



**STANBURY**  
TRAFFIC PLANNING

TRAFFIC, PARKING & TRANSPORT CONSULTANTS

## **PARKING & TRAFFIC IMPACT ASSESSMENT**

**PROPOSED CHILD CARE CENTRE DEVELOPMENT  
7 YATES AVENUE  
DUNDAS VALLEY**

**PREPARED FOR JOE MADRAJAT  
OUR REF: 22-092**



**JUNE 2022**

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## 1. INTRODUCTION

### 1.1 Scope of Assessment

Stanbury Traffic Planning has been commissioned by Joe Madrajat to prepare a Parking & Traffic Impact Assessment to accompany a Development Application to be lodged with Parramatta City Council. The Development Application seeks consent for the demolition of an existing multi-dwelling development containing eight dwellings at 7 Yates Avenue (hereafter referred to as the 'subject site'), and the construction of a purpose-built child care centre.

The child care centre is proposed to be capable of accommodating up to 83 children and be serviced by a single level of basement parking, providing a total of 22 off-street parking spaces. Vehicular connectivity between Yates Avenue and the basement parking area is proposed via a combined ingress / egress driveway situated in the south-eastern portion of the site.

The aim of this assessment is to investigate and report upon the potential parking and traffic consequences of the development application and to recommend appropriate ameliorative measures where required. This report provides the following scope of assessment:

- Section 1 provides a summary of the site location, details, existing and surrounding land-uses;
- Section 2 describes the proposed development;
- Section 3 assesses the adequacy of the proposed site access arrangements, internal circulation and servicing arrangements with reference to relevant Council, Transport for New South Wales (TfNSW, formerly known as Roads & Maritime Services) and Australian Standard specifications;
- Section 4 assesses the existing traffic, parking and transport conditions surrounding and servicing the subject development site including a description of the surrounding road network, traffic demands, operational performance and available public transport infrastructure; and
- Section 5 estimates the projected traffic generating ability of the proposed development and assesses the ability or otherwise of the surrounding road network to be capable of accommodating the altered demand in a safe and efficient manner.

The report has been prepared pursuant to State Environmental Planning Policy (Infrastructure & Transport) 2021.

## 1.2 Reference Documents

Reference is made to the following documents throughout this report:

- Australian Standard for *Parking Facilities Part 1: Off-Street Car Parking* (AS2890.1:2004);
- Australian Standard for *Parking Facilities Part 3: Bicycle Parking* (AS2890.3:2015);
- Australian Standard for *Parking Facilities Part 6: Off-Street Parking for People with Disabilities* (AS2890.6:2009);
- NSW Government's *Children (Education and Care Services) Supplementary Provisions Regulation 2012*;
- NSW Government's *Child Care Planning Guideline*;
- Parramatta Council's *Parramatta Development Control Plan 2011* (PDCP 2011); and
- TfNSW's *Guide to Traffic Generating Developments*.

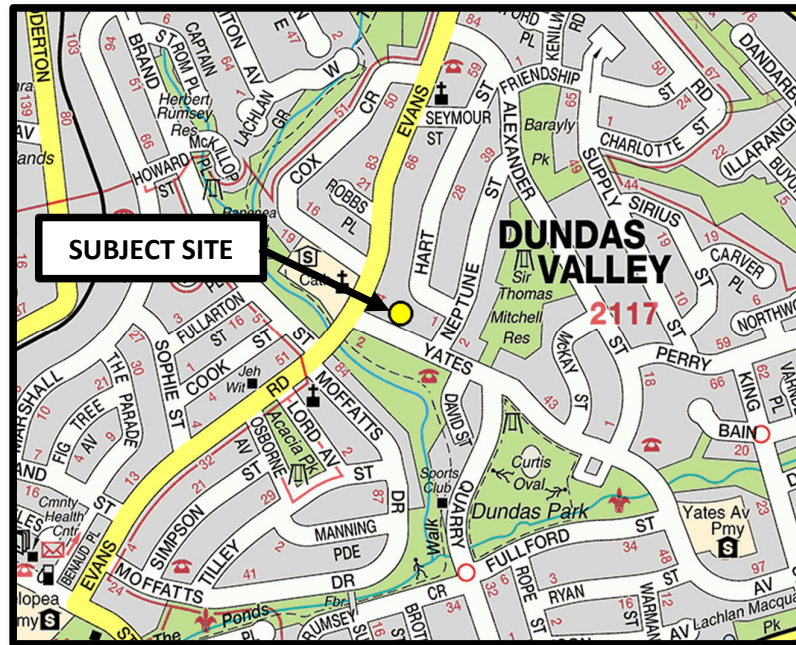
Architectural plans have been prepared by Baini Design and should be read in conjunction with this report, reduced copies of which are included as **Appendix 1** for reference.

## 1.3 Site Details

### 1.3.1 Site Location

The subject site is located on the northern side of Yates Avenue at approximately 80m to the south-east of Evans Road, Dundas Valley. The site location is illustrated overleaf within a local and aerial context by **Figure 1** and **Figure 2**, respectively.

**FIGURE 1**  
**SITE LOCATION WITHIN A LOCAL CONTEXT**



Source: UBD Australian City Streets – Version 8

**FIGURE 2**  
**SITE LOCATION WITHIN AN AERIAL CONTEXT**



Source: Nearmap (image date: 17/05/2022)

### 1.3.2 Site Description

The subject site provides a real property description of Lot 599 and lot 600 within DP 36700, providing a street address of 7 Yates Avenue, Dundas Valley. The site forms a rectangular shaped parcel of land providing an approximate frontage of 30m to Yates Avenue. The site extends to the north away from Yates Avenue approximately 42m, resulting in a total site area in the order of 1275.07m<sup>2</sup>.

### 1.3.3 Existing Site Use

The subject site currently contains a multi-dwelling residential development comprising eight dwellings. The development is serviced by two off-street car parking spaces, which are serviced by a double width combined ingress / egress driveway, connecting with Yates Avenue approximately 5m to the west of the eastern site boundary. The alignment of the prevailing on-site car parking area is such that passenger vehicles are required to either enter or exit the site from / to Yates Avenue in a forward direction.

