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Sustainable Transport. Safe Solutions

Lot 7 (5) Mangano Place, Wanneroo
Proposed Change of Use

TRANSPORT IMPACT STATEMENT



Prepared for:
Drukpa Australia Incorporated

January 2023

Lot 7 (5) Mangano Place, Wanneroo

Prepared for: Drukpa Australia Incorporated
Prepared by: Paul Ghantous
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Urbii Consulting Pty Ltd
ABN 34 630 529 476
PO BOX 4315
BALDIVIS WA 6171
T: + 61 433 858 164
E: customer@urbii.com.au
W: www.urbii.com.au

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1 Introduction

This Transport Impact Statement has been prepared by **Urbii** on behalf of **Drukpa Australia Incorporated** with regards to the proposed change of use, located at **Lot 7 (5) Mangano Place, Wanneroo**.

The subject site is situated on the south-east corner of Mangano Place and Villanova Street, as shown in Figure 1. The site presently accommodates a residential dwelling and a separate warehouse with office (Figure 2). The site is surrounded by a mix of residential and commercial uses.

A change in use is proposed for the existing warehouse and office building, to be repurposed as a "Place of Worship". The Place of Worship will hold the prayer sessions primarily during the weekends. As a temple, the place will see casual visits during the week for offering and prayer, typically up to 1 to 10 people a day. Staffs and volunteers will also the place for admin work and preparation for weekends.

The key issues that will be addressed in this report include the proposed development traffic generation and distribution, access and egress movement patterns, car parking, and access to the site for alternative modes of transportation.



Figure 1: Subject site





Figure 2: Existing site use

2 Proposed change of use

The subject site presently accommodates two structures. There is a residential dwelling as well as a separate building that functions as an office and warehouse. It is proposed to keep the residential dwelling which will be used to host one to three teachers at a time and will live there for up to three months maximum. The office and warehouse will be refurbished and used as a place of worship. The floor area of the Place of Worship has been rounded up to 350m² for calculations applied in this TIS.

The site presently accommodates one crossover on Mangano Place with gated secure access. Car parking is currently provided at the front of the office and warehouse building. A roller door is installed on the warehouse building for service vehicle access.

It is proposed to retain the existing crossover on Mangano Place and provide car parking for patrons. The existing roller door on the warehouse building will be permanently closed and four tandem parking spaces will be provided in front of the door. An ACROD bay is also proposed with improved ramp access into the building.

A new crossover is proposed on Villanova Street, at the eastern end of the site. The new crossover will provide access to a second car parking area for patrons.

Bins will be wheeled out for kerbside waste collection from Mangano Place.

People walking and cycling will access the development from the external path network abutting the site.

The proposed site plans are included for reference in Appendix A.



3 Vehicle access and parking

3.1 Vehicle access

Existing vehicular access to the site is via one crossover on Mangano Place (Figure 3).



Figure 3: Existing vehicle access

As detailed in the proposed development plans, it is proposed to keep the existing crossover on Mangano Place and provide car parking for patrons.

A new crossover is proposed on Villanova Street, at the eastern end of the site. The new crossover will provide access to a second car parking area for patrons. During the site visit, sightlines were inspected and found to be acceptable.



Figure 4: Proposed vehicle access

3.2 Parking requirements

The City of Wanneroo District Planning Scheme No.2 sets out car parking requirements for developments within the city. A Place of Worship requires one parking place for every four people accommodated. There is also a requirement for 2 bays to be allocated for the caretakers dwelling. There are 21 parking spaces on-site, which means that up to 76 visitors can be accommodated at any time (excluding the two bays dedicated for the caretakers dwelling). Worship services and other activities will be planned to ensure that the development meets these standards.

3.3 Car parking layout

Dimensions of car parking aisles and bays are compliant with AS2890.1. Onsite bays are 2.5m wide by 5.4m long and an aisle width exceeding 5.8m has been provided. The ACROD bay is designed to AS2890.6 with a shared space and bollard. The tandem bays will be allocated for staff parking only.

3.4 Driveway sightline on Villanova Street

The methodology adopted for assessing the sightlines on the proposed driveway was based on AS2890.1 (Figure 5).

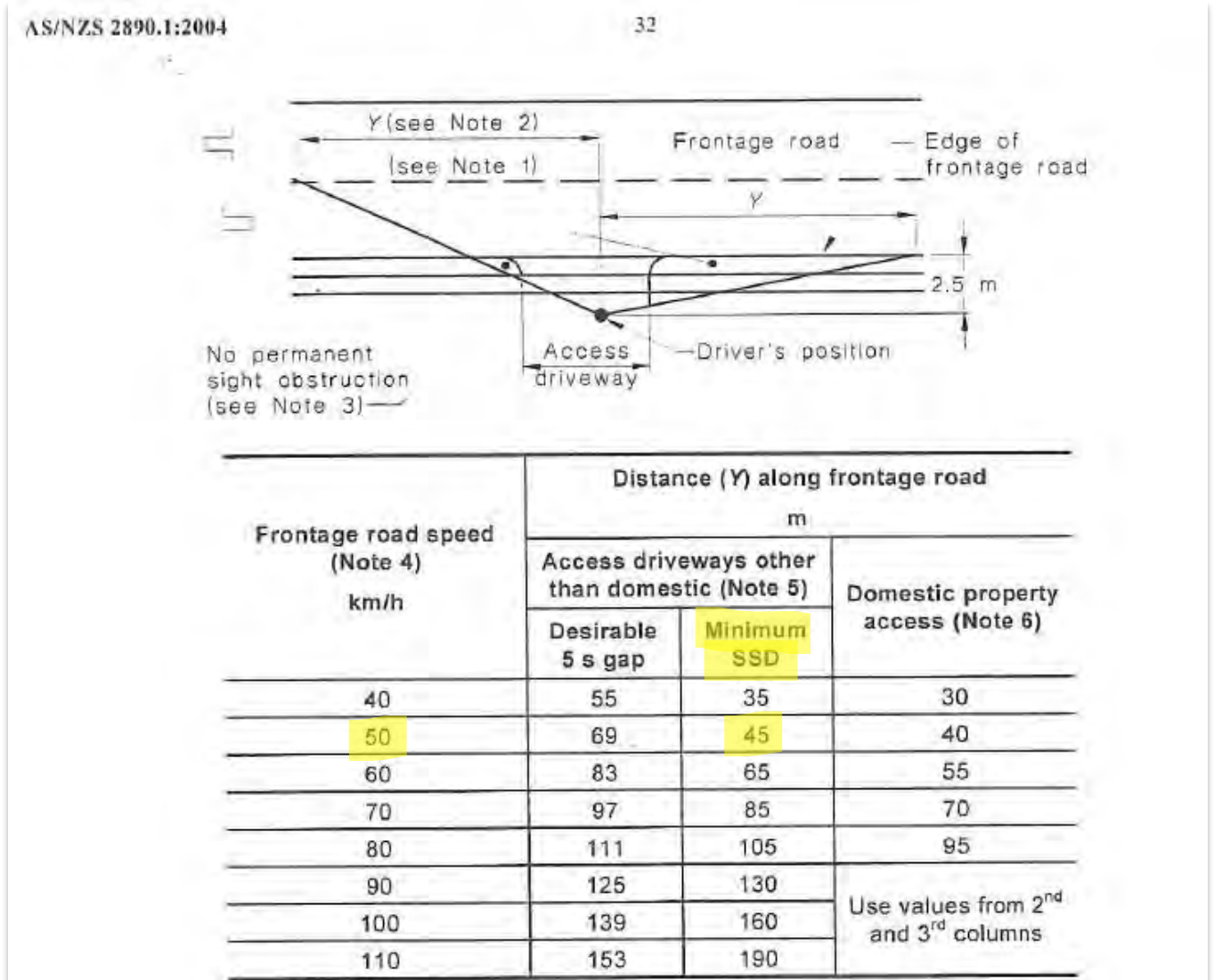


Figure 5: Sight distance requirements

A Safe Stopping Distance of 45m is required for a frontage road speed of 50km/h. The sightlines were checked and confirmed to be available looking to the left and right. A formal sightline assessment sketch was prepared for outbound vehicles and is presented in Appendix B.

