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TRAFFIC IMPACT ASSESSMENT

With Car Park Certification

12 WARRADALE TERRACE, LANDSDALE WA 6065

Proposed Day Care Centre

Prepared for:	Ashley Zacharia
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City of Wanneroo Development Application #:	TBA

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INTRODUCTION

AusWide Consulting was engaged by Ashley Zacharia to prepare a Traffic Impact Statement and Car Park Certification at 12 Warradale Terrace, Landsdale WA 6065. This report will assess the implications of the proposed development on existing traffic, parking and transport conditions surrounding the site. The following items have been included in the subsequent sections of this report:

- ◆ Public and active transport accessibility at the site,
- ◆ Number of car parking spaces required for the development,
- ◆ Expected traffic generation rates and their impact on the surrounding road network,
- ◆ Car parking demand survey,
- ◆ Car park certification
- ◆ Conclusions of the above findings.

During the course of preparing this assessment, the subject site and its environment have been inspected, and all relevant traffic and parking data collected and analysed.

BACKGROUND AND EXISTING CONDITIONS

The subject site is located on Warradale Terrace in the suburb of Landsdale, which is approximately 20km north from Perth's CBD. The site falls within the City of Wanneroo. The use of the land immediately surrounding the subject site is primarily residential in nature, which mainly comprises of dwellings in the surrounding directions.

Warradale Terrace is a road under the Council's jurisdiction. The road cross-section at the site includes 2 lanes (northbound and southbound) with pedestrian footpaths and on-street parking available on the western boundary of the road. The subject site is located within the Urban Zone and is expected to have low-medium pedestrian activity.

Figure 1: presents an aerial view of the subject site showing surrounding suburbs

Figure 2: presents an aerial view of the subject site showing surrounding roads and businesses

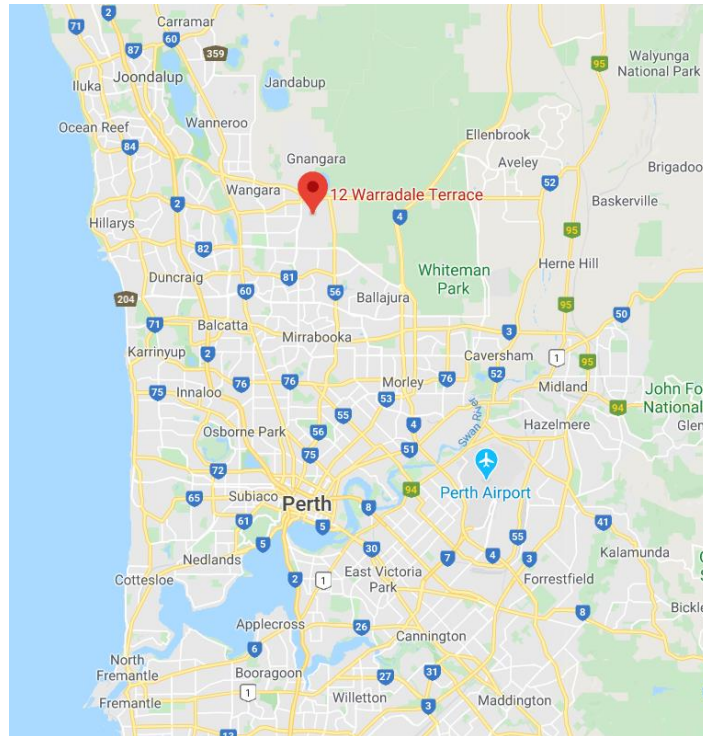


Figure 1: Location of the subject site, source: Google Maps

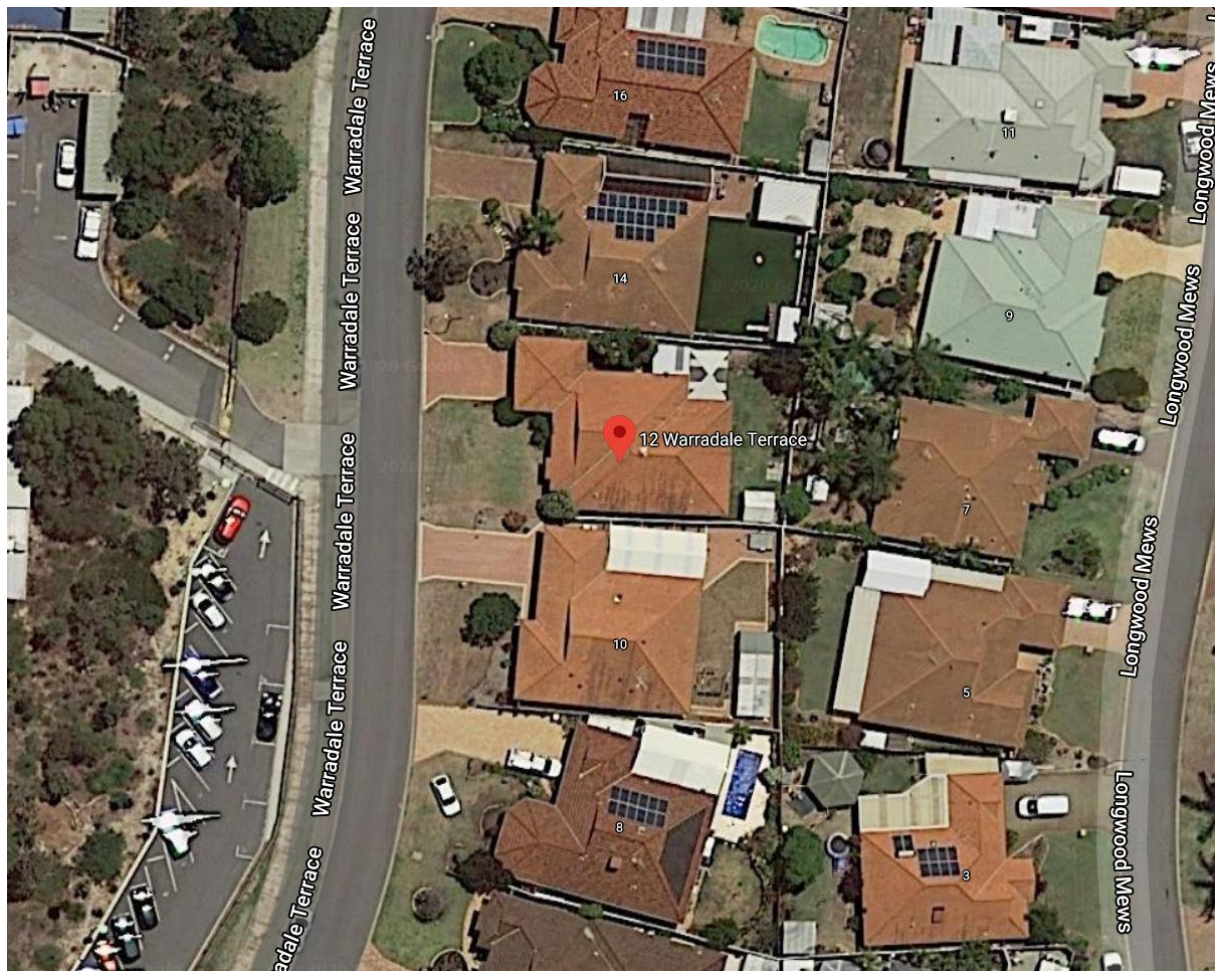


Figure 2: Aerial view of subject site, source: Google Maps

PUBLIC TRANSPORT

The subject site is in an area that has some access to public transport that is within walking distance to the site. The closest public transport stop to the site, Warradale Tce after Rockdale Pass, is approximately 350m away which is a 4-minute walk. This stop provides the 376 bus route with services throughout the day. The following table will summarise the frequency of these services.

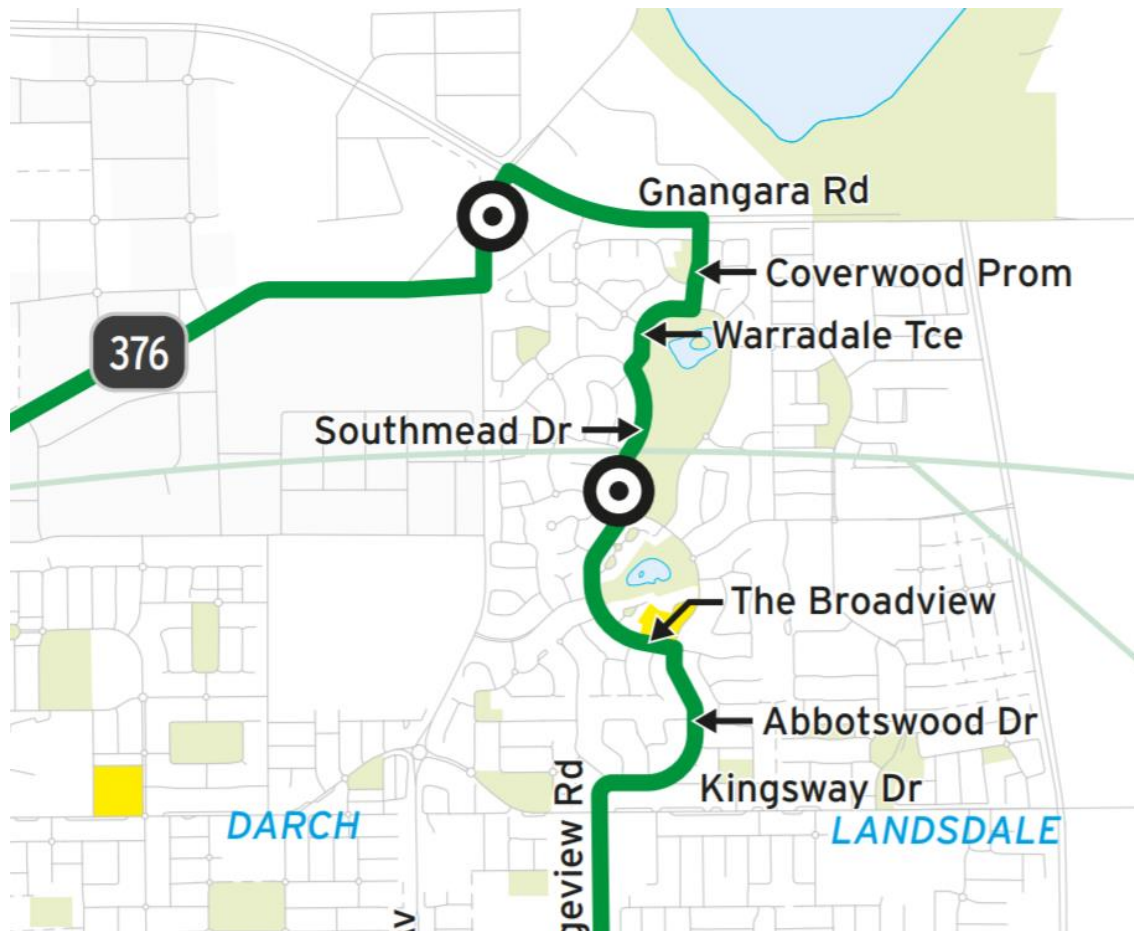


Figure 3: Public Transport Map, source: transperth.wa.gov.au

Service	Location	Distance from subject site [m]	Walking time [min]	Origin	Destination	Route Description	Number of Service		
							AM Peak (7-9 am)	PM Peak (4-6 pm)	Off peak
BUS SERVICES									
376	Warradale Tce after Rockdale Pass	350	4	Mirrabooka Bus Station	Whitfords Station	Via Mirrabooka Ave & Gnangara Dr	3	9	1-2 services per hour
				Whitfords Station	Mirrabooka Bus Station		4	4	

Table 1: Public transport service details

The above bus service details show that the development site has some access to public transport. Given the number of services provided, it is likely that some patrons will use these services to travel to and from the site.

WALKABILITY

The locality was assessed for nearby features that would encourage staff and patrons to walk/cycle.

The 'walkability' of a site is a measure of its proximity to other facilities by walking and can be ascertained from www.walkscore.com. The subject site is rated as "Car Dependent" (meaning that most errands require a car) and with a score of 32 out of 100 (obtained from the 'Walk Score' web tool), it provides a lower ranking to the average Perth metropolitan score of 50 out of 100.

PROPOSED DEVELOPMENT

The proposed development at 12 Warradale Terrace, Landsdale WA 6065 is for a day care centre.

The information provided by the client are as follows;

- The operation hours as described by the client are;
 - Monday – Friday (7:00am – 6:00pm)
 - Peak times are expected to be from 7:00am – 8:00am
- Maximum of 4 on-site at any time.
- Maximum occupancy of 24 children on site broken down into the following:
 - 10 pre-school
 - 10 toddlers
 - 4 babies
- 6 parking spaces (inc. 1 disabled space) are to be provided on-site.

NUMBER OF CAR PARKING SPACES REQUIRED FOR THE DEVELOPMENT

Under the City of Blacktown DCP 2015, the development’s land use is classified as a ‘day care centre’. The table below summarises the rates obtained from the development control plan as well as the car parking requirement for the proposed land use.

