

PROPOSED SCHEME AMENDMENT (ADDITIONAL USE SCHEDULE) FOR A
CLUB PREMISES LAND-USE – ADDITIONS TO A SINGLE HOUSE
LOT 35 (777) WELSHPOOL RD EAST, WATTLE GROVE

TRANSPORT IMPACT STATEMENT

Final 1-0

Prepared by i3 consultants WA for

Planning Outcomes WA | Pu Ti Lian She Society Inc

Project details

Project	Proposed Scheme Amendment (Additional Use Schedule) for a Club Premises Land-use – Additions to a Single House
Location	Lot 35 (777) Welshpool Rd East, Wattle Grove
Project ID	13801
Client	Planning Outcomes WA Pu Ti Lian She Society Inc
Description	A Transport Impact Statement for a scheme amendment (additional use schedule) for a club premises land-use (garage, storeroom, patio & portico) to a single house on Lot 35 street number 777 Welshpool Rd East in the City of Kalamunda suburb of Wattle Grove prepared in accordance with the 2016 WAPC Transport Impact Assessment Guidelines.

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This is not an approved document unless certified here.



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ABOUT THE AUTHOR

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David's specialist skills are in the management and development of transport infrastructure and planning, particularly with respect to road safety engineering, roadworks traffic management, traffic engineering, crash investigation, road safety audits, alternative transport systems (TravelSmart, shared paths, cycle facilities), transport statements, transport assessments, parking demand management, local area traffic management, speed management, accessible environments and innovation.

David specialises in undertaking and preparing traffic impact assessments in accordance with either the WAPC document 'Transport Impact Assessment Guidelines' or Austroads 'Guide to Traffic Management Part 12: Traffic Impacts of Developments'. In the last 7 years, David has personally prepared over 150 traffic and transport impact reports in accordance with these guidelines.

EXECUTIVE SUMMARY

This Transport Impact Assessment has been prepared for a proposed change of use from “Single Residential” to “Club Premises” on Lot 35 Street Number 777 Welshpool Road to facilitate club activities undertaken by the Pu Lian She Society on this site, generally consisting of meetings between 7pm and 9pm on Mondays and Fridays and Lectures or Meetings between 8am and 5pm on Sundays, attended by between 20 and 100 members with maximum attendance of 150 members. It has been prepared in accordance with the WAPC publication Transport Impact Assessment Guidelines ⁽¹⁾. These guidelines indicate that a Transport Impact Statement (TIS) is the appropriate level of assessment to be undertaken for the proposed change of use.

All access (Vehicular, bicycle and pedestrian) is via the existing access driveway off Welshpool Road West which is restricted to left-in/ left out only. This access driveway has operated safely for the last recorded 5-year crash record period, as has the u turn facility provided in the median just north of the site which allows from the south to access the site.

The site has an assessed statutory parking demand of 38 cars on site that has been accommodated through the provision of 38 car parking bays. The swept path of the largest service vehicle expected on-site has been assessed and it has been demonstrated that this can access the site and leave the site in a forward direction although it has been recommended that the bin store is moved slightly to better accommodate the swept path when servicing this area.

The proposed change of use is expected to result in an additional 25 to 30 vehicular trips during the busiest hour of any proposed events however, these do not coincide with the weekday road network peak hours. A SIDRA Intersection traffic model has been prepared to assess the potential for queueing at the entrance and on the approach to the U turn facility with a ‘worst case scenario’ of 38 cars in an hour all using the U turn facility to access the site and this has revealed no concerns with queueing or impact on the performance of the road network and access.

There is good public transport access with bus stops for Routes 282 and 283 within 2 and 5-minute walking distance. These stops have 34 services in each direction on each week day between 7.30 AM and 8.15 PM, 12 services in each direction on Saturdays between 8.00 AM and 7.00 PM and 5 services in each direction on Sundays and Public Holidays between 10.00 AM and 6.00 PM making them suitable for use by event patrons and staff at the subject site. Bus routes 282 and 283 travel between Elizabeth Quay Bus Station in Perth and Kalamunda Bus Station.

It has been determined and documented that there are no traffic, transport or parking concerns that would warrant refusal of the proposed change of use being approved.

1 INTRODUCTION

This Transport Impact Assessment report has been prepared in accordance with the WAPC publication Transport Impact Assessment Guidelines ⁽¹⁾. These guidelines indicate that a Transport Impact Statement (TIS) “is required for those developments that would be likely to generate moderate volumes of traffic and therefore would have a moderate overall impact on the surrounding land uses and transport networks, (in accordance with Table 1.)”

LAND USE	MODERATE IMPACT	HIGH IMPACT
	Transport Impact Statement required	Transport Impact Assessment required
	10 – 100 vehicle trips in the peak hour	> 100 vehicle trips in the peak hour
Residential	10–100 dwellings	>100 dwellings
Schools	10–100 students	>100 students
Entertainment venues, restaurants, etc.	100–1000 persons (seats) OR 200–2000 m ² gross floor area	>1000 persons (seats) OR >2000 m ² gross floor area
Fast food restaurants	50–500 m ² gross floor area	>500 m ² gross floor area
Food retail /Shopping centres with a significant food retail content	100–1000 m ² gross floor area	>1000 m ² gross floor area
Non-food retail	250–2500 m ² gross floor area	>2500 m ² gross floor area
Offices	500–5000 m ² gross floor area	>5000 m ² gross floor area
Service Station*	1–7 refueling positions	>7 refueling positions
Industrial/Warehouse	1000–10,000 m ² gross floor	>10,000 m ² gross floor area
Other Uses	Discuss with approving authority	Discuss with approving authority

Table 1 - Level of TIA required by land use and size

The City of Kalamunda has indicated, in its letter dated 10th January 2016, that it considers the proposed change of use to represents a land-use change from single residential to “Club Premises”, i.e. “premises used by a legally constituted club or association or other body of persons united by a common interest.”

Table 1 above does not include “Club Premises” as a Land Use although it could be argued that “Entertainment venues etc...” is a close match. In light of this, the author considers that the best indicator of impact is the number of vehicle trips in the peak hour, as shown in columns 2 and 3 of Table 1.

A preliminary assessment is that the assessed change of use from single residence to a club, based on observed parking practices, is likely to result in up to an additional 25-30 vehicular trips in the busiest hour during the busiest event and hence represents a “Moderate Impact” requiring a “Transport Impact Statement”. Refer **Section 5** for more details regarding trip generation determination.

The location of the site in the context of the road and public transport network and 400 m (5-minute walk) and 800 m (10-minute walk) radii is shown in Figure 1 below.

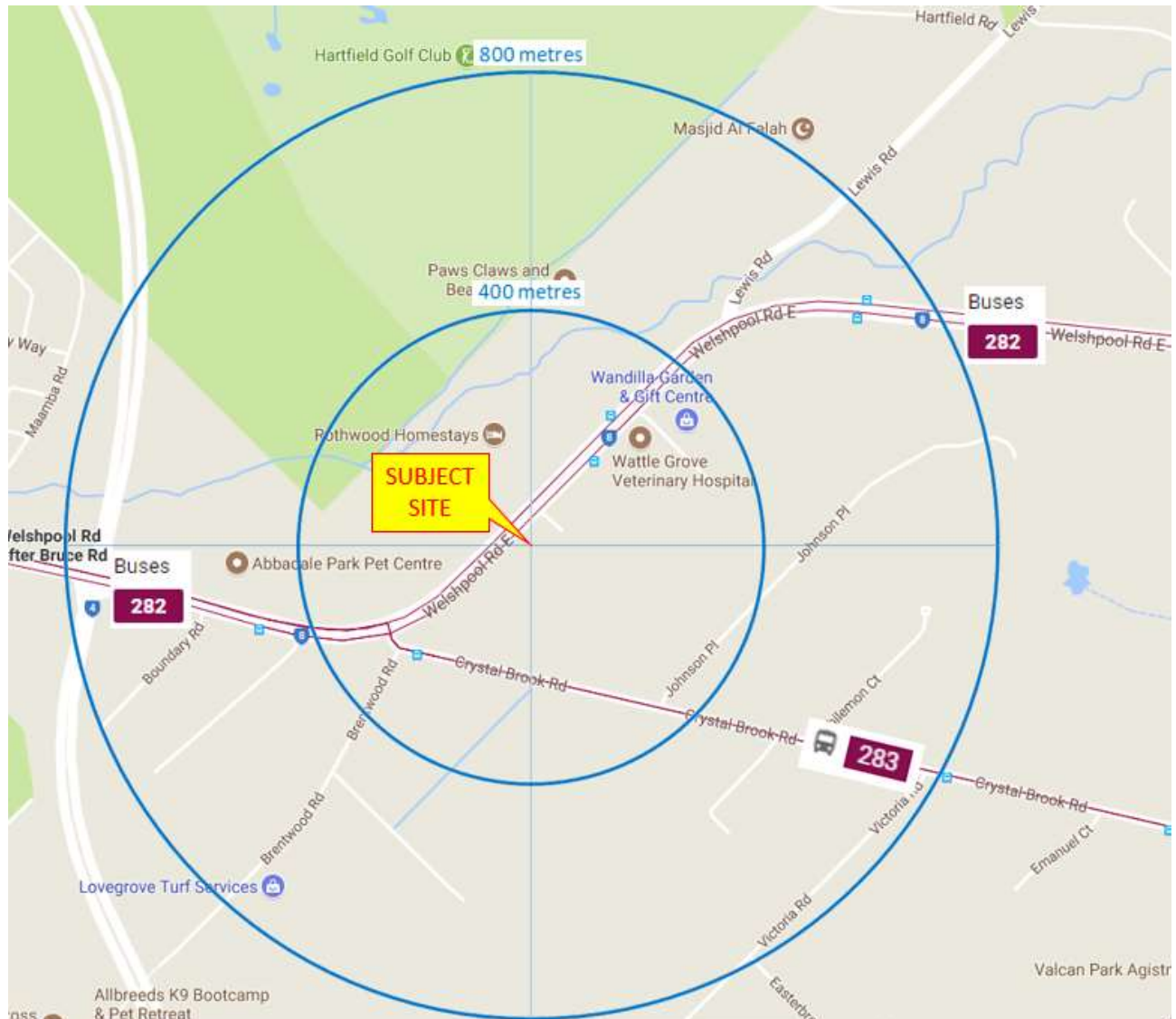


Figure 1 – Subject site location, road and public transport network and 400 m walk/ cycle radii (in blue)

The location of the site in the context of the road, cycling and pedestrian network and 400 m (5-minute walk) and 800 metre (10-minute walk) radii is shown in Figure 2 on the following page.

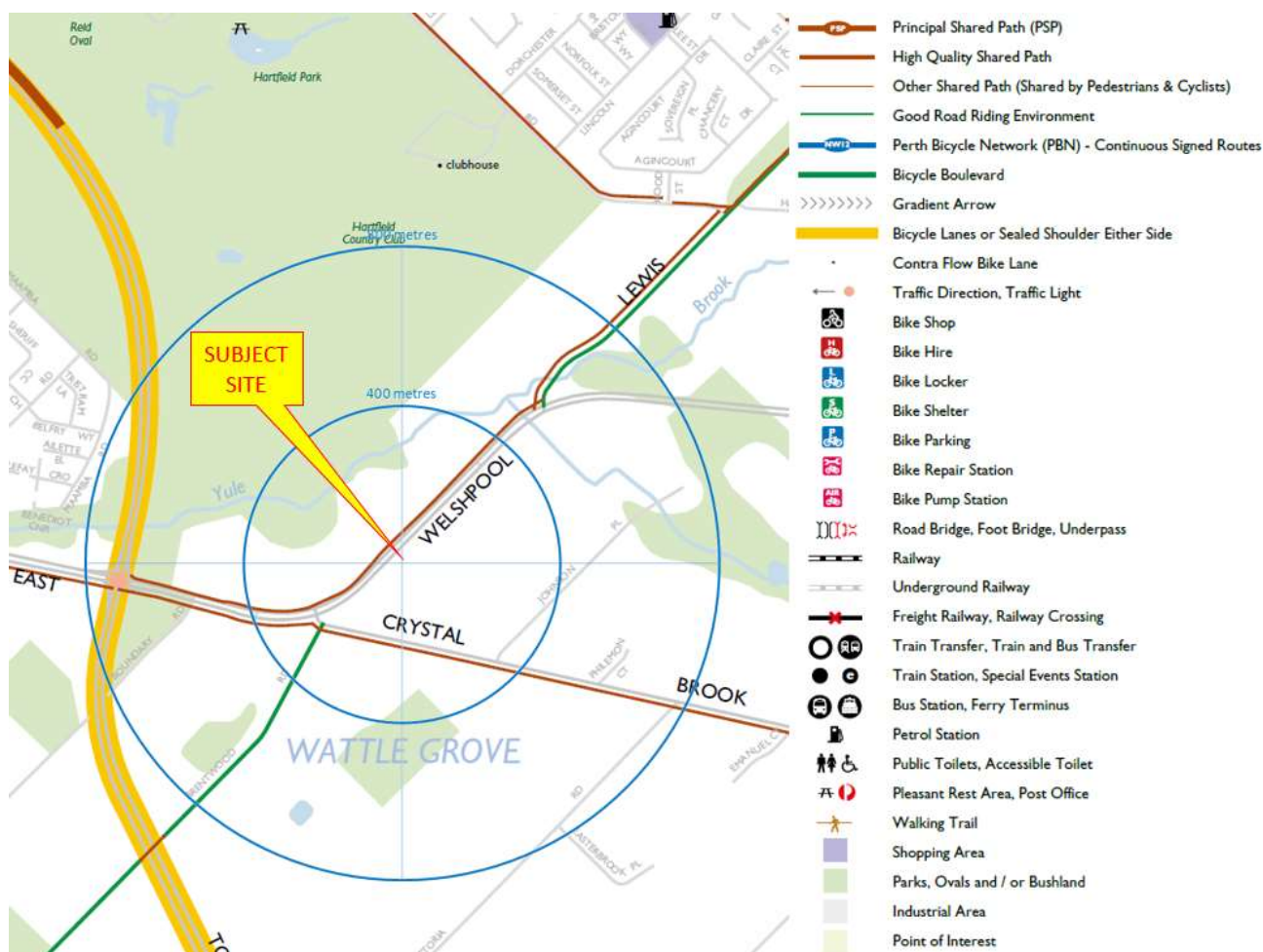


Figure 2 – Subject Site location, road, cycling and pedestrian network

Figure 1 and Figure 2 demonstrate that the site is located close to cycling and pedestrian networks as well as regular public transport services (bus services 282 and 283). Refer **Sections 7, 8 and 9** for more details regarding public transport, pedestrian and cycling access and facilities respectively.

The site is currently zoned "Rural Composite" in accordance with Local Planning Scheme No.3 (LPS3) ⁽²⁾.

2 EXISTING & PROPOSED DEVELOPMENT

The existing development includes elements of the ‘proposed development’. An annotated aerial photograph showing these is provided as Photograph 1 below. Full development plans are included in **Appendix A**.



Photograph 1 – Existing site development showing recent additions 1-4 (as at 16 Jan 2017)



Photograph 2 – Subject site viewed from access driveway off Welshpool Road East

The intended use of the subject site is described in the following extract from the City of Kalamunda letter addressed to Pu Ti Lian She Society Perth Inc dated 10th January 2016:

“I confirm that you have provided us with information including the following:

1. On this property you undertake your general meetings at least once per month as well as your annual general meeting which averages 50-100 members.
2. The dwelling is currently utilised as an administration office / member's library and residence.
3. You undertake seminars and talks from time to time on the site which can include up to 150 members.
4. The other half of the patio which is separated by a low movable partition for a members attendance and registration and counselling service as well as a refreshment and dining area for up to 150 members attending events on the site.
5. You have indicated that the proposed area for extension it is anticipated that you wish to utilise this for the purposes of member recreation and activities including table tennis, children's hobby arts and crafts, education as well as storage for disaster relief equipment for the society.”

Pu Ti Lian She Society has advised the author that planned event times are:

- Mon – Meetings, 7 – 9 PM
- Fri – Meetings, 7 – 9 PM
- Sun – Lectures & Meetings 8 AM – 5 PM

3 VEHICLE ACCESS AND PARKING

All vehicular access (including bicycle) is via the existing access driveway off Welshpool Road East, as shown in Photograph 2 on the previous page and in the Development Plans included as **Appendix A**.

Welshpool Road East is classified as a Distributor A road in the MRWA Functional Road Hierarchy and connects with Tonkin Highway and Welshpool Road East to the west, both of which are Primary Distributor Roads, as shown in Figure 3 below.



Figure 3 – Functional Road Hierarchy in vicinity of the subject site

There is a continuous median island in Welshpool Road East at the subject site location that prevents right turns into and out of the subject site's access driveway. There is a median break located 50 m northeast of the access driveway that allows for U turns for northeast bound traffic to access the subject site, as shown in Figure 4 on the following page. Drivers leaving the site that wish to travel northeast on Welshpool Road East (i.e. turn right out of the subject site) would need to travel to Crystal Brook Rd and either perform a U turn within the median break at that location or use Crystal Brook Road to access Welshpool Road East further east, as shown in Figure 3 above. The influence of these movements on the safety performance of the road network is assessed in **Section 11**.



Figure 4 – Northeast bound access from Welshpool Road East

The assessed development is classified as “Club Premises” land use in LPS3, i.e. “premises used by a legally constituted club or association or other body of persons united by a common interest”.

Table 3 (Parking Requirements) of LPS3 has a parking requirement that is difficult to ascertain for the subject site due to the unique club premises use, as shown in the extract provided as Table 2 below. Furthermore, the City of Kalamunda did not indicate a parking provision requirement within its “Preliminary Planning Advice” letter dated 10th January 2016.

Use	Car parking Standards
Club Premises	As per Hotel where applicable to a particular use, or as otherwise determined by the local government.
Hotel/Motel	1 bay for each unit and 1 bay for 4 persons proposed to be accommodated for the restaurants plus 1 bay for every 5m ² of bar and public area.

Table 2 – Extract from Table 3 of LPS3

Adopting a parking provision rate of 1 bay for 4 persons, and using the maximum number of 150 persons in attendance, as described in **Section 2**, the subject site would have a parking provision requirement of 38 bays.

The development plans (**Appendix A**) indicate that it is proposed to provide 38 parking bays on site, one of which has been designed and designated as an ‘accessible’ bay. All of the regular bays are 5.5 m x 2.5 m with a 6.0 m wide aisle and 2.0 m aisle extension at the blind aisle and hence comply with the requirements of AS 2890.1 (3).

As indicated in **Section 2**, the site is only expected to host events on Monday evenings, Friday evenings and during the day on Sunday. The proposed parking layout for a total of 38 cars is shown in Figure 5 below.

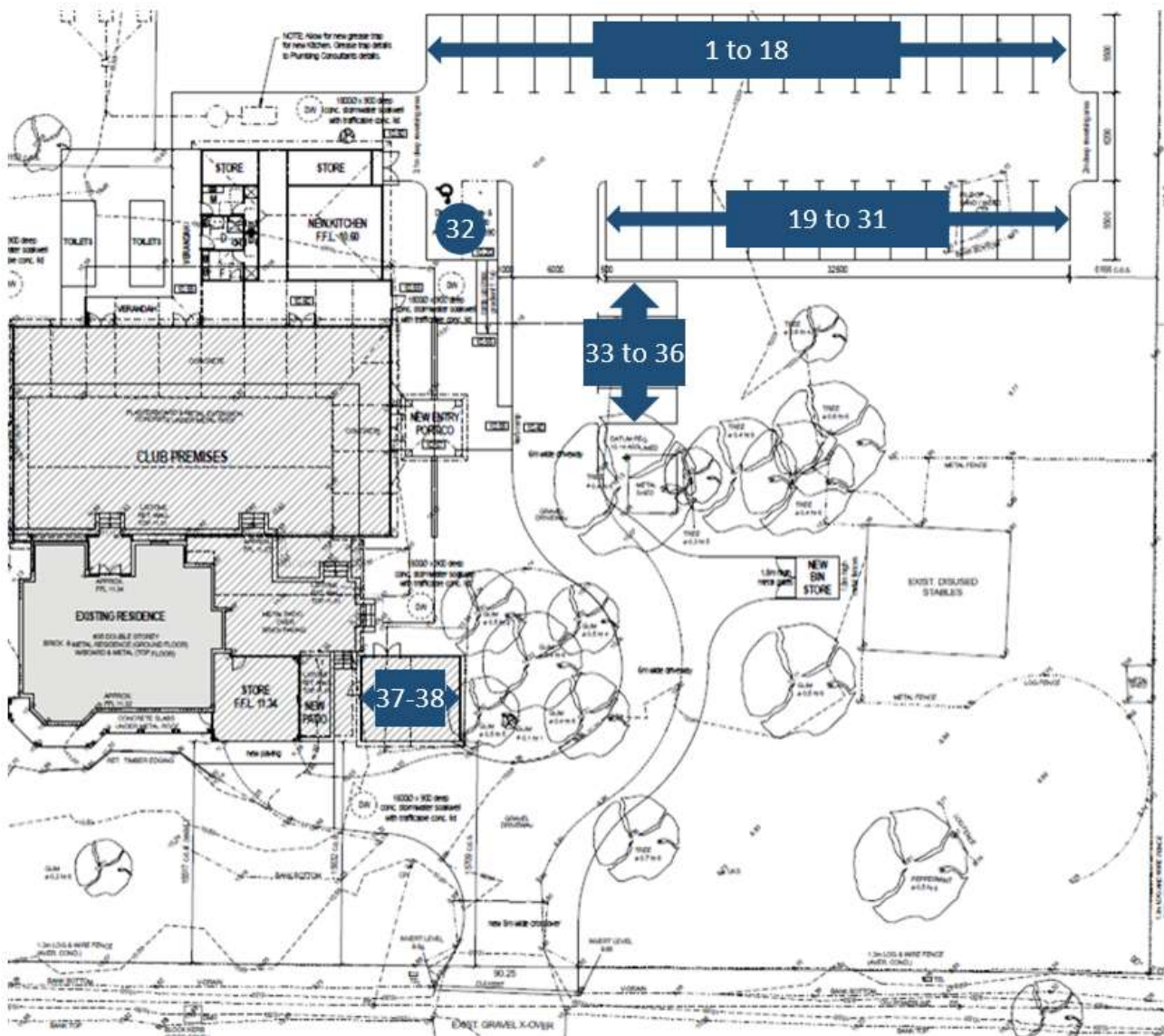


Figure 5 – Proposed parking provision to accommodate a total of 38 cars

An assessment of parking demand at the site since January 2008 has been undertaken by the author based on historical aerial photographs and is provided as Figure 6 on the following page.

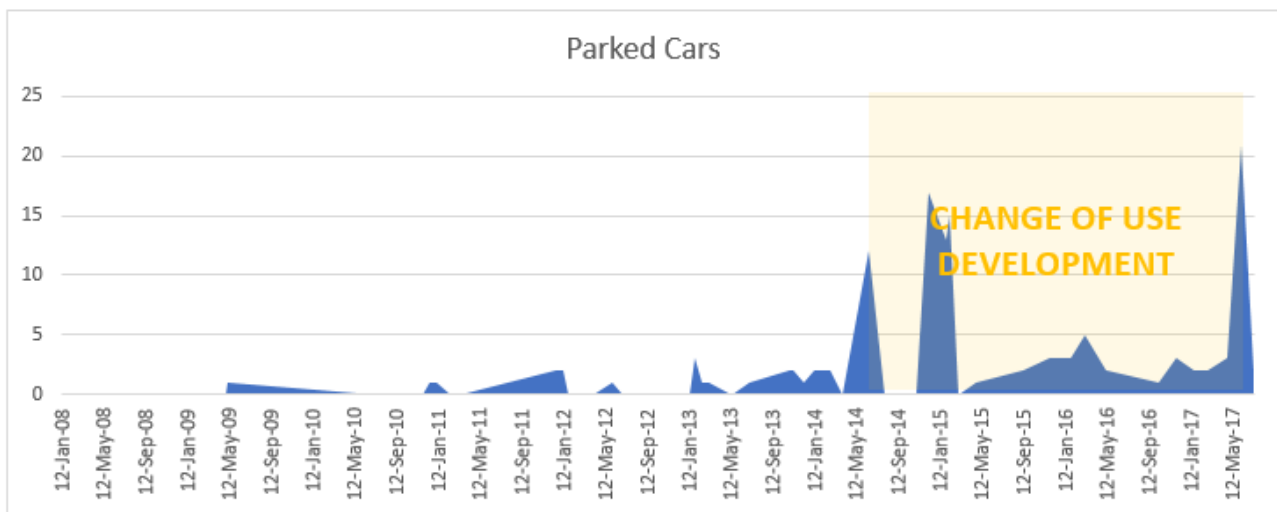


Figure 6 – Recorded parking demand at the site since January 2008

An assessment of parking demand at the site since the ‘change of use’ in May 2014 has been undertaken by the author based on historical aerial photographs and is provided as Figure 7 below. This confirms that Sunday is the peak demand day for parking at the subject site, and hence peak trip generation, as discussed and assessed in **Section 5**.

