



PLANNING PROPOSAL

Toongabbie Leisure Centre & Tennis Courts

21 & 21A Tucks Road, Toongabbie

Planning Proposal drafts

Proponent versions:

No.	Author	Version
1.	Caladines Town Planning P/L	April 2015

Council versions:

No.	Author	Version
1.	Parramatta City Council	14 December 2015- Council Meeting recommending Gateway Determination
2.	Parramatta City Council	23 December 2015 – amended to reflect resolution of 14 December 2015 for Gateway Determination

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INTRODUCTION

This planning proposal explains the intended effect of, and justification for, the proposed amendment to *Parramatta Local Environmental Plan 2011*. It has been prepared in accordance with Section 55 of the *Environmental Planning and Assessment Act 1979* and the Department of Planning and Environment guides, 'A Guide to Preparing Local Environment Plans' (April 2013) and 'A Guide to Preparing Planning Proposals' (October 2012).

Background and context

On 29 April 2015, a planning proposal was lodged with Council relating to land at 21 and 21A Tucks Road, Toongabbie, being Lots 1 and 2 in DP 1129995. The subject site is shown in Figure 1 below.



Figure 1 – Site Map 21 & 21A Tucks Road, Toongabbie

The land is subject to planning controls provided under *Parramatta Local Environmental Plan 2011 (PLEP 2011)*. The existing and proposed LEP controls are summarised in Table 1 below.

Control	Current*	Planning Proposal*
Zoning	Part B1 Neighbourhood Centre Part R2 Low Density Residential	B4 Mixed Use
Height	Part 12m Part 9m	Part 15m Part 9m
FSR	Part 1.5:1 Part 0.5:1	1.5:1

Table 1 – Summary of current and proposed controls under Parramatta LEP 2011

* See Maps in Section 4 'Mapping'

PART 1 – OBJECTIVES OR INTENDED OUTCOMES

The objective of this planning proposal is to enable the redevelopment of the land at 21 & 21A Tucks Road, Toongabbie for the purpose of a mixed use development comprising residential and commercial uses, including indoor and outdoor recreational facilities.

PART 2 – EXPLANATION OF PROVISIONS

This planning proposal seeks to amend *Parramatta Local Environmental Plan 2011 (PLEP 2011)* in relation to zoning, height and floor space ratio controls as detailed below.

Control	Current	Sought by Planning Proposal	Required LEP Amendment*
Zoning	Part B1 Neighbourhood Centre Part R2 Low Density Residential	B4 Mixed Use	Amend Map Sheet LZN_001
Height	Part 12m Part 9m	Part 15m Part 9m	Amend Map Sheet HOB_001
FSR	Part 1.5:1 Part 0.5:1	1.5:1	Amend Map Sheet FSR_001

Table 2 – Summary of required amendments to PLEP 2011

* See Maps in Section 4 'Mapping'

2.1 Other relevant matters

2.1.1 Voluntary Planning Agreement

The proponent has indicated an intention to enter into a Voluntary Planning Agreement (VPA) with Council. This will be assessed separately and a draft VPA will ideally be exhibited in conjunction with the planning proposal.

2.1.2 Draft Development Control Plan (DCP)

A site specific draft DCP will be required to inform future built form controls and any site specific issues. This will be assessed separately and ideally exhibited in conjunction with the planning proposal and draft VPA.

PART 3 – JUSTIFICATION

This part describes the reasons for the proposed outcomes and development standards in the planning proposal.

3.1 Section A - Need for the planning proposal

This section establishes the need for a planning proposal in achieving the key outcome and objectives. The set questions address the strategic origins of the proposal and whether amending the LEP is the best mechanism to achieve the aims of the proposal.

3.1.1 Is the Planning Proposal a result of any study or report?

The planning proposal is not the result of a study or report. However, the existing site land use zoning and built form are inconsistent with the predominant low density land use in the area. The planning controls applied as part of the Parramatta Local Environmental Plan 2011 attempted to reflect the existing land use. Furthermore, site testing has revealed that the densities applied to the site (in part) are not achievable within the existing height controls.

This planning proposal seeks to redistribute the density across the site as a whole and enable heights to achieve the density while addressing site specific constraints including flooding.

3.1.2 Is the Planning Proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

A planning proposal seeking to amend *PLEP 2011* is the most effective way of providing certainty for Council, the local community and the landowner and allows for orderly and economic development of the land. The existing zoning, height and FSR standards would not permit part of the form of development envisaged in the planning proposal.

3.2 Section B – Relationship to strategic planning framework

This section assesses the relevance of the planning proposal to the directions outlined in key strategic planning policy documents. Questions in this section consider state and local government plans including the NSW Government's Plan for Growing Sydney and subregional strategy, State Environmental Planning Policies, local strategic and community plans and applicable Ministerial Directions.

3.2.1 Is the planning proposal consistent with the objectives and actions contained within the applicable regional or sub-regional strategy?

A Plan for Growing Sydney

A Plan for Growing Sydney (the Sydney Metropolitan Strategy) was released in December 2014 and is the NSW Government's 20-year plan for the Sydney Metropolitan Area. It provides direction for Sydney's productivity, environmental management, and liveability; and for the location of housing, employment, infrastructure and open space. The Strategy identifies three planning principles that will guide how Sydney grows:

- *Principle 1: Increasing housing choice around all centres through urban renewal in established areas*
- *Principle 2: Stronger economic development in strategic centres and transport gateways*

- *Principle 3: Connecting centres with a networked transport system*

The planning proposal supports the principals of the Metropolitan Strategy through the increase in housing choice via urban renewal. The site is also located within proximity to existing transport networks. The redevelopment of the site will result in a mix of residential, commercial and recreational land uses enabling the economic use of the land and providing housing choice and renewed recreational facilities in an established suburban location.

West Central Draft Subregional Strategy & District Plans

The draft West Central Sub-Regional Strategy 2007 was prepared under the NSW Government's 2005 Metropolitan Strategy. The NSW state government is currently working on 'District Plans' to be prepared in consultation with Councils and the local community. The District Plans will:

- *Influence the delivery of housing supply;*
- *Inform and influence the planning for business activity and investment to encourage jobs growth, particularly in strategic centres and transport gateways;*
- *Inform the decision making for infrastructure planning; and*
- *Provide guidance on urban planning issues.*

Parramatta local government area is located within the West Central District.

The Department of Planning & Environment's population, dwelling and household projections estimate that the population of the West Central District is projected to grow by more than 478,600 people over the next 20 years. Both population increase and change in household size will result in demand for an additional 183,750 new homes in the district to 2031.

Priorities for the West Central District of relevance to the subject site include:

- *Work with councils to identify suitable locations for new services, homes and jobs close to transport including the North West Rail Link, the Western Line, the Cumberland Line, the Carlingford Line, the Bankstown Line, Sydney Rapid Transit and bus T-Ways.*
- *Work with councils to identify opportunities to revitalise suburbs.*

The planning proposal will result in an increase of housing supply and mix in an area in proximity to both the Western Railway Line and bus T-Way. The future redevelopment of the site will also revitalise the immediate locality through removal of disused tennis courts and provision of new recreational facilities to service the local community.

3.2.2 Is the planning proposal consistent with the local council's Community Strategic Plan or other local strategic plan?

The following strategic planning documents are relevant to the planning proposal.

Parramatta 2038 Community Strategic Plan

Parramatta 2038 is a long term Community Strategic Plan for the City of Parramatta and it links to the long-term future of Sydney. The plan formalises several big and transformational ideas for the City and the region.

The planning proposal is considered to meet the strategies and key objectives identified in the plan including the 'People and Neighbourhoods' strategy that focuses on health and recreation, housing provision, learning and development, and building cohesive, safe neighbourhoods.

The planning proposal is considered to meet the strategies by allowing for an appropriate mix of residential and recreational uses which will support the local neighbourhood and revitalisation of a large underutilised site. The development will also increase housing supply and choice in an area serviced by existing infrastructure and public transport.

3.2.3 Is the planning proposal consistent with the applicable State Environmental Planning Policies?

The following State Environmental Planning Policies are of relevance to the site.

State Environmental Planning Policy No. 32 - Urban Consolidation (Redevelopment of Urban Land)

The intention of the State Environmental Planning Policy No. 32 Urban Consolidation (Redevelopment of Urban Land) is to ensure that urban consolidation objectives are met in all urban areas throughout the State. The policy focuses on the redevelopment of urban land that is no longer required for the purpose it is currently zoned or used, and encourages local councils to pursue their own urban consolidation strategies to help implement the aims and objectives of the policy.

The planning proposal is consistent with the SEPP given its purpose is for the orderly and economic development of the land for mixed use residential housing and commercial development in a location which benefits from suitable infrastructure.

State Environmental Planning Policy No. 55 – Remediation of Land

The underlying aim of SEPP No. 55 is to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.

Residential development is already permitted on the site. The site has consistently been used for recreational purposes for the last 30 years. Given this context, the site is unlikely to be contaminated. However, SEPP 55 will be required to be addressed as part of any future development application, and appropriate investigations can be undertaken at that time.

State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development

SEPP 65 was recently amended and no longer requires that a provision be included in a draft instrument to ensure the achievement of design quality in accordance with the design quality principles; and having regard to the Apartment Design Guide.

SEPP 65 is required to be considered during the assessment of any future development application on the site that includes three or more storeys and four or more dwellings and it is reasonable to expect that a design concept supporting a planning proposal demonstrates compliance with the Apartment Design Guide.

An Indicative Building Design provided by the applicant has had regard to the requirements of the SEPP and Apartment Design Guidelines (refer **Appendix 1**).

3.2.4 Is the planning proposal consistent with applicable Ministerial Directions (s.117 directions)

In accordance with Clause 117(2) of the *EP&A Act 1979* the Minister issues directions for the relevant planning authorities to follow when preparing planning proposals for new LEPs. The directions are listed under the following categories:

- Employment and resources
- Environment and heritage
- Housing, infrastructure and urban development
- Hazard and risk
- Regional planning
- Local plan making
- Metropolitan planning

The following directions are considered relevant to the subject planning proposal.

Employment and Resources - 1.1 Business and Industrial Zones

Business and Industrial Zones The objectives of this direction are to:

- a) *encourage employment growth in suitable locations,*
- b) *protect employment land in business and industrial zones, and*
- c) *support the viability of identified strategic centres.*

The planning proposal seeks to maintain a business zoning on the site allowing for a mix of residential and non-residential uses, including indoor and outdoor recreation facilities in the form of a gym, pool, tennis courts and squash courts.

This planning proposal is consistent with the strategic directions outlined in state and local planning strategies including *A Plan for Growing Sydney*, and *Parramatta 2038* community Strategic Plan.

The level of employment on site is likely to be consistent with the existing use of the site which currently comprises, gym, squash courts and tennis courts.

Housing, infrastructure and urban development - 3.1 Residential Zones

The objectives of this direction are:

- a) *to encourage a variety and choice of housing types to provide for existing and future housing needs,*
- b) *to make efficient use of existing infrastructure and services and ensure that new housing has appropriate access to infrastructure and services, and*
- c) *to minimise the impact of residential development on the environment and resource lands.*

The planning proposal is consistent with the objectives of this direction as it will increase residential densities and housing choice in a location that is in proximity to public

transport, shops, employment and recreational opportunities. The increased density and future built form sought by the planning proposal will result in minimal impact upon the surrounding locality. Any future development would need to have regard to site specific DCP controls designed to minimise the bulk and scale of development, and to minimise overlooking and overshadowing of nearby residential properties.

Housing, Infrastructure and Urban Development - 3.4 Integrating Land Use and Transport

The objective of this direction is to ensure that urban structures, building forms, land use locations, development designs, subdivision and street layouts achieve the following planning objectives:

- a) improving access to housing, jobs and services by walking, cycling and public transport, and*
- b) increasing the choice of available transport and reducing dependence on cars, and*
- c) reducing travel demand including the number of trips generated by development and the distances travelled, especially by car, and*
- d) supporting the efficient and viable operation of public transport services, and*
- e) providing for the efficient movement of freight.*

The subject site is located within 800m of Toongabbie Railway Station and is also in proximity to the T-bus way. Increasing the density of development in the walking catchment around transport nodes, will support the viability of existing and proposed public transport services and reduce dependence on cars. The proposal integrates land use and transport outcomes.

Hazard and risk - 4.1 Acid Sulfate Soils

The objective of this direction is to avoid significant adverse environmental impacts from the use of land that has a probability of containing acid sulfate soils.

Council has no Acid Sulfate Soil information relating to the subject site. Nonetheless, clause 6.1 (Acid Sulfate Soil) of Parramatta LEP 2011 will be required to be addressed as part of any future development application for the site, including the potential requirement for the preparation of Acid Sulfate Soils Management Plan where relevant.

Hazard and risk - 4.3 Flood Prone Land

This direction applies where a planning proposal creates, removes or alters a zone or a provision that affects flood prone land. The planning proposal seeks to increase the density of residential development in an area identified as being flood prone.

The objectives of this direction are:

- a) to ensure that development of flood prone land is consistent with the NSW Government's Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005, and*
- b) to ensure that the provisions of an LEP on flood prone land is commensurate with flood hazard and includes consideration of the potential flood impacts both on and off the subject land.*

The subject site the site is located at the confluence of 4 creeks (Toongabbie, Pendle Hill, Greystanes & Blacktown Creeks) and is affected by the 1 in 2, 1 in 5, 1 in 20, 1 in 100; 1 in 200, 1 in 500 and PMF flood events, with the PMF flood level being almost 5 metres above existing ground levels.

The following flood levels apply at this location:

- 2 Year ARI RL 25.42m AHD
- 5 Year ARI RL 25.55m AHD
- 20 Year ARI RL 25.60m AHD
- 50 Year ARI RL 25.63m AHD
- 100 Year ARI RL 25.65m AHD
- 200 Year ARI RL 25.68m AHD
- 500 Year ARI RL 25.84m AHD
- PMF RL 30.02m AHD

Council's Engineer has indicated that future redevelopment could comply with the requirements set out in Council's current Floodplain Matrix with respect to habitable floor levels to be built 0.5m above the 1 in 100 year flood event.

Concern is raised with respect to future basement parking, and evacuation in events greater than the 1 in 100 event. The site would rely upon appropriate 'shelter in place' strategies, Emergency Management Plan and appropriate basement design. These matters can be addressed in detail as part of a future development application.

The applicant has provided a detailed address of 117 Direction 4.3 *Flood Prone Land* prepared by HKMA Engineers dated August 2015 (see **Appendix 2**).

Metropolitan Planning - 7.1 Implementation of a Plan for Growing Sydney

This direction applies to land within the Sydney metropolitan area.

The objective of this direction is to give legal effect to the planning principles; directions; and priorities for subregions, strategic centres and transport gateways contained in A Plan for Growing Sydney.

As detailed above in section 3.2.1, the planning proposal is consistent with the directions, actions and priorities for Parramatta and the West Central District as set out in *A Plan for Growing Sydney*.

3.3 Section C – Environmental, social and economic impact

This section considers the potential environmental, social and economic impacts that may result from the Planning Proposal.

3.3.1 Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?

The site is located within an urban environment and is void of any vegetation. The site is not known to contain critical habitat or threatened species, populations or ecological communities, or their habitats.

3.3.2 Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

The main potential environmental impacts to be examined in detail with any future development proposal for the site are:

- Urban Design and Built Form
- Flooding

- Traffic
- Acid Sulfate Soils
- Contamination
- Loss of recreational land

Urban Design and Built Form

An indicative building design prepared by Zhinar Architects (see **Appendix 1**) demonstrates the intended redevelopment concept for the site, being a mixed use development comprising a mix of residential dwellings and indoor and outdoor recreation facilities including gym, swimming pool, squash courts and tennis courts.

The indicative building design has had regard to requirements of SEPP 65 and the Apartment Design Guidelines and comprises a part 3 storey and part 4 storey development with the 4th storey element being setback from the property boundaries.

Building Height

As shown in Figure 2 below, the indicative building sections demonstrate a maximum building height of RL38.7 (approx. 13.4m) with lift overrun of RL39.7 (approx. 14.4m). These heights are predicated on the finished floor level of the ground level units being RL 26 (as per the applicant's indicative design).

However, as the site is flood affected, the ground floor units will be required to have a finished floor level (FFL) 0.5m above the 1 in 100 year flood event. Council's Senior Catchment Management Engineer has advised that the 1 in 100 year flood level in this location is RL25.65. As such the FFL for all ground level units will be required to be 26.15 at minimum, pushing the building height up to approximately 14.55m. A maximum building height of 15m will enable a 4 storey building on the site, having regard to site specific height constraints relating to flooding.

A site specific DCP will need to be prepared limiting the development to 4 storeys in height and demonstrating where the '4th storey' element may be suitable. Upper level building setbacks for the 4th storey will also be placed in the DCP to ensure minimal visual impact from public domain and adjacent properties, and to minimise overlooking into nearby properties.

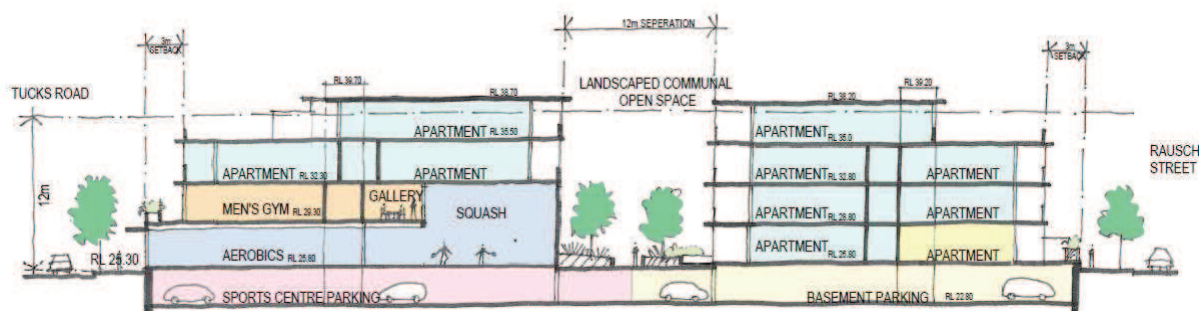


Figure 2: Indicative building section

Floor Space Ratio (FSR)

The indicative building design provided at **Appendix 1** demonstrates that future redevelopment of the site could comprise approximately 6,860m² of residential gross

floor area (GFA) (80 units); 2,380m² of commercial GFA (sports centre) and 1,600m² of tennis courts.

An FSR of 1.5:1 across the entire site is proposed to enable the built form to be developed as demonstrated in the indicative building design. This FSR control represents an extension of the existing FSR control of 1.5:1 over the southern part of the site.

Flooding

Refer to the response in Section 3.2.4 'Hazard and risk - 4.3 Flood Prone Land'.

Transport and Accessibility

A Traffic and Parking Assessment Report assessing the planning proposal has been prepared by Varga Traffic Planning (**Appendix 3**). The Assessment finds that the proposal is acceptable in terms of traffic, transport and parking.

Council's Service Manager Traffic and Transport has indicated that the proposal would increase traffic movements at the intersection of Tucks Road and Fitzwilliam Street. It is suggested that an upgrade of the intersection to a roundabout would be required at some point in the future, however, this would not necessarily be on the basis of the subject rezoning alone.

Further consideration of the traffic implications will be required to be undertaken as part of a future development application.

Acid Sulfate Soils

Refer to the response in Section 3.2.3 'State Environmental Planning Policy No. 55 – Remediation of Land'.

Contamination

Refer to the response in Section 3.2.4 'Hazard and risk - 4.1 Acid Sulfate Soils'.

Loss of Recreational Land

The site is currently used for recreational purposes (gym, squash courts and tennis courts), with the land and business use being in private ownership. The applicant has indicated an intention to rebuild a gym and two (2) tennis courts on the site.

Council's Service Manager Recreation Facilities & Programs raised no objection to the proposal but indicated that any increase in density would increase demand for nearby Council owned recreation and open space facilities. However, any additional new recreation facilities provided by the redevelopment of the site could enhance the recreation offering in the area.

3.3.3 How has the planning proposal adequately addressed any social and economic effects?

The planning proposal has the potential to improve the public domain, and provide for new recreational facilities to service the local community. The future development will likely incorporate a mix of apartment types to respond to the local population market demand and potentially contributing to housing choice and affordability.

Based on the assumed development outcomes the proposal has the potential to generate jobs during the construction phase and permanent jobs following completion of the development. Furthermore, the redevelopment of existing recreational facilities as indicated by the proposal will provide a superior offering to the community and will provide social benefits for the local community.

Concerns of the local community and/or state government agencies will be addressed via public exhibition of the planning proposal and accompanying DCP and VPA. Furthermore, the assessment of any future development application will explore the social and economic benefits in more detail.

3.4 Section D – State and Commonwealth Interests

3.4.1 Is there adequate public infrastructure for the planning proposal?

The subject land is approximately 800m walking distance from Toongabbie Railway Station and is also in proximity to the T-bus Way. Civil and utility infrastructure is suitable to service the subject land and support the proposed development. Redevelopment of the subject site can optimise public infrastructure investment. However, it is recommended that the relevant infrastructure agencies be consulted during the planning proposal process.

3.4.2 What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?

Relevant State and Commonwealth Public authorities will be consulted in accordance with the requirements of any future Gateway determination.

PART 4 – MAPPING

This section contains the mapping for this planning proposal in accordance with the DP&E's guidelines on LEPs and Planning Proposals.

4.1 Existing controls

This section contains map extracts from *PLEP 2011* which illustrate the current controls applying to the site.