Land Use	Given Rate from Council DCP	Car Parking Required	Parking Spaces Provided	Car Parking Short fall
Day Care Centre	1 parking bay per staff member and 6 spaces for capacity of 26-30 children	With a maximum of 4 staff and 24 children on-site at any time, the car parking requirement is 9 spaces.	6 spaces provided	Shortfall of 3 parking spaces

Table 2: Proposed Development Car Parking Requirement Summary

As observed in the table above, the development has car parking shortfall. With a requirement of 9 car parking spaces and only 6 dedicated parking spaces available, there is a resulted shortfall of 3 car parking spaces.

To accommodate for this shortfall, a car parking demand survey was conducted to determine the parking availabilities around the area. All enforced car parking restrictions and the on-street parking provision will be outlined within the surveyed results in **Appendix A – D**.

TRAFFIC IMPACT ASSESSMENT

Through observation of the RMS Guide to Traffic Generating Development (2002), the proposed development land use is classified as a *'Day Care Centre (Before/After Care)'*. The traffic generation rates for the development is as follows;

Peak vehicle trips/child between 7:00am – 9:00am = 0.5 trips/child

Peak vehicle trips/child between 2:30pm – 4:00pm = 0.2 trips/child

Peak vehicle trips/child between 4:00pm – 6:00pm = 0.7 trips/child

As there is a maximum occupancy of 24 children within the proposed development, the peak vehicle trips between 7:00am – 9:00am is 12 trips, between 2:30pm – 4:00pm is 5 trips and between 4:00pm – 6:00pm is 17 trips.

These rates are likely to vary on a day to day basis depending on the number of children that attend the day care centre, however the trips generated from the site is still expected to be low.

When assessing these rates using the RMS Guide, it is evident that the vehicle traffic generation of the proposed site is considerably low. It is expected that the vehicular traffic generated by the site will distribute across the road network in the vicinity. It was perceived that these rates are in fact negligible and are not anticipated to generate any significant adverse impacts on the local road network.

Traffic Management on the Frontage Streets

Along the frontage of the site, there are 2 lanes (northbound and southbound) with pedestrian footpaths only available on the eastern boundary of the road.

Within 100m south of the development along the western boundary of the frontage road (travelling northbound), there is only one driveway access that belongs to Landsdale Primary School which is directly opposite the proposed development. Along the eastern boundary (travelling southbound), there are 4 entrances to dwelling developments along Warradale Terrace.

Within 100m north of the development and along the western boundary of Warradale Terrace, there are no existing driveways present. Along the eastern boundary (travelling southbound), there are several access driveways for the neighbouring dwellings.

Along Warradale Terrace, pedestrian footpaths are only present on the eastern boundary with no dedicated cycling lanes available. On-street parking is permitted along Warradale Terrace with restrictions in place. The posted speed limit of the road is 40km/hr during school hours and 50km/hr outside of school hours.

Pedestrian Access

It is acknowledged that pedestrian footpaths are provided along Warradale Terrace however, there are no footpaths provided along The Broadview. Although there are no footpaths available on this road, it is expected that patrons of the site will be only be picked up and dropped off.

Cycle Access/Facilities

Observing the roads surrounding the site, there are no dedicated bicycle lanes provided. However, as Warradale Terrace is predominantly a residential road with wide lanes, the traffic count is expected to be low throughout the day and there will be little to no hazards for cyclists utilising this road. To improve cyclist conditions for the development, bicycle parking spaces can be provided to encourage local patrons to cycle to the site rather than drive, which will reduce the generated traffic and parking demand.

CROSS UTILISATION TRIPS

As the site is located within a residential area with a primary school within the vicinity, some trips to and from the site are expected to be cross-utilised with trips towards the school. It is likely that some trips towards the site will be mixed with trips towards the neighbouring school.

CAR PARKING CERTIFICATION

This section will investigate the compliance of the proposed car park extension and new car parking spaces with the specific requirements outlined within AS2890.1 and AS2890.6 standards. The site plan provided by the client is displayed within **Appendix E**.

AS2890.1 Design Standards

Angle Parking Spaces (Section 2.4.1)

The minimum parking space and aisle dimensions have been outlined within this section. The following figure depicts the minimum requirements for 90 degree parking spaces.

