Proposed Retirement Villages and Aged Care Facility Development

Lot 500 (32) Gavour Road, Wattle Grove

Transport Impact Statement

PREPARED FOR:
The Grove (WA) Pty Ltd

May 2018

Document history and status

Author	Revision	Approved by	Date approved	Revision type
Mao Zhu	r01	M Rasouli	18/03/2018	Draft
Mao Zhu	r01a	B Bordbar	23/05/2018	Final

File name: t18.062.mz.r01a

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Project: Pt Loc 707 Gavour Road, Wattle Grove

Document revision: r01a

Project number: t18.062

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1.0 Introduction

This Transport Impact Statement has been prepared by Transcore on behalf of The Grove (WA) Pty Ltd with regard to the retirement village and aged care facility development to be located at Lot 500 Gavour Road, Wattle Grove, in the City of Kalamunda.

The Transport Impact Assessment Guidelines (WAPC, Vol 4 – Individual Developments, August 2016) states: *"A Transport Impact Statement is required for those developments that would be likely to generate moderate volumes of traffic*[1] *and therefore would have a moderate overall impact on the surrounding land uses and transport networks"*. Section 6.0 of Transcore's report provides details of the estimated trip generation for the proposed development. Accordingly, as the total peak hour vehicular trips are estimated to be less than 100 trips, a Transport Impact Statement is deemed appropriate for this development.

The proposed development is bound by Welshpool Road East to the north-west, special rural lots to the east, north and south, Gavour Road to the south-east, and Crystal Brook traversing the site at the south-eastern end, as shown in Figure 1. The subject site is located in a special rural area.

A residential dwelling currently exists on the subject site, with the remaining area being vacant.

Key issues that will be addressed in this report include the traffic generation and distribution of the proposed development and layout and control of the development crossover on Welshpool Road East.

[1] *Between 10 and 100 vehicular trips per hour*

Figure 1: Location of the subject site

2.0 Proposed Development Site Plan

The proposal for the subject site is for a development comprising:

- 190 Independent living units; and,
- 120 bed residential aged care facility.

Direct vehicle access to the development will be provided on the adjacent road network, with main access available from Welshpool Road East.

Currently there is a median opening on Welshpool Road East fronting the subject site. It is proposed to utilise and modify the existing median opening to provide an appropriate crossover for the proposed development. The layout of the proposed crossover would entail a right turn pocket on Welshpool Road East without a left turn slip lane. The length of the proposed right turn pocket is about 100m which is based on the existing posted speed limit of 80km/h on this section of Welshpool Road East.

Waste collection, delivery and other service vehicle activity will be accommodated within the site from Welshpool Road East crossover.

Refer to Appendix A for the proposed Development Site Plan (DSP).

3.0 Vehicle Access and Parking

3.1 Access

The proposed development will provide a full-movement vehicular crossover on Welshpool Road East, to the north-west of the subject site.

Figure 2 shows the location the proposed development crossover.

