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Traffic Impact Assessment

Client: Tamworth Aboriginal Medical Service

Site Address: Lot 2 DP1264030, Hillvue Road, South Tamworth

23 January 2024

Our Reference : 40924-TIA_1

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to.

Tamworth Aboriginal Medical Service

date.

23.01.2024

reference.

40924-TIA_1

Dear **Tamworth Aboriginal Medical Service**,

Medical Centre Lot 2 DP1264030, Hillvue Road, South Tamworth
Medical Centre

With reference to the above, please find the following Traffic Impact Assessment report regarding the proposed medical centre development.

If you have any further enquiries regarding this matter, please contact the undersigned.

Yours faithfully

BARNSON PTY LTD





Eden Gliksman
B.Eng (Hons)
Civil Engineer

DISCLAIMER

This report has been prepared solely for **Tamworth Aboriginal Medical Service** in accordance with the scope provided by the client and for the purpose(s) as outlined throughout this report.

Barnson Pty Ltd accepts no liability or responsibility for or in respect of any use or reliance upon this report and its supporting material by anyone other than the client.

Project Name:	Medical Centre - Lot 2 DP1264030, Hillvue Road, South Tamworth
Client:	Tamworth Aboriginal Medical Service
Project Number:	40924
Report Reference:	40924-TIA_1
Date:	23 January 2024

Prepared by:	Reviewed by:
	
Eden Gliksman B.Eng (Hons) Civil Engineer	Luke Morris B.E. MIEAust CPEng (NPER) Director

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EXECUTIVE SUMMARY

Barnson has been engaged by Tamworth Aboriginal Medical Service to prepare a Traffic Impact assessment in support of a Development Application for a medical centre development at Lot 2 DP1264030, Hillvue Road, South Tamworth.

The application seeks consent for a medical centre, allied health services building wellbeing centre as well as internal driveways, parking and associated infrastructure to provide health care for the Aboriginal and non-Aboriginal community of Tamworth.

The following conclusions have been drawn as a result of this assessment:

- The proposed development is estimated to generate 254 vehicles per hour, split between three driveways to Hillvue Road, Robert Street and Kathleen Street
- Hillvue Road, Robert Street and Kathleen Street all currently operate at an acceptable mid-block level of service and will continue to do so with the traffic generated by the proposed development. No upgrade works are required
- The proposed driveway intersections to Robert Street and Kathleen Street warrant basic left / basic right turn treatments, which are satisfied by the existing road arrangements
- The proposed driveway to Hillvue Road warrants auxiliary left / channelised right turn treatments.

With the implementation of the above recommendations, the development is unlikely to have any significant impacts on the traffic operations of the existing road network.

1. INTRODUCTION

1.1. Project Outline

The project will consist of the construction of a 2,620m² medical service building, 400m² wellbeing centre, 635m² allied health services building, outdoor gathering area, reflection spaces and yarning circle, landscaping throughout and carparking areas. The medical service building and wellbeing centre shall be operated by Tamworth Aboriginal Medical Service, whereas the allied health services building shall be dedicated for similar uses in future.

1.2. Purpose and Scope

This Traffic Impact Assessment (TIA) has been commissioned by the applicant as part of the DA for the subject site and provides an assessment of the traffic implications of the proposed expansion on surrounding traffic, transport and local road infrastructure.

This TIA has been prepared in accordance with the relevant Australian Standards, the RTA Guide to Traffic Generating Developments (2002) and Tamworth Regional Council's policies and plans.

2. EXISTING CONDITIONS

2.1. Location and Site

The subject site of this application is Lot 2 DP 1264030, Hillvue Road, South Tamworth. The site is located on the eastern side of Hillvue Road, but also enjoys access via Robert Street and Kathleen Street. The site is located within South Tamworth, approximately 3.7km south west of the Tamworth CBD, as shown in Figure 1 below.



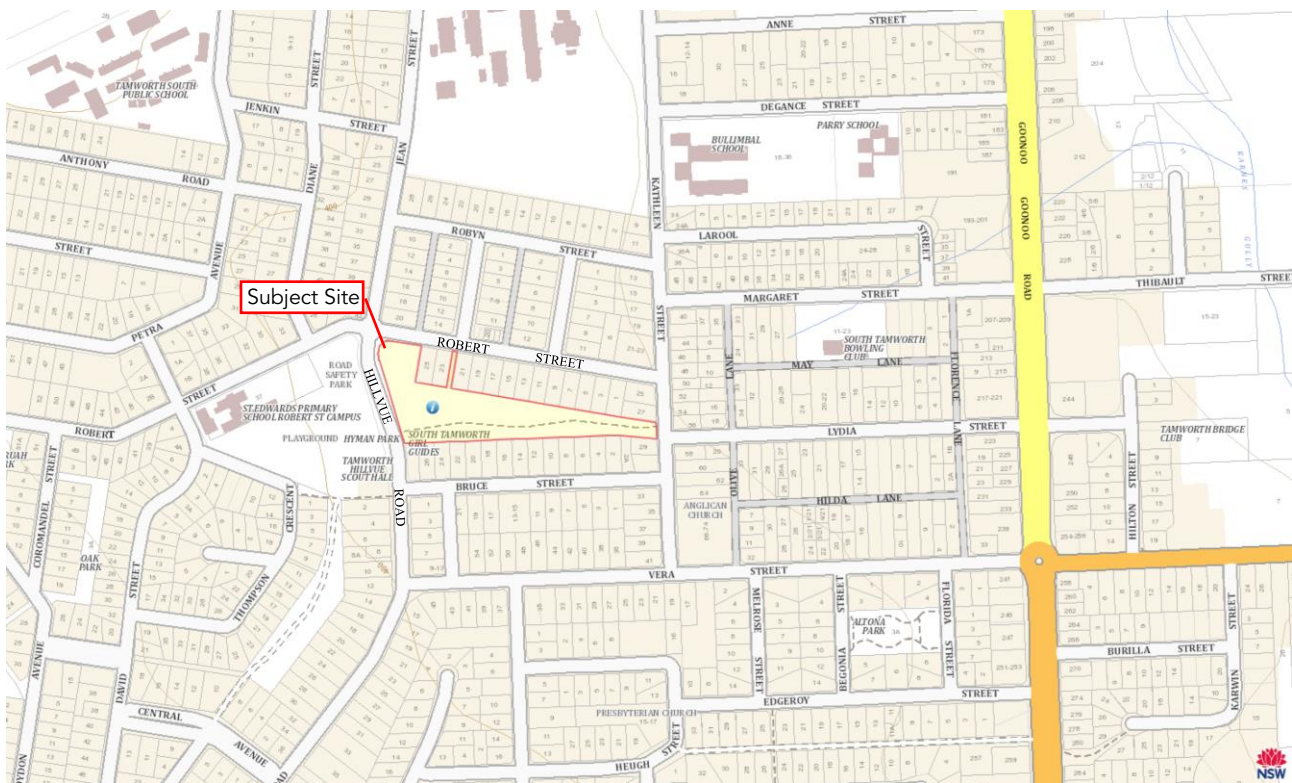
Source: (NSW Government Spatial Services, 2023)

Figure 1 – Site aerial photograph

2.2. Existing Traffic Hierarchy

The subject site has frontage to Hillvue Road, Robert Street and Kathleen Street. All three are local collector roads with Hillvue Road experiencing the highest traffic volumes.

The speed limit on Hillvue Road, Robert Street and Kathleen Street is 50km/h.



Source: SIX Maps e-Topo, NSW Spatial Information Exchange, 2021

Figure 2 – Existing road hierarchy

At the proposed site access, Hillvue is approximately 13m wide with a single lane in each direction, centre linemarking and kerb and gutter, grass verges and concrete footpaths to both sides. The road pavement is in good condition.



Figure 3 – Hillvue Road at the proposed site access

Likewise, Robert Street is approximately 11m wide with a single lane in each direction, centre linemarking and kerb and gutter, grass verges and concrete footpaths to both sides, with pavement in fair condition.



Figure 4 – Robert Street at the proposed site access

Kathleen Street is also approximately 11m wide with a single lane in each direction but without linemarking. Once again it features kerb and gutter, grass verges and concrete footpaths to both sides and pavement in good condition.



