

7 May 2021

P2078 LL Thornton Childcare Centre

Landlink
28-30 Bolton Street
Newcastle 2300

Attn: Alicia Compton

Dear Alicia,

Proposed Childcare Centre, Thorncliffe Avenue, Thornton, NSW. Thorncliffe Ave on lot 612 and 611

We have now completed our site work and review of the documentation provided for the proposed childcare centre on lots 612 and 611 Thorncliffe Avenue, Thornton and provide the following assessment of parking demands, traffic generation and access arrangements for the development. This assessment has been completed with regard to the relevant requirements outlined in the Maitland Development Control Plan (2011) (MDCP), with reference to the Guide to Traffic Generating Developments (GtTGD) and Australian Standard AS2890.1: Off-street Car Parking Facilities.

Background

The subject site is located on Lots 611 and 612 on a western extension of Thorncliffe Avenue at Thornton as shown below in Figure 1.

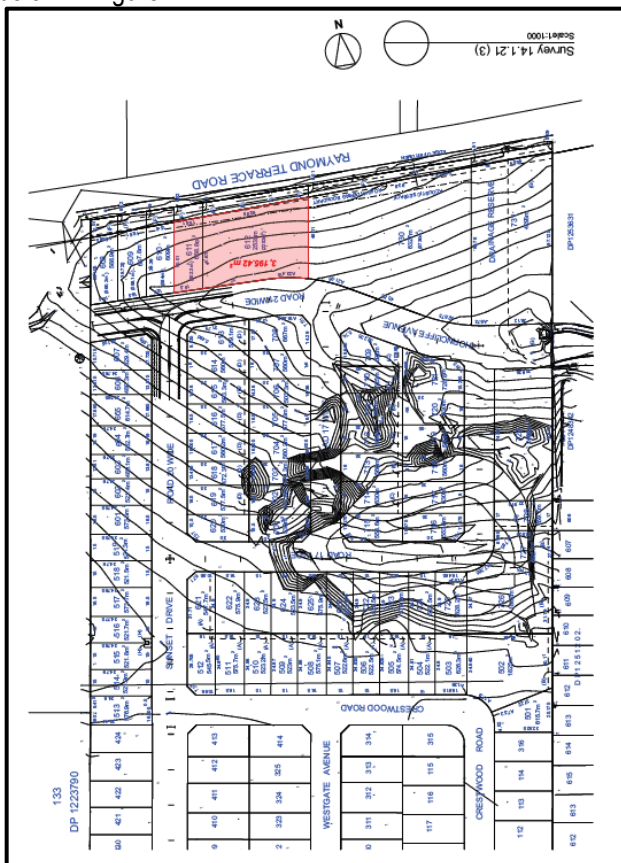




Figure 1 – Subject site in the context of the local road network

The subject site consists of three lots which are currently vacant. The surrounding land to the east and south is low density residential development.

The site has frontages to the new road/Thorncliffe Avenue as well as Raymond Terrace Road however all access will be provided off Thorncliffe Avenue only.

Road Hierarchy

Raymond Terrace Road is the major road passing through the locality. It forms part of the state road network (MR104) and provides the primary link between Raymond Terrace to the east and East Maitland to the west. In the vicinity of the site it currently operates under the posted speed limit of 80km/hr and generally provides a single lane of travel in each direction with sealed shoulders that caters for vehicle breakdowns. At the intersection with Government Road there is a cyclist lane marking on the southern side of the road however no other cycling facilities are provided at this location. There is no kerb and guttering in the vicinity of the site, reflective of its current rural nature. Widening at key intersections provide additional capacity however there are no turn lanes provided at the intersection with Government Road. Street lighting is provided at this intersection, however there are no pedestrian footpaths.

Government Road is a local road which connects with Raymond Terrace Road via a T-intersection which allows for all turning movements. It operates as a collector road through the various housing estates that have been developed along its length and allows for one lane of travel in each direction, with a sealed pavement width that varies between 9-10.5 metres along the majority of its length with widening on the approach to various roundabouts that have been installed to provide for the efficient connection to the surrounding urban development associated

with Thornton North. There is minimal kerb and guttering provided along Government Road and generally only footpaths where roundabouts have been developed. In the vicinity of Thorncliffe Drive there is a shared path which ends just to the north of the intersection whilst to the south the shoulders are marked as cycling lanes. Government Road has a posted speed limit of 50km/hr.

Thorncliffe Avenue is a local road which connects with Government Road via a single lane circulating roundabout. It operates as a trunk collector or spine road through the housing estate and allows for one lane of travel in each direction, with a sealed pavement width in the order of 10.8 metres. Parking is permitted along its length. Kerb and guttering is provided along both sides of Thorncliffe Avenue with a 2.5m wide shared path on the northern side. There is no posted speed limit at the entry to the estate however the urban speed limit of 50km/hr is considered appropriate.

Sunset Drive is a local street providing a pavement with a width in the order of 11 metres allowing for two-way traffic movements. It provides access to residential dwellings with kerb and guttering and a footpath on the western side. Street lighting is provided. Sunset Drive will be extended to form a connection with Thorncliffe Avenue to the north.

The surrounding local roads provide access to further residential development in the area.

Current Road Network Operation

Seca Solution has undertaken morning and afternoon traffic surveys at the intersection of Thorncliffe Avenue and Government Road on Tuesday 30th March 2021 7.00-9.30AM and 3.00-6.00PM. Based on the traffic surveys completed, the peak periods for vehicle movements were determined as 8am-9am and 4:30pm-5:30pm, with the corresponding turning movements at the intersection of Government Road and Thorncliffe Avenue shown in Figure 3 and 3.

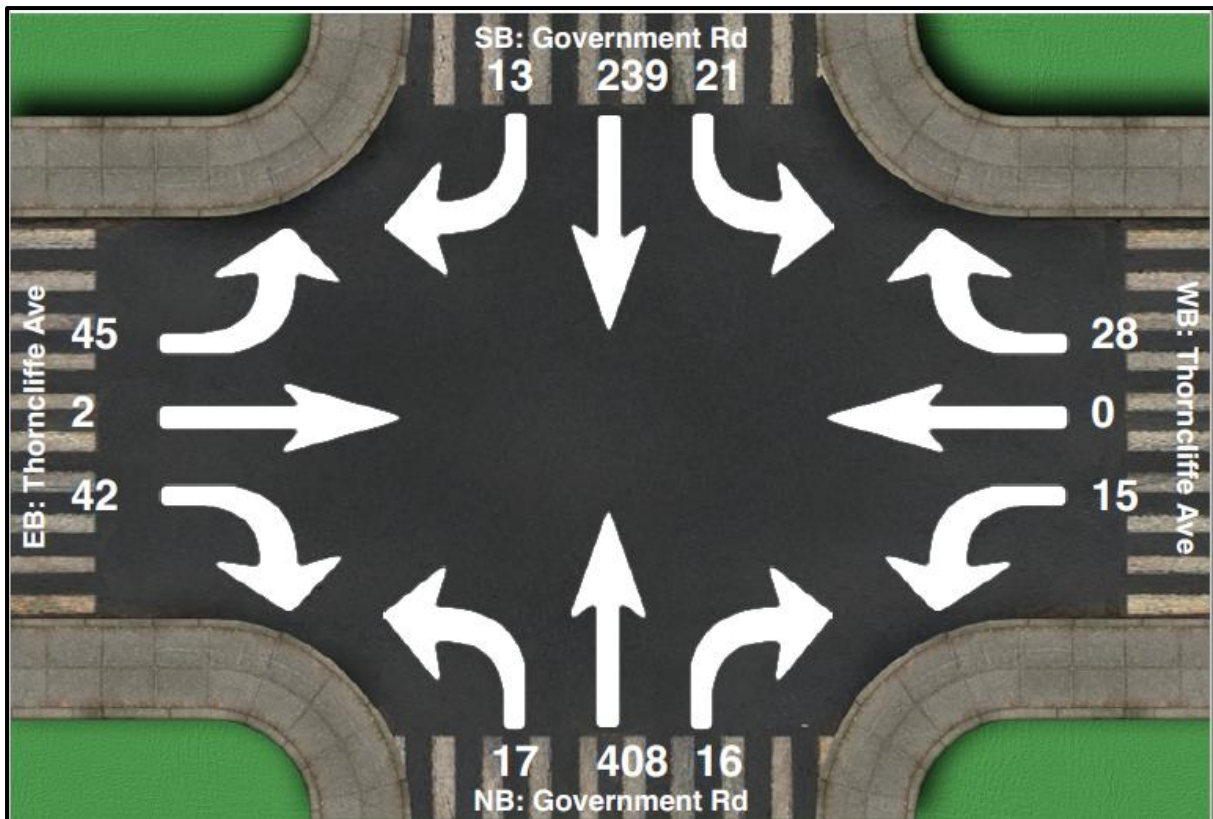


Figure 2 – Existing traffic flows at the intersection of Government Road and Thorncliffe Avenue during AM peak hour

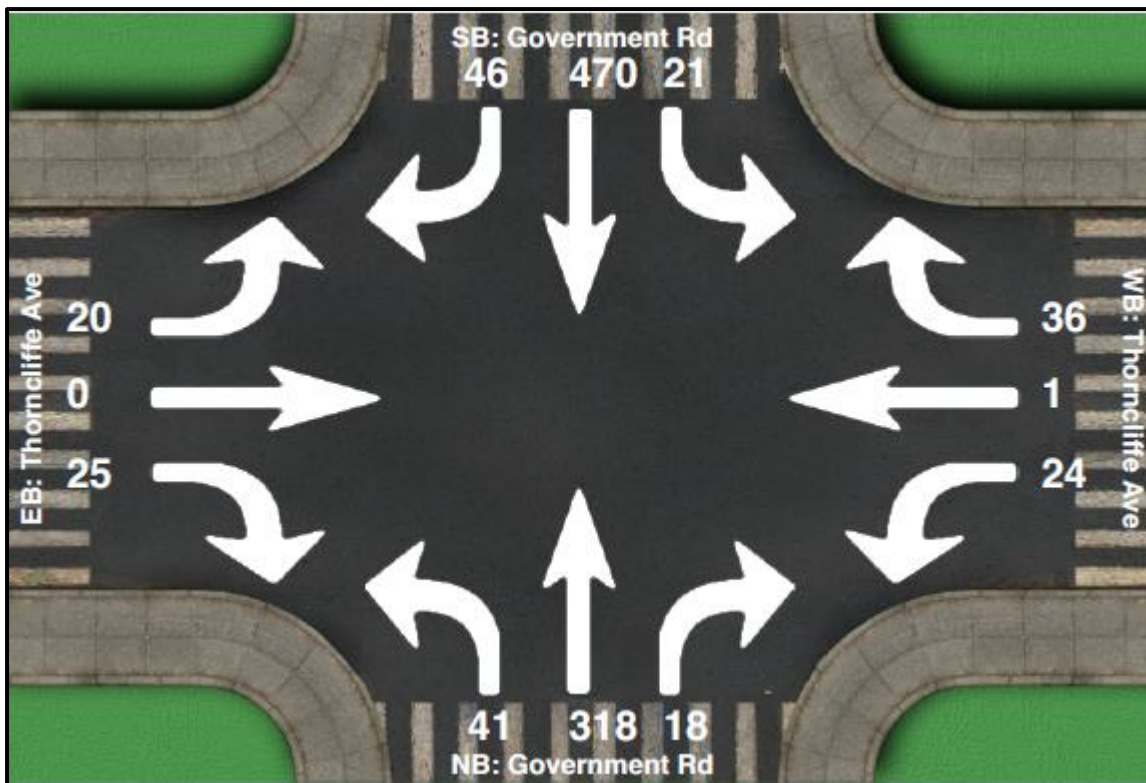


Figure 3 – Existing traffic flows at the intersection of Government Road and Thorncliffe Avenue during PM peak hour

The two-way flows along Thorncliffe Avenue west of Government Road are 119 vehicles in the AM (89 eastbound) and 133 vehicles in the PM (88 westbound). Thorncliffe Avenue, as a trunk collector road operates with a capacity of 900 vehicles per hour (vph) whilst Sunset Drive would operate with an environmental capacity 500 vph maximum, 300 vph desirable. Whilst traffic flows were not recorded on Sunset Drive observations on site indicate they are minimal, primarily associated with construction workers accessing the subdivision land. It can be seen that both roads operate within their operational capacity.

Traffic flows along Government Road and Raymond Terrace Road are much higher, and as part of the development of Thornton North there has been extensive network traffic modelling completed which has identified appropriate road upgrades to maintain capacity along these important road links.

Observations at the intersections of Thorncliffe Avenue/Government Road indicates that this intersection operates very well with minimal delays and adequate spare capacity.

Car Parking

On-street carparking is available along the local roads in the vicinity of the site with typical restrictions associated with driveways and intersections. It is anticipated that this will be the same on the new roads.

The demands for this parking appear low with most sites providing parking within individual lots.

Other Developments

Ongoing development to the west and south will see the release of further residential lots. Modelling has been undertaken as part of the approvals for these land releases with ongoing upgrades to roads provided for in S7.11 contributions. This includes the subject site.

Proposed Development

The proposed development is for the construction of a childcare centre with the capacity to provide care for up to 132 children. The centre will operate as a long day care centre, providing a wide spread of drop off and pick up times for parents and carers. The plans for the development show provision for 23 parking spaces on site, along with 11 parallel parking spaces on street along the site frontage.

A concept plan for the proposed childcare centre is included in **Attachment B**.

Access

The driveways will provide for separate entry and exit with a central island separating these movements. These driveways meet the required width of 3 metres for separated driveways under AS2890.1, for a car park with less than 25 spaces accessed off a local road. The carpark circulation will allow for two-way movement.

As the roads are not yet constructed sight lines cannot be confirmed however it is anticipated that suitable sight lines can be achieved along the frontage road. Sight distance requirements for an access driveway are prescribed by Australian Standard AS2890.1:2004 Parking Facilities (Off-street Car Parking), which requires a minimum sight distance of 45 metres for the posted speed limit of 50 km/hr, with a desirable sight distance of 69 metres. Allowing for the width of the site to the right of the driveway this minimum distance can be achieved and potentially the desirable distance. It is noted that the plans show traffic calming and provide possible priority for traffic on Sunset Drive. The bend in this location will further assist with the sight lines given that vehicles would be travelling at less than 50km/hr to negotiate this bend. Sight lines to the left (east) of the site appear to be available along Thorncliffe Avenue which currently provides a straight and level alignment. This should enable appropriate visibility for vehicles exiting the site or approaching along these roads.

It is anticipated that this length of road shall see the extension of the existing pedestrian pathway and so the centre will be able to connect with this from its internal path. This will also provide for parents/carers taking children in and out of cars parked along the street frontage. There is also an entry from the car park, utilising the shared space.

Parking

A total of 23 parking spaces are to be provided within the proposed carpark on site, one of which is accessible. 10-11 spaces are being accommodated on street along the site frontage.

MDCP specifies a carparking requirement for a childcare centre of 1 car space for every four children in attendance. Allowing for illness and holidays it is assumed that 95% of children could be in attendance. This however makes no allowance for siblings travelling together which is particularly likely given the broad spread of ages allowed for in centres such as this. Assuming that 95% of children are in attendance at any one time the parking requirement would be 32 parking spaces.

The parking as proposed would provide for this.

These rates are similar to the historic RTA rates which were developed in 1992 and make no allowance for the type of childcare facility nor its operating hours. The longer hours of operation for the centre, compared to a traditional day care or preschool, allows for children to be dropped off or picked up over an extended period, reducing the peak parking requirements. This is consistent with observations of similar childcare developments completed by Seca Solution. Updated traffic surveys undertaken on behalf of the RMS (now TfNSW) in 2015 found that parking demands were also impacted by centre size with larger centres seeing lower overall parking demands. Based on this more recent data a centre with 132 places would see peak parking demands of 1 space per 6 enrolments. This would equate to a peak parking demand for the proposed development of 22 spaces.

The provision of 23 parking spaces on site, is therefore suitable to meet the parking demands for the proposed development with the on street parking providing for periods of absolute peak demand or to provide for those parents who prefer to walk into the childcare centre rather than make use of the off-street parking provided.

The provision of two stacked parking spaces is appropriate for use by staff as these can be managed within the centre.

The MDCP nominates parking for a childcare centre to be designed to meet the following:

Parking area dimensions and parking layout shall comply with Australian standard 2890.1 – 2004 User Class 3 (being 2.6 metres wide). A minimum aisle width of 6.5m shall be provided.

This can be achieved with the design of the parking area for the subject site.

Servicing

Servicing for the site will be minimal with the main requirements being associated with waste collection.

This will occur within the site outside of the centre's opening hours to enable the garbage truck to enter and exit the site in a forward direction, using the carpark as required to manoeuvre within the site.

Deliveries to the site will otherwise be during the day, outside of peak pick up and drop off times with such deliveries typically in a van size vehicle which can park within the site carpark.

Traffic Analysis

Traffic Generation

The Guide to Traffic Generating Developments specifies the following traffic generation rates for a long day care centre:

- Morning commuter peak hour trips - 0.8 trips per child in attendance.
- Evening commuter peak hour trips - 0.7 trips per child in attendance.
- No daily rates specified.

Allowing for the maximum capacity of 132 children attending the centre each day, the proposal could generate up to:

- 106 trips during the morning peak period
- 93 trips during the evening peak period.

The above rates do not include discounts for absenteeism nor for shared trips for siblings enrolled in the centre. Allowing up to 10% for absenteeism and shared trips with siblings, the proposed development could generate:

- 96 vehicle trips in the morning peak hour and
- 84 vehicle trips during the afternoon peak hour.

Daily trips would be based on 4 trips per day per child in attendance to allow for drop off and pick up and 2 trips per staff (upto 20 staff). Total daily trips for the childcare centre would be 516 (258 inbound 258 outbound).

Whilst the centre is likely to appeal to local residents within the subdivision, a large percentage of the traffic generated by the proposal is expected to be diverted trips being passing traffic associated with parents and carers who live in the surrounding area dropping off their children as part of their commute or local workers travelling along Raymond Terrace Road to work. These vehicles would already be travelling in the locality of the site as part of their journey to work etc and would therefore have a negligible impact upon the broader road network.

Given this, the extent of *additional* traffic movements generated by the development would be much lower than allowed for above.

To provide a robust assessment the majority of traffic associated with 90% attendance will be assessed as development traffic.

Traffic Distribution

Traffic is expected to be either travelling:

1. Within the immediate residential area
2. Heading north or south along Government Road
3. Travelling east or west along Raymond Terrace Road

All traffic shall have an origin/destination of Government Road split equally to the north and south with traffic then approaching/leaving the centre along Thorncliffe Avenue.

The main intersection impacted by the flows will be the intersection of Government Road and Thorncliffe Avenue.

Table 1 - Distribution of traffic in AM and PM

Origin / Destination	AM		PM	
	INBOUND	OUTBOUND	INBOUND	OUTBOUND
To / From the north	24	24	21	21
To / From the south	24	24	21	21
Total	48	48	42	42

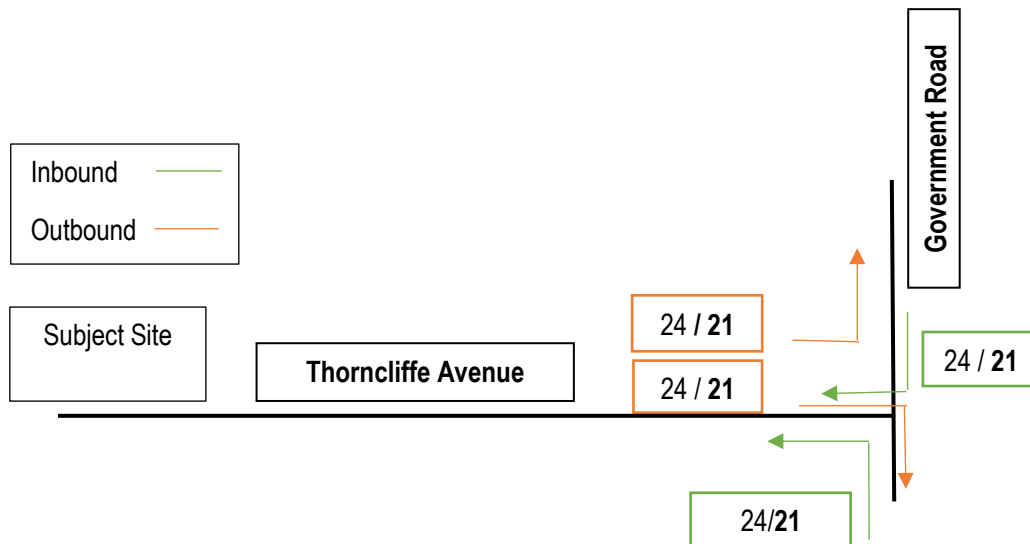


Figure 3 – Distribution of development traffic including diverted trip (AM/PM)

Impact on Daily Traffic Flows

The development could result in an increase in peak hour flows along Thorncliffe Avenue with some additional traffic potentially on Sunset Drive. Traffic flows on Thorncliffe Avenue could increase by an additional 96 trips two way in the AM and 84 trips two way in the PM. Thorncliffe Avenue is currently well within its capacity as an urban road with the development increasing flows to 215 vehicle movements (137 eastbound/ 78 southbound) in the morning peak and 217 in the afternoon peak (87 eastbound/130 westbound).

On Government Road, the majority of these motorists are expected to already be travelling along this route however if these trips were additional then flows on Government Road would increase by 48 trips two way to either the north or south of the Thorncliffe Avenue roundabout in the morning and 42 two way in the afternoon. Thus flows north of the roundabout would increase to 802vph (505 northbound/ 297 southbound) in the morning and 953 vph two way (395 northbound/558 southbound). Government Road would therefore continue to operate at Level of Service C being less than 600 vph per direction.

Peak Hour Impact on Intersections

Given that many of the development trips are expected to be diverted from Government Road the development will result in only a relatively small increase in vehicle movements at the intersection of Government Road and Thorncliffe Avenue. This roundabout intersection has been developed to accommodate the demands of the surrounding estates and has adequate spare capacity to accommodate the additional trips diverted from Government Road.

Observations on site completed by Seca Solution as part of this project work show that this intersection currently works well with acceptable delays and congestion. It is considered that the traffic movements associated with the subject site shall have a minor impact upon the operation of this intersection.

Sidra modelling of this intersection has been undertaken and the results are provided below.

Table 2 – Sidra modelling, existing 2021 situation Government Road and Thorncliffe Avenue

Approach	Level of service	Delay (seconds)	Queue (metres)
Government Road south	A / A	4.6 / 4.9	15.1 / 13.3
Darlaston Avenue	A / A	8.3 / 9.8	1.5 / 2.9
Government Road north	A / A	4.7 / 4.9	9.1 / 19.7
Thorncliffe Avenue	A / A	8.7 / 8.4	3.8 / 1.8

Note: AM / APM peak results

The above results confirm the roundabout currently works very well with minor delays / queues. The intersection was then modelled allowing for the additional traffic associated with the subject site and the results are presented below.

Table 3 – Sidra modelling, existing 2021 situation Government Road and Thorncliffe Avenue plus development traffic demands

Approach	Level of service	Delay (seconds)	Queue (metres)
Government Road south	A / A	4.8 / 5.0	16.6 / 14.7
Darlaston Avenue	A / A	8.6 / 10.1	1.6 / 3.1
Government Road north	A / A	5.2 / 5.2	10.6 / 22.5
Thorncliffe Avenue	A / A	8.9 / 8.4	6.2 / 3.6

Note: AM / APM peak results

The above results demonstrate that the additional traffic associated with the development shall have a minor and acceptable impact upon the operation of this roundabout.

The roundabout was then assessed for the future 2031 design year, allowing for 3% background growth along Government Road and 2% on all traffic movements. The results of this assessment are provided below.

Table 4 - Sidra modelling, future 2031 situation Government Road and Thorncliffe Avenue plus development traffic demands

Approach	Level of service	Delay (seconds)	Queue (metres)
Government Road south	A / A	4.9 / 5.3	24.8 / 21.5
Darlaston Avenue	A / A	9.2 / 11.8	2.2 / 4.9
Government Road north	A / A	5.3 / 5.3	15.1 / 35.2
Thorncliffe Avenue	A / A	10.0 / 9.1	9.1 / 5.0

Note: AM / APM peak results

The above results demonstrate that the additional traffic associated with the development shall have a minor and acceptable impact upon the operation of this roundabout to the future design year of 2031 and beyond.

Conclusion

Overall, the proposed childcare centre will have a minimal and acceptable impact upon traffic and parking in the local area with no impediment to approval.

The Maitland DCP indicates that 32 parking spaces are desirable which can be provided with 23 on site parking spaces and 10-11 spaces on street along the site frontage. It is noted that this type of childcare centre (long day care) typically sees parking demands spread over a wider time period, thereby lowering the peak parking demand on site at any one time. Applying the updated parking surveys undertaken by TfNSW in 2015 for a centre of this size sees a parking rate of 1 space per 6 children with a parking demand for 22 spaces. The provision of 23 car spaces on site will meet this requirement with the kerb side parking for those who may prefer not to use the carpark.

The proposed access and circulation through the car park can be provided in a manner consistent with the requirements of AS2890 with a 3m wide entry and a 3m wide exit separated by a concrete island.

Traffic demands will consist of mostly diverted traffic from the surrounding areas, primarily using Government Road with some trips diverted from Raymond Terrace Road. The roundabout intersection of Government Road and Thorncliffe Avenue has been designed to accommodate the demands associated with the residential subdivisions with adequate capacity to provide for these diverted trips. This has been confirmed by Sidra modelling. Thorncliffe Avenue in turn has adequate capacity for these additional two way trips whilst Sunset Drive also can accommodate additional demands from trips throughout the subdivision.

Please feel free to contact our office on 4032 7979 should you require any additional information.

Yours sincerely



Sean Morgan

Director

Attachment A – Site Photos



Photo 1 – Looking east along Thorncliffe Avenue towards intersection with Government Road



Photo 2 – Roundabout intersection of Thorncliffe Avenue and Government Road



Photo 3 –View west along Thornclyffe Avenue showing typical cross section

Attachment B: Concept Plan