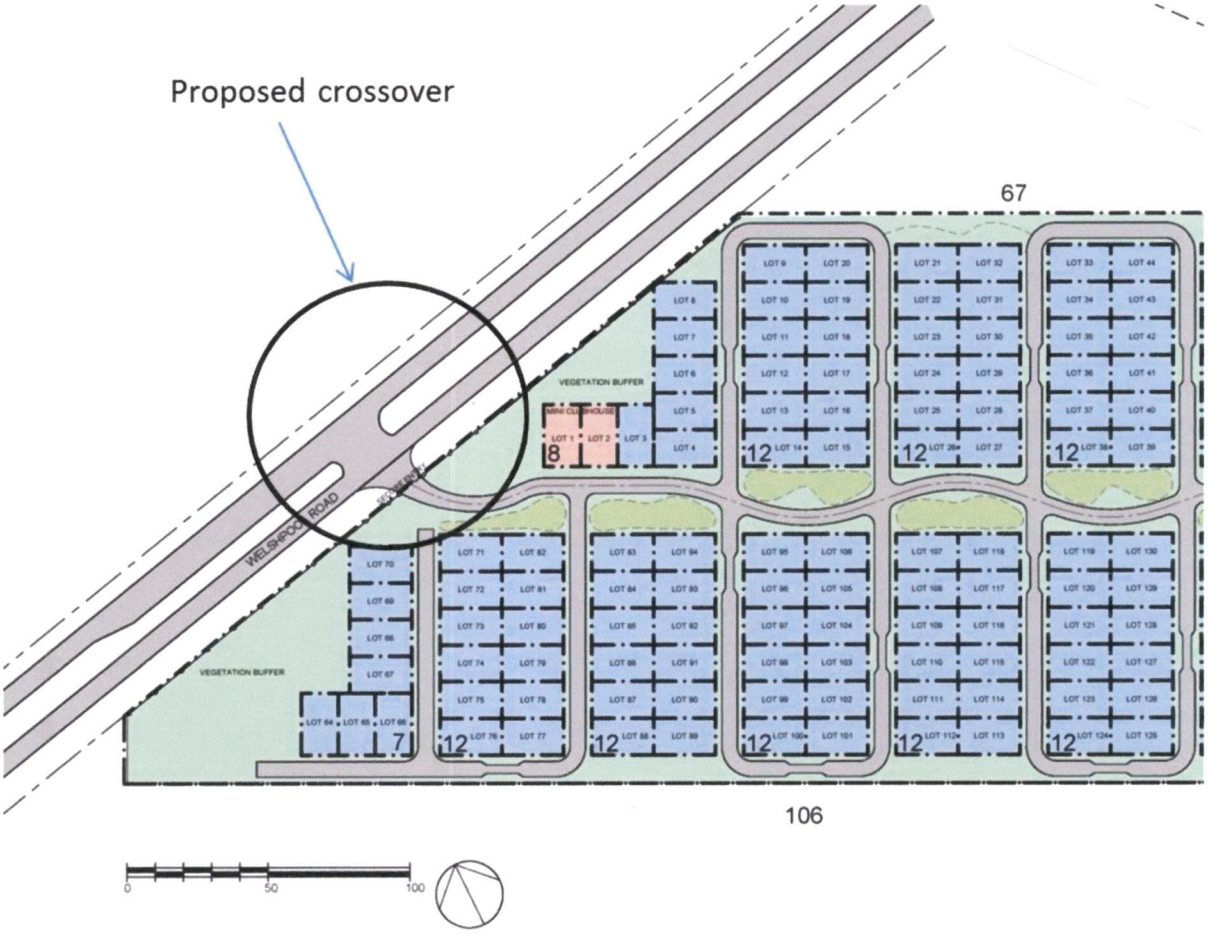


Figure 2: Proposed development crossover

The proposed Welshpool Road crossover is a priority controlled T-intersection with a right turn pocket of about 100m on Welshpool Road East. The proposed development also provides a secondary crossover on Gavour Road which will only be used during emergencies. Therefore, no traffic would be expected to be distributed from the proposed development onto Gavour Road.

3.2 Parking Demand and Supply

The City of Kalamunda Local Planning Scheme No.3 provides parking requirement standards for various land uses. The parking requirement rates applicable to the subject site include:

- Retirement Village: 0.5 bays per residential unit plus 1 bay per employee; and,
- Aged Residential Care: 1 per employee plus 1 bay per 10 beds.

The proposed DSP is a concept plan at this stage and does not show the details of the parking supply on site. However it is recommended that sufficient parking bays should be provided on site for residents and visitors.

4.0 Provision for Service Vehicles

Service, waste collection and delivery vehicles will be accommodated on site.

Vehicular access to the service area will be facilitated via the proposed crossover on Welshpool Road East.

5.0 Hours of Operation

The retirement village is residential in nature and will generate heaviest traffic movement during weekday afternoon peak hour. The aged care component of the development traffic peak hour is dictated by the staff movements. The afternoon staff changeover for the proposed aged care facility is expected to occur at around 3:00PM, with the morning staff departing the site and afternoon/evening care staff arriving.

Therefore, the traffic peak period of site traffic is assumed to occur between 3:00PM to 5:00PM.

6.0 Daily Traffic Volumes and Vehicle Types

6.1 Traffic Generation

The traffic volumes likely to be generated by the proposed development have been estimated in accordance with the *Transport Road & Marine Services NSW "Technical Direction TDT 2013/04a"* and *RTA NSW "Guide to Traffic Generating Developments (2002)"* documents, which provides daily and peak hour trip rates for the relevant land uses.

Transport Road & Marine Services NSW trip generation rates are best suited for the retirement village component of the proposed development is "Housing for seniors" and the RTA NSW trip generation rates which are best suited to estimate the aged care facility component of the development is "Housing for aged and disabled persons".

Accordingly, the trip rates which were used to estimate the development traffic generation are:

Retirement Village (Housing for seniors)

- Weekday daily vehicle trip = 2.1 per dwelling
- Weekday peak hour vehicle trips = 0.4 vehicles per dwelling

Aged Care Facility (Housing for aged and disabled persons)

- Daily vehicle trips = 1 - 2 per dwelling
- Evening peak hour vehicle trips = 0.1 - 0.2 per dwelling

It is estimated that the proposed development would generate about 620 daily vehicle trips, with approximately 100 trips during the PM peak hour periods. These trips include both inbound and outbound vehicle movements. It is anticipated that most of the vehicle types would be passenger cars and 4WDs with commercial vehicles representing a significantly smaller proportion of trips.

Table 1 is based on the following directional split assumptions:

- PM peak split estimated at 50%/50% inbound/outbound

Table 1: Peak hour trips for the proposed development

Time period	Direction	Total Peak Hour Trips	
		Split	Total
PM Peak	Inbound	50	**100**
	Outbound	50	

6.2 *Traffic Flow*

With respect to the location of the subject site, access/egress system and the permeability and layout of the surrounding road network it is assumed that PM peak hour and daily inbound/outbound traffic would be distributed as follows:

- 70% to/from the west of Welshpool Road East; and,
- 30% to/from the east of Welshpool Road West.