### 1.3.4 Surrounding Uses

The subject site is surrounded by detached residential dwellings in the east, west and north. Similarly, detached residential dwellings occupy land to the south on the opposite side of Yates Avenue.

Non-residential land-uses in the immediate vicinity include:

- St Bernadette's Primary School is situated approximately 120m to the north-west of the site, located on the south-western corner of Evans Road and Cox Crescent;
- Sir Thomas Mitchell Reserve is situated approximately 200m to the north-east of the site, extending between Yates Avenue and Alexander Street;
- Vikings Sports Club is situated approximately 300m to the south-east, acceded via Quarry Road; and
- Dundas Park is situated approximately 300m to the south-east, extending between Yates Avenue, Quarry Road and Fulford Street.



## 2. PROPOSED DEVELOPMENT

### 2.1 Built Form

The Development Application seeks consent for the demolition of the existing multi-dwelling development and the construction of a purpose-built child care centre capable of accommodating up to 83 children.

The child care centre is proposed to be contained within a part-one-part-two storey building situated centrally within the site, above one level of basement parking containing a total of 22 passenger vehicle parking spaces.

The ground floor of the child care centre building is proposed to contain three separate indoor playrooms, one large outdoor play area and ancillary amenities.

The lower ground floor of the child care centre building is proposed to contain an office, a staff room, entry foyer/reception, kitchen, basement parking and ancillary amenities.

Vehicular access between Yates Avenue and the basement parking area is provided via a combined ingress / egress driveway situated approximately 8m to the west of the eastern site boundary.

Pedestrian access is proposed via a pedestrian path connecting with the northern Yates Avenue footpath, to the west and separate from the abovementioned vehicular access driveway.

### 2.2 Proposed Operation

The child care centre is proposed to accommodate up to 83 children as follows:

- 8 children aged between zero and two years of age;
- 25 children aged between two and three years of age; and
- 50 children aged between three and five years of age.

The centre is required to employ a minimum of 12 staff in accordance with the current *Children (Education and Care Services) National Law (NSW)* requirements, as follows:

- Two staff associated with the children aged between zero and two years of age;
- Five staff associated with the children aged between two and three years of age; and
- Five staff associated with the children aged between three and five years of age.



The centre is proposed to operate between 7:00am and 6:00pm Monday to Friday.

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### 3. SITE ACCESS & INTERNAL CIRCULATION

#### 3.1 Access Arrangements

##### 3.1.1 Vehicular Access

Vehicular access to the basement parking area is proposed to be facilitated via a 6.2m combined ingress / egress driveway connecting with Yates Avenue, situated approximately 8m to the west of the eastern side boundary.

AS2890.1:2004 provides driveway design specifications based on the proposed primary land use, the functional order of the access road and the number of spaces the driveway is to serve. Tables 3.1 and 3.2 of AS2890.1:2004 specify that a Category 1 type driveway is required, providing a minimum combined ingress / egress driveway width of between 3m and 5.5m based on the local (non-arterial) nature of Yates Avenue, the child care centre land use and the on-site passenger vehicle parking provision of less than 25 spaces. The proposed 6.2m wide combined ingress / egress driveway therefore exceeds the AS2890.1:2004 specifications and accordingly, is considered to be satisfactory.

Swept path plans have been prepared in order to demonstrate the ability of passenger vehicles to enter and exit the site, copies of which are included as **Appendix 2**. These swept paths also indicate that all vehicles are able to enter and exit the site in a forward direction.

The safety and efficiency of access / egress movements are also proposed to be assisted by the following:

- The provision of a relatively level (1:20) grade within the first 7.6m of the property boundary;
- No obstructions to visibility adjacent to the egress (eastern) side of the driveway facilitating appropriate sight distance between exiting motorists and potential pedestrians travelling along the northern Yates Avenue footpath; and
- The consistent horizontal and vertical alignment of Yates Avenue in the immediate vicinity of the subject site resulting in satisfactory sight distance between the frontage road and the proposed site access driveways, based on the prevailing 50km/h speed limit.

##### 3.1.2 Pedestrian Access

Pedestrian access is proposed via a pedestrian path connecting with the northern Yates Avenue footpath, to the west and separate from the abovementioned vehicular access driveway.

## 3.2 Passenger Vehicle Parking

### 3.2.1 Parking Provision

The development is proposed to be serviced by 22 on-site passenger vehicle parking spaces (including two disabled spaces).

NSW Government's *Child Care Planning Guideline* specifies that parking should be provided in accordance with PDCP 2011 which provides the following minimum vehicular parking rates for child care centres:

*1 space for every 4 children in attendances*

Application of the abovementioned parking rates to the proposed centre capacity of 83 children therefore results in a minimum passenger vehicle parking requirement of 20.75 (adopt 21) spaces.

The proposed parking provision of 22 spaces therefore exceeds the minimum requirements of PDCP 2011 and is accordingly, considered to be satisfactory.

### 3.2.2 Passenger Vehicle Parking Allocation

The on-site passenger vehicle parking spaces are proposed to be allocated as follows:

- 12 staff parking spaces; and
- 10 visitor / parent / guardian parking spaces (including two disabled space).

The following sub-sections of this report provide assessment of the suitability or otherwise of the proposed parking provision and allocation.

#### 3.2.2.1 Staff Parking

It has been presented that the centre is understood to be required to accommodate up to 12 staff on-site any one time. The provision of 12 parking spaces, representing one space per staff member, is accordingly considered to be satisfactory.

#### 3.2.2.2 Parent / Guardian Parking

To undertake an assessment of the suitability of the proposed visitor parking provision of 10 spaces, reference is made to the TfNSW's *Guide to Traffic Generating Developments*. This publication specifies that the average length of stay of parents / guardians when setting-down / picking-up children at child care centres is 6.8 minutes. On the basis of all children being set-down and picked-up with an even distribution over a period of two hours (say, 7:00am – 9:00am and 4:00pm – 6:00pm), the arrival rate of parents / guardians will be one parent / guardian every 1.4 minutes (120 minutes / 83 children).