Figure 5 – Kathleen Street at the proposed site access

2.3. Traffic Volumes

Traffic counts from the surrounding road network have been obtained from Tamworth Regional Council. It is noted that the counts were conducted in late March and early April of 2020. During this time, the Australian and NSW governments were responding to the outbreak of COVID-19 and on 23 March 2020, restrictions were imposed in NSW which temporarily shut down non-essential activities and businesses. Prior to this, limitations applied to large gatherings and residents were advised to avoid non-essential travel.

To account for a skewing of traffic counts related to the social environment at the time, only weekday counts prior to 23 March have been considered, and have been increased by 20% to account for non-essential travel.

Table 1 Summary of existing traffic volumes

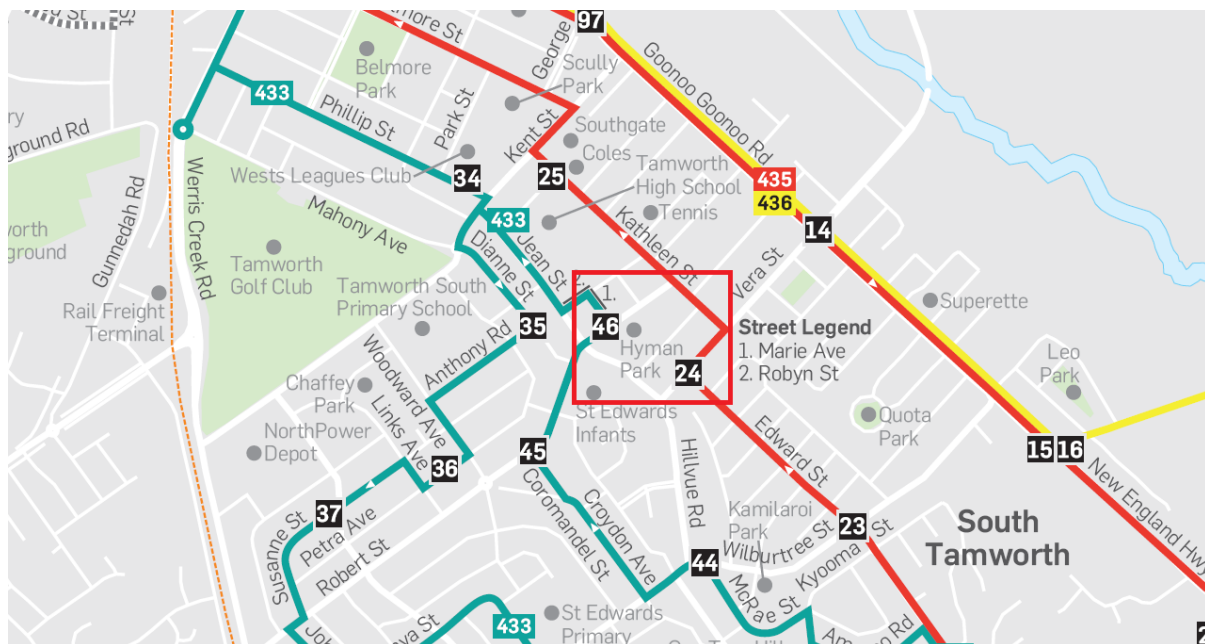
Location	Daily traffic volume (vpd)	Peak hour traffic volume (vph)
Hillvue Road - Southbound	3123	357
Hillvue Road - Northbound	2532	224
Robert Street - Westbound	1144	110
Robert Street - Eastbound	1198	117

Volumes from Tamworth Regional Council from 19-22 March 2020, increased by 20%
 All vehicle rates shown are for movements in both directions.

Unfortunately, traffic counts for Kathleen Street are not available at this time. Volumes are expected to be slightly less than Robert Street, and are adopted as 1000 vpd and 100vph in each direction.

2.4. Public Transport

Tamworth Buslines operates two routes adjacent to the site, the 433 along Robert Street and the 435 along Kathleen Street. There are a number of school bus services which also pass by the site on Hillvue Road, Robert Street and Kathleen Street.