Figure 3 illustrated the peak hour (weekday), maximum daily trip generation, and distribution over the local network for the proposed development.

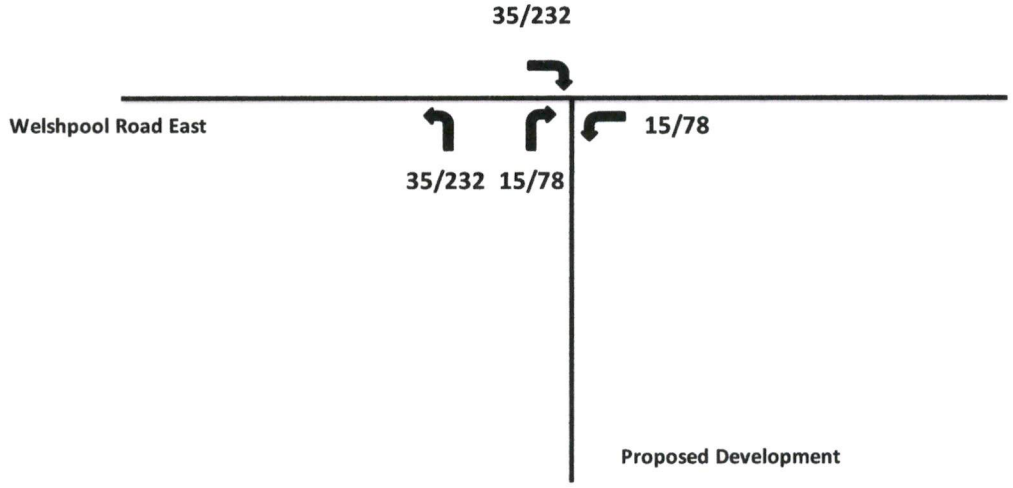


Figure 3: Estimated traffic movements for the proposed development – PM peak/total daily trips

6.3 *Impact on Surrounding Roads*

The WAPC *Transport Impact Assessment Guidelines* (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 considered to be insignificant and acceptable.

6.4 Crossover analysis

In order to investigate the operation of the proposed development crossover on Welshpool Road East, SIDRA intersection analysis was undertaken for the critical PM peak hour.

SIDRA is an intersection modelling tool commonly used by traffic engineers for all types of intersections. The results of the SIDRA analysis are summarised in Appendix B. The analysis undertaken indicates that the proposed crossover will work satisfactorily and well within capacity with level of services B and with minimal queues and delays.

In order to assess the requirement for a left turn slip lane at the development crossover on Welshpool Road East, the warrants in "Austroads Guide to Road Design Part 4" document were checked against the left turning volumes during the critical PM peak hours. These warrants in graphical form are contained in Appendix C of this report. The applicable warrant for this assessment is for the design speed of less than 100km/h. Daily traffic flow on Welshpool Road East was sourced from Main Roads WA for 2015/2016 and used for the purpose of the assessment (refer Figure 4).

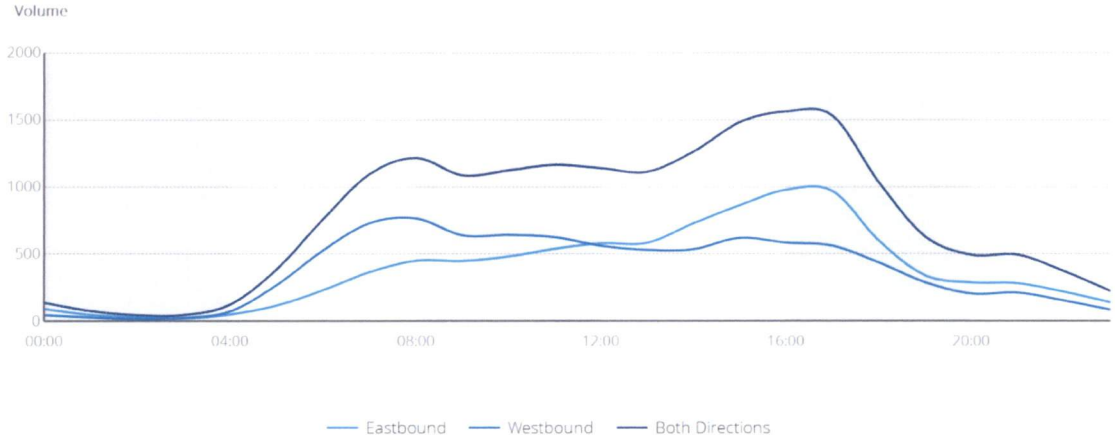


Figure 4: Daily traffic flow on Welshpool Road East, East of Tonkin Hwy

According to Figure 4, the westbound traffic on Welshpool Road East is about 600vph during the peak hours which will be distributed in two lanes. Therefore each lane on average would carry about 300vph. The total number of left turn movements from Welshpool Road to the proposed development is estimated to be about 15vph. According to the Austroads graphs in Appendix C, a basic left turn treatment (BAL) is considered to be sufficient for the proposed crossover on Welshpool Road East. The BAL treatment includes a widened shoulder, which assists turning vehicles to move further off the through carriageway, making it easier for through vehicles to pass.

Considering that Welshpool Road East has two lanes on each direction the kerb lane would facilitate the turning vehicles movements and therefore the basic widening is not required in this instance.

7.0 Traffic Management on the Frontage Streets

Welshpool Road East, north of the subject site, is a dual-divided carriageway road in the immediate vicinity of the subject site. It is approximately 24m wide with relatively low traffic volumes during the peak hours. It is classified as *Distributor A* in the Main Roads WA *Metropolitan Functional Road Hierarchy* and operates under the posted speed limit of 80km/h.

Traffic count data obtained from Main Roads WA indicates that Welsh Road East carried 19,356 vehicles per day (vph) in 2015/2016. The morning and afternoon peaks were recorded between 7:45AM-8:45AM and 4:45PM-5:45PM with a total of 1,539vph and 1,827vph, respectively.

Gavour Road, southeast of the subject site is a single carriageway road in the immediate vicinity of the subject site. It is approximately 5.5m wide with relatively low traffic volumes. It is classified as an *Access Road* in the Main Roads WA *Metropolitan Functional Road Hierarchy* and operates under the default, built-up area speed limit of 50km/h.

There are no available traffic counts for this road at present.

8.0 Public Transport Access

The subject site has access to bus service 282 along Welshpool Road East to the north of the subject site. This bus route passes through Kalamunda Transfer Station and provides opportunity to transfer to other connecting bus services.

Nearby public transport services are shown in Figure 5.

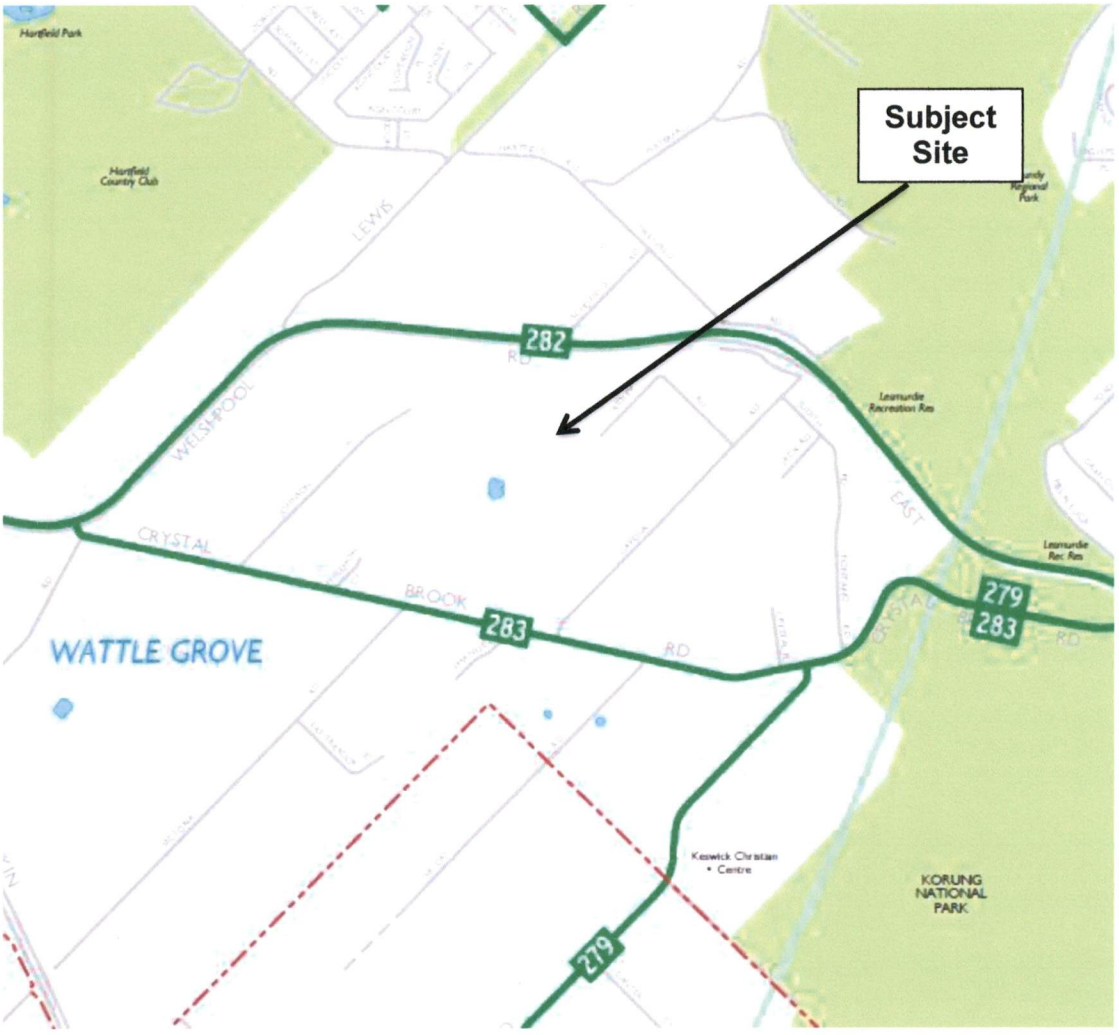


Figure 5: Public transport services (Transperth Maps)

9.0 Pedestrian Access

There is no direct pedestrian connectivity to the subject site from the surrounding road network.