4 Provision for service vehicles

The proposed development will not generate significant delivery and other service vehicle traffic. Small delivery trucks or vans can park in the car park outside of the opening hours of the facility. Bins will be wheeled out to Mangano Place for kerbside waste collection on designated days.



5 Hours of operation

The Place of Worship will be open on Saturdays from 8am to 7pm and Sundays from 8am to 5pm. The main prayer services will be held on Saturdays from 5pm-7pm and Sundays 8am-10am, which will be the peak traffic times for the development.

6 Daily traffic volumes and vehicle types

6.1 Traffic generation

The traffic volume that will be generated by the proposed use has been estimated using trip generation rates derived with reference to the following sources:

- ITE Trip Generation Manual 10th Edition.

The best fitting trip rates were identified as being for the 'church' use (ITE Land Use 560). The trip generation rates adopted are detailed in Table 1.

Table 1: Adopted trip rates for traffic generation

Land use	Source	Daily rate	AM rate	AM-in	AM-out
Church	ITE Land Use 560	29.74	10.75	48%	52%

Note: Trip generation rates apply per 100m² of GFA

The building floor area is estimated to be around 350m² GFA. The estimated traffic generation for the proposed Place of Worship is detailed in Table 2. On operating days, the Place of Worship is estimated to generate 104 vehicles per day (vpd), with 38 vehicles per hour (vph) generated during the AM peak hour on the weekend.

These trips include both inbound and outbound vehicle movements. It is anticipated that most of the vehicle types would be passenger cars and SUVs.

Table 2: Development traffic generation – Weekday AM and PM peak hour

Land use	Quantity	Daily Trips	AM Trips	AM Peak Trips	
				IN	OUT
Place of Worship	350m ²	104	38	18	20

The estimated traffic generation fits well with the car parking provision onsite, with around 20 vehicles accessing the site during the peak hour. 21 car parking bays are provided onsite.



6.2 Impact on surrounding roads

The WAPC Transport Impact Assessment Guidelines for Developments (2016) provides the following guidance on the assessment of traffic impacts:

“As a general guide, an increase in traffic of less than 10 percent of capacity would not normally be likely to have a material impact on any particular section of road but increases over 10 percent may. All sections of road with an increase greater than 10 percent of capacity should therefore be included in the analysis. For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10 percent of capacity. Therefore, any section of road where development traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis.”

The proposed development will not increase traffic flows on any roads adjacent to the site by the quoted WAPC threshold of +100vph to warrant further analysis. Therefore, the impact on the surrounding road network is moderate.

7 Traffic management on the frontage roads

Information from online mapping services, Main Roads WA, Local Government, and/or site visits was collected to assess the existing traffic management on frontage roads.

7.1.1 Mangano Place

Mangano Place near the subject site is an approximately 7.5m wide, two-lane undivided road. A footpath is provided on the western side of the road and partially on the eastern side of the road, at the intersection of Villanova Street and Mangano Place. A walk crossing is provided on Mangano Place, which includes kerb ramps.

Mangano Place is classified as an access road in the Main Roads WA road hierarchy (Figure 7) and operates under a built-up area speed limit of 50km/h (Figure 8). Access roads are the responsibility of Local Government and are typically for the provision of vehicle access to abutting properties (Figure 9).

Traffic count data obtained from the City of Wanneroo indicates that Mangano Place carried under 1,000 vehicles per day in 2018, with 85th percentile speeds of 43km/h and 9% heavy vehicles.

7.1.2 Villanova Street

Villanova Street near the subject site is an approximately 7.5m wide, two-lane undivided road. Footpaths are provided on both sides of the road. A walk crossing is provided on Villanova Street, which includes kerb ramps.

Villanova Street is classified as an access road in the Main Roads WA road hierarchy (Figure 7) and operates under a built-up area speed limit of 50km/h (Figure 8). Access roads are the responsibility of Local Government and are typically for the provision of vehicle access to abutting properties (Figure 9).

Traffic count data obtained from the City of Wanneroo indicates that Villanova Street carried under 3,000 vehicles per day in 2021, with 85th percentile speeds of 45km/h and 2.7% heavy vehicles.

Mangano Place forms a T-intersection with Villanova Street (Figure 6). Priority is assigned to Villanova Street. Due to the curved horizontal geometry at the intersection, give way line marking and signage is used on the Mangano Place approach.





Figure 6: Intersection of Mangano Place and Villanova Street (looking north)



Figure 7: Main Roads WA road hierarchy plan

Source: Main Roads WA Road Information Mapping System (RIM)



Figure 8: Main Roads WA road speed zoning plan

Source: Main Roads WA Road Information Mapping System (RIM)

**ROAD HIERARCHY FOR WESTERN AUSTRALIA
ROAD TYPES AND CRITERIA (see Note 1)**

CRITERIA	PRIMARY DISTRIBUTOR (PD) (see Note 2)	DISTRICT DISTRIBUTOR A (DA)	DISTRICT DISTRIBUTOR B (DB)	REGIONAL DISTRIBUTOR (RD)	LOCAL DISTRIBUTOR (LD)	ACCESS ROAD (A)
<i>Primary Criteria</i>						
1. Location (see Note 3)	All of WA incl. BUA	Only Built Up Area.	Only Built Up Area.	Only Non Built Up Area. (see Note 4)	All of WA incl. BUA	All of WA incl. BUA
2. Responsibility	Main Roads Western Australia.	Local Government.	Local Government.	Local Government.	Local Government.	Local Government.
3. Degree of Connectivity	High. Connects to other Primary and Distributor roads.	High. Connects to Primary and/or other Distributor roads.	High. Connects to Primary and/or other Distributor roads.	High. Connects to Primary and/or other Distributor roads.	Medium. Minor Network Role Connects to Distributors and Access Roads.	Low. Provides mainly for property access.
4. Predominant Purpose	Movement of inter regional and/or cross town/city traffic, e.g. freeways, highways and main roads.	High capacity traffic movements between industrial, commercial and residential areas.	Reduced capacity but high traffic volumes travelling between industrial, commercial and residential areas.	Roads linking significant destinations and designed for efficient movement of people and goods between and within regions.	Movement of traffic within local areas and connect access roads to higher order Distributors.	Provision of vehicle access to abutting properties
<i>Secondary Criteria</i>						
5. Indicative Traffic Volume (AADT)	In accordance with Classification Assessment Guidelines.	Above 8 000 vpd	Above 6 000 vpd.	Greater than 100 vpd	Built Up Area - Maximum desirable volume 6 000 vpd. Non Built Up Area – up to 100 vpd.	Built Up Area - Maximum desirable volume 3 000 vpd. Non Built Up Area – up to 75 vpd.
6. Recommended Operating Speed	60 – 110 km/h (depending on design characteristics).	60 – 80 km/h.	60 – 70 km/h.	50 – 110 km/h (depending on design characteristics).	Built Up Area 50 - 60 km/h (desired speed) Non Built Up Area 60 – 110 km/h (depending on design characteristics).	Built Up Area 50 km/h (desired speed). Non Built Up Area 50 – 110 km/h (depending on design characteristics).
7. Heavy Vehicles permitted	Yes.	Yes.	Yes.	Yes.	Yes, but preferably only to service properties.	Only to service properties.
8. Intersection treatments	Controlled with appropriate measures e.g. high speed traffic management, signing, line marking, grade separation.	Controlled with appropriate measures e.g. traffic signals.	Controlled with appropriate Local Area Traffic Management.	Controlled with measures such as signing and line marking of intersections.	Controlled with minor Local Area Traffic Management or measures such as signing.	Self controlling with minor measures.
9. Frontage Access	None on Controlled Access Roads. On other routes, preferably none, but limited access is acceptable to service individual properties.	Prefer not to have residential access. Limited commercial access, generally via service roads.	Residential and commercial access due to its historic status. Prefer to limit when and where possible.	Prefer not to have property access. Limited commercial access, generally via lesser roads.	Yes, for property and commercial access due to its historic status. Prefer to limit whenever possible. Side entry is preferred.	Yes.
10. Pedestrians	Preferably none. Crossing should be controlled where possible.	With positive measures for control and safety e.g. pedestrian signals.	With appropriate measures for control and safety e.g. median/islands refuges.	Measures for control and safety such as careful siting of school bus stops and rest areas.	Yes, with minor safety measures where necessary.	Yes.
11. Buses	Yes.	Yes.	Yes.	Yes.	Yes.	If necessary (see Note 5)
12. On-Road Parking	No (emergency parking on shoulders only).	Generally no. Clearways where necessary.	Not preferred. Clearways where necessary.	No – emergency parking on shoulders – encourage parking in off road rest areas where possible.	Built Up Area – yes, where sufficient width and sight distance allow safe passing. Non Built Up Area – no. Emergency parking on shoulders.	Yes, where sufficient width and sight distance allow safe passing.
13. Signs & Linemarking	Centrelines, speed signs, guide and service signs to highway standard.	Centrelines, speed signs, guide and service signs.	Centrelines, speed signs, guide and service signs.	Centrelines, speed signs and guide signs.	Speed and guide signs.	Urban areas – generally not applicable. Rural areas - Guide signs.
14. Rest Areas/Parking Bays	In accordance with Main Roads' Roadside Stopping Places Policy.	Not Applicable.	Not Applicable.	Parking Bays/Rest Areas. Desired at 60km spacing.	Not Applicable.	Not Applicable.

