Appendix B – Traffic Impact Statement

Lot 201 Gnangara Road, Landsdale

Transport Impact Statement

CW1042900

Prepared for

VV Nominees Pty Ltd

29 August 2018

Cardno

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1 Introduction

1.1 Background

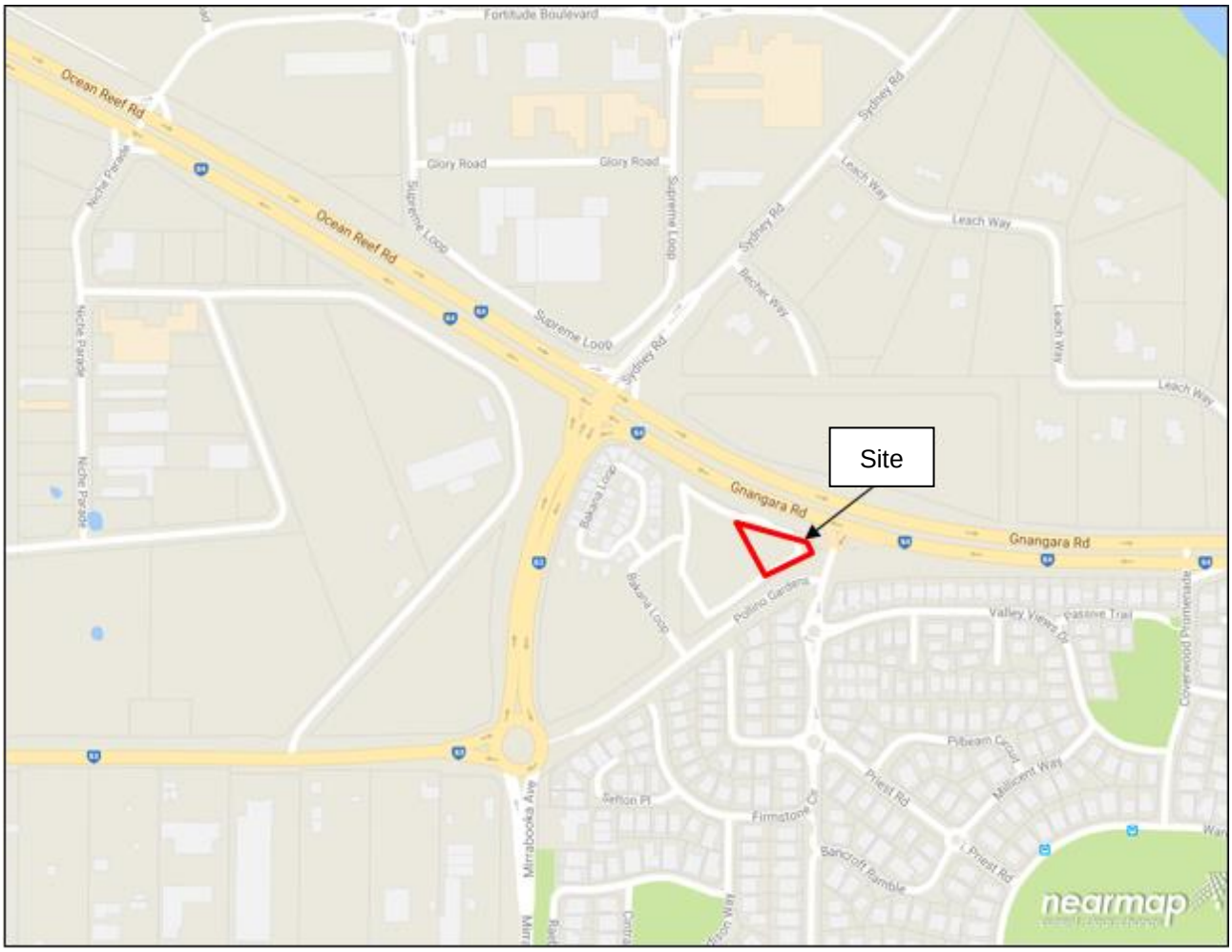
Cardno was commissioned by Urbis, on behalf of VV Nominees Pty Ltd ('the Client'), to prepare a Transport Impact Statement (TIS) to support the proposed structure plan amendment of Lot 3 ('the Site') from R40 residential to R40 residential with additional uses of Medical Centre and Pharmacy.

This TIS has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Transport Impact Assessment Guidelines for Developments: Volume 4 – Individual Development (2016)* and the checklist is included at **Appendix A**.

1.2 Existing Site

The Site is located on the corner of Pollino Gardens, Priest Road and Gnangara Road in the suburb of Landsdale within the City of Wanneroo, as shown in **Figure 1-1**.

Figure 1-1 Site Location



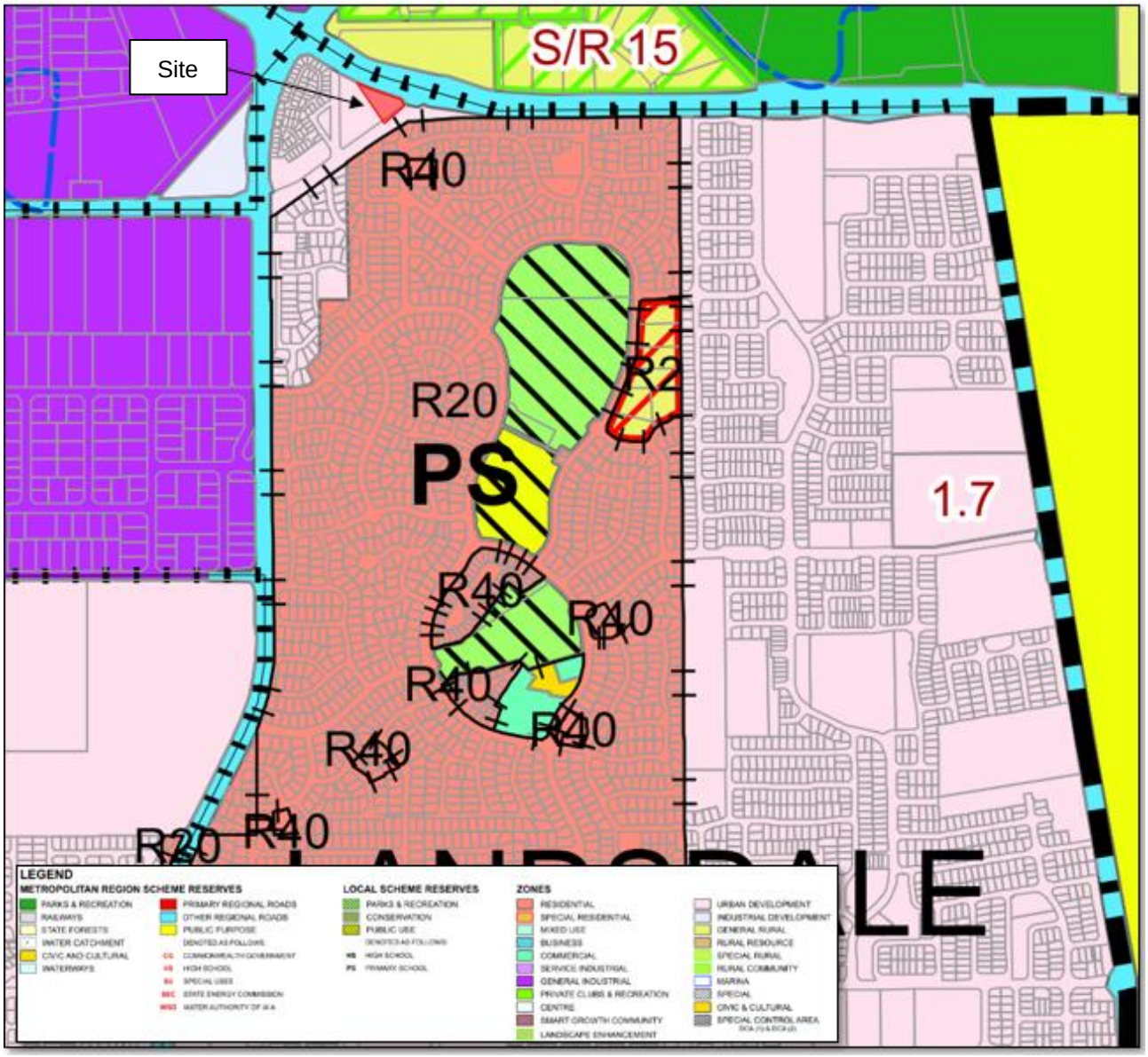
Source of base: Nearmap (2018)

The Site currently consists of vacant land. The surrounding area currently consists of residential developments and some vacant land.

In the City of Wanneroo's *District Planning Scheme No. 2*, the Site is situated within the "Urban Development" zone as shown in **Figure 1-2**.

Additionally, the existing structure plan, East Wanneroo Cell 5 – Agreed Structure Plan No.7, classifies the area as R40 residential as shown in **Figure 1-3.**

Figure 1-2 Zoning Map



Source: City of Wanneroo District Planning Scheme Map No. 2 (2017)

Figure 1-3 East Wanneroo Cell 5 – Agreed Structure Plan No. 7

Source: City of Wanneroo (2018)

1.3 Existing Road Network

The surrounding road network is summarised in **Table 1-1**.

Table 1-1 Road Network Description

	Road Hierarchy		Road Network			
	Road Hierarchy	Jurisdiction	No. of Lanes	No. of Footpaths	Width (m)	Posted Speed (km/h)
Gnangara Road	Distributor A	Local Govt.	4	1	31 divided	80
Priest Road	Access Road	Local Govt.	2	1	8.2	50
Pollino Gardens	Access Road	Local Govt.	2	1	6	50
Bakana Loop	Access Road	Local Govt.	2	1	6	50

1.4 Traffic Volumes

Existing traffic volumes were sourced from the City of Wanneroo (“the City") and Main Roads WA (MRWA) Traffic Map. Recent traffic flow data on the local road network is shown in **Table 1-2** below.

Table 1-2 Existing Traffic Volumes (two-way)

Road Name	Date	Average Daily Two-way Traffic Volume	Vehicles per AM Peak Hour	Vehicles per PM Peak Hour
Gnangara Road (west of Alexander Drive)	2016	30,531	2,655	2,950
Priest Road (South of Valley Views)	2015	400	36 Northbound = 21 Southbound = 15	38 Northbound = 24 Southbound = 14

Source: City of Wanneroo and Main Roads WA

There are no recorded traffic volumes for Pollino Gardens and Bakana Loop available from the City or MRWA; however, it can be expected that existing volumes on these roads would be very low as these roads only provide access to approximately 40 dwellings.

2 Public Transport Facilities

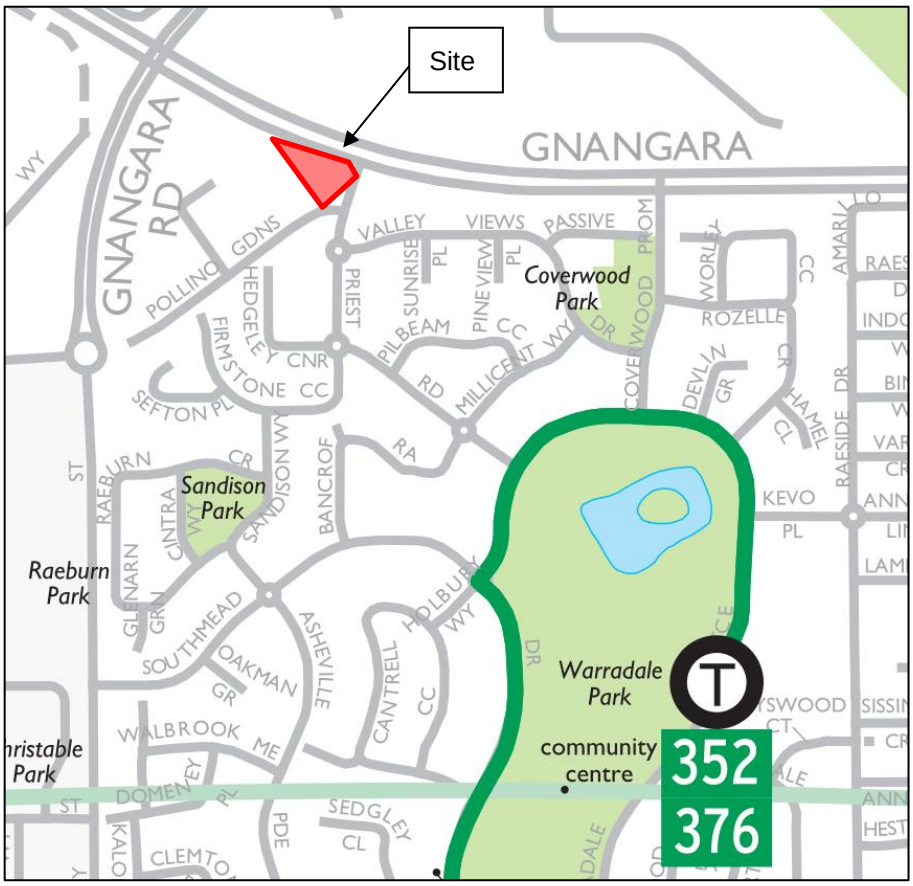
2.1 Existing Public Transport Facilities

The nearest available public transport stops are the bus stops located along Gnangara Road located approximately 350m west of the Site which provides services from Ellenbrook Transfer Station to Whitfords Station. Additional services are located approximately 500m south-east of the Site on Warradale Terrace and provide services on routes between; Warradale Terrace and Whitfords Station; Mirrabooka Bus Station and Warradale Terrace. The frequencies of the bus services are as follows:

- Peak period: 10 minutes (Bus 352), 10 minutes (Bus 376) and 30 minutes (Bus 355).
- Off-peak period: an hour (Bus 352), 30 minutes (Bus 376) and 1 hour (Bus 355).

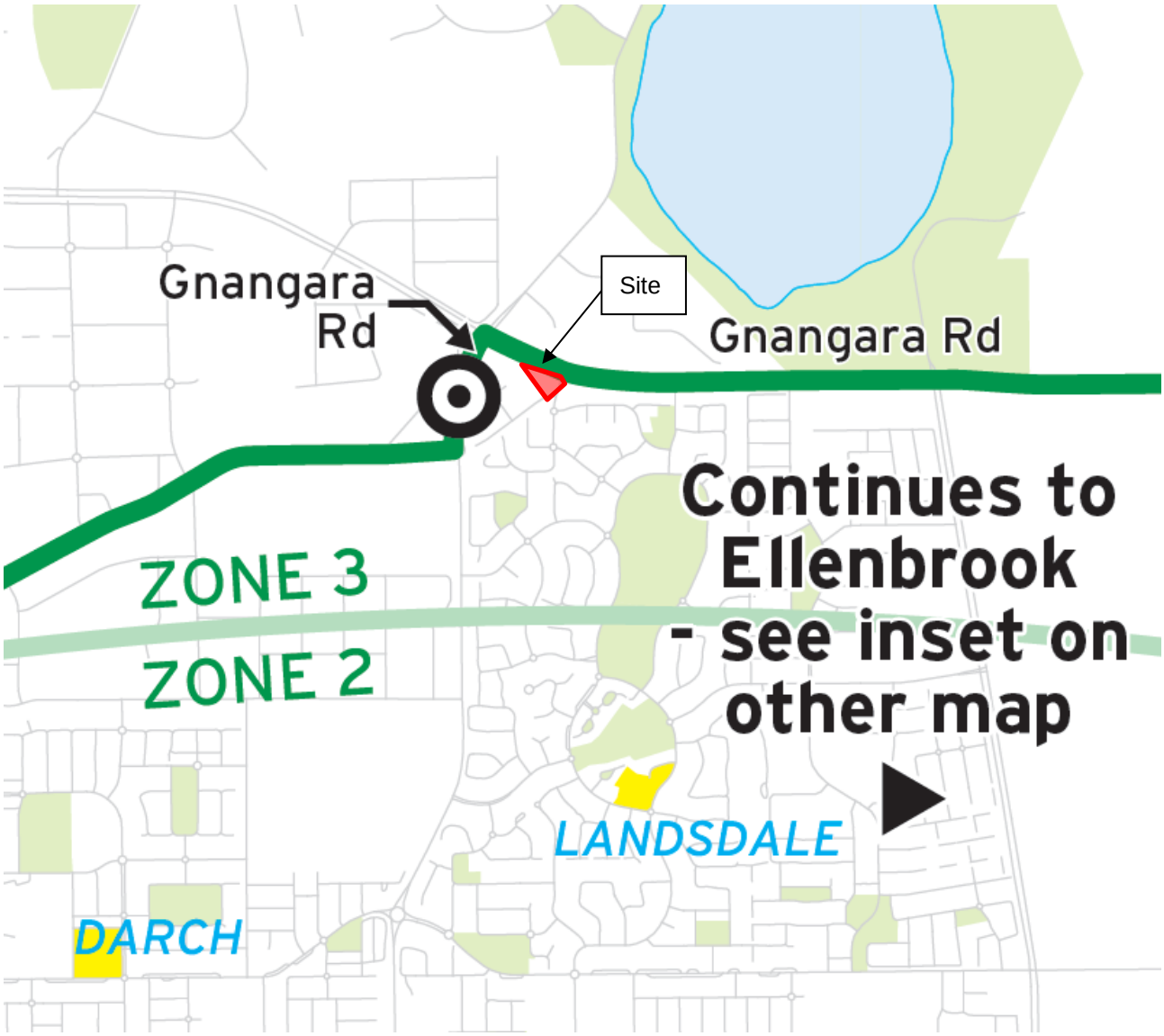
Figure 2-1 and **Figure 2-2** shows the bus service routes and **Figure 2-3** shows the location of bus stops near the Site.

