

PROPOSED MIXED USE COMMERCIAL CENTRE

LOT 2 YANCHEP BEACH ROAD, YANCHEP

TRAFFIC AND PARKING ASSESSMENT

July 2018



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Author	J Riley	V3a Plan amended	29/7/18
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1.0 EXECUTIVE SUMMARY

Riley Consulting has been commissioned to prepare a traffic and parking statement for a proposed child care centre and gymnasium development on Lot 2 Yanchep Beach Road, Yanchep. The findings of this report are:

- The proposed childcare centre and gymnasium are forecast to generate about 541 vehicle movements per day. During the peak periods a maximum attraction of 96 vehicles is expected and under WAPC guidelines, the development requires the provision of a traffic statement.
- The level of traffic generated to any single traffic lane is forecast to be significantly less than 100 vehicles during the peak hour of operation. Under WAPC guidelines the development would be considered to have no material impact to the operation of the local road network.
- Access to the site is provided via a dedicated 8 metre wide lane between Booderee Road and Kakadu Road. The lane has been approved for the purpose of providing access to the commercial sites fronting Yanchep Beach Road as direct access to Yanchep Beach Road is not provided.
- Analysis of the peak period traffic demands indicates that no material traffic impact would be caused by the proposed development.
- Parking in accordance with the City of Wanneroo's Town Planning Scheme is provided. All parking bays accord with AS2890.1.

2.0 THE SITE AND SURROUNDING ROAD NETWORK

The site is located on Lot 2 Yanchep Beach Road, Yanchep. The location of the site is shown in Figure 1 and Figure 2 shows an aerial image of the site and surrounding area. Roads of significance to the development site are considered below.

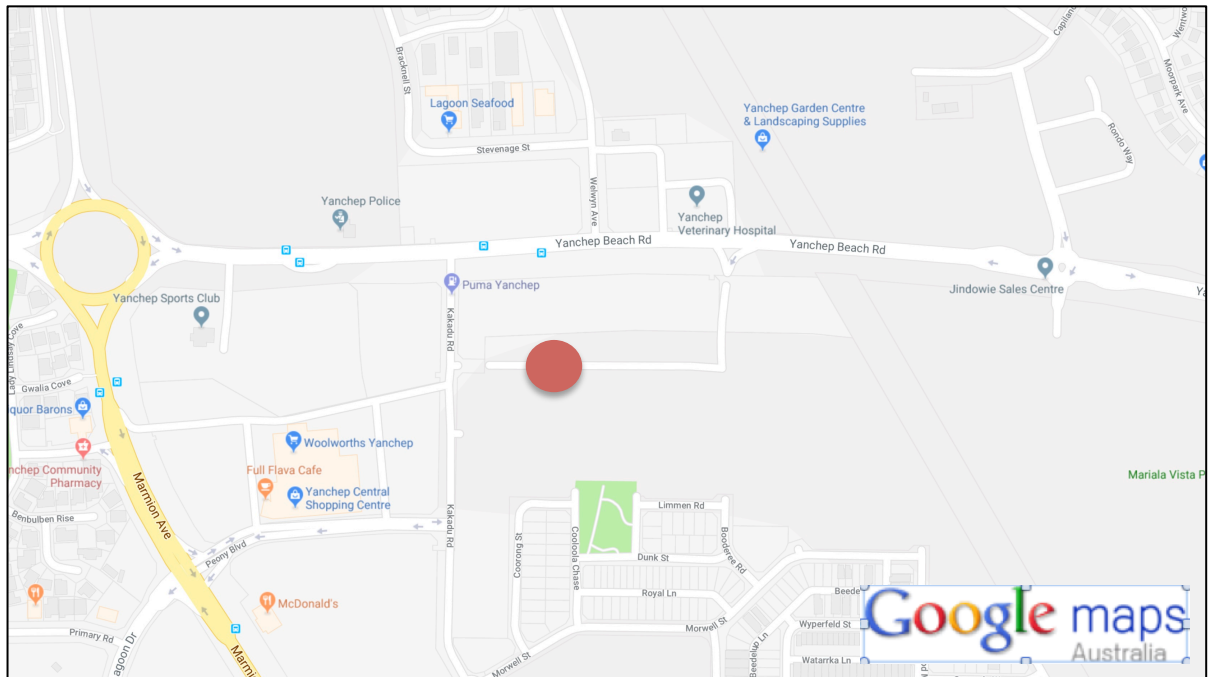


Figure 1 Site Location



Figure 2 Aerial Image of the Subject Site (site area indicative)

Yanchep Beach Road

Yanchep Beach Road is classified as a district distributor B road in the Main Roads *Functional Road Hierarchy*, adjacent to the subject site. It is constructed with a single lane in each direction. At some future time duplication to a four lane divided road will be undertaken. A 60kph speed limit applies.

Traffic data available on the MRWA website indicates 4,907 vehicles per day (vpd) west of Wanneroo Road (2016). Traffic data provided by the City of Wanneroo shows 5,288vpd east of Parkland Drive (2017). Data recorded to the east of Kakadu Drive indicates 6,958vpd (2016). It can be expected that Yanchep Beach Road adjacent to the subject site is passing about 6,500vpd. Table 1 provides a summary of the current traffic demands.

Table 1 Yanchep Beach Road

Volume	AM Peak (7-8)	PM Peak (4-5)	Capacity
6,500vpd (2016)	156 east 377 west	377 east 170 west	13,500vpd

* peak flow assumed to be reverse of MRWA count at Wanneroo Road

Future traffic forecasts for Yanchep Beach Road indicate an ultimate demand of about 20,000vpd¹ adjacent to the subject site. The forecast demand could be accommodated in a boulevard style road, although land for a four lane divided road is provided. A four lane divided road would have capacity to carry 40,000vpd with good levels of Service.

Kakadu Road

Kakadu Road is classified as an Access street in the Main Roads *Functional Road Hierarchy*. As such it would be restricted to a maximum daily flow of 3,000vpd under the *Liveable Neighbourhoods* planning guidelines. Access to Yanchep Beach Road is restricted to left-in and left-out movements only. A 50kph speed limit applies.

Avon Road

To the south of the subject site is Avon Road, a local access street fronted by residential dwellings. Avon Road does not provide direct access to the subject land. It is constructed with a 6 metre pavement and is suitable to carry up to 3,000vpd.

¹ Yanchep-Two Rocks DSP

² As identified on the certificate of title Vol 2879 Fol 998

Booderee Road

Booderee Road is classified as an Access street in the Main Roads *Functional Road Hierarchy*. As such it would be restricted to a maximum daily flow of 3,000vpd under the *Liveable Neighbourhoods* planning guidelines. Access to Yanchep Beach Road is restricted to left-in and left-out movements only. A 50kph speed limit applies.

Ikara Lane

To the south of the subject site is an access lane specifically constructed to provide access to the commercial sites fronting Yanchep Beach Road, The lane is constructed to a width of 8 metres² and links Booderee Road through to Kakadu Road. The access lane was planned to provide a 6 metre pavement with a verge to the southern side of 2 metres. As a commercial access, the lane does not fall into any road hierarchy criteria. However treatment as an access street would be appropriate and daily traffic demands should be limited to 3,000 vehicles. However, its capacity to pass traffic would be much higher.

At Kakadu Road, a Puma service station has been constructed and is adjacent to the subject site. To the east of the subject site a future development is to be constructed.

Peony Boulevard

Peony Boulevard is the new main street providing access to the commercial precinct. It is constructed as a boulevard style road between Kakadu Road and Marmion Avenue. Its intersection with Marmion Avenue is controlled by traffic signals. Traffic data recorded in 2013 showed about 2,130vpd. With full construction of the shopping centre and other local facilities a daily flow closer to 5,000vpd would be expected.

Other Development

Other developments have recently been constructed/proposed and advice from the City of Wanneroo indicates the following traffic generation:

- Puma Service Station (1 Ikara Lane) – 1, 304 trips per day
- National Storage (103 Booderee Road) – 97 trips per day
- Gym (3 Avon Road) – 134 vehicle trips per day
- Medical centre – 800 trips per day anticipated

² As identified ion the certificate of title Vol 2879 Fol 998

Traffic associated with the service station would not be expected to utilise Ikara lane east of the site as the majority of traffic attracted to the service station will be passing by on Yanchep Beach Road. Adjacent to the subject site Ikara Lane could be expected to pass:

50% of the gym traffic generation	67 trips
50% of the storage traffic generation	48 trips
10% of the service station traffic generation	130 trips
60% of the medical centre traffic generation	400 trips

A daily flow of about 645 vehicle movements would currently be estimated to pass the subject site.

The Proposed Development

It is proposed to develop the site to provide a childcare centre accommodating up to 69 children with 540m² of gymnasium uses. A concept layout for the proposed development is shown in Figure 3.

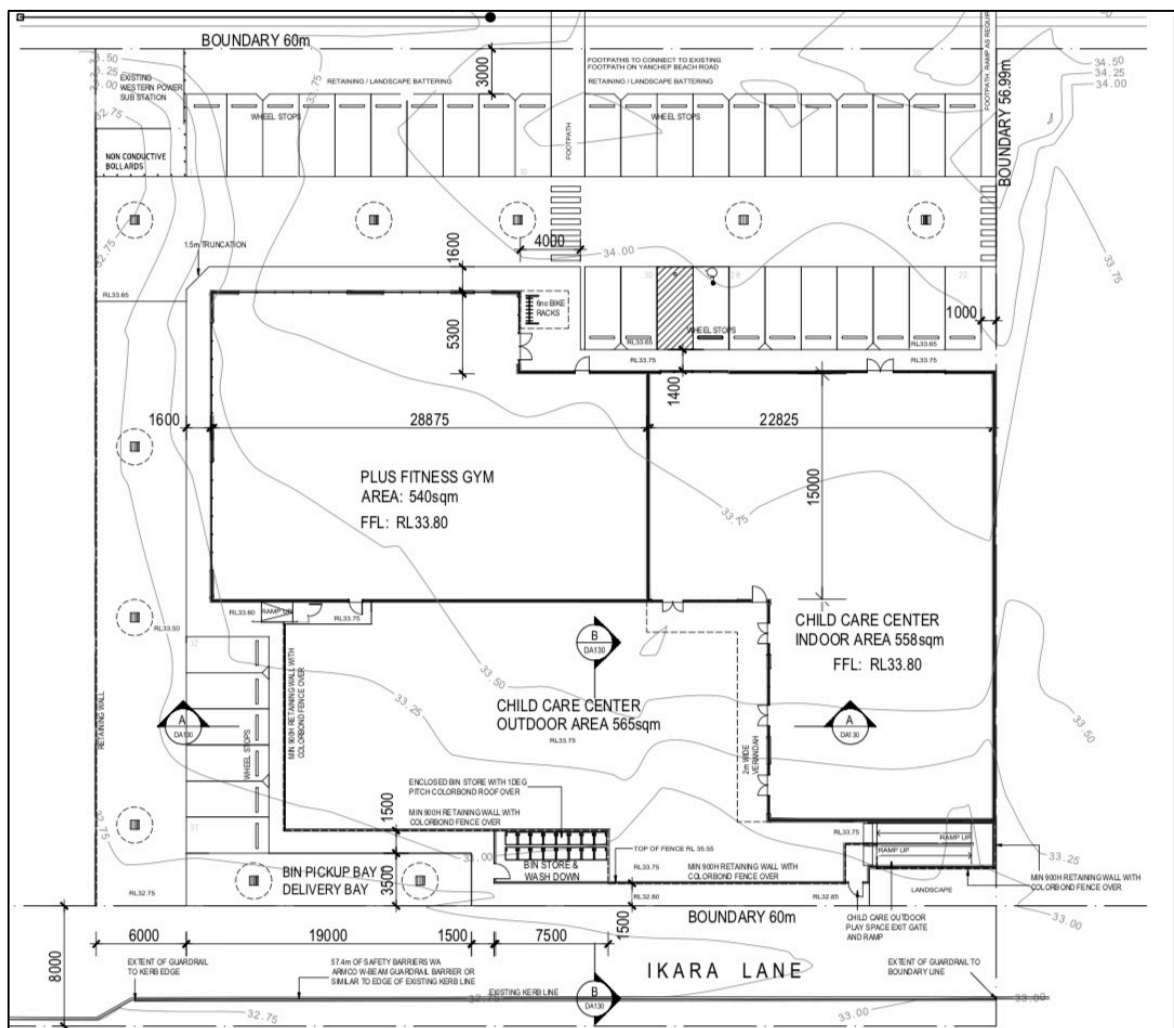


Figure 3 Concept Development Plan (refer to DA plans)

3.0 TRAFFIC GENERATION AND DISTRIBUTION

The subject site is currently vacant and generates no traffic movement.