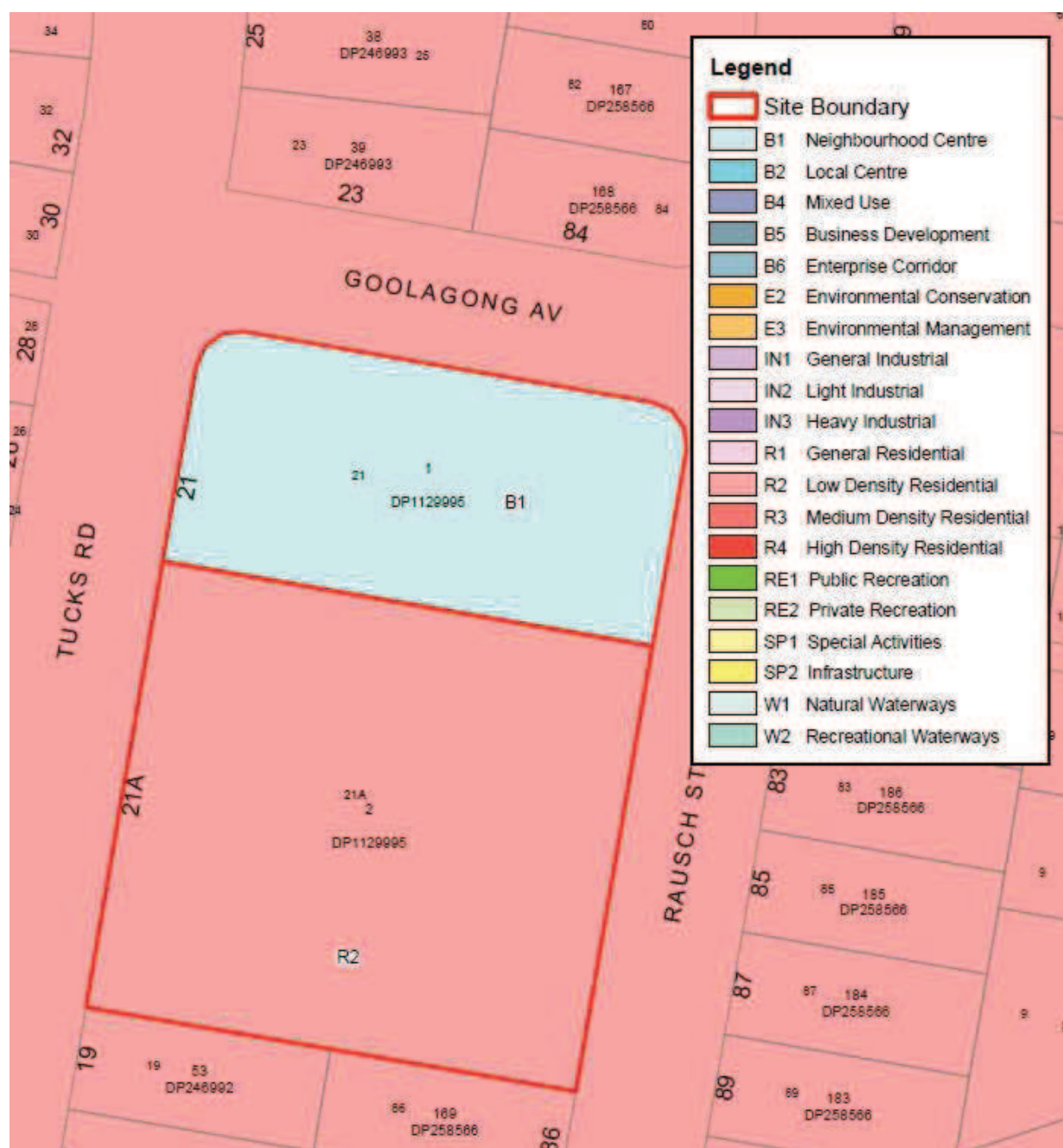


Figure 3 – Existing land zoning extracted from *PLEP 2011* Land Zoning Maps

Figure 3 above illustrates the existing part R2 Low Density Residential, and part B1 Neighbourhood Centre zoning applying to the site.

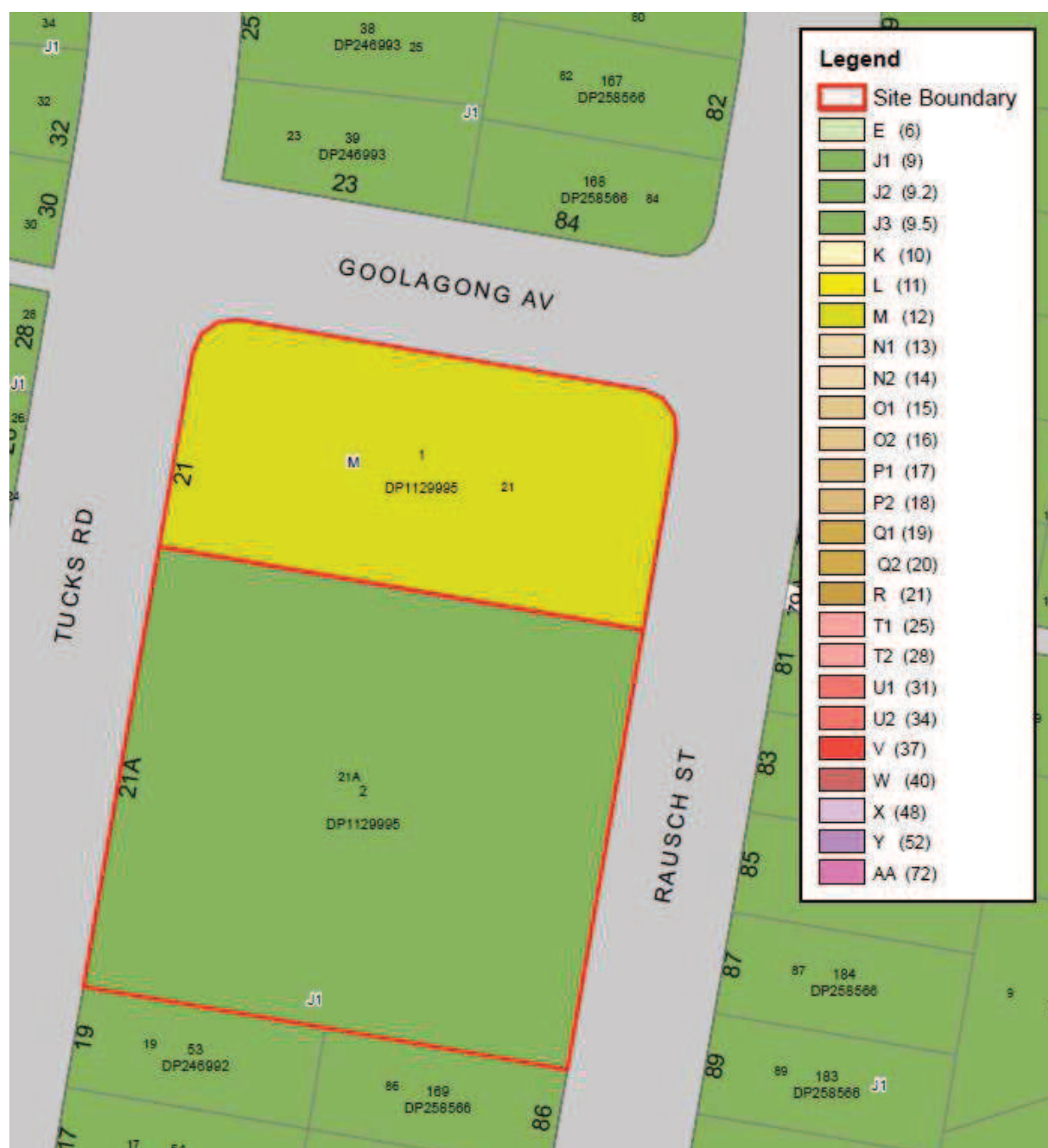


Figure 4 – Existing building heights extracted from *PLEP 2011* Height of Buildings Maps

Figure 4 above illustrates the existing part 9 metre, and part 12 metre height limit applying to the site.

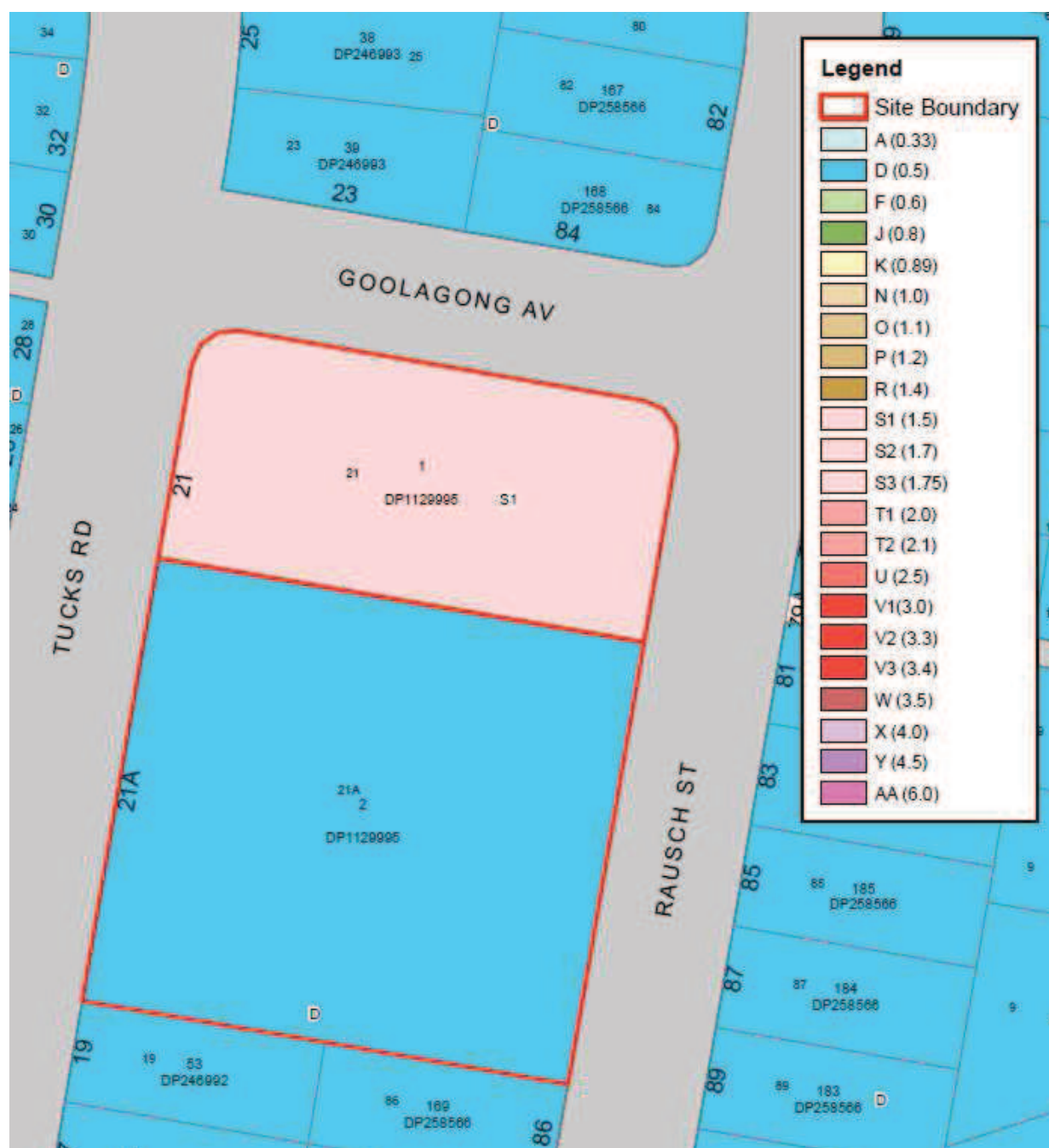


Figure 5 – Existing floor space ratio extracted from the PLEP 2011 Floor Space Ratio Map

Figure 5 above illustrates the existing part 0.5:1, and part 1.5:1 FSR applying the site.

4.2 Proposed controls

The figures in this section illustrate the proposed zoning, building height and floor space ratio controls sought by this planning proposal.

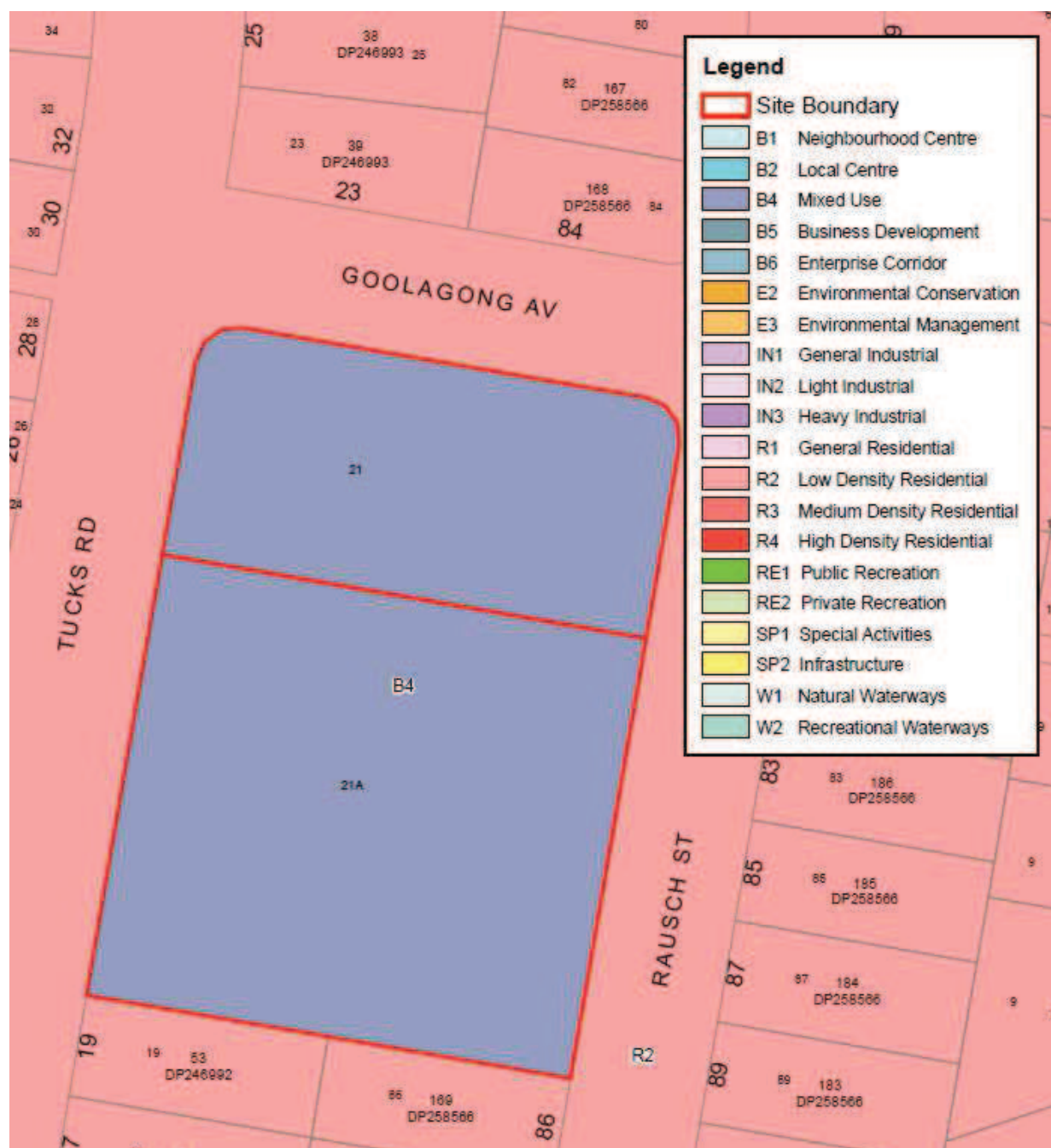


Figure 6 – Proposed amendment to the PLEP 2011 Land Zoning Map

Figure 6 above illustrates the proposed B4 Mixed Use zoning across the site.

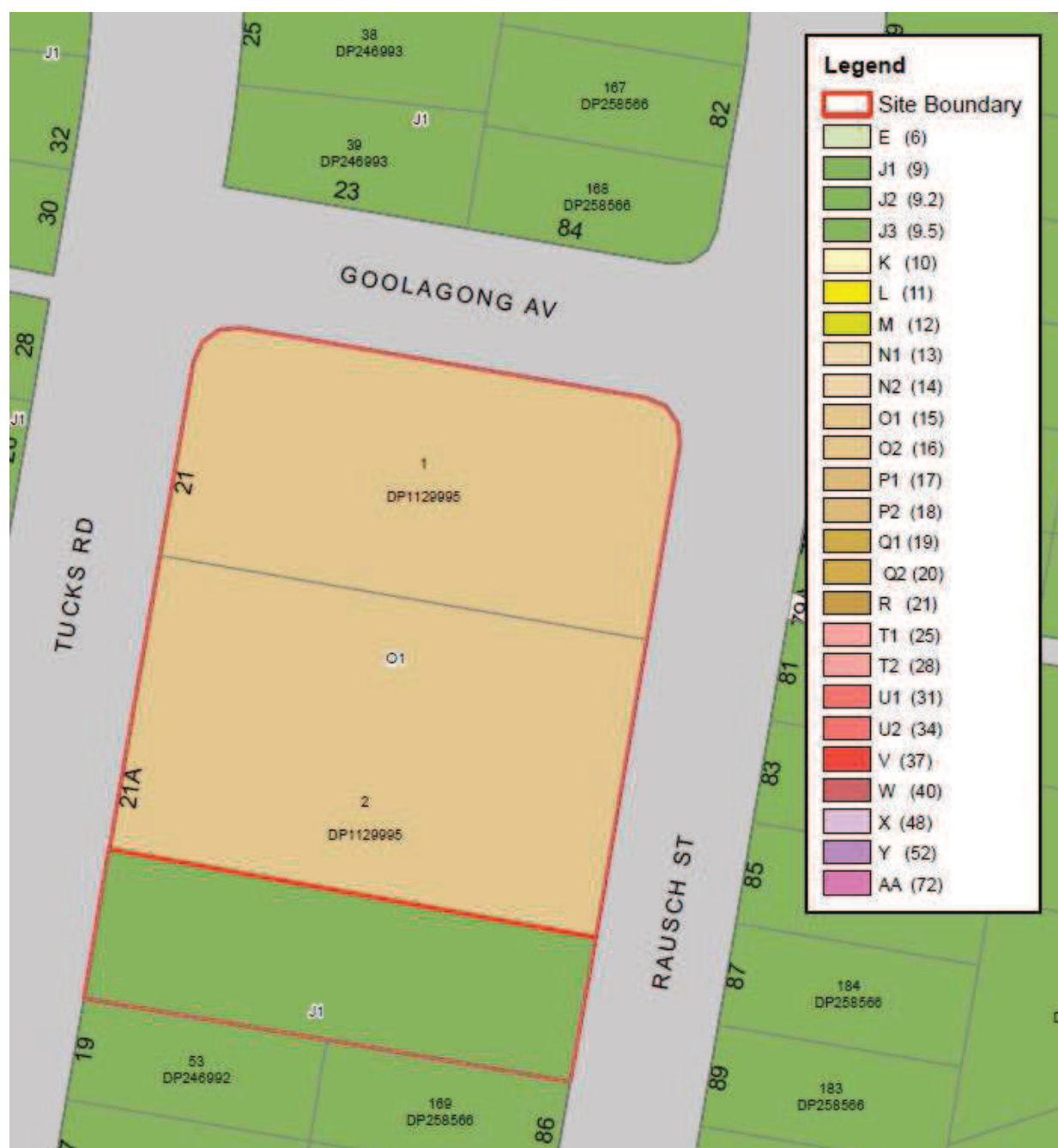


Figure 7 – Proposed amendment to the *PLEP 2011* Height of Building Map

Figure 7 above illustrates retention of the 9 height limit at the southern end of the site and proposed maximum building height of 15 metres over the remaining portion of the site.

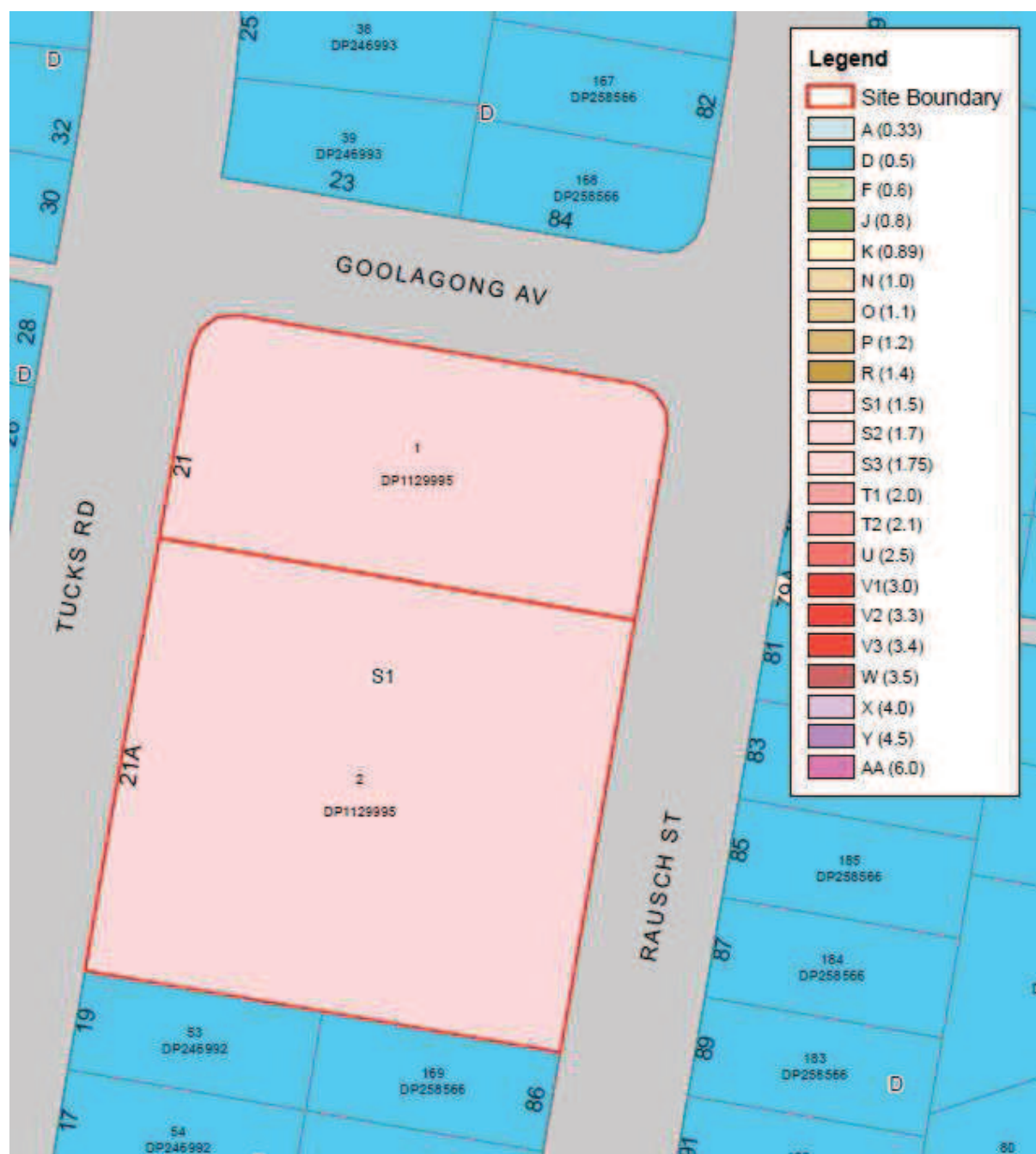


Figure 8 – Proposed amendment to the *PLEP 2011* Floor Space Ratio Map

Figure 8 above illustrates the proposed 1.5:1 FSR over the site.

PART 5 – COMMUNITY CONSULTATION

In accordance with Section 57(2) of the *EP&A Act 1979*, the Director-General of Planning must approve the form of the planning proposal, as revised to comply with the gateway determination, before community consultation is undertaken.

