

Proposed Preschool & Primary School

**“Mount Errington”**

**1 Rosemead Road (aka 54 William Street), Hornsby**

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**TRAFFIC AND PARKING ASSESSMENT REPORT**



8 May 2020

Ref 19516

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## 1. INTRODUCTION

This report has been prepared on behalf of *Blue Gum Community School* to accompany a State Significant Development Application for a proposal to establish a new educational facility located at 1 Rosemead Road, Hornsby (Figures 1 and 2).

The proposed development involves the alterations and additions to the heritage listed “Mount Errington” dwelling house on the site to facilitate its conversion to a new preschool and primary school.

*Blue Gum Community School* is a small community-based, secular independent school which currently operate an existing facility in Canberra. The school opened in 1998 and parents were quick to appreciate the benefits of the flexible, extended hours preschool. *Blue Gum* boast that their smallness is their strength, with each student educated by a personal, strength-based approach. Pressure grew from these early families keen to continue this way of learning beyond preschool and as such, the primary school was created.

This development application is therefore seeking approval to accommodate up to 32 children at the preschool (3-5 year olds only) and 48 children at the primary school (5-12 year olds).

Off-street parking is to be provided for a total of 12 cars *plus* an on-site drop-off/pick-up bay, in accordance with Council’s *DCP* requirements. Vehicular access to the car parking and drop-off/pick-up area is to be provided via separate entry and exit driveways located off the Rosemead Road site frontage, with the proposed entry driveway utilising the existing driveway crossover, albeit with some minor modifications.

The proposed works will be undertaken across two stages, with the majority of work to be undertaken in Stage 1, including the off-street parking area, drop-off/pick-up area and vehicular access driveways.

Notwithstanding the above, it is unlikely that both the preschool and primary school will be at full capacity on “day 1” of operating. *Blue Gum Community School* is by its own admission, unique, and therefore not the right fit for everyone.



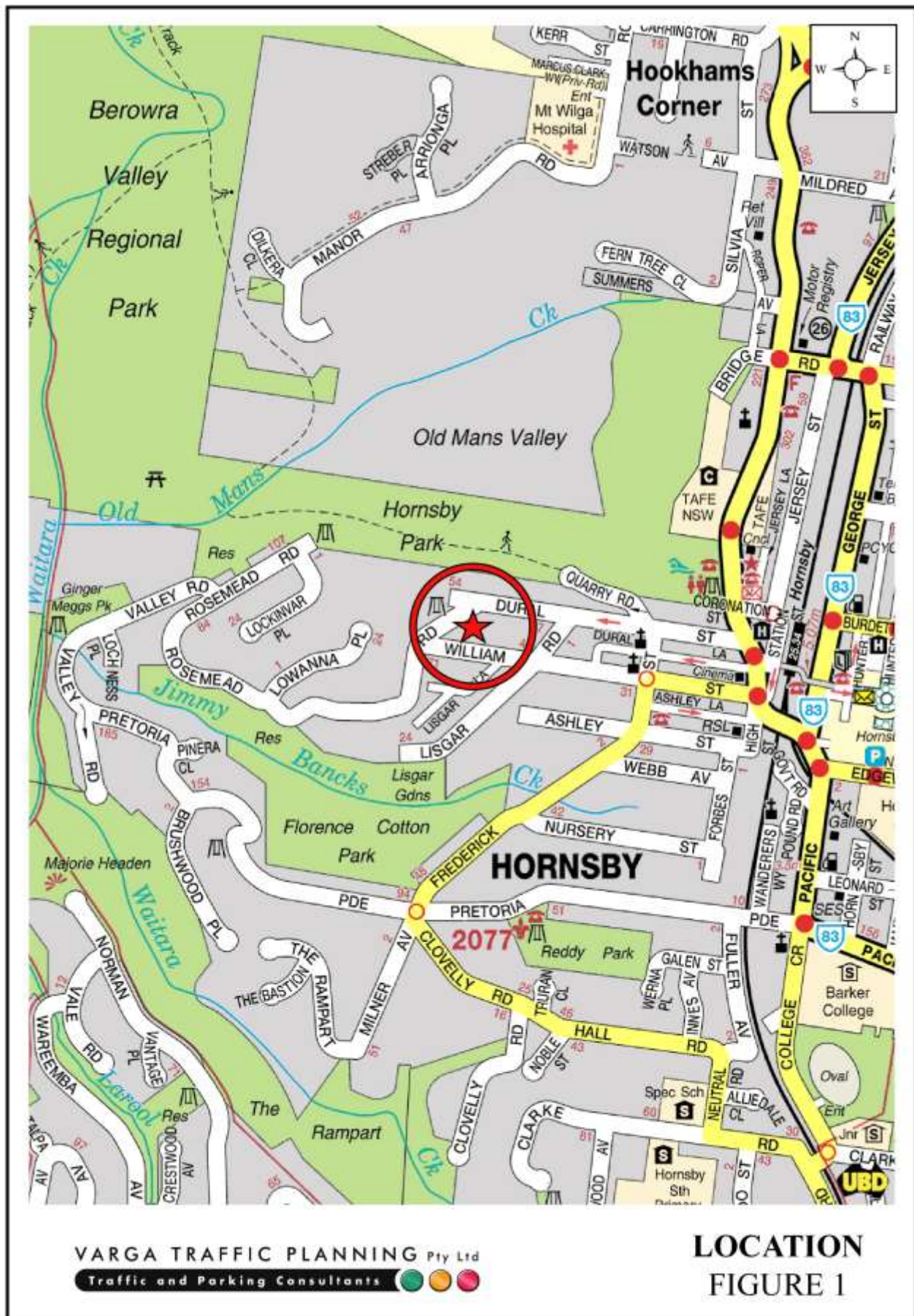
In reality therefore, it might take a number of years to reach full capacity. Nevertheless, this assessment is based on the school operating at full capacity on “day 1”, in order to analysis the “worst case” scenario.

Plans of the proposed development have been prepared by *Armada Architects* and are reproduced in Appendix A.

The purpose of this report is to assess the traffic and parking implications of the development proposal and to that end this report:

- describes the site and provides details of the development proposal
- reviews the road network in the vicinity of the site, and the traffic conditions on that road network
- reviews the public transport services available in the vicinity of the site
- estimates the traffic generation potential of the development proposal, and assigns that traffic generation to the road network serving the site
- assesses the traffic implications of the development proposal in terms of road network capacity
- describes the construction traffic management methodology
- reviews the geometric design features of the proposed car parking facilities for compliance with the relevant codes and standards
- assesses the adequacy and suitability of the quantum of off-street car parking provided on the site.











## 2. PROPOSED DEVELOPMENT

### Site

The subject site is located at the far eastern end of Rosemead Road and extends through to William Street. The site has a street frontage approximately 87m in length to Rosemead Road, 41m in length to William Street and occupies an area of approximately 3,623m<sup>2</sup>.

The subject site is currently occupied by the heritage listed “Mount Errington” dwelling house, a two-storey federation mansion with extensive gardens and a former tennis court.



The estate provides off-street parking, with vehicular access provided via a single driveway crossover located off the Rosemead Road site frontage. There is no vehicular access provided via the William Street site frontage.

### Proposed Development

The proposed development involves the alterations and additions to the “Mount Errington” dwelling house on the site to facilitate its conversion to a new preschool and primary school.



The proposed facility seeks approval to accommodate up to 32 children at the preschool (3-5 year olds only) and 48 children at the primary school (5-12 year olds).

Off-street parking is to be provided for a total of 12 cars *plus* an on-site drop-off/pick-up bay, in accordance with Council's *DCP* requirements.

The former tennis court is to be converted to 9 car parking spaces, including a disabled space and a turn bay. This parking area is to be fitted with a gate that will be closed during core teaching hours and open during drop-off/pick-up hours. A further 3 spaces are to be located in front of the secure rear parking area and are to be allocated to staff.

By law, parents must sign their children enrolled at the preschool in/out at the start/end of the day. These parents will utilise the rear parking area.

Primary school aged children however are not required to be signed in/out, therefore an on-site "kiss & drop" area is to be provided directly outside the western side of the building.

Vehicular access to the car parking and drop-off/pick-up area is to be provided via separate entry and exit driveways located off the Rosemead Road site frontage. In this regard, all turning movements into/out of the site will be restricted to left-in/left-out only, as requested by Council. Suitable signage will be installed advising drivers of the restrictions as well as incorporating the restrictions into the Operational Traffic Management Plan.

Public footpaths are provided along both site frontages, with pedestrian access gates provided off the Rosemead Road site frontage only. There will *not* be any pedestrian or vehicular access provided via the William Street site frontage.

Unrestricted parking is also permitted along both sides of Rosemead Road such that parents of primary school children are also able to drop-off/pick-up their children from the kerbside area. Notwithstanding, it is not desirable for children to be dropped off on the northern side (i.e. opposite side) of Rosemead Road as they would then need to cross the road. Parents will be advised that if they prefer to drop-off their child on-street, it should occur along the southern side of Rosemead Road, directly outside the site. This will also be incorporated into the Operational Traffic Management Plan.



Further to the on-site “kiss & drop” area, consideration could also be given to implementing “No Parking” restrictions along the southern side of Rosemead Road, directly outside the site frontage, which would still legally allow parents to drop-off/pick-up their children, providing their “dwell time” is no more than 2 minutes and they remain within 3m of their vehicle. The timed parking restrictions would be limited to the morning and afternoon peak drop-off/pick-up periods only, with unrestricted parking permitted at all other times, as per the existing arrangement.

It should be noted however that the “No Parking” restrictions are merely a suggestion and any changes to kerbside parking restrictions are subject to approval from Council’s Local Traffic Committee. It should also be noted that the proposed development does *not* rely on the above on-street parking restriction suggestion to satisfy Council’s *DCP* requirements, it is merely a suggestion that Council could *consider* if they see merit in it.

The image below is of the existing driveway and gates which will become the entry driveway and restricted to left-in movements only. Whilst the existing crossover and layback are to be retained, the gates are to be widened slightly, as well as the internal roadway, to better accommodate the swept turn path requirements of larger cars.



The image on the following page is the approximate location of the proposed new exit driveway which runs alongside the existing garage, which will be restricted to left-out movements only.





Deliveries to the proposed preschool and primary school are expected to be undertaken by a variety of light commercial vehicles such as white vans, utilities and the like. In this regard, deliveries will be scheduled to arrive *outside* of peak periods. In practice, the delivery driver will park in the on-site “kiss & drop” area, directly outside the building, as it will be vacant. There are expected to be 2-3 deliveries *per week*, with “dwell times” unlikely to exceed a few minutes.

Waste collection for the proposed development is to be undertaken from the kerbside area directly outside the site frontage in Rosemead Road, with the bins to be lined up on “bin night” for collection the following day.

### **Operational Characteristics**

As noted in the foregoing, *Blue Gum Community School* is a small community-based, secular independent school which currently operate an existing facility in Canberra. As such, *real-life* operational characteristics can be obtained in which to apply to the proposed facility on the subject site.