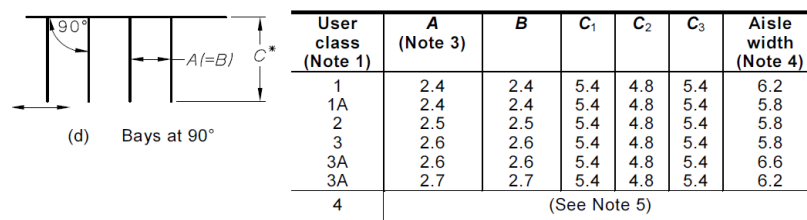
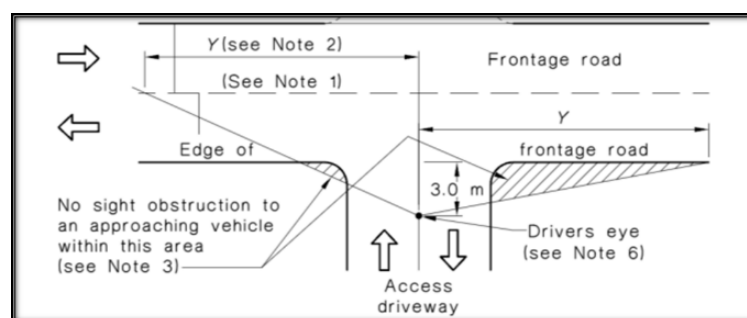


Figure 4: 90 Degree Parking Space Dimensions (AS2890.1)

Provided by the client, the widths of the designed car spaces are 2.5m and the lengths are 5.4m respectively. The accessway width within the car parking lot is also 7.758m, resulting in all dimensions being compliant with AS2890.1 standard.

Sight Distance (Section 3.2.4)

The minimum sight distance requirements for the development has been outlined below. As Warradale Terrace will have an expected speed limit of 50km/hr, the development will require a clear sight distance of 45m as outlined within the figure below.



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	55	35	30
50	69	45	40
60	83	55	55
70	97	65	70
80	111	80	95
90	125	100	Use values from 2 nd and 3 rd columns
100	139	130	
110	153	160	

Figure 5: Sight Distance Minimum Requirements (AS 2890.1)

From the proposed southern driveway access, the sight distances to the south is 100m and 75m to the north. As there are no visual obstructions (trees, bushes, etc) along the car park frontage it is evident that visibility between drivers and pedestrians is achieved. The clear sight lines in both directions allow drivers and pedestrians to be able to safely enter and exit the site with little to no hazards.

AS2890.6 Design Standards

Disabled Angle Parking Spaces (Section 2.2.1)

As the proposed development will have an on-site disabled parking space, the design of the space is to be in accordance to AS2890.6. The following figure depicts the minimum requirements for disabled parking spaces and the required shared space.

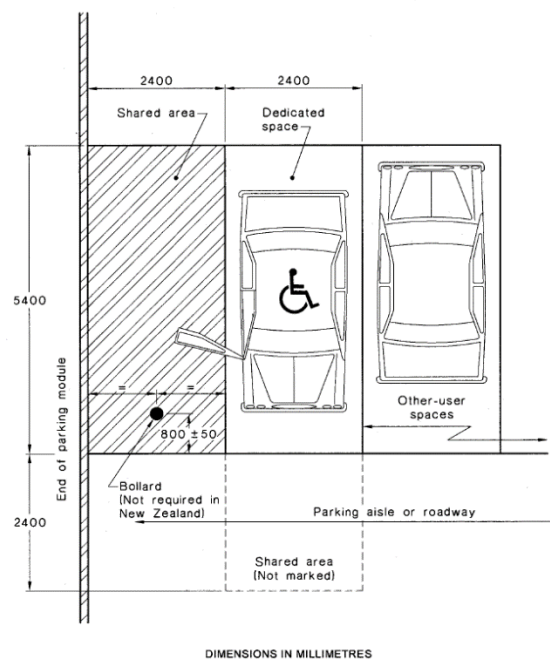


Figure 6: Disabled Parking Space Dimension Requirements (AS2890.6)

As advised by the client, both the shared space and the disabled car parking space for the proposed development will have a width of 2.4m and length of 5.4m. However, a bollard may need to be implemented within the shared space to ensure that the space remains unoccupied to accommodate for the disabled space. Nonetheless the dimensions for the disabled and shared space are compliant with the standards set.

