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Greg Hastie Pymble Ladies' College Avon Rd, Pymble NSW 2073

Dear Greg,

TRAFFIC ASSESSMENT REPORT

1. INTRODUCTION

Urbis was engaged by Pymble Ladies' College (Pymble) to prepare a Traffic Assessment Report to respond to the consent condition of the State Significant Development Application (SSD-17424905) for the Grey House Precinct (GHP) Development.

In response, this letter entails an assessment of the existing traffic volumes on the road network leading to the school's pick-up and drop-off locations for the junior school class and Early Learning Centre (ELC), the impact of the additional traffic generated from the ELC and a summary of the residents' submissions. The letter then proposes treatment measures to help alleviate any traffic impacts from the current school and the ELC on the road network.

A summary of our review and the associated findings are outlined overleaf.



2. CONSENT CONDITIONS

The scope of works is to address relevant conditions issued by the Department of Planning and Environment (DPE) for SSD-17424905, namely Condition E3 and E4 – Traffic Calming Measures for the development of the GHP. The requirements are shown in **Table 1**.

Table 1	SSD-17424905,	Condition E3	and E4 - t	traffic calmi	ng measures
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Requirement	Section
E3. Within six months of commencement of construction, the Applicant must undertake a Supplementary Traffic Assessment Report (TIA). The TIA must:	
(a) be prepared by a suitably qualified independent traffic consultant;	Satisfied
(b) be prepared in consultation with Council and be endorsed by Council;	
(c) include an assessment of the existing traffic volumes and traffic conditions on the traffic route along Arilla Road / Mayfield Avenue / Allawah Road route connecting to Avon Road;	4.1, 4.3
(d) include an assessment of post development traffic conditions on this route, noting the inclusion of 90 ELC children and staff (considering the worst-case scenario of 90 students);	4.2, 4.3
 (e) include the need for traffic calming measures on this road to improve the post development traffic scenario including, but not limited to: (i) speed control measures; (ii) traffic volume control measures and (iii) safety enhancements; 	6
(f) demonstrate that the proposed traffic calming measures on the Arilla Road/ Mayfield Avenue/Allawah Road route would be sufficient to offset impacts of increased spaces within the ELC and / or alternate mitigation / management measures are proposed in consultation with the road authorities on this route.	4.3, 6
E4. The TIA (as endorsed by Council) must be submitted to the Planning Secretary for approval within 12 months of commencement of construction.	

Source: NSW Government DPE, Pymble Ladies' College - Grey House Precinct SSD-17424905, Consolidated Consent



3. EXISTING TRANSPORT INFRASTRUCTURE

3.1. PEDESTRIAN FACILITIES

The existing pedestrian footpaths, pedestrian access points to school grounds and existing pedestrian crossings surrounding the school are shown in **Figure 1**.

The main pedestrian route for students accessing the railway station is via the main pedestrian gate and wombat crossing managed by a traffic controller on Avon Road. There is an additional pedestrian crossing adjacent to the roundabout which the school does not encourage students to use as it is unmanaged.

There is a wombat crossing across Pymble Avenue adjacent to the Grey House Walk access to facilitate safe pedestrian access to the school. The raised crossing currently has a traffic controller.

Figure 1 shows the existing pedestrian facilities, including footpaths and crossings surrounding the school.



Figure 1 Pedestrian facilities surrounding the school

Source: Nearmaps, formatted by Urbis.



Generally, there is a deficiency of pedestrian infrastructure and connectivity on roads surrounding the school, with footpaths typically present on just one side of the road. Specifically, there is no footpath along the western frontage of the school on Avon Road, and no footpath directly adjoining the Grey House pedestrian access on Pymble Avenue. Additionally, there are no pedestrian crossings to the west of the school.

The footpath along Avon Road leading to the widely used tunnel under Pacific Highway is narrow, and on the station side, the footpath is in poor condition with patchy pavement (Figure 2) and a narrow entrance (Figure 3 and Figure 4).



Source: Urbis site visit, dated 18 June 2024





Source: Urbis site visit, dated 18 June 2024



Source: Google Street View, May 2024



3.2. VEHICULAR INFRASTRUCTURE

3.2.1. Car Parking

The existing on-site car parking supply consists of 431 spaces across the wider campus. The spaces can be accessed via three driveways/gates located along Avon Road, as shown in **Figure 5**.

It should be noted that compared with many other schools, Pymble has a high on-site car parking supply.

3.2.2. Drop-off and Pick-up Areas

There are three established and managed drop-off and pick-up facilities inside the school grounds, specified as follows and shown in **Figure 6**:

- Two locations along the internal road circulating the Main Oval, with access via Gate 1. This area accommodates the majority of drop-off and pick-up activity, with vehicles contained within college grounds (including queuing areas). The internal road splits into two separate and defined zones:
 - Lower area, for Preparatory and Junior School Years K-2.
 - Upper area, for Junior and Middle Schools Years 3-6.
- One defined area internal to the Centenary car park under the aquatic centre. This area is assigned to Upper and Senior School Years 7-12, with access via Gate 3 and queuing contained within college grounds.

The drop-off and pick-up areas and circulation within school grounds are shown in Figure 6.

The defined drop-off and pick-up areas are situated at the end of the internal circulating road. This arrangement ensures ample queuing space within the school grounds, helping to contain the drop-off and pick-up activities. Additional facilities are available at the terminus of the Centenary carpark, to provide sufficient internal queuing space.

Similar to the car parking provision, Pymble has a high supply of internal pick-up and drop-off areas compared with other schools. It should also be noted that the school already manages the pick-up and drop-off activities well by separating year groups, ensuring parents display students' names on windscreens to expedite the pick-up operation and deploy staff to manage students and parents.