Figure 2-1 Bus Routes 352 and 376



Source: Transperth (2018)

Figure 2-2 Bus Route 355



Source: Transperth (2018)

Figure 2-3 Bus Stop Locations

Source: Nearmap (2018)

2.2 Future Public Transport Facilities

There are currently no new planned changes to the public transport within the area.

3 Pedestrian/Cycle Networks and Facilities

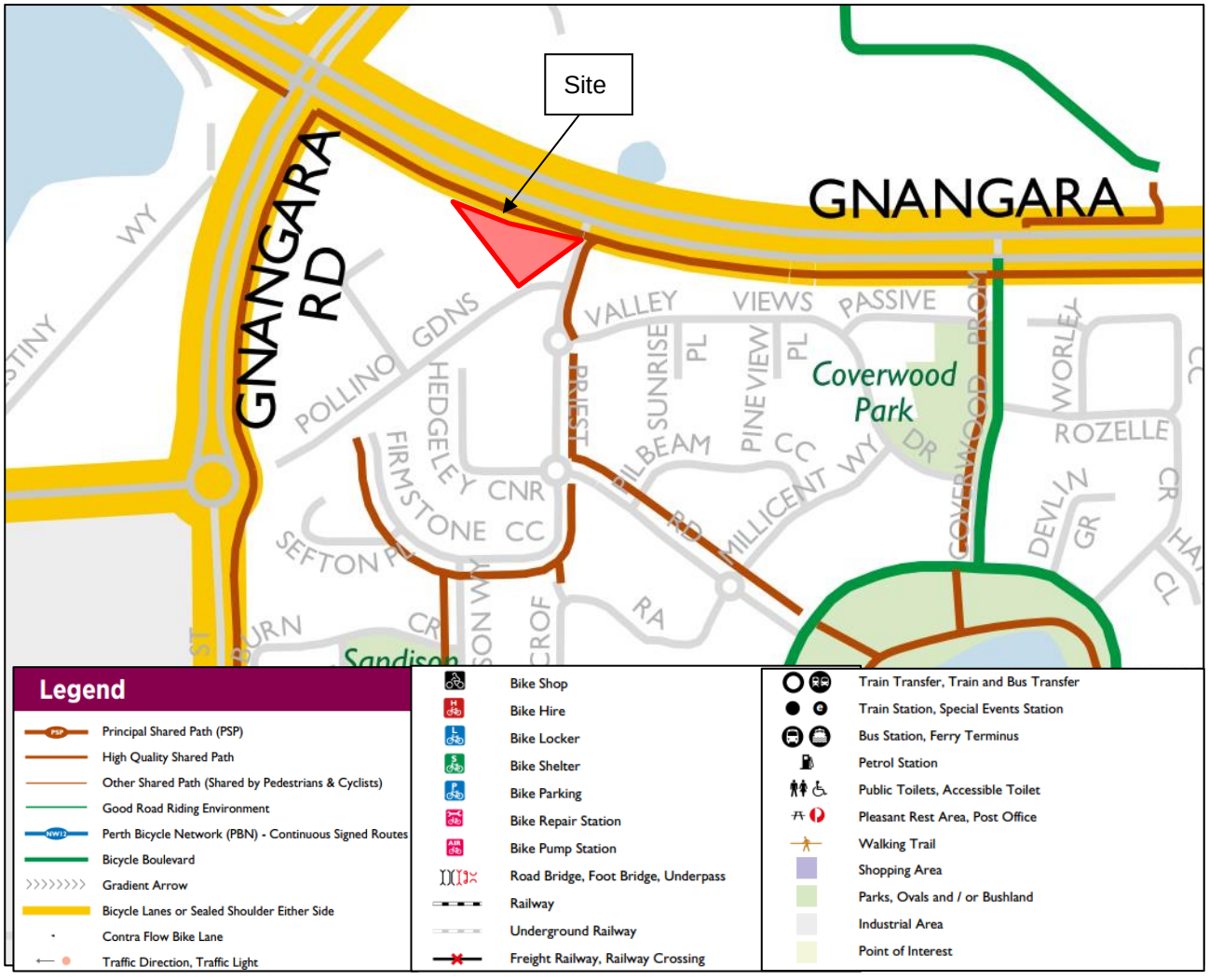
3.1 Existing Pedestrian/Cycle Network Facilities

High quality shared paths are provided on the southern side of Gnangara Road and eastern side of Priest Road as shown on the Department of Transport's "*Joondalup Bike Map*" (refer **Figure 3-1**). Along Bakana Loop, a wide footpath (approximately 1.8 metres) is present on the eastern side of the road; although this is not shown in the Joondalup Bike Map, it is nevertheless sufficient for shared pedestrian and cyclist usage according to the descriptions in "*Liveable Neighbourhoods*", 2009.