10.0 Cycle Access

The Perth Bicycle Network Map (see Figure 6) shows the existing cyclist connectivity to the subject site. shared paths are provided along Crystal Brook Road to the south of the subject site and Welshpool Road and Lewis Road to the west of the subject site. Lewis Road is also classified as good road riding environment.

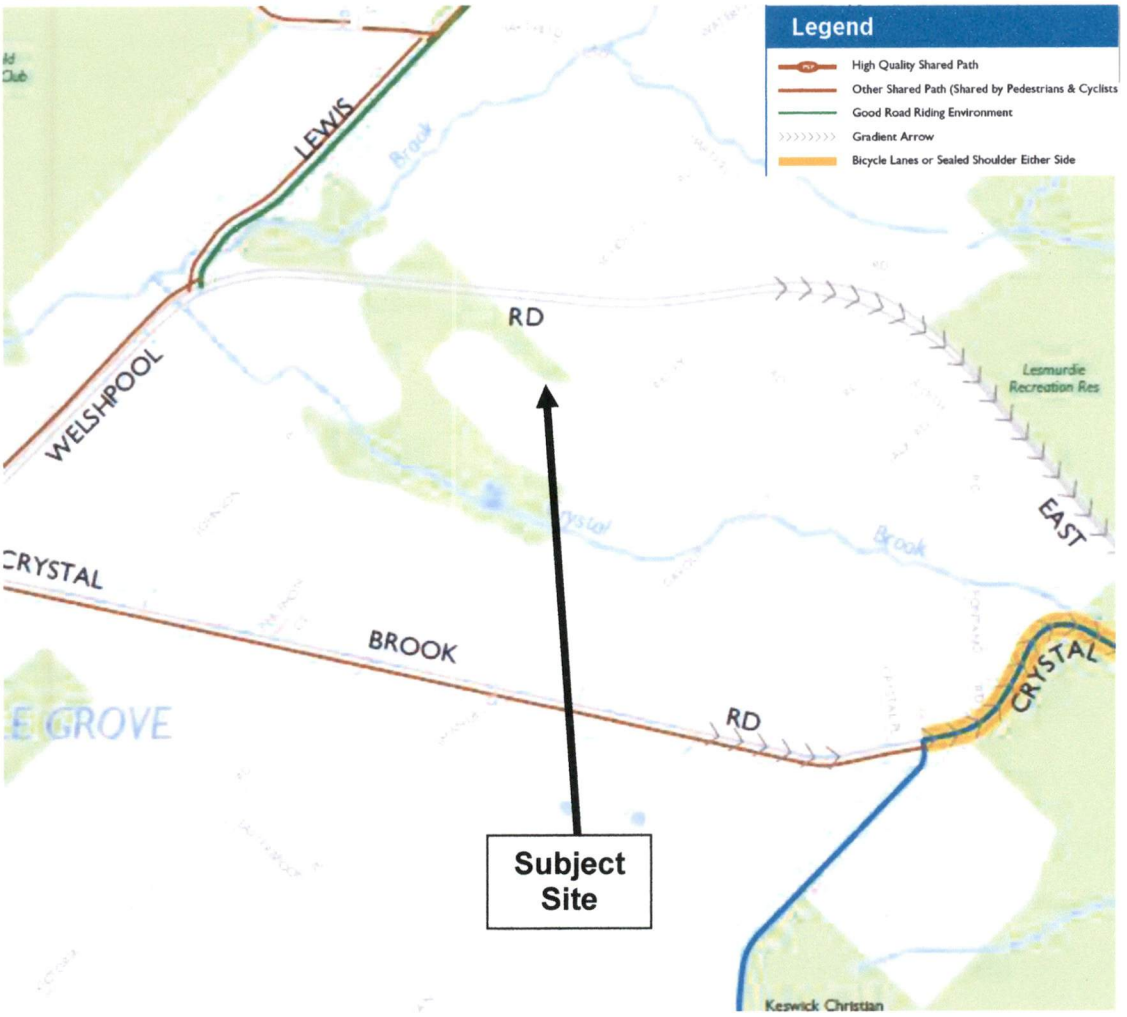


Figure 6: Extract from Perth Bicycle Network (Department of Transport)

11.0 Site Specific Issues

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

12.0 Safety Issues

No safety issues were identified within the scope of this assessment.

13.0 Conclusions

This Transport Impact Statement has been prepared by Transcore on behalf of The Grove (WA) Pty Ltd with regard to the retirement villages and aged care facility development to be located at Lot 500 Gavour Road, Wattle Grove, in the City of Kalamunda.