Public exhibition is likely to include:

- newspaper advertisement;
- display on the Council's web-site; and
- written notification to adjoining landowners.

The Gateway Determination will specify the level of public consultation that must be undertaken in relation to the planning proposal including those with government agencies.

Pursuant to Section 57(8) of the *EP&A Act 1979* the Responsible Planning Authority must consider any submissions made concerning the proposed instrument and the report of any public hearing.

PART 6 – PROJECT TIMELINE

The detail around the project timeline is expected to be prepared following the referral to the Minister for a Gateway Determination.

The following steps are anticipated:

- Referral to Minister for a Gateway determination
- Commencement and completion dates for public exhibition period and government agency notification
- Consideration of submissions
- Consideration of proposal post exhibition and reporting to Council
- Submission to the Department to finalise the LEP
- Notification of instrument

Appendix 1 – Indicative Building Design

DEVELOPMENT SUMMARY

21 Tucks Rd, Toongabbie NSW 2146, Australia

SITE AREA :	7429m ²
PROPOSED ZONING	B4 Mixed use
PROPOSED BUILDING HEIGHT:	12m
PROPOSED FSR:	1.5 : 1

NUMBER AND MIX OF UNITS:	1 BEDROOM	13	16%
	2 BEDROOM	63	77%
	3 BEDROOM	6	7%
		<u>82</u>	

ALLOWABLE FLOOR SPACE AREA: 11,144m²

GFA :	1 BED: 13 x 65m ²	845m ²
	2 BED: 63 x 85m ²	5355m ²
	3 BED: 6 x 110m ²	660m ²
	APARTMENTS:	<u>6860m²</u>

COMMERCIAL SPORTS CENTRE:	2380m ²
TENNIS COURTS:	1600m ²

TOTAL GFA: 10,840m²
ACHIEVED FSR: = 1.459 : 1

CARSPACE:

RESIDENTIAL	1 BED	13 X 1	13
	2 BED	63 X 1.25	79
	3 BED	6 X 1.5	9
	VISITOR	82 X 0.25	21
		TOTAL	122 SPACES

COMMERCIAL 2500/50 50 SPACES

SOLAR ACCESS: 2 HOURS BETWEEN 9AM - 3PM JUNE 21ST
88% 72/82

CROSS VENTILATION: 70% 57/82

ADAPTABLE UNITS: 9 UNITS

LOCATION ANALYSIS

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Figured dimensions shall be taken in preference to scaling. Drawings to be read in conjunction with information on first page. Check all dimensions and levels on site before commencing work or ordering materials. All existing ground levels shown are approximate, therefore to be verified on-site by the builder. Any discrepancies to be verified back to Ziner Architects before proceeding. All workmanship and materials shall comply with all relevant codes, ordinances, Australian Standards and manufacturers instructions. Unless noted 'Issued for Construct' drawings not to be used for construction. All art/graphic representations are indicative only. Information on this drawing is the copyright of Ziner Architects. Copies, or using this drawing in whole or part without written permission remains copyright.

ISSUE	AMENDMENT
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DATE DRAWN CHECK
Drawing is NOT VALID or issued for use, unless checked

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Suite 1, Level 2
2 Koon Street
Eastwood, NSW 2122
+61 2 5093 5005
+61 2 5093 5033
www.zhinar.com.au
20 495 569 790

PROJECT STATUS :
Development Application

PRELIMINARY

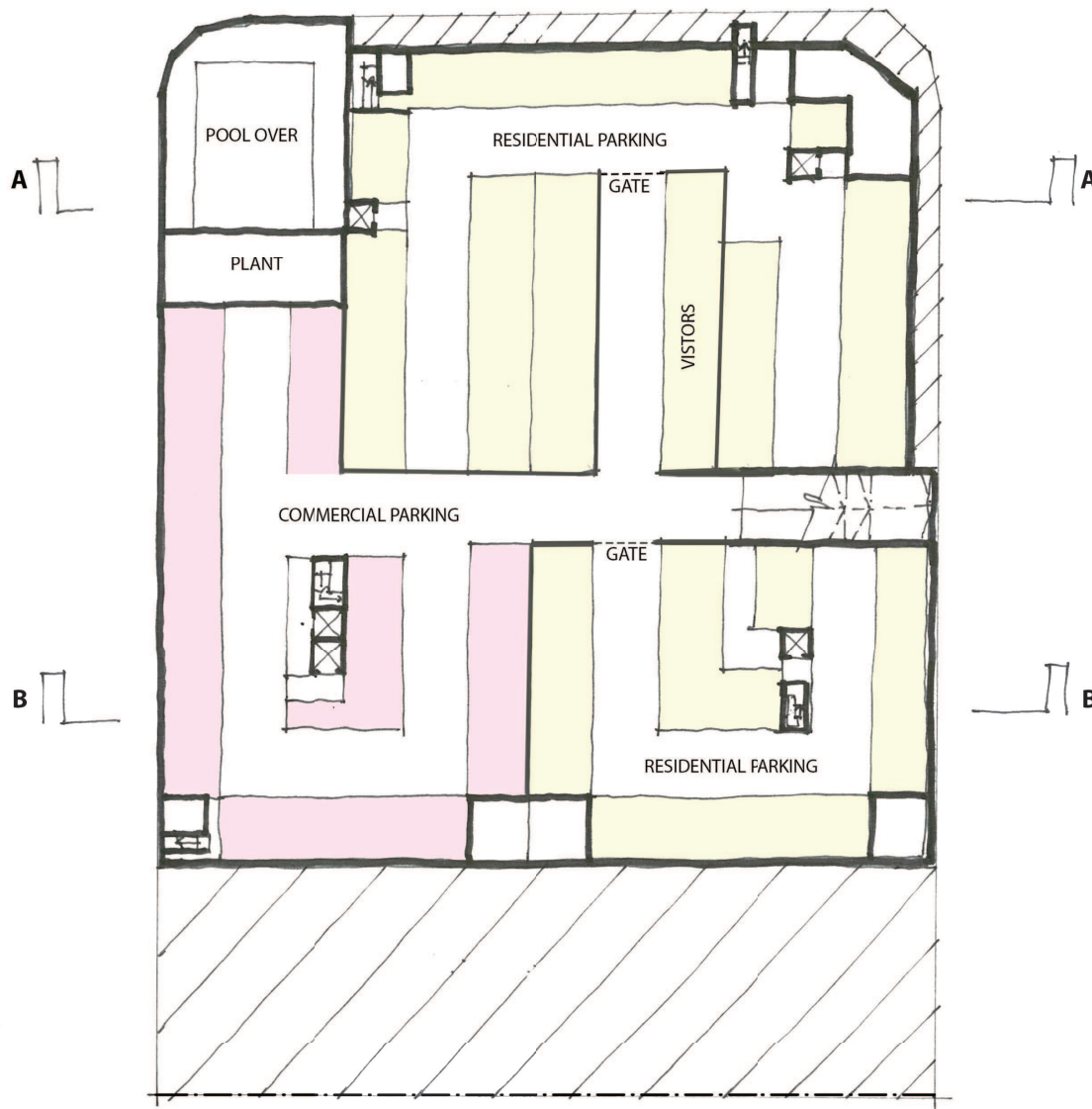
PROJECT NAME
MIXED USE DEVELOPMENT

21 TUCKS ROAD
TOONGABBIE, NSW 2150
LGA: PARRAMATTA COUNCIL

SHEET TITLE:
DEVELOPMENT SUMMARY

1 : 3500 @ A1 sheet
SCALE
8411 SK00
JOB No. DRAWING No.

SLIP



B1
1 : 250 @ A1 sheet
1 : 500 @ A3 sheet

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DATE DRAWN CHECK
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Zhar Architects Pty Ltd
Suite 1, Level 2
2 Rouse Street
Sydney, NSW 2155
+61 2 0053 9000 / P
+61 2 0053 9003 / F
www.zhar.com.au / W
25 495 909 790 / M

PROJECT STATUS :
Development Application
PRELIMINARY

PROJECT NAME
MIXED USE DEVELOPMENT
21 TUCKS ROAD
TOONGABBIE, NSW 2150
L.S.A.: PARRAMATTA COUNCIL

SHEET TITLE:
BASEMENT

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SCALE
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JOB No. DRAWING No.

ISSUE



GROUND FLOOR PLAN

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1 : 500 @ A3 sheet

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2 Rouse Street
Ermington, NSW 2122
+61 2 6053 6000 / P
+61 2 6053 6033 / F
www.zhinarchitects.com.au / W
25 495 605 790 / M

PROJECT STATUS :
Development Application

PRELIMINARY

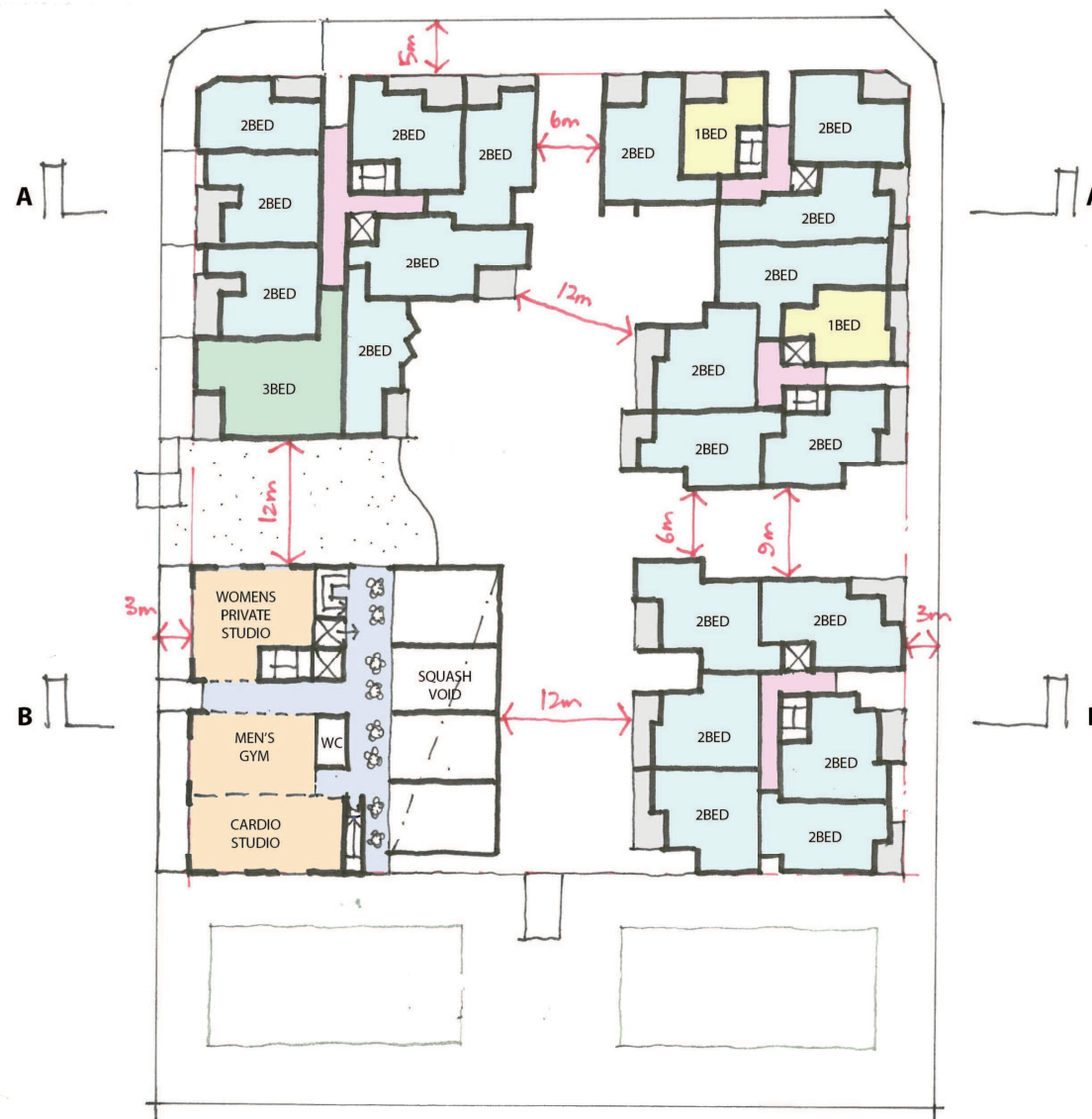
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+61 2 6953 6633 / M
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26 495 609 790 / A

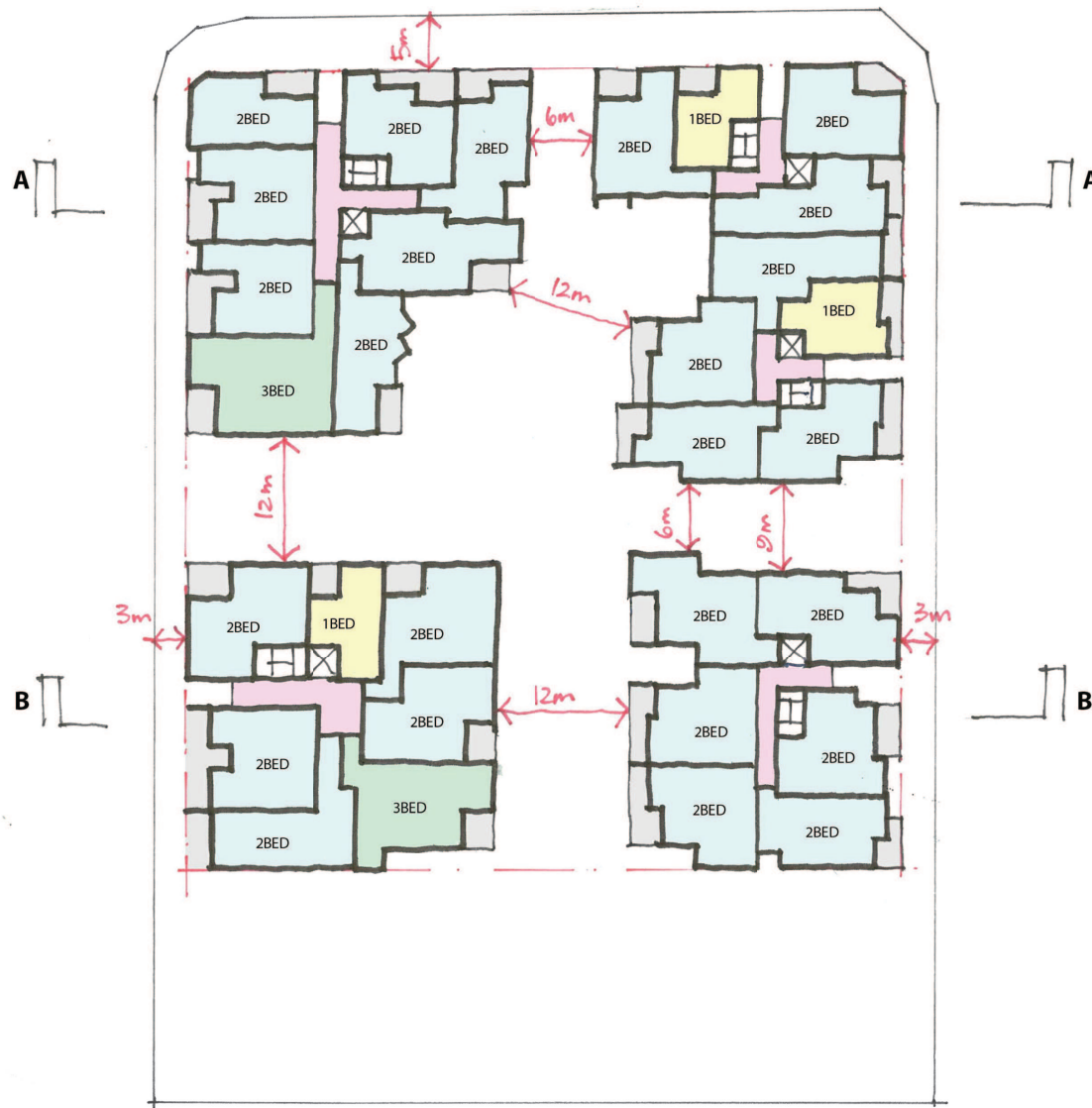
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SHEET TITLE
LEVEL 1

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+61 2 6953 6633 / F
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25 495 609 790 / M

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+61 2 9553 5533 / F
www.zhar.com.au / W
25 495 565 790 / M

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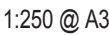
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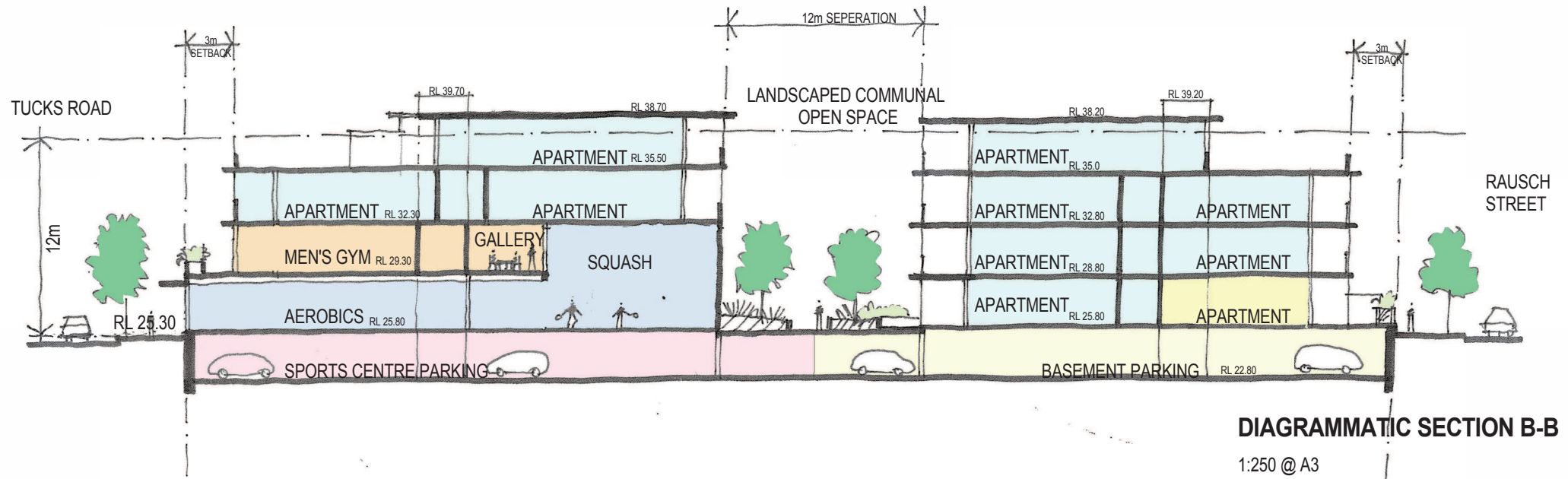
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DIAGRAMMATIC SECTION A-A

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SCALE

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Eastsydney, NSW 2122
+61 2 9553 9000 / P
+61 2 9553 9553 / F
www.zhihar.com.au / W
25 495 959 790 / M

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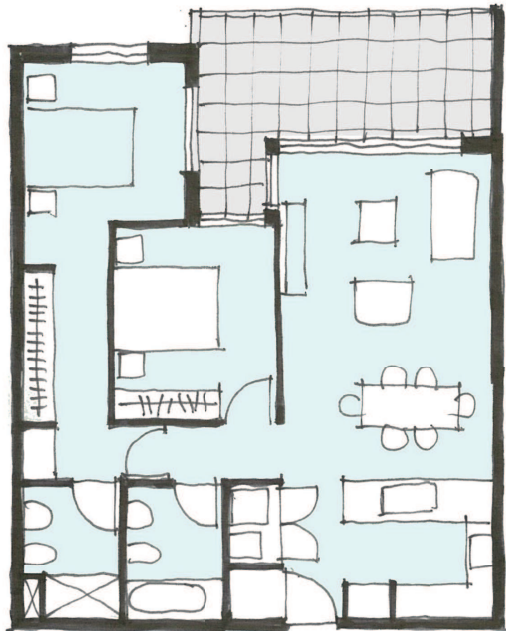
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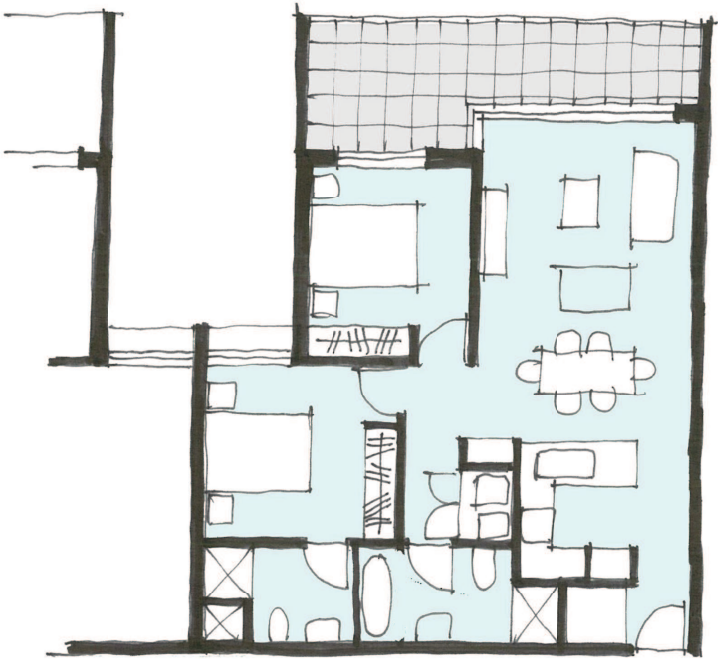
21 TUCKS ROAD
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LGA: PARRAMATTA COUNCIL

SHEET TITLE:
DIAGRAMMATIC SECTION
B-B
1:25 @ A1 sheet
SCALE
8411 SK07
JOB No. DRAWING No. ISSUE

ISSUE



TYPICAL PLAN - 2 BEDROOM APARTMENT
75 - 78m²



TYPICAL PLAN - 2 BEDROOM APARTMENT
77m²

TYPICAL UNITS I
1 : 50 @ A1 sheet
1 : 100 @ A3 sheet

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+61 2 9553 9005 / P
+61 2 9553 9553 / F
www.zhinarchitects.com.au / W
25 495 969 790 / M

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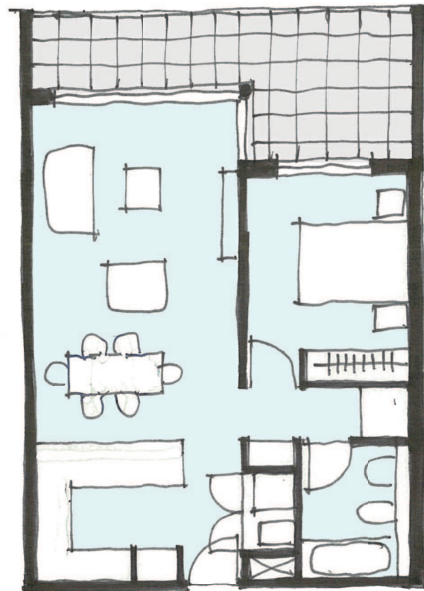
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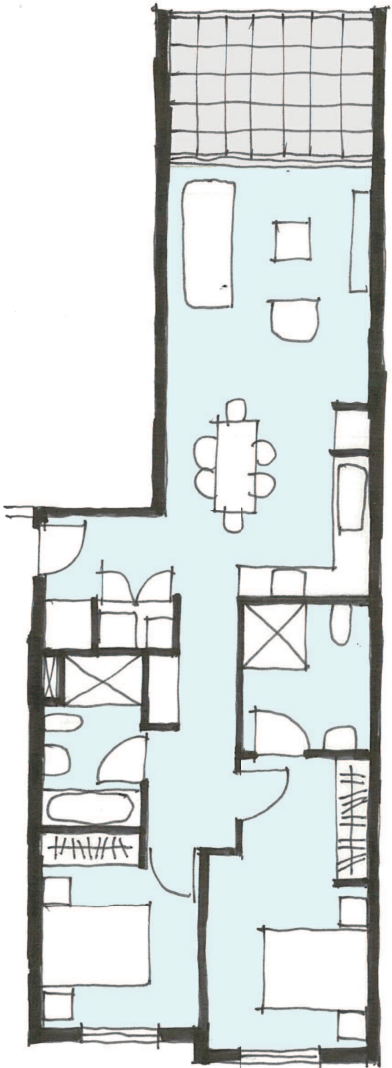
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SHEET TITLE:
TYPICAL UNITS I

1 : 50 @ A1 sheet
SCALE
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JOB No. DRAWING No. ISSUE



TYPICAL PLAN - 1 BEDROOM APARTMENT
50 - 57m²



TYPICAL PLAN - 2 BEDROOM APARTMENT
CROSS-THROUGH
77m²

TYPICAL UNITS 2
1 : 50 @ A1 sheet
1 : 100 @ A3 sheet

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+61 2 8083 8653 / F
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25 495 869 790 / M

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SHEET TITLE:
TYPICAL UNITS 2

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TYPICAL PLAN - 3 BEDROOM APARTMENT
95m² - 102m²

TYPICAL UNITS 3
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+61 2 9553 5005 / P
+61 2 9553 5553 / F
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25 495 865 790 / M

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SHEET TITLE:
TYPICAL UNITS 3

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Appendix 2 – Address of 117 Direction 4.3 Flood Prone Land

General Manager
Parramatta City Council
30 Darcy Road,
PARRAMATTA NSW 2150

August 27, 2015

PROJECT: **21A TUCKS ROAD, TOONGABBIE**
RE: **PLANNING PROPOSAL**

This letter is prepared in support of the Planning Proposal for 21A Tucks Road, Toongabbie. The letter has been prepared to respond to the relevant key issues contained within the Section 117 Direction in relating to flooding. The relevant provisions are outlined below with a response provided against each point. The Planning Proposal contains an address of all 117 Directions while this letter is confined to the key flooding issues that must be considered.