The preschool (ages 3-5) will offer three enrolment options:

- Short day (6 hours): 9:00am to 3:00pm
- Mid day (8 hours): 8:30am to 4:30pm
- Full day (10 hours): 8:00am to 6:00pm



The primary school (ages 5-12) will comprise the following:

- 9:00am to 3:00pm
- Before and after school care (8:00am-9:00am & 3pm-6pm, respectively)

The primary school morning drop-off will typically occur between 8:30am-9:00am whilst the afternoon pick-up period will typically occur between 2:50pm-3:20pm. In this regard, the afternoon pick-up will be staggered into 10 minute blocks in order to “dilute” the number of parents on site.

- Group A (*max* 16 students, likely 8-10 students): pick-up 2:50pm-3:00pm
- Group B (*max* 16 students, likely 8-10 students): pick-up 3:00pm-3:10pm
- Group C (*max* 16 students, likely 8-10 students): pick-up 3:10pm-3:20pm

Based on the Canberra school, the likely number of primary children being picked up in the set times is 50-60% (i.e. 24-30 students), with the remaining students utilising the after-school program and picked up between 3:30pm-6:00pm.

By grouping the children with siblings, the school is able to ensure families arrive and leave at the same time, thereby minimising waiting time for families on site. Furthermore, and also based on the Canberra school, approximately one-third of the total enrolment are expected to be siblings – i.e. approximately 27 of the 80 children at both the preschool and the primary school will likely be siblings.

A typical day would be broken down as follows:

Morning

- 7:45am staff arrive
- 8:00am long day preschool children and before school care primary students start arriving
- 8:30am-9:00am mid day preschool and primary drop-off
- 9:00am short day preschool drop-offs begin



Afternoon

- 2:50pm-3:20pm staggered primary pick-up and short day preschool children with siblings in primary school
- 3:00pm-3:30pm short day preschool pick-up for those without primary siblings
- 4:30pm-4:45pm mid day preschool pick-up and any after school care primary
- 5:45pm-6:00pm long day preschool pick-up and any after school care primary
- 6:15pm end of day for staff

Vacation care will be offered in all holiday periods with the exception of public holidays and a 3-week Christmas shutdown in December/January each year. The holiday programs will be staffed and managed by *Blue Gum Community School* and attendance is *not* compulsory. Based on the Canberra school, the vacation care program typically caters for the needs of 40-50% of the total student population, or 32-40 children based on a total enrolment of 80 children.

An Operational Traffic Management Plan has been prepared and is provided in Appendix B.



### **3. TRAFFIC ASSESSMENT**

#### **Road Hierarchy**

The road hierarchy allocated to the road network in the vicinity of the site by the Roads and Maritime Services is illustrated on Figure 3.

The Pacific Highway, George Street and Jersey Street North are classified by the RMS as *State Roads* which and provides the key north-south road link in the area, linking North Sydney to Hornsby and beyond. It typically carries two to three traffic lanes in each direction in the vicinity of the site, with turning lanes provided at key locations.

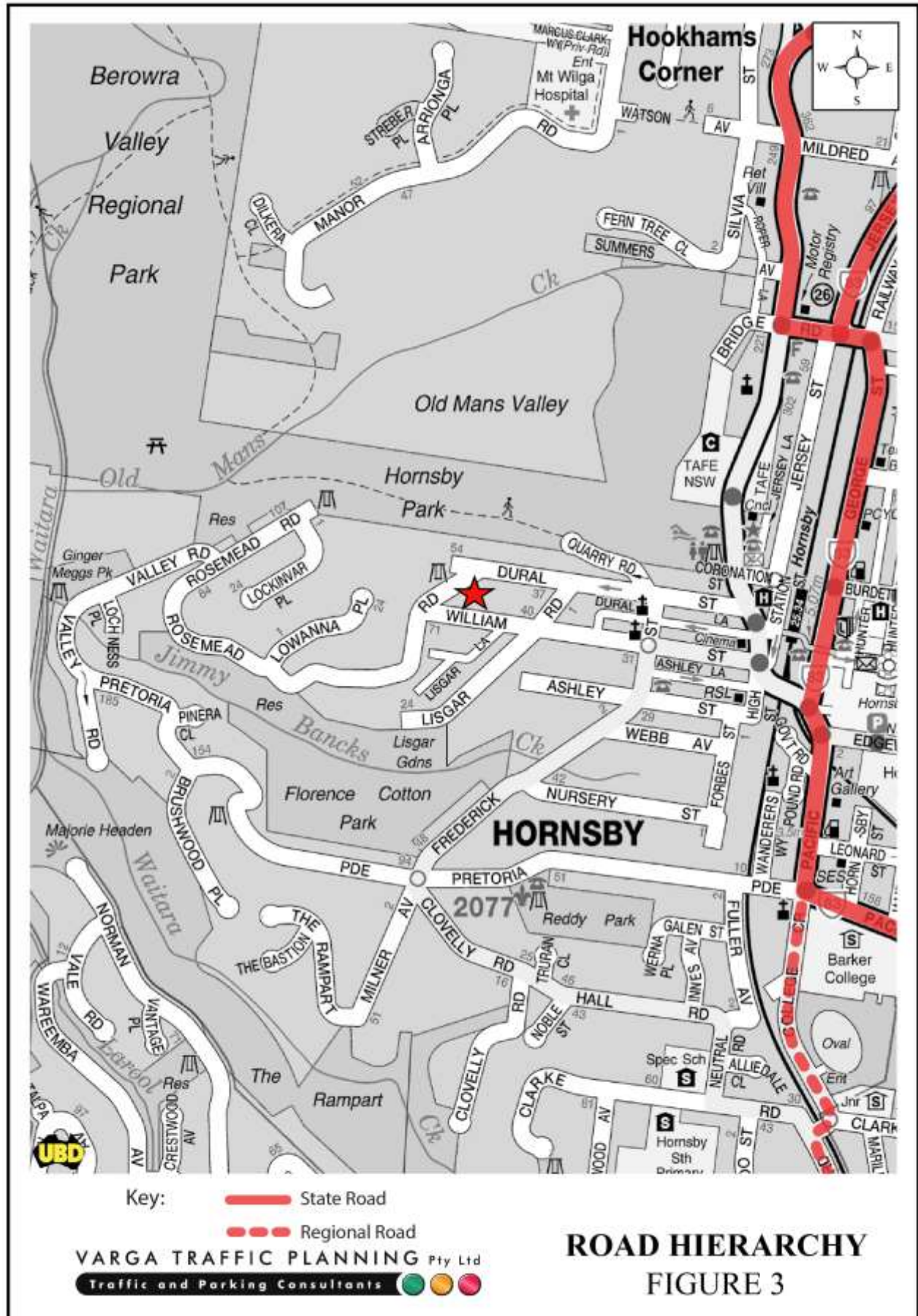
Rosemead Road and William Street are local, unclassified roads which are primarily used to provide vehicular and pedestrian access to frontage properties. Kerbside parking is generally permitted on both sides of both roads.

#### **Existing Traffic Controls**

The existing traffic controls which apply to the road network in the vicinity of the site are illustrated on Figure 4. Key features of those traffic controls are:

- a 50 km/h SPEED LIMIT which applies to Rosemead Road, William Street and all other local roads in the area
- TRAFFIC SIGNALS in Peats Ferry Road where it intersects with William Street, including a RIGHT TURN HOLDING BAY
- a NO RIGHT TURN restriction for southbound traffic on Peats Ferry Road turning onto Dural Street between 7am-9am & 3pm-6pm weekdays
- a ROUNDABOUT at the intersection of William Street and Frederick Street
- a ONE WAY westbound restriction in Dural Street, between Quarry Road and Lisgar Road.











## Existing Public Transport Services

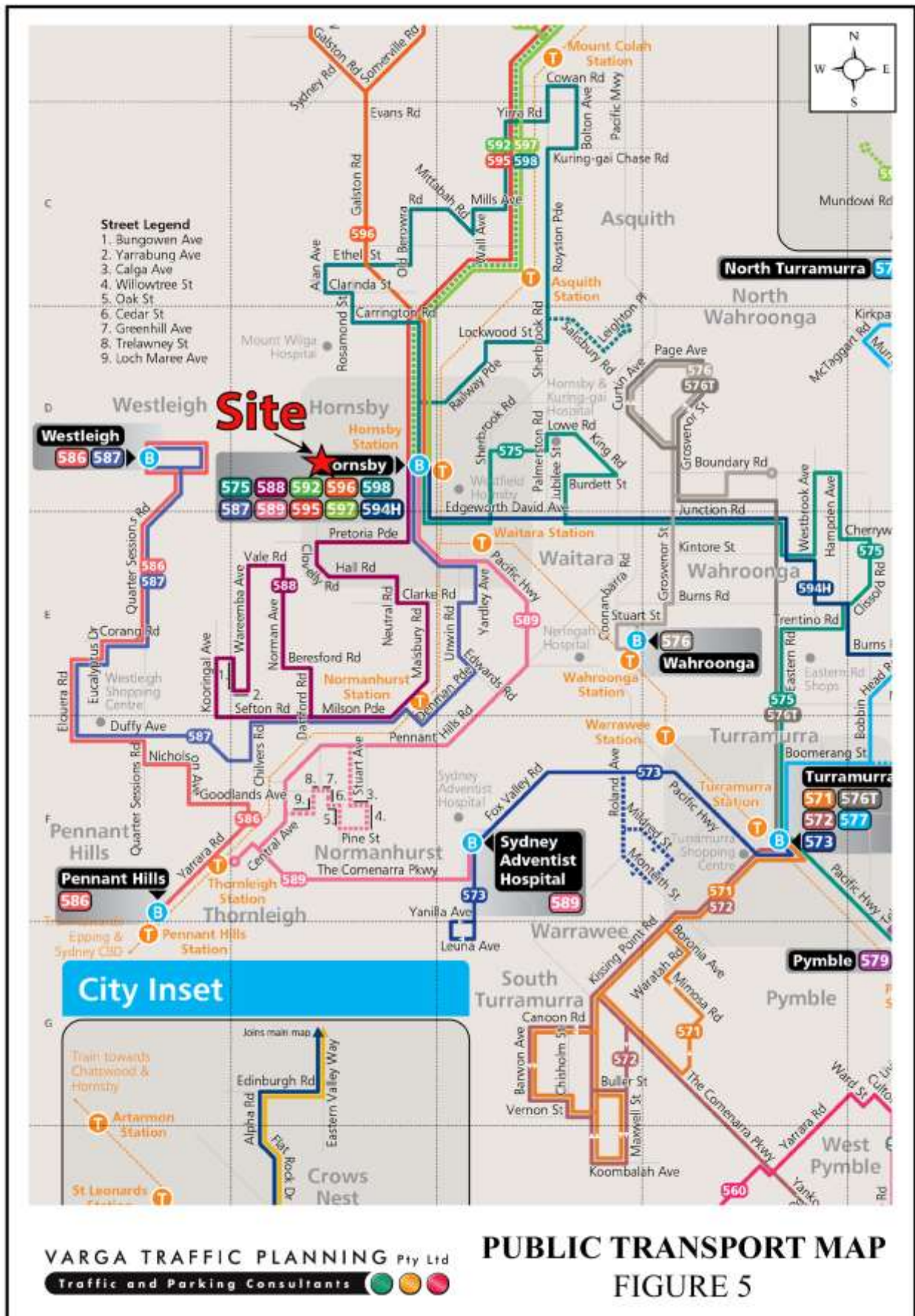
Hornsby Railway Station & Bus Interchange is located approximately 750m walking distance east of the site along either Dural Street or William Street, with studies suggesting that people are typically willing to walk up to 800m to get to public transport. An 800m radius aerial image is reproduced below, showing Hornsby Railway Station & Bus Interchange at the outer eastern edge of the 800m radius.



Hornsby Railway Station is situated on the T1 North Shore, Northern and Western Line, operating between Emu Plains and Hornsby via Strathfield and Epping, with train services operating every 5-10 minutes during peak periods and every 15 minutes during off-peak periods.

There are also 10 bus services operating from Hornsby Bus Interchange, servicing the local areas and beyond, as indicated on Figure 5. There are no bus services that presently operate along William Street, Rosemead Road, Dural Street or Frederick Street, nor are there expected to be any in the future.



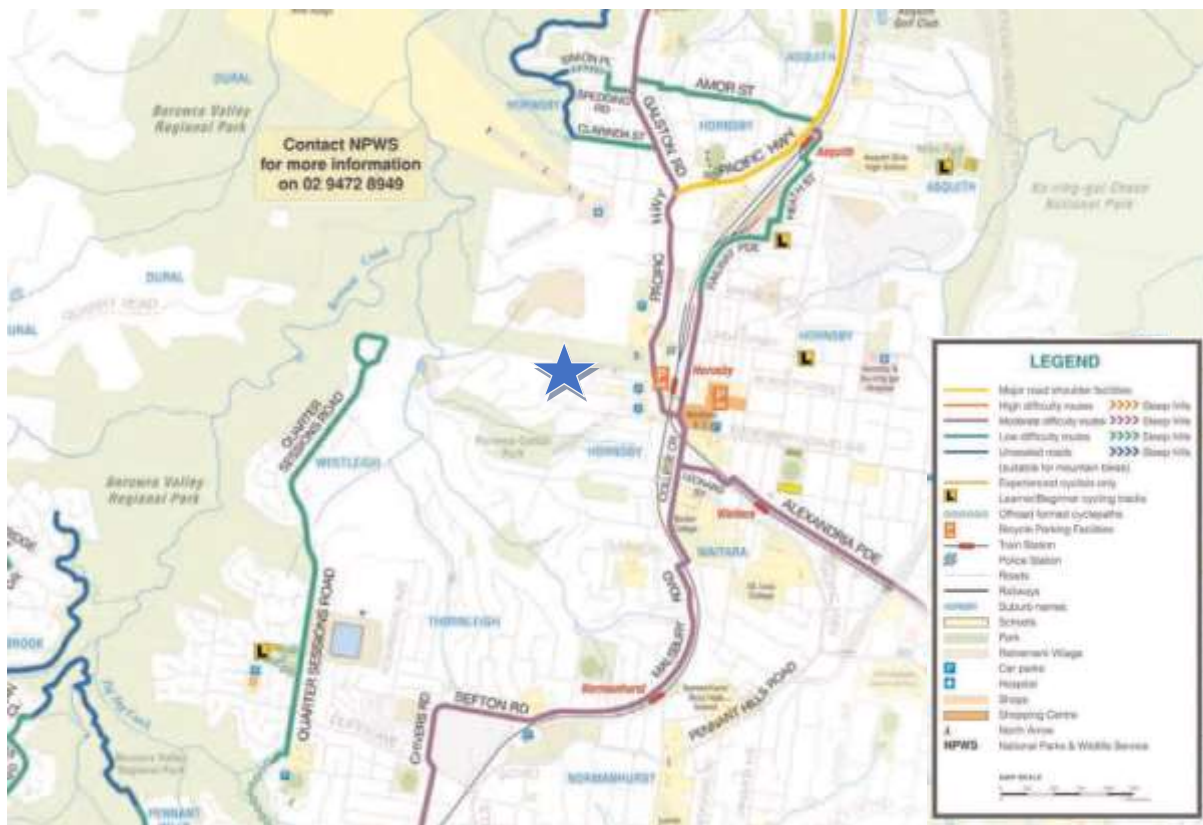




The site is therefore considered to be highly accessible to public transport options and ideally located for staff without cars and for those who choose public transport as their preferred mode of transport to/from work.

### Bicycle & Footpath Network

The bicycle network in the vicinity of the site is shown in the map below which is from Council's website. Cycling can potentially save travel time as well as being an ideal way to save money, stay active and protect the environment.



In addition, sealed footpaths are provided throughout the local area. This includes along both site frontages, thereby providing safe means of pedestrian access to/from the site. Due to the small enrolment size of the proposed primary school, it is not proposed to construct any formal pedestrian crossings and/or refuge islands in the vicinity of the school. In any event, it is unlikely to satisfy a *warrants* test to provide such crossings.



## **Green Travel Plan**

A Green Travel Plan is a package of actions designed to encourage safe, healthy and sustainable travel options. The objectives of a Green Travel Plan are to remove barriers to active travel for all users of developments and to maximize the number of people who walk, cycle or take public transport to and from a development.

A key feature of a Green Travel Plan includes a plan detailing the location of all public transport services, footpath walking routes and cycle routes located within a 5 minute and 10 minute walking radius of the site, as well as contact details and websites for local bus companies, taxi companies and the like.

The use of sustainable modes of transport will provide a range of public benefits including:

- improved health
- improved community connectivity
- reduced competition for road space and congestion
- reduced competition for car parking
- reduced noise and air pollution
- potential cost savings.

The NSW Government's *A Plan for Growing Sydney and the Long Term Transport Masterplan* identify the following objectives for transport across Sydney:

- Sydney will become more compact, multi-centred connected city, with a transport network that provides quick and convenient public transport connections across the city and frequent links to other cities.
- development within the walking and cycling catchments of local centres will improve access to local services and public transport that links to major centres, with seamless interchange opportunities.



- the city will become more liveable by improving the design of buildings and public areas, development mixed-use spaces where people work and live, and creating more opportunities for people to walk and cycle to work and major service centres.
- central to these outcomes will be an integrated and efficient transport system that is closely aligned with land use planning.
- improved public transport networks will increase productivity and global competitiveness.
- better transport hubs and improved connections will support revitalisation of neighbourhoods and the success of urban centres.
- public transport services will link people to the jobs available in the Global Economic Corridor.
- with an integrated and more effective transport system, a future Sydney will be more sustainable, more liveable and will be a strong global city.

Due to the small size of the proposed pre-school and primary school, providing a formal Green Travel Plan by way of a standalone document is not considered necessary.

Notwithstanding, a member of staff will be designated as the *travel co-ordinator* who will be responsible for advising new staff and families of the alternate transport options available and their benefits. This information will also be provided in the foyer's notice board as well as on their website.

### **Existing Traffic Conditions**

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by peak period “tube” traffic surveys undertaken as part of this traffic study. The “tube” traffic surveys were undertaken over a 7-day period in Rosemead Road, directly outside the subject site, opposite No.4, between Friday 1<sup>st</sup> November and Thursday 7<sup>th</sup> November, 2019. The results of the traffic surveys are reproduced in full in Appendix C and reveal that:



- over the survey period, the average weekday peak *hour* occurred between 6pm-7pm when there were on average, 25 vehicle movements, comprising 22 south-westbound vehicles and 3 north-eastbound vehicles
- between 7am-8am and 8am-9am there were 11 and 12 vehicles recorded respectively, on average
- between 3pm-4pm, 4pm-5pm and 5pm-6pm there were 16, 12 and 23 vehicles recorded respectively, on average
- the 85<sup>th</sup> percentile speed was in the order of 46km/h.

Council have also requested that William Street and Dural Street are included in the assessment as these two roads will be the likely access roads to/from the major road network. Notwithstanding, due to Covid-19 restrictions, obtaining traffic surveys of William Street and Dural Street would not reflect *actual* existing conditions.

In order to therefore determine the existing traffic volumes along William Street and Dural Street, Council's DA tracker was utilised in an attempt to find any nearby DAs and more importantly, if any traffic and parking studies included traffic survey data. A number of studies were found which indicated the following traffic volumes in the surrounding area:

- two-way traffic volumes along William Street, east of Frederick Street, are in the order of 260-275 vehicle movements
- two-way traffic volumes along Frederick Street, in between William Street and Dural Street, are in the order of 130-140 vehicle movements
- two-way traffic volumes along Dural Street, west of Frederick Street, are in the order of 40-45 vehicle movements.



## Projected Traffic Generation

The traffic implications of development proposals primarily concern the effects of the *additional* traffic flows generated as a result of a development and its impact on the operational performance of the adjacent road network, particularly during the weekday morning and afternoon network peak periods.

An indication of the traffic generation potential of the preschool component of the development proposal is provided by reference to Table 3.6 in the Roads and Maritime Services publication *Guide to Traffic Generating Developments, Section 3 - Landuse Traffic Generation (October 2002)* which is reproduced on the following page.

**Table 3.6**  
**Traffic generation rates**

Centre Type	Peak Vehicle Trips / Child		
	7.00- 9.00am	2.30- 4.00pm	4.00- 6.00pm
Pre-school	1.4	0.8	-
Long-day care	0.8	0.3	0.7
Before/after care	0.5	0.2	0.7

Source: RMS *Guidelines*

The RMS *Guidelines* does not however specify a traffic generation rate for primary schools, therefore reference is made to a range of traffic and parking assessments undertaken by *Varga Traffic Planning* of a variety of primary schools located within the greater Sydney area. The traffic generation rates surveyed at those schools have been tabulated below.