Figure 9: Road types and criteria for Western Australia

Source: Main Roads Western Australia D10#10992

8 Public transport access

Information was collected from Transperth, PTA and site visits to assess the existing public transport access to and from the site.

The subject site has access to the following bus services within walking distance:

- Bus Route 389: Perth - Wanneroo via Wanneroo Rd (Figure 11).
- Bus Route 468: Whitfords Stn - Joondalup Stn via Wanneroo Rd (Figure 12).

Public transport services provide a viable alternative mode of transport for residents and visitors of the proposed development. The closest bus stops are located within 500m walking distance to the north on Wanneroo Road (Figure 10).

Bus services provide excellent coverage and connectivity to the rail network.





Figure 10: Closest bus stops serving the proposed development

Route 387, 388, 389 Map

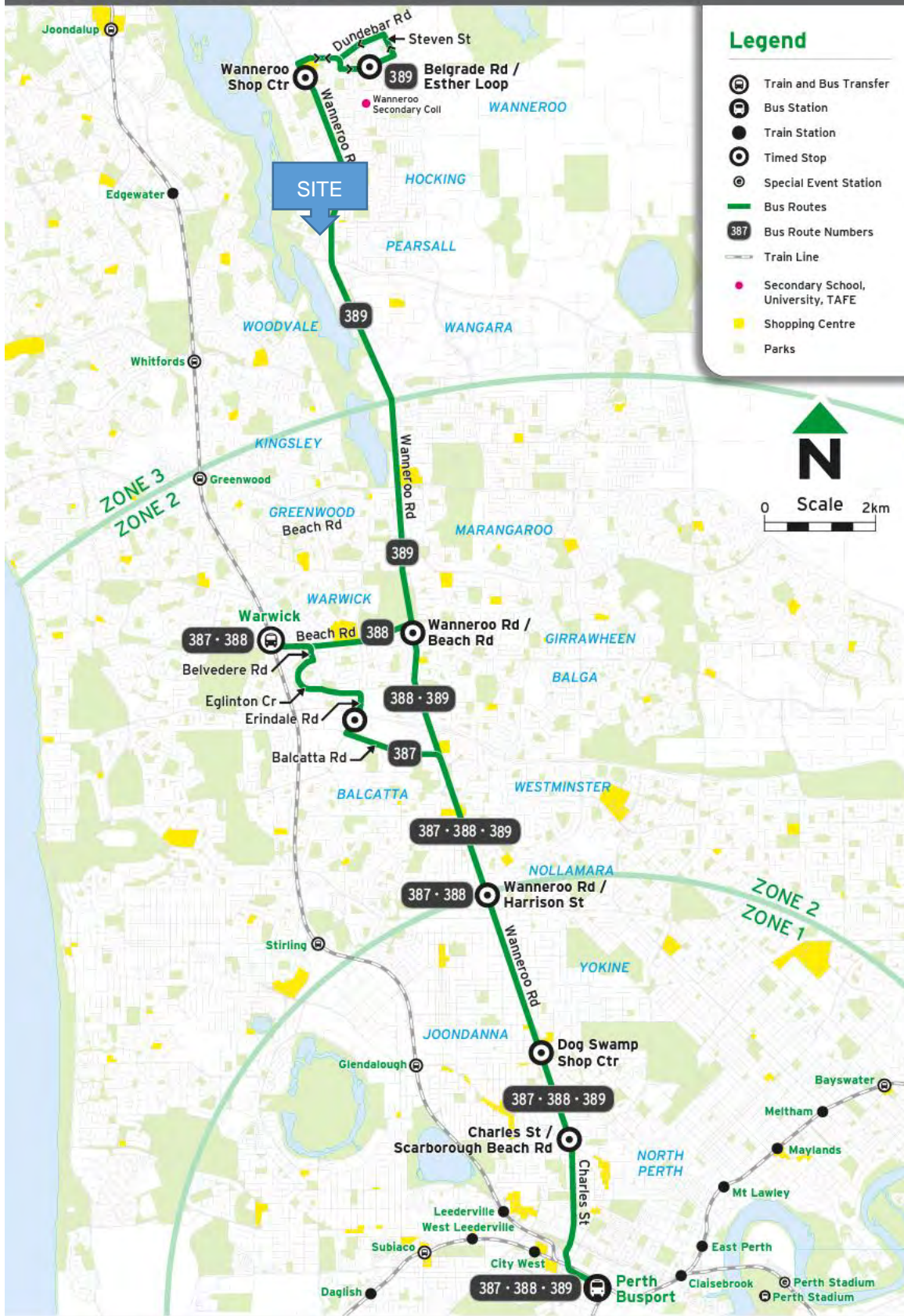


Figure 11: Transperth public transport plan (route 389)

