Transport Impact Statement

Project:	Proposed Child Care Centre 88 Beach Road, Bunbury
Client:	SNS Custodian Nominees Pty Ltd c/o Proekt Architecture
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Contents

Figures

Tables

1. Introduction

1.1. Background

Shawmac Pty Ltd has been commissioned by SNS Custodian Nominees Pty Ltd, on behalf of Proekt Architecture, to prepare a Transport Impact Statement (TIS) for a proposed child care centre in Bunbury.

This TIS has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Transport Impact Assessment Guidelines Volume 4 – Individual Developments* (TIA Guidelines).

1.2. Site Location

The site address is 88 (Lot 2) Beach Road, Bunbury. The local authority is the City of Bunbury.

Site frontages include Karri Street towards the west and Beach Road to the South.

The general site location is shown in **Figure 1**. An aerial view of the existing site is shown in **Figure 2**.

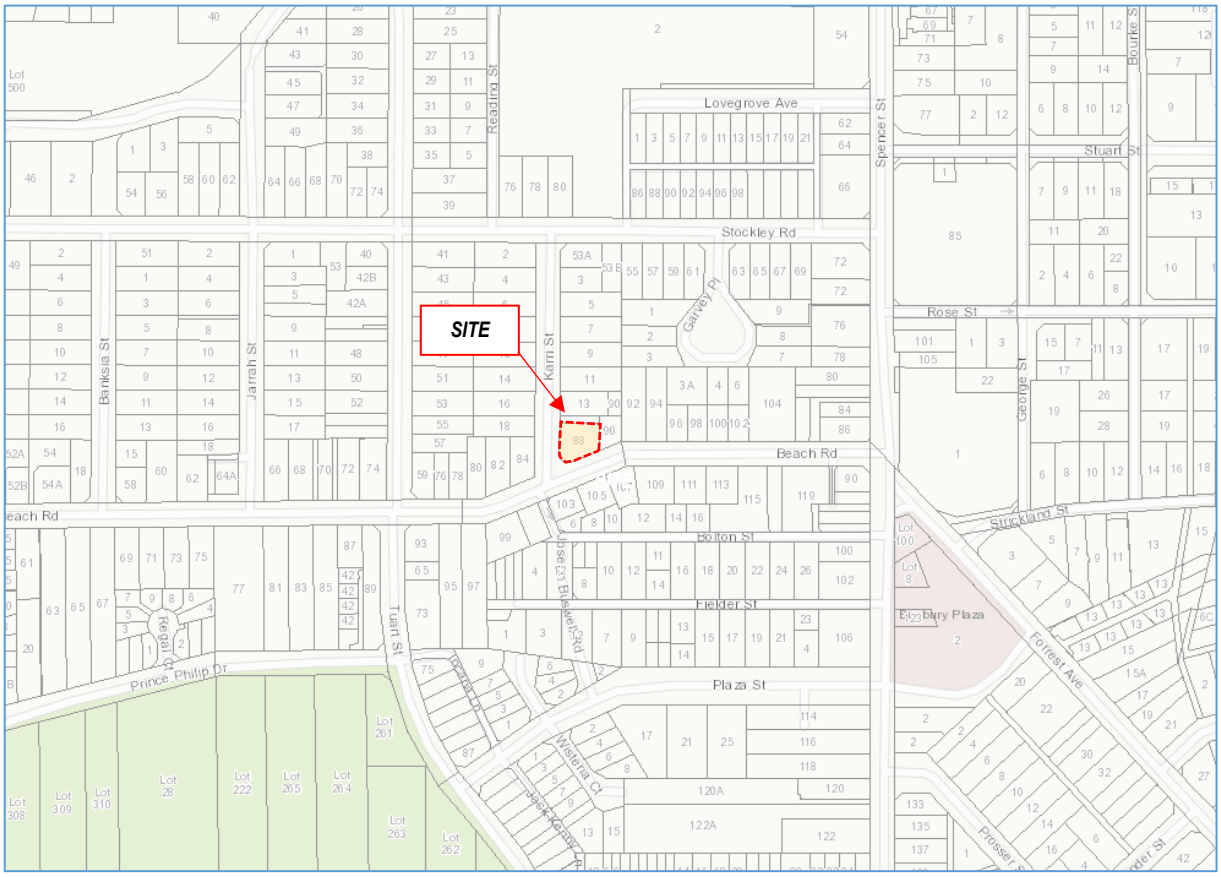


Figure 1: Site Location

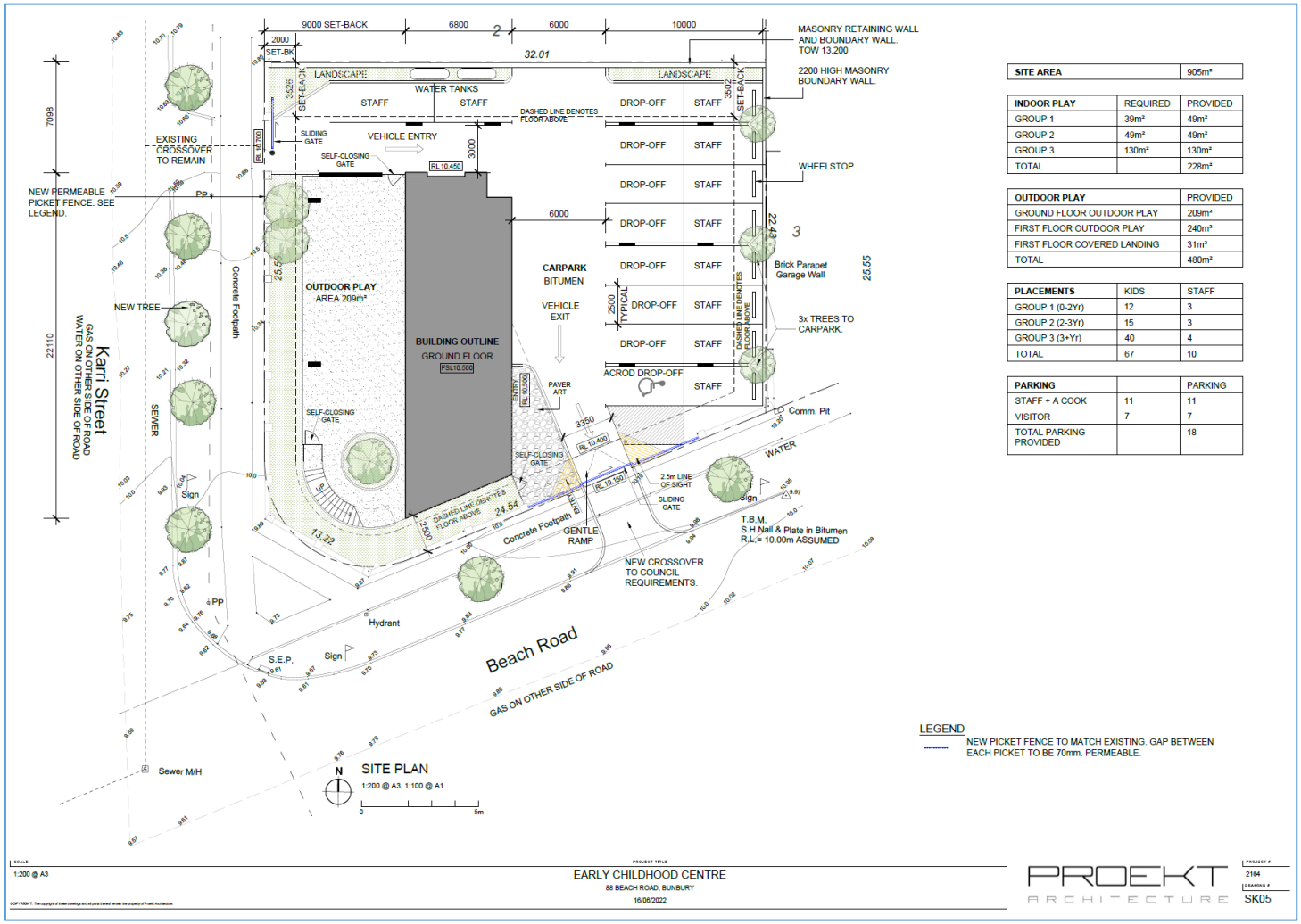
Figure 2: Aerial View (March 2022)

2. Proposed Development

2.1. Land Use

The proposed development is a child care centre accommodating up to 67 children and 11 staff. The proposed operating hours are from 6am to 6pm on weekdays.