The proposed development is for a childcare centre and gymnasium fronting Yanchep Beach Road.

The childcare centre will have 13 staff and cater for 68 children comprising:

28 children between 0 – 2 years old

20 children between 2 – 3 years old

20 children over 3 years old

Reference to the RTA *Guide to Traffic Generating Developments* (NSW) suggests the trip rates for child care centres shown in Table 2.

Table 2 RTA Child Centre Trip Rates

Centre Type	Peak vehicle trips		
	7am – 9am	2:30-4pm	4pm – 6pm
Pre-school	1.4	0.8	-
Long day care	0.8	0.3	0.7
Before/after school	0.5	0.2	0.7

The pre-school children would predominately be those children under 2 years old and long day care would typically apply to children over 2. It is not expected that the centre would provide significant levels of before/after school care. Based on the RTA trip rates, the proposed centre could be expected to generate:

7am - 9am	$(28 \times 1.4 = 39) + (40 \times 0.8 = 32)$	71 vehicle movements
2:30 - 4pm	$(28 \times 0.8 = 22) + (40 \times 0.3 = 12)$	34 vehicle movements
4pm – 6pm	$(28 \times 0) + (40 \times 0.7 = 28)$	28 vehicle movements

The maximum daily traffic demand can be found from.

- Number of staff (13) x 2 trips 26 trips
- Number of children (68 x 4 trips) 272 trips

In total the childcare centre could attract 298 trips per day.

Gymnasium

Reference to the RTA *Guide to Traffic generating Developments* identifies a trip rate for metropolitan sub regional areas of 45 trips per 100m² GFA with a peak demand of 9 trips per 100m² GFA.

The concept plan shows a total floor area for the gymnasium of 540m². Therefore the RTA guide would suggest a daily traffic generation of 243 trips with a peak demand of 49 trips. The peak trip rate is shown for the PM peak. During the morning peak the demand will typically occur between 6am and 8am, prior to the local road network peak. For the purpose of assessment 50% of the PM peak is assumed.

Table 3 shows the expected traffic generation of the proposed development.

Table 3 Traffic Generation

	Daily	AM	PM
Existing land use	0	0	0
Child care	298	71	28
Gymnasium	243	25	49
Traffic Increase	+541	+96	+77

*50% of traffic could be pass-by trade

Distribution

Traffic attracted to the childcare centre will be drawn from the surrounding residential area and from parents already passing the site using Yanchep Beach Road on their way to work. However, with access to Yanchep Beach Road restricted to left-in / left-out movements and a right turn in to the precinct at Kakadu Road, local roads could be used to provide access.

Reference to Google maps indicates that about one third of residential development lies to the east of the subject site, with the remainder closer to the beach. Traffic attracted to the child care centre will most likely be undertaking a work trip with traffic heading to Marmion Avenue and/or Wanneroo Road. The close proximity of the local shopping centre can be expected to attract a significant reciprocal use.

The gymnasium is expected to attract traffic in a similar manner to the child care centre (predominantly home based) with most trips arriving from work and returning to home in the evening. The daily and peak hour movements anticipated are shown in Appendix B.

4.0 TRAFFIC IMPACT

Reference to the WAPC *Transport Assessment Guidelines for Developments* (Volume 4) states that:

“where a traffic increase as a result of a proposed development is less than 10% of current road capacity, it would not normally have a material impact”.

“For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10% of capacity. Therefore any section of road where traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis”.

Based on the RTA traffic generation rates for the proposed development, it can be seen that the peak traffic demand is shown to be 96 vehicles during the morning peak period between 7am and 9am. The development will generate a maximum of 48 vehicles to any traffic lane in any hour (half the total traffic generation) The WAPC guidelines would therefore deem that the proposed development would have no material impact as no traffic lane would experience an increase of more than 100 vehicles in any hour.

The proposed development would have no material impact under WAPC guidelines.

Table 4 provides an assessment of the daily attraction that could occur to the local road network.