Source: Transperth



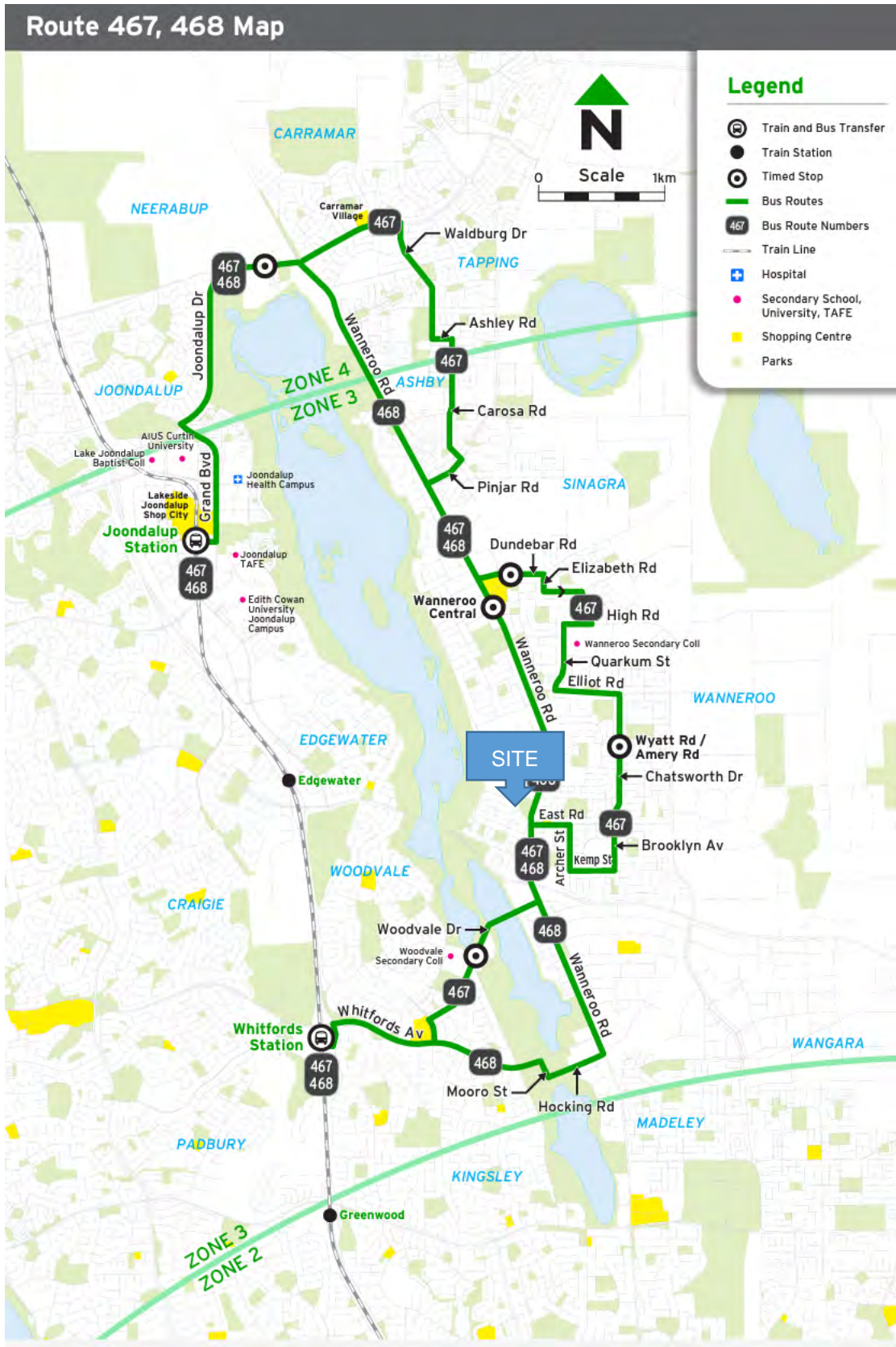


Figure 12: Transperth public transport plan (route 468)

Source: Transperth

9 Pedestrian access

Information from online mapping services, Main Roads WA, Local Government, and site visits was collected to assess the pedestrian access for the proposed development.

9.1.1 Pedestrian facilities and level of service

A footpath is provided on the western side of Mangano Place and on both sides of Villanova Street. Pedestrian crossing facilities including kerb ramps are provided on surrounding roads, which promotes improved access for bicycles, wheelchairs and prams.

The WAPC Transport Impact Assessment Guidelines for Developments (2016) provide warrants for installing pedestrian priority crossing facilities. This is based on the volume of traffic as the key factor determining if pedestrians can safely cross a road. The guidelines recommend pedestrian priority crossing facilities be considered once the peak hour traffic exceeds the volumes detailed in Table 3.

The traffic volumes in this table are based on a maximum delay of 45 seconds for pedestrians, equivalent to Level of Service E. The pedestrian crossing facilities on adjacent roads near the site are sufficient and within the traffic volume thresholds.

Table 3: Traffic volume thresholds for pedestrian crossings

Road cross-section	Maximum traffic volumes providing safe pedestrian gap
2-lane undivided	1,100 vehicles per hour
2-lane divided (with refuge)	2,800 vehicles per hour
4-lane undivided*	700 vehicles per hour
4-lane divided (with refuge)*	1,600 vehicles per hour



10 Bicycle access

Information from online mapping services, Department of Transport, Local Government, and/or site visits was collected to assess bicycle access for the proposed development.

10.1 Bicycle network

The Department of Transport Perth Bicycle Network Map (see Figure 13) shows the existing cyclist connectivity to the subject site. Mangano Place is rated as a 'good road riding environment'. The broader cycling network is accessible within a short distance, including a shared path on Wanneroo Road and cycling lanes on Ocean Reef Road.

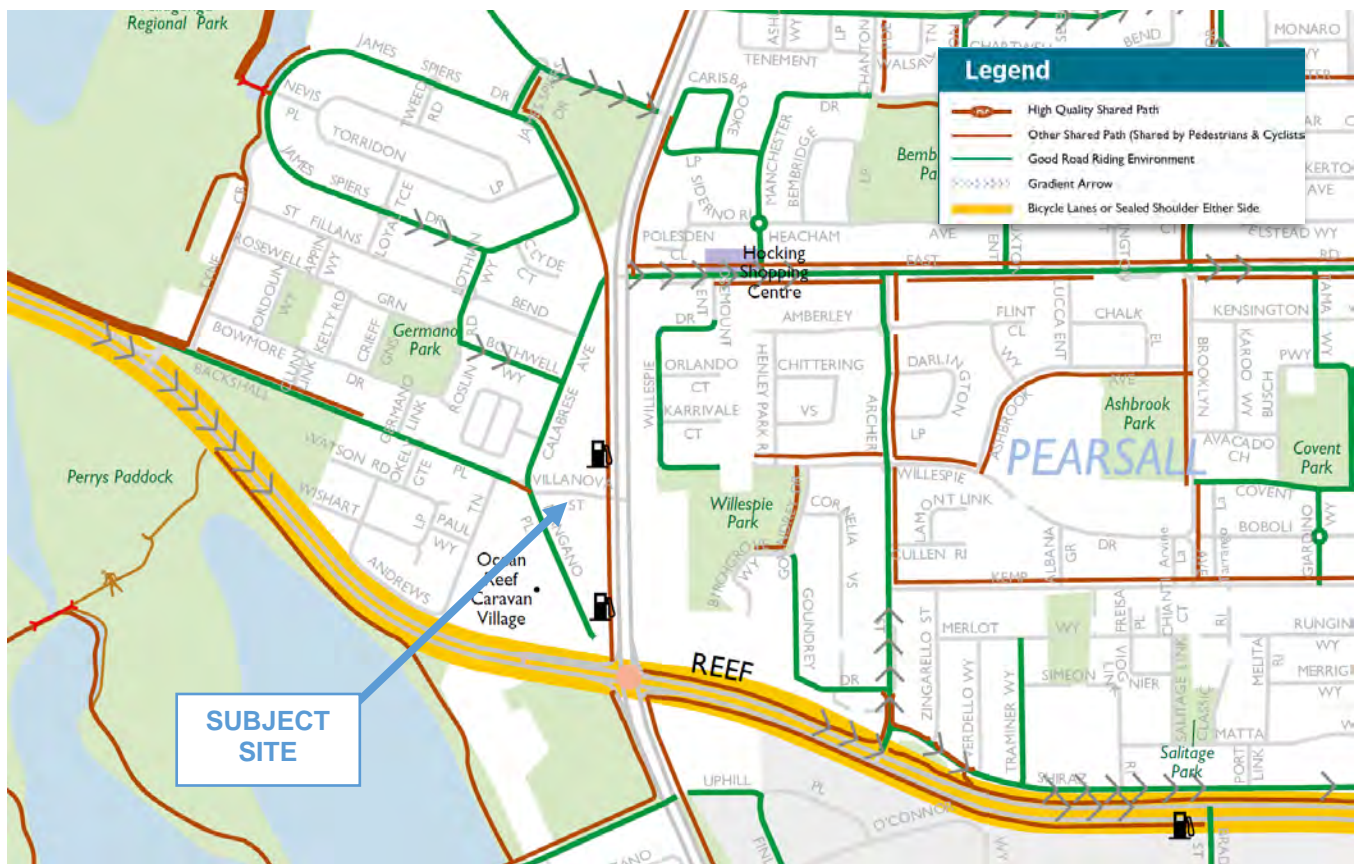


Figure 13: Perth bicycle network plan

10.2 Bicycle parking and end of trip facilities

Parking for eight bicycles is provided in the car park, conveniently located near the building entry. This promotes sustainable transport options for visitors to the development.