In summary, the typical traffic generation potential of a primary school within the greater Sydney area is in the order of *0.75 trips/student* during the AM drop-off period and in the order of *0.55 trips/student* during the PM pick-up period. These rates represent movements TO and FROM, *combined* (i.e. *not* each way)



Primary School Comparison Traffic Generation Rates				
School	AM		PM	
Italian Bilingual School, Meadowbank	0.33 trips/student TO	0.24 trips/student FROM	0.20 trips/student TO	0.30 trips/student FROM
Our Lady of the Rosary, St Marys	0.66 trips/student TO	0.53 trips/student FROM	0.47 trips/student TO	0.52 trips/student FROM
Anzac Ave, Public School, Cammeray	0.19 trips/student TO	0.19 trips/student FROM	0.08 trips/student TO	0.08 trips/student FROM
Prouille School, Wahroonga	0.50 trips/student TO	0.46 trips/student FROM	0.41 trips/student TO	0.43 trips/student FROM
Mary Immaculate, Eagle Vale	0.51 trips/student TO	0.47 trips/student FROM	0.15 trips/student TO	0.25 trips/student FROM
Lorien Novalis School, Dual	0.46 trips/student TO	0.40 trips/student FROM	0.34 trips/student TO	0.41 trips/student FROM
Wentworth Point Primary School	0.19 trips/student TO	0.18 trips/student FROM	0.09 trips/student TO	0.12 trips/student FROM
<b>AVERAGE</b>	<b>0.40 trips/student TO</b>	<b>0.35 trips/student FROM</b>	<b>0.25 trips/student TO</b>	<b>0.30 trips/student FROM</b>

Application of the above traffic generation rates to the various components of the development proposal yields a traffic generation potential of approximately 71 vehicle trips between 7:00am-9:00am, approximately 31 vehicle trips between 2:30pm-4:00pm and approximately 28 vehicle trips between 4:00pm-6:00pm (all IN and OUT, combined), as set out in the table below:

Traffic Generation Potential – Blue Gum Community School			
	7:00am-9:00am	2:30pm-4:00pm	4:00pm-6:00pm
Preschool (~16 kids)	22 vph	13 vph	-
Long day care (~16 kids)	13 vph	5 vph	11 vph
Primary school (48 kids)	36 vph	13 vph	17 vph
<b>TOTAL</b>	<b>71 vph</b>	<b>31 vph</b>	<b>28 vph</b>

It is likely that the majority of traffic will approach the site from Peats Ferry Road onto William Street, right onto Frederick Street, left onto Dural Street, left onto Rosemead Road and then *left into the site*. Upon exiting the site, vehicles will turn *left out of the site* back onto Rosemead Road, left onto William Street and then back to Peats Ferry Road.



In order to determine the effect of the additional traffic on the adjacent road network, reference is made to the industry-standard Roads and Maritime Services publication *Guide to Traffic Generating Developments, Section 4 – Interpretations of Traffic Impacts (October 2002)*. Table 4.4 (reproduced below) sets out two-way hourly road capacity for one-lane per direction roads for different *Levels of Service*. As a guide, a *Level of Service “A”* for a one-lane per direction road is in the order of *200 vehicles per hour*.

**Table 4.4**  
Urban road peak hour flows per direction

Level of Service	One Lane (veh/hr)	Two Lanes (veh/hr)
A	200	900
B	380	1400
C	600	1800
D	900	2200
E	1400	2800

Source: RMS Guidelines

Reference to the “tube surveys” undertaken as part of this traffic study has indicated that the average two-way *peak hour* traffic volumes along Rosemead Road is in the order of *25 vehicles per hour*.

If the proposed traffic movements detailed on the previous page are added to the existing peak traffic movements of *25 vehicles per hour*, traffic along Rosemead Road will still *not* exceed *100 vehicles per hour*, thereby comfortably remaining at a *Level of Service “A”*.

Reference to the traffic surveys obtained on Council’s DA tracker indicates that:

- two-way traffic volumes along William Street, east Frederick Street, are in the order of 260-275 vehicle movements
- two-way traffic volumes along Frederick Street, in between William Street and Dural Street, are in the order of 130-140 vehicle movements
- two-way traffic volumes along Dural Street, west of Frederick Street, are in the order of 40-45 vehicle movements.



Again, if the proposed traffic movements detailed in the foregoing are added to the existing peak traffic movements along the approach and departure route, William Street (west of Frederick Street), Frederick Street and Dural Street will continue to operate at a *Level of Service "A"*. Based on Table 4.4 of the RMS *Guidelines*, William Street, east of Frederick Street, is currently operating at between *Level of Service "A"* and *"B"* and will also continue to do with the proposed development traffic.

Furthermore, the site is also located within a large residential catchment area such that there are also expected to be some families that might *walk* to/from the facility, thereby potentially reducing the traffic movements. The school will also actively encourage walking or riding bikes to/from school for primary children.

### Environmental Capacity of Residential Streets

Research undertaken by the Roads and Maritime Services has identified a number of environmental capacity performance standards for different types of residential streets, as set out in the table below:

Table 4.6 Environmental Capacity Performance Standards on Residential Streets			
Road Class	Street Type	Maximum Speed (km/hr)	Maximum Peak Hour Volume (veh/hr)
Local	Access Way	25	100
	Street	40	200 Environmental Goal
			300 Maximum
Collector	Street	50	300 Environmental Goal
			500 Maximum

**Note:** Maximum speed relates to the appropriate design maximum speeds in new residential developments.

In existing areas maximum speed relates to 85<sup>th</sup> percentile speed.

As noted above, the cumulative traffic flows in Rosemead Road as a consequence of the development proposal is therefore not expected to exceed *100 vehicles per hour*, even during the morning peak drop-off period and *well below* the threshold of 200 vph which is the environmental goal for a local residential street.



Furthermore, if the proposed traffic movements detailed in the foregoing are added to the existing peak traffic movements along the approach and departure route, William Street (west of Frederick Street), Frederick Street and Dural Street will continue to remain *below* the threshold of 200 vph which is the environmental goal for a local residential street.

William Street, east of Frederick Street, is currently operating as a *collector* road carrying approximately 260-270 vehicles during the weekday morning and afternoon peak *hours*. The addition of the proposed development traffic will result in approximately 340 vehicles during the weekday morning peak *hour* and approximately 290 vehicles during the weekday afternoon peak *hour*, thereby remaining within acceptable parameters for a *collector* road.

As such, the projected increase in traffic activity as a consequence of the development proposal will clearly not have any unacceptable traffic implications in terms of road network or environmental capacity, nor will any infrastructure upgrades be required.



## 4. CONSTRUCTION TRAFFIC MANAGEMENT PLAN

### Construction Schedule

The construction activities are expected to be undertaken over a duration of approximately 12 weeks, as set out in the table below. Working hours will be as per Council's standard hours which in Hornsby LGA are typically 7:00am to 5:00pm Monday to Saturday. No work is to be carried out on Sundays or Public Holidays.

CONSTRUCTON PROGRAM – APPROXIMATE DURATIONS		
Stage	Work	Duration
1	Demolition & Site Clearing	2 weeks
2	Construction	10 weeks

### Loading and Unloading Arrangements

All demolition and excavated spoil material will be loaded wholly within the site using a variety of truck sizes ranging from 2T mini-tippers up to and including 8.8m long medium rigid trucks. Trucks will endeavour to enter and exit the site in a forward direction via the existing site access driveway located off Rosemead Road. Notwithstanding, trucks may need to reverse into the site on occasions, under the supervision of an authorised traffic controller.

Given the modest scale of the project, truck movements during construction are expected to be minimal, with an estimated 2-3 truck movements *per week*, on average.

### Works Zone

Given that all loading and delivery handling will occur on site, a Works Zone is unlikely to be required. If the situation changes due to unexpected circumstances, an application will be made to Council.



### **Construction Truck Routes**

All heavy vehicles involved in the demolition and construction activities would approach and depart the site via Peats Ferry Road in essentially the same manner that future parents and staff will take, as indicated on Figure 6.

Light traffic roads and those subject to load or height limits will be avoided as well as minimising heavy vehicle movements during school peak periods.

### **Authorised Traffic Controller**

An authorised traffic controller (or spotter) may be required to supervise the movement of all heavy vehicles across the public footpath to ensure the safety of pedestrians in the vicinity of the site access driveway, particularly during reverse manoeuvres.

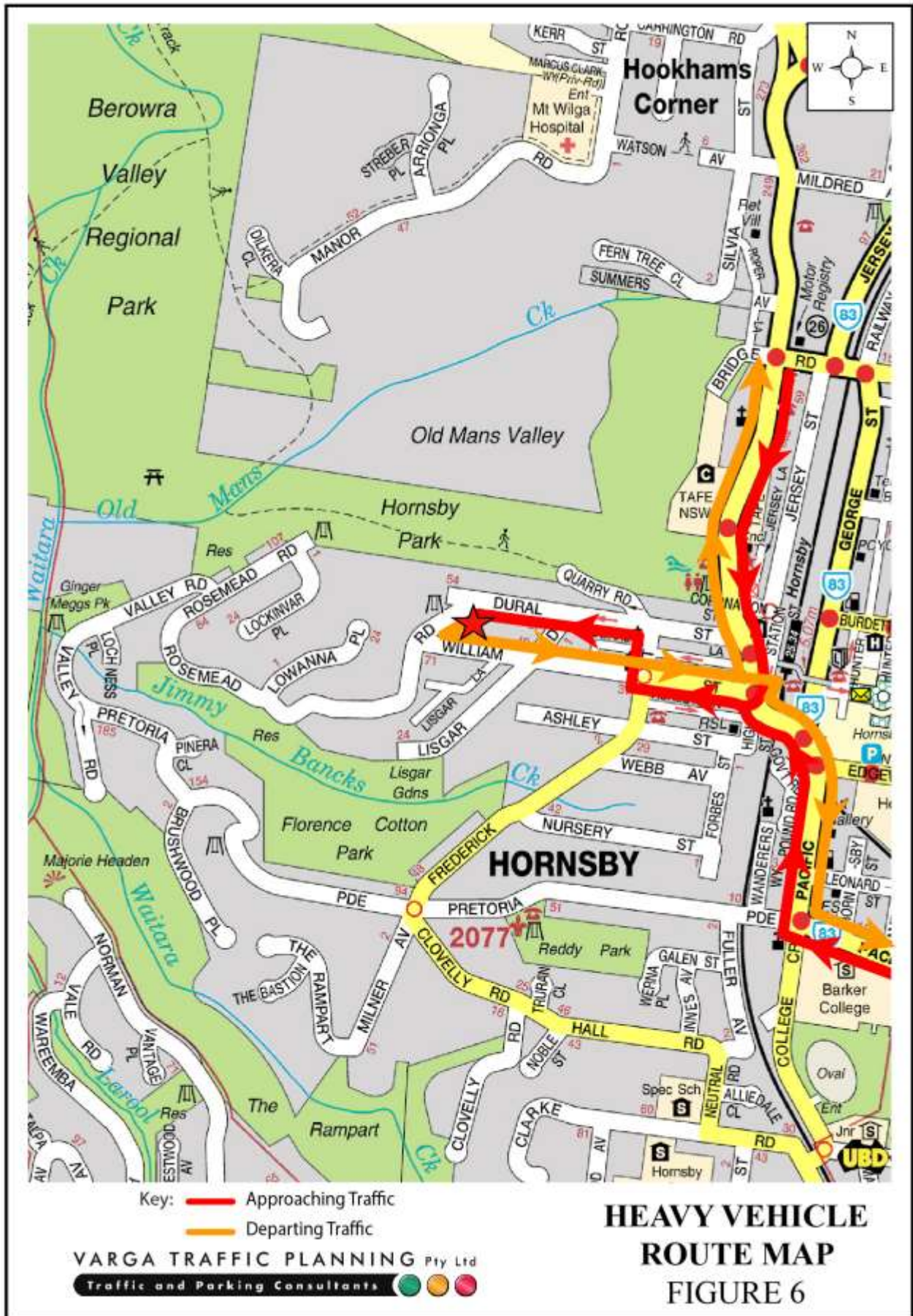
### **Traffic Control Plan**

A Traffic Control Plan may be required at construction stage which would detail the traffic arrangements, signage etc, that would be implemented during the construction works.