Source: Bus Route Map, Tamworth Buslines, 2020

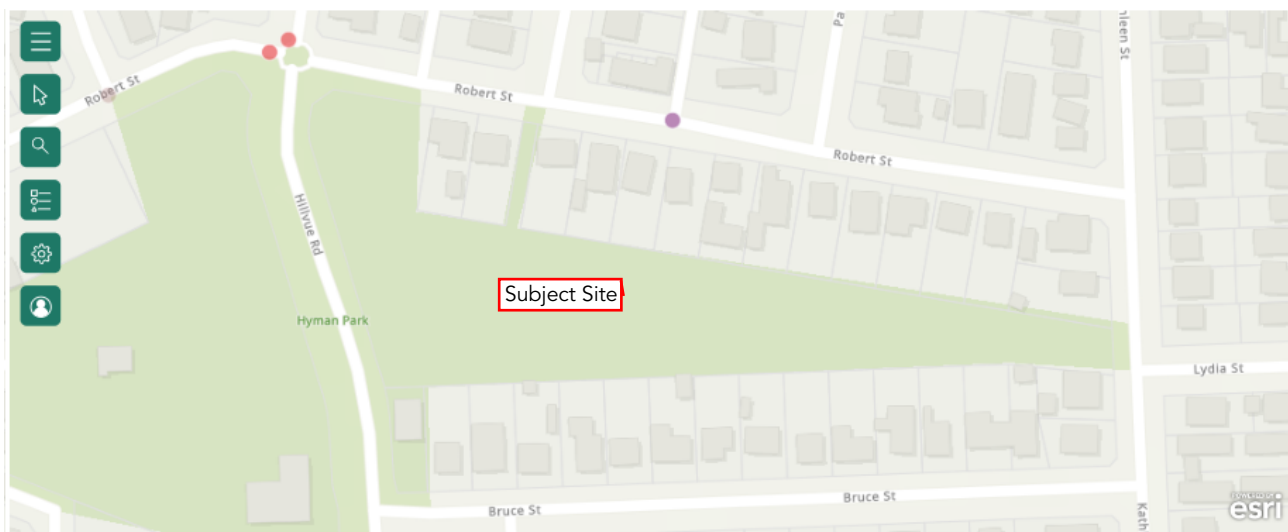
Figure 6 – South Tamworth bus routes

2.5. Traffic Safety

Traffic accident history of the area has been obtained from the TfNSW Centre for Road Safety. In the five years between 2018 and 2022, three crashes were recorded:

- Two accidents occurred at the roundabout between Hillvue Road and Robert Street, both of which did not involve casualties
- One crash at the intersection of Robert Street and the unnamed lane between Marie Street and Patricia Avenue, which resulted in one minor injury.

These accidents are isolated in nature and do not suggest dangerous conditions or serious hazards.



Reporting year	Crash Id	Degree of crash	RUM - code	RUM - description	Type of location	Natural lighting	Longitude	Latitude	Number killed	Number injured
2019	1221474	Non-casualty (towaway)	10	Cross traffic	Roundabout	Darkness	150.915005	-31.108271		
2020	1231496	Minor/Other Injury	73	Off rd right => obj	T-junction	Daylight	150.916641	-31.108567		1
2021	1260019	Non-casualty (towaway)	10	Cross traffic	Roundabout	Dusk	150.914926	-31.108320		

Source: Crash and Casualty Statistics, Centre for Road Safety, Transport for NSW, 2021

Figure 7 – Map of traffic accident history

3. PROPOSED DEVELOPMENT

The proposed development is a medical hub and associated infrastructure to provide health care for the Aboriginal and non-Aboriginal community of Tamworth.

The primary features of the project include the following:

- A 2,620m² medical service building
- A 400m² wellbeing centre building
- A 635m² allied health services building
- Internal driveways and hardstand carparking consisting of 132 car parking spaces
- Landscaping

3.1. Traffic Generation

Based on the proponent's experience at the existing TAMS facility, operational traffic generation has been estimated as:

- Deliveries: two rigid (12m long) trucks per day
- Garbage collection: once per week
- Staff: up to 50 staff members requiring parking per day
- TAMS-operated patient transportation services: one bus and eight small vehicles
- Private patient transport: 20 patients per hour.