Table 4 Increases to Local Road Network

Road	Daily Flow	Development	Capacity	%
Ikarra Lane east	@645	+81vpd	3,000 ^{#1}	+2.7%
Ikarra Lane west	@645	+461vpd	3,000*	+15.4%
Yanchep Beach Road east	6,500vpd	+162vpd	13,500	+1.2%
Yanchep Beach Road west	6,500vpd	+270vpd	13,500	+2%
Kakadu Road	<3,000vpd	+272vpd	3,000 ^{#2}	+9%
Booderee Road	<3,000vpd	+81vpd	3,000 ^{#2}	+2.7%
Peony Boulevard	@5,000vpd	+272vpd	13,500	+2%

^{#1} Value applied for residential amenity

^{#2} Residential amenity value threshold

It can be seen from Table 4 that the increases to the surrounding road network are low and less than 10% of the road capacity, except Ikarra Lane west.

It can be seen that the impact to local residential streets from a daily flow perspective is very low and would not be considered to have a material impact. The level of traffic increases would not be expected to impact residential amenity.

Ikarra lane west of the subject site is shown to experience an increase of about 15% of the nominal capacity values applied. To maintain residential amenity, a capacity of 3,000vpd has been applied to Ikarra Lane. The proposed development would result in a daily traffic demand of approximately 1,106vpd to the west of the site and approximately 726vpd to the east. The forecast traffic demands are well below the 3,000vpd limit applied and residential amenity will not be unreasonably affected.

5.0 ACCESS

Access to the proposed development will be taken via a simple cross over to the laneway to the south of the development site. The lane has been created specifically for the purpose of providing access to the commercial development fronting Yanchep Beach Road.

The location of the proposed cross over accords with the requirements of AS2890.1. Parking bay access is taken to the laneway and is in accordance with AS2890.1. A lane of 8 metres would have capacity to pass the same traffic flow as a single carriageway road. However, a flow of less than 3,000vpd would be appropriate to match adjacent adjoining streets. The development generates 542 movements per day, or 18% of the projected maximum flow. The lane has been specifically created to provide commercial site access and approved by structure planning accordingly.

Access to Yanchep Beach Road

No direct access is to be provided to Yanchep Beach Road. All traffic is required to use Kakadu Road and Booderee Road. Structure planning of the locality has designed these intersections accordingly. However, it is noted that there are no right turn opportunities to Yanchep Beach Road from the site, Kakadu Lane or Booderee Road. As a result it can be expected that some illegal right turns will occur particularly at the intersection of Booderee Road. From a structure planning perspective the restriction of access is a poor outcome for the local community.

Service Vehicle Access

Service vehicles will typically be smaller vehicles delivering goods to the commercial uses and the childcare centre that can easily access the car park.

A standard 12.5 metre rigid vehicle can utilise the loading/garbage collection bay adjacent to Ikarra Lane if required. The loading bay has a length of 19 metres and can easily accommodate the 12.5m rigid truck. Additional manoeuvring space is provided by the adjacent drive to the car park fronting Yanchep Beach Road. Deliveries will also use this bay. Figure 4 shows the loading / garbage collection bay and the swept path of a standard garbage collection vehicle showing easy access.