The proposed site plan is shown in **Figure 3**.



SITE AREA		905m²

INDOOR PLAY	REQUIRED	PROVIDED
GROUP 1	39m²	49m²
GROUP 2	49m²	49m²
GROUP 3	130m²	130m²
TOTAL		228m²

OUTDOOR PLAY	PROVIDED
GROUND FLOOR OUTDOOR PLAY	209m²
FIRST FLOOR OUTDOOR PLAY	240m²
FIRST FLOOR COVERED LANDING	31m²
TOTAL	480m²

PLACEMENTS	KIDS	STAFF
GROUP 1 (0-2Yr)	12	3
GROUP 2 (2-3Yr)	15	3
GROUP 3 (3+Yr)	40	4
TOTAL	67	10

PARKING		PARKING
STAFF + A COOK	11	11
VISITOR	7	7
TOTAL PARKING PROVIDED		18

Figure 3: Site Layout

3. Traffic Management on Frontage Streets

3.1. Road Network

3.1.1. Existing Road Layout and Hierarchy

The layout and hierarchy of the existing local road network according to the Main Roads WA *Road Information Mapping System* is shown in **Figure 4**.

Figure 4: Existing Road Network Hierarchy

As shown, Beach Road and Karri Street are classified as Access Roads.

The speed limits are shown in **Figure 5**.