Figure 5 Parking, driveways/gates, drop-off and pick-up spaces within the Pymble campus

Source: Urbis based on Matrix Traffic and Transport parking survey data for Wednesday 31st July 2024





Figure 6 Drop-off and pick-up areas



4. TRAFFIC VOLUMES AND CONDITIONS

4.1. EXISTING

4.1.1. Traffic Volumes

Intersection counts and video recordings were conducted to assess traffic volumes on the route leading towards the school along Avon Road, Arilla Road, Allawah Road and Mayfield Avenue.

The counts were undertaken on Wednesday 31 July 2024, during the peak periods between 7:00am to 9:00am and 2:30pm to 4:30pm to capture the peak student pick-up and drop-off times. The morning and afternoon hours of peak traffic volumes are as follows:

AM peak: 7:30am to 8:30am

PM peak: 3:15pm to 4:15pm

The intersection count locations and the morning peak hour traffic volumes are shown in **Figure 7**, while the afternoon peak hour intersection count locations and volumes are shown in **Figure 8**.

Avon Road (west) has been divided into three sections (sections A, B and C) for the purpose of this assessment, as peak hour traffic volumes vary due to different pick-up and drop-off activities happening between the school gates and the Avon Road / Arilla Road intersection.

Figure 7 Morning Peak Hour Traffic Volumes







Figure 8 Afternoon Peak Hour Traffic Volumes



Table 2 Existing peak hour two-way traffic volumes

Road	AM Peak hour	PM Peak hour
	(veh/hr)	(veh/hr)
Avon Road (Section A)	514	612
Avon Road (Section B)	627	510
Avon Road (Section C)	643	531
Arilla Road	584	363
Mayfield Avenue	415	285

Source: Matrix Survey, 31 July 2024



4.1.2. Conditions

Western school side

The traffic conditions around the school were analysed using video footage from July 31, 2024. It was found that there was traffic congestion along the western frontage of Avon Road, particularly at the Avon Road and Arilla Road intersection. This congestion was limited to a 10 to 15-minute window during the peak periods of drop-off and pick-up as outlined below:

- Morning drop-off period: 7:55am to 8.10am.
- Afternoon pick-up period: 3.10pm to 3.25pm.

For those approaching the school from the west, a bottleneck occurs at the Avon Road / Arilla Road intersection, as it is the only intersection providing access to Pymble from the west. The traffic was observed to temporarily build up during the peak periods along Arilla Road, starting from this intersection. The following considerations are made.

Vehicles wishing to turn out of Arilla Road are required to give way to traffic travelling along, or turning from Avon Road. In addition, Arilla Road is a two-way road, with parking allowed on both sides of the carriageway. This means that there is only one lane for vehicles wishing to turn left and right into Avon Road, despite capacity along Avon Road. These circumstances result in queuing all the way to Mayfield Avenue, as seen in **Figure 9**.

However, it is important to note that this congestion due to the short pick-up and drop-off period has been observed on video footage to be limited to a 10 to 15-minute window during the morning peak, and the traffic build up quickly dissipates afterwards. The temporary congestion also causes negligible impact for the afternoon pick-up period as it is outside of the commuter peak.

Figure 9 Avon Road / Arilla Road intersection facing west down Arilla Road during the 10 to 15minute window



Source: Urbis site visit, dated 18 June 2024



Eastern school side

Along Pymble Avenue, parents have been observed to ignore the no stopping zone signs and stop at the wombat crossing to drop-off students. They also stop at driveways to perform U-turns.

The wombat crossing (**10**) at the Grey House Walk is located just below a hill's crest on Pymble Avenue, and some drivers tend to fail to slow down when driving over the crossing. Speed tables (**Figure 11** and **Figure 12**) are already in place before and after the wombat crossing, accompanied by adequate advance warning signage. The following has been considered:

- Drivers failing to slow down before the crossing may be local residents familiar with the area, and as a result, these traffic control measures may no longer be effective in influencing their driving behaviour.
- There is some distance between the speed table to the south of the wombat crossing, thus vehicles are likely to increase their speed by the time they reach the crossing.
- The existing speed tables are low and flat and may not serve the intended speed control purpose.
- Some signs are covered by trees (Figure 11).



Figure 10 Wombat crossing at Grey House Walk

Figure 11 Speed table to the south of the raised crossing



Figure 12 Speed table to the north of the crossing



Source: Google Street View, May 2024

4.2. POST-DEVELOPMENT

4.2.1. Traffic volumes

The Guide to Traffic Generating Developments provides trip generation rates to estimate the trip generated by a range of developments, including childcare centres. The purpose of the ELC is to allow working parents from the school to drop-off and pick-up their children before and after work, which aligns with the purpose of a Long-Day Child Care centre. The trip generation rates for a Long-Day Child Care centre are:

7:00-9:00am: 0.8 trips / child (morning school drop-off and commuter peak)

2:00-4:00pm: 0.3 trips / child (afternoon school pick-up)

4:00-6:00pm: 0.7 trips / child (commuter peak)

Based on a worst-case scenario enrolment number of 90 students, the estimated trip generation for the three peak periods is summarised in **Table 3**.



Table 3 Expected ELC trip generation

No. of Children	7:00-9:00am	2:00-4:00pm	4:00-6:00pm
90	72 trips	27 trips	63 trips

Source: Urbis

Though unlikely to occur, for a conservative assessment we have assumed that all trips will utilise the route via Beechworth Road, Mayfield Avenue, Arilla Road, and Avon Road to reach the Centenary carