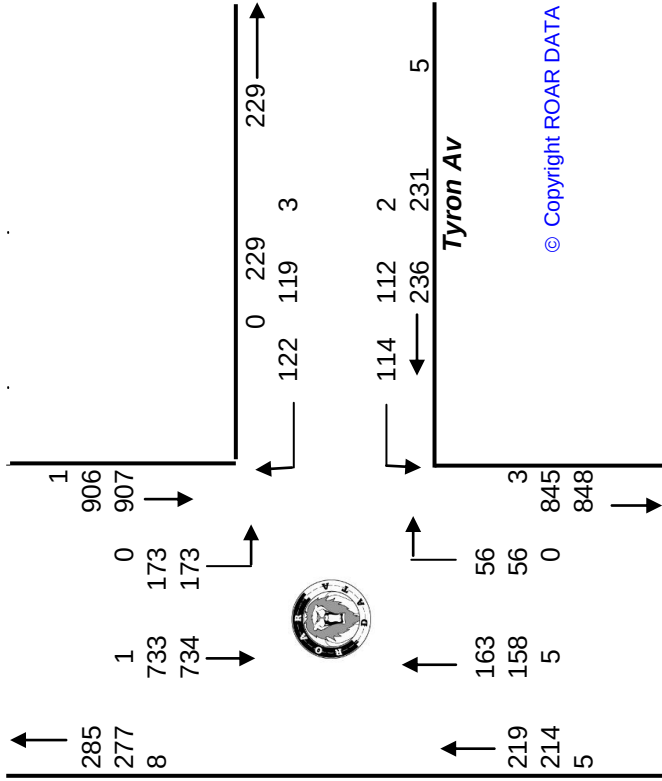
Client : Varga Traffic Planning
Job No/Name : 3106 Linfield Linfield Av Counts
Day/Date : Thursday 20th May 2010

AM PEAK
0730 - 0830

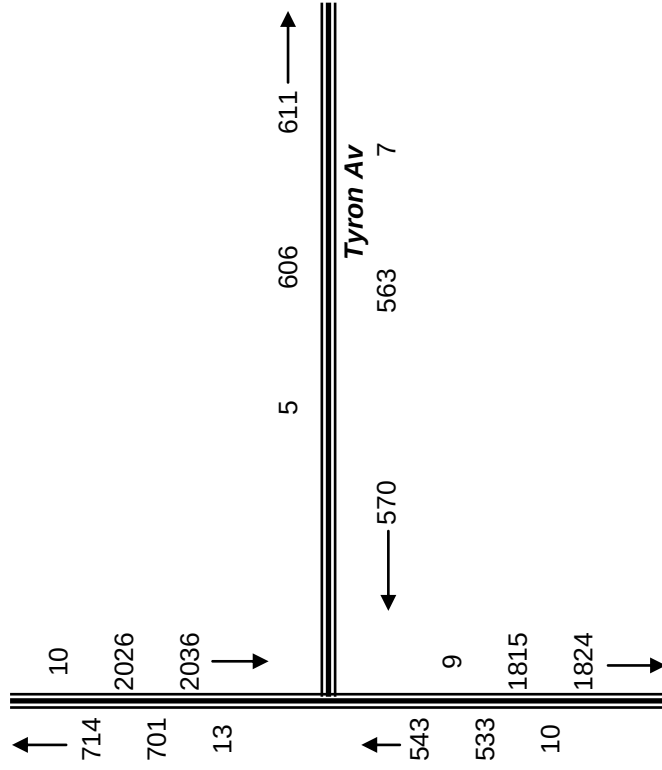
TOTAL VOLUMES
FOR COUNT
PERIOD



Linfield Av



Linfield Av





R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849.
Mobile.0418239019

Client : Varga Traffic Planning
Job No/Name : 3106 Linfield Linfield Av Counts
Day/Date : Thursday 20th May 2010

PEDS		NORTH		EAST		SOUTH		PEDS	
Time Per	Linfield Av	Linfield Av	Tyron Av	Tyron Av	Linfield Av	Linfield Av	TOT	Peak Per	NORTH
1530 - 1545	70		38		11		119	1530 - 1630	231
1545 - 1600	65		53		10		128	1545 - 1645	191
1600 - 1615	53		41		17		111	1600 - 1700	161
1615 - 1630	43		20		9		72	1615 - 1715	136
1630 - 1645	30		18		10		58	1630 - 1730	138
1645 - 1700	35		27		10		72	1645 - 1745	163
1700 - 1715	28		13		5		46	1700 - 1800	160
1715 - 1730	45		11		9		65	1715 - 1815	163
1730 - 1745	55		6		7		68	1730 - 1830	161
1745 - 1800	32		11		4		47		
1800 - 1815	31		7		2		40		
1815 - 1830	43		9		12		64		
Per End	530		254		106		890		
PEAK HR		163		57		31		251	