10.3 Sustainable transport catchment

As detailed in Figure 14, the subject site is well placed for residents, staff and visitors to travel by sustainable modes of transport. A large catchment of people exists within a comfortable 8km or 20-25min cycling or micromobility journey to the site, including a spread of suburbs in the City of Wanneroo.

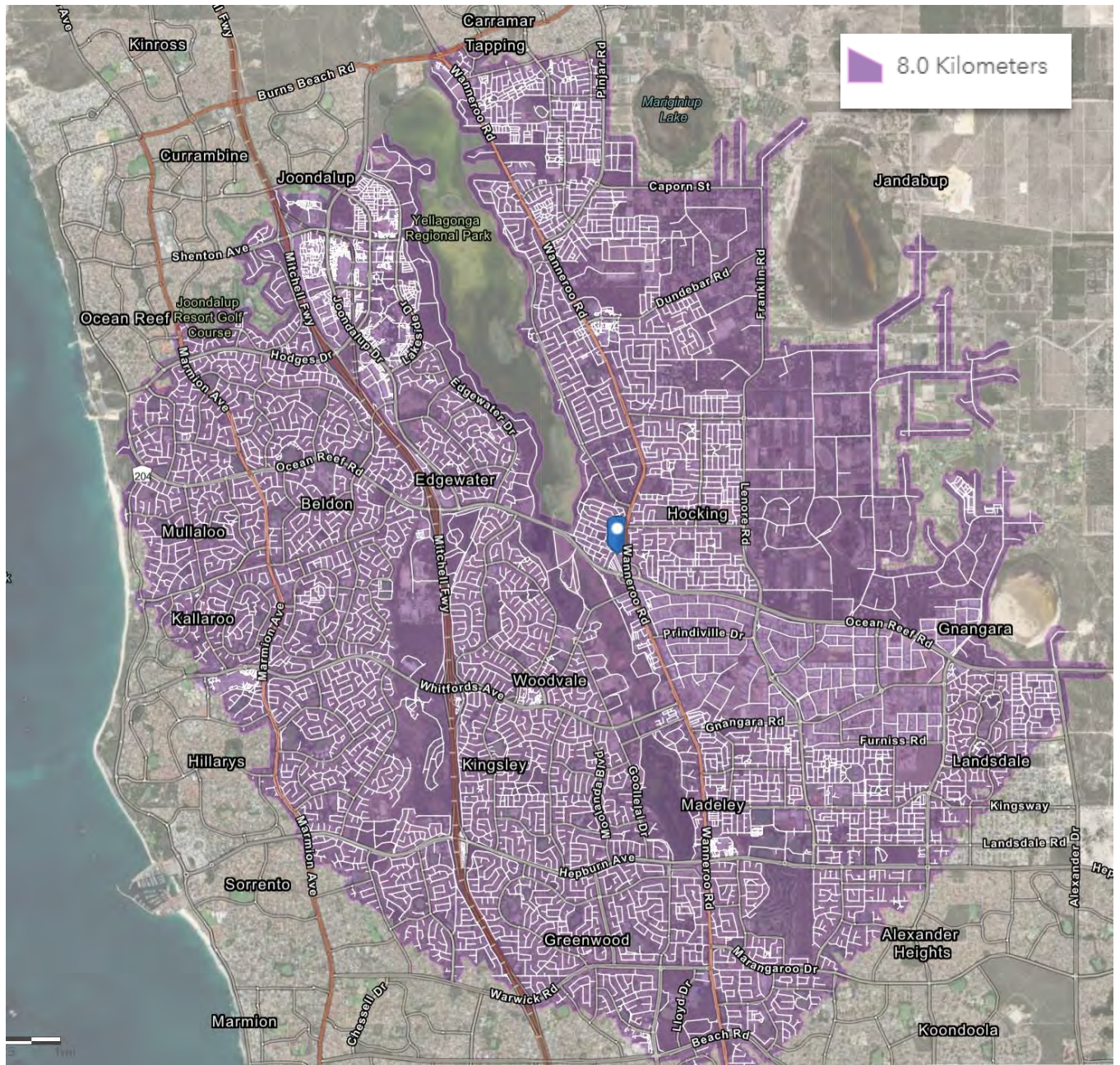


Figure 14: Cycling and micro-mobility catchment



11 Site specific issues

No additional site-specific issues were identified within the scope of this assessment.

12 Safety issues

The five-year crash history in the vicinity of the site was obtained from Main Roads WA. As detailed in Figure 15, 1 crash was recorded in the immediate locality in the last five years, which resulted in property damage only. The detailed crash history is presented in Table 4.

The low traffic generation of the proposed development is unlikely to affect traffic safety in the area.