The above length of stay and arrival rate results in an average of 4.8 (6.8/1.4) parents / guardians being on-site at any time during the peak set-down / pick-up periods. The average parent / guardian parking demand during peak pick-up / set-down periods is therefore projected to be approximately five spaces.

However, it should be noted that the above analysis represents an absolute worst-case scenario for the following reasons:

- It assumes that all parents / guardians will drive their children to and from the centre, when the TfNSW's survey suggest 93% of children are driven to and from centres;
- It assumes a zero-sibling rate, when our experience suggests a sibling rate of at least 10% commonly prevails;
- It assumes a 100% attendance rate, when our experiences suggest a maximum of 90% is more likely; and
- It assumes that all children will be set-down and picked-up within a two-hour period, when children can be set-down / picked-up at any time during the operational hours.

The above analysis, indicating an instantaneous parent / guardian parking demand of approximately five spaces has however been retained in order to account for variations in average demand associated with short term peak influxes of parents / guardians during set-down / pick-up periods. In consideration of this and the above discussion, the proposed parent / guardian parking allocation of 10 spaces is considered to be readily capable of accommodating peak operational demand.

### 3.2.2.3 Disabled Parking

PDCP 2011 also specifies that disabled parking should be provided at a rate of one space per 10 car spaces. A total passenger vehicle parking provision of 22 spaces therefore results in a disabled parking requirement of 2.2 spaces, rounded up to three parking spaces.

The required provision of three disabled spaces within a total visitor parking provision of 10 spaces represents 30% of the total visitor parking provision. Such a percentage of disabled parking is considered to be excessive and will undesirably increase the propensity of site users undesirably parking on-street. The proposed provision of two disabled parking spaces is considered to be satisfactory, given the limited scale of the development.

### 3.2.2.4 Neighbourhood Parking Policy

The previous analysis concludes that the on-site parking provision and allocation is appropriate in accordance with the locally sensitive parking requirements and the projected operational characteristics of the site. In this regard, it is not expected that the proposed development will result in any unreasonable impacts on surrounding amenity.

Notwithstanding the above, it is desirable that the child care centre formulate and implement a Neighbourhood Parking Policy, which provides a series of operational initiatives with the objective of minimising the potential impacts of the development on the adjoining public parking infrastructure and thus the surrounding residential amenity. This Policy should include, but not be limited to, the following:

- Staff members who drive to the site are to occupy designated on-site staff parking spaces, in preference to parking on-street;
- Parent / visitors who drive to the site are to occupy designated on-site visitor parking spaces, in preference to parking on-street;
- In the unlikely event that staff or parent / visitors are required to park on-street, parking should occur on the northern side of Yates Avenue, immediately adjacent to the site.

The Neighbourhood Parking Policy should be provided to all staff and parents / guardians at the time of employment and enrollment, respectively.

If considered necessary, the requirement for a Neighbourhood Parking Policy could reasonably be imposed by Council as a condition of development consent.

### 3.3 Bicycle Parking

The development includes the provision of four bicycle parking spaces located within the north-eastern corner of the basement car parking area.

PDCP 2011 specifies that the bicycle parking for child care centres is to be provided at a rate of one space per 25 children.

Application of the abovementioned PDCP 2011 rate to the development results in a minimum requirement of 3.3 (adopt 4) bicycle parking spaces. The proposed bicycle parking provision accordingly complies with the minimum requirement of PDCP 2011 and is therefore considered to be satisfactory.

### 3.4 Internal Circulation and Manoeuvrability

Passenger vehicles upon entry to the site, will travel in a forward direction from the driveway and connecting roadway running along the eastern site boundary to access the basement parking area. The basement parking area is proposed to provide three standard 90-degree angled parking rows along the northern, southern and eastern periphery walls of the basement, being serviced by a circulation aisle, forming an extension of the access roadway.

The basement parking area has generally been designed in accordance with the minimum requirements of AS2890.1:2004 and AS2890.6:2014, providing the following minimum dimensions:

- Staff vehicle parking space width = 2.4m;

- Standard visitor vehicle parking space width = 2.6m;
- Disabled visitor vehicle parking space width = 2.4m (with adjoining 2.4m wide shared area);
- Vehicle parking space length = 5.4m;
- Minimum parking aisle width = 5.8m;
- Minimum clearance = 2.2m; and
- Minimum clearance above disabled parking space = 2.5m.

Safe and efficient internal manoeuvring and parking space accessibility is anticipated to result, taking into consideration the above compliance with the relevant AS2890.1:2004 specifications.

In order to further demonstrate the suitability of the abovementioned arrangement and internal passenger vehicle manoeuvrability within the visitor parking area, this Practice has prepared a number of swept path plans which are included as **Appendix 2**. The turning paths provided on the plans have been generated using Autoturn software and derived from B85 and B99 vehicle specifications provided within AS2890.1:2004.

Section B4.4 of AS2890.1:2004 states the following with regard to the use of templates to assess vehicle manoeuvring:

*'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.'*

It would therefore appear that whilst the turning paths provided within AS2890.1:2004 can be utilised to provide a 'general indication' of the suitability or otherwise of internal parking and manoeuvring areas, vehicles can generally manoeuvre more efficiently than the paths indicate. Notwithstanding this, the swept path plans illustrate that passenger vehicles can manoeuvre throughout the basement parking area and enter and exit the most difficult passenger vehicle parking spaces.

It is acknowledged that the basement parking area forms a dead-end parking aisle. The alignment of the internal circulation aisle however allows for motorists to undertake a three point turn within the north-eastern portion of the basement and exit the site in a forward direction in the unlikely event that all internal parking spaces are occupied. Such internal turnaround movements are demonstrated by the swept path plans contained within **Appendix 2**. Further, a 1m extension of the aisle past the end parking spaces adjacent to the western basement wall allows for passenger vehicles to perform a forward entry/reverse exit movement from the end parking spaces as further demonstrated in the detailed swept path plans.