(4) A planning proposal must include provisions that give effect to and are consistent with the NSW Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005 (including the Guideline on Development Controls on Low Flood Risk Areas).

- Although Parramatta City Council's Flood Map indicates the site as being partially flood affected in the 1% AEP Event, The local flood regime is actually a function of local catchment runoff exceeding the capacity of the formal stormwater pipe system. The major system flowpath is the road reserve adjoining both the eastern and western boundaries of the site.
- The existing LEP contains flood related planning development controls that would apply to any development proposal on the subject site. These provisions are retained and the underlying zone of the land remains unchanged.
- The redevelopment of the allotment is able to occur in a manner consistent with the provisions of the Floodplain Development Manual 2005 and Councils own flooding controls that would apply to the development. It is expected that detailed assessment of flooding and analysis of consistent with Councils flood related development controls would occur at DA stage.

(6) A planning proposal must not contain provisions that apply to the flood planning areas which:

(a) permit development in floodway areas,

- A very small area adjacent to the western boundary of the site is within the designated 1:100 year ARI (1%AEP) flowpath. The depth is shallow due to the topography of the site being very flat (tennis courts)

HKMA ENGINEERS
Civil & Structural Consulting Engineers

PO Box 2986 Carlingford NSW 2118

Suite 7 Carlingford Central 241-245 Pennant Hills Road Carlingford NSW 2118

Phone 02 9687 9222 Facsimile 02 9687 9393 www.hkma.com.au ABN 58 244 208 422

- The site is classified as flood prone land as it is *"land susceptible to flooding by the PMF"* as described in the Floodplain Development Manual 2005
- The appropriate Flood Planning Level (FPL) for this site will be the 1% AEP (1 in 100 year) Flood Event plus 0.5m freeboard.
- Flood management strategies will be implemented for the PMF event and will be detailed in a Flood Risk Assessment Report with any Development Application.

It is important to note that the NSW Floodplain Management Manual 2005 states the following:

"it is neither feasible nor socially or economically justifiable to adopt the PMF as the basis for FPL's. FPL's for typical residential development would generally be based around the 1% AEP flood event plus an appropriate freeboard (typically 0.5m)"

For the purpose of this project, the following overland flowpath levels are applicable

- R.L. 25.65m AHD as the 100 year flood level
- R.L. 30.02m AHD as the PMF level.

GROUND FLOOR LEVELS

The boundary levels around the perimeter of the site are currently at an average of R.L. 25.60m AHD (i.e marginally below the 1 in 100 year flow path level)

BASMENT ACCESS RAMPS.

Any access ramp from the Tucks Road or Rausch Road frontages will need to ramp up to a crest before sloping down to the basement car park (to achieve 500mm freeboard)

RESIDENTIAL LEVELS

Given that the ground floor will be commercial/retail and floor to floor heights in this zone would typically exceed 4m, the first floor level will be at least R.L. 30.10m AHD

This means all residential levels will be above the PMF level.

(b) *permit development that will result in significant flood impacts to other properties,*

- A very small area along the western boundary of the site is inundated by the 100 year flood event. The depth of flow along the western site boundary at this location is relatively shallow and therefore any impacts on existing flood storage will be negligible and there will be no significant impacts to other properties.

(c) *permit a significant increase in the development of that land,*

- The Planning Proposal will result in additional occupants on the site. As the site is in a highly urbanized catchment, the flood durations are relatively short and occupants are likely to shelter in place rather than evacuate the site. Accordingly, the need for increased services is considered minimal.
- For storm events up to the 100 year event, it is possible to evacuate the site to the Rausch Street frontage and travel in a southerly direction along Rausch Street. The footpath along the western side of Rausch Street is at or above the 100 year flood level and considered safe to travel along. Vehicle are also able to evacuate the basement car park as flood depths at the driveway entry are below the maximum allowable depth of 200mm for vehicle egress.
- For storm events greater than the 100 year flood event and up to and including the PMF, occupants will shelter in place. A mechanically operated roller shutter and warning systems in the basement car park will be linked to the alarm system and vehicular egress will be prohibited.
- As occupants shelter on site (a communal area will be provided above the PMF level) the number of occupants and increase in development of land will not impact on the evacuation strategies applied to the site.
- The proposal incorporates a twenty-four hour gymnasium which will have a manager permanently stationed for the commercial facilities. The Facility Manager will be assigned the task of conducting any evacuations in the event of fire or flood or any other emergency. This procedure will be outlined in the Evacuation and Management Plan incorporated with the strata by-laws and lodged with the Development Application.
- A Flood Risk Assessment and Flood Warning, Evacuation and Management Plan will be lodged with the Development Application and detail the measures that will be incorporated for this site.

(d) are likely to result in a substantially increased requirement for government spending on flood mitigation measures, infrastructure or services, or

- Development on the site will not, in all likelihood, result in a need for substantially increased requirements for government spending on flood mitigation measures, infrastructure, or services as the floodwater and flooding impacts can be addressed through design measures rather than broader measures that would require changes to the catchment. The proposal does not create a need for any spending for flood mitigation measures or infrastructure as the design at ground level does not create any detrimental effects on the flood regime at the site and throughout the associated catchment. This will be comprehensively detailed in the flood risk assessment which will be submitted at the DA stage.

I trust explains our position regarding this application, if you have any queries, please do not hesitate to contact me on (02) 9687-9222

Sincerely Yours,



Steve Arraj
Director – Civil Engineering

Appendix 3 – Traffic & Parking Assessment Report

Planning Proposal for a Mixed-Use Development

**21-21A Tucks Road,
Toongabbie**

TRAFFIC AND PARKING ASSESSMENT REPORT

18 March 2015

Ref 15058



Suite 6, 20 Young Street, Neutral Bay NSW 2089 - PO Box 1868, Neutral Bay NSW 2089
Ph: 9904 3224 Fax: 9904 3228

TABLE OF CONTENTS

1. INTRODUCTION	1
2. PROPOSED DEVELOPMENT	4
3. TRAFFIC ASSESSMENT	6
4. PARKING ASSESSMENT	18

APPENDIX A TRAFFIC SURVEY DATA

LIST OF ILLUSTRATIONS

Figure 1	Location
Figure 2	Site
Figure 3	Road Hierarchy
Figure 4	Existing Traffic Controls

1. INTRODUCTION

This report has been prepared to accompany a Planning Proposal to Parramatta City Council for a mixed-use planning proposal to be located at 21-21A Tucks Road, Toongabbie (Figures 1 and 2).

The planning proposal seeks to demolish the existing Toongabbie Leisure Centre to facilitate the construction of a new mixed-use residential apartment building, with a ground floor commercial component. The Toongabbie Leisure Centre is also to be reinstated in the new mixed-use building providing essentially the same (albeit new) facilities as per existing. Off-street car parking is to be provided in a new basement car parking area, which will ultimately 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
- assesses the adequacy and suitability of the quantum of off-street car parking provided on the site.





2. PROPOSED DEVELOPMENT

Site

The subject site is bounded by Tucks Road, Goolagong Avenue and Rausch Street, some 165 metres north of Fitzwilliam Road. The site has a street frontage of approximately 100 metres in length to both Tucks Road and Rausch Street, and approximately 75 metres in length to Goolagong Avenue. The site occupies an area of approximately 7,438m².

The subject site is currently occupied by the Toongabbie Leisure Centre, served by an open car parking area in front of the building providing for some 23 line-marked car spaces, accessed via two separate driveways to Goolagong Avenue and Rausch Street. There is also another open, unmarked car parking area fronting Tucks Road which could potential accommodate up to 46 cars, accessed via a driveway to Tucks Road.

Proposed Development

The proposed development will involve the demolition of the existing buildings on the site to facilitate the construction of a new mixed-use residential/commercial building.

A total of 81 residential apartments are proposed in the new building as follows:

1 bedroom apartments:	11
2 bedroom apartments:	59
3 bedroom apartments:	11
TOTAL APARTMENTS:	81

A commercial component is also proposed at Ground Level, fronting Tucks Road, with a cumulative floor area of 2,252m².

The Toongabbie Leisure Centre is to be reinstated on the site in the new mixed-use development, providing essentially the same facilities as per existing.

Off-street car parking is envisaged for a total of 191 cars in a basement car parking area, which will ultimately be provided in accordance with Council's requirements. Vehicular access to the car parking facilities is to be provided via a new entry/exit driveway located towards the northern end of the Rausch Street site frontage.

Loading/servicing for the proposed development is to be accommodated in a loading dock located in the basement car parking area. The ramp and manoeuvring areas will be provided in accordance with the requirements of the largest truck that will access the 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.

Fitzwilliam Road is classified by the RMS as a *Regional Road* and provides the key east-west road link in the area, linking Old Windsor Road, Station Road and Wentworth Avenue. It typically carries one traffic lane in each direction in the vicinity of the site. Kerbside parking is permitted along various sections of the road, subject to sign posted restrictions.

Tucks Road, Goolagong Avenue and Rausch Street are local, unclassified roads which are primarily used to provide vehicular and pedestrian access to frontage properties. Kerbside parking is generally permitted along both sides of these roads.

Existing Traffic Controls

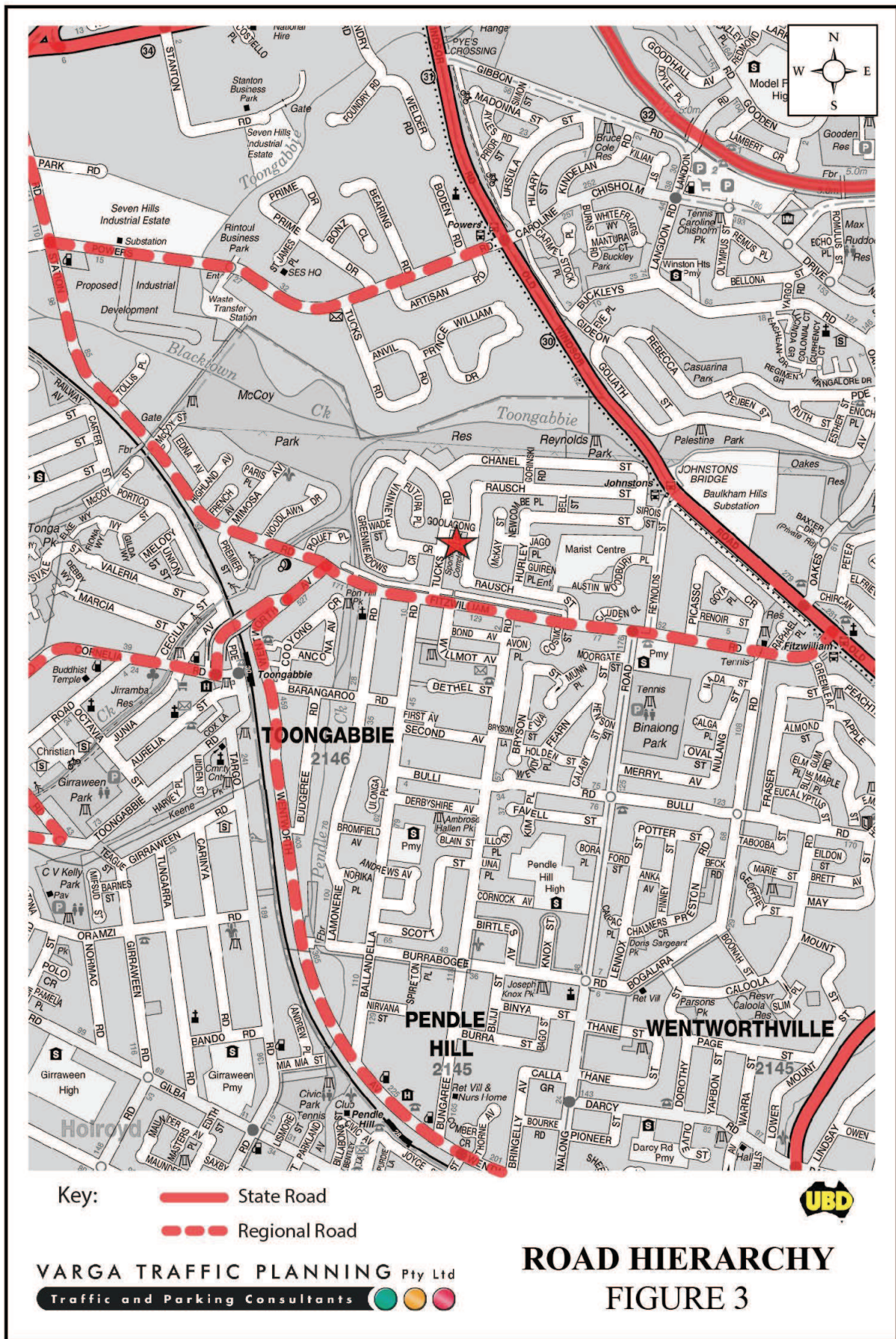
The existing traffic controls which apply to the road network in the vicinity of the site are illustrated on Figure 4. Key features of those traffic controls are:

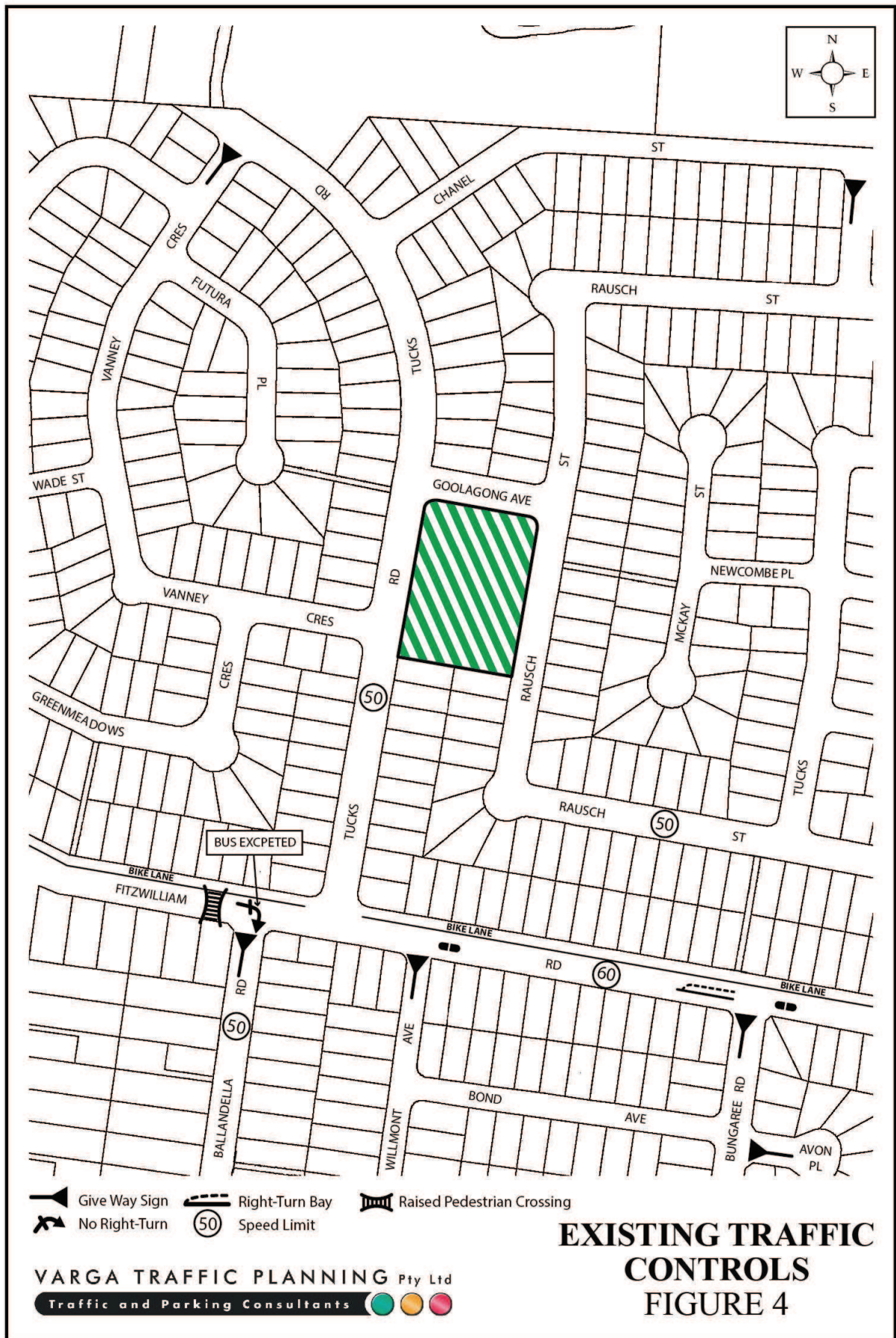
- a 60 km/h SPEED LIMIT which applies to Fitzwilliam Road
- a 50 km/h SPEED LIMIT which applies to Tucks Road, Goolagong Avenue, Rausch Street and all other local roads in the area.

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 at the following locations as part of this traffic study:

- Fitzwilliam Road and Rausch Street intersection





- Fitzwilliam Road and Tucks Street intersection
- Rausch Street and Goolagong Avenue intersection, and
- Tucks Road and Goolagong Avenue intersection.

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

- two-way traffic flows in Fitzwilliam Road are typically in the order of 1,500 vehicles per hour (vph) during peak periods
- two-way traffic flows in Tucks Road are typically less than 200 vph during peak periods
- two-way traffic flows in Rausch Road are typically less than 100 vph during peak periods
- two-way traffic flows in Goolagong Avenue are typically less than 60 vph during peak periods.

Projected Traffic Generation

The traffic implications of the development proposal primarily concern the effects of the *additional* traffic flows generated as a result of the development and its impact on the operational performance of the adjacent road network.

It is pertinent to note that the existing Toongabbie Leisure Centre is to be reinstated on the site in the new mixed-use development. Traffic activity generated by the Toongabbie Leisure Centre has been using the existing road network for many years and is not expected to change. As such, the increased traffic generation potential of the site as a consequence of the development proposal will primarily concern the proposed new residential and commercial components envisaged by the planning proposal.

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)*.

The RMS *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 planning proposal:

Commercial Premises

2.0 peak hour vehicle trips per 100m² GFA

High Density Residential Flat Buildings in Sub-Regional Centres

0.29 peak hour vehicle trips/dwelling

The RMS *Guidelines* also make the following observation in respect of high density residential flat buildings:

Definition

A *high density residential flat building* refers to a building containing 20 or more dwellings. This does not include aged or disabled persons housing. *High density residential flat buildings* are usually more than 5 levels, have basement level car parking and are located in close proximity to public transport services. The building may contain a component of commercial use.

Factors

The above rates include visitors, staff, service/delivery and on-street movements such as taxis and pick-up/set-down activities.

Application of the above traffic generation rates to the commercial and residential components of the planning proposal yields a traffic generation potential of approximately 69 vehicle trips per hour during commuter peak periods as set out below:

Projected Future Traffic Generation

Residential Apartments (81 apartments):	23.5 peak hour vehicle trips
Commercial Premises (2,252m ²):	45.0 peak hour vehicle trips
TOTAL TRAFFIC GENERATION POTENTIAL:	68.5 peak hour vehicle trips

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 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 are summarised in Table 3.1-3.4 below, revealing that:

Rausch Street & Goolagong Avenue Intersection

- the intersection currently operates at *Level of Service "A"* under the existing traffic demands with total average vehicle delays in the order of 4.1 seconds/vehicle
- under the projected future traffic demands expected to be generated by the planning proposal, the intersection will continue to operate at *Level of Service "A"*, with increases in average vehicle delays of ***less than*** 1 second/vehicle.

Tucks Road & Goolagong Avenue Intersection

- the intersection currently operates at *Level of Service "A"* under the existing traffic demands with total average vehicle delays in the order of 2.4 seconds/vehicle
- under the projected future traffic demands expected to be generated by the planning proposal, the intersection will continue to operate at *Level of Service "A"*, with increases in average vehicle delays of ***less than*** 1 second/vehicle.