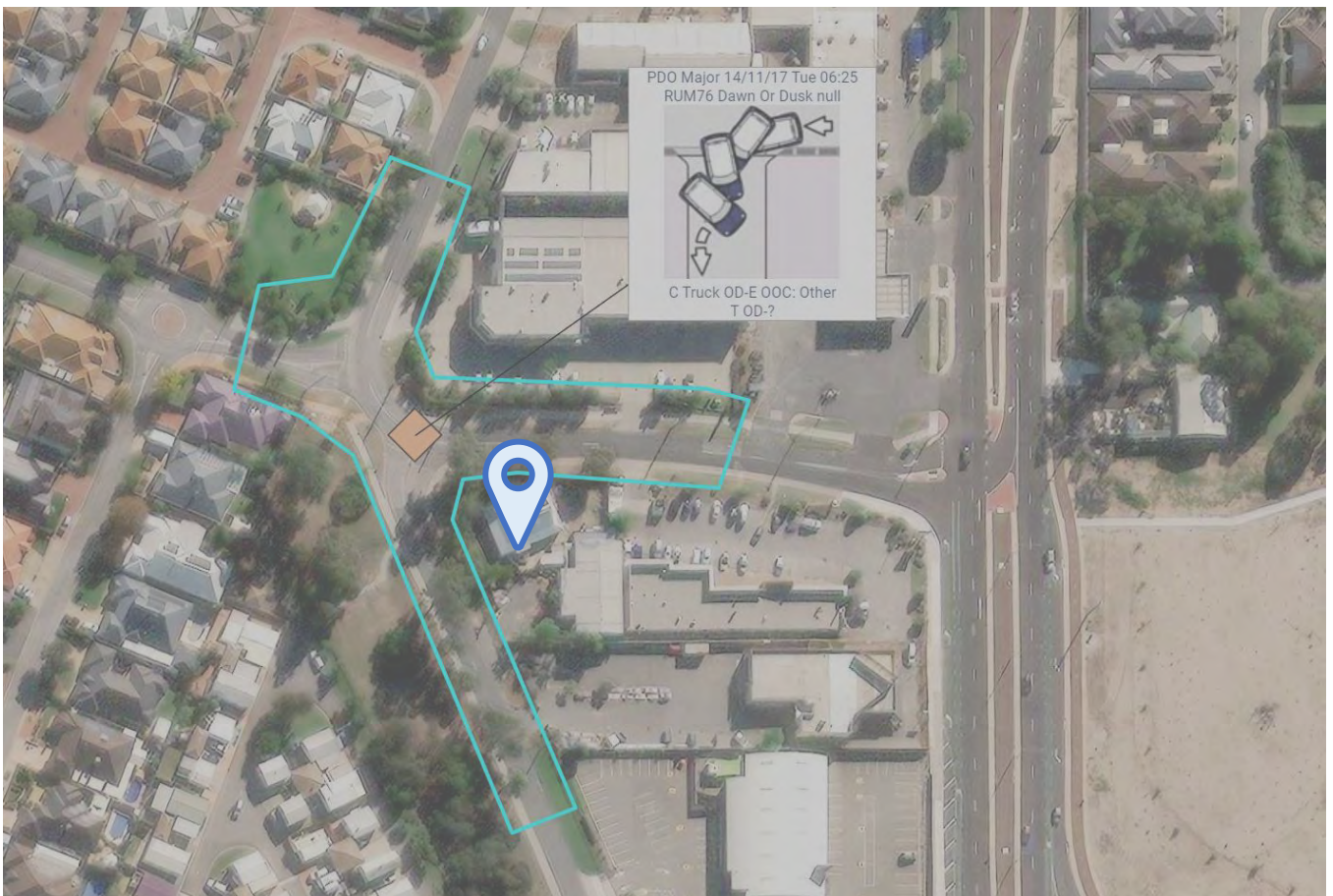


Figure 15: 5-year crash map in the locality (2017-2021)

Source: MRWA crash mapping tool



Table 4: 5-year crash history in the locality (2017-2021)

Severity	No.	%
Fatal	0	0
Hospital	0	0
Medical	0	0
PDO Major	1	100.00
PDO Minor	0	0

Year	No.	%
2017	1	100.00

Nature	No.	%
Head On	0	0
Hit Animal	0	0
Hit Object	1	100.00
Hit Pedestrian	0	0
Non Collision	0	0
Not Known	0	0
Rear End	0	0
Right Angle	0	0
Right Turn Thru	0	0
Sideswipe Opposite Dirn	0	0
Sideswipe Same Dirn	0	0

Light	No.	%
Dark - Street Lights Not Provided	0	0
Dark - Street Lights Off	0	0
Dark - Street Lights On	0	0
Dawn Or Dusk	1	100.00
Daylight	0	0
Not Known	0	0

Conditions	No.	%
Dry	0	0
Not Known	0	0
Other / Unknown	1	100.00
Wet	0	0

Alignment	No.	%
Curve	0	0
Not Known	0	0
Other / Unknown	1	100.00
Straight	0	0

Total	No.	%
Total	1	

13 Conclusion

This Transport Impact Statement has been prepared by Urbii on behalf of Drukpa Australia Incorporated with regards to the proposed change of use, located at Lot 7 (5) Mangano Place, Wanneroo.

The subject site is situated on the south-east corner of Mangano Place and Villanova Street and presently accommodates a residential dwelling and a separate warehouse with office. The site is surrounded by a mix of residential and commercial uses.

A change in use is proposed for the existing warehouse and office building, to be repurposed as a "Place of Worship". The Place of Worship will hold services on weekends.

The site features good connectivity with the existing road, cycling and pedestrian network. There is good public transport coverage through nearby bus services.

The traffic analysis undertaken in this report shows that the traffic generation of the proposed development is minimal (less than 100vph on any lane) and as such would have insignificant impact on the surrounding road network.

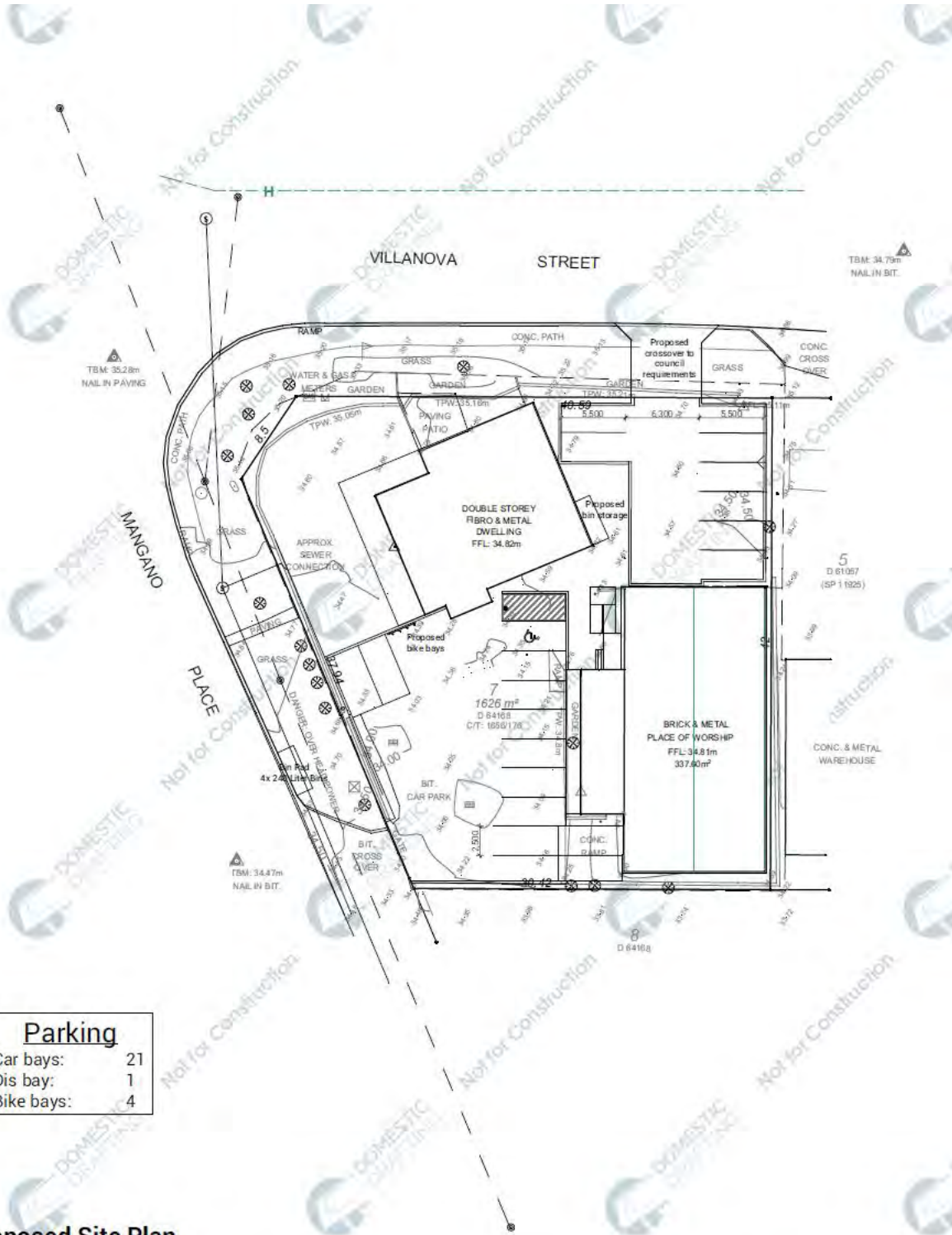
Car parking analysis indicates that there is capacity to accommodate up to 76 visitors on site, with 21 car parking bays provided.

It is concluded that the findings of this Transport Impact Statement are supportive of the proposed development.