"*Liveable Neighbourhoods*" gives a standard footpath width of 1.5 metres, stating that this "*enables two pedestrians to pass with comfort, and enables ease of use by people with prams, wheelchairs and other mobility aids".* As this path is of sufficient width for "*ease of use by people with prams, wheelchairs and other mobility aids*", this suggests that cyclists would also be able to use this path, albeit at low speed.

As shown in **Figure 3-1**, the pedestrian and cycle networks provide good connectivity to the surrounding areas around the Site.

Figure 3-1 Cycling Network Within the Vicinity of the Site



Source: Department of Transport WA (2017)

3.2 Future Pedestrian/Cycle Network Facilities

The City of Wanneroo Draft *Cycling Strategy and Plan 2015* aims to provide a strategic framework in developing recreational, sport and commuter cycling facilities in the future. It is understood that there are currently no planned changes to the cycling and walking network in the immediate vicinity of the Site from the draft plan.

However, a new concrete shared path is proposed along the eastern and southern boundaries of the Site which will connect to the shared path at the southern side of Gnangara Road as indicated in **Figure 3-2**.

Figure 3-2 Proposed New Concrete Shared Path

Source: VV Nominees Pty Ltd

4 Proposed Development

4.1 Proposed Land Uses

The amended Site proposal consists of mixed use development which include the following land uses:

- Child Care
- Medical Centre
- Café
- Pharmacy

The concept layout plans for the Site are provided in **Appendix B**.

4.2 Access Arrangements

Pedestrian access will be via the new shared path along Pollino Gardens which will connect to the existing shared path at Priest Road and Gnangara Road.

Vehicular access to the Site will also be along Pollino Gardens. **Figure 4-1** shows the location of the Site access.

Figure 4-1 Vehicle Access

Source of base: VV Investments Pty Ltd

4.3 Development Traffic Generation

Trip generation has been calculated for the Site, utilising trip generation rates from the *Institute of Transportation Engineers (ITE) "Trip Generation" 10th Ed and the RTA Guide to Traffic Generating Developments*. **Table 4-1** shows the trip generation rates, **Table 4-2** shows the directional distribution and **Table 4-3** presents the resultant potential trip generation of the proposed development.

Table 4-1 Trip Generation Rate – Peak hour of Generator

Land Use	ITE Code/Source	AM Peak	PM Peak
Child Care	RTA	0.8 trips per child	0.3 trips per child
Medical Centre	ITE	5.62 trips per 100m^2	4.99 trips per 100m^2
Pharmacy	ITE	8.3 trips per 100m^2	11.92 trips per 100m^2
Café	RTA	5 trips per 100m^2	5 trips per 100m^2

Table 4-2 Directional Distribution

Land Use	AM Peak		PM Peak	
	In	**Out**	**In**	**Out**
Child Care	50%	50%	50%	50%
Medical Centre	58%	42%	46%	54%
Pharmacy	50%	50%	50%	50%
Café	51%	49%	50%	50%

Table 4-3 Total Trip Generation of the Proposed Development

Land Use	AM Peak		PM Peak	
	In	**Out**	**In**	**Out**
Child Care	32	32	12	12
Medical Centre	33	24	24	28
Pharmacy	7	7	9	9
Café	7	7	7	7
Total	**79**	**70**	**52**	**56**

The proposed development represents a trip generation of approximately 149 vehicles in the AM peak and 108 vehicles in the PM peak hour. It should be noted that this trip generation is considered to be conservative and actual trip generation could be lower. A high degree of multi-purpose trips is expected for this area due to the synergy between the proposed land uses which would reduce the number of car trips overall.

As the Site is proposed to be "mixed use", the traffic generated will be higher when compared to the potential traffic generated by residential uses. However, despite higher volumes, the traffic impact on the surrounding road network will be minimal.

The Site will also have reasonable access to public transport, as well as access to shared paths.

4.4 Development Trip Distribution

As Pollino Gardens is the only road connected to the wider surrounding road network, it is expected that all inbound and outbound traffic will be through this road. From Pollino Garden, a majority of the Site generated trips are most likely to travel north to Gnangara Road.

The trips generated to and from the Site are very low and therefore are expected to have minimal impact to the surrounding road network.

5 Parking

5.1 Parking Requirements

The car parking provision required for the Site is set out in the City of Wanneroo's District Planning Scheme No.2 which are summarised in **Table 5-1**.

Table 5-1 Car Parking Requirements

Land Use	Car Parking Requirements
Child Care	9 bays plus 1 per 7 children accommodated in excess of 72, including 1 bay per staff member
Medical Centre	5 per practitioner plus 7 per 100m^2 of pharmacy
Pharmacy	
Café	1 per 4 people accommodated or 1 per 5m^2 seating area.

Table 5-2 summarises the parking provision and requirements for the Site.