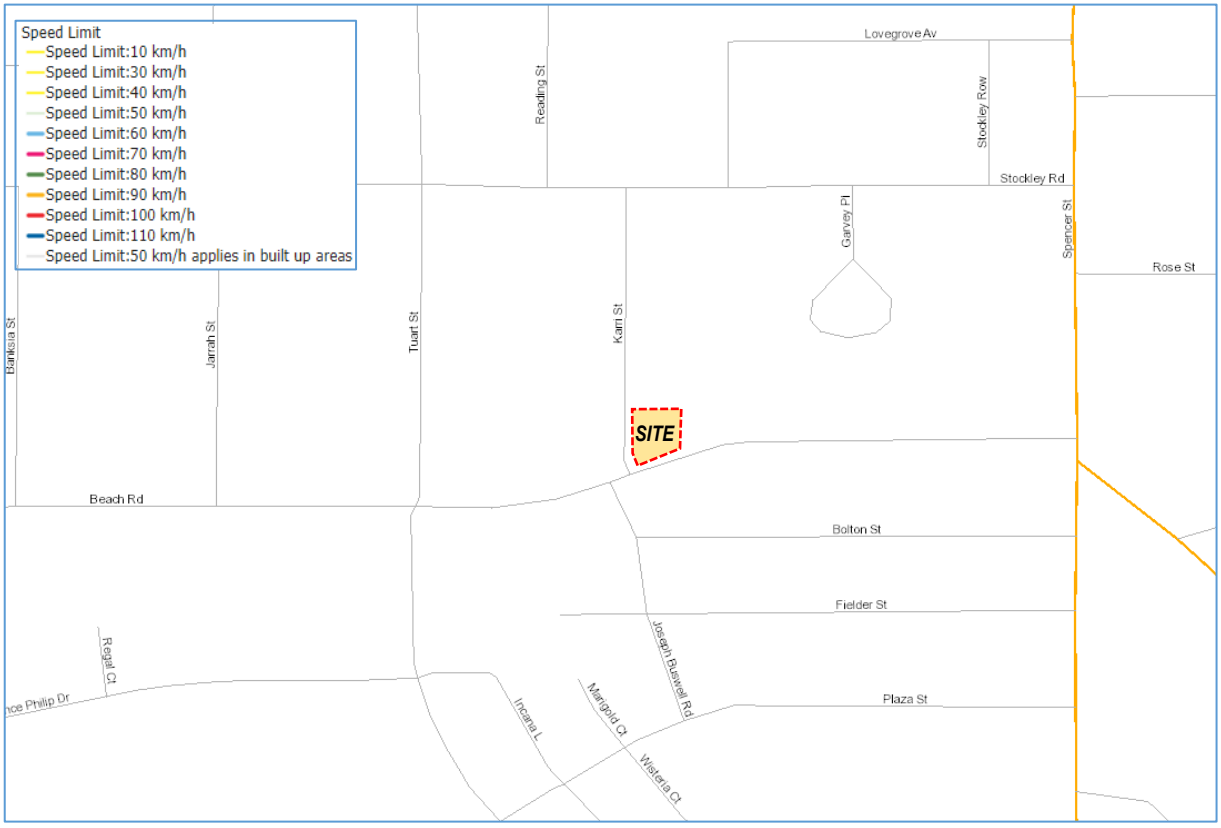


Figure 5: Existing Speed Limits

As shown, Beach Road and Karri Street have a 50km/h speed limit.

4. Vehicle Access and Parking

4.1. Access

The site currently has a single crossover on Karri Street.

It is proposed to use the existing access as an entry crossover and create a new exit only crossover on Beach Road. The car park will therefore flow in one direction.

The proposed vehicle access arrangement is shown in **Figure 6**.

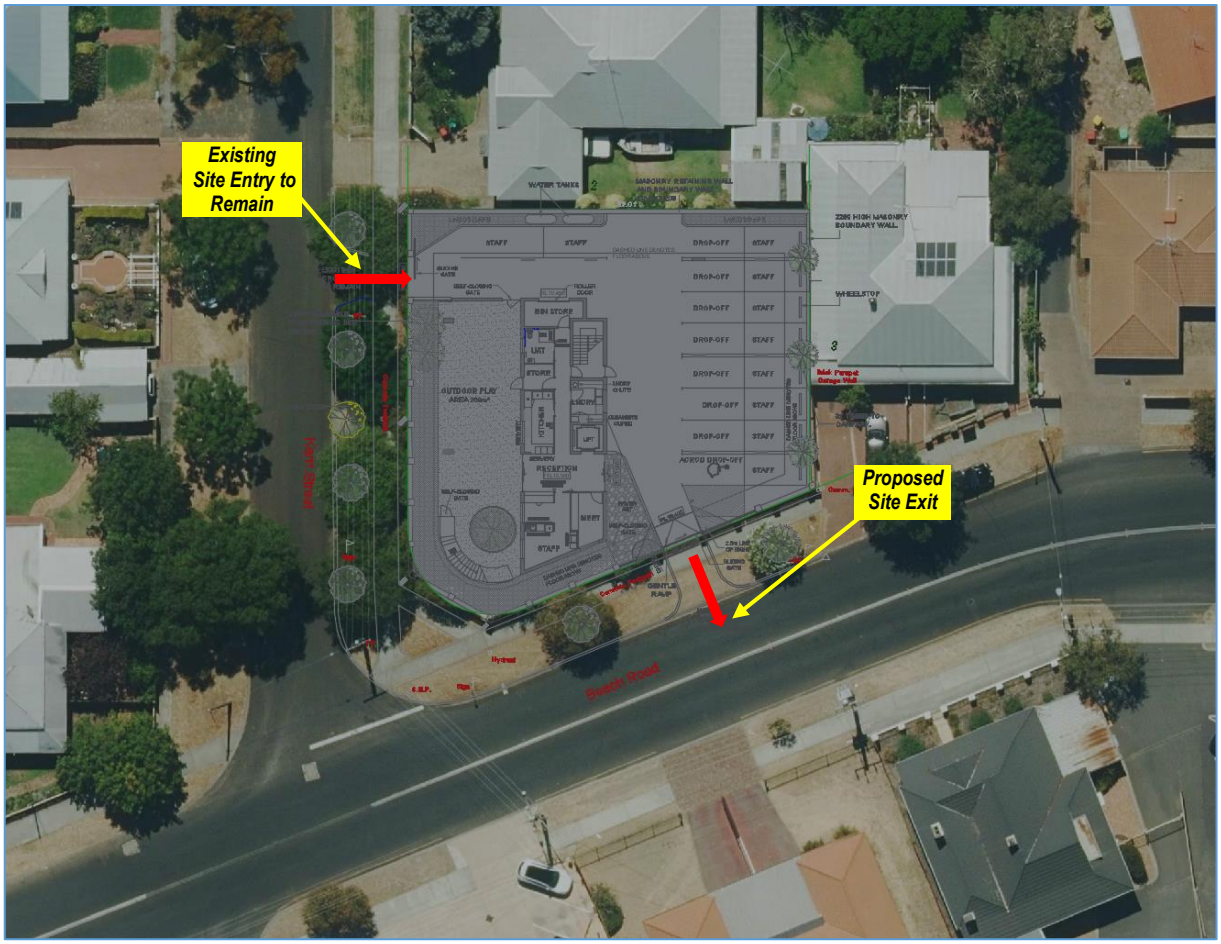
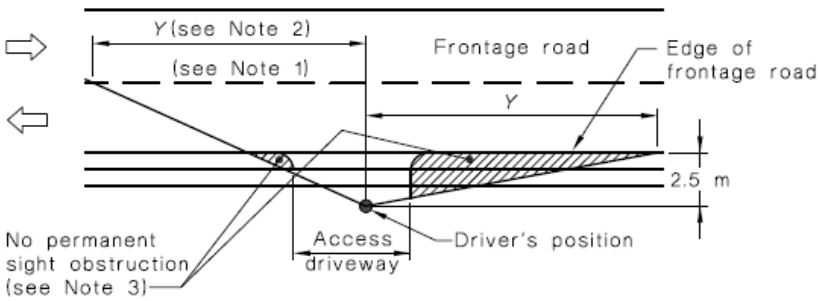