Fitzwilliam Road & Tucks Road Intersection

- the intersection currently operates at *Level of Service “A”* under the existing traffic demands with total average vehicle delays in the order of 1.2 seconds/vehicle
- under the projected future traffic demands expected to be generated by the planning proposal, the intersection will continue to operate at *Level of Service “A”*, with increases in average vehicle delays of ***less than*** 1 second/vehicle.

Fitzwilliam Road & Rausch Street Intersection

- the intersection currently operates at *Level of Service “A”* under the existing traffic demands with total average vehicle delays in the order of 0.5 seconds/vehicle
- under the projected future traffic demands expected to be generated by the planning proposal, the intersection will continue to operate at *Level of Service “A”*, 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 RAUSCH STREET & GOOLAGONG AVENUE				
Key Indicators	Existing Traffic Demand		Projected Development Traffic Demand	
	AM	PM	AM	PM
Level of Service	A	A	A	A
Degree of Saturation	0.015	0.017	0.020	0.022
Average Vehicle Delay (secs/veh)				
Rausch Street (south) L	4.6	4.6	4.6	4.6
T	0.0	0.0	0.0	0.0
Rausch Street (north) T	0.0	0.0	0.0	0.1
R	4.6	4.6	4.6	4.6
Goolagong Avenue (west) L	4.7	4.6	4.7	4.6
R	4.6	4.6	4.6	4.6
TOTAL AVERAGE VEHICLE DELAY	3.9	4.1	4.1	4.2

RAU_GOOX

RAU_GOOP

TABLE 3.2 - RESULTS OF SIDRA ANALYSIS OF TUCKS ROAD & GOOLAGONG AVENUE				
Key Indicators	Existing Traffic Demand		Projected Development Traffic Demand	
	AM	PM	AM	PM
Level of Service	A	A	A	A
Degree of Saturation	0.023	0.034	0.029	0.038
Average Vehicle Delay (secs/veh)				
Tucks Road (south) T	0.1	0.0	0.1	0.0
R	4.6	4.6	4.7	4.6
Goolagong Avenue (east) L	4.7	4.6	4.7	4.6
R	4.9	4.6	4.9	4.7
Tucks Road (north) L	4.9	5.0	4.9	5.0
T	0.0	0.0	0.0	0.0
TOTAL AVERAGE VEHICLE DELAY	2.4	1.9	2.8	2.4
	TUC_GOOX		TUC_GOOP	

TABLE 3.3 - RESULTS OF SIDRA ANALYSIS OF FITZWILLIAM ROAD & TUCKS ROAD				
Key Indicators	Existing Traffic Demand		Projected Development Traffic Demand	
	AM	PM	AM	PM
Level of Service	A	A	A	A
Degree of Saturation	0.462	0.513	0.470	0.514
Average Vehicle Delay (secs/veh)				
Fitzwilliam Road (east) T	0.2	0.8	0.2	0.8
R	11.4	11.2	11.6	11.3
Tucks Road (north) L	9.9	7.9	10.0	7.9
R	7.6	8.3	7.7	8.3
Fitzwilliam Road (west) L	5.5	5.5	5.5	5.5
T	0.0	0.0	0.0	0.0
TOTAL AVERAGE VEHICLE DELAY	0.8	1.2	0.9	1.3
	FIT_TUCX		FIT_TUCP	

TABLE 3.4 - RESULTS OF SIDRA ANALYSIS OF FITZWILLIAM ROAD & RAUSCH STREET				
Key Indicators	Existing Traffic Demand		Projected Development Traffic Demand	
	AM	PM	AM	PM
Level of Service	A	A	A	A
Degree of Saturation	0.384	0.403	0.384	0.403
Average Vehicle Delay (secs/veh)				
Fitzwilliam Road (east) T	0.0	0.0	0.0	0.0
R	8.3	7.1	8.1	7.1
Rausch Street (north) L	8.3	6.7	8.3	6.8
R	9.5	9.7	9.7	10.0
Fitzwilliam Road (west) L	5.5	5.5	5.5	5.5
T	0.0	0.0	0.0	0.0
TOTAL AVERAGE VEHICLE DELAY	0.5	0.4	0.7	0.6
	FIT_RAUX		FIT_RAUP	

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 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

There are generally no kerbside parking restrictions which apply to the kerbside parking areas located along either sides of Tucks Road, Rausch Street and Goolagong Avenue in the vicinity of the subject site, including along the site frontages.

Off-Street Car Parking Provisions

The off-street car parking requirements applicable to the planning proposal are specified in *Parramatta Development Control Plan 2011, Part 3.6 – Movement and Circulation* document in the following terms:

Residential Flat Buildings

Studio	0.6 spaces per dwelling
1 bedroom	1.0 spaces per dwelling
2 bedrooms	1.25 spaces per dwelling
3 bedrooms	1.5 spaces per dwelling
4 bedrooms	2.0 spaces per dwelling
Visitor	0.25 spaces per dwelling

Commercial Premises

1 space per 50m² of gross floor area plus 1 loading bay per 400m² of gross floor area

Application of the above car parking requirements to the residential and commercial components of the planning proposal yields an off-street car parking requirement of 172 spaces as set out below:

Residents:	101.3 spaces
Visitors:	20.3 spaces
Commercial:	45.0 spaces
Loading Bay:	5.6 spaces
TOTAL:	172.2 spaces

In addition, the proposed future car parking arrangements will also need to take into account the parking requirements of the existing Toongabbie Leisure Centre which currently provides 69 car parking spaces on the site.

The geometric design layout of the proposed car parking facilities will ultimately be designed to comply with the relevant requirements specified in the 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* in respect of parking bay dimensions and aisle widths.

In summary, the proposed parking facilities will ultimately be provided in accordance with 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 SURVEY DATA



Day/Date	: Monday 16th March 2015
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Combined	WEST		NORTH		EAST		
	<i>Fitzwilliam</i>		<i>Rausch St</i>		<i>Fitzwilliam</i>		
Time Per	<u>T</u>	<u>L</u>	<u>R</u>	<u>L</u>	<u>R</u>	<u>T</u>	TOT
0700 - 0715	148	2	7	5	0	92	254
0715 - 0730	235	3	5	14	2	110	369
0730 - 0745	192	2	7	7	5	140	353
0745 - 0800	152	1	3	9	4	136	305
0800 - 0815	154	2	5	7	2	144	314
0815 - 0830	136	1	5	8	2	146	298
0830 - 0845	193	3	0	9	6	132	343
0845 - 0900	164	0	8	16	9	133	330
Per End	1374	14	40	75	30	1033	2566

Combined	WEST		NORTH		EAST		
	<i>Fitzwilliam</i>		<i>Rausch St</i>		<i>Fitzwilliam</i>		
Peak Per	<u>T</u>	<u>L</u>	<u>R</u>	<u>L</u>	<u>R</u>	<u>T</u>	TOT
0700 - 0800	727	8	22	35	11	478	1281
0715 - 0815	733	8	20	37	13	530	1341
0730 - 0830	634	6	20	31	13	566	1270
0745 - 0845	635	7	13	33	14	558	1260
0800 - 0900	647	6	18	40	19	555	1285

PEAK HR	733	8	20	37	13	530	1341
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Diagram illustrating a road layout with a roundabout and a main road (Fitzwilliam Rd).

The roundabout has four exits labeled 1, 2, 3, and 4. Exit 1 leads to a road with a bus stop at 13. Exit 2 leads to a road with a bus stop at 12. Exit 3 leads to a road with a bus stop at 1. Exit 4 leads to a road with a bus stop at 530.

The main road, Fitzwilliam Rd, has a bus stop at 543. A side road branches off Fitzwilliam Rd, leading to a bus stop at 528. Another side road branches off the side road, leading to a bus stop at 15.



R.O.A.R DATA

Reliable, Original & Authentic Results

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

Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

AM

TOTAL VOLUMES
FOR COUNT
PERIOD

Rausch St



44

0

43

115

1

115

20

1368

1388

20

1429

1449

Fitzwilliam Rd

Fitzwilliam Rd

1073

1051

22

1063

1040

23



R.O.A.R DATA

Reliable, Original & Authentic Results

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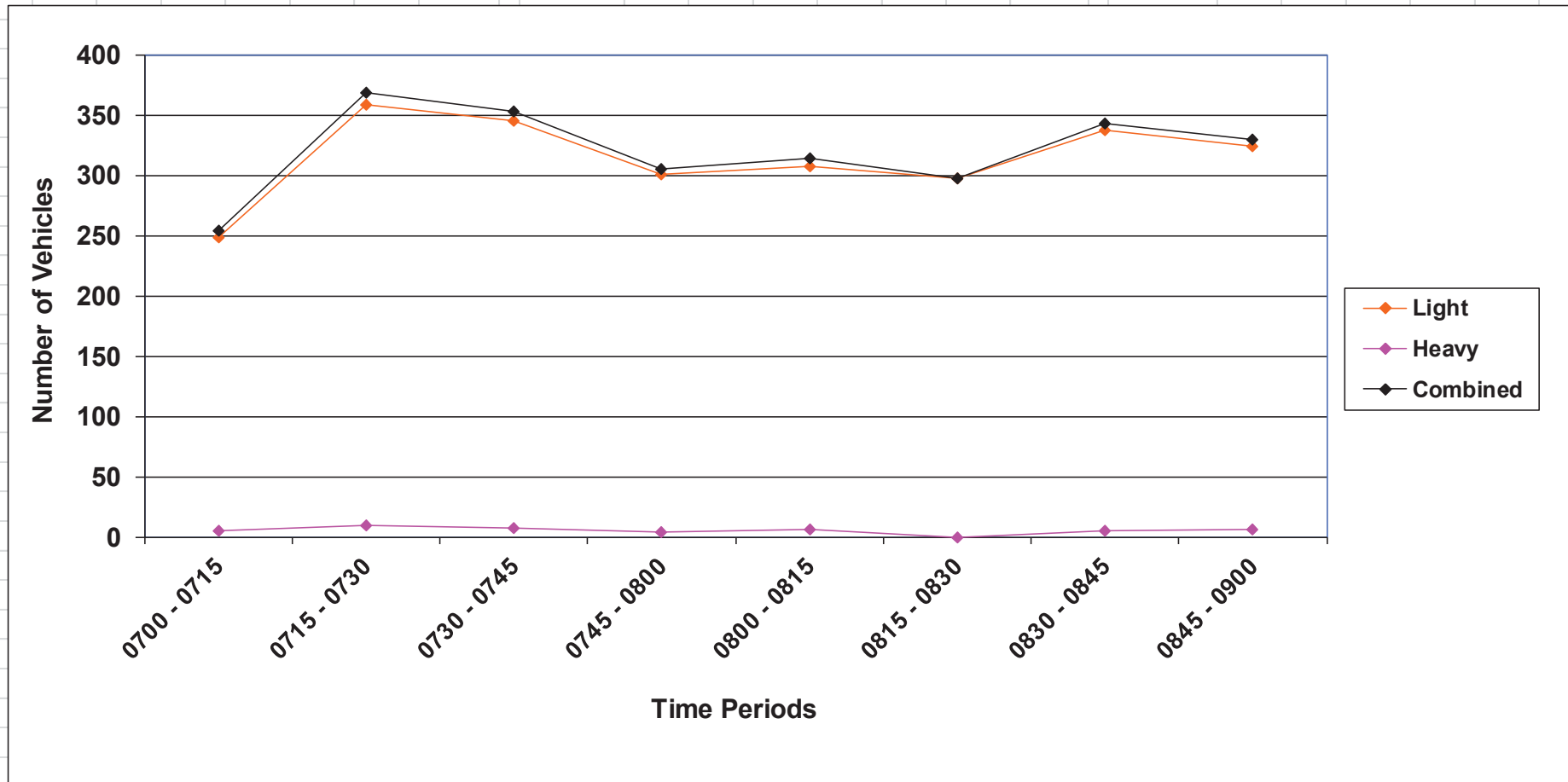
Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

AM

Fitzwilliam Rd & Rausch St





R.O.A.R. DATA

Reliable, Original & Authentic Results

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

Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

Lights	WEST		NORTH		EAST		
	Fitzwilliam		Rausch St		Fitzwilliam		
Time Per	T	L	R	L	R	T	TOT
1630 - 1645	94	6	1	9	5	152	267
1645 - 1700	145	3	0	5	9	219	381
1700 - 1715	153	5	4	3	7	214	386
1715 - 1730	141	4	4	7	4	167	327
1730 - 1745	104	2	6	4	8	182	306
1745 - 1800	136	4	5	4	3	198	350
1800 - 1815	117	3	1	4	9	187	321
1815 - 1830	110	6	2	8	6	180	312
Per End	1000	33	23	44	51	1499	2650

Heavies	WEST		NORTH		EAST		
	Fitzwilliam		Rausch St		Fitzwilliam		
Time Per	T	L	R	L	R	T	TOT
1630 - 1645	0	0	0	0	0	2	2
1645 - 1700	1	0	0	0	0	1	2
1700 - 1715	2	0	0	0	0	0	2
1715 - 1730	0	0	0	0	0	1	1
1730 - 1745	2	0	0	0	0	0	2
1745 - 1800	2	0	0	0	0	1	3
1800 - 1815	3	0	0	0	0	0	3
1815 - 1830	1	0	0	0	0	1	2
Per End	11	0	0	0	0	6	17

Combined	WEST		NORTH		EAST		
	Fitzwilliam		Rausch St		Fitzwilliam		
Time Per	T	L	R	L	R	T	TOT
1630 - 1645	94	6	1	9	5	154	269
1645 - 1700	146	3	0	5	9	220	383
1700 - 1715	155	5	4	3	7	214	388
1715 - 1730	141	4	4	7	4	168	328
1730 - 1745	106	2	6	4	8	182	308
1745 - 1800	138	4	5	4	3	199	353
1800 - 1815	120	3	1	4	9	187	324
1815 - 1830	111	6	2	8	6	181	314
Per End	1011	33	23	44	51	1505	2667

Lights	WEST		NORTH		EAST		
	Fitzwilliam		Rausch St		Fitzwilliam		
Peak Per	T	L	R	L	R	T	TOT
1630 - 1730	533	18	9	24	25	752	1361
1645 - 1745	543	14	14	19	28	782	1400
1700 - 1800	534	15	19	18	22	761	1369
1715 - 1815	498	13	16	19	24	734	1304
1730 - 1830	467	15	14	20	26	747	1289

Heavies	WEST		NORTH		EAST		
	Fitzwilliam		Rausch St		Fitzwilliam		
Peak Per	T	L	R	L	R	T	TOT
1630 - 1730	3	0	0	0	0	4	7
1645 - 1745	5	0	0	0	0	2	7
1700 - 1800	6	0	0	0	0	2	8
1715 - 1815	7	0	0	0	0	2	9
1730 - 1830	8	0	0	0	0	2	10

Combined	WEST		NORTH		EAST		
	Fitzwilliam		Rausch St		Fitzwilliam		
Peak Per	T	L	R	L	R	T	TOT
1630 - 1730	536	18	9	24	25	756	1368
1645 - 1745	548	14	14	19	28	784	1407
1700 - 1800	540	15	19	18	22	763	1377
1715 - 1815	505	13	16	19	24	736	1313
1730 - 1830	475	15	14	20	26	749	1299

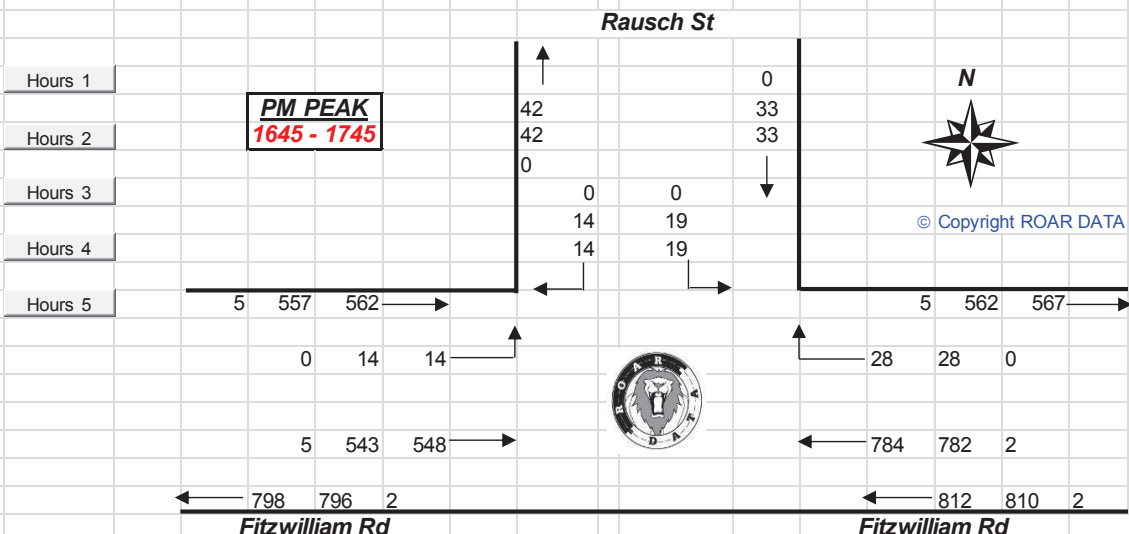
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PEAK HR	5	0	0	0	0	2	7
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PEAK HR	548	14	14	19	28	784	1407
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Peds	WEST		NORTH		EAST		
	Fitzwilliam		Rausch St		Fitzwilliam		
Time Per	T	L	R	L	R	T	TOT
1630 - 1645	0		8		1		9
1645 - 1700	0		2		0		2
1700 - 1715	0		1		0		1
1715 - 1730	2		0		0		2
1730 - 1745	0		1		1		2
1745 - 1800	0		4		0		4
1800 - 1815	0		3		0		3
1815 - 1830	1		3		0		4
Per End	3		22		2		27

	WEST		NORTH		EAST		
	Fitzwilliam		Rausch St		Fitzwilliam		
Peak Per	T	L	R	L	R	T	TOT
1630 - 1730	2		11		1		14
1645 - 1745	2		4		1		7
1700 - 1800	2		6		1		9
1715 - 1815	2		8		1		11
1730 - 1830	1		11		1		13
PEAK HR	2		4		1		7





R.O.A.R DATA

Reliable, Original & Authentic Results

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

Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

PM

TOTAL VOLUMES
FOR COUNT
PERIOD

Rausch St



84

0

84

67

0

67

11

1033

1044 →

11

1044

1055 →

Fitzwilliam Rd

Fitzwilliam Rd

← 1528

1522

6

← 1556

1550

6



R.O.A.R DATA

Reliable, Original & Authentic Results

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

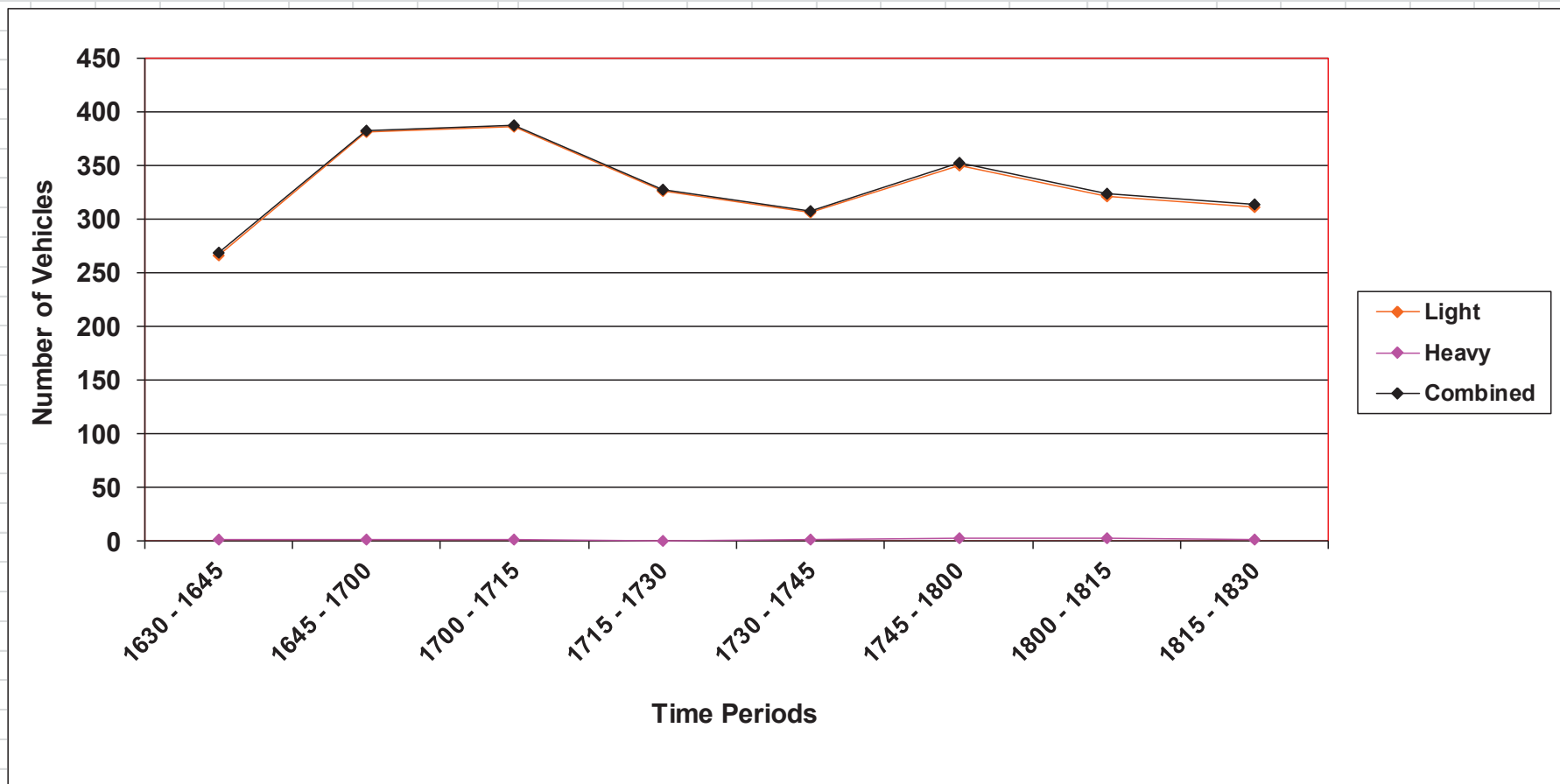
Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

PM

Fitzwilliam Rd & Rausch St





R.O.A.R. DATA

Reliable, Original & Authentic Results

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

Client : Varga Traffic Planning
Job No/Name : 5537 TOONGABBIE Intersection Counts
Day/Date : Monday 16th March 2015

Intersection Details

Obtained via satellite

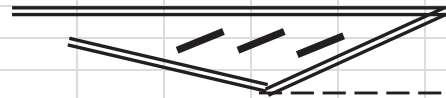
May be incorrect

AM PEAK HOUR
0715 - 0815



Rausch St

Fitzwilliam Rd



733 **548** **T**

AM	PM	
8	14	L

R	L
28	13
PM	AM
784	530
T	

R	L
20	37
14	19
AM	PM

Fitzwilliam Rd

Combined Figures only

PM PEAK HOUR
1645 - 1745

Weather >>>





ROAR. DATA

Reliable, Original & Authentic Results

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Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

Lights	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	218	5	7	17	3	114	364
0715 - 0730	252	6	9	13	5	118	403
0730 - 0745	249	8	18	9	2	172	458
0745 - 0800	158	7	14	12	0	137	328
0800 - 0815	197	6	14	9	3	168	397
0815 - 0830	171	6	19	15	11	154	376
0830 - 0845	203	6	11	23	6	155	404
0845 - 0900	181	6	11	17	5	132	352
Per End	1629	50	103	115	35	1150	3082

Heavies	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	3	0	0	0	0	6	9
0715 - 0730	3	0	0	0	0	6	9
0730 - 0745	4	0	0	0	0	5	9
0745 - 0800	1	0	0	0	0	2	3
0800 - 0815	2	0	0	0	0	5	7
0815 - 0830	1	0	0	0	0	0	1
0830 - 0845	3	0	0	0	0	2	5
0845 - 0900	5	0	0	0	0	2	7
Per End	22	0	0	0	0	28	50

Combined	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	221	5	7	17	3	120	373
0715 - 0730	255	6	9	13	5	124	412
0730 - 0745	253	8	18	9	2	177	467
0745 - 0800	159	7	14	12	0	139	331
0800 - 0815	199	6	14	9	3	173	404
0815 - 0830	172	6	19	15	11	154	377
0830 - 0845	206	6	11	23	6	157	409
0845 - 0900	186	6	11	17	5	134	359
Per End	1651	50	103	115	35	1178	3132

Lights	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	877	26	48	51	10	541	1553
0715 - 0815	856	27	55	43	10	595	1586
0730 - 0830	775	27	65	45	16	631	1559
0745 - 0845	729	25	58	59	20	614	1505
0800 - 0900	752	24	55	64	25	609	1529

Heavies	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	11	0	0	0	0	19	30
0715 - 0815	10	0	0	0	0	18	28
0730 - 0830	8	0	0	0	0	12	20
0745 - 0845	7	0	0	0	0	9	16
0800 - 0900	11	0	0	0	0	9	20

Combined	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	888	26	48	51	10	560	1583
0715 - 0815	866	27	55	43	10	613	1614
0730 - 0830	783	27	65	45	16	643	1579
0745 - 0845	736	25	58	59	20	623	1521
0800 - 0900	763	24	55	64	25	618	1549

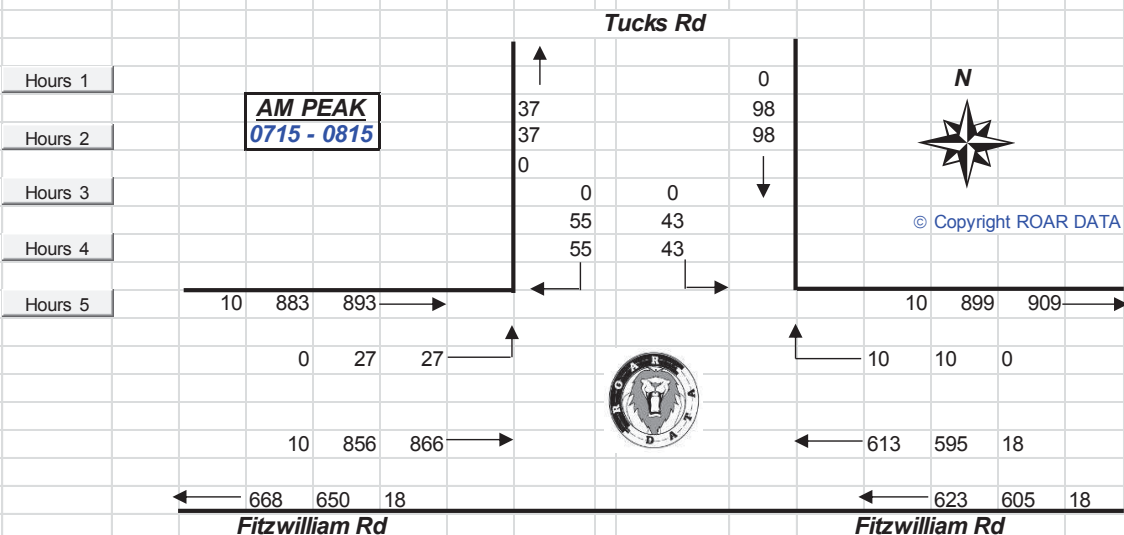
PEAK HR	856	27	55	43	10	595	1586
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PEAK HR	10	0	0	0	0	18	28
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PEAK HR	866	27	55	43	10	613	1614
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Peds	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	0		3		0		3
0715 - 0730	0		0		0		0
0730 - 0745	0		3		0		3
0745 - 0800	0		2		0		2
0800 - 0815	0		1		0		1
0815 - 0830	0		2		0		2
0830 - 0845	0		6		0		6
0845 - 0900	0		2		0		2
Per End	0		19		0		19

	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	0		8		0		8
0715 - 0815	0		6		0		6
0730 - 0830	0		8		0		8
0745 - 0845	0		11		0		11
0800 - 0900	0		11		0		11
PEAK HR	0		6		0		6





R.O.A.R DATA

Reliable, Original & Authentic Results

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

Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

AM

TOTAL VOLUMES
FOR COUNT
PERIOD



Tucks Rd

85

0

85

218

0

218

22

1679

1701

22

1744

1766

Fitzwilliam Rd

Fitzwilliam Rd

← 1281

1253

28

← 1213

1185

28



R.O.A.R DATA

Reliable, Original & Authentic Results

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

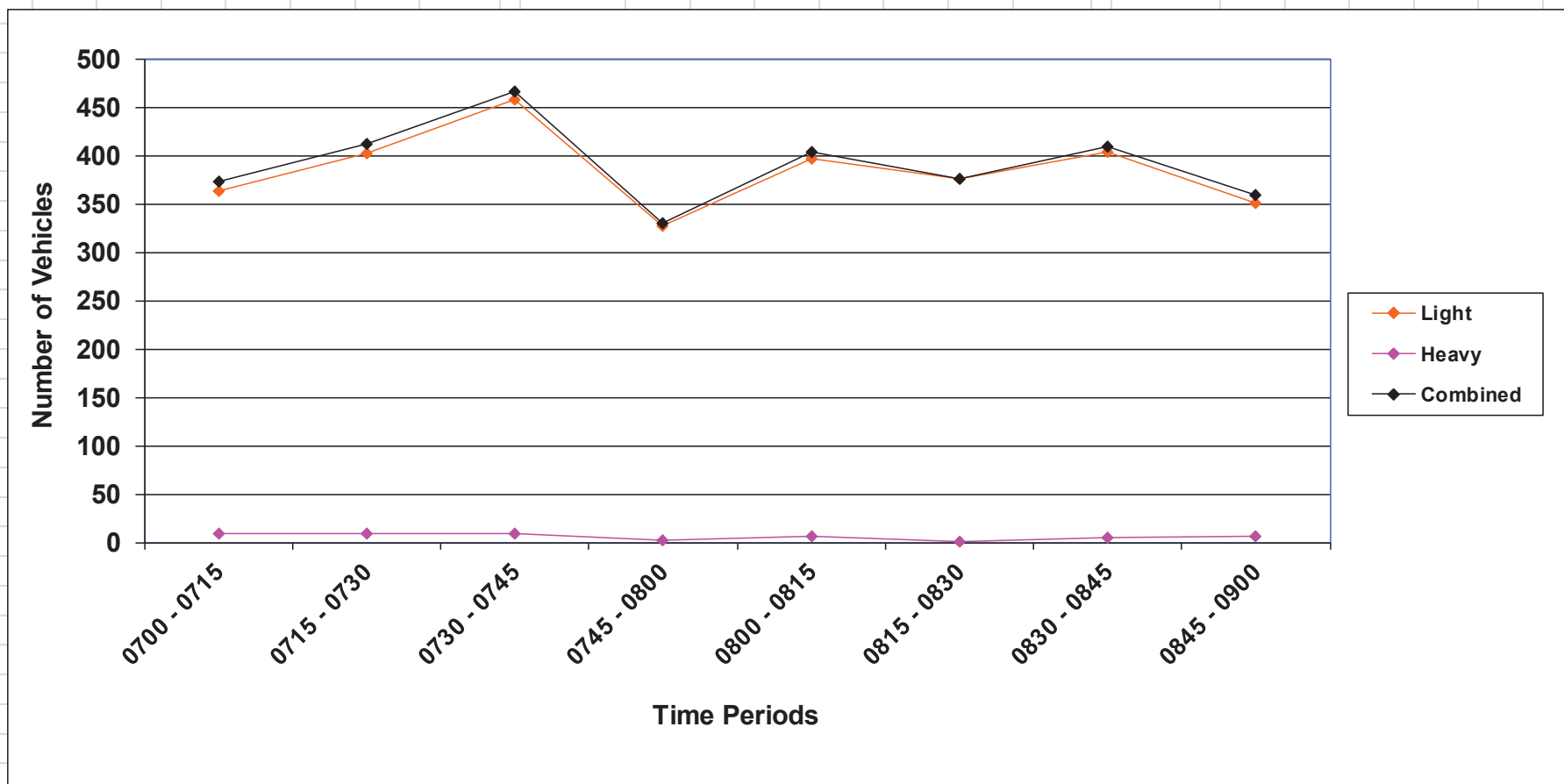
Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

AM

Fitzwilliam Rd & Tucks Rd





R.O.A.R. DATA

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Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

Lights	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Time Per	T	L	R	L	R	T	TOT
1630 - 1645	161	9	8	9	19	208	414
1645 - 1700	168	18	9	6	18	221	440
1700 - 1715	183	16	9	6	19	232	465
1715 - 1730	176	11	8	7	11	193	406
1730 - 1745	159	14	10	7	9	248	447
1745 - 1800	165	17	9	6	18	209	424
1800 - 1815	131	9	9	14	11	199	373
1815 - 1830	117	16	5	9	12	165	324
Per End	1260	110	67	64	117	1675	3293

Heavies	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Time Per	T	L	R	L	R	T	TOT
1630 - 1645	0	0	0	0	0	2	2
1645 - 1700	2	0	0	0	0	0	2
1700 - 1715	1	0	0	0	0	0	1
1715 - 1730	0	0	0	0	0	2	2
1730 - 1745	3	0	0	0	0	0	3
1745 - 1800	3	0	0	0	0	1	4
1800 - 1815	1	0	0	0	0	0	1
1815 - 1830	1	0	0	0	0	1	2
Per End	11	0	0	0	0	6	17

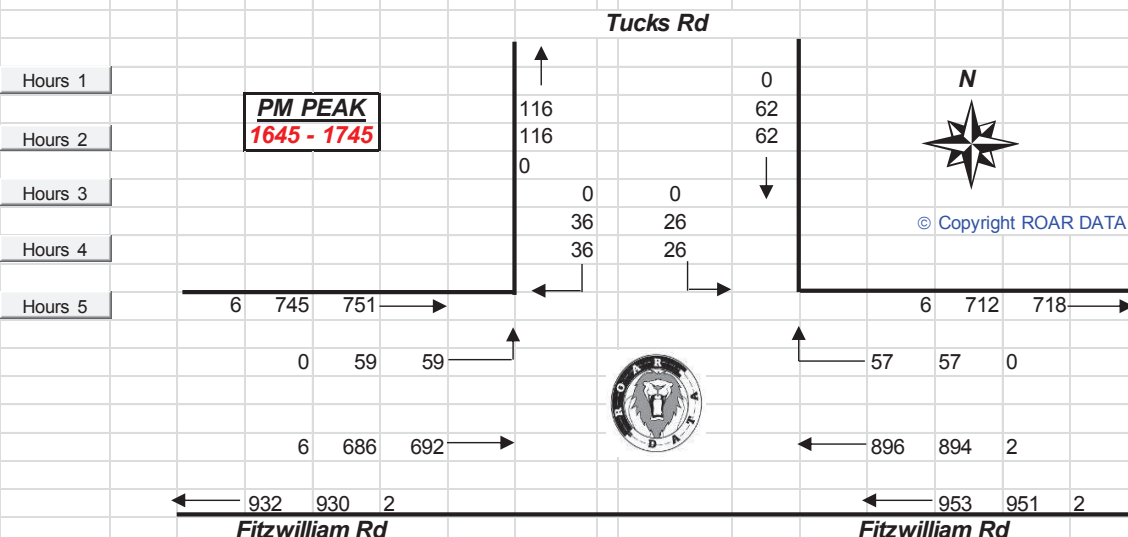
Combined	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Time Per	T	L	R	L	R	T	TOT
1630 - 1645	161	9	8	9	19	210	416
1645 - 1700	170	18	9	6	18	221	442
1700 - 1715	184	16	9	6	19	232	466
1715 - 1730	176	11	8	7	11	195	408
1730 - 1745	162	14	10	7	9	248	450
1745 - 1800	168	17	9	6	18	210	428
1800 - 1815	132	9	9	14	11	199	374
1815 - 1830	118	16	5	9	12	166	326
Per End	1271	110	67	64	117	1681	3310

Lights	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Peak Per	T	L	R	L	R	T	TOT
1630 - 1730	688	54	34	28	67	854	1725
1645 - 1745	686	59	36	26	57	894	1758
1700 - 1800	683	58	36	26	57	882	1742
1715 - 1815	631	51	36	34	49	849	1650
1730 - 1830	572	56	33	36	50	821	1568
PEAK HR	686	59	36	26	57	894	1758

Heavies	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Peak Per	T	L	R	L	R	T	TOT
1630 - 1730	3	0	0	0	0	4	7
1645 - 1745	6	0	0	0	0	2	8
1700 - 1800	7	0	0	0	0	3	10
1715 - 1815	7	0	0	0	0	3	10
1730 - 1830	8	0	0	0	0	2	10
PEAK HR	6	0	0	0	0	2	8

Combined	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Peak Per	T	L	R	L	R	T	TOT
1630 - 1730	691	54	34	28	67	858	1732
1645 - 1745	692	59	36	26	57	896	1766
1700 - 1800	690	58	36	26	57	885	1752
1715 - 1815	638	51	36	34	49	852	1660
1730 - 1830	580	56	33	36	50	823	1578
PEAK HR	692	59	36	26	57	896	1766

Peds	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Time Per	T	L	R	L	R	T	TOT
1630 - 1645	0		2		0		2
1645 - 1700	0		5		0		5
1700 - 1715	0		5		0		5
1715 - 1730	0		0		0		0
1730 - 1745	0		1		0		1
1745 - 1800	0		7		0		7
1800 - 1815	0		5		0		5
1815 - 1830	0		5		0		5
Per End	0		30		0		30



	WEST		NORTH		EAST		
	Fitzwilliam		Tucks Rd		Fitzwilliam		
Peak Per	T	L	R	L	R	T	TOT
1630 - 1730	0		12		0		12
1645 - 1745	0		11		0		11
1700 - 1800	0		13		0		13
1715 - 1815	0		13		0		13
1730 - 1830	0		18		0		18
PEAK HR	0		11		0		11



R.O.A.R DATA

Reliable, Original & Authentic Results

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Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

PM

TOTAL VOLUMES
FOR COUNT
PERIOD

N



Tucks Rd

227

0

227

131

0

131

11

1370

1381

11

1324

1335

Fitzwilliam Rd

Fitzwilliam Rd

1748

1742

6

1798

1792

6



R.O.A.R DATA

Reliable, Original & Authentic Results

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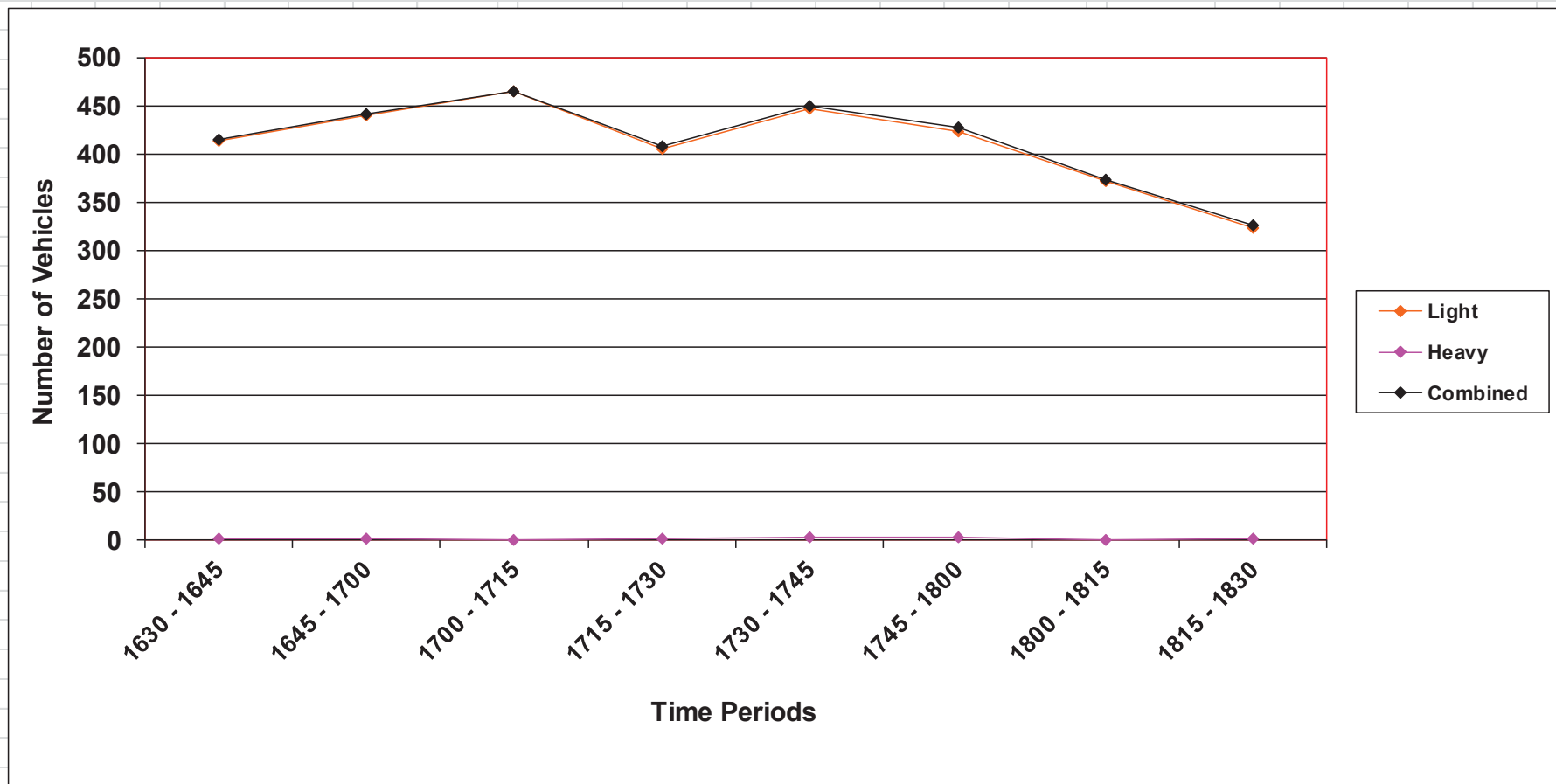
Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

PM

Fitzwilliam Rd & Tucks Rd





R.O.A.R. DATA

Reliable, Original & Authentic Results

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

Client : Varga Traffic Planning
Job No/Name : 5537 TOONGABBIE Intersection Counts
Day/Date : Monday 16th March 2015

Intersection Details

Obtained via satellite

May be incorrect

AM PEAK HOUR
0715 - 0815



Tucks Rd

Fitzwilliam Rd



AM	PM	
27	59	L

866	692	T
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R	57	10
PM	AM	
T	896	613

R	L	
55	43	AM
36	26	PM



Fitzwilliam Rd

Combined Figures only

PM PEAK HOUR
1645 - 1745

Weather >>>





R.O.A.R. DATA

Reliable, Original & Authentic Results

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

Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

Lights	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Time Per	T	R	L	R	L	T	TOT
0700 - 0715	0	1	0	1	1	0	3
0715 - 0730	4	2	2	2	2	0	12
0730 - 0745	2	4	2	1	0	0	9
0745 - 0800	2	5	2	0	4	0	13
0800 - 0815	1	7	3	4	3	1	19
0815 - 0830	3	11	2	4	1	0	21
0830 - 0845	2	2	2	3	3	0	12
0845 - 0900	2	6	1	1	3	1	14
Per End	16	38	14	16	17	2	103

Heavies	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Time Per	T	R	L	R	L	T	TOT
0700 - 0715	0	0	0	0	0	0	0
0715 - 0730	0	0	0	0	0	0	0
0730 - 0745	0	0	0	0	0	0	0
0745 - 0800	0	0	0	0	0	0	0
0800 - 0815	0	0	1	0	1	0	2
0815 - 0830	0	0	0	0	0	0	0
0830 - 0845	0	0	0	0	0	0	0
0845 - 0900	0	0	0	0	0	0	0
Per End	0	0	1	0	1	0	2

Combined	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Time Per	T	R	L	R	L	T	TOT
0700 - 0715	0	1	0	1	1	0	3
0715 - 0730	4	2	2	2	2	0	12
0730 - 0745	2	4	2	1	0	0	9
0745 - 0800	2	5	2	0	4	0	13
0800 - 0815	1	7	4	4	4	1	21
0815 - 0830	3	11	2	4	1	0	21
0830 - 0845	2	2	2	3	3	0	12
0845 - 0900	2	6	1	1	3	1	14
Per End	16	38	15	16	18	2	105

Lights	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Peak Per	T	R	L	R	L	T	TOT
0700 - 0800	8	12	6	4	7	0	37
0715 - 0815	9	18	9	7	9	1	53
0730 - 0830	8	27	9	9	8	1	62
0745 - 0845	8	25	9	11	11	1	65
0800 - 0900	8	26	8	12	10	2	66

Heavies	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Peak Per	T	R	L	R	L	T	TOT
0700 - 0800	0	0	0	0	0	0	0
0715 - 0815	0	0	1	0	1	0	2
0730 - 0830	0	0	1	0	1	0	2
0745 - 0845	0	0	1	0	1	0	2
0800 - 0900	0	0	1	0	1	0	2

Combined	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Peak Per	T	R	L	R	L	T	TOT
0700 - 0800	8	12	6	4	7	0	37
0715 - 0815	9	18	10	7	10	1	55
0730 - 0830	8	27	10	9	9	1	64
0745 - 0845	8	25	10	11	12	1	67
0800 - 0900	8	26	9	12	11	2	68

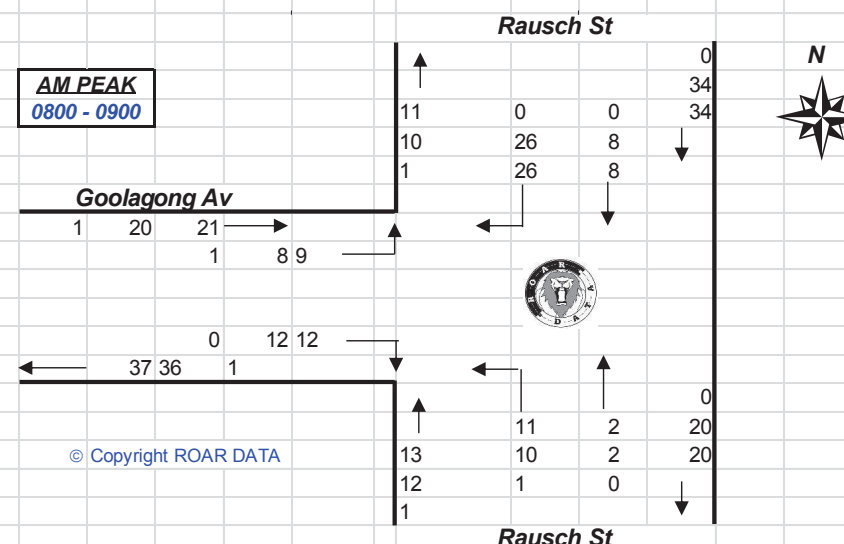
PEAK HR	8	26	8	12	10	2	66
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PEAK HR	0	0	1	0	1	0	2
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PEAK HR	8	26	9	12	11	2	68
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Peds	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Time Per	T	R	L	R	L	T	TOT
0700 - 0715	1		2		0		3
0715 - 0730	0		1		0		1
0730 - 0745	0		0		0		0
0745 - 0800	0		0		0		0
0800 - 0815	0		0		1		1
0815 - 0830	0		1		0		1
0830 - 0845	0		0		0		0
0845 - 0900	0		2		0		2
Per End	1		6		1		8

Hours 1
Hours 2
Hours 3
Hours 4
Hours 5



	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Peak Per	T	R	L	R	L	T	TOT
0700 - 0800	1		3		0		4
0715 - 0815	0		1		1		2
0730 - 0830	0		1		1		2
0745 - 0845	0		1		1		2
0800 - 0900	0		3		1		4
PEAK HR	0		3		1		4



R.O.A.R DATA

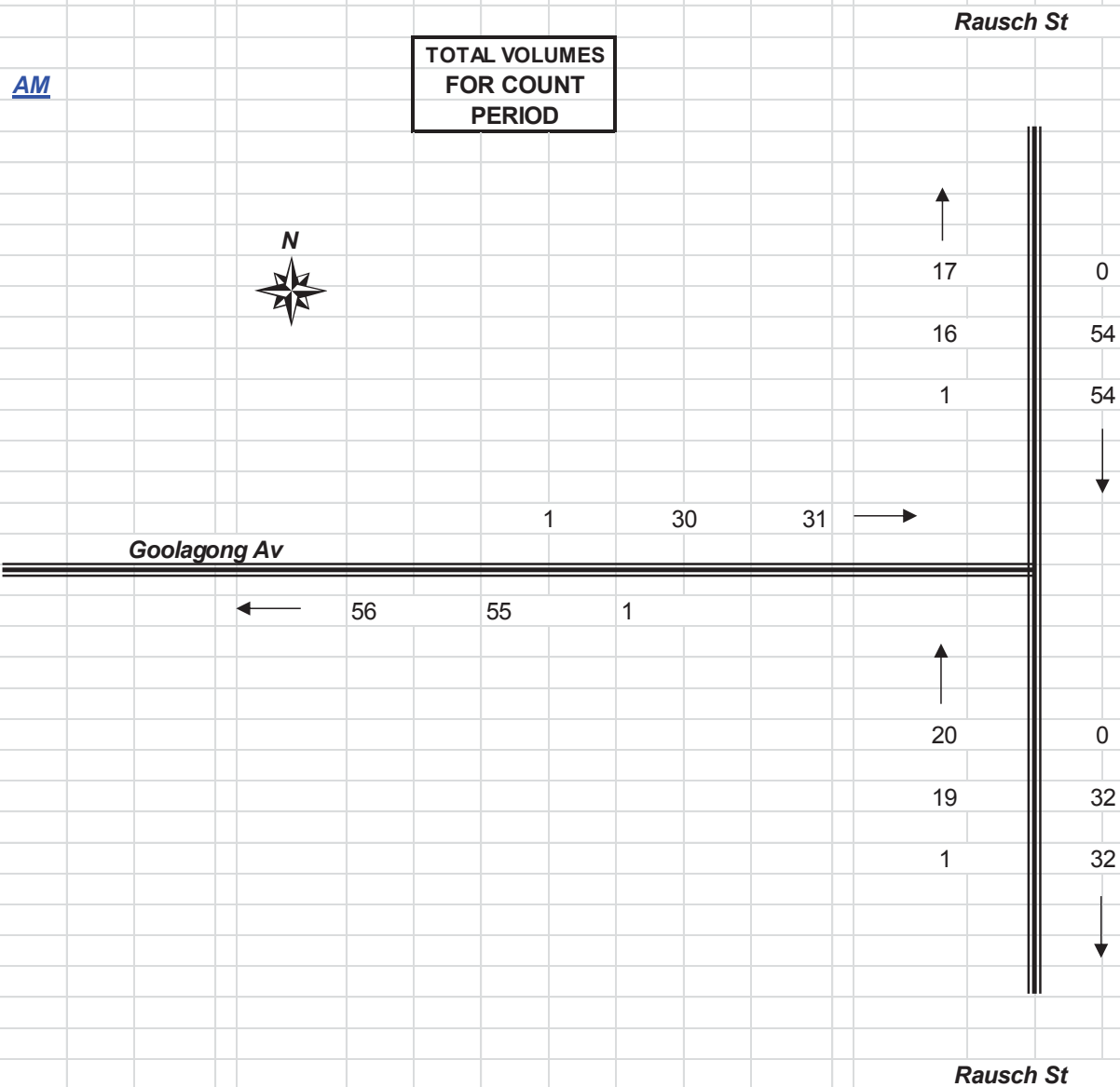
Reliable, Original & Authentic Results

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

Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015





R.O.A.R DATA

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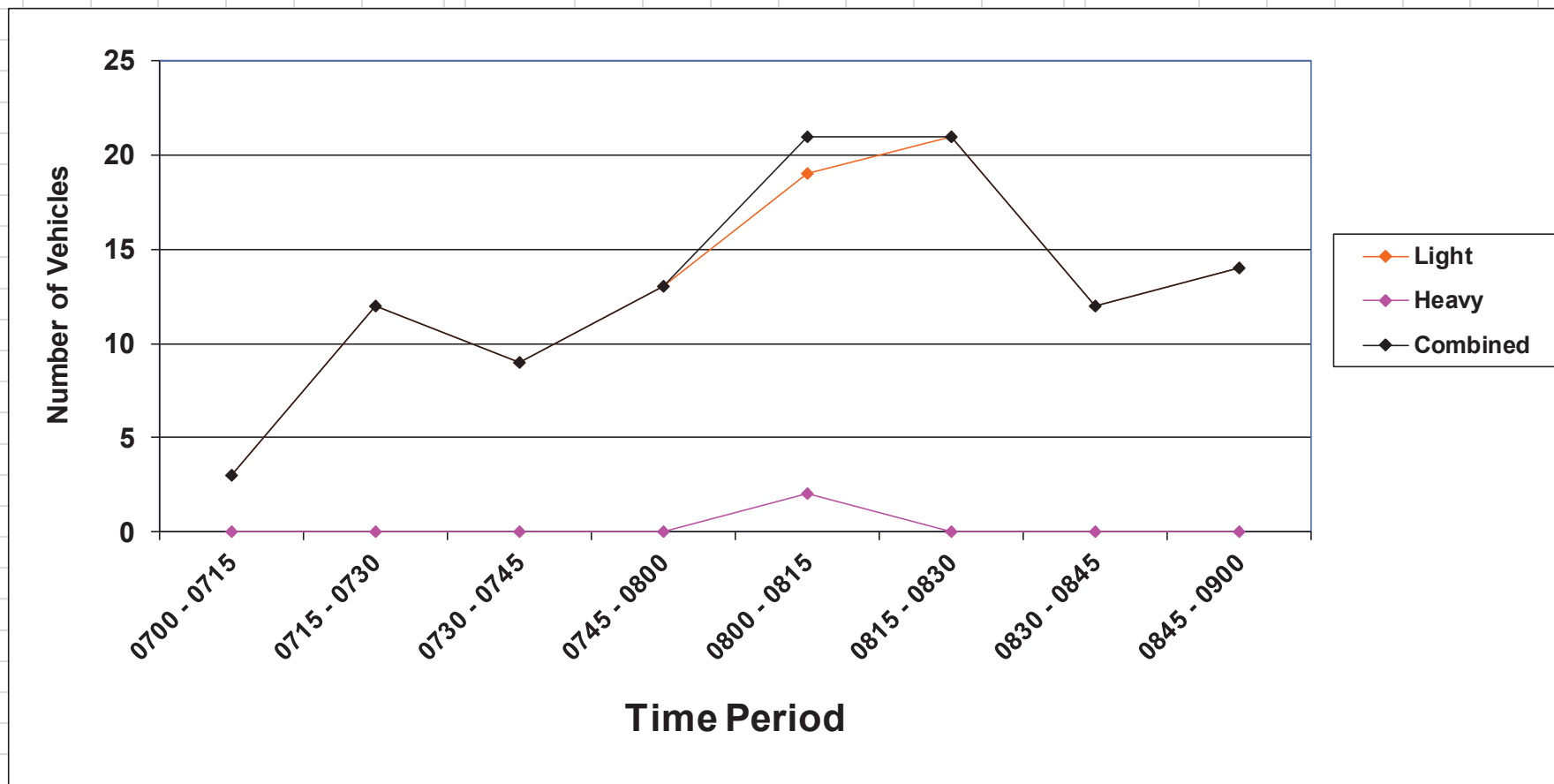
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Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

AM

Rausch St & Goolagong Ave





R.O.A.R. DATA

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Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

Lights	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Time Per	T	R	L	R	L	T	TOT
1630 - 1645	0	5	4	4	1	0	14
1645 - 1700	2	1	8	0	2	3	16
1700 - 1715	1	2	3	4	1	0	11
1715 - 1730	0	1	3	3	1	1	9
1730 - 1745	1	2	7	3	3	0	16
1745 - 1800	0	0	4	5	1	1	11
1800 - 1815	1	1	1	1	4	1	9
1815 - 1830	0	4	4	5	2	2	17
Per End	5	16	34	25	15	8	103

Heavies	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Time Per	T	R	L	R	L	T	TOT
1630 - 1645	0	0	0	0	0	0	0
1645 - 1700	0	0	0	0	0	0	0
1700 - 1715	0	0	0	0	0	0	0
1715 - 1730	0	0	0	0	0	0	0
1730 - 1745	0	0	0	0	0	0	0
1745 - 1800	0	0	0	0	0	0	0
1800 - 1815	0	0	0	0	0	0	0
1815 - 1830	0	0	0	0	0	0	0
Per End	0	0	0	0	0	0	0

Combined	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Time Per	T	R	L	R	L	T	TOT
1630 - 1645	0	5	4	4	1	0	14
1645 - 1700	2	1	8	0	2	3	16
1700 - 1715	1	2	3	4	1	0	11
1715 - 1730	0	1	3	3	1	1	9
1730 - 1745	1	2	7	3	3	0	16
1745 - 1800	0	0	4	5	1	1	11
1800 - 1815	1	1	1	1	4	1	9
1815 - 1830	0	4	4	5	2	2	17
Per End	5	16	34	25	15	8	103

Lights	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Peak Per	T	R	L	R	L	T	TOT
1630 - 1730	3	9	18	11	5	4	50
1645 - 1745	4	6	21	10	7	4	52
1700 - 1800	2	5	17	15	6	2	47
1715 - 1815	2	4	15	12	9	3	45
1730 - 1830	2	7	16	14	10	4	53

Heavies	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Peak Per	T	R	L	R	L	T	TOT
1630 - 1730	0	0	0	0	0	0	0
1645 - 1745	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0
1715 - 1815	0	0	0	0	0	0	0
1730 - 1830	0	0	0	0	0	0	0

Combined	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Peak Per	T	R	L	R	L	T	TOT
1630 - 1730	3	9	18	11	5	4	50
1645 - 1745	4	6	21	10	7	4	52
1700 - 1800	2	5	17	15	6	2	47
1715 - 1815	2	4	15	12	9	3	45
1730 - 1830	2	7	16	14	10	4	53

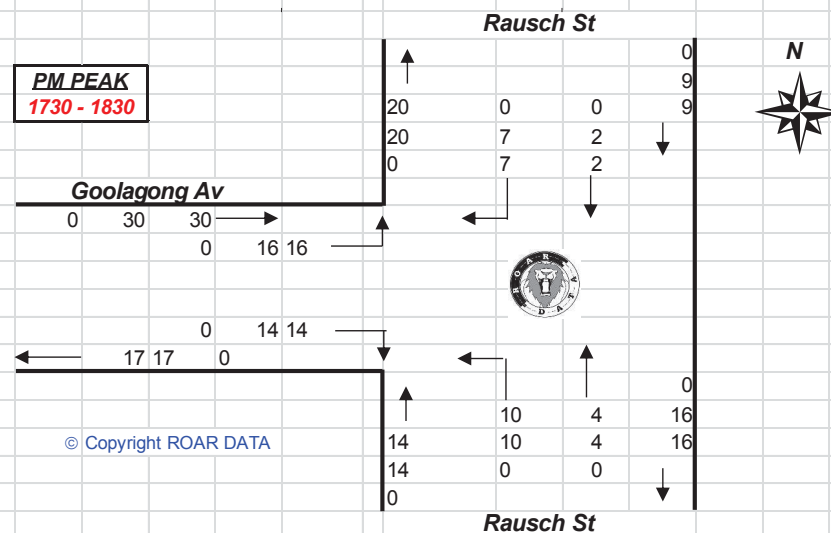
PEAK HR	2	7	16	14	10	4	53
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PEAK HR	0	0	0	0	0	0	0
---------	---	---	---	---	---	---	---

PEAK HR	2	7	16	14	10	4	53
---------	---	---	----	----	----	---	----

Peds	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Time Per	T	R	L	R	L	T	TOT
1630 - 1645	0		0		0		0
1645 - 1700	0		0		0		0
1700 - 1715	0		2		0		2
1715 - 1730	0		0		0		0
1730 - 1745	0		1		0		1
1745 - 1800	0		0		0		0
1800 - 1815	0		0		0		0
1815 - 1830	0		2		0		2
Per End	0		5		0		5

Hours 1	
Hours 2	
Hours 3	
Hours 4	
Hours 5	



	NORTH		WEST		SOUTH		
	Rausch St		Goolagong		Rausch St		
Peak Per	T	R	L	R	L	T	TOT
1630 - 1730	0		2		0		2
1645 - 1745	0		3		0		3
1700 - 1800	0		3		0		3
1715 - 1815	0		1		0		1
1730 - 1830	0		3		0		3
PEAK HR	0		3		0		3



R.O.A.R DATA

Reliable, Original & Authentic Results

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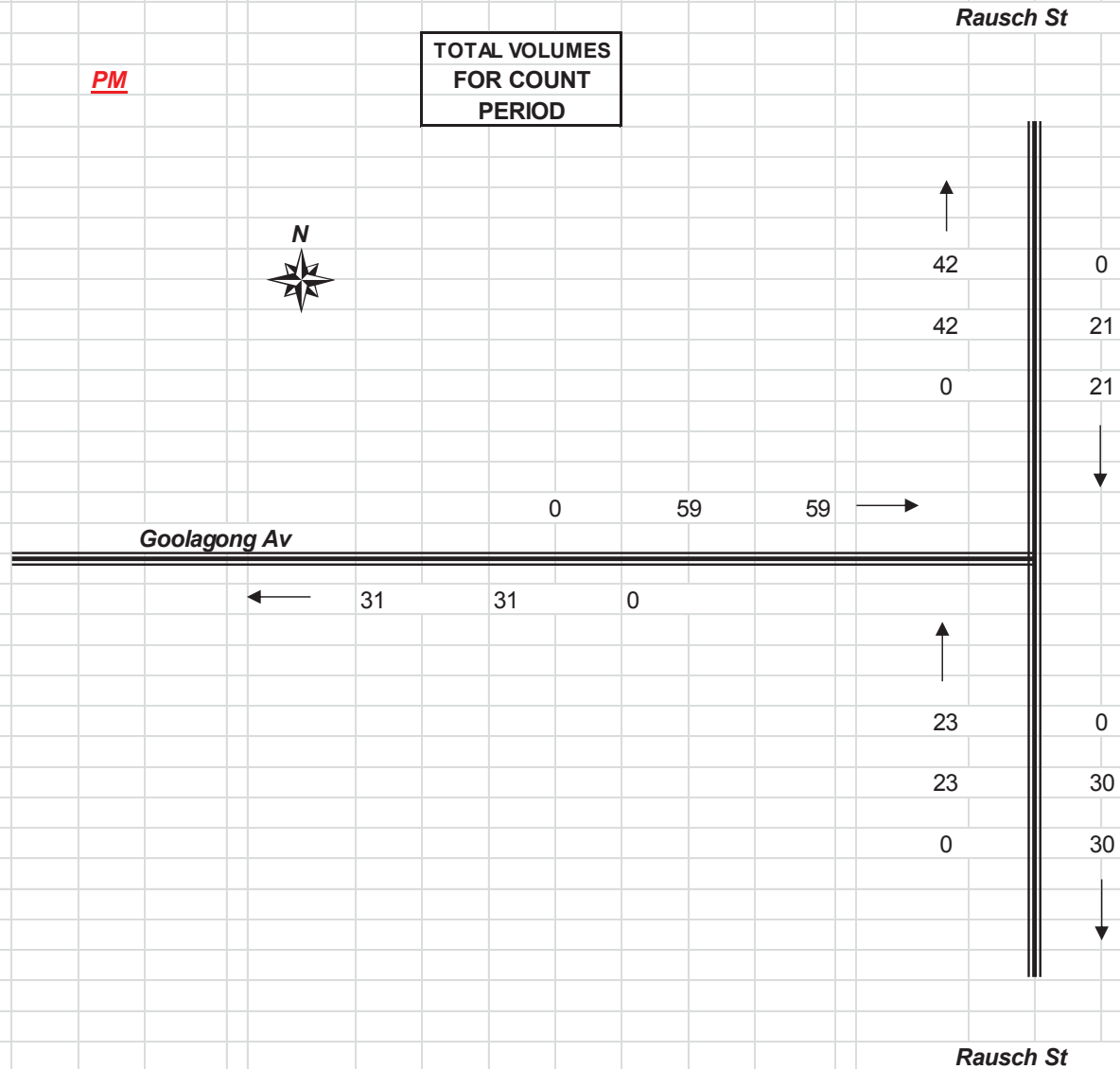
Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

PM

TOTAL VOLUMES
FOR COUNT
PERIOD





R.O.A.R DATA

Reliable, Original & Authentic Results

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

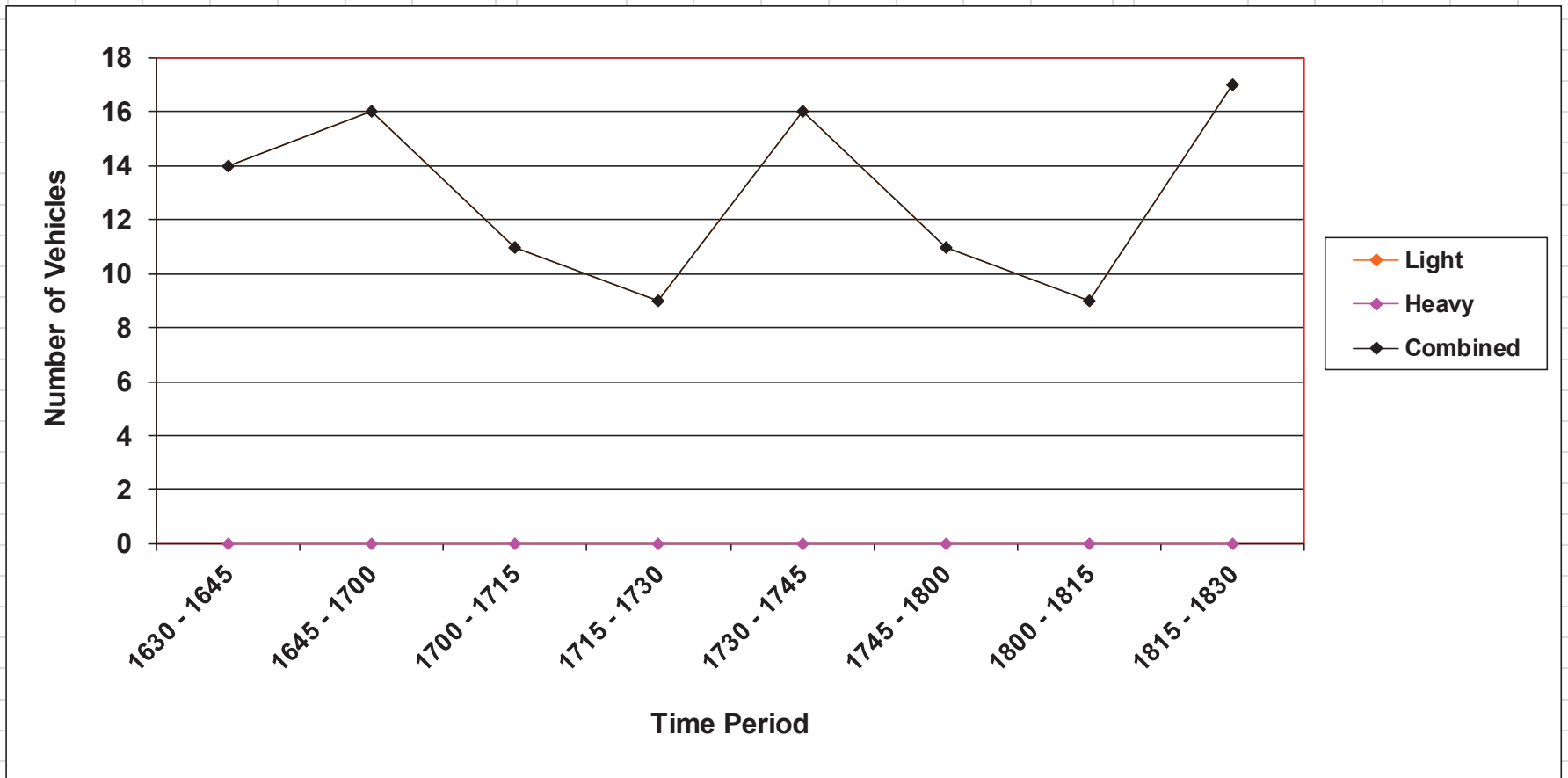
Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

PM

Rausch St & Goolagong Ave





R.O.A.R. DATA

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Client : Varga Traffic Planning
Job No/Name : 5537 TOONGABBIE Intersection Counts
Day/Date : Monday 16th March 2015

Intersection Layout

Obtained via satellite

May be incorrect

No signage or line markings

AM PEAK HOUR
0800 - 0900



Rausch St

Goolagong Ave

R	T
26	8
7	2

PM

AM

AM	PM
12	14
9	16

L

R

PM	10	4
AM	11	2
L		T

PM PEAK HOUR
1730 - 1830

Combined Figures only

Weather >>>



Rausch St



R.O.A.R. DATA

Reliable, Original & Authentic Results

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

Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

Lights	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	10	0	0	2	1	2	15
0715 - 0730	11	0	0	4	4	4	23
0730 - 0745	7	0	0	4	3	5	19
0745 - 0800	6	1	0	9	1	3	20
0800 - 0815	7	0	0	10	7	0	24
0815 - 0830	8	0	1	11	6	6	32
0830 - 0845	11	2	0	4	3	3	23
0845 - 0900	15	0	2	7	2	5	31
Per End	75	3	3	51	27	28	187

Heavies	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	0	0	0	0	0	0	0
0715 - 0730	0	0	0	0	0	0	0
0730 - 0745	0	0	0	0	0	0	0
0745 - 0800	0	0	0	0	0	0	0
0800 - 0815	0	1	1	0	0	0	2
0815 - 0830	0	0	0	0	0	0	0
0830 - 0845	0	0	0	0	0	0	0
0845 - 0900	0	0	0	0	0	0	0
Per End	0	1	1	0	0	0	2

Combined	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	10	0	0	2	1	2	15
0715 - 0730	11	0	0	4	4	4	23
0730 - 0745	7	0	0	4	3	5	19
0745 - 0800	6	1	0	9	1	3	20
0800 - 0815	7	1	1	10	7	0	26
0815 - 0830	8	0	1	11	6	6	32
0830 - 0845	11	2	0	4	3	3	23
0845 - 0900	15	0	2	7	2	5	31
Per End	75	4	4	51	27	28	189

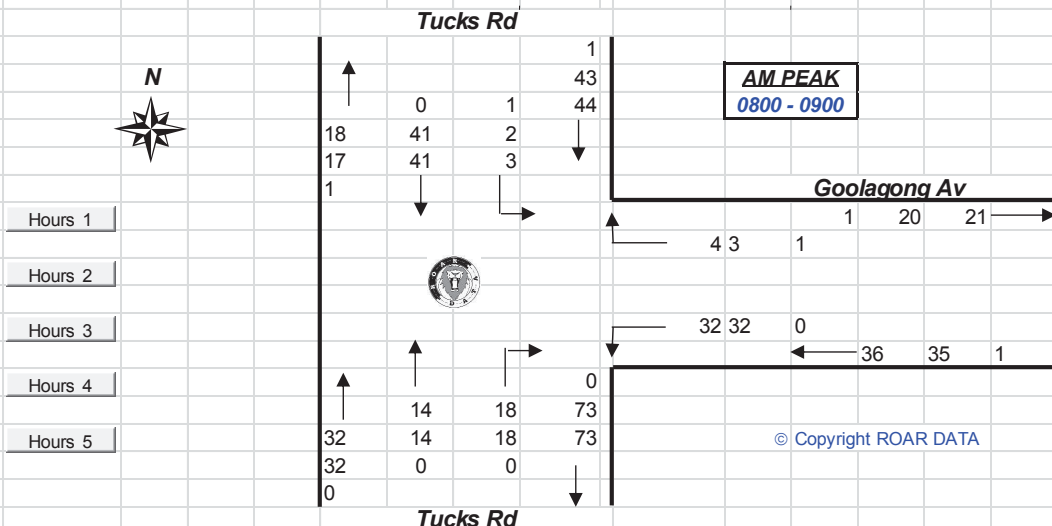
Lights	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	34	1	0	19	9	14	77
0715 - 0815	31	1	0	27	15	12	86
0730 - 0830	28	1	1	34	17	14	95
0745 - 0845	32	3	1	34	17	12	99
0800 - 0900	41	2	3	32	18	14	110
PEAK HR	41	2	3	32	18	14	110

Heavies	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	0	0	0	0	0	0	0
0715 - 0815	0	1	1	0	0	0	2
0730 - 0830	0	1	1	0	0	0	2
0745 - 0845	0	1	1	0	0	0	2
0800 - 0900	0	1	1	0	0	0	2
PEAK HR	0	1	1	0	0	0	2

Combined	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	34	1	0	19	9	14	77
0715 - 0815	31	2	1	27	15	12	88
0730 - 0830	28	2	2	34	17	14	97
0745 - 0845	32	4	2	34	17	12	101
0800 - 0900	41	3	4	32	18	14	112
PEAK HR	41	3	4	32	18	14	112

Peds	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	0	0	1	0	1	0	2
0715 - 0730	0	0	0	0	0	0	0
0730 - 0745	0	0	0	0	0	0	0
0745 - 0800	4	0	0	0	0	0	4
0800 - 0815	0	0	0	0	0	0	0
0815 - 0830	0	0	0	0	0	0	0
0830 - 0845	1	0	1	0	1	0	3
0845 - 0900	2	0	3	0	0	0	5
Per End	7	0	5	0	2	0	14

Peak Per	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Time Per	T	L	R	L	R	T	TOT
0700 - 0800	4	0	1	0	1	0	6
0715 - 0815	4	0	0	0	0	0	4
0730 - 0830	4	0	0	0	0	0	4
0745 - 0845	5	0	1	0	1	0	7
0800 - 0900	3	0	4	0	1	0	8
PEAK HR	3	0	4	0	1	0	8



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R.O.A.R DATA

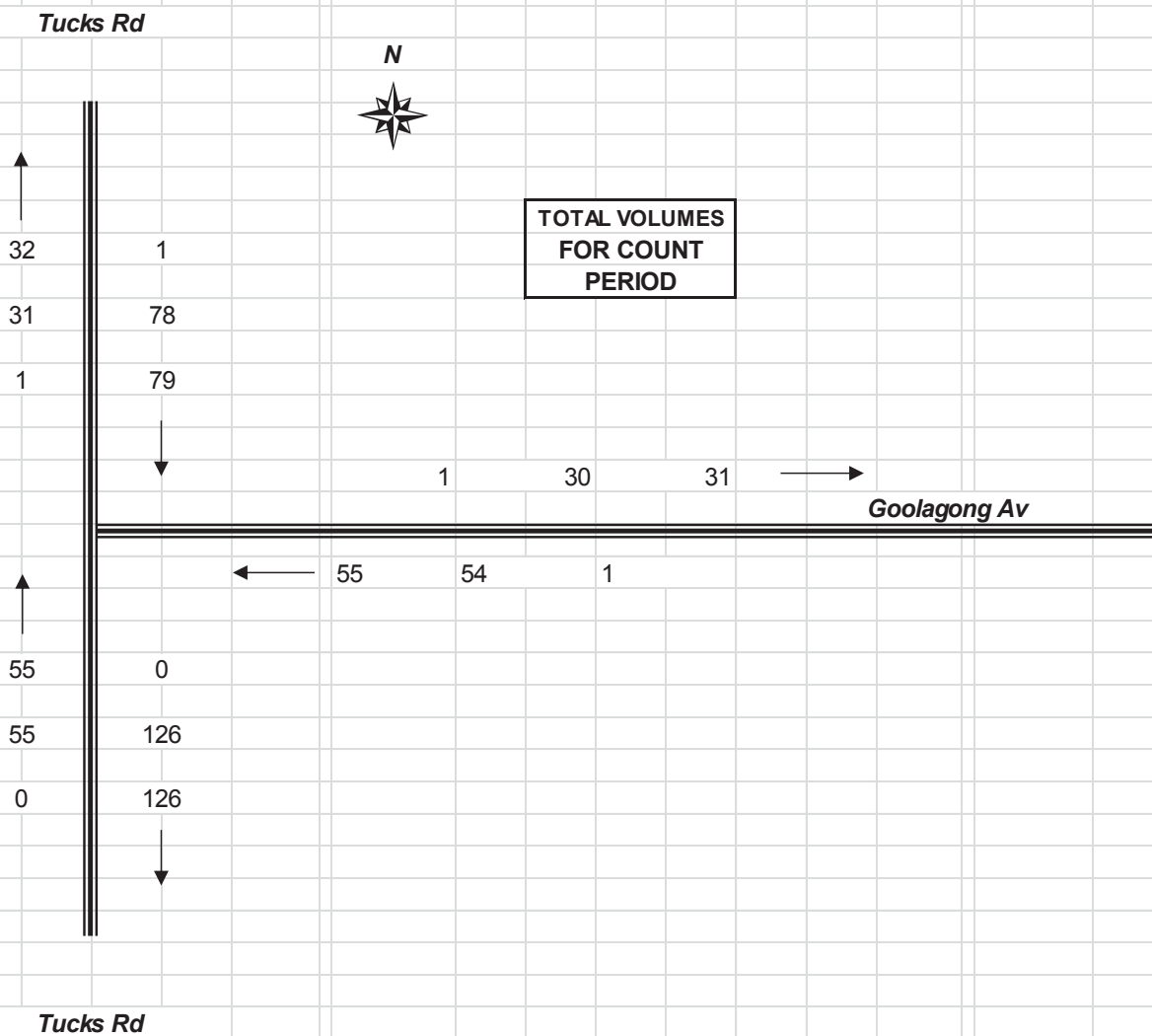
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

AM





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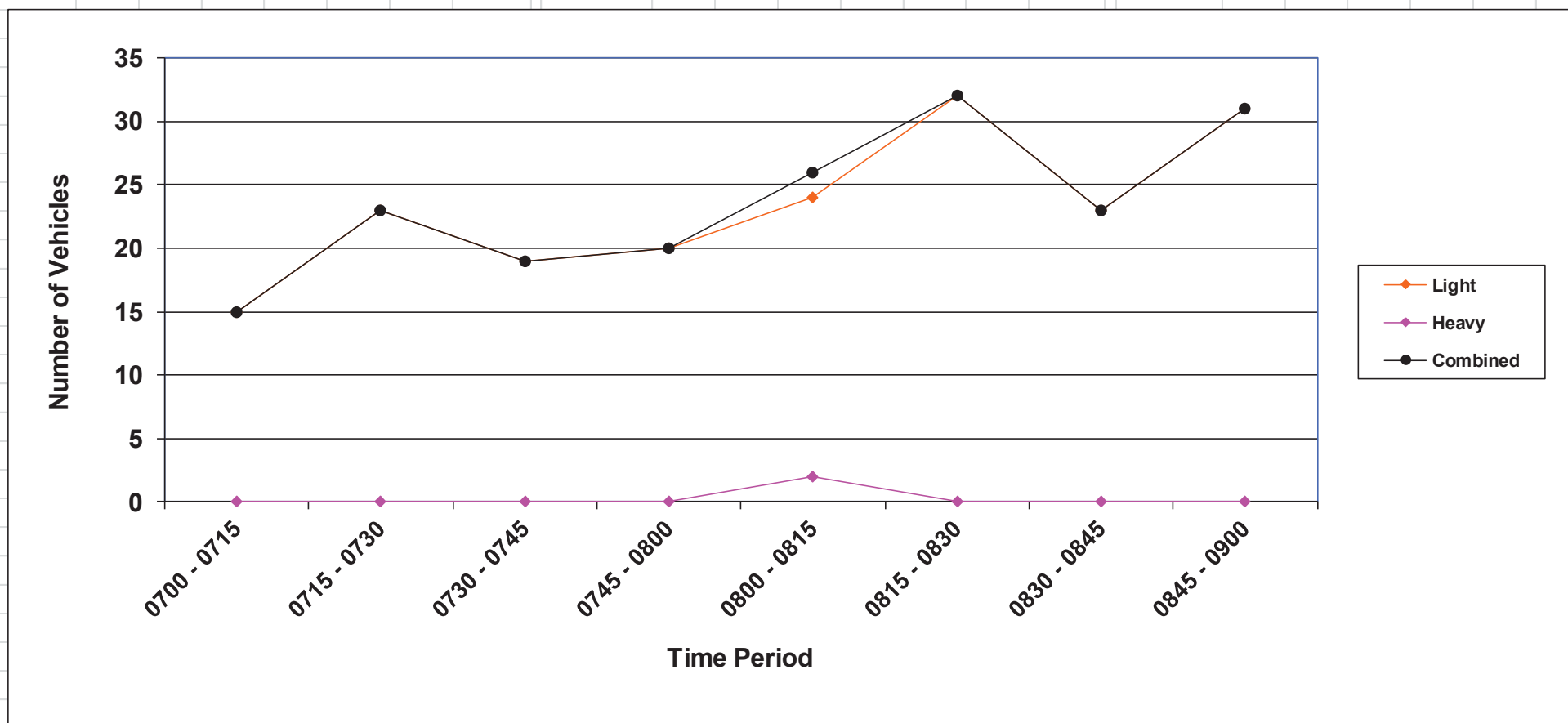
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Tucks Rd & Goolagong Ave





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Day/Date : Monday 16th March 2015

Lights	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Time Per	T	L	R	L	R	T	TOT
1630 - 1645	6	0	0	5	10	7	28
1645 - 1700	9	0	0	3	8	16	36
1700 - 1715	4	0	1	2	7	10	24
1715 - 1730	4	1	0	2	5	5	17
1730 - 1745	7	0	0	5	10	9	31
1745 - 1800	5	0	0	1	9	8	23
1800 - 1815	10	1	1	4	1	8	25
1815 - 1830	5	0	0	6	9	4	24
Per End	50	2	2	28	59	67	208

Heavies	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Time Per	T	L	R	L	R	T	TOT
1630 - 1645	0	0	0	0	0	0	0
1645 - 1700	0	0	0	0	0	0	0
1700 - 1715	0	0	0	0	0	0	0
1715 - 1730	0	0	0	0	0	0	0
1730 - 1745	0	0	0	0	0	0	0
1745 - 1800	0	0	0	0	0	0	0
1800 - 1815	0	0	0	0	0	0	0
1815 - 1830	0	0	0	0	0	0	0
Per End	0	0	0	0	0	0	0

Combined	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Time Per	T	L	R	L	R	T	TOT
1630 - 1645	6	0	0	5	10	7	28
1645 - 1700	9	0	0	3	8	16	36
1700 - 1715	4	0	1	2	7	10	24
1715 - 1730	4	1	0	2	5	5	17
1730 - 1745	7	0	0	5	10	9	31
1745 - 1800	5	0	0	1	9	8	23
1800 - 1815	10	1	1	4	1	8	25
1815 - 1830	5	0	0	6	9	4	24
Per End	50	2	2	28	59	67	208

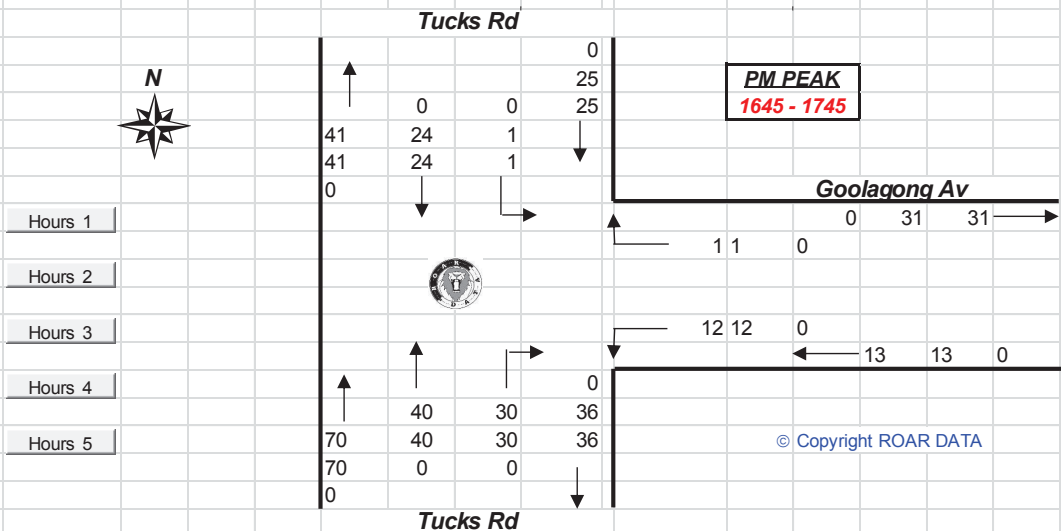
Lights	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Peak Per	T	L	R	L	R	T	TOT
1630 - 1730	23	1	1	12	30	38	105
1645 - 1745	24	1	1	12	30	40	108
1700 - 1800	20	1	1	10	31	32	95
1715 - 1815	26	2	1	12	25	30	96
1730 - 1830	27	1	1	16	29	29	103
PEAK HR	24	1	1	12	30	40	108

Heavies	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Peak Per	T	L	R	L	R	T	TOT
1630 - 1730	0	0	0	0	0	0	0
1645 - 1745	0	0	0	0	0	0	0
1700 - 1800	0	0	0	0	0	0	0
1715 - 1815	0	0	0	0	0	0	0
1730 - 1830	0	0	0	0	0	0	0
PEAK HR	0	0	0	0	0	0	0

Combined	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Peak Per	T	L	R	L	R	T	TOT
1630 - 1730	23	1	1	12	30	38	105
1645 - 1745	24	1	1	12	30	40	108
1700 - 1800	20	1	1	10	31	32	95
1715 - 1815	26	2	1	12	25	30	96
1730 - 1830	27	1	1	16	29	29	103
PEAK HR	24	1	1	12	30	40	108

Peds	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Time Per							TOT
1630 - 1645	0		0		0		0
1645 - 1700	0		0		0		0
1700 - 1715	0		0		0		0
1715 - 1730	0		0		0		0
1730 - 1745	0		0		0		0
1745 - 1800	0		0		0		0
1800 - 1815	0		0		0		0
1815 - 1830	0		1		0		1
Per End	0		1		0		1

	NORTH		EAST		SOUTH		
	Tucks Rd		Goolagong		Tucks Rd		
Peak Per							TOT
1630 - 1730	0		0		0		0
1645 - 1745	0		0		0		0
1700 - 1800	0		0		0		0
1715 - 1815	0		0		0		0
1730 - 1830	0		1		0		1
PEAK HR	0		0		0		0



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Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

PM

Tucks Rd

N



**TOTAL VOLUMES
FOR COUNT
PERIOD**

69

0

69

52

0

52

0

61

61

Goolagong Av

30

30

0

126

0

126

78

0

78

Tucks Rd



R.O.A.R DATA

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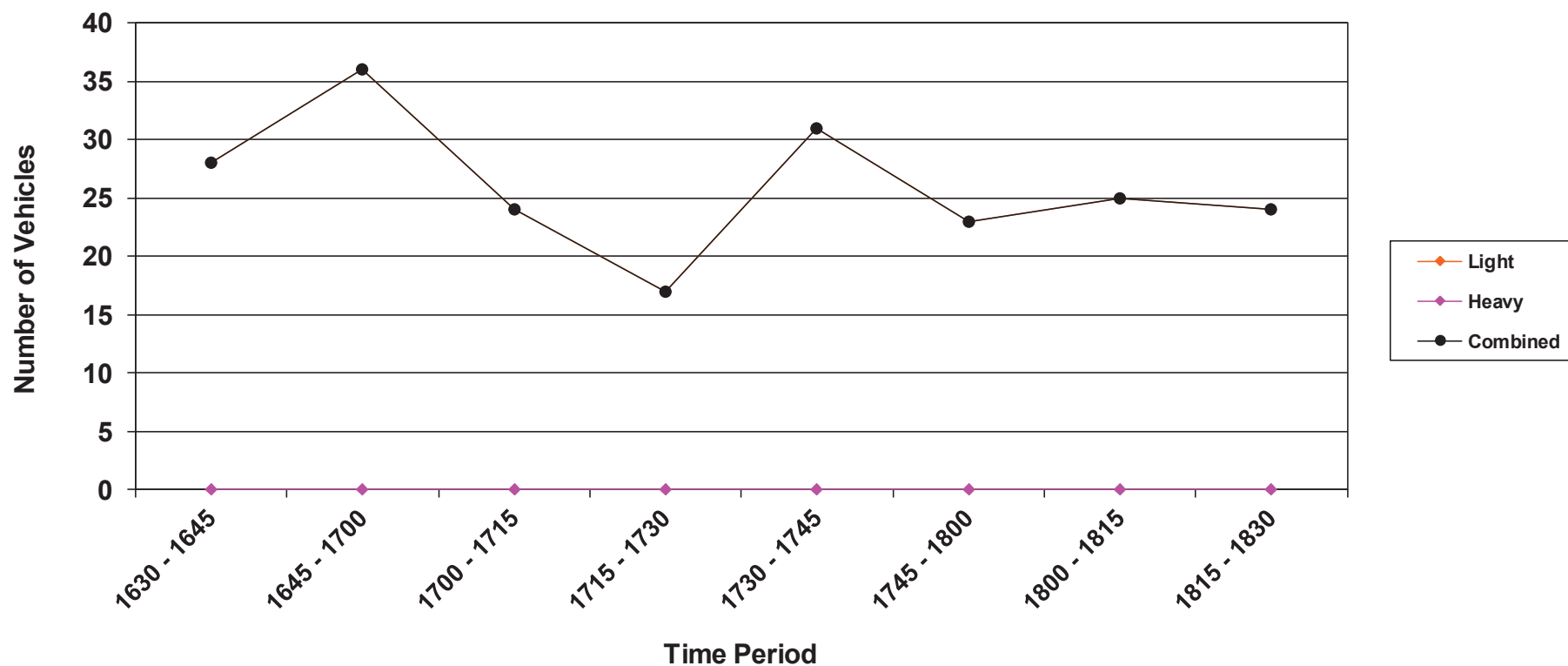
Client : Varga Traffic Planning

Job No/Name : 5537 TOONGABBIE Intersection Counts

Day/Date : Monday 16th March 2015

PM

Tucks Rd & Goolagong Ave





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Day/Date : Monday 16th March 2015

Intersection Layout

Obtained via satellite

May be incorrect

No signage or line markings

AM PEAK HOUR
0800 - 0900

Combined Figures only



Tucks Rd

T	L	
41	3	AM
24	1	PM

R	L	
1	4	PM
12	32	AM

T	R	
40	30	PM
14	18	AM

Goolagong Ave

PM PEAK HOUR
1645 - 1745

Weather >>>



Tucks Rd



Prepared by Parramatta City Council

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