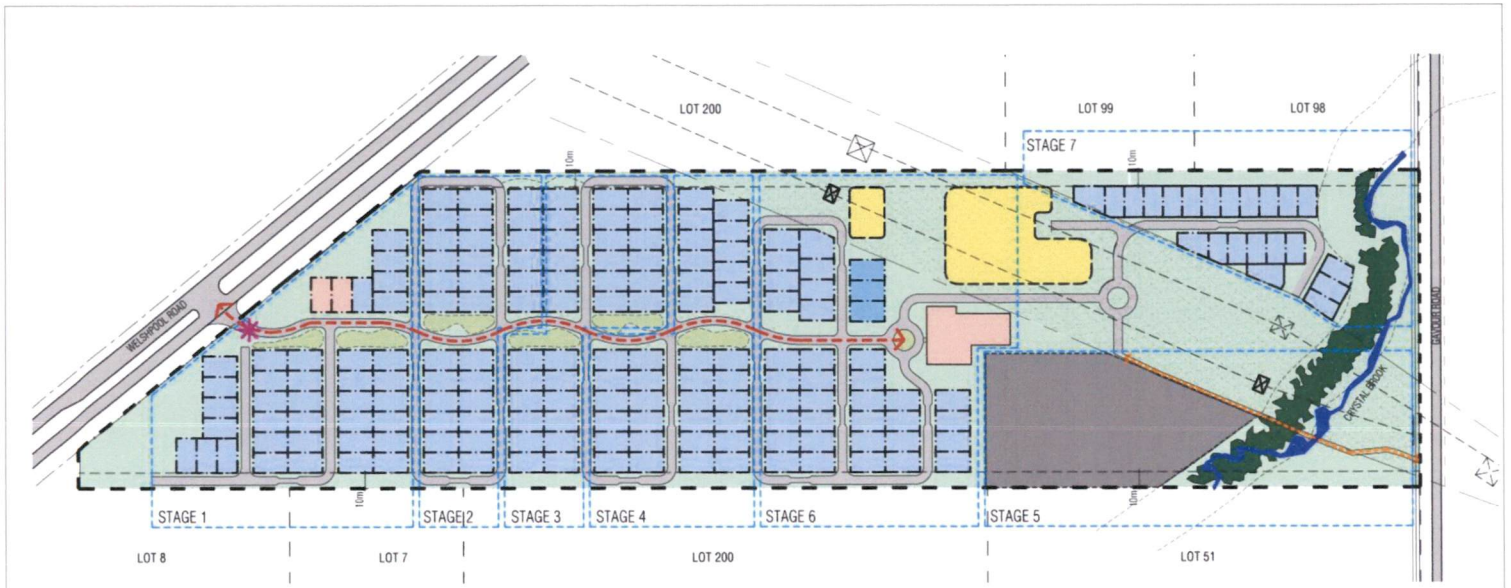
The site features connectivity with the existing road and cyclist network and public transport coverage through bus services. The proposed development vehicular crossover is on Welshpool Road East with an emergency only crossover also proposed on Gavour Road. The layout of the proposed crossover would entail a right turn pocket on Welshpool Road East but without a left turn slip lane.

The traffic analysis undertaken in this report shows that the traffic generation of the proposed development is relatively low and as such would not have any significant impact on the surrounding road network. The proposed crossover intersection on Welshpool Road East will operate satisfactory without any impact on Welshpool Road East traffic.

It is finally concluded that the findings of this Transport Impact Statement are supportive of the proposed retirement villages and aged care facility development.

Appendix A

PROPOSED DEVELOPMENT PLANS



LEGEND

- SUBJECT SITE
- PRIMARY VEHICLE ACCESS ROUTE
- SECONDARY EMERGENCY ACCESS ROUTE (EXISTING DRIVEWAY)
- ENTRY STATEMENT (SEE LANDSCAPE MASTER PLAN)
- INDEPENDENT LIVING SITES
- AGED CARE FACILITY SITE
- CLUBHOUSE
- LANDSCAPE ZONES (REFER TO LANDSCAPE MASTERPLAN)
- COMMUNITY FACILITIES (REFER TO LANDSCAPE MASTERPLAN)
- EXISTING VEGETATION TO BE MAINTAINED
- 10m MINIMUM SETBACK
- DEVELOPMENT APPLICATION STAGING
- WESTERN POWER EASEMENT & HV LINES

LOCAL DEVELOPMENT PLAN PROVISIONS:

This Local Development Plan (LDP) applies to Lot 500 (# 30) Gavour Road, Wattle Grove. Unless otherwise varied by this LDP, development proposed shall be designed and assessed in accordance with the City of Kalamunda Local Planning Scheme No. 3, the Special Use zone requirements and any applicable Local Planning Policies. The following design requirements shall apply in conjunction with the requirements annotated on the plan.

1. Staging of development should be undertaken as generally shown on the LDP.
2. No development is to occur within the 80m wide Western Power easement other than landscaping, communal facilities (excluding caravan/boat parking, gardens/orchards, tennis courts, bowling green, etc) and vehicle access ways.
3. Fencing along the Welshpool Road property boundary and entry statement should be detailed in the Stage 1 Development Application.
4. Fencing along all other property boundaries is to be of post and wire construction.
5. Vehicle access to Welshpool Road and traffic issues should be assessed through a Traffic Impact Assessment at Development Application stage(s).
6. No development other than vehicle and pedestrian access ways permitted in areas in excess of BAL-29 bushfire zones (refer BAL Contour Plan and Bushfire Management Plan).
7. A Bushfire Management Plan is to be submitted with each Development Application for the relevant stage(s).
8. The Aged Care Facility is to be maximum two storey in height and detailed at the relevant Development Application stage.
9. The secondary vehicle access way to Gavour Road is for emergency access only and can be used by construction vehicles during staged development.
10. Landscaping areas are to be generally in accordance with the Landscape Master Plan. Further detail is required for landscaping at the relevant Development Application stage.
11. Rehabilitation of the Crystal Brook vegetation environment is to be detailed at the relevant Development Application stage. Existing vegetation associated with Crystal Brook to be retained where possible.

This Local Development Plan has been adopted by the City of Kalamunda in accordance with Clause 6.7.6 of Local Planning Scheme No. 3.

Signature

Date

MJA [redacted]

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REV	DATE	AMENDMENT	INT
	23.05.18	ISSUE FOR SUBMISSION	SB

CLIENT: R. LEIGHTON

PROJECT: WATTLEGROVE RETIREMENT

PROJECT ADDRESS: LOT 500 GAVOUR RD WATTLE GROVE

MJA PROJECT NUMBER: 18002

PROJECT STATUS: LDP APPLICATION

TRUE NORTH / PROJECT NORTH

SCALE: 1:1000 @ B1

DRAWING: LOCAL DEVELOPMENT PLAN

DRAWING NO	DRAWN	CHECKED	REV
A1.01	SB	WB	

Appendix B

SIDRA ANALYSIS

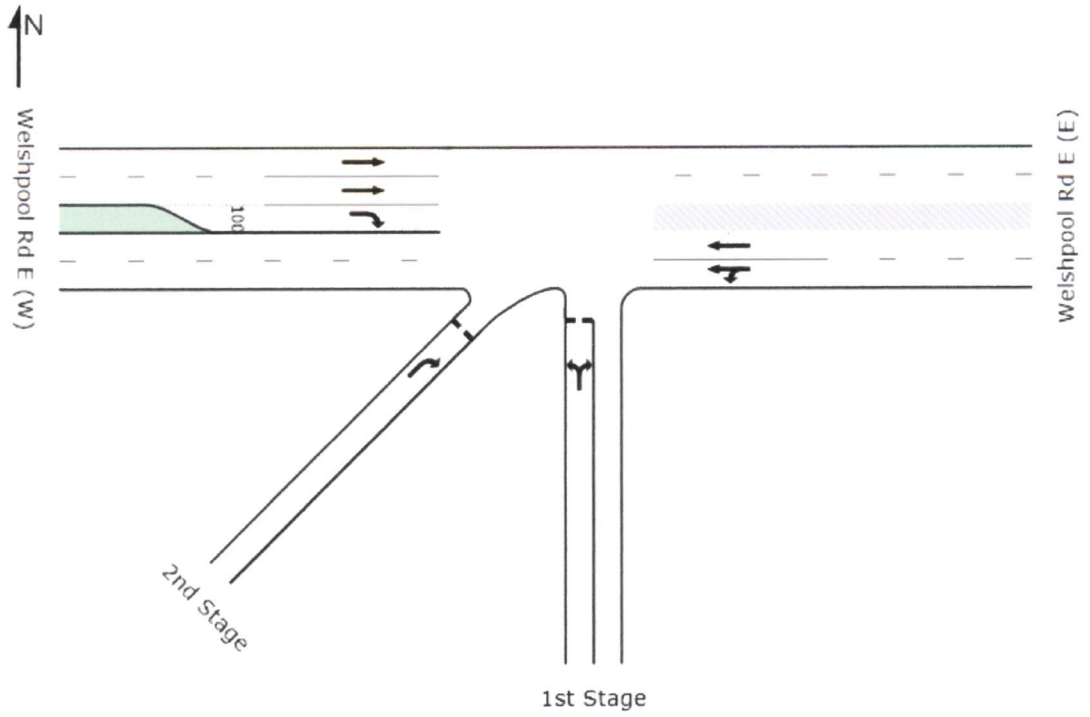


Figure C1: Development crossover's (on Welshpool Road East) layout analysed in SIDRA