### **Tradesmen and Contractor Car Parking**

The site manager will ensure that there is adequate on-site parking available for employee, tradesperson and construction vehicles, where practical. Due to the relatively small number of contractors expected to be on site at any given time, providing adequate parking is not expected to be an issue.







## 5. PARKING IMPLICATIONS

### Existing Kerbside Parking Restrictions

Given the residential nature of Rosemead Road, William Street and the surrounding area, there are generally no kerbside parking restrictions which apply in the vicinity of the site, including along both site frontages.

### Off-Street Car Parking Provisions

The off-street car parking requirements applicable to the development proposal are specified in Council's *Hornsby Development Control Plan 2013, Table 1C.2.1(d) On-Site Car Parking Rates* in the following terms:

Type of Development	Car Parking Requirement	
	Sites < 800m from Railway Station	Sites > 800m from Railway Station
Education		
Child Care Centre	1 space per 4 children	
Educational Establishments	1 space per full time teacher + 1 space per 2 students of driving age	

In addition, *HDCP 2013, Part 7.1.7 Vehicle Access & Parking* requires that educational establishments provide driveways that incorporate a set-down/pick-up area for students.

Application of the above car parking requirements to the various components of the development proposal yields an off-street car parking requirement of 12 spaces plus a set-down/pick-up area, as set out below:

#### HDCP 2013 Minimum Parking Requirements

Preschool (32 children):	8.0 spaces
Primary school (4 staff/48 children):	4.0 spaces
<b>TOTAL:</b>	<b>12.0 spaces + set-down/pick-up area</b>



As noted above, the proposed development makes provision for a total of 12 off-street parking spaces, comprising 8 preschool spaces (staff and parents combined), 4 primary school staff spaces and a drop-off/pick-up area, thereby satisfying Council's *HDCP 2013* requirements.

Furthermore, the site is ideally located approximately 750m walking distance to/from Hornsby Railway Station & Bus Interchange. The ready accessibility of the site by public transport will facilitate reduced car usage rates by staff.

At the Canberra site, *Blue Gum Community School's* ethos and approach draws teachers with a strong commitment to sustainability and the environment. As such, in their context, many staff do choose alternatives to driving in order to protect the environment. Many staff walk, cycle or utilise public transport to get to/from work. The proximity of the site to Hornsby Station makes this an appealing option for this new site as well. The school also encourages staff members and families to carpool to/from school whenever possible.

### Off-Street Bicycle Parking Provisions

The off-street bicycle parking requirements applicable to the development proposal are specified in Council's *Hornsby Development Control Plan 2013, Table 1C.2.1(g) On-Site Car Parking Rates* in the following terms:

Table: 1C.2.1(g) On site bicycle parking and facilities

Type of Development	Minimum Bicycle Parking Requirement
Educational Establishments	<p>1 rack per 20 full-time staff or part thereof, and</p> <p>5 racks per class (between grades 5 and 12), and</p> <p>lockers for staff at a rate of 1 per 3 staff bicycle racks or part thereof, and</p> <p>end of destination facilities for staff in the form of at least 1 shower cubicle with ancillary change rooms for every 10 bicycle racks required.</p>



It should be noted that the above student bicycle parking rate of *5 racks per class* is based on a typical school where class sizes are in the order of 20-30 students per class. *Blue Gum Community School* however will be a much smaller school with smaller class sizes.

At present, the proposed design does not provide bicycle parking however the site is large enough to accommodate it. Based on the above *DCP* rates and the factoring in the smaller class sizes, the provision of say, 6 bicycle spaces (in the form of a traditional bicycle rack) would seem reasonable in this instance.

In addition, the proposed development includes a disabled bathroom with shower, thereby providing staff who wish to ride with suitable end-of-trip facilities.

### **Drop-off & Pick-up Procedures**

With respect to the preschool component of the development proposal, government legislation requires all children to be physically signed in and out. As such, preschool parents (including those with older children enrolled at the primary school) will park in the rear parking area.

Primary school parents will utilise the on-site drop-off/pick-up area located outside the building. During the morning drop-off period, parents tend to literally *kiss and drop* such that vehicle “dwell time” along the entry driveway and drop-off area will be minimal. Staff will be in place to ensure the process runs smoothly. During the afternoon pick-up period, parents and children will know their pre-allocated collection time (Group A, Group B & Group C, detailed earlier in this report), with each 10-minute group comprising *up to* 16 children (although realistically, 8-10 children per group). Furthermore, children will be grouped together at the pick-up area at the commencement of their respective allocated collection period. Staff will again be in place to ensure the process runs smoothly.

In this regard, the entry driveway is sufficiently long enough to accommodate 6 cars entirely *within* the site which is expected to be more than adequate.

As noted in the foregoing, in addition to the on-site car parking and drop-off/pick-up area, consideration could also be given to implementing a “No Parking” zone along the Rosemead



Road site frontage (subject to the approval of Council's Local Traffic Committee) to provide flexibility for parents of primary school students who may not wish to drive onto the site. The "No Parking" zone would apply only during the morning and afternoon weekday peak periods only. Unrestricted parking would be permitted outside of these peak periods as per the current arrangement. A member of staff would also be in place to ensure the process runs smoothly and parents are obeying the legal 2 minute "dwell time".

The geometric design layout of the proposed car parking facilities has been designed to comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 1 - Off-Street Car Parking AS2890.1:2004* in respect of parking space dimensions, aisle width, driveway width and driveway locations.

In particular, the parking spaces will be delineated by way of wheelstops and reflective discs, with all parking spaces designed at 2600mm wide. Notwithstanding, the disabled parking space as well as its adjacent shared zone will be 2400mm wide each (as per AS2890.6:2009 requirements) on a hardstand surface. Furthermore, a footpath is also proposed along the fenceline of No.1A Rosemead Road that leads through the disabled shared zone and across a hardstand "crossing" to the entry of the building. This will provide parents and children with a safe means of access without requiring to walk through the car park's circulation area.

Pedestrian sight triangles are provided on both sides of the site exit driveway in accordance with Figure 3.3 of AS2890.1:2004. In this regard, the position of the exit driveway has been carefully chosen to achieve maximum visibility in both directions along Rosemead Road whilst also being mindful of arboricultural requirements.

### **Recommendations and Considerations**

In order to ensure the on-site parking spaces are turned over regularly, and for increased safety, consideration could be given to installing signage to the rear of a number of spaces, as well as at the entry to the car park. Notwithstanding the above, consideration could also be given to providing a small number of unrestricted parking spaces within the car parking area for either staff or parents wishing to stay on-site longer than 15 minutes. Examples of signs are shown on the following page.





It is anticipated that a 40km/h School Zone will be required in the vicinity of the site that will need to be co-ordinated with Transport for NSW. Experience indicates however that an application for the School Zone speed limit should be applied for once the school is approved and the construction certificate has been issued. Furthermore, standard procedure is that the School Zone speed limit would not be installed until the occupation certificate has been issued.

## Conclusion

The foregoing assessment has found that Rosemead Road will continue to operate at *Level of Service "A"* under the proposed scenario, whilst the greater surrounding road network will also continue to operate within acceptable parameters.

Furthermore, the proposed development satisfies Council's *HDCA 2013* in terms of off-street parking and drop-off/pick-up requirements, as well as the design requirements within the Australian Standards.

It is therefore reasonable to conclude that the proposed development will not have any unacceptable implications in terms of road network/environmental capacity or off-street parking/access requirements.



## **APPENDIX A**

### **ARCHITECTURAL PLANS**





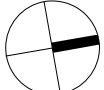
SHEET LIST	
SHEET NUMBER	SHEET NAME
A100	SITE AND ROOF PLAN
A200	FLOOR PLANS + SECTIONS
A210	ELEVATIONS/HOUSE
A220	ELEVATIONS SITE
A230	ADDITIONAL DETAILS
A300	SITE MANAGEMENT+ STORMWATER CONCEPT PLAN

GENERAL LEGEND:

DP	DOWN PIPE		DEMOLISHED ELEMENTS
	WATER BUBBLERS		ALTERATIONS AND ADDITIONS
000.000+	EXISTING RL		EXISTING PROPOSED GARDENS
	PROPOSED RL		OUTDOOR PLAY AREA
S ↔ S	SUPERVISION VIEW ACCESS		
	NATURAL LIGHT ACCESS		
	NATURAL VENTILATION		

GENERAL NOTES:

- ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE HERITAGE CONSULTANT REPORT AND RECOMMENDATIONS. ANY VARIATIONS, INCONSISTENCIES OR AMBIGUITIES IN THE PROJECT REPORTS, DRAWINGS OR DOCUMENTATION ARE TO BE IMMEDIATELY REPORTED TO THE HERITAGE CONSULTANT AND CLIENT FOR WRITTEN INSTRUCTIONS ON HOW TO PROCEED. ALL WORKS TO BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS, THE BUILDING CODE OF AUSTRALIA, OTHER RELEVANT CODES, AND THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. DO NOT SCALE FROM DRAWINGS. VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. ALL EXTERNAL RLS ARE APPROXIMATE ONLY. REFER DETAILED SURVEY FOR PRECISE SITE LEVELS. ARCHITECTURAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE DA CONSULTANT DOCUMENTATION AND REPORTS INCLUDING BUT NOT LIMITED TO:
- a. HERITAGE REPORT
  - b. ACCESS REPORT
  - c. ARBORESCENCE REPORT
  - d. TRAFFIC REPORT
  - e. FIRE ENGINEERING REPORT
  - f. BCA REPORT
  - g. STRUCTURAL ENGINEERS REPORT
  - h. LANDSCAPE ARCHITECTS DOCUMENTATION
  - i. ACOUSTIC REPORT
  - j. HAZARDOUS MATERIALS REPORT
  - k. SPECIALIST AND ALTERNATIVE SOLUTION REPORTS
- CONTRACTOR TO ENSURE WORKS ARE COORDINATED WITH SPECIALIST CONSULTANT INPUT + REPORTS.
- PAVING AND GRATES THAT CHILDREN WILL HAVE ACCESS TO MUST BE FITTED WITH CHILDPROOF LOCKING SYSTEMS TO PREVENT CHILDREN FROM LEAVING / ENTERING AREAS UNSUPERVISED.
- OUTDOOR SPACES AND PLAY AREAS ACCESSIBLE TO CHILDREN MUST BE ENCLOSED ON ALL SIDES WITH A BARRIER WHICH A MINIMUM HEIGHT OF 1250MM AND COMPLIES WITH AS1926.1-2012
- ALL NEW WET AREAS TO INCLUDE A BATTEN AND SHEET LINING TO PROTECT EXISTING FABRIC FROM NEW FINISHES, ADHESIVES, WATERPROOFING AND THE LIKE.
- ANY EXISTING BUILDING ELEMENTS (SUCH AS DOORS, WINDOWS, FITTINGS AND FIXTURES) THAT ARE DEEMED SIGNIFICANT BY THE HERITAGE CONSULTANT AND REMOVED AS PART OF THE WORKS MUST BE CAREFULLY HANDLED AND SAFELY STORED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE HERITAGE CONSULTANT.
- NO INFLUENCE OF DEVICES TO BE PROVIDED.
- WINDOW RESTRICTING DEVICES TO BE ADDED TO BUILDINGS AS PART OF THE DA DETAIL TO HERITAGE CONSULTANT REQUIREMENTS.
- TRUE NUMBERING AND INFORMATION IS INDICATIVE ONLY. REFER TO ARBORISTS REPORT FOR ALL DETAILS OF PROPOSED TREE RETENTION AND REMOVAL.



**FOR DEVELOPMENT APPROVAL**

**ARMADA**  
Architecture Masterplanning and Design Agency

Studio 55 Level 5  
61 Marlborough Street  
Surry Hills, NSW 2010  
directors@armadaarchitects.com.au

All works to be in accordance with Australian Standards, The Building Code of Australia, other relevant codes, and with manufacturer's instructions and recommendations. Do not scale from drawings. Verify all dimensions on site prior to construction. This drawing is copyright and may not be used without written consent from  
ARMADA ARCHITECTS PTY LTD.  
Nominated Architect Jarrod Lamshed NSW REG. 8763

## Project

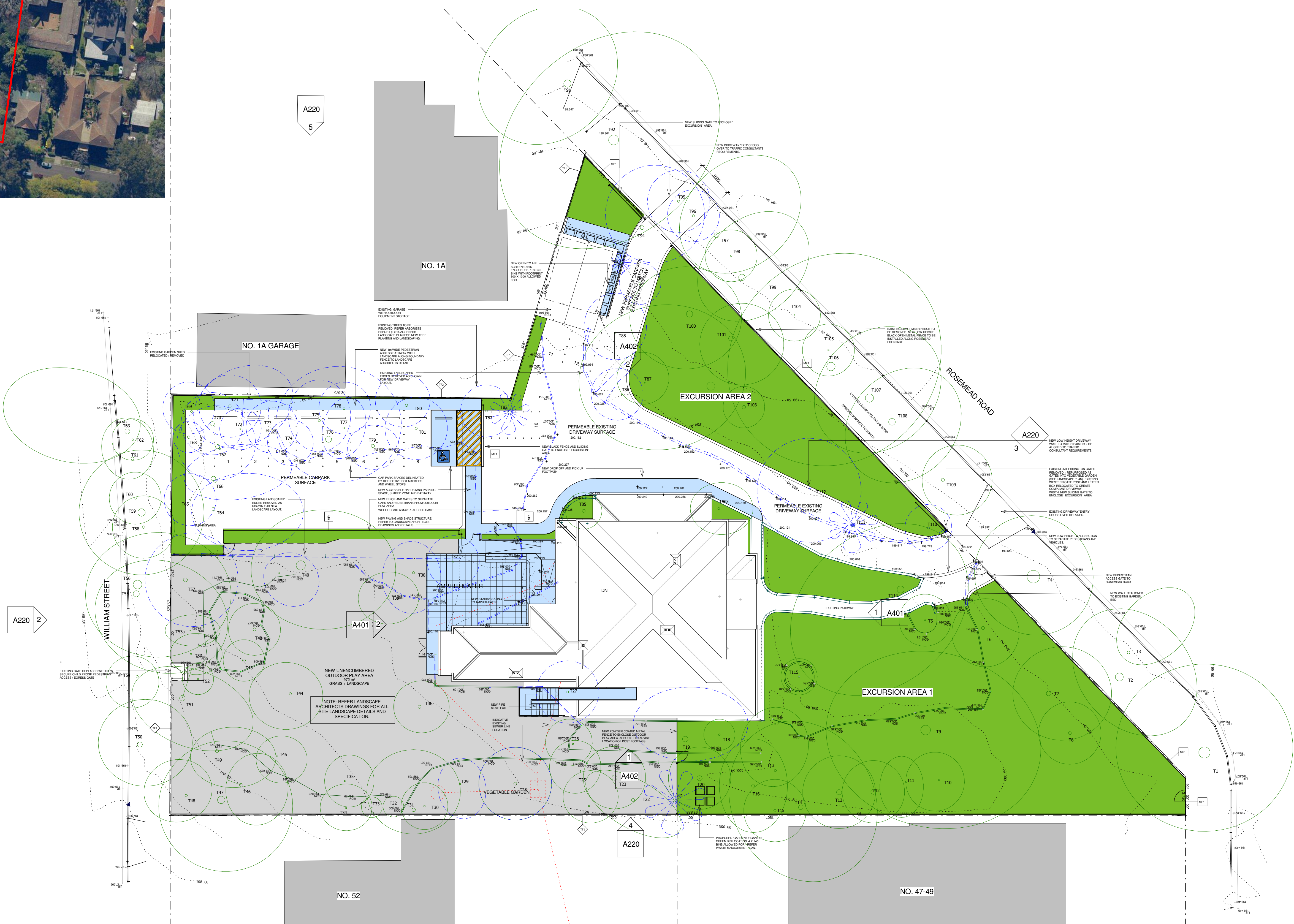
PROPOSED BLUEGUM  
COMMUNITY SCHOOL  
1 ROSEMEAD STREET  
HORNSBY NSW 2077

Project Number

**Title**  
**SITE AND ROOF PLAN**

Date	Drawn	Scale
07.05.20	CP	As indicated

Drawing No. **A100** Revision **H**



## SITE PLAN

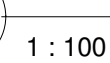
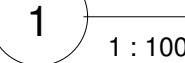
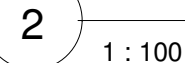
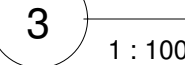
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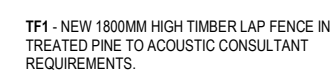
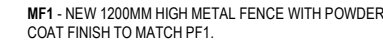
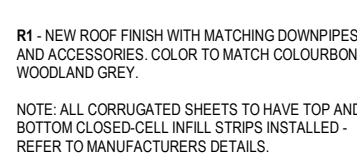
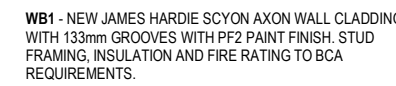
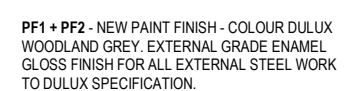




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  - i. ACOUSTIC REPORT
  - j. HAZARDOUS MATERIALS REPORT
  - k. SPECIALIST AND ALTERNATIVE SOLUTION REPORTS
7. CONTRACTOR TO COORDINATE ALL WORKS ARE COORDINATED WITH SPECIALIST CONSULTANT INPUT + REPORTS.
8. ALL FENCING AND GATES THAT CHILDREN WILL HAVE ACCESS TO MUST BE FITTED WITH CHILDPROOF LOCKING SYSTEMS TO PREVENT CHILDREN FROM LEAVING / ENTERING AREAS UNSUPERVISED.
9. OUTDOOR SPACES AND PLAY AREAS ACCESSIBLE TO CHILDREN MUST BE ENCLOSED ON ALL SIDES WITH A BARRIER WHICH IS A MINIMUM HEIGHT OF 1250MM AND COMPLIES WITH AS1926.1-2012
10. ALL NEW WET AREAS TO INCLUDE A BATTEN SHEET LINING TO PROTECT EXISTING FABRIC FROM NEW FINISHES, ADHESIVES, WATERPROOFING AND THE LIKE.
11. ANY EXISTING BUILDING ELEMENTS (SUCH AS DOORS, WINDOWS, FIXINGS AND FIXTURES) THAT ARE DEEMED SIGNIFICANT BY THE HERITAGE CONSULTANT AND REMOVED AS PART OF THE WORKS ARE TO BE HANDLED AND SAFELY STORED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE HERITAGE CONSULTANT.
12. ALL RESULT AMPLIFICATION DEVICES TO BE PROVIDED.
13. WINDOW RESTRICTING DEVICES TO BE ADDED TO WINDOWS AS PER THE BCA DETAIL TO HERITAGE CONSULTANT REQUIREMENTS.
14. TREE NUMBERING AND INFORMATION IS INDICATIVE ONLY. REFER TO ARBORISTS REPORT FOR ALL DETAILS OF PROPOSED TREE RETENTION AND REMOVAL.



## NEW EXTERNAL FINISHES



**TF2 - NEW 2100MM HIGH TIMBER LAP FENCE IN TREATED PINE TO ACOUSTIC CONSULTANT REQUIREMENTS.**

Drawing No.	Revision
A210	H







## **APPENDIX B**

### **OPERATIONAL TRAFFIC MANAGEMENT PLAN**



8 May 2020

Ref 19516

**PROPOSED BLUE GUM COMMUNITY SCHOOL  
1 ROSEMEAD ROAD, HORNSBY  
RECOMMENDED TRAFFIC MANAGEMENT MEASURES**

---

1. a minimum of 12 on-site parking spaces shall be provided, comprising 3 dedicated staff spaces and 9 unallocated spaces (including 1 disabled space)
2. it is recommended that 4 of the unallocated parking spaces be signposted as “15 Minute Parking” to ensure the spaces are regularly turned over
3. it is recommended that 8 of the unallocated parking spaces (excluding the disabled space) should be 2.6m wide with a minimum aisle width of 5.8m
4. provide a “kiss & drop” area directly outside the building for primary school children
5. the afternoon pick-up should be staggered into 10 minute blocks in order to “dilute” the number of parents on site.

Group A ( <i>max</i> 16 students, likely 8-10 students):	pick-up 2:50pm-3:00pm
Group B ( <i>max</i> 16 students, likely 8-10 students):	pick-up 3:00pm-3:10pm
Group C ( <i>max</i> 16 students, likely 8-10 students):	pick-up 3:10pm-3:20pm

6. a member of staff on hand within the on-site “kiss & drop” zone *at all times* during the morning and afternoon peak period to ensure “dwell time” is minimised and no queuing occurs out of the site onto Rosemead Road
7. the entry and exit driveways off the Rosemead Road site frontage must be signposted “Entry Only” and “Exit Only”, facing outwards to the street
8. the entry and exit driveways must be restricted to left-in and left-out movements only. Suitable signage must be installed to advise drivers of the restrictions
9. kerbside drop-off/pick-up on the opposite side of Rosemead Road (and William Street) must not be encouraged. Parents of primary school children must be regularly reminded of the preferred locations to drop-off/pick-up
10. deliveries must be scheduled to arrive *outside* of peak drop-off and pick-up periods and limited to light vehicles only, such as vans etc.
11. *all* vehicles are to enter and exit the site in a forward direction *at all times*
12. the on-site car park, “kiss & drop” area and pedestrian circulation areas must be kept clear at all times



## **APPENDIX C**

### **TRAFFIC SURVEY DATA**



Count Number 7998

Lat/Long : S33 42.144 / E151 05.391

Street ROSEMEAD ROAD, HORNSBY : Between DURAL STREET &amp; WILLIAM STREET (bidirectional)