Lights		NORTH		EAST		SOUTH	
Time Per	Linfield Av	Linfield Av	Tyron Av	Tyron Av	Linfield Av	Linfield Av	TOT
1530 - 1545	68	38	37	26	24	55	248
1545 - 1600	65	38	25	17	19	40	204
1600 - 1615	50	19	37	24	15	55	200
1615 - 1630	62	38	32	25	20	56	233
1630 - 1645	58	40	22	28	26	51	225
1645 - 1700	69	49	36	29	20	70	273
1700 - 1715	67	36	45	16	20	76	260
1715 - 1730	75	48	25	20	15	85	268
1730 - 1745	49	46	37	24	22	77	255
1745 - 1800	64	53	37	27	16	74	271
1800 - 1815	50	46	26	16	10	74	222
1815 - 1830	51	31	21	13	7	60	183
Per End	728	482	380	265	214	773	2842

Heavies		NORTH		EAST		SOUTH	
Time Per	Linfield Av	Linfield Av	Tyron Av	Tyron Av	Linfield Av	Linfield Av	TOT
1530 - 1545	0	0	2	1	0	1	4
1545 - 1600	0	0	0	0	0	0	0
1600 - 1615	1	0	0	0	0	2	3
1615 - 1630	1	0	0	0	0	0	1
1630 - 1645	1	0	0	0	0	0	1
1645 - 1700	0	0	0	0	0	1	1
1700 - 1715	1	0	0	0	0	1	2
1715 - 1730	0	0	0	0	0	0	0
1730 - 1745	1	0	0	0	0	0	1
1745 - 1800	0	0	0	0	0	1	1
1800 - 1815	1	0	0	0	0	0	1
1815 - 1830	0	0	1	0	0	0	1
Per End	6	0	3	1	0	6	16

Combined		NORTH		EAST		SOUTH	
Time Per	Linfield Av	Linfield Av	Tyron Av	Tyron Av	Linfield Av	Linfield Av	TOT
1530 - 1545	68	38	39	27	24	56	252
1545 - 1600	65	38	25	17	19	40	204
1600 - 1615	51	19	37	24	15	57	203
1615 - 1630	63	38	32	25	20	56	234
1630 - 1645	59	40	22	28	26	51	226
1645 - 1700	69	49	36	29	20	71	274
1700 - 1715	68	36	45	16	20	77	262
1715 - 1730	75	48	25	20	15	85	268
1730 - 1745	50	46	37	24	22	77	256
1745 - 1800	64	53	37	27	16	75	272
1800 - 1815	51	46	26	16	10	74	223
1815 - 1830	51	31	22	13	7	60	184
Per End	734	482	383	266	214	779	2858

Lights		NORTH		EAST		SOUTH	
Peak Per	Linfield Av	Linfield Av	Tyron Av	Tyron Av	Linfield Av	Linfield Av	TOT
1530 - 1630	245	133	131	92	78	206	885
1545 - 1645	235	135	116	94	80	202	862
1600 - 1700	239	146	127	106	81	232	931
1615 - 1715	256	163	135	98	86	253	991
1630 - 1730	269	173	128	93	81	282	1026
1645 - 1745	260	179	143	89	77	308	1056
1700 - 1800	255	183	144	87	73	312	1054
1715 - 1815	238	193	125	87	63	310	1016
1730 - 1830	214	176	121	80	55	285	931
PEAK HR	260	179	143	89	77	308	1056

Heavies		NORTH		EAST		SOUTH	
Peak Per	Linfield Av	Linfield Av	Tyron Av	Tyron Av	Linfield Av	Linfield Av	TOT
1530 - 1630	2	0	2	1	0	3	8
1545 - 1645	3	0	0	0	0	2	5
1600 - 1700	3	0	0	0	0	3	6
1615 - 1715	3	0	0	0	0	2	5
1630 - 1730	2	0	0	0	0	2	4
1645 - 1745	2	0	0	0	0	2	4
1700 - 1800	2	0	0	0	0	2	4
1715 - 1815	2	0	0	0	0	1	3
1730 - 1830	2	0	1	0	0	1	4
PEAK HR	2	0	0	0	0	2	4

Combined		NORTH		EAST		SOUTH	
Peak Per	Linfield Av	Linfield Av	Tyron Av	Tyron Av	Linfield Av	Linfield Av	TOT
1530 - 1630	247	133	133	93	78	209	893
1545 - 1645	238	135	116	94	80	204	867
1600 - 1700	242	146	127	106	81	235	937
1615 - 1715	259	163	135	98	86	255	996
1630 - 1730	271	173	128	93	81	284	1030
1645 - 1745	262	179	143	89	77	310	1060
1700 - 1800	257	183	144	87	73	314	1058
1715 - 1815	240	193	125	87	63	311	1019
1730 - 1830	216	176	122	80	55	286	935
PEAK HR	262	179	143	89	77	310	1060