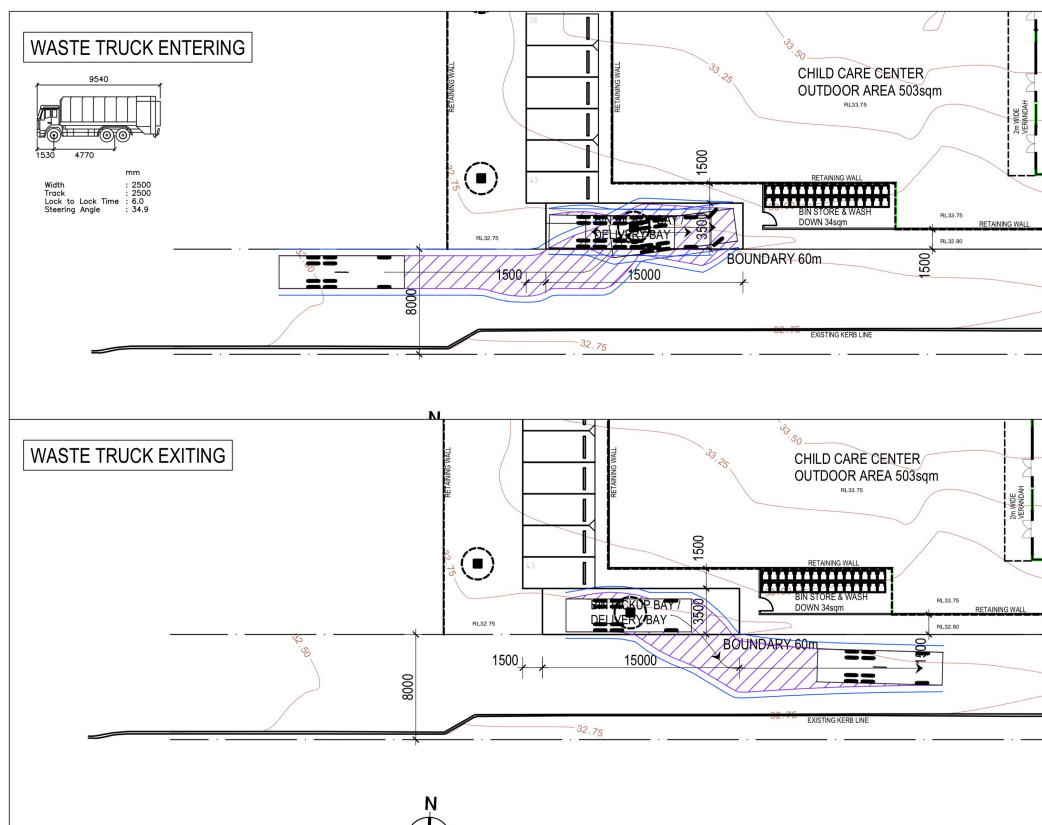


Figure 4 Garbage and Loading Bay Swept Path (note the loading bay has been extended to 19m).

6.0 PARKING AND MANAGEMENT

The City of Wanneroo's Town Planning Scheme (TPS) identifies the following car parking requirements:

Child care	1 parking bay for every staff member plus 9 bays for 65 - 72 children (refer Policy 2.3).
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The TPS does not include a parking requirement for gymnasium use, but based on similar land uses attractions, a rate of 1 bay per 4 persons accommodated is used.

The proposed child care centre has 13 staff and 68 children and will require (13 + 9) 22 bays based on Policy 2.3.

The gymnasium is anticipated to have a peak occupancy of 40 person and 10 bays are deemed to be required.

In total the proposed development would require the provision of (22+10) 32 bays under the Town Planning Scheme.

The proposed development is shown to provide a total of 37 bays located in a dedicated car park fronting Yanchep Beach Road. Adjacent development will extend the car parking fronting Yanchep Beach Road.

The level of parking provided meets the minimum requirements of the City of Wanneroo's Town Planning Scheme.

Car Park Layout

All parking bays are designed to accord with AS2890.1.

7.0 PEDESTRIANS, CYCLISTS AND PUBLIC TRANSPORT

The site is located adjacent to Yanchep Beach Road, which is provided with a dual use path to its southern side. Future road widening will provide footpaths and cycle paths to current standards. A pedestrian crossing location is indicated in Figure 5 adjacent to Welwyn Avenue. Two pedestrian paths are provided on the site located to provide the best pedestrian convenience. Pedestrian access to Ikarra Lane is provided and shown in Figure 5.



Figure 5 Pedestrian Access Plan

Cycling to the proposed development is feasible, although expected to be low. A dual use path currently exists to the site frontage to Yanchep Beach Road.

Yanchep Beach Road is serviced by route 491. Bus stops are located within 100 metres of the site. Figure 6 shows the local bus services. Future service passing the site can be expected to increase once the future rail station is constructed.