Location On tree at Driveway opposite No. 4

Start Date 01-NOV-19

Start Time 1400

Duration 7 DAYS

Interval 1 HOUR

Speed Limit 50

SOUTH WEST

NORTH EAST

COMBINED

Weekly 50th Percentile Speed

37

33

37

Weekly 85th Percentile Speed

47

43

46

Five Day AADT

209

49

258

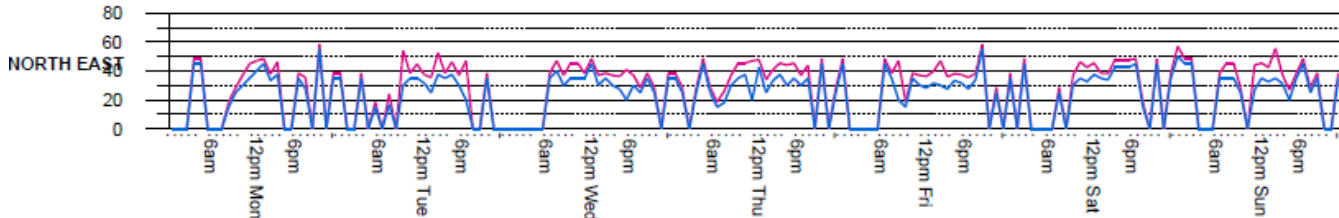
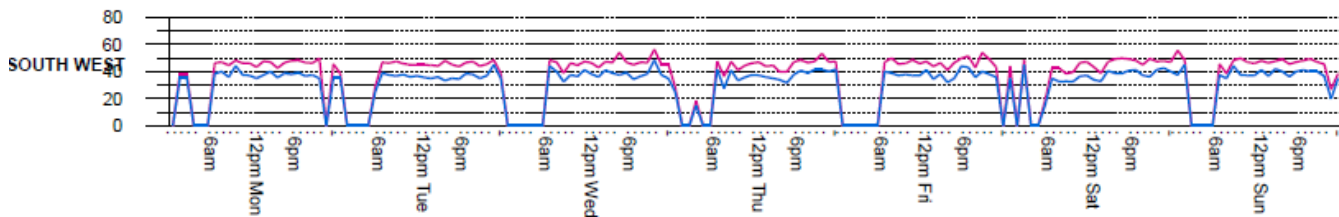
Seven Day AADT

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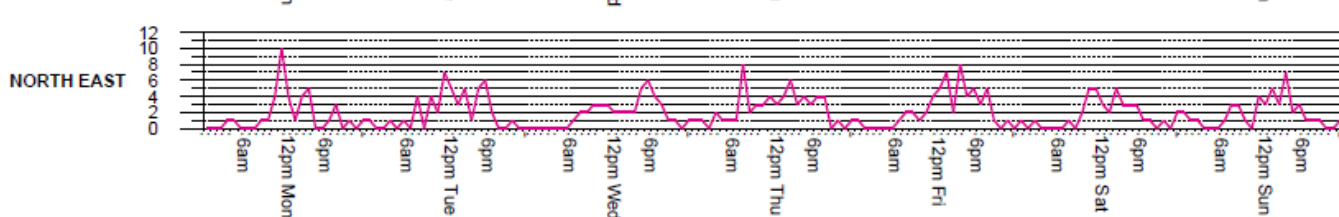
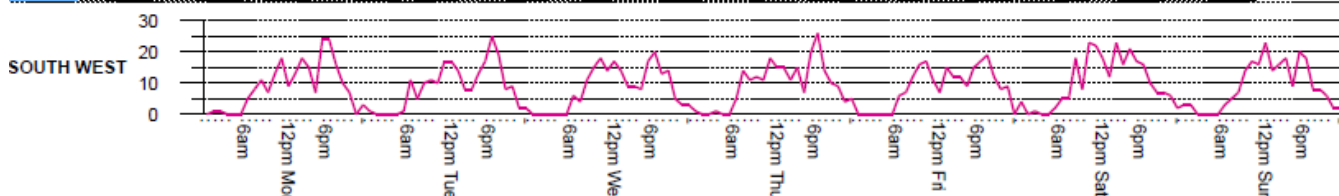
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261

	MON 04-NOV-19			TUE 05-NOV-19			WED 06-NOV-19			THU 07-NOV-19			FRI 01-NOV-19			SAT 02-NOV-19			SUN 03-NOV-19			SEVENDAY AVERAGE		
	SOUTH	NORTH	BiDir	SOUTH	NORTH	BiDir	SOUTH	NORTH	BiDir	SOUTH	NORTH	BiDir	SOUTH	NORTH	BiDir	SOUTH	NORTH	BiDir	SOUTH	NORTH	BiDir	SOUTH	NORTH	BiDir
85%ile	48.7	45.3	46.6	45.7	41.3	45.4	46.7	39.8	46.1	46.4	43.1	45.9	47.4	39.2	46.7	46.7	45.5	46.5	47.5	45.1	47.3	46.7	42.7	46.4
50%ile	37.6	35.0	37.2	36.5	32.4	35.8	37.7	32.3	36.7	36.7	30.6	35.8	37.7	31.6	36.5	36.9	35.9	36.8	39.1	33.4	38.2	37.5	33.0	36.7
> 60 k	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	1	.1429	.1429	.2857
%age	0	0	0	0	0	0	0	0	0	0	0	0	0	1.8	.4	0	0	0	.5	0	.4	.1	.3	.1
> 70 k	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	.1429	.1429
%age	0	0	0	0	0	0	0	0	0	0	0	0	0	1.8	.4	0	0	0	0	0	0	.3	.3	.1



Short %	96.7	97.4	96.8	96.6	93.8	96.1	97.5	97.7	97.5	94.6	93.3	94.4	95.6	96.3	95.7	97.9	100.0	98.2	100.0	95.3	99.2	97.0	96.0	96.8
Med %	3.3	2.6	3.2	3.4	6.3	3.9	2.5	2.3	2.5	5.4	6.7	5.6	4.4	3.7	4.3	2.1	0	1.8	0	4.7	.8	3.0	4.0	3.2
Long %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM Pk Vo	18	10	28	17	7	24	18	3	21	18	8	22	17	4	18	23	5	28	17	4	20	18	6	23
PM Pk Vo	24	5	25	25	6	27	6	24	26	6	30	19	8	24	23	5	28	23	7	26	23	6	26	26
7-7pm	167	31	198	155	44	199	156	36	192	175	47	222	150	45	195	199	33	232	177	35	212	168	39	207
24Hr Tot	210	38	248	208	46	256	200	43	243	224	60	284	204	54	258	243	36	282	212	43	255	214	46	261
Class 0	8	4	12	6	5	11	4	4	8	3	7	10	5	3	8	3	0	3	5	0	5	5	3	9
Class 1	194	33	227	194	40	234	191	38	229	206	49	258	189	48	237	235	36	274	208	41	247	203	41	244
Class 2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Class 3	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Class 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Class 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Class 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Class 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Class 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Class 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Class 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Class 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Class 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Class 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0





Count Number 7998

Ref : VTP

Lat/Long : S33 42.144 / E151 05.391

Street ROSEMEAD ROAD, HORNSBY : Between DURAL STREET &amp; WILLIAM STREET (bidirectional) :

Location On tree at Driveway opposite No. 4

Carriageway

## TOTAL COUNT MATRIX

Start Date 01-NOV-19  
 Start Time 1400  
 Duration 7 DAYS  
 Interval 1 HOUR

Weekly 50th Percentile Speed 37  
 Weekly 85th Percentile Speed 46  
 Five Day AADT 258  
 Seven Day AADT 261

	MON 4TH	TUE 5TH	WED 6TH	THU 7TH	FRI 1ST / 8TH	SAT 2ND	SUN 3RD	5 Day Total Average		7 Day Total Average	
Midnight - 1am	0	2	0	2	1	5	5	5	1	15	2
1am - 2am	1	0	0	1	0	0	4	2	0	6	1
2am - 3am	1	0	0	0	0	2	1	1	0	4	1
3am - 4am	1	1	0	3	0	0	0	5	1	5	1
4am - 5am	1	0	0	1	0	0	0	2	0	2	0
5am - 6am	0	2	0	1	0	2	0	3	1	5	1
6am - 7am	5	11	7	6	7	5	4	36	7	45	6
7am - 8am	8	9	6	22	9	6	8	54	11	68	10
8am - 9am	12	10	13	13	14	18	10	62	12	90	13
9am - 10am	8	15	18	15	17	10	15	73	15	98	14
10am - 11am	17	12	21	14	19	28	17	83	17	128	18
11am - Midday	28	24	17	22	15	27	20	106	21	153	22
Midday - 1pm	13	22	19	18	12	21	26	84	17	131	19
1pm - 2pm	14	17	16	19	22	14	19	88	18	121	17
2pm - 3pm	22	13	11	17	14	28	19	77	15	124	18
3pm - 4pm	20	9	11	18	20	19	25	78	16	122	17
4pm - 5pm	7	18	13	11	13	24	11	62	12	97	14
5pm - 6pm	24	23	23	23	20	20	23	113	23	156	22
6pm - 7pm	25	27	24	30	20	17	19	126	25	162	23
7pm - 8pm	19	19	16	18	24	11	9	96	19	116	17
8pm - 9pm	10	8	15	10	13	7	9	56	11	72	10
9pm - 10pm	8	10	6	10	8	8	6	42	8	56	8
10pm - 11pm	0	2	3	4	10	6	2	19	4	27	4
11pm - Midnight	4	2	4	6	0	4	3	16	3	23	3
Total	248	256	243	284	258	282	255	1289	257	1826	260



Count Number 7998

Ref : VTP

Lat/Long : S33 42.144 / E151 05.391

Street

ROSEMEAD ROAD, HORNSBY : From DURAL STREET to WILLIAM STREET : SOUTH WEST

Location

On tree at Driveway opposite No. 4

Carriageway

## TOTAL COUNT MATRIX

Start Date 01-NOV-19  
 Start Time 1400  
 Duration 7 DAYS  
 Interval 1 HOUR

Weekly 50th Percentile Speed 37  
 Weekly 85th Percentile Speed 47  
 Five Day AADT 209  
 Seven Day AADT 214

	MON 4TH	TUE 5TH	WED 6TH	THU 7TH	FRI 1ST / 8TH	SAT 2ND	SUN 3RD	5 Day		7 Day	
								Total	Average	Total	Average
Midnight - 1am	0	1	0	1	0	4	3	2	0	9	1
1am - 2am	1	0	0	0	0	0	3	1	0	4	1
2am - 3am	1	0	0	0	0	1	0	1	0	2	0
3am - 4am	0	0	0	1	0	0	0	1	0	1	0
4am - 5am	0	0	0	0	0	0	0	0	0	0	0
5am - 6am	0	1	0	0	0	2	0	1	0	3	0
6am - 7am	5	11	6	5	6	5	3	33	7	41	6
7am - 8am	8	5	4	14	7	5	5	38	8	48	7
8am - 9am	11	10	11	11	12	18	7	55	11	80	11
9am - 10am	7	11	15	12	16	8	14	61	12	83	12
10am - 11am	13	10	18	11	17	23	17	69	14	109	16
11am - Midday	18	17	14	18	11	22	16	78	16	116	17
Midday - 1pm	9	17	17	15	7	18	23	65	13	106	15
1pm - 2pm	13	14	14	15	15	12	14	71	14	97	14
2pm - 3pm	18	8	9	11	12	23	16	58	12	97	14
3pm - 4pm	15	8	9	15	12	16	18	59	12	93	13
4pm - 5pm	7	13	8	7	9	21	9	44	9	74	11
5pm - 6pm	24	17	17	20	15	17	20	93	19	130	19
6pm - 7pm	24	25	20	26	17	16	18	112	22	146	21
7pm - 8pm	16	19	13	14	19	10	8	81	16	99	14
8pm - 9pm	10	8	14	10	12	7	8	54	11	69	10
9pm - 10pm	7	9	5	9	8	7	6	38	8	51	7
10pm - 11pm	0	2	3	4	9	6	2	18	4	26	4
11pm - Midnight	3	2	3	5	0	2	2	13	3	17	2
Total	210	208	200	224	204	243	212	1046	209	1501	214