In consideration of the abovementioned compliance of the development design with the relevant requirements of the Australian Standards, the proposed internal passenger vehicle circulation arrangements are considered to be satisfactory. Notwithstanding the above findings, if considered necessary, Council could reasonably condition the requirement for the provision of a dedicated turning bay in place of parking space no. 1, given the proposed parking yield represents a one-space surplus with respect to the previously presented PDCP 2011 requirements.

#### 3.4.1 Access Roadway / Ramp Grades

Connectivity between the site access driveway and the basement parking area is proposed via an internal roadway / ramp, providing an north/south alignment, approximately adjacent to the southern site boundary. The internal roadway provides a width of 6.2m allowing for two-way traffic movements to occur.

The access roadway / ramp provides the following key ramp grade characteristics in accordance with the relevant requirements of AS2890.1:2004:

- Maximum grade within 6m of the boundary = 5%; and
- Maximum change in grade = 5%.

#### 3.5 Internal Pedestrian Circulation

Direct pedestrian access is proposed between the child care centre reception and the existing northern Yates Avenue footpath via a dedicated pedestrian path separate and to the west of the vehicular access driveway providing direct access to the child care centre building entrance. Further to this access, pedestrian connectivity between the basement parking area and the building is proposed via a 1m wide pedestrian pathway provided adjacent to each visitor parking space which facilitate pedestrian access along the northern basement periphery wall to the staircase and lift within the office/staff area along southern boundary of the basement.

#### 3.6 Site Servicing

The child care centre is likely to necessitate regular servicing with respect to the collection of refuse. Refuse is proposed to be contained within bins accommodated within a waste storage area situated on the lower ground floor of the development in the north-eastern corner of the site. These bins are to be wheeled to the northern Yates Avenue kerb for collection, in a similar manner to the adjoining residential developments.

Minor deliveries associated with the centre operation are expected to be undertaken by vans and utilities. Such servicing activities are proposed to be accommodated within single visitor passenger vehicle parking spaces located within the basement car park. These activities are to be undertaken between 10:00am and 2:00pm, thereby being outside of the peak child set-down / pick-up periods of the centre.



## 4. EXISTING TRAFFIC CONDITIONS

### 4.1 Surrounding Road Network

The following provides a description of the local road network surrounding the subject site:

- **Yates Avenue** performs a collector road function under the care and control of City of Parramatta Council, providing a north-west / south-east alignment facilitating access between Evans Road in the north-west and King Street in the south-east.

Adjacent to the site, Yates Avenue provides an 7.5m wide pavement providing one through lane of traffic in each direction in conjunction with parallel parking along both kerb alignments. When parallel parking occurs along one or both kerb alignments, the somewhat limited Yates Avenue pavement width requires two-way traffic to occur under courtesy conditions. The particularly low demand for on-street parking (further presented in Section 4.4) however ensure that the presence of on-street parking resulting in negligible impedance of two-way traffic flow.

Traffic flow within Yates Avenue is governed by a sign posted speed limit of 50km/h; however, a 40 km/h school zone speed limit applies to the west of the site on approach to Evans Road and the south-east of the site on approach to King Street during prescribed school start / finish times in the immediate vicinity of the site, associated with St Bernadette's Primary School and Yates Avenue Public School, respectively.

To the west of the site, Yates Avenue forms a T-junction with Evans Road, operating under 'Stop' signage control with, Evans Road forming the major route.

To the east of the site, Yates Avenue form T-junctions with Neptune Street, David Street, Quarry Road, McKay Street, Alexander Street, Fulford Street and Ryan Street operating under a combination of major/minor or signage control with Yates Avenue performing the priority route in all instances.

Further to the east, Yates Avenue forms a T-junction with King Street, operating under 'Give-way' signage control with King Street performing the priority route.

- **Evans Road** performs a collector road function under the care and control of Parramatta Council providing a predominately north-south alignment between Pennant Hills Road in the north and Sturt Street in the south.

In the vicinity of Yates Avenue, Evans Road provides a 12m wide pavement facilitating one through lane of traffic in each direction. To the south of Yates Avenue, kerb-side parking is generally prohibited, with directional traffic flow being separated by a painted central median. To the north of Yates Avenue, kerb-side parking is generally facilitated along both kerb alignments, within formalised marked parking lanes.

Traffic flow within Evans Road is generally governed by a sign posted speed limit of 50km/h; however, a 40km/h school zone speed limit applies during prescribed school start / finish times associated with St Bernadette's Primary School. Vehicle speeds within Evans Road are calmed by the provision of a raised pedestrian crossing to the north of Yates Avenue, in conjunction with raised thresholds and channelised islands at the Yates Avenue junction.

- **King Street** performs a collector function, facilitating connectivity between the Dundas Valley precinct and Stewart Street to the south, with which it intersects under traffic signal control.