Appendices

Appendix A: Proposed site plans

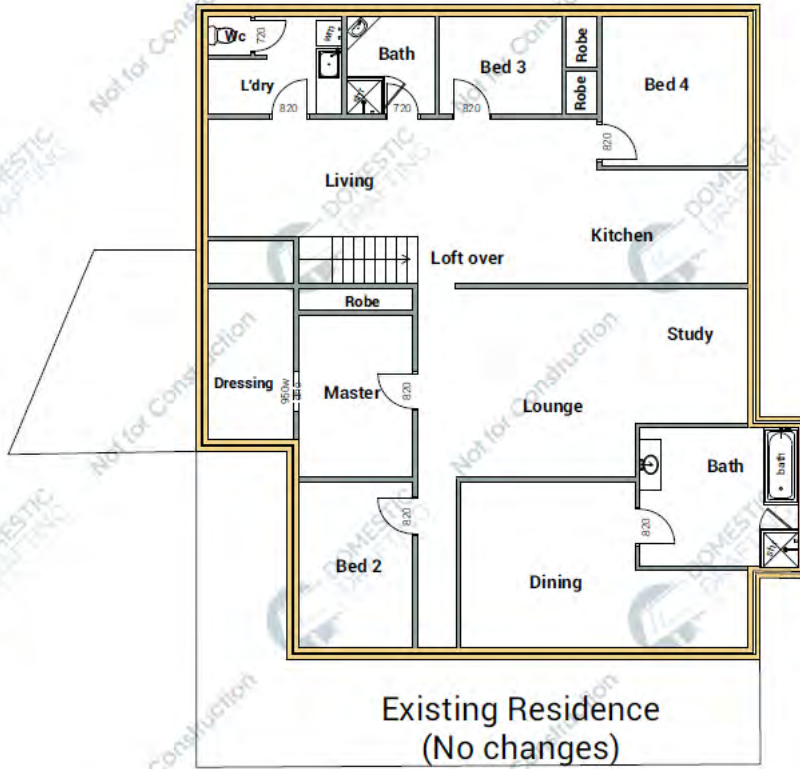


Parking	
Car bays:	21
Dis bay:	1
Bike bays:	4

Proposed Site Plan

Scale 1:300

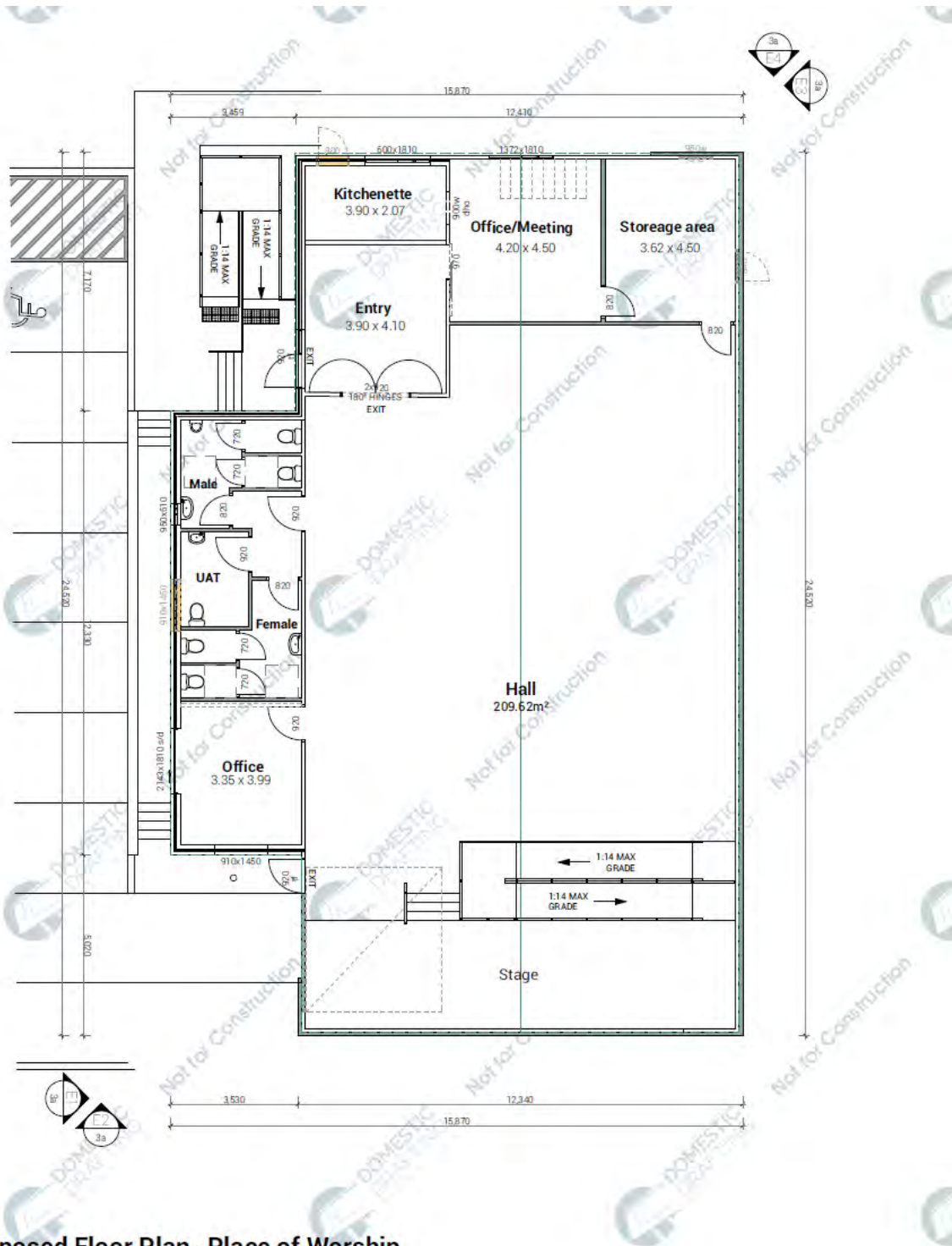
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Existing Floor Plan

Scale 1:100

 <p>DOMESTIC DRAFTING SERVICE</p> <p>25a Dorothy Street, Gosnells, WA 6110 TEL 08 9398 2139 ABN 47 660 588 278</p>	<table border="1"> <thead> <tr> <th>DRAWN</th> <th>DATE</th> <th>CHECK</th> <th>DISCR</th> </tr> </thead> <tbody> <tr> <td>BR</td> <td>15.11.2022</td> <td>FL</td> <td>SP1</td> </tr> <tr> <td>BR</td> <td>06.12.2022</td> <td>FL</td> <td>SP2</td> </tr> <tr> <td>BR</td> <td>19.12.2022</td> <td>FL</td> <td>SP3</td> </tr> <tr> <td>BR</td> <td>17.01.2023</td> <td>FL</td> <td>SP4</td> </tr> </tbody> </table>	DRAWN	DATE	CHECK	DISCR	BR	15.11.2022	FL	SP1	BR	06.12.2022	FL	SP2	BR	19.12.2022	FL	SP3	BR	17.01.2023	FL	SP4	<p>© 2023 Copyright This Plan remains the sole property of Domestic Drafting Service and must not be given, lent, sold, copied or otherwise distributed without written permission of Domestic Drafting Service</p>	<p>CLIENT Drukpa Australia Incorporated</p> <p>PROJECT Proposed Place of Worship</p> <p>ADDRESS 5 Mangano Place Wanneroo</p>	<p>PAGE 2a</p> <p>REV SP4</p> <p>SCALE 1:100</p> <p>DWG 4535</p>
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Proposed Floor Plan- Place of Worship