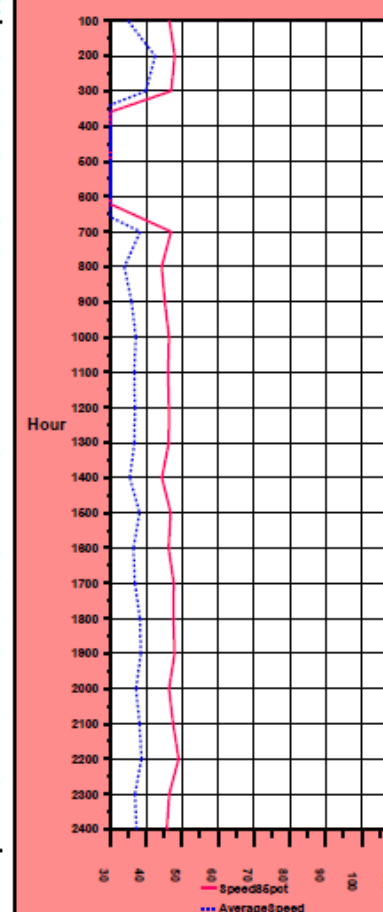


Count Number 7998 Ref : VTP Lat/Long : S33 42.144 / E151 05.391  
 Street ROSEMEAD ROAD, HORNSBY : From DURAL STREET to WILLIAM STREET : SOUTH WEST  
 Location On tree at Driveway opposite No. 4 Carriageway

Start Date 01-NOV-19  
 Start Time 1400  
 Duration 7 DAYS  
 Interval 1 HOUR

Weekly Mean Speed 37  
 Weekly 85th Percentile Speed 47  
 Five Day AADT 209  
 Seven Day AADT 214

Time	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120	Total	Mean	85pct
Midnight - 1am	0	1	1	5	1	1	0	0	0	0	0	0	9	35.0	46.5
1am - 2am	0	0	0	1	3	0	0	0	0	0	0	0	4	42.5	48.0
2am - 3am	0	0	0	1	1	0	0	0	0	0	0	0	2	40.0	47.0
3am - 4am	0	1	0	0	0	0	0	0	0	0	0	0	1	15.0	18.5
4am - 5am	0	0	0	0	0	0	0	0	0	0	0	0		.0	.0
5am - 6am	0	2	1	0	0	0	0	0	0	0	0	0	3	18.3	25.5
6am - 7am	0	2	2	17	20	0	0	0	0	0	0	0	41	38.4	46.9
7am - 8am	0	4	10	22	11	1	0	0	0	0	0	0	48	34.0	44.4
8am - 9am	0	1	15	40	23	1	0	0	0	0	0	0	80	36.0	45.2
9am - 10am	0	1	14	37	29	1	1	0	0	0	0	0	83	37.2	46.4
10am - 11am	0	4	13	56	32	4	0	0	0	0	0	0	109	36.7	46.1
11am - Midday	0	4	17	49	45	1	0	0	0	0	0	0	116	36.9	46.4
Midday - 1pm	0	6	11	49	38	2	0	0	0	0	0	0	106	36.8	46.3
1pm - 2pm	0	5	12	57	19	4	0	0	0	0	0	0	97	35.5	44.4
2pm - 3pm	0	1	13	37	46	0	0	0	0	0	0	0	97	38.2	46.8
3pm - 4pm	0	2	16	46	24	5	0	0	0	0	0	0	93	36.5	46.3
4pm - 5pm	0	4	10	35	18	7	0	0	0	0	0	0	74	36.9	47.7
5pm - 6pm	0	5	14	51	53	7	0	0	0	0	0	0	130	38.3	47.6
6pm - 7pm	0	5	19	50	63	9	0	0	0	0	0	0	146	38.6	48.0
7pm - 8pm	0	2	13	48	33	3	0	0	0	0	0	0	99	37.2	46.4
8pm - 9pm	0	3	6	30	26	4	0	0	0	0	0	0	69	38.2	47.6
9pm - 10pm	0	3	5	19	18	6	0	0	0	0	0	0	51	38.7	49.1
10pm - 11pm	0	2	2	11	11	0	0	0	0	0	0	0	26	36.9	46.5
11pm - Midnigh	0	0	2	9	6	0	0	0	0	0	0	0	17	37.4	45.8
<b>Total</b>	0	58	196	670	520	56	1	0	0	0	0	0	1501		
<b>% of Total</b>		4	13	45	35	4									





Count Number 7998

Ref : VTP

Lat/Long : S33 42.144 / E151 05.391

Street

ROSEMEAD ROAD, HORNSBY : From WILLIAM STREET to DURAL STREET : NORTH EAST

Location

On tree at Driveway opposite No. 4

Carriageway

## TOTAL COUNT MATRIX

Start Date 01-NOV-19  
 Start Time 1400  
 Duration 7 DAYS  
 Interval 1 HOUR

Weekly 50th Percentile Speed 33  
 Weekly 85th Percentile Speed 43  
 Five Day AADT 49  
 Seven Day AADT 46

	MON 4TH	TUE 5TH	WED 6TH	THU 7TH	FRI 1ST / 8TH	SAT 2ND	SUN 3RD	5 Day		7 Day	
								Total	Average	Total	Average
Midnight - 1am	0	1	0	1	1	1	2	3	1	6	1
1am - 2am	0	0	0	1	0	0	1	1	0	2	0
2am - 3am	0	0	0	0	0	1	1	0	0	2	0
3am - 4am	1	1	0	2	0	0	0	4	1	4	1
4am - 5am	1	0	0	1	0	0	0	2	0	2	0
5am - 6am	0	1	0	1	0	0	0	2	0	2	0
6am - 7am	0	0	1	1	1	0	1	3	1	4	1
7am - 8am	0	4	2	8	2	1	3	16	3	20	3
8am - 9am	1	0	2	2	2	0	3	7	1	10	1
9am - 10am	1	4	3	3	1	2	1	12	2	15	2
10am - 11am	4	2	3	3	2	5	0	14	3	19	3
11am - Midday	10	7	3	4	4	5	4	28	6	37	5
Midday - 1pm	4	5	2	3	5	3	3	19	4	25	4
1pm - 2pm	1	3	2	4	7	2	5	17	3	24	3
2pm - 3pm	4	5	2	6	2	5	3	19	4	27	4
3pm - 4pm	5	1	2	3	8	3	7	19	4	29	4
4pm - 5pm	0	5	5	4	4	3	2	18	4	23	3
5pm - 6pm	0	6	6	3	5	3	3	20	4	26	4
6pm - 7pm	1	2	4	4	3	1	1	14	3	16	2
7pm - 8pm	3	0	3	4	5	1	1	15	3	17	2
8pm - 9pm	0	0	1	0	1	0	1	2	0	3	0
9pm - 10pm	1	1	1	1	0	1	0	4	1	5	1
10pm - 11pm	0	0	0	0	1	0	0	1	0	1	0
11pm - Midnight	1	0	1	1	0	2	1	3	1	6	1
Total	38	48	43	60	54	39	43	243	48	325	46



Count Number 7998 Ref : VTP Lat/Long : S33 42.144 / E151 05.391  
 Street ROSEMEAD ROAD, HORNSBY : From WILLIAM STREET to DURAL STREET : NORTH EAST  
 Location On tree at Driveway opposite No. 4 Carriageway

Start Date 01-NOV-19  
 Start Time 1400  
 Duration 7 DAYS  
 Interval 1 HOUR

Weekly Mean Speed 32  
 Weekly 85th Percentile Speed 43  
 Five Day AADT 49  
 Seven Day AADT 46

Time	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120	Total	Mean	85pct
Midnight - 1am	0	0	0	3	2	1	0	0	0	0	0	0	6	41.7	51.0
1am - 2am	0	0	1	0	1	0	0	0	0	0	0	0	2	35.0	47.0
2am - 3am	0	0	0	0	2	0	0	0	0	0	0	0	2	45.0	48.5
3am - 4am	0	0	2	1	1	0	0	0	0	0	0	0	4	32.5	44.0
4am - 5am	0	0	0	0	2	0	0	0	0	0	0	0	2	45.0	48.5
5am - 6am	0	1	1	0	0	0	0	0	0	0	0	0	2	20.0	27.0
6am - 7am	0	1	0	2	1	0	0	0	0	0	0	0	4	32.5	44.0
7am - 8am	0	8	6	4	2	0	0	0	0	0	0	0	20	25.0	37.5
8am - 9am	0	3	2	3	2	0	0	0	0	0	0	0	10	29.0	42.5
9am - 10am	0	3	5	4	2	1	0	0	0	0	0	0	15	30.3	43.8
10am - 11am	0	1	4	10	4	0	0	0	0	0	0	0	19	33.9	42.9
11am - Midday	0	4	10	14	9	0	0	0	0	0	0	0	37	32.6	43.8
Midday - 1pm	0	1	5	11	8	0	0	0	0	0	0	0	25	35.4	45.3
1pm - 2pm	0	4	7	10	2	0	0	1	0	0	0	0	24	31.3	39.4
2pm - 3pm	0	2	5	15	3	2	0	0	0	0	0	0	27	34.3	43.2
3pm - 4pm	0	2	9	13	5	0	0	0	0	0	0	0	29	32.2	41.3
4pm - 5pm	0	3	7	8	5	0	0	0	0	0	0	0	23	31.5	43.1
5pm - 6pm	0	5	4	13	4	0	0	0	0	0	0	0	26	31.2	40.3
6pm - 7pm	0	2	5	6	3	0	0	0	0	0	0	0	16	31.3	42.0
7pm - 8pm	0	1	8	7	1	0	0	0	0	0	0	0	17	29.7	37.8
8pm - 9pm	0	0	0	2	0	1	0	0	0	0	0	0	3	41.7	55.5
9pm - 10pm	0	0	1	1	2	1	0	0	0	0	0	0	5	41.0	52.5
10pm - 11pm	0	0	1	0	0	0	0	0	0	0	0	0	1	25.0	28.5
11pm - Midnight	0	0	1	5	0	0	0	0	0	0	0	0	6	33.3	38.2
<b>Total</b>	0	41	84	132	61	6	0	1	0	0	0	0	325		
<b>% of Total</b>		13	26	41	19	2									