Figure 6: Vehicle Access Arrangement

The proposed new crossover on Beach Road is located more than 6m from the tangent point of the adjacent intersection and is therefore compliant with the provisions of Australian Standard AS2890.1-2004 *Parking facilities Part 1: Off street car parking* (AS2890.1) regarding the location of driveways.

4.1.1. Access Sight Distance

Sight distance requirements from exit crossovers is defined in Figure 3.2 of AS2890.1 as shown in **Figure 7**.



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	65	55
70	97	85	70
80	111	105	95
90	125	130	Use values from 2nd and 3rd columns
100	139	160	
110	153	190	

Figure 7: Sight Distance Requirements

Based on the 50km/h speed limit along Beach Road, the minimum required sight distance is 45 metres (69 metres desirable). The sight distance check is shown in **Figure 8**.

Figure 8: Sight Distance Check

As shown, the desirable 69m sight distance is achieved in both directions. However, the existing verge tree to the west of the crossover appears to be slightly within the sight triangle in this direction.

As shown in **Figure 9**, the canopy of this tree appears to be well above the typical driver eye height of 1.15m and so the tree does not impact sight distance unacceptably. It is also noted that the minimum 45m sight distance requirement would be less impacted by the tree canopy horizontally.

Figure 9: Verge Tree West of Proposed Crossover on Beach Road

Vertically, the geometry of Beach Road is relatively flat with no major sags or crests that reduce sight distance below the minimum requirements.

4.2. Car Parking

The total proposed on-site car parking provision is 18 bays including 1 ACROD bay.

The minimum car parking requirements for developments within the City of Bunbury are outlined in the City's Local Planning Scheme (LPS) No.8. The parking requirements for the proposed development are calculated in **Table 1**.

Table 1: Parking Requirements

Land Use	Criteria	Quantum	Bays
Child Care Centre	1 bay per 10 children 1 bay per employee	67 children 10 Staff + 1 Chef	7 bays 11 bays
		Total	**18 bays**

As shown, the development requires 18 bays and so the proposed parking provision satisfies the City's requirements.

