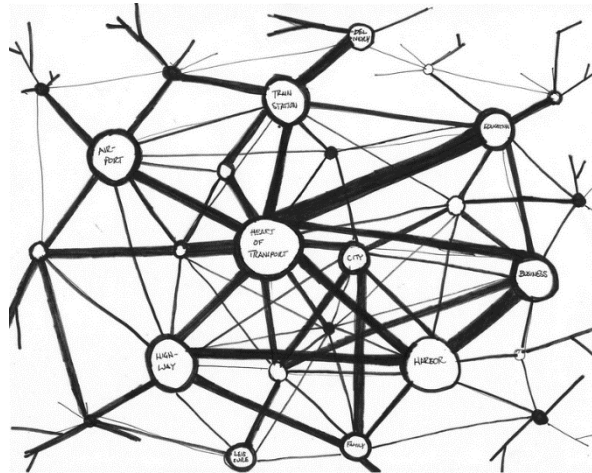


# TRAFFIC AND PARKING IMPACT STATEMENT

## 2 & 6 CHALKER STREET THIRLMERE (PROPOSED CHILD CARE CENTRE)



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## 1. **INTRODUCTION**

The Practice of TSA has been commissioned by TM & NH & BH VO to prepare a traffic and parking impact assessment accompanying a Development Application (DA) to be lodged with Wollondilly Shire Council. The subject DA involves the construction of a child care centre capable of accommodating up to 48 children, on land located at 2 & 6 Chalker Street, Thirlmere ('subject site').

The purpose of this report is to assess the likely traffic and parking implications associated with the proposal, and where necessary, recommend appropriate treatment measures to ameliorate any adverse impacts. In particular this study will assess the following:

- The appropriateness of the proposed access arrangements based on the existing traffic conditions in the immediate vicinity of the proposed access point and the likely traffic demand;
- The adequacy of the proposed parking supply with respect to Council's parking standards contained in Wollondilly Development Control Plan 2016;
- Proposed internal parking design to ensure that vehicular accessibility to the parking spaces is adequate, with consideration given to vehicle and pedestrian safety associated with the child set down area; and
- Existing traffic conditions within the local road hierarchy and identify the potential external traffic impact from the proposed development with regard to the additional traffic generated from the proposed child care centre.

Reference has been made to the following documents in this report:

- The Roads & Maritime Services' *Guide to Traffic Generating Developments*;
- Wollondilly Shire Council's *Wollondilly Development Control Plan 2016*; and
- Australian Standard for *Parking Facilities Part 1: Off Street Car Parking* (AS2890.1-2004) and *Part 6: Off-Street Parking for People with Disabilities* (AS2890.6-2009).

This report should be read in conjunction with architectural plans prepared by Algorry Zappia Associates.

## **2. SITE DETAILS**

### **2.1 Site Location**

The subject site is located on the south-western corner of Station Master Avenue/Chalker Street, Thirlmere. This location is shown in the context of the surrounding road network and land use in **Figures 1 and 2** overleaf.

### **2.2 Site Description**

The site provides a legal property description of Lots 1 and 2 in DP 1230557 and a street address of 2 & 6 Chalker Street, Thirlmere. Collectively, the two (2) allotments form a rectangular shaped parcel of land, providing frontages to Rita Street and Chalker Street of approximately 30m and 42m respectively. The total site area is approximately 1,250.5m<sup>2</sup>.

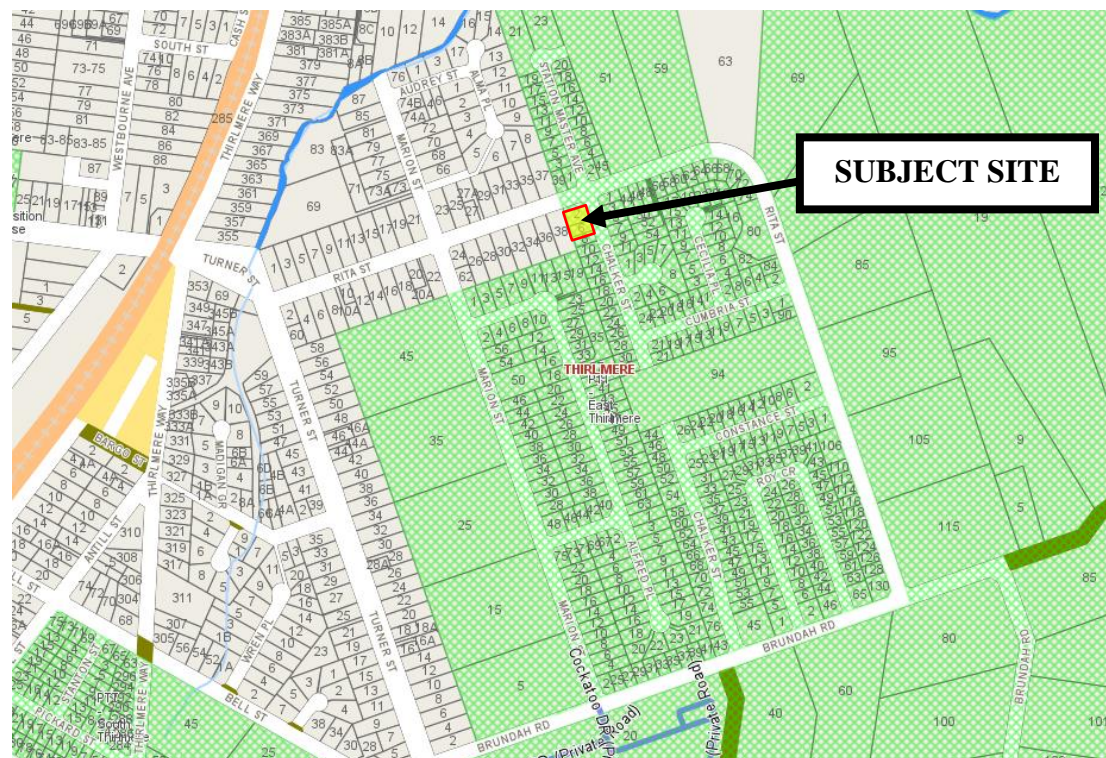
### **2.3 Existing Uses**

The subject site is currently vacant.

### **2.4 Surrounding Uses**

The subject site is surrounded by a mix of rural residential dwellings and large parcels of undeveloped land, earmarked for future development as part of the Thirlmere East Urban Release Area specified within *Wollondilly Development Control Plan 2016*.

**FIGURE 1**  
**SITE LOCATION – ROAD NETWORK CONTEXT**



Source: Wollondilly Shire Council GIS Mapping (Accessed 6/06/19)

**FIGURE 2**  
**SITE LOCATION – LOCAL LAND USE CONTEXT**



Source: Google Maps (Accessed 6/06/19)



### 3. **PROPOSED DEVELOPMENT**

#### 3.1 **Proposed Child Care Centre**

The proposal seeks consent for the establishment of a child care centre comprising separate playrooms for children of different age brackets, an outdoor play area, a kitchen, a reception area, a staff room and other ancillary facilities, designed to accommodate up to 48 children.

The abovementioned development is proposed to be serviced by an at-grade passenger vehicle car park occupying the northern part of the site, which is proposed to contain 13 spaces. A new vehicular crossing, located at the north-western corner of the site, is proposed to be constructed to facilitate vehicular access to the on-site parking and manoeuvring area via Rita Street.

#### 3.2 **Proposed Operations**

The child care centre is to be designed to cater up to 48 children, consisting of the following age groups:

- 0-2 years - 12 children
- 2-3 years - 15 children
- 3-5 years - 21 children

Under The Australian Children's Education & Care Quality Authority (ACECQA) framework, the proposed child care centre will require the following minimum staffing requirements as outlined in **Table 1**.

<b>TABLE 1 - ACECQA GUIDELINES</b>		
<b>CHILDREN AGE (YEARS)</b>	<b>REQUIREMENTS</b>	<b>REQUIRED NO. OF EMPLOYEES</b>
0-2	1 employee per 4 children	<b>3</b> (12/4)
2-3	1 employee per 5 children	<b>3</b> (15/5)
3-5	1 employee per 10 children	<b>2.1</b> (21/10)
	<b>Total</b>	<b>8.1 ≈ 9</b>

The proposed child care centre therefore requires a minimum of 9 staff to meet the supervision requirements of ACECQA.

The child care centre is expected to operate between the hours of 7am and 6pm Monday to Friday reflective of long day care hours.

### 3.3 Off-Street Parking

The subject proposal involves the provision of 13 off-street passenger vehicle parking spaces. Wollondilly Shire Council provides locally sensitive parking requirements for new developments, located on land under the jurisdiction of the local government within Development Control Plan 2016 (DCP 2016). Volume 5 of DCP 2016 establishes the following parking requirements, specifically relating to child care centres:

*1 space for every 4 children in attendance*

Based on a future enrolment of up to 48 children, the proposed child care centre is required to provide a total of 12 parking spaces in accordance with the above rate. The proposed parking provision of 13 car spaces, inclusive of a disabled parking space is compliant with Council's minimum DCP parking requirement.

### 3.4 Vehicular Access Arrangements

Access is proposed from Rita Street via a new combined ingress/egress driveway, which provides a 6.0m width at the northern property boundary. This driveway will provide connectivity between the at-grade parking area containing 13 spaces and the adjoining public roadway.

In order to undertake an assessment of the suitability of the proposed access driveway arrangements, reference is made to AS2890.1-2004. This Australian Standard provides driveway design specifications based on a number of site and access roadway characteristics such as the operational land-use, the number of parking spaces serviced by the driveway and the functional order of the frontage road. The site and adjoining public roadways have the following characteristics, which are pertinent in the determination of the appropriate driveway design specified within AS2890.1-2004:

- The driveway services an off-street car park containing 13 passenger vehicle parking spaces;
- The proposed parking provision is expected to accommodate a combination of employee (User Class 1A) and short-term visitor (User Class 3) parking; and
- Rita Street is considered to perform a local (non-arterial) road function.

Based on the above attributes, AS2890.1-2004 specifies, at minimum, a Category 1 type driveway to service the site, which requires the driveway to provide a combined ingress/egress width of between 3 - 5.5m. The width of the proposed access driveway specified above, readily comply with the minimum AS2890.1-2004 requirements and accordingly is considered to be fit to service passenger vehicles.

The vertical and horizontal alignment of the frontage road in the immediate vicinity of the subject site results in good sight distance conditions between approaching vehicles within frontage road and the site access driveway, suitably according with relevant AS2890.1-2004 requirements. In consideration of this and the above discussion, the proposed site access arrangements are considered to be satisfactory.

### 3.5 Internal Manoeuvrability and Circulation

Upon entering the site from the access driveway, passenger vehicles can proceed in a forward direction to access the parking spaces within the at-grade parking area. The at-grade parking area generally forms three rows of 90 degree angled parking spaces, separated by internal circulating aisles.

The internal circulation of the parking areas have been designed to accord with the relevant requirements of AS2890.1-2004 and AS2890.6-2009, providing the following base dimensions:

- Employee (User Class 1A) parking space width = 2.4m;
- Visitor (User Class 3) parking space width = 2.6m;
- Disabled parking space width = 2.4m (plus an adjoining 2.4m wide shared area);
- Additional space width where parking spaces adjoins an obstruction = 0.3m;
- Parking aisle width adjoining 90 degree parking spaces = 6.0m;
- Two-way straight roadway width = 6.0m; and
- Parking aisle extension past the end space of a dead end aisle = 1.0m.

The above compliance with the relevant AS2890.1-2004 and AS2890.6-2009 specifications is anticipated to result in safe and efficient internal manoeuvring and parking space accessibility.

In order to further assess the suitability of internal manoeuvring arrangements, a desktop analysis of the site plans with respect to B85 vehicle specifications provided within AS2890.1-2004 has also been undertaken throughout the site plans. Whilst section B4.4 of AS2890.1-2004 states that *'constant radius swept turning paths, based on the design vehicle's minimum turning circle are not suitable for determining the aisle width needed for manoeuvring into and out of parking spaces... drivers can manoeuvre vehicles within smaller spaces than swept turning paths would suggest'* this analysis has indicated that passenger vehicles can access and exit parking spaces and manoeuvre throughout the site with a reasonable level of efficiency.

The traffic demand in the internal parking area is anticipated to be low given the number of allocated parking spaces and accordingly, the likelihood of conflict between pedestrians and small children with vehicles in this area is envisaged to be low. Also since the parking area is contiguous with the child care building it is expected that children will not dwell in this area for any prolonged period of time. The constant supervision of parents / guardians and staff will ensure that there is sufficient awareness concerning the safety of children in this space.



## **4. EXISTING TRANSPORT CONDITIONS**

### **4.1 Road Network**

The following provides a description of the surrounding road network in the vicinity of the development site.

**Rita Street** performs a local collector function under the care and control of Wollondilly Shire Council. It provides connectivity between Brundah Road in the southeast and Turner Street in the northwest. Rita Street intersects with Stone Master Avenue and Chalker Street adjacent to the site, under 'Give Way' signage control with Rita Street forming the priority route.

Rita Street provides a 13m wide pavement within a 22m wide road reserve. It accommodates one through lane of traffic in each direction in conjunction with parallel parking along both kerb alignments.

Recent inspections have identified a speed limit sign post located to the immediate west of Stone Master Avenue and Chalker Street, which showed a speed limit restriction of 50km/h facing westbound traffic and a speed limit restriction of 80km/h facing eastbound traffic (see **Figure 3** overleaf). It is noted that the speed limit is determined based on a number of factors such as road use, road function, road geometry (with respect to sign distance), accident history, amenity to surrounding land uses etc. It is further noted that Roads and Maritime Services (RMS) specify the following default speed limits in NSW:

- **40kph** is the limit in high pedestrian activity areas, local traffic areas, school zones at prescribed times, when passing a school bus with orange lights flashing and school bus blackspot areas. As of September 1, 2018, it's also the speed limit past stationary emergency vehicles with their emergency lights activated.
- **50kph** is the default urban speed limit in built-up areas (i.e. where there are buildings next to the road or where there is street lighting).
- **60kph** is the limit on significant urban undivided arterial roads (with direct driveway accesses), divided roads with high volume where the lanes are narrow (less than 3.0 metres), and rural residential roads in villages with minimal development.
- **80kph** is the limit on urban high standard divided roads (generally without driveway access), undivided arterial and sub-arterial roads on the fringes of urban areas and lower quality rural roads, undivided rural roads with less than 5.6 metres wide sealed pavement or no marked dividing line.
- **100kph** is the default rural speed limit and default speed limit for non-built-up areas – urban motorways (freeways/tollways), rural undivided road with sealed pavement wider than 5.6 metres, rural divided roads.

- *110kph is the maximum allowable speed limit in NSW. Motorways (freeways/tollways) in non-built-up areas, high-quality rural divided roads, undivided rural road with low traffic volume west of the Newell Highway.*

It has been previously mentioned that Rita Street services local traffic primarily associated with abutting residential land uses (both existing and future). Based on these characteristics, it is noted that a 50km/h speed limit is appropriate for the road to minimise impacts to the surrounding residential amenity. Further, a reduced speed limit of 50km/h is also appropriate for road users associated with the proposed child care centre. It is therefore advised that the existing 80km/h speed limit sign be removed.

**FIGURE 3**  
**EXISTING SIGNPOSTING WITHIN RITA STREET**  
**(ADJACENT TO SUBJECT SITE)**  
**FACING EASTBOUND TRAFFIC**



**Chalker Street** performs a local access function under the care and control of Wollondilly Shire Council. It has a north/south alignment comprising two disconnected sections, as shown in **Figure 1**. The northern section currently provides connectivity between Rita Street in the north and Cumbria Street in the south. The southern section currently links Constance Street in the north and Brundah Road in the south. Based on Section 3.2 of DCP 2016, the northern and southern sections of Chalker Street are to be connected to provide a continuous link between Rita Street in the north and Brundah Road in the south.

Chalker Street provides an 11m wide carriageway, accommodating two-way traffic flow in conjunction with parallel parking along both kerb alignments. A footpath is provided along the western side of the road.

**Stone Master Avenue** also performs a local access function under the care and control of Wollondilly Shire Council. It intersects with Rita Street/Chalker Street at its southern extremity. It is a no through road.

Stone Master Avenue provides a 7m wide pavement, providing one through lane of traffic in each direction between formal kerb and gutter along both sides of the road. A footpath is provided along the eastern side of the road.

#### **4.2 Existing Traffic Volumes**

In order to obtain an indication of the existing traffic conditions in the vicinity of the site, reference is made to morning and evening peak hour traffic surveys undertaken by staff of this Practice at the following intersections:

- Turner Street and Rita Street;
- Rita Street and Marion Street; and
- Rita Street and Chalker Street/ Stone Master Avenue

Traffic surveys were undertaken at this junction between 7.00am – 8.00am and 4.30pm – 5.30pm on the 5 June 2019. It is noted that these survey times were undertaken to reflect the traffic conditions within the adjoining road network corresponding to the likely starting and finishing times of the proposed child care centre.

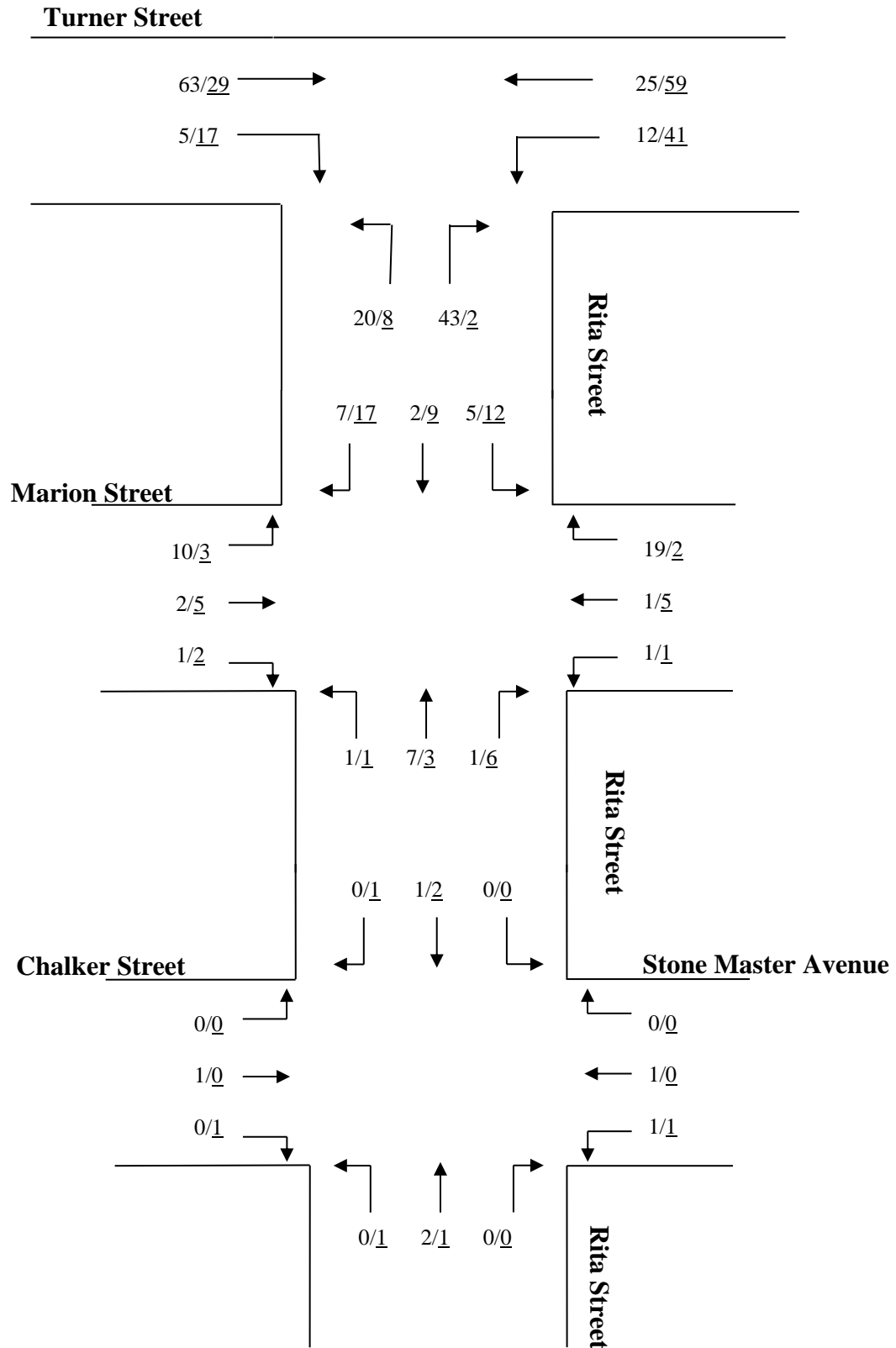
There are net gains and losses between intersections associated with private development access locations, parking / unparking manoeuvres as well as slightly differing periods of peak hourly traffic flows at the respective intersections.

**Figure 4** overleaf provides a graphical representation of the surveyed peak hour traffic volumes.

**FIGURE 4**  
**EXISTING PEAK HOUR TRAFFIC VOLUMES**  
**(7:00AM – 8:00AM AND 4:30PM – 5:50PM)**

N →

**Legend: AM/PM**



**Figure 4** indicates the following:

- Turner Street accommodates two directional traffic volumes in the order of 100 – 200 vehicles per hour during peak periods;
- Directional demands within Turner Street are somewhat tidal with northbound movements dominating during the morning peak and southbound movements dominating during the evening peak, primarily associated with commuters' journeys to and from work;
- Rita Street accommodates two-way peak hour traffic demands of between 50 – 100 vehicles per hour;
- Marion Street accommodates two-way peak hour traffic flows of between 30 – 50 vehicles per hour; and
- Chalker Street and Stone Master Drive accommodates two-way peak hour traffic flows of less than 10 vehicles per hour, as these roads are currently adjoined by vacant land.

### **4.3 Existing Road Network Operation**

In order to undertake an assessment of the operational performance of the surrounding road network (comprising Turner Street, Rita Street, Marion Street, Chalker Street and Stone Master Drive), reference is made to the Roads & Maritime Services' *Guide to Traffic Generating Developments*. The document indicates that a two lane urban road accommodating less than 200 vehicles per hour in each direction provides a Level of Service (LoS) 'A'

The Roads & Maritime Services define a route LoS of 'A' as indicating free or stable flow where drivers are reasonably unaffected by others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is high, and the general level of comfort and convenience provided is good.

The above Roads & Maritime Services LoS definition is commensurate with the overall traffic conditions observed by this Practice immediately adjoining the subject site, whereby motorists have generally been observed to access and vacate the surrounding precinct with a good level of safety and efficiency.

## 5. **PROJECTED TRANSPORT CONDITIONS**

### 5.1 **Traffic Generation**

The Roads and Maritime Services (RMS) has established vehicular generation rates based on surveys of existing uses throughout the Sydney metropolitan and regional areas. Traffic generation rates for a child care/early learning centre, as presented in the *Guide to Traffic Generating Developments*, are as follows:

<b>TABLE 5 TRAFFIC GENERATION RATES CHILD CARE CENTRES</b>			
<b>Centre Type</b>	<b>Peak Vehicle Trips/Child</b>		
	<b>7.00 - 9.00am</b>	<b>2.30 - 4.00pm</b>	<b>4.00 - 6.00pm</b>
Pre-school	1.4	0.8	-
Long-day care	0.8	0.3	0.7
Before/after care	0.5	0.2	0.7

The proposed child care centre is best described as a long day care centre, accommodating 48 children. Utilising the abovementioned RMS average traffic generation rates, the site is likely to generate:

- 39 peak vehicle trips between 7.00am – 9.00am,
- 15 peak vehicle trips between 2.30pm – 4.00pm and
- 34 peak vehicle trips between 4.00pm – 6.00pm.

In the morning peak hour period, therefore, the child care centre could be expected to generate approximately 39 peak hour vehicle trips, comprising 20 ingress movements to the site and 19 egress movements associated with child drop off.

Similarly during the evening period between 4.00 - 6.00pm, the proposed child care centre could be expected to generate 34 peak vehicle trips, comprising 17 ingress and 17 egress movements associated with the pick-up of children in the evening period.

During the afternoon period coinciding with the time of school finishing, the proposed child care centre could generate traffic in the order of 15 peak hour vehicle trips between 2.30pm and 4.00pm. This could be expected to comprise 7 ingress movements and 8 egress movements to and from the site, associated with the collection of children.

### 5.2 **Trip Assignment**

In order to gauge the impact of the traffic projected to be generated by the proposed development on the adjoining public road network, it is necessary to determine the impact on surrounding intersection efficiency. The objective of this section is to distribute the traffic generated by the proposed development along the major approach routes before it dissipates throughout the general road network.



It is rarely possible to precisely forecast the route that motorists will elect to utilise. Perceived traffic safety, traffic efficiency and individual preferences are all variables that will influence the traffic route selected by motorists. Nevertheless, it is common to assume that trips to the subject site will be distributed in accordance with the following factors:

- The existing and planned surrounding road network;
- Observed travel pattern/behaviour of drivers; and
- The catchment/source area for potential clients for the child care that is cognisant of existing child care centres in the surrounding area.

In this regard, the following trip assignment reflected in **Figure 5** has been formulated based on the abovementioned considerations.

**FIGURE 5**  
**TRIP ASSIGNMENT**



### 5.3 Traffic Impacts

The subject proposal has been projected to generate up to 39 morning and 34 evening peak hour vehicle trips. It has previously been presented that recent observations have indicated that motorists are suitably capable of accessing the development site and the surrounding precinct in a safe and efficient manner from the adjoining public roads. In this regard, it is noted that the additional traffic generated by the child care centre is not anticipated to have any measurable impacts on the overall operation of the surrounding road network in the interim period.

Development of the South West Growth Centre is currently in progress to accommodate Sydney's growth and expansion. As part of the development of the East Thirlmere Precinct, and the South West generally, a number of transport studies have been undertaken to identify the transport infrastructure required to support this growth. The development of the subject site for urban purposes is consistent with the general intent of the strategic planning documents applying to the land (It is noted that the pre-lodgment notes dated 27 March 2019 indicates that a centre based child care facility is permitted with consent within the subject site which has a R2 - Low Density Residential Zoning). In this regard, the broader transport impacts of the development and the broader area, and the measures to address the additional transport demand, have previously been examined at the strategic planning stage.

### 5.4 Environmental Capacity

The proposed 48 children early learning care centre has been assessed to generate a maximum of 39 vehicle movements corresponding to the morning peak hour period.

The Roads & Maritime Services within their *Guide to Traffic Generating Developments* provide environmental capacity performance standards to measure the level of amenity experienced by the general community, not just motorists. RMS *Guide* specify an environmental capacity for local roads of 300 vehicles in both directions in any one hourly period.

The existing observed peak hour traffic demands within surrounding road network (comprising Turner Street, Rita Street, Marion Street, Chalker Street and Stone Master Drive) in the immediate vicinity of the site affected by the additional traffic generated by the proposed development, are approximately less than 200 vehicle movements. This existing demand, coupled with the additional 39 peak hour vehicles likely to be generated by the proposed development, maintains the identified threshold for local roads of 300 vehicles per hour. In this regard, it is reiterated that the proposed development is unlikely to generate any noticeable impacts for traffic flow within the surrounding residential roads that would compromise the existing residential amenity in the surrounding area.

## **6. CONCLUSIONS**

This Practice has undertaken an assessment of the potential traffic related consequences resulting from a proposed long day child care centre development on land located at 2 & 6 Chalker Street, Thirlmere. Based on our assessment, the following conclusions are now made:

- The proposed off-street parking provision suitably accords with Council's relevant DCP requirements and is accordingly considered to be satisfactory;
- The proposed child care centre access arrangements and internal circulation arrangements are anticipated to provide motorists with safety and efficient vehicle and pedestrian conditions;
- The surrounding road network operates with a good level of service during peak periods;
- The proposed development has been projected to generate some 39 and 34 morning and evening peak hour trips to and from the site respectively; and
- The surrounding road network is considered to be capable of accommodating the traffic projected to be generated by the development in a safe and efficient manner without any undesirable impacts on the residential amenity.

Based on the conclusions and recommendations contained within this report, we are of the opinion that there are no traffic-related issues that should preclude approval of the subject application. Accordingly, we are in support of the proposed development.