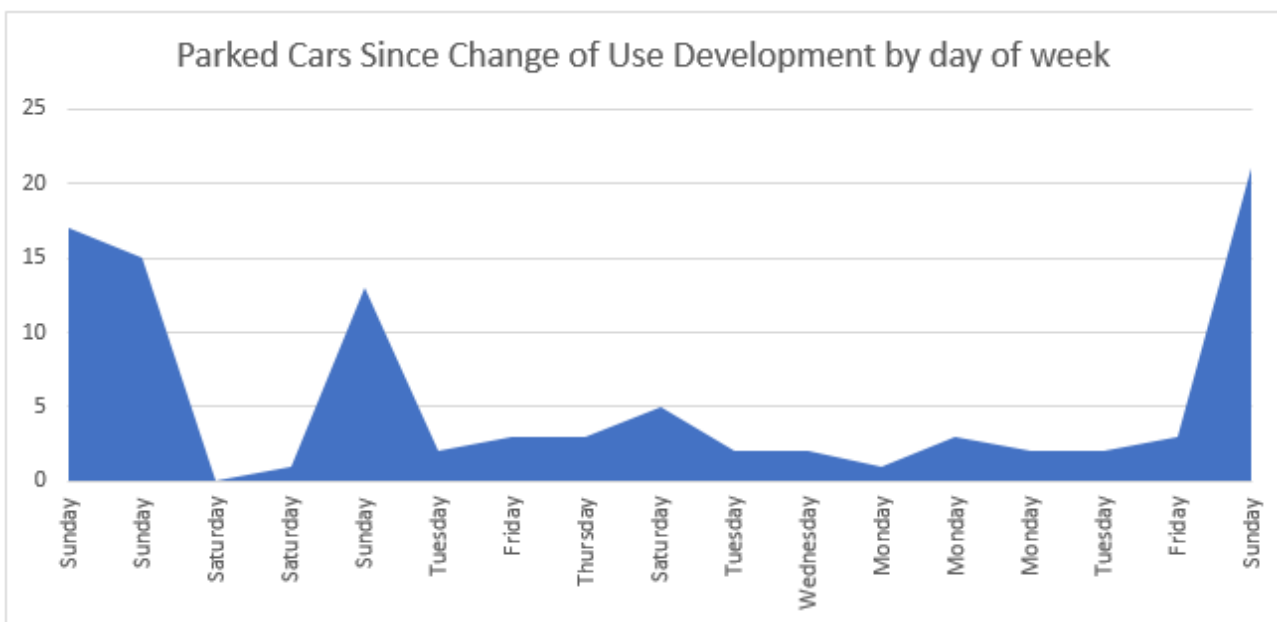


Figure 7– Recorded daily parking demand at the site since May 2014

4 PROVISION FOR SERVICE VEHICLES

The largest vehicle expected on site is the Medium Rigid Vehicle (MRV) for food and event deliveries and waste collection. The swept paths of the MRV servicing each of the three different service areas are shown in Figure 8 and Figure 9 below and Figure 10 on the following page.

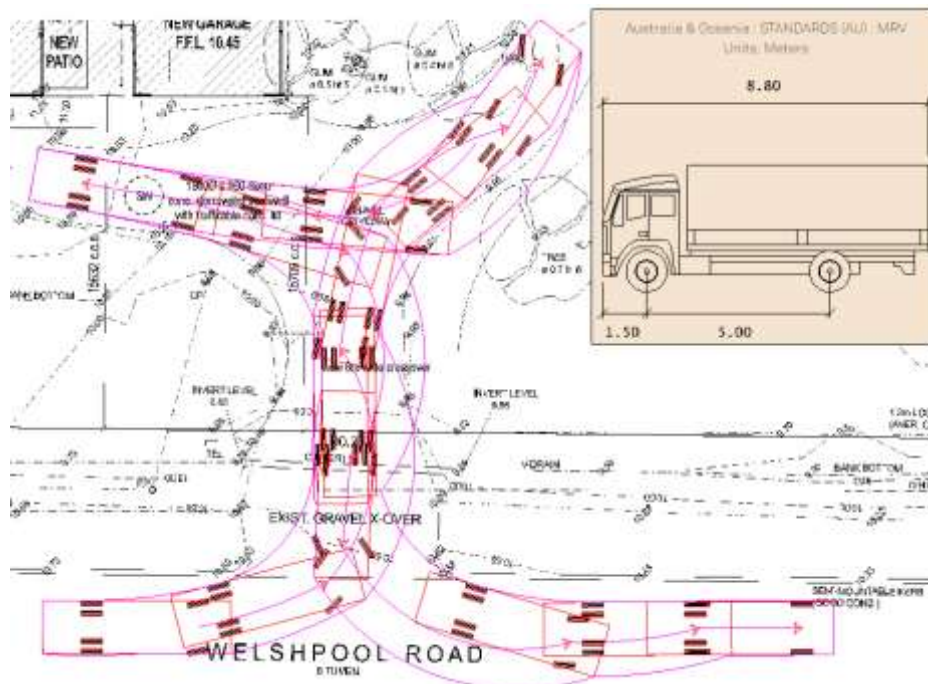


Figure 8 – MRV Swept Path - Forward IN to site, Reverse to front stores, and Forward OUT

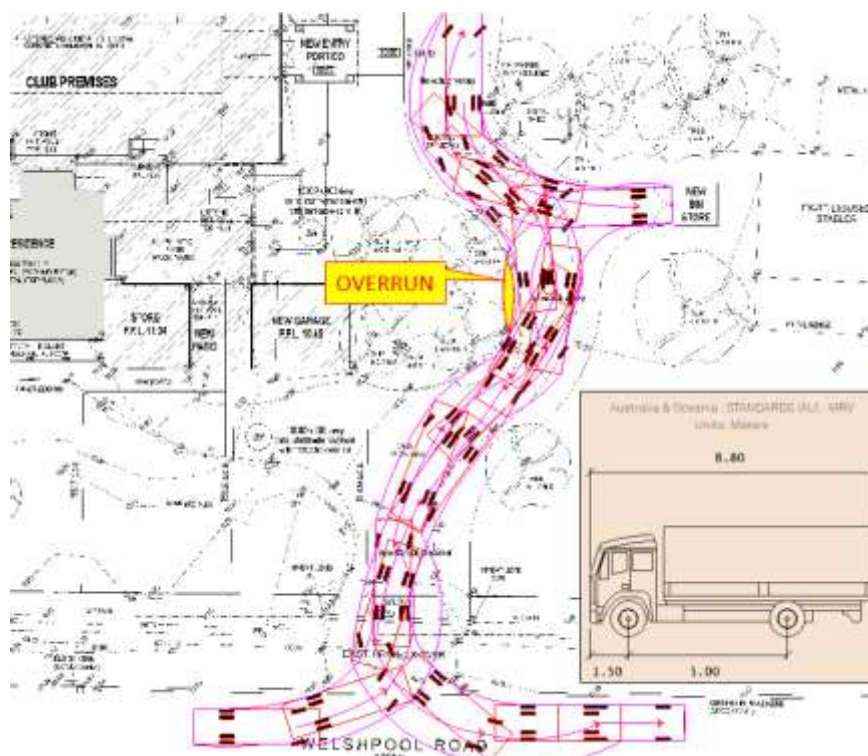


Figure 9 – MRV Swept Path - Forward IN to site, Reverse to Bin Stores, and Forward OUT

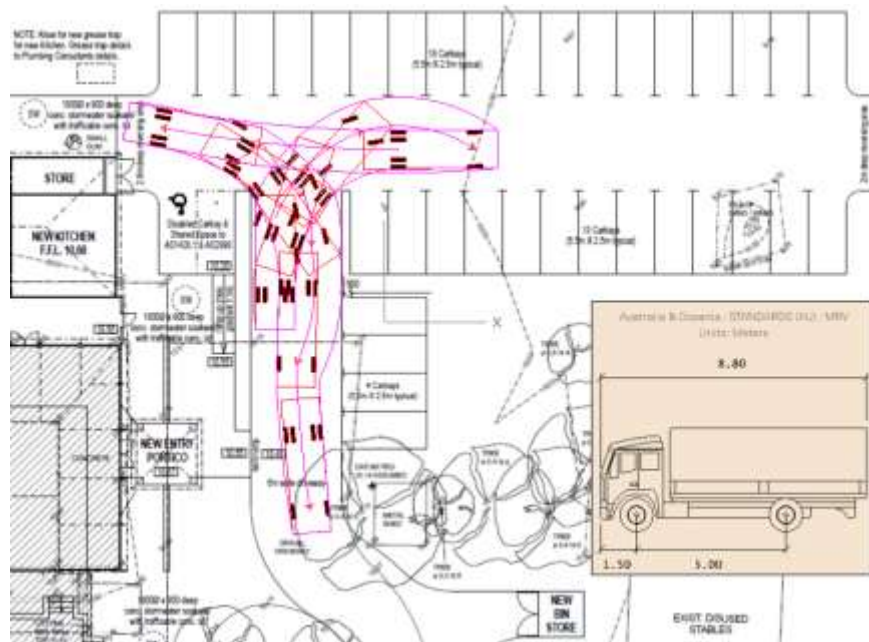


Figure 10 – MRV Swept Path - Forward IN to rear parking area, Reverse to rear stores, and Forward OUT

Figure 9 on the previous page shows that there is an area of overrun when the MRV turns left to leave the Bin Store. This could be addressed by moving the Bin Store 1 m or more further away from the service road. With the exception of the above, the site can adequately accommodate the swept path movements of the MRV Service Vehicle.

5 TRAFFIC VOLUMES AND VEHICLE TYPES

Welshpool Road East currently carries around 20,000 vehicles per weekday (maximum of 1,900 vehicles during its peak hour) and around 17,300 vehicles per day on the weekend (maximum 1,450 vehicles during its peak hour). Summary data of the last count (Dec 2015) at the nearest location to the subject site is shown in Figure 11 below.