There are 11 staff in total which includes 10 primary contact staff and one chef. It is expected that the chef will only be on-site outside of the pick-up / drop-off periods and can therefore use the pick-up / drop-off bays. On this basis, the proposed allocation of 10 staff bays and 8 pick-up / drop-off bays is considered appropriate.

4.3. Parking Layout

The parking layout will need to comply with the requirements of Australian Standard AS2890.1 and AS2890.6. The user class will depend on the purpose of the bay as detailed in **Figure 10**.

9 AS/NZS 2890.1:2004

TABLE 1.1

CLASSIFICATION OF OFF-STREET CAR PARKING FACILITIES

User class	Required door opening	Required aisle width	Examples of uses (Note 1)
1	Front door, first stop	Minimum for single manoeuvre entry and exit	Employee and commuter parking (generally, all-day parking)
1A	Front door, first stop	Three-point turn entry and exit into 90° parking spaces only, otherwise as for User Class 1	Residential, domestic and employee parking
2	Full opening, all doors	Minimum for single manoeuvre entry and exit	Long-term city and town centre parking, sports facilities, entertainment centres, hotels, motels, airport visitors (generally medium-term parking)
3	Full opening, all doors	Minimum for single manoeuvre entry and exit	Short-term city and town centre parking, parking stations, hospital and medical centres
3A	Full opening, all doors	Additional allowance above minimum single manoeuvre width to facilitate entry and exit	Short term, high turnover parking at shopping centres
4	Size requirements are specified in AS/NZS 2890.6 (Note 2)		Parking for people with disabilities

Figure 10: Classification of Parking Facilities

Staff parking (long-term parking) would be classified as User Class 1. Pick-up / drop-off parking (short-term parking) would most likely be classified as User Class 3.

8 of the proposed staff bays will be in a tandem arrangement behind the drop-off bays as staff will mostly arrive before the drop-off period and leave after the pick-up period. There is no guidance on the length of tandem bays in AS2890.1. However, a total bay length of 10m has generally been accepted in most applications where there is no barrier between the two bays. A review of the key parking dimensions is outlined in

Table 2.

Table 2: AS2890.1 and AS2890.6 Car Parking Compliance

Dimension	Requirement	Provided
90 degree parking (Tandem) – Class 3 – Long and Short Term Parking (Staff and Pick-up / Drop-off)		
Car Bay Width	2.6m	2.5m
Car Bay Length	10.0m	10.0m
Parking Aisle Width	5.8m	6.0m
Parallel Parking – Long Term Parking (Staff)		
Car Bay Width	2.1m	2.5m
Car Bay Length (unobstructed)	5.4m	5.0m
Car Bay Length (Obstructed)	6.6m	6.6m
Parking Aisle Width	3.0m	3.0m
90 degree parking – ACROD Bay (Tandem)		
Car Bay Width	2.4m	2.5m
Car Bay Length	10.0m	10.0m
Parking Aisle Width	5.8m	3.4m – 6.0m

As shown, the majority of the car park is compliant except for the following dimensions which are discussed and justified below:

- The pick-up / drop-off bays are 100mm narrower than the 2.6m standard for short-term, high-turnover parking. In this instance, the adjacent parking aisle is 200mm wider than the minimum requirement which would partially compensate for the shortfall in bay width. A review of many existing child care centres in the City of Bunbury indicates that a 2.5m bay width has been accepted in most cases. However, it is recommended to increase the bay widths to 2.6m if possible.
- One of the staff parallel parking bays is 400mm short of the standard requirement. However, a swept path analysis has been undertaken which demonstrates that this bay will work. The swept path analysis has been undertaken in Autodesk Vehicle Tracking using the Australian Standard B85 vehicle (i.e. equal or larger than 85% of light vehicles on Australian Roads). The results of the analysis are attached as **Appendix A**.
- The parking aisle adjacent to the proposed ACROD bay is narrower than the 5.8m requirement. However, a vehicle using this bay is able to use to adjacent shared area for easier manoeuvring. A swept path analysis has also been undertaken for this bay as attached in **Appendix A**. The analysis shows that this bay will work in a satisfactory manner.