Scale 1:100

<p>25a Dorothy Street, Gosnells, WA 6110 TEL 08 9398 2139 IABN 47 660 588 278</p>	DRAWN	DATE	CHECK	DISCR	CLIENT	PAGE	2c
	BR	15.11.2022	FL	SP1	Drukpa Australia Incorporated	REV	SP4
	BR	06.12.2022	FL	SP2	Proposed Place of Worship	SCALE	1:100
	BR	19.12.2022	FL	SP3		DWG	4535
	BR	17.01.2023	FL	SP4	ADDRESS		
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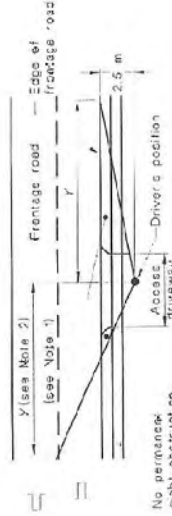


Appendix B: Driveway sightline assessment



AS/NZS 2390.1:2004

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No permanent sight obstruction (See Note 3)

Frontage road speed (Note 4) km/h	Distance (Y) along frontage road m		Domestic property access (Note 5)
	Desirable 5 s gap	Minimum SSD	
40	55	35	30
50	60	45	40
60	63	65	55
70	97	85	70
80	111	105	95
90	125	130	Use values from 2 nd and 3 rd columns
100	139	180	
110	153	190	

Revision notes:
Rev: Date:
1 26/01/2023

Notes:
Signline assessment undertaken as per Figure 1.2 of AS2091.1 - Shopping Sign. Distance should be 50m.

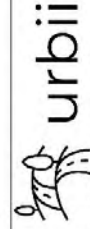
Drawn by:
Paul Chardilus

Client:
Drupa Australia Incorporated

Project:
U22/G4 - L&K 7 (No. 5) Mangano Place, Villanova
Proposed Place at Intersection

Drawing Title:
Signline Assessment
Villanova Street Crossover

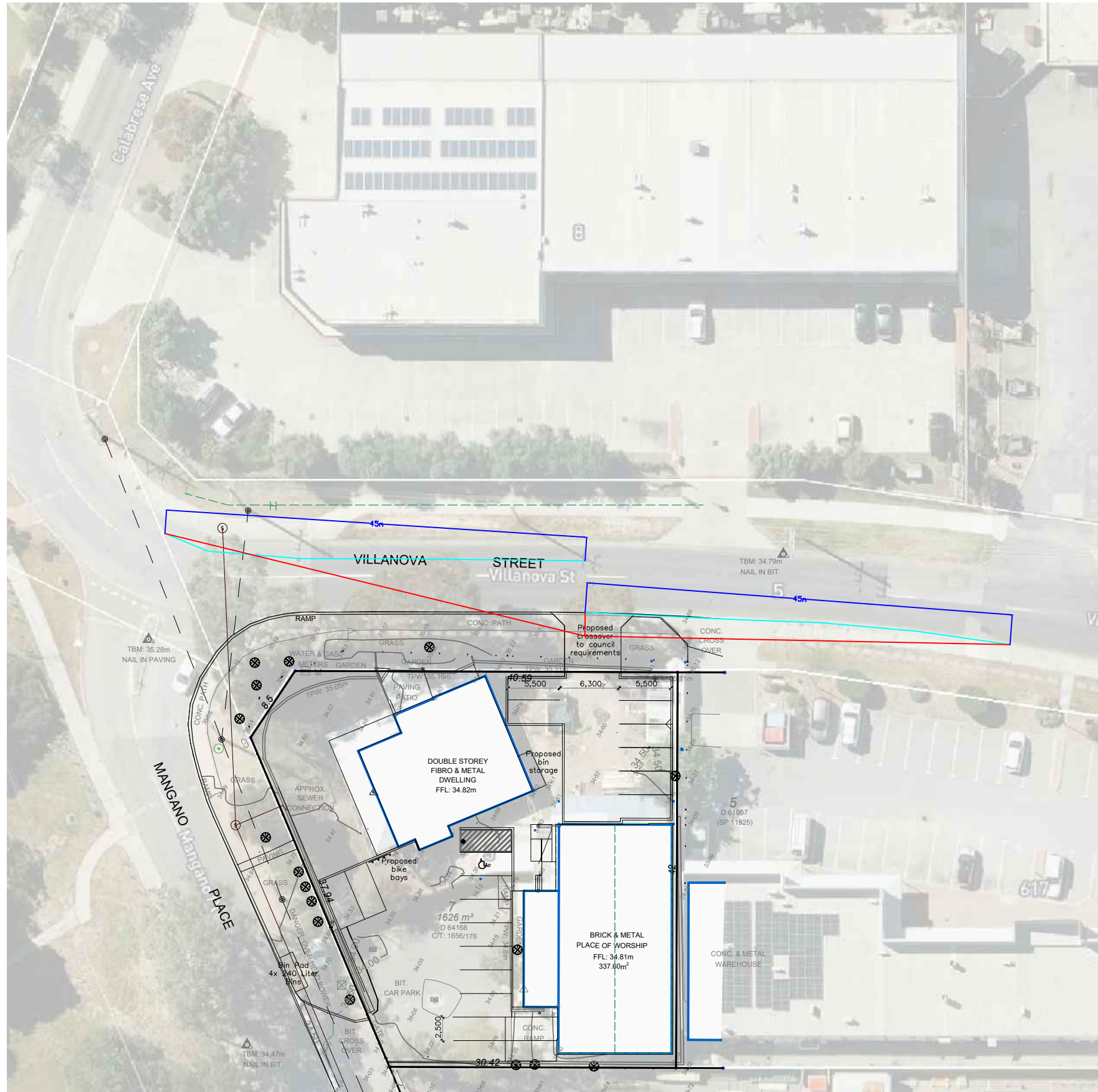
Date:
26/01/2023
Scale @ A3:
1:500
Revision:
S01



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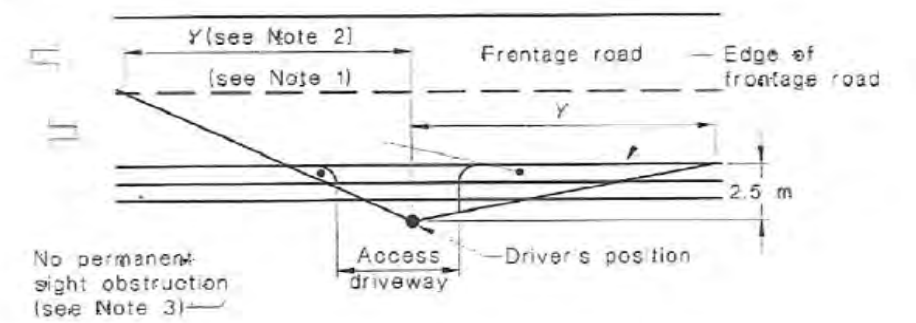
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021 224 8888





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Frontage road speed (Note 4) km/h	Distance (Y) along frontage road m		
	Access driveways other than domestic (Note 5)		Domestic property access (Note 6)
	Desirable 5 s gap	Minimum SSD	
40	56	35	30
50	69	45	40
60	83	65	55
70	97	85	70
80	111	105	95
90	125	130	Use values from 2 nd and 3 rd columns
100	139	160	
110	153	190	

Revision notes:

Rev:	Date:	Notes:
1	26/01/2023	Sightline assessment undertaken as per Figure 3.2 of AS2890.1 - Stopping Sight Distance should be 45m.

Drawn by:
Paul Ghantous

Client:
Drukpa Australia Incorporated

Project:
U22.104 - Lot 7 (No. 5) Mangano Place, Wanneroo
Proposed Place of Worship

Drawing Title:
Sightline Assessment
Villanova Street Crossover

Date:
26/01/2023

Scale @ A3:
1:500

Revision:
sk01

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PO Box 4315, Baldivis WA 6171
customer@urbii.com.au
0433858164