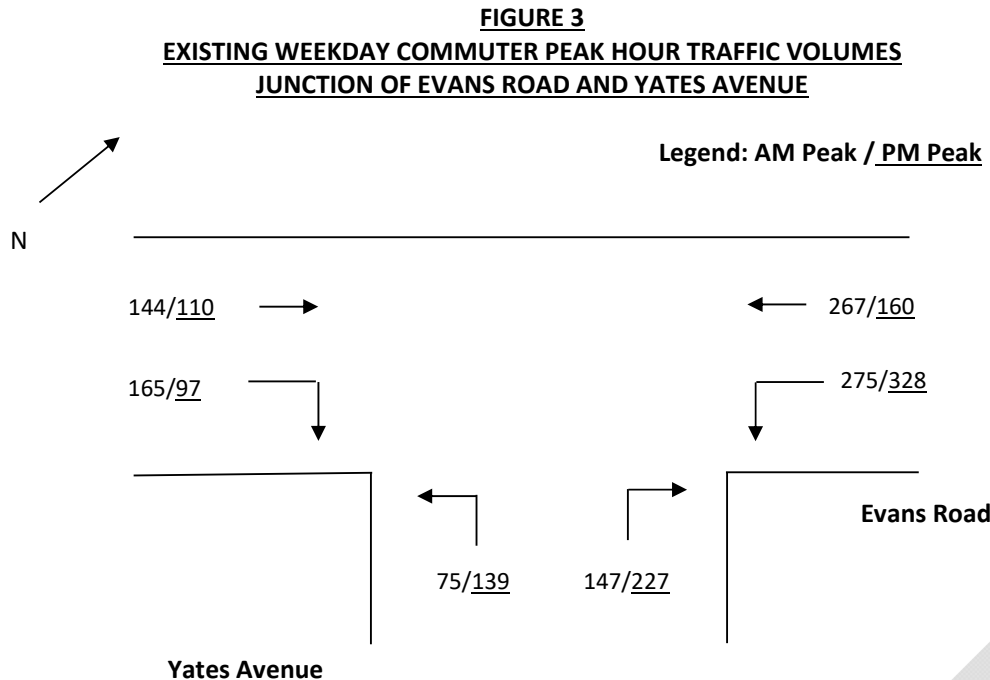
## 4.2 Existing Traffic Volumes

### 4.2.1 Junction of Evans Road and Yates Avenue

Traffic demand surveys have been commissioned of the junction of Evans Road and Yates Avenue to the west of the site, in order to accurately ascertain existing traffic demands within the immediate precinct.

Surveys were undertaken between 7:00am – 9:00am and 2:30pm – 6:00pm on the 8th of June, 2022.

**Figure 3** overleaf provides a summary of the surveyed peak hour intervals of traffic flows at the subject intersection including a morning peak hour which has been identified as 8:00am – 9:00am (AM Peak) and 4:00pm – 5:00pm (PM Peak), whilst full details are contained within **Appendix 3**.



**Figure 3** indicates the following:

- Evans Road accommodates directional traffic demands of approximately 200 – 550 vehicles during weekday peak hours; and
- Yates Avenue accommodates directional traffic demands between 200 and 450 vehicles during weekday peak hours

### 4.3 Existing Road Network Operation

#### 4.3.1 Junction of Evans Road and Yates Avenue

The surveyed junction of Evans Road and Yates Avenue and Evans eastbound and westbound lanes have been analysed utilising the SIDRA computer intersection analysis program in order to objectively assess the operation of the nearby public road network.

SIDRA is a computerised traffic arrangement program which, when volume and geometrical configurations of an intersection are imputed, provides an objective assessment of the operation efficiency under varying types of control (i.e. signs, signal and roundabouts). Key indicators of SIDRA include level of service where results are placed on a continuum from A to F, with A providing the greatest intersection efficiency and therefore being the most desirable by TfNSW.

SIDRA uses detailed analytical traffic models coupled with an iterative approximation method to provide estimates of the abovementioned key indicators of capacity and performance statistics. Other key indicators provided by SIDRA are average vehicle delay, the number of stops per hour and the degree of saturation. Degree of saturation is the ratio of the arrival rate of vehicles to

the capacity of the approach. Degree of saturation is a useful and professionally accepted measure of intersection performance.

SIDRA provides analysis of the operating conditions that can be compared to the performance criteria set out in **Table 1** below (being Transport for NSW method calculation of Level of Service).

<b>TABLE 1 LEVEL OF SERVICE CRITERIA FOR INTERSECTIONS PRIORITY CONTROLLED INTERSECTIONS</b>		
<b>Level of Service</b>	<b>Average Delay per Vehicle (secs/veh)</b>	<b>Expected Delay</b>
<b>A</b>	Less than 14	Good
<b>B</b>	15 to 28	Acceptable delays and spare capacity
<b>C</b>	29 to 42	Satisfactory
<b>D</b>	43 to 56	Near capacity
<b>E</b>	57 to 70	At capacity and requires other control mode
<b>F</b>	> 70	Unsatisfactory and requires other control mode

The existing conditions have been modelled utilising the peak hour traffic volumes presented within **Figure 3**.

**Table 4** overleaf provides a summary of the SIDRA output data whilst more detailed summaries are included as **Appendix 4**.

<b>TABLE 2 SIDRA OUTPUT – EXISTING WEEKDAY PEAK HOUR PERFORMANCE JUNCTIONS OF EVANS ROAD AND YATES AVENUE</b>		
	<b>AM PEAK (8:00AM-9:00AM)</b>	<b>PM PEAK (5:00PM-6:00PM)</b>
<b>Evans Road North Approach</b>		
Delay (seconds / vehicle)	3.7	4.8
Degree of Saturation	0.29	0.26
Level of Service	A	A
<b>Evans Road South Approach</b>		
Delay (seconds / vehicle)	6.8	7.1
Degree of Saturation	0.27	0.16
Level of Service	A	A
<b>Yates Avenue Approach</b>		
Delay (seconds / vehicle)	15.1	14.2
Degree of Saturation	0.41	0.52
Level of Service	B	A
<b>Total Intersection</b>		
Delay (seconds / vehicle)	15.1	14.2
Degree of Saturation	0.41	0.52
Level of Service	B	A

**Table 2**, in conjunction with more detailed output contained within **Appendix 4**, indicates that the junction of Yates Avenue and Evans Road provides a level of service of 'B' during the morning peak period and 'A' during the evening peak period, representing good operation with spare capacity.

### 4.3.2 Yates Avenue

#### 4.3.2.1 Level of Service

Reference is made to TfNSW's *Guide to Traffic Generating Developments* to undertake an assessment of the operational performance of Yates Avenue in the vicinity of the subject. **Table 3** below provides the level of service assigned to the surveyed peak hour directional traffic flow within Yates Avenue based on surveys provided within **Appendix 3** and the criteria specified within the *Guide to Traffic Generating Developments*.

TABLE 3 YATES AVENUE PEAK HOUR DIRECTIONAL TRAFFIC FLOW & LEVEL OF SERVICE		
	AM PEAK (8:00AM-9:00AM)	PM PEAK (3:00PM-4:00PM)
<b>Eastbound Traffic Flow</b>		
Volume	440	425
Level of Service	A	A
<b>Westbound Traffic Flow</b>		
Volume	222	366
Level of Service	A	A

TfNSW specifies that a Level of Service 'B' to 'C' is considered stable flow where most drivers have some freedom to select their desired speed and to manoeuvre within the traffic stream.

Notwithstanding the above, it has previously been presented that the limited pavement width of Yates Avenue (7.5m) is such that two-way traffic flow is occur under courtesy conditions in the event that parking along one or both kerb alignments. The particularly low demand for on-street parking within the immediate vicinity of the site (see Section 4.4) is however such that impedance / delays to directional traffic flow are minimal.

#### 4.3.2.2 Environmental Capacity

It is considered pertinent to provide an assessment of the traffic flow within Yates Avenue with respect to environmental capacity. To undertake such an assessment, the functional order of Yates Avenue is required to be defined.

Yates Avenue has previously been presented to perform a collector function, by virtue of the fact that it connects other collector roads within the Dundas Valley precinct in Evans Road to the north-west and King Street to the south-east. These connecting collector roads, in turn, link with important arterial roads in Pennant Hills Road in the north and Stewart Street in the south.

TfNSW's *Guide to Traffic Generating Developments* specifies that collector roads typically provide a maximum environmental capacity of 500 vehicles per hour. The prevailing morning peak hour traffic demands within Yates Avenue of 622 and 791 vehicles during the morning and evening peak hours, respectively, exceed the specified environmental capacity by TfNSW for a collector road.

The calculation of environmental capacity is however complex, taking into consideration several specific road characteristics such as roadway width, gradient, road surface, traffic demands, traffic composition, traffic speed, noise, air pollution, pedestrian crossing delay and pedestrian safety.

The nomination of an indicative environmental capacity for Yates Avenue is subjective, being subject to a series of qualitative adjustment factors. TfNSW's *Guide to Traffic Generating Developments* publication specifies that environmental capacity is best estimated by considering a range of differing perceptions and attitudes to traffic impacts in a particular area.

The environmental expectations of motorists often vary significantly, even within the same district. In this regard, the expectations of motorists within the subject precinct are understandably different to other precincts with roads of a similar construction, as Yates Avenue not only services abutting properties, but it also provides a considerable through traffic function between Pennant Hills Road and Stewart Street. On this basis, it could be argued that environmental capacity is not an appropriate parameter to apply to Yates Avenue.

It is further noted that there is no particular threshold beyond which problems may emerge and, in this regard, it is generally accepted that a departure from the standard may be accommodated and / or mitigated.

There are several factors which influence environmental capacity, with traffic volumes being just one of these factors. Other key factors include road pavement width, number of traffic lanes and vehicle speed. In this regard:

- A reduction in the vehicle speeds results in an increase in the environmental capacity; and
- The requirement or otherwise for pedestrian crossing infrastructure.

With respect to the above, the following should be acknowledged in the immediate vicinity of the site:

- The 'Stop' signage junction control at the junction of Evans Road and Yates Avenue, provides a noticeable frictional effect on through traffic speeds within Yates Avenue; and
- The 7.5m width of the Yates Avenue pavement does not represent a barrier for pedestrians wishing to travel between the formalised footpaths on both sides of the road.

There is accordingly significant existing characteristics of the abutting Yates Avenue infrastructure which actively increase the environmental capacity to a level commensurate with the weekday commuter peak period traffic demands.

The operational performance of the surrounding public road network is accordingly considered to be more appropriately assessed with respect to the level of service provided by nearby intersections. Indeed, TfNSW's *Guide to Traffic Generating Developments* publication specifies that the capacity of urban

roads is generally determined by the capacity of the intersections. Section 4.3.1 of this report presents that the nearby public road junction of Evans Road and Yates Avenue provides motorists with an operational level of service of service of 'A' to 'B', representing good conditions with spare capacity. The nearby public road intersection therefore does not provide any operational warrant for upgrading measures to provide additional capacity.

#### 4.4 On-Street Parking Demand and Capacity

Parking demand surveys of the unrestricted on-street parking within Yates Avenue between Evans Road and Quarry Road were commissioned in order to ascertain the existing demand within the surrounding public parking infrastructure.

Surveys were undertaken between 7:00am – 9:00am and 2:30pm – 6:00pm on Friday the 3<sup>rd</sup> of June, 2022.

**Table 4** overleaf provides a summary of the survey results, whilst full details are contained within **Appendix 5**.

<b>TABLE 4</b>			
<b>UNRESTRICTED ON-STREET PARKING DEMAND SURVEY</b>			
<b>YATES AVENUE (BETWEEN EVANS ROAD AND QUARRY ROAD)</b>			
<b>Time</b>	<b>North Side</b> Capacity = 18	<b>South Side</b> Capacity = 20	<b>Total spaces occupied / Spaces available</b> Total Capacity = 38
<b>MORNING PERIOD</b>			
7:00am	0	0	0 / 38
7:15am	0	0	0 / 38
7:30am	0	0	0 / 38
7:45am	0	0	0 / 38
8:00am	0	0	0 / 38
8:15am	0	1	1 / 37
8:30am	0	2	2 / 36
8:45am	0	2	2 / 36
9:00am	0	2	2 / 36
<b>AFTERNOON PERIOD</b>			
2:30pm	0	0	0 / 38
2:45pm	0	1	1 / 37
3:00pm	0	1	1 / 37
3:15pm	0	1	1 / 37
3:30pm	0	1	1 / 37
3:45pm	0	1	1 / 37
4:00pm	0	1	1 / 37
4:15pm	0	1	1 / 37
4:30pm	0	1	1 / 37
4:45pm	0	0	0 / 38
5:00pm	0	0	0 / 38
5:15pm	0	0	0 / 38
5:30pm	0	0	0 / 38
5:45pm	0	0	0 / 38
6:00pm	0	0	0 / 38



**Table 4** illustrates that the maximum number of occupied parking spaces within the immediate vicinity of the subject site during the morning period was surveyed to be 2 spaces occurring at 8:30am, 8:45am and 9:00am, thereby indicating capacity to accommodate 36 additional parked vehicles during this peak period. The maximum number of occupied parking spaces within the immediate vicinity of the subject site during the afternoon period was surveyed to be 1 space occurring at 2:45pm, 3:00pm, 3:15pm, 3:30pm, 3:45pm, 4:00pm, 4:15pm and 4:30pm, thereby indicating capacity to accommodate 37 additional parked vehicles during this peak period.

## 4.5 Sustainable Transport

### 4.5.1 Buses

The following bus services operate along Evans Road and Yates Avenue in the immediate vicinity of the site:

- Route 513 – Carlingford to West Ryde; and
- Route 545 – Parramatta to Macquarie Park.

The above routes provide the closest stop in proximity of the site at approximately 150m walking distance (approximately 5-minute walk) to the south of the site situated on Evans Road with a collective service frequency of approximately every 15 minutes during the weekday peak hours and a 60-minute frequency during weekday business hours, weekends and public holidays.

### 4.5.2 Light Rail

The Parramatta Light Rail – Stage 1 is currently constructing a light rail stop at the intersection of Adderton Road and Robert Street which is situated to the west of the site at approximately 1.3km walking distance (approximately 16-minute walk).

The Parramatta Light Rail – Stage 1 is to provide services between Carlingford, Parramatta CBD and Westmead.

### 4.5.3 Heavy Rail

Parramatta Railway Station is situated approximately 6km to the south-west of the site, connection to which is provided by the abovementioned Route 545 bus route.

Parramatta Railway Station provides services along the T1 (North Shore & Western) Line, T2 (Inner West & Leppington) Line, T5 (Cumberland) Line, The Blue Mountains Line and The Central Coast & Newcastle Line.

#### 4.5.4 Pedestrians

Pedestrians are provided with the following access and mobility infrastructure within the immediate vicinity of the subject site:

- Footpaths are provided along both sides of Yates Avenue and Evans Road;
- A footpath is provided along the western side of Quarry Road; and

A raised marked pedestrian crossing is provided across Evans Road to the north of Yates Avenue.

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## 5. PROJECTED TRAFFIC CONDITIONS

### 5.1 Traffic Generation

Traffic generation rates for various land-uses have been established through extensive surveys undertaken throughout NSW and published within TfNSW's *Guide to Traffic Generating Developments*. This publication specifies the following traffic generation rates for child care centres:

*0.8 vehicle trips per child during the morning commuter peak hour*

*0.7 vehicle trips per child during the evening commuter peak hour*

Application of the above traffic generation rates to the proposed capacity of 83 children, the child care centre results in an estimated development traffic generation of approximately 66 vehicle trips per hour during the morning peak and 58 vehicle trips per hour during the evening peak.

### 5.2 Traffic Distribution

The development-generated trips are likely to be evenly distributed between inbound and outbound movements associated with the setting down and picking up of children during the morning and evening peak periods, respectively. The development is therefore projected to generate 33 ingress and 33 egress movements during the morning peak hour and 29 ingress and 29 egress movements during the evening peak hour.

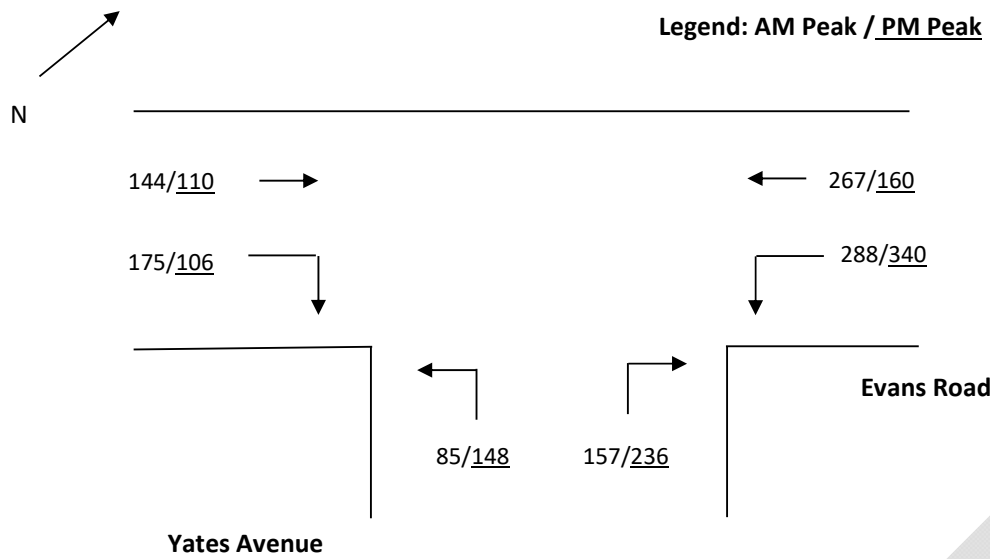
For the purposes of this assessment, it has been assumed that the ingress and egress trips have been assigned with a proportional distribution to the existing traffic volumes throughout the possible approaches to the site. Further, development generated traffic has been assigned as follows:

- 40% to / from the north via Evans Road;
- 30% to / from the south via Evans Road; and
- 30% to / from the east via Yates Avenue

### 5.3 Projected Traffic Volumes

The projected peak hour traffic volumes at the junction of Evans Road and Yates Avenue have been formulated by adding the abovementioned traffic generation and trip assignment to the existing demands presented within **Figure 3**. **Figure 4** overleaf provides an estimation of the future traffic demands at the nearby public road intersection.