Compliance Summary Table

Design Attribute	Standard	Requirement	Provided	Comments
Car Space Width	AS2890.1	Minimum 2.4m	2.5m	Compliant with AS2890.1
Car Space Length	AS2890.1	Minimum 4.8m	5.4m	Compliant with AS2890.1
Accessway Width	AS2890.1	Minimum 5.8m	7.758m	Compliant with AS2890.1
Sight Distance	AS2890.1	Minimum 45m	100m to the south 70m to the north	Compliant with AS2890.1
Disabled Space Width	AS2980.6	Minimum 2.4m	2.4m	Compliant with AS2890.6
Disabled Space Length	AS2980.6	Minimum 5.4m	5.4m	Compliant with AS2890.6
Shared Space Width	AS2980.6	Minimum 2.4m	2.4m	Compliant with AS2890.6
Shared Space Length	AS2980.6	Minimum 5.4m	5.4m	Compliant with AS2890.6 however a bollard may need to be implemented within design

Table 3: Car Park Certification Summary Table

CONCLUSIONS OF CAR PARK CERTIFICATION

Based on the assessment presented in this report, it is considered development's car park area designed in accordance to AS2890.1 and AS2890.6 design criteria is not envisaged to create any collisions or vehicular issues as the design is compliant with all required dimensions.

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CAR PARKING DEMAND SURVEY

As a part of this study, parking utilization surveys were undertaken to determine the public parking occupancy on:

- ◆ Wednesday 1st July (7:00am – 10:00am)
- ◆ Thursday 2nd July (11:00am – 2:00pm)
- ◆ Friday 3rd July (3:00pm – 6:00pm)

The survey area considered all the on-street parking spaces available within an approximately 250m radius of the site (generally regarded as the walking distance to the site). This area was carefully chosen to represent the areas where people are most likely to park their vehicles. The survey area map and the full results of this survey are presented in **Appendix: A – D**. The following sections summarise and discuss these results.

On-street Public Parking Analysis

On-Street Public Parking Survey Results

The parking observations showed that there are approximately 25 on-street available parking spaces within 250m of the subject site.

Generally, the occupancy for these spaces are between 24 – 64% on Wednesday, 12 – 16% on Thursday and 16– 20% on Friday.

These percentages indicate low-medium occupancy throughout the day with the highest occupancy (64%) observed at 8:00am on Wednesday. The average occupancy for this area is 26.7% with demand rarely exceeding 30%.

COVID-19 Effects on On-Street Public Parking Availabilities

Due to Covid-19 lockdown and restriction laws enforced in WA, non-essential workers are to remain and work from home which has resulted in more on-street residential parking spaces being occupied. Nonetheless, it is evident that that the remaining number of on-street parking spaces are still sufficient to meet any parking demand generated from the proposed development.