R.O.A.R. DATA

Reliable, Original & Authentic Results

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

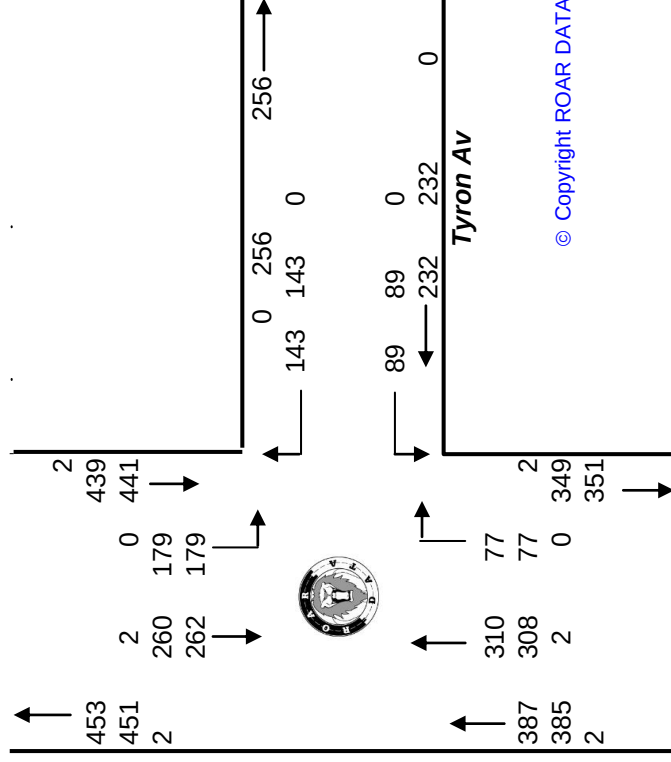
Client : Varga Traffic Planning
Job No/Name : 3106 Linfield Linfield Av Counts
Day/Date : Thursday 20th May 2010



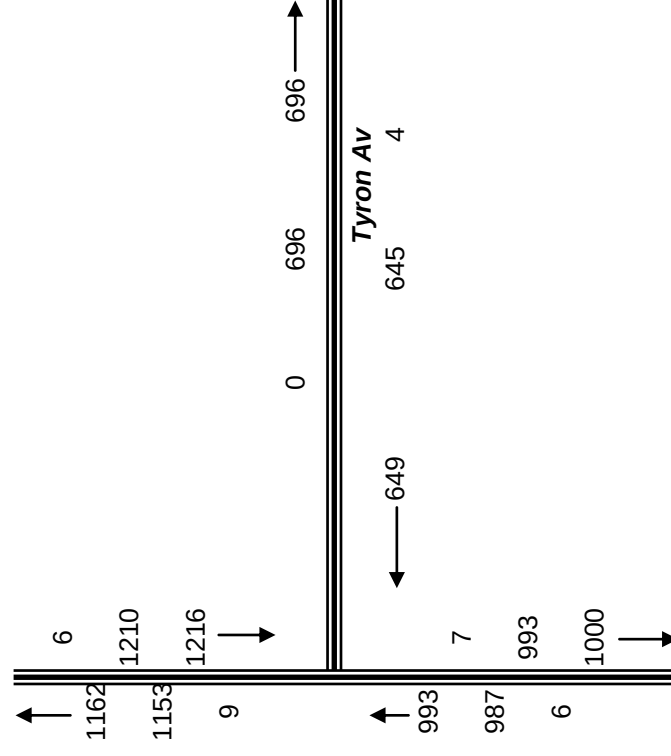
PM PEAK
1645 - 1745

**TOTAL VOLUMES
FOR COUNT
PERIOD**

Linfield Av



Linfield Av





R.O.A.R. DATA

Reliable, Original & Authentic Results

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

Client : Varga Traffic Planning
Job No/Name : 3106 Linfield Linfield Av Counts
Day/Date : Thursday 20th May 2010



Intersection Details

Obtained via satellite

May be incorrect

AM PEAK HOUR
0730 - 0830

Combined figures only

Linfield Av

Tyron Av

Linfield Av

T		L	
		AM	PM
734	262	173	179

R	PM
143	122

L	AM
89	114

L		R	
		PM	AM
310	163	77	56

PM PEAK HOUR
1645 - 1745

Weather >>>





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

Day/Date : Thursday 11th Sept 2008

[illegible]



Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : V.T.P
Job No/Name : 2409 LINDFIELD Parking Survey
Day/Date : Saturday 13th Sept 2008

[illegible]