Figure 11 – Average Weekday and Weekend hourly traffic volumes on Welshpool Road East

The weekday afternoon peak hour occurs between 4.45 PM and 5.45 PM and the planned weekday events at the subject site are between 7.00 PM and 9.00 PM, hence there is no overlap between weekday road network peak demand and weekday peak traffic generation of the site.

The Sunday peak hour occurs between 12 noon and 1 PM and the planned Sunday events at the subject site are between 8 AM and 5 PM, hence there is potential for overlap between Sunday road network peak demand and Sunday peak traffic generation of the site. There are no planned Saturdays events.

Based on parking provision for up to 38 cars, it is reasonable to assume that peak hour trip generation at the site on a Sunday will not exceed 38 trips but is more likely to be between 25 and 30 based on 70% of cars arriving or departing in the same hour.

Section 7.12 of Volume 4 of the WAPC Guidelines indicates that “The key measure of whether a proposed access would operate satisfactorily is the length of delay for the various movements. To ensure an adequate level of service is provided the analysis should demonstrate that delays would be less than shown in Table 2.”

Table 2 is reproduced as Table 3 below.

Criteria	Average Delay (secs/veh)
Signalised intersections Average delay for all vehicles passing through the intersection	<55 secs
Average delay for any individual vehicle, pedestrian or cyclist movement	<65 secs
Priority intersections (roundabouts, give way and stop) Average delay for all vehicles on the non-priority arms (, that is, have to give way or stop)	<35 secs
Average delay for any individual vehicle, pedestrian or cyclist movement	<45 secs
Right turn lanes Exclusive turning movement queue length	Less than available storage length (95th percentile queue)

Table 3 – Guideline thresholds for intersection operation (Source Table 2 Vol 4 WAPC Guidelines)

In order to assess the worst case Average Delay for vehicles accessing or driving past the subject site, a SIDRA Intersection model has been prepared based on the worst-case scenario of 38 cars accessing the site within the same hour from the southwest, i.e. using the U turn facility, during the peak hour on Sunday, as per the assessed volumes shown in Figure 12 below.

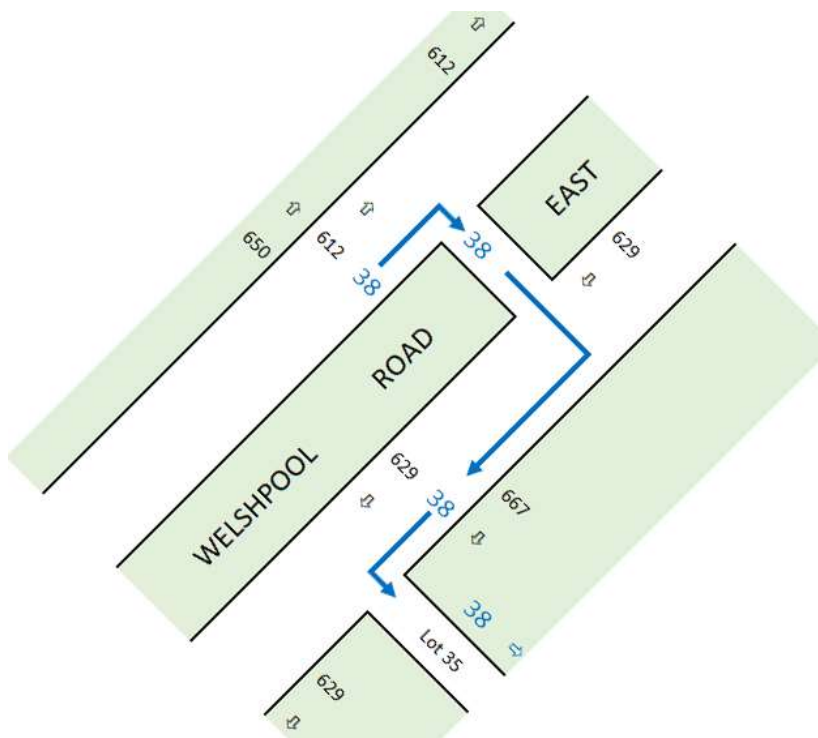


Figure 12 – Assessed ‘worst case’ Sunday traffic volumes

The SIDRA Intersection* model is a linked model in order to consider the influence of the access on the median gap, which is located 50 m upstream, as shown in Figure 13 below.

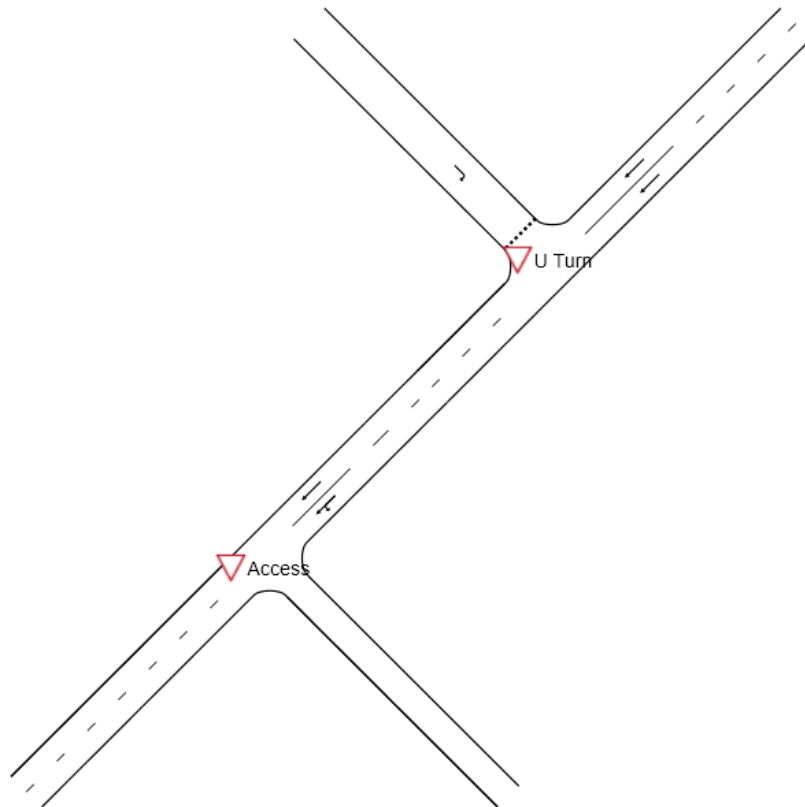


Figure 13 – SIDRA Intersection linked model layout

The SIDRA model indicates that the highest forecast delay with the additional development generated traffic is 3.8 seconds, which is significantly less than the 35 second threshold indicated in Table 3 on the previous page. Full Network Summary details from the SIDRA Intersection model are shown in Table 4 on the following page.

In addition to delay, there is a concern that queuing on the northeast bound approach to the U turn facility and the southwest bound approach to the subject site access may impact on through movements on Welshpool Road East. The Queue models within the SIDRA Intersection model indicates that this is unlikely to occur, as shown in Figure 14 on the following page.

* SIDRA: Signalised (and unsignalised) Intersection Design and Research Aid. The SIDRA Intersection software (older versions known as SIDRA and aaSIDRA) is an advanced lane-based micro-analytical tool for the design and evaluation of individual intersections and networks of intersections including modelling of separate Movement Classes (Light Vehicles, Heavy Vehicles, Buses, Bicycles, Large Trucks, Light Rail / Trams etc...). It provides estimates of capacity, level of service and a wide range of performance measures including delay, queue length and stops for vehicles and pedestrians, as well as fuel consumption, pollutant emissions and operating cost.

NETWORK SUMMARY

Network: Welshpool Rd/ U Turn/ Access (Sunday Peak)

Network Performance - Hourly Values		
Performance Measure	Vehicles	
Network Level of Service (LOS)	NA	
Travel Time Index	13.46	
Speed Efficiency	1.31	
Congestion Coefficient	0.76	
Travel Speed (Average)	78.7	km/h
Travel Distance (Total)	714.7	veh-km/h
Travel Time (Total)	9.1	veh-h/h
Desired Speed	60.0	km/h
Demand Flows (Total)	1404	veh/h
Arrival Flows (Total)	1404	veh/h
Percent Heavy Vehicles (Demand)	1.9	%
Percent Heavy Vehicles (Arrival)	1.9	%
Degree of Saturation	0.176	
Control Delay (Total)	0.08	veh-h/h
Control Delay (Average)	0.2	sec
Control Delay (Worst Lane)	3.2	sec
Control Delay (Worst Movement)	3.8	sec
Geometric Delay (Average)	0.1	sec
Stop-Line Delay (Average)	0.1	sec
Queue Storage Ratio (Worst Lane)	0.05	
Total Effective Stops	46	veh/h
Effective Stop Rate	0.03	per veh
Proportion Queued	0.01	
Performance Index	9.4	

Table 4 – SIDRA Intersection Network Summary: Welshpool Rd/ U Turn/ Access (Sunday Peak)

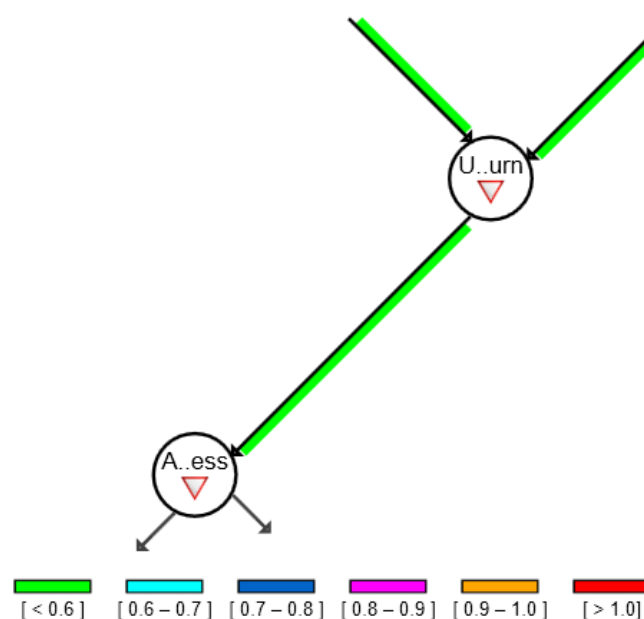


Figure 14 - Queue Storage Ratio (%) Ratio of the Percentile Back of Queue to the available queue storage distance (worst lane for the approach)

6 TRAFFIC MANAGEMENT ON FRONTAGE STREETS

The layout of traffic management on Welshpool Road East, including the U Turn facility and access driveway to Lot 35, is best described through the street view photographs provided below and the annotated aerial photograph provided as Figure 4 on page 12. The posted speed limit is 80 km/h.



Photograph 3 – Looking northeast on Welshpool Rd East towards U Turn median break



Photograph 4 – Looking southwest on Welshpool Rd East towards U Turn median break



Photograph 5 – Looking southwest on Welshpool Rd East towards subject site access

7 PUBLIC TRANSPORT ACCESS

Public Transport is provided by the Public Transport Authority (PTA) via Transperth bus and train services.

There are two bus stops on Welshpool Road East within a 2-minute walking distance of the site that are served by Transperth Route 282, as shown in Figure 15 below and Figure 1 on page 7.

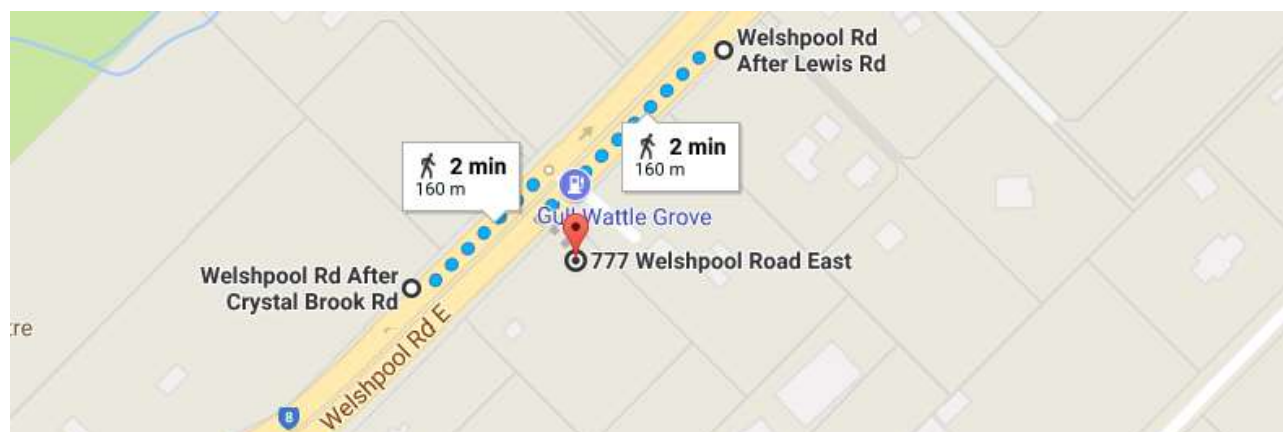


Figure 15 – Nearest bus stops and routes to the subject site

In addition to these two bus stops, the development site is within 400 m, or 5-minute walking distance of two bus stops on Crystal Brook Road that are served by Bus Route 283, as shown in Figure 16 below.

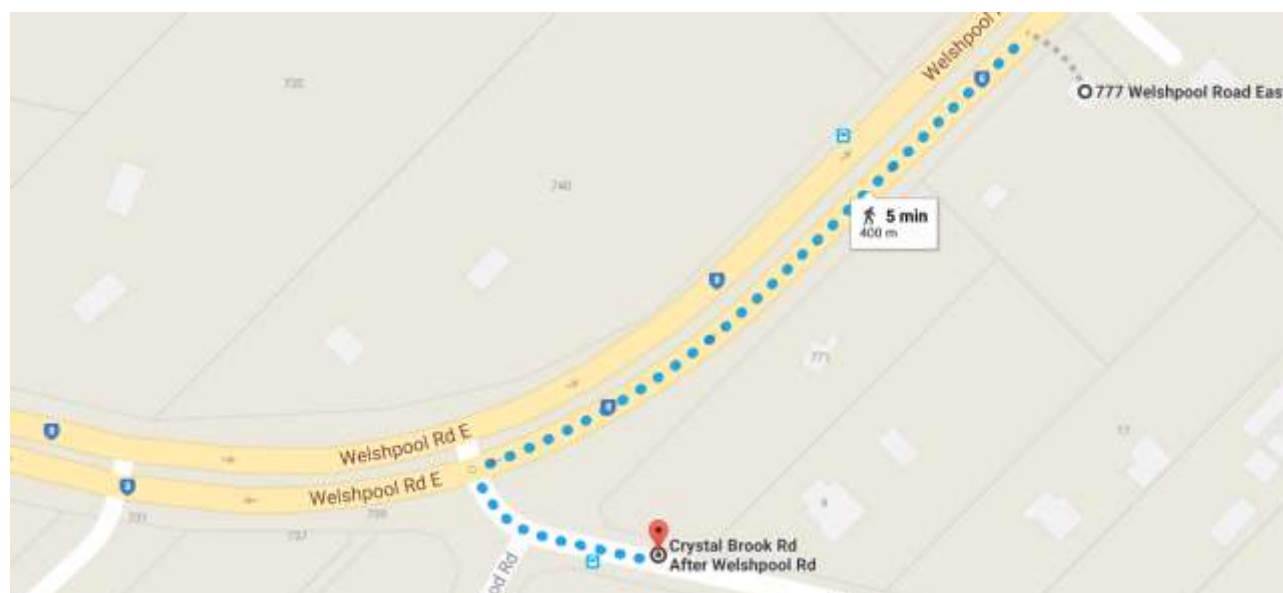


Figure 16 – Walking distance to and from the Victoria Park Bus Transfer Station

Bus routes 282 and 283 travel between Elizabeth Quay Bus Station in Perth and Kalamunda Bus Station. There are 34 services in each direction on each week day between 7.30 AM and 8.15 PM, 12 services in each direction on Saturdays between 8.00 AM and 7.00 PM and 5 services in each direction on Sundays and Public Holidays between 10.00 AM and 6.00 PM making them suitable for use by event patrons and staff at the subject site.

8 PEDESTRIAN ACCESS

8.1 PROPOSED PEDESTRIAN FACILITIES WITHIN THE DEVELOPMENT

Pedestrians are expected to walk within the car park aisles and internal access road either between their parked cars or from Welshpool Road if using public transport and the New Entry Portico shown in the Development Plans in **Appendix A**.

8.2 EXISTING PEDESTRIAN FACILITIES ON SURROUNDING ROADS

There are no specific facilities for pedestrians on the subject site side of Welshpool Road East. Pedestrians currently use the concrete path on the opposite side of Welshpool Road East and the walkable verges on the subject site side as shown in Photograph 3 to Photograph 5 on page 21.

8.3 PROPOSALS TO IMPROVE PEDESTRIAN ACCESS

There are no known proposals to improve pedestrian access on the surrounding roads and no identified warrant to do so.

9 CYCLE ACCESS AND END OF TRIP FACILITIES

9.1 PROPOSED CYCLE FACILITIES WITHIN THE DEVELOPMENT

LPS3 does not have a specific requirement for bicycle spaces to be provided.

Appendix C2.2 of the Austroads publication Guide to Traffic Management Part 11: Parking (AGTM11) ⁽⁶⁾ does not indicate a requirement for bicycle parking facilities for “Place of Assembly” or “Public Hall” land uses, the closest land use descriptions to “Club”.

Due to the relatively remote and private nature of the site, there is no identified need for secure bicycle parking facilities as cyclists can leave their bicycles on site without fear of them being stolen or vandalised.

9.2 EXISTING CYCLE FACILITIES ON SURROUNDING ROADS

There is a “High Quality Shared Path” on the northwest side of Welshpool Road East past the subject site, as well as along the south side of Crystal Brook Road, that links to a Principal Shared Path along Tonkin Hwy, as shown in Figure 2 on page 8.

9.3 PROPOSALS TO IMPROVE CYCLE ACCESS

No There are no known proposals to improve cycle access on the surrounding roads and no identified warrant to do so.

10 SITE SPECIFIC ISSUES

There are no known site-specific issues other than to consider the impact of increased traffic to and from the site on the performance and safety of the road network, taking into account the left-in/ left-out access restriction and nearby U turn facility. This has been assessed in **Section 5** (Performance) and **Section 11** (Safety) of this report.

11 SAFETY ISSUES

A review of the five-year crash record for the period ending 31st December 2016 has revealed that there have not been any reported crashes in the vicinity of the subject site or at the U turn facility currently used to access this site and other sites along Welshpool Road East.

A heat map crash plot of all reported crashes on Welshpool Road East between and including Crystal Brook Road (to the south) and Lewis Rd (to the north) has been prepared by the author and is provided as Figure 17 below.

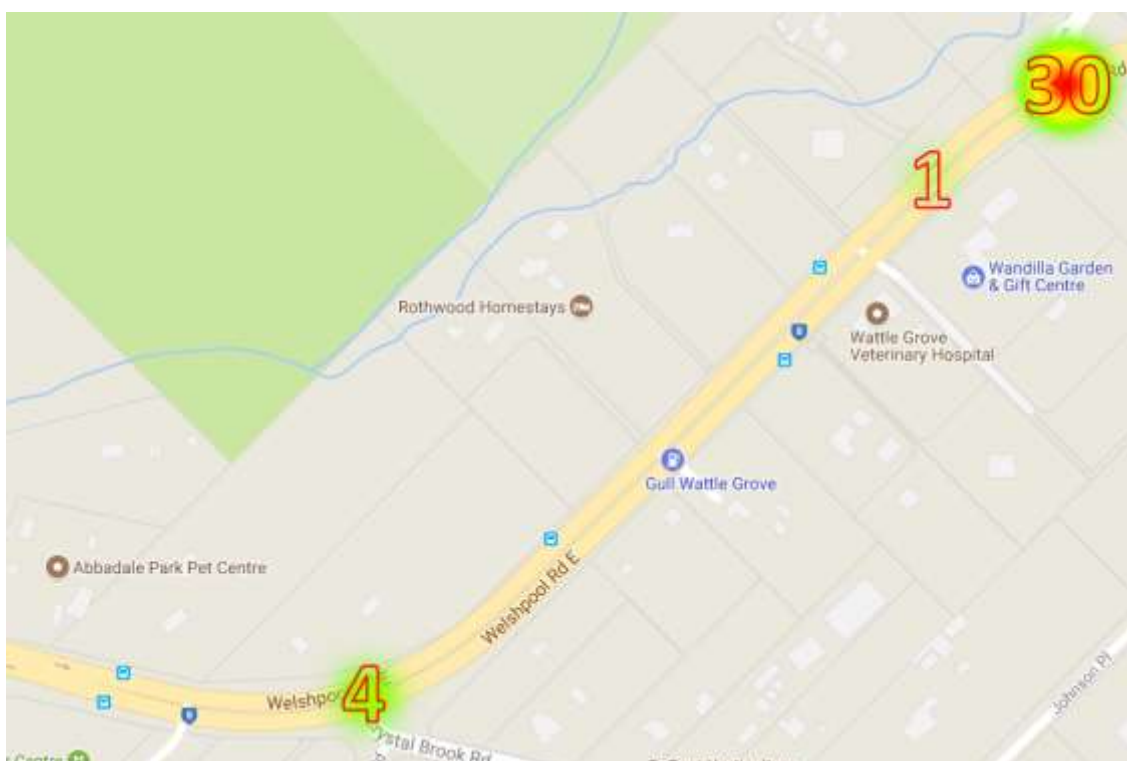


Figure 17 – 5 year ‘heat spot’ crash map to 31 Dec 2016: Welshpool Rd between and including Crystal Brook Rd and Lewis Rd

There are no assessed vehicular safety issues with the existing site as sight lines are good at the access driveway and the crash record does not indicate that it has a poor crash record. The author is an accredited MRWA Senior Road Safety Auditor and Crash Investigation Team Leader and has based this assessment on detailed analysis of the crash record and inspection of the site.

12 CONCLUSION

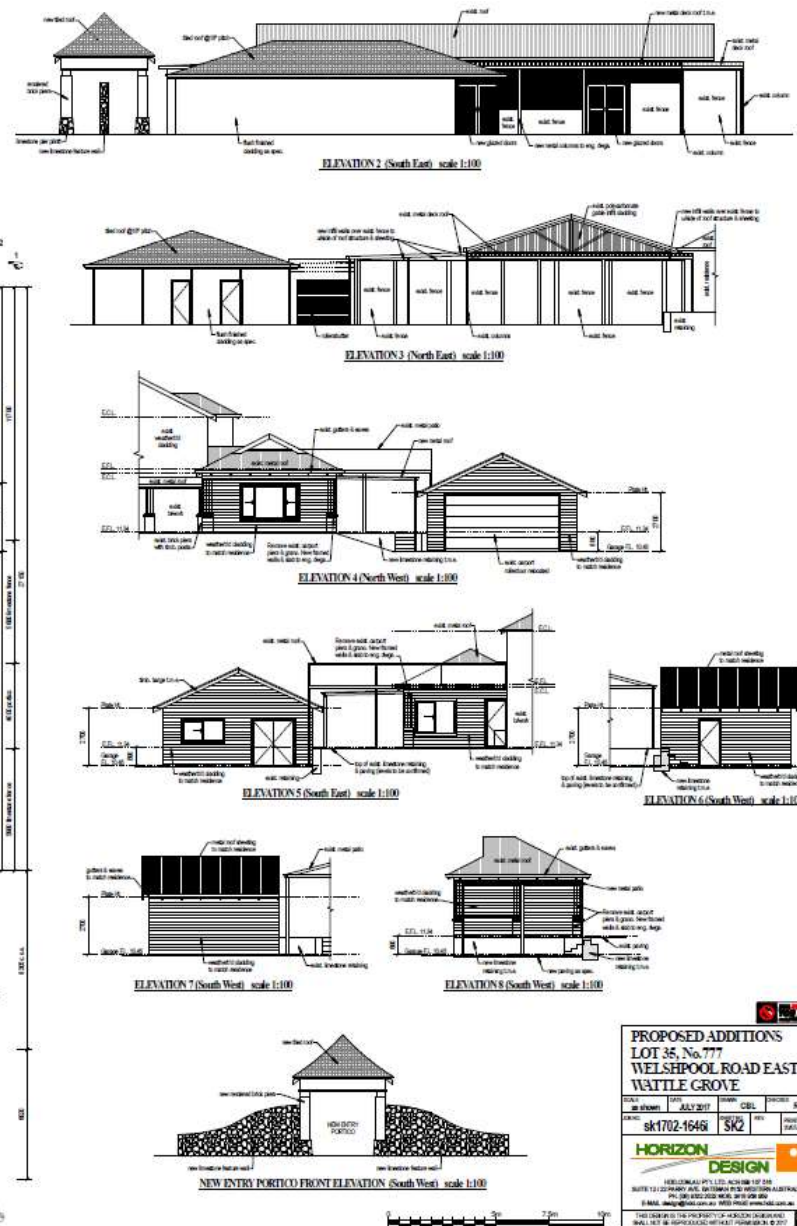
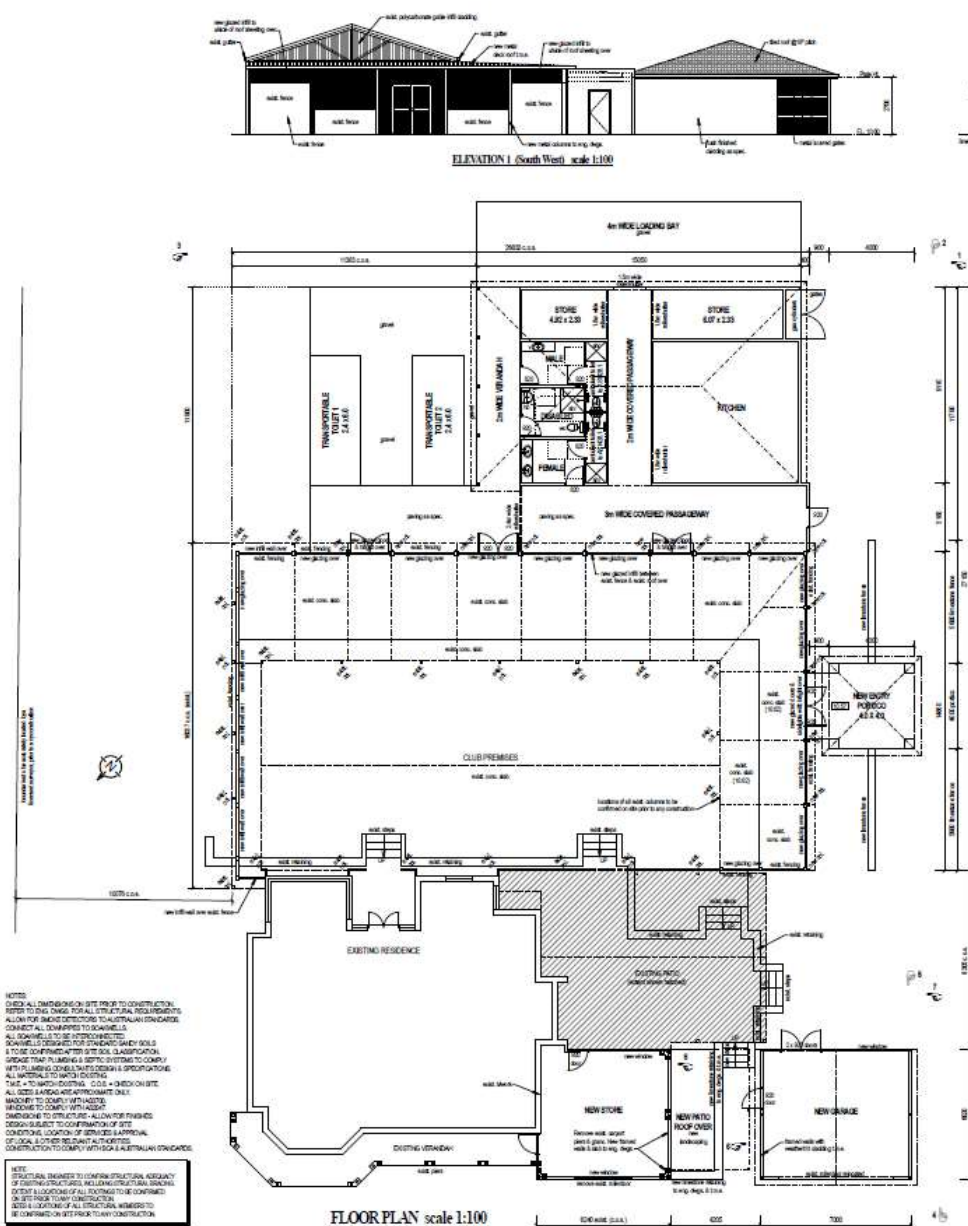
It has been determined and documented that there are no traffic, transport or parking concerns that would warrant refusal of the proposed change of use being approved.

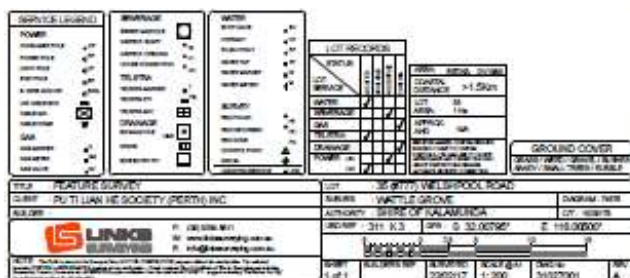
REFERENCES

1. **Western Australian Planning Commission.** *Transport Impact Assessment Guidelines*. Department of Planning, Government of Western Australia. Perth, Western Australia : Western Australian Planning Commission, August 2016. p. 182, Revised August 2016. The current version of the TIA guidelines (August 2016) has been endorsed by the WAPC..
2. **The Government of Western Australia.** *Shire of Kalamunda Local Planning Scheme No. 3*. Updated to include AMD 84 GG 09/05/17. Perth : Department of Planning, May 2017. p. 143.
3. **Standards Australia.** *AS/NZS 2890.1 - 2004 Parking facilities Part 1: Off-street car parking*. Sydney : Standards Australia/ Standards New Zealand, 2004. p. 77. (Incorporating Ammendment No 1). ISBN 0 7337 5742 1.
4. **Austrroads.** *Guide to Traffic Management Part 11: Parking*. [ed.] Peter Damen and Anna Huband. 1st edition. Sydney : Austrroads Incorporated, 2008. p. 152. Vol. 11. ISBN 978-1-921329-45-6.
5. **Australian Building Codes Board (ABCB).** *The Building Code of Australia*. Canberra : Australian Building Codes Board (ABCB), 2010. The Building Code of Australia (BCA) is Volumes One and Two of the National Construction Code (NCC). The BCA is produced and maintained by the Australian Building Codes Board (ABCB) on behalf of the Australian Government and State & Territory Governments..
6. **Standards Australia.** *AS 2890.3:2015 - Parking facilities Part 3: Bicycle parking*. Sydney : SAI Global Limited under licence from Standards Australia Ltd, 2015. Vol. 3. ISBN 9781760352295.
7. **Roads and Traffic Authority NSW.** *Guide to Traffic Generating Developments*. Transport Planning Section. Sydney : Roads and Traffic Authority NSW, October 2002. p. 174. Version 2.2. ISBN 0 7305 9080 1.
8. **Institute of Transportation Engineers (USA).** *Trip Generation Manual, 9th Edition*. 9th Edition. Washington : Institute of Transportation Engineers (USA), September 2012. ISBN-13: 978-1-933452-64-7; ISBN-10: 1-933452-64-1.

APPENDIX A

DEVELOPMENT PLANS



[illegible]

PROPOSED ADDITIONS
LOT 35, No. 777
WELSHPOOL ROAD EAST
WATTLE GROVE

Area	Size	Year	Est.	Value	Rate
66m ²	1071.20	2011	10	\$11	\$11.00

66m² 1702-1848L

HOUSING DESIGN

HOUSING DESIGN PTY LTD, 10/1100 WILSON RD
 SUITE 101, WILSON RD, WILSON PT, WILSON PT, WILSON PT
 PHONE: 08 9444 4444 FAX: 08 9444 4444
 EMAIL: design@housingdesign.com.au WEB: www.housingdesign.com.au

DESIGNED TO THE REQUIREMENTS OF COUNCIL REGULATIONS

APPENDIX B WAPC TRANSPORT IMPACT STATEMENT CHECKLIST

Checklist for a transport impact statement for individual development

- Tick the provided column for items for which information is provided.
- Enter N/A in the provided column if the item is not appropriate and enter reason in comment column.
- Provide brief comments on any relevant issues.
- Provide brief description of any proposed transport improvements, for example, new bus routes or signalisation of an existing intersection.

ITEM	PROVIDED	COMMENTS/PROPOSALS
Proposed development		
existing land uses	Section 2	Single dwelling house with some additions
proposed land use	Section 2	Appendix A (Development Plans)
context with surrounds		
Vehicular access and parking		
access arrangements	Section 3	
public, private, disabled parking set down/pick up	Section 3	38 bays required, 38 bays provided
Service vehicles (non-residential)	Section 4	
access arrangements	Section 4	Accommodates MRV forward IN and forward OUT
on/off-site loading facilities	Section 4	
Service vehicles (residential)		
rubbish collection and emergency vehicle access	Section 4	Accommodates MRV forward IN and forward OUT
Hours of operation (non-residential only)	Section 2	Mon – Meetings, 7 – 9 PM, Fri – Meetings, 7 – 9 PM and Sun – Lectures & Meetings 8 AM – 5 PM
Traffic volumes		
daily or peak traffic volumes	Section 5	Peak hour volumes and SIDRA Intersection model
type of vehicles (for example, cars, trucks)	Section 5	Majority cars, occasional service vehicles up to MRV
Traffic management on frontage streets	Section 6	Dual lane carriageway with median restricting access to left-in/ left out with U turn median break
Public transport access		
nearest bus/train routes	Section 7	282 and 283 routes
nearest bus stops/train stations	Section 7	stops within 2 and 5-minute walk
pedestrian/cycle links to bus stops/ train station	Section 7	Paths. Bus services to Elizabeth Quay Bus Station in Perth and Kalamunda Bus Station

ITEM		
Pedestrian access/ facilities		
existing pedestrian facilities within the development (if any)	Section 8	
proposed pedestrian facilities within development	Section 8	
existing pedestrian facilities on surrounding roads	Section 8	
proposals to improve pedestrian access	Section 8	None warranted
Cycle access/facilities		
existing cycle facilities within the development (if any)	Section 9	
proposed cycle facilities within development	Section 9	
existing cycle facilities on surrounding roads	Section 9	
proposals to improve cycle access	Section 9	None warranted
Site specific issues	Section 10	Refer Sections 5 and 11
Safety issues		
identify issues	Section 11	No issues
remedial measures	Section 4	Figure 9 on page 15 shows that there is an area of overrun when the MRV turns left to leave the Bin Store. This could be addressed by moving the Bin Store 1 m or more further away from the service road.

Proponent's name

Company Date

Transport assessor's name *David Wilkins* Company *i3 consultants WA* Date *05/09/17*