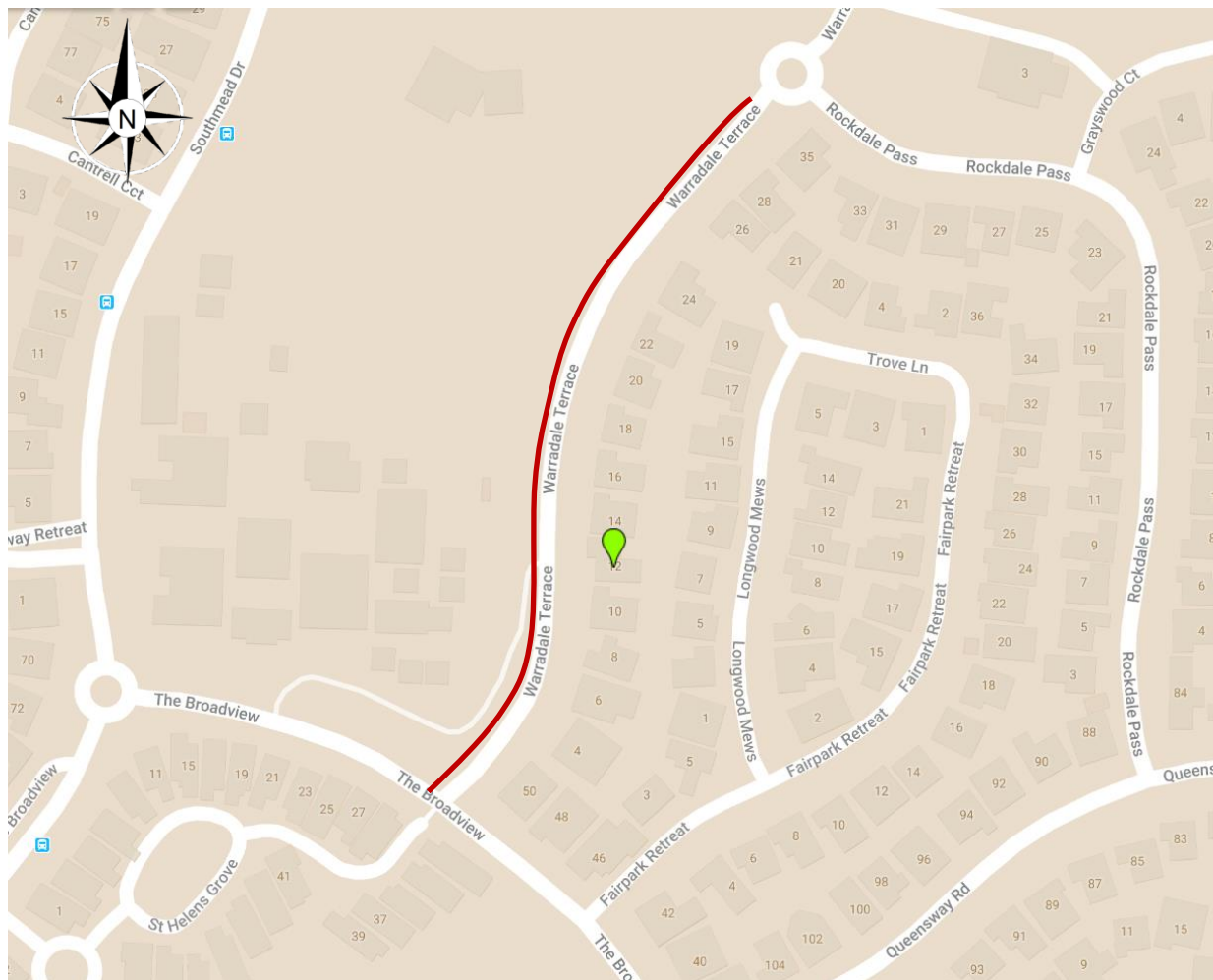
CONCLUSIONS

Based on the assessment presented in this report, it is considered that:

- ◆ The proposed development at 12 Warradale Terrace, Landsdale WA 6065 is for a day care centre.
- ◆ The site has some access to the local area through public transport. It is likely that some patrons will take public transport to travel to and from the site.
- ◆ The site has walkability score of 32, which indicates that “most errands require a car”. This score provides a lower ranking to the average Perth metropolitan score of 50 out of 100.
- ◆ When considering the land use, it is expected that trips generated for the site will be cross-utilised trips. As there is a primary school located nearby to the site, it is likely that the trips to and from the site will mixed with trips towards this development.
- ◆ Using the recommended parking rates presented within the respective council’s planning scheme, the proposed site would require a total of 9 parking spaces to be compliant with the requirement. As the site has 6 dedicated parking spaces, there is a resulted shortfall of 3 parking spaces.
- ◆ The proposed development will generate additional, but low levels of trips throughout its operation. It is expected that these trips can be accommodated at the nearby intersections without affecting intersection performance and the traffic in the surrounding roads.
- ◆ A car parking demand survey was conducted to determine available parking within 250m of the subject site. Assessing the locality of the site, there are 25 on-street car parking spaces available. The parking survey results indicated that there are several car spaces available for patrons and staff to utilise during operating hours.

In conclusion, this study indicates that the proposed development is not envisaged to have adverse impacts on the surrounding traffic or parking conditions. Therefore, the proposed development should be supported on traffic and parking grounds.

APPENDIX A: PARKING INVENTORY AND DEMAND SURVEY, ON/OFF - STREET PUBLIC PARKING – SURVEY AREA



Legend:

- northbound
- southbound
- eastbound
- westbound

APPENDIX B: ON - STREET PUBLIC PARKING, INVENTORY AND DEMAND, WEDNESDAY 1st JULY

LOCATION				Side	PARKING	DEMAND				
Street	Between		Restriction		Supply	7:00am	8:00am	9:00am	10:00am	
Warradale Tce	The Broadview	-	Rockdale Pass	N	No Restriction	25	12	16	12	6
<i>E- eastbound, N – northbound, S – southbound, W – westbound</i>						25	12	16	12	6
						%	48	64	48	24