4.4. Provision for Service Vehicles

Proekt has confirmed that waste will be collected via kerb side collection and so there is no need to accommodate waste vehicles on the site.

5. Traffic Volumes and Vehicle Types

5.1. Proposed Traffic Generation

The volume of traffic generated by the child care centre has been estimated using trip generation rates from the NSW Roads and Maritime Services (formerly RTA) *Guide to Traffic Generating Developments*. The proposed child care centre can be classified as a "Long day-care centre". The trip generation rate is 0.8 vehicle trips per child in the morning from 7 to 9am and 0.7 vehicle trips per child in the afternoon from 4 to 6pm. It is noted that child care centre traffic typically coincides with the peak periods on the road network.

Based on the 67 child capacity, the development is estimated to generate approximately 54 vehicle trips during the morning peak period and 47 vehicle trips during the afternoon peak period.

According to the WAPC TIA guidelines, an increase of between 10 to 100 peak hour vehicles is considered to have a low to moderate impact and is generally accepted as being acceptable without requiring detailed capacity analysis. Based on 47 to 54 vehicles during a two-hour period, the single peak hour volume is estimated to be around 35 to 40 vehicles which is in the middle of this range and so the development traffic is considered to have a low to moderate impact on the road network.

5.2. Vehicle Types

The development is expected to generate mostly light vehicles.

6. Public Transport Access

The following public Transport services currently operating within 1km walking distance of the site are the following:

- Route 829 (300m walking distance Located north-west of the site along Tuart Street)
    - Bunbury Health Campus which services in 30min increments during the weekday and 1hr increments on the weekend.
- Route 832 (350m walking distance Located west of the site along Beach Road)
    - Bunbury Health Campus which services in 1hr increments Monday – Sunday.
- Route 843 (500m walking distance Located south-east of the site along Spencer Street)
    - Bunbury – Dalyellup which services in 1hr increments Monday – Sunday.

As most children are driven to and from child care centres, the demand for public transport is relatively minimal. The existing available public transport services will be adequate to meet the expected demand of the development.

7. Pedestrian and Cycle Access

There is an existing path along both sides of Beach Road and Karri Street.

The pedestrian and cyclist demand of a child care centre is likely to be low and so the provision of additional paths is not considered to be warranted by the proposed development.

8. Safety and Site Specific Issues

8.1. Safety Issues

8.1.1. Crash History

The crash history of the adjacent road network was obtained from the MRWA Reporting Centre.

Only two crashes have been recorded along Beach Road with 200m of the site over the five-year period from January 2017 to December 2021 and is shown in **Figure 11**.

Figure 11: Crash History January 2017 to December 2021

As shown, no crashes have been recorded in close proximity of the proposed site.

The proposed development itself will only generate a low to moderate volume of additional traffic and there is no indication that the development would increase the risk of crashes unacceptably.

9. Conclusion

A Transport Impact Statement for the proposed child care centre 88 Beach Road in Bunbury concluded the following:

- The development is estimated to generate approximately 47 vehicle trips during the morning peak period and 54 vehicle trips during the afternoon peak period. This volume of traffic is considered to be low to moderate and can be accommodated within the existing capacity of the road network.
- The available sight distance from the proposed vehicle crossover exit on Beach Road meets the minimum and desirable AS2890.1 requirements.
- Based on the proposed 67 children and 11 staff, the minimum parking requirement according to the City's Local Planning Scheme is 18 bays. The development plans indicate that 18 car parking bays will be provided which satisfies the minimum requirements.
- The parking layout is mostly compliant with AS2890.1 except as follows:
    - The pick-up / drop-off bays are 100mm narrower than the 2.6m standard for short-term, high-turnover parking. In this instance, the adjacent parking aisle is 200mm wider than the minimum requirement which would partially compensate for the shortfall in bay width. A review of many existing child care centres in the City of Bunbury indicates that a 2.5m bay width has been accepted in most cases. However, it is recommended to increase the bay widths to 2.6m if possible.
    - One of the staff parallel parking bays is 400mm short of the standard requirement. However, a swept path analysis has been undertaken which demonstrates that this bay will work.
    - The parking aisle adjacent to the proposed ACROD bay is narrower than the 5.8m requirement. However, a swept path analysis also shows that this bay will work in a satisfactory manner.
- There is an existing path along both sides of Beach Road and Karri Street. The pedestrian and cyclist demand of a child care centre is likely to be low and so the provision of additional paths is not considered to be warranted by the proposed development.
- The existing available public transport services will be adequate to meet the expected demand of the development.
- The crash history of the adjacent road network does not indicate any major safety issue. The traffic generated by the development itself will be moderate and is unlikely to increase the risk of crashes unacceptably.