This estimate provides a maximum possible volume of 81 vehicles per hour, which is relatively low for the development size and number of consultation rooms. For the purposes of analysis, more conservative traffic generation rates have been adopted from empirical surveys described in the Roads and Maritime Services Trip Generation Surveys Medical Centres (Traffic, Environmental & Forensic Engineers, 2015).

The report covers surveys conducted on 20 medical practices and examines the relationship between trip generation and different physical factors associated with the practice. It concludes that the number of consulting rooms is the only reliable predictor of trip generation rates, and the recommended formula has been adopted on this basis.

The split of vehicles travelling on each road in each direction has been adopted proportionally from the existing traffic counts:

- Hillvue Road – Southbound: 35%
- Hillvue Road – Northbound: 25%
- Robert Street – Westbound: 10%
- Robert Street – Eastbound: 10%
- Kathleen Street – Southbound: 10%
- Kathleen Street – Northbound: 10%

Table 2 Traffic generation from proposed development

Daily vehicle trips (vpd)	2070
Peak hour vehicle trips (in+out) (vph)	254
Hillvue Road Southbound (vph)	89
Hillvue Road Nothbound (vph)	63
Robert Street Westbound (vph)	26
Robert Street Eastbound (vph)	26
Kathleen Street Southbound (vph)	25
Kathleen Street Northbound (vph)	25

It is noted that the proximity of the development to public transport services, as described in Section 2.4, may encourage some patients to access the medical centre via bus rather than driving. It is assumed that the influence of public transport availability is already factored into the trip estimation through the empirical data sets recorded from existing sites which also have varying access to public transport.

3.2. Mid-Block Level of Service

The criteria for Levels of Service (LoS) at a mid-block road are prescribed in Table 4.4 of the RTA Guide to Traffic Generating Developments (2002). It is desirable to maintain a minimum LoS C in peak hour traffic.

Table 3 Existing and proposed mid-block levels of service

Location	Existing volume (vph)	Existing LoS	Proposed volume (vph)	Proposed LoS
Hillvue Road Southbound	357	B	446	C
Hillvue Road Northbound	224	B	287	B
Robert Street Westbound	110	A	136	A
Robert Street Eastbound	117	A	143	A
Kathleen Street Southbound	100	A	125	A
Kathleen Street Northbound	100	A	125	A

Source: Guide to Traffic Generating Developments, Roads & Traffic Authority, 2002

All subject roads currently operate at an acceptable LoS and will continue to do so once the proposed traffic generation is integrated. No upgrades are required to Hillvue Road, Robert Street or Kathleen Street.

3.3. Intersection Analysis

Turn warrants have been determined from the peak traffic flows summarised below, and in accordance with the procedure set out in Figure A 10 of the AUSTROADS Guide to Road Design Part 4 (2017).

Table 4 Proposed peak hour turning volumes

Driveway	Hillvue Road	Robert Street	Kathleen Street
Existing traffic Development side	357	110	100
Existing traffic Opposite side	224	117	100
Proposed left turning traffic (max)	89	26	25
Traffic volume parameter Q_{ML}^2	357	110	100
Proposed right turning traffic (max)	63	26	25
Traffic volume parameter Q_{MR}^2	670	253	225
Left turn warrant	AUL	BAL	BAL
Right turn warrant	CHR	BAR	BAR

1. All figures given in vehicles per hour (vph)
2. Traffic volume parameters Q_{ML} and Q_{MR} have been calculated as prescribed by the Guide to Road Design Part 4: Intersections and Crossings, Austroads, 2017, Figure A 11

The existing traffic arrangements on Robert Street and Kathleen Street satisfy the requirements for a BAL/BAR type driveway intersection.

At the proposed Bellvue Road intersection, it is recommended that a channelised right turn lane and auxiliary left turn lane be implemented in a seagull arrangement to accommodate right turns into and out of the development. This may be achievable through linemarking alone if the existing

road width allows. A detailed intersection design is to be submitted with the Construction Certificate application for Council's review.

3.4. Cumulative Impacts

There are no known developments planned in the vicinity of the subject site that could contribute to significant cumulative impact.

4. CONCLUSION

Barnson has been engaged by Tamworth Aboriginal Medical Service to prepare a Traffic Impact assessment in support of a Development Application for a medical centre at Lot 2 DP1264030, Hillvue Road, South Tamworth.

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