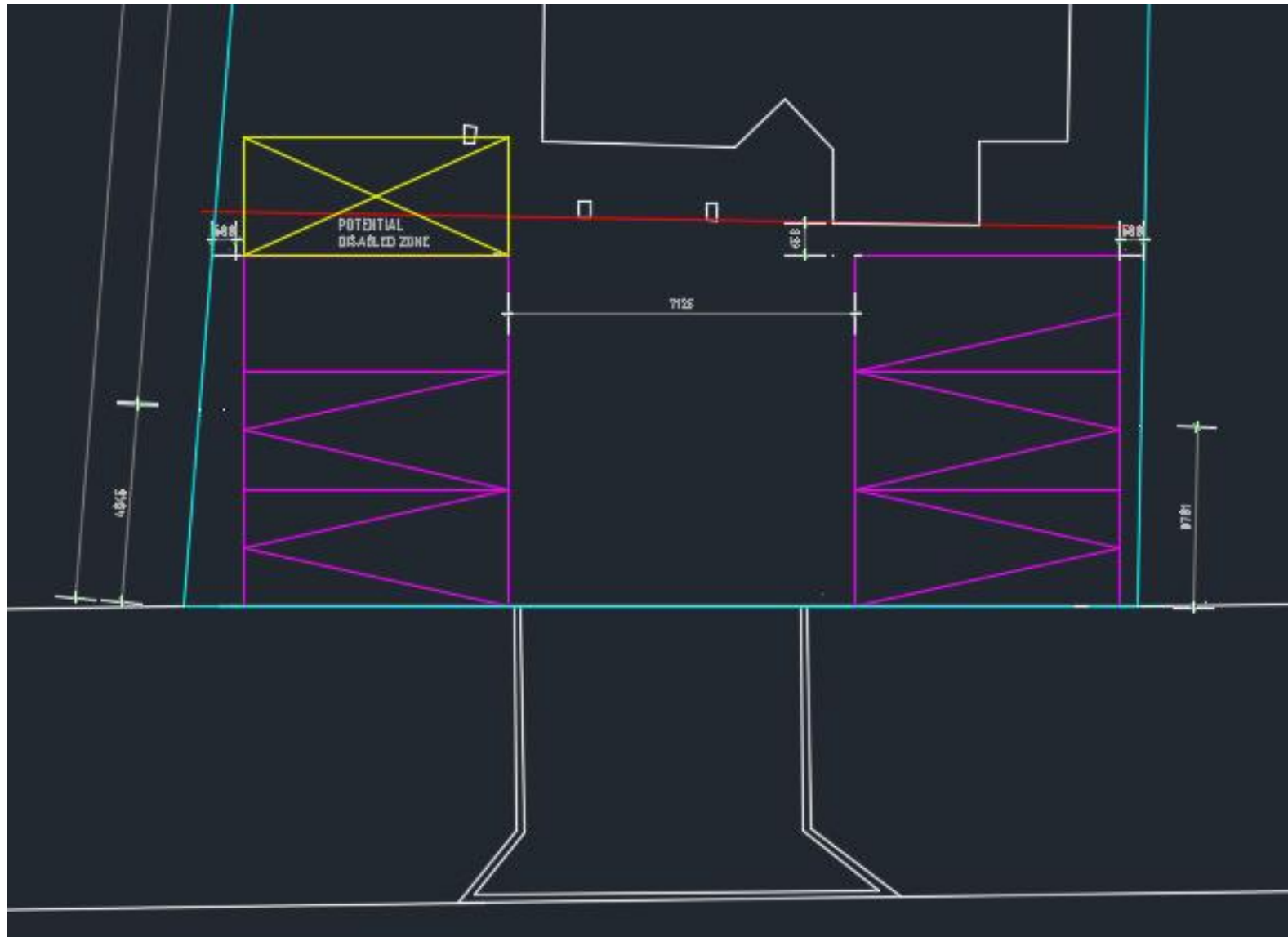
APPENDIX C: ON - STREET PUBLIC PARKING, INVENTORY AND DEMAND, THURSDAY 2nd JULY

LOCATION				Side	PARKING	DEMAND				
Street	Between		Restriction		Supply	11:00am	12:00pm	1:00pm	2:00pm	
Warradale Tce	The Broadview	-	Rockdale Pass	N	No Restriction	25	4	4	3	4
<i>E- eastbound, N – northbound, S – southbound, W – westbound</i>						25	4	4	3	4
						%	16	16	12	16

APPENDIX D: ON - STREET PUBLIC PARKING, INVENTORY AND DEMAND, FRIDAY 3rd JULY

LOCATION				Side	PARKING	DEMAND				
Street	Between		Restriction		Supply	3:00pm	4:00pm	5:00pm	6:00pm	
Warradale Tce	The Broadview	-	Rockdale Pass	N	No Restriction	25	5	4	5	5
<i>E- eastbound, N – northbound, S – southbound, W – westbound</i>						25	5	4	5	5
						%	20	16	20	20

APPENDIX E: PROPOSED CAR PARK PLAN



APPENDIX F: SWEEP PATH DIAGRAMS