Table 5-2 Car Parking Requirements and Provision

Land Use	Car Parking Requirements	Car Parking Provision
Child Care	26*	52 bays (including 2 ACROD bays) on-site 18 bays along the verge
Medical Centre	40**	
Pharmacy	11***	
Café	13****	
Total	**90**	**52 bays + 18 verge bays**

** Assuming 79 children and 16 staff*

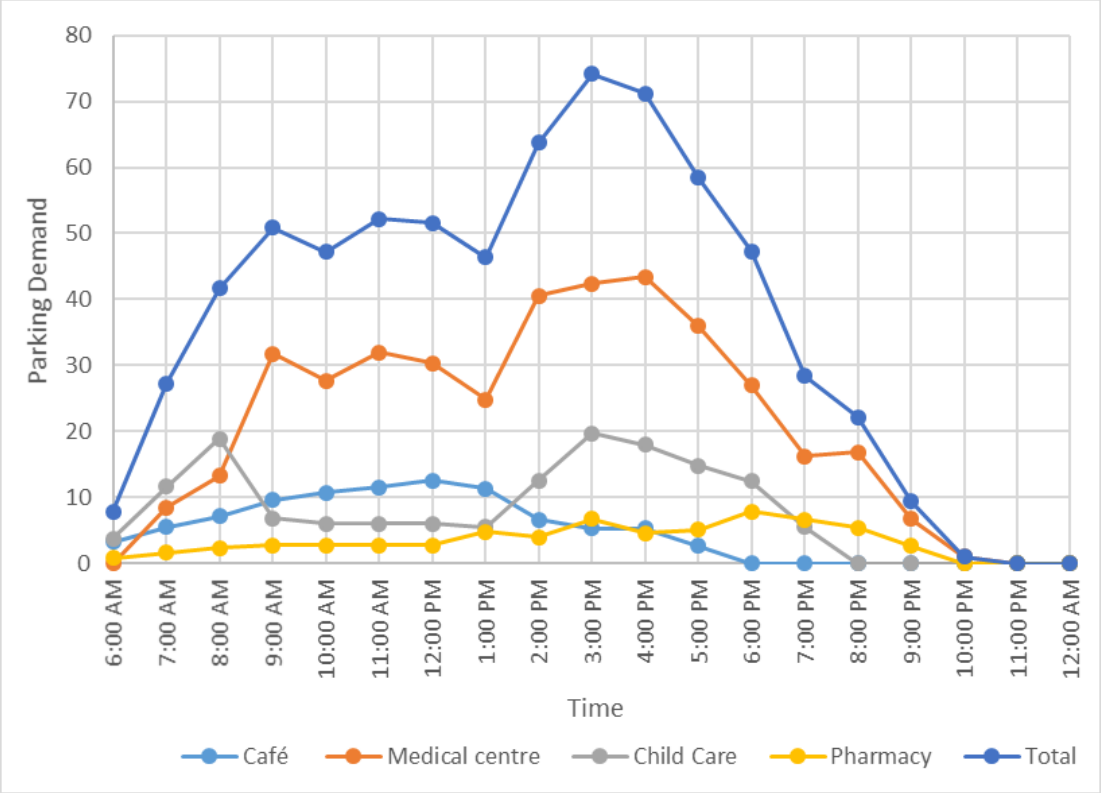
*** Assuming 8 medical practitioners*

**** Pharmacy area is 150m^2 NLA*

***** Assuming seating for 50 people for the café*

Based on the proposed land uses for the Site, there will be a high potential for shared and reciprocal parking on-site which reduces the parking demand (e.g. visitors of the medical centre are also likely to visit the pharmacy). A parking demand analysis was conducted using Cardno's in-house parking model with the results shown in **Figure 5-1**.

Figure 5-1 Estimated Parking Demand (Total)



In general, reciprocity and shared parking has the potential to reduce the parking demand by up to 10-15%. The peak demand is approximately 74 vehicles and occurs during the afternoon. Regarding the child care, parents are likely to do a quick drop-off/pick-up resulting in a higher parking turnover during these periods. Overall, the proposed parking supply should be sufficient to accommodate the estimated demand.

In addition to the 18 bays that are proposed within the verge in front of the Site along Pollino Gardens/Priest Road as shown in **Figure 5-2**, there are a further 18 existing on street parking bays within 200m west of the site that could provide supplementary parking during peak activity if required.

Figure 5-2 Proposed Verge Parking

6 Site-Specific Issues

A search of the Main Roads WA Reporting Centre for traffic crash data was undertaken for reported crashes between 1 January 2013 and 31 December 2017 for the following sections of road:

> Gnangara Road midblock between Ocean Reef Road and Coverwood Promenade; and

> Gnangara Road and Ocean Reef Road intersection.

There are no data from the Main Roads WA Reporting Centre for Pollino Gardens and Priest Road, including the Gnangara Road/Priest Road intersection.

The crash data are summarised in **Table 6-1** and **Table 6-2**.

Table 6-1 Gnangara Road midblock between Ocean Reef Road and Coverwood Promenade

Type of Crash	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Rear End	-	-	-	2	1	**3**
Sideswipe Same Direction	-	-	-	2	1	**3**
Hit Object	-	-	-	1	-	**1**
Total	**0**	**0**	**0**	**5**	**2**	**7**

Table 6-2 Gnangara Road and Ocean Reef Road intersection

Type of Crash	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Rear End	-	-	7	15	12	**34**
Sideswipe Same Direction	-	-	-	1	1	**2**
Right Turn Thru	-	-	1	1	-	**2**
Right Angle	-	2	3	1	-	**6**
Total	**0**	**2**	**11**	**18**	**13**	**44**

A summary of the crash data is as follows:

> The Gnangara Road and Ocean Reef Road intersection is rank 358 in the Main Roads WA Intersection Crash Ranking.