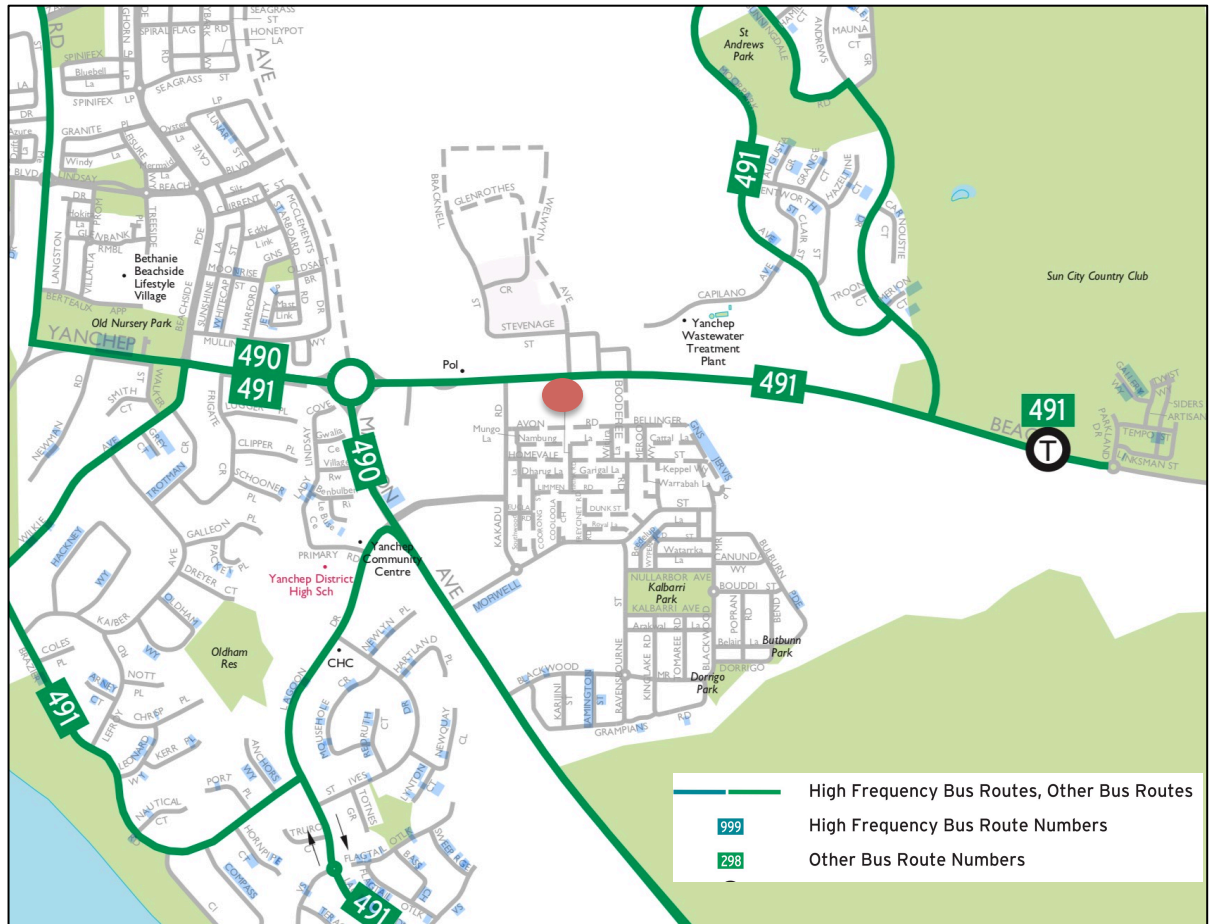


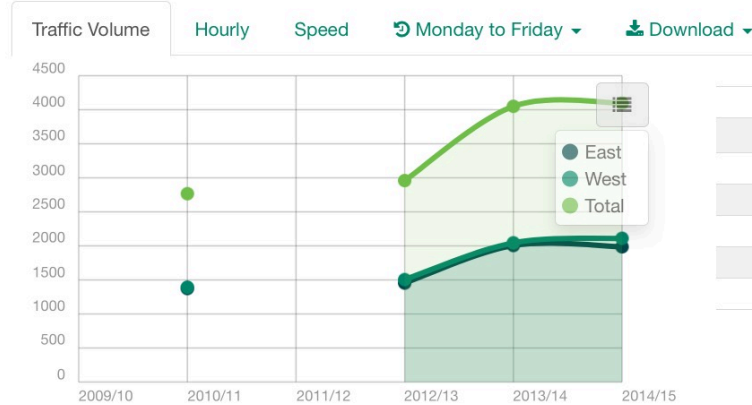
Figure 6 Local Bus Services

APPENDIX A TRAFFIC DATA

Yanchep Beach Rd

SITE 3290

West of Wanneroo Rd



	Vehicles	
	Total	Heavy
2014/15	4097	13%
2013/14	4050	12%
2012/13	2959	9%
2011/12		
2010/11	2767	
2009/10		

Levels of Service by Road Type

LOS	Single Carriageway ¹	2-Lane Boulevard ²	Dual Carriageway (4-Lanes) ³	Dual Carriageway (4-lane Clearway) ³
A	2,400vpd	2,600vpd	24,000vpd	27,000vpd
B	4,800vpd	5,300vpd	28,000vpd	31,500vpd
C	7,900vpd	8,700vpd	32,000vpd	36,000vpd
D	13,500vpd	15,000vpd	36,000vpd	40,500vpd
E	22,900vpd	25,200vpd ⁴	40,000vpd	45,000vpd
F	>22,900vpd	>25,200vpd ⁴	>40,000vpd	>45,000vpd

¹ Based on Table 3.9 Austroads - Guide to Traffic Engineering Practice Part 2

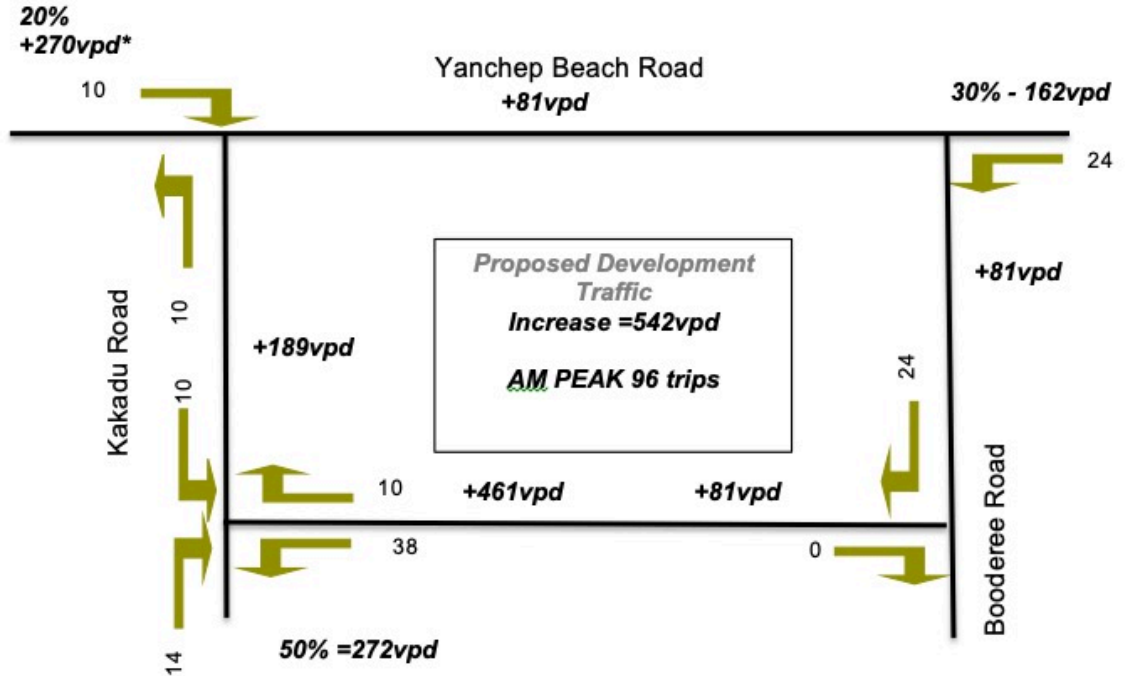
² Based on single carriageway +10% (supported by Table 3.1 Austroads - Guide to Traffic Engineering Practice Part 3) – Boulevard or division by medians.

³ Based on RRR Table 3.5 - mid-block service flow rates (SF.) for urban arterial roads with interrupted flow. Using 60/40 peak split.

⁴ Note James Street Guildford passes 28,000vpd.

APPENDIX B FORECAST TRAFFIC MOVEMENTS

Traffic Plan
AM PEAK and Daily Demand



* Note traffic must use roundabout to head east.

PM Peak