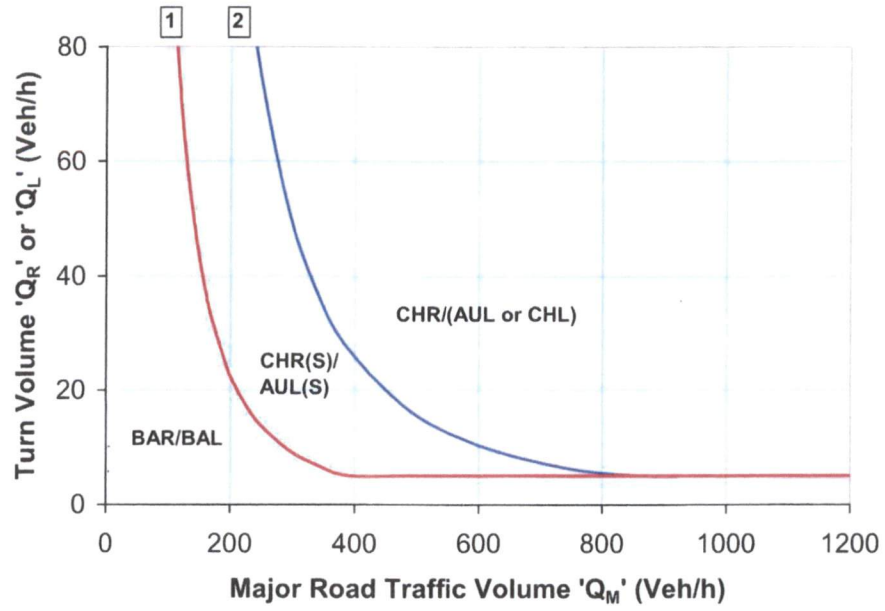
Note: The diagonal link shown is not an actual road link, it is a technique used in SIDRA analysis to model the right turn from the side road in two stages (first to the median then into the Eastbound traffic flow)

Table C1: SIDRA results: Post Development (PM peak hour with full development)

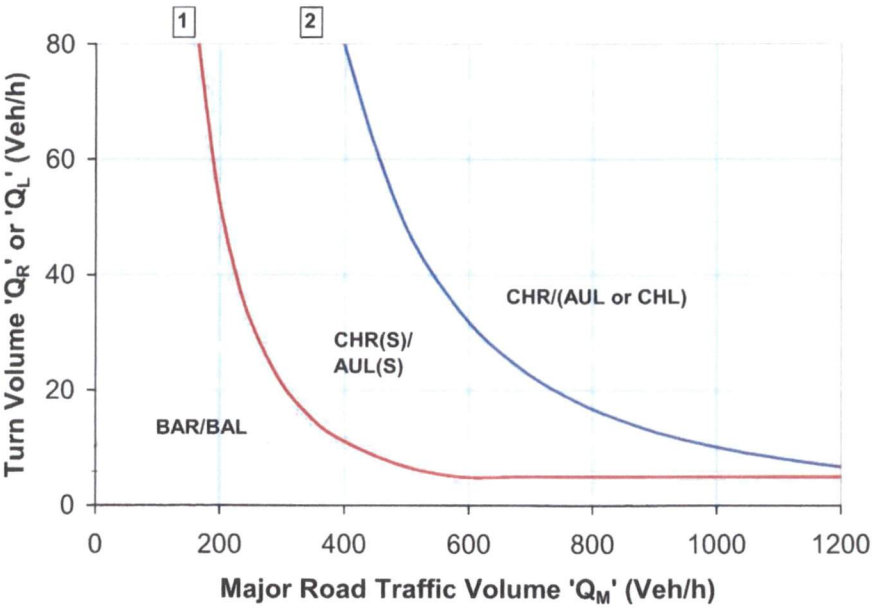
Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: 1st Stage											
1	L	37	0.0	0.098	13.1	LOS B	0.3	2.4	0.58	0.86	44.0
3	R	16	0.0	0.098	13.2	LOS B	0.3	2.4	0.58	0.86	44.0
Approach		53	0.0	0.098	13.1	LOS B	0.3	2.4	0.58	0.86	44.0
East: Welshpool Rd E (E)											
4	L	16	0.0	0.181	8.2	LOS A	0.0	0.0	0.00	1.06	49.0
5	T	632	14.0	0.181	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		647	13.7	0.181	0.2	NA	0.0	0.0	0.00	0.03	59.7
West: Welshpool Rd E (W)											
11	T	1053	8.3	0.284	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R	1	0.0	0.002	11.8	LOS B	0.0	0.0	0.55	0.65	45.3
Approach		1054	8.3	0.284	0.0	NA	0.0	0.0	0.00	0.00	60.0
South West: 2nd Stage											
32	R	16	0.0	0.029	12.8	LOS B	0.1	0.8	0.70	0.82	44.3
Approach		16	0.0	0.029	12.8	LOS B	0.1	0.8	0.70	0.82	44.3
All Vehicles		1769	9.9	0.284	0.6	NA	0.3	2.4	0.02	0.04	59.1

Appendix C

Warrants for Turn Treatments on the Major Road at Un-signalised Intersections (Source: Austroads 2009)



(a) Design speed ≥100 km/h



(b) Design speed < 100 km/h