> A total of 51 crashes were recorded along Gnangara Road between Ocean Reef Road and Coverwood Promenade including the intersection of Gnangara Road and Ocean Reef Road.

> The majority of crashes occurred at the Gnangara Road/ Ocean Reef Road intersection.

> Most crashes led to property damage.

> Two crashes resulting in hospital attention were recorded at Gnangara Road/ Ocean Reef Road intersection and were right angle crashes.

> A total of 11 crashes were recorded that required medical attention at Gnangara Road/ Ocean Reef Road intersection and these were mostly rear end crashes.

> It is unlikely that the Site will cause any material impact to traffic safety of the surrounding road network.

7 Summary

This Transport Impact Statement outlines the transport aspects of the proposed development focusing on traffic operations, loading vehicle operations, access and car parking. Discussions regarding pedestrian, cycle, and public transport considerations are also provided.

This statement has been prepared in accordance with the WAPC *Transport Assessment Guidelines for Developments: Volume 4 – Individual Developments (2016)*.

The following conclusions are made in regards to the proposed development:

- The nearest bus stop is located approximately 350m away from the Site. Overall the public transport amenity within the area is considered to be satisfactory.
- The Site benefits from good pedestrian and cycling infrastructure with wide pedestrian footpaths and good shared paths within the surrounding area.
- The Site will generate approximately 149 vehicles during the peak AM period and 108 vehicle during the peak PM period. This is considered to be a conservative estimate due to the high level of multi-purpose trips expected for the Site. The proposed amendment to include additional uses of Medical Centre and Pharmacy is likely to generate higher traffic volumes when compared to residential uses. However, despite higher volumes, the traffic impact on the surrounding network will be minimal.
- The on-site car parking provision falls short of the statutory requirements. However, given the high degree of shared and reciprocal parking that is expected to occur within the Site, the parking demand is likely to be reduced. Additionally, 18 verge bays are proposed at the front of the Site along Pollino Gardens/Priest Road which are available to visitors.

APPENDIX

A

WAPC TRANSPORT STATEMENT CHECKLIST FOR DEVELOPMENT

WAPC Checklist for a Transport Statement, Individual Development, August 2016

Item	Status	Comments/Proposals
Proposed subdivision		
proposed land use	Section 4	
existing land uses	Section 1	
context with surrounds	Section 1	
Vehicular access and parking		
access arrangements	Section 4	
public, private, disabled parking set down / pick up	N/A	
Service vehicles (non-residential)		
access arrangements	Section 4	
on/off-site loading facilities	N/A	
Service vehicles (residential)		
Rubbish collection and emergency vehicle access	N/A	
Hours of operation (non-residential only)	N/A	
Traffic volumes		
daily or peak traffic volumes	Section 1	
type of vehicles (e.g. cars, trucks)	Section 1	
Traffic management on frontage streets	Section 1	
Public transport access		
nearest bus/train routes	Section 2	
nearest bus stops/train stations	Section 2	
pedestrian/cycle links to bus stops/train station	Section 2 and 3	
Pedestrian access/facilities		
existing pedestrian facilities within the development (if any)	Section 3	
proposed pedestrian facilities within development	Section 3	
existing pedestrian facilities on surrounding roads	Section 3	
proposals to improve pedestrian access	Section 3	
Cycle access/facilities		
existing cycle facilities within the development (if any)	Section 3	
proposed cycle facilities within the development	Section 3	
existing cycle facilities on surrounding roads	Section 3	
proposals to improve cycle access	Section 3	
Site specific issues	Section 6	
Safety issues		
identify issues	Section 6	
remedial measures	N/A	

APPENDIX

B

PROPOSED DEVELOPMENT LAYOUT PLANS

About Cardno

Cardno is a professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange [ASX:CDD].

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Appendix C – Addendum to Traffic Impact Statement

Our Ref: CW10429:jm
Contact: Jacob Martin

2 September 2019

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VW Nominees Pty Ltd c/o Urbis

BY EMAIL ONLY

Attention: Tim Dawkins, Director (Urbis)

Dear Tim,

Lot 201 Pollino Gardens, Landsdale – Local Traffic Impact Analysis

Introduction

Cardno prepared a detailed Transport Impact Statement (dated 29 August 2018) relating to the proposed Structure Plan amendment over Lot 201 Pollino Gardens, Landsdale (the 'Site'). This Transport Impact Statement assessed the trip generation and distribution to analyse potential impact on the local road network and nearby residential neighbourhood, under the proposed development scenario:

> Proposed Scenario: mixed-use Medical Centre development comprising a mixed-use development including Medical Centre, Café, Childcare facility and Pharmacy.

Background

The expected catchment area for the proposed development, based on proximity and demographic features, is defined as:

1. The North Landsdale Area located between Gnangara Road and Landsdale Shopping Centre – primarily residential attraction to the Childcare facility and the Medical Centre component of the development.
2. The Wangara Industrial Estate and general industrial sites west of Mirrabooka Avenue – primarily employee referrals to the Medical Centre.
3. Passing trade along Gnangara Road and Ocean Reef Road – convenience trips to the Medical Centre, Café and Pharmacy.

Cardno have worked with the Property Economics team at Urbis to confirm the catchment source and trip generation, in order to ensure consistent assumptions.