**FIGURE 4**  
**PROJECTED WEEKDAY COMMUTER PEAK HOUR TRAFFIC VOLUMES**  
**JUNCTION OF EVANS ROAD AND YATES AVENUE**



## 5.4 Traffic Impacts

### 5.4.1 Junction of Evans Road and Yates Avenue

The junction of Evans Road and Yates Avenue has been modelled in order to estimate the likely impact on traffic safety and efficiency utilising the projected traffic volumes illustrated within **Figure 4**. A summary of the most pertinent results are indicated overleaf within **Table 5** whilst more detailed summaries are provided within **Appendix 6**.

<b>TABLE 5 SIDRA OUTPUT – EXISTING / PROJECTED WEEKDAY PEAK HOUR PERFORMANCE EVANS ROAD &amp; YATES AVENUE</b>				
	<b>Existing</b>		<b>Projected</b>	
	<b>AM</b>	<b>PM</b>	<b>AM</b>	<b>PM</b>
<b>Evans Road North Approach</b>				
Delay (seconds / vehicle)	3.7	4.8	3.7	4.8
Degree of Saturation	0.29	0.26	0.29	0.26
Level of Service	A	A	A	A
<b>Evans Road South Approach</b>				
Delay (seconds / vehicle)	6.8	7.21	7.0	7.3
Degree of Saturation	0.27	0.16	0.28	0.17
Level of Service	A	A	A	A
<b>Yates Avenue Approach</b>				
Delay (seconds / vehicle)	15.1	14.2	15.9	14.9
Degree of Saturation	0.41	0.52	0.46	0.56
Level of Service	B	A	B	B
<b>Total Intersection</b>				
Delay (seconds / vehicle)	15.1	14.2	15.9	15.0
Degree of Saturation	0.41	0.52	0.46	0.56
Level of Service	B	A	B	B

**Table 5** indicates the following:

- The overall level of service during the morning peak hour is projected to remain a 'B', representing continued good operation with spare capacity;
- The level of service is projected to reduce from 'A' to 'B' during the evening peak hour, still representing good operation with spare capacity; and
- Despite the abovementioned reduction in the overall level of service during the evening peak hour, only minor alterations are expected with respect to the average vehicle delay (0.8 seconds) and the degree of saturation.

#### 5.4.2 Yates Avenue

##### 5.3.1 Overall Road Network Performance

The development has been projected to generate up to 66 vehicle movements per hour during commuter peak periods. Based on the expected traffic distribution to and from the site reported upon within Section 5.2 of this report, any particular section of Yates Avenue is expected to accommodate up to 46 additional vehicle movements during weekday commuter peak hours. This equates to less than one additional vehicle movement every minute during commuter peaks, which is not projected to, in itself, result in any unreasonable impacts on the existing operational performance of the surrounding local road network, having consideration to the previous assessment of Yates Avenue contained within Section 4.3 of this report.

In consideration of the above, the impact of the development is most likely to be a result of the safety and efficiency with which motorists are capable of entering and exiting the development. The moderate traffic demands within Yates Avenue in conjunction with the acceptable sight distance provisions between the road and the driveway location and the particularly low parking demands, is such that it is envisaged that motorists will be capable of entering and exiting the site in a safe and efficient manner.

On a more regional scale, whilst it is acknowledged that surrounding regional roads accommodate more considerable traffic demands, the abovementioned extent of additional traffic generating ability of the development is not anticipated to result in any unreasonable impacts on overall road network performance. The presence of positive intersection control at nearby precinct access points provides motorists with safe and efficient means with which to access and exit the subject precinct.

#### 5.4 Parking Impacts

The proposed development provides an off-street parking provision which exceeds the minimum requirements of PDCP 2011. It is accordingly not expected that the development will result in unreasonable impacts on surrounding public road parking supply / capacity and the surrounding residential amenity (discussed within Section 3.2.2.3 of this report).

Notwithstanding the above, in the unlikely event that short term on-street parking demand is generated by the development during peak set-down and pick-up periods, the following should be acknowledged:

- Surveys have indicated that demand for on-street parking in the immediate vicinity of the site (see Section 4.4) is such that there is capacity to accommodate additional demand;
- There is ready capacity to accommodate at least two parked vehicle in a parallel arrangement along the northern kerb alignment of Yates Avenue, immediately adjacent to the subject site thereby not having any unreasonable impact on adjoining properties; and
- Whilst the 7.5m wide Yates Avenue pavement requires two-way traffic to occur under courtesy conditions when parking occurs along one or both kerb alignments, the particularly low demand for on-street parking within the subject vicinity ensures that there is adequate passing opportunities.

It is accordingly not anticipated that the development will result in any impacts on surrounding residential amenity or public road efficiency in the unlikely event that some on-street parking occurs as a result of the centre.

## 5.5 Transport Impacts

The subject site is located within reasonably close walking distance to a number of bus services operating along Evans Road and Yates Avenue. It is accordingly expected that a portion of the future residents within the subject development will utilise the surrounding public transport infrastructure to access destinations throughout the Sydney metropolitan area. The capacity of the existing public transport system is however not envisaged to be measurably affected by any additional demand associated with the development, given its limited scale.

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## 6. CONCLUSION

This report assesses the potential parking and traffic implications associated with a proposed child care centre at 7 Yates Avenue, Dundas Valley. Based on this assessment, the following conclusions are now made:

- The site access arrangements are projected to result in motorists being capable of entering and exiting the subject site in a safe and efficient manner;
- The proposed off-street parking provision exceeds the minimum requirements of PDCP 2011, thereby indicating that there should not be any increased on-street parking demand as a result of the development;
- The internal passenger vehicle circulation arrangements are envisaged to provide for safe and efficient internal manoeuvring;
- The surrounding road network operates with a reasonable level of service during peak periods;
- The subject development has been projected to generate up to 66 vehicle movements to and from the site during weekday peak hours; and
- The surrounding road network is considered to be capable of accommodating the additional traffic projected to be generated by the subject development.

It is considered, based on the contents of this report and the conclusions contained herein, there are no parking or traffic related issues that should prevent approval of the subject application. This action is therefore recommended to Council.