Appendix A – Swept Path Analysis

Figure 12: Parallel Bay - Staff Parking Swept Paths

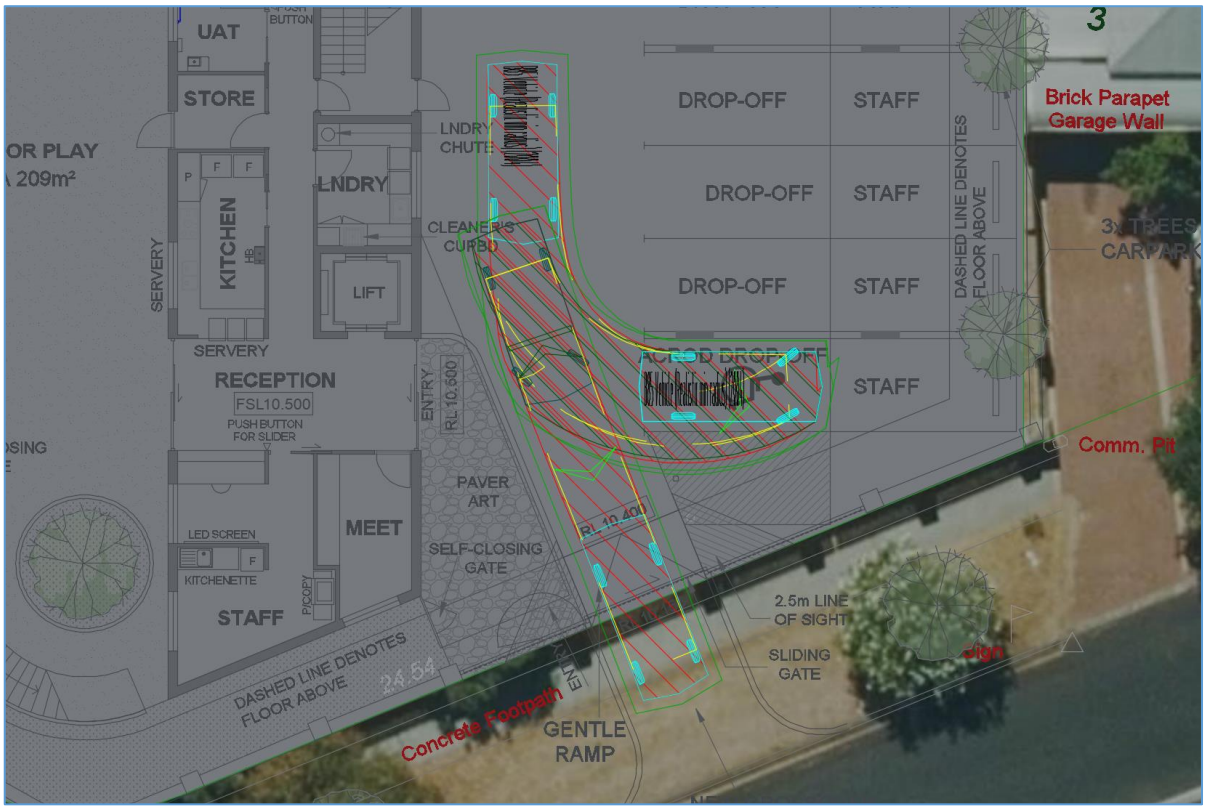


Figure 13: ACROD Parking Bay Swept Paths