Proposed mixed-use Medical Centre development

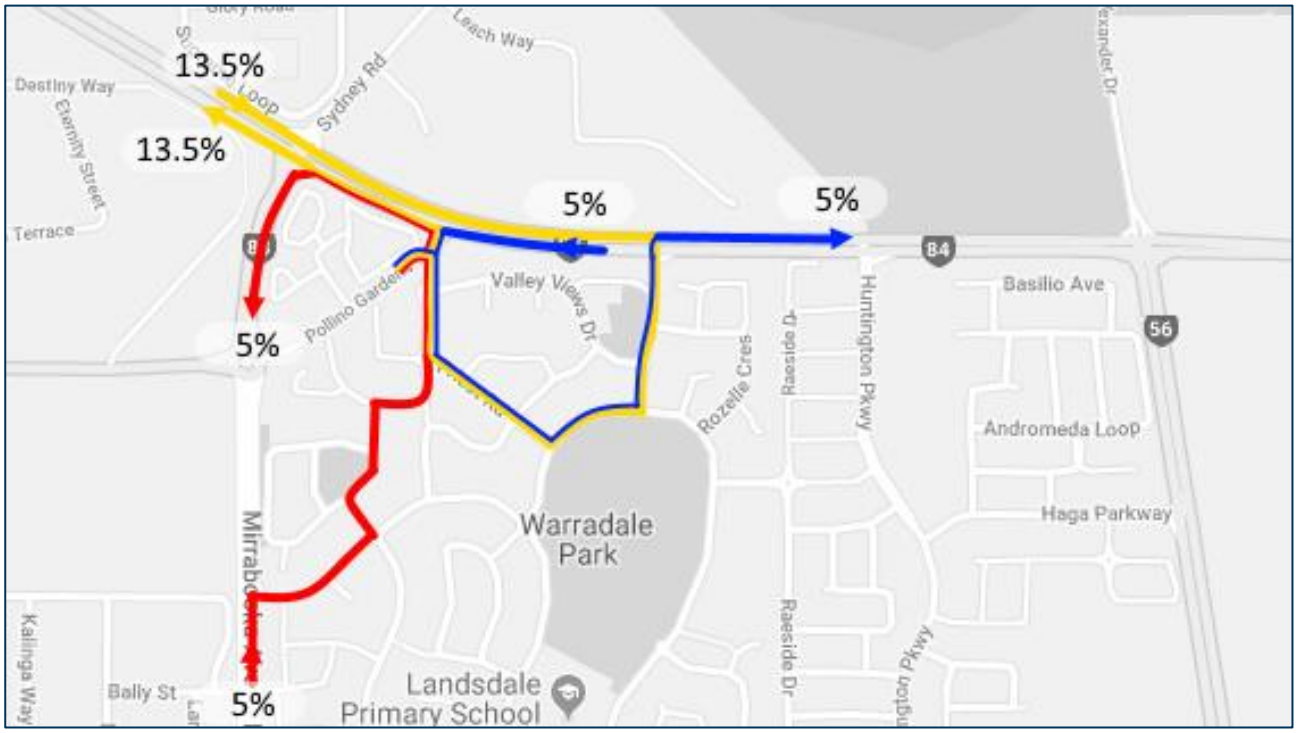
A peak hour distribution has been determined, based on an economic needs assessment of the surrounding catchment as detailed in Table 1-1.

Table 1-1 Peak Hour Trip Distribution

Origin/Destination	Proportion of Demand
Residential Area	53%
Wangara Industrial Estate	27%
Ocean Reef Road passing trade	10%
Gnangara Road passing trade	10%

This trip distribution is graphically illustrated in Figure 1-1.

Figure 1-1 External Peak Hour Trip Distribution (Excludes residential area)



A trip generation exercised has also been completed, using the following standard generation rates to provide scale.

Table 1-2 Trip Generation Rate – Peak hour of Generator

Land Use	Source	AM Peak	PM Peak
Child Care	RTA	0.8 trips per child	0.3 trips per child
Medical Centre	ITE	5.62 trips per 100m^2	4.99 trips per 100 m^2
Café	ITE	5 trips per 100 m^2	5 trips per 100 m^2
Pharmacy	IITE	8.3 trips per 100m2	11.92 trips per 100m2

The traffic impact was analysed using the following land uses for the development:

- Medical Centre with 8 GPs and 4 allied health practitioners (based on a medical centre of 1,007sq.m);
- A childcare facility with 80 places and 14 staff;
- A pharmacy of 200 m^2; and
- A café with a maximum seating area of 50 m^2.

Application of these rates to the proposed development results in a trip generation in the order of 140 vph (being 75 movements in, and 65 movements out) during the AM peak, and 99vph (being 47 movements in, and 52 movements out) during the PM peak. We note that the trip generations have reduced slightly from the original TIS due to the application of the constraint of 50 sq.m to the café (previously assumed to be 263 sq.m).

The demand generated from within the residential area (53% of vehicles approaching the site) can be assumed to be redirected from other destinations and therefore does not represent a net increase of traffic on local streets. Therefore, vehicle movements associated with external road network represents only 66 vph (being 35 movements in, and 31 movements out) during the AM peak, and 46vph (being 22 movements in, and 24 movements out) during the PM peak.

Due to the configuration of the local road network (left in, left out onto Gnangara Road), access to and egress will be distributed asymmetrically (that is, for either the ingress or egress there is no need to pass through the residential area). This will significantly reduce the number of trips on the local road network, as half of vehicle movements do not pass through the residential area.

Based on this assessment, the traffic generated by the development that will pass through the residential area is equivalent to 33 trips in the AM peak and 23 trips during the PM peak.

The existing road network has more than enough capacity to accommodate this increase in trips and will have negligible impact on residential amenity. As such, the proposed development is considered to be appropriate from a traffic perspective.

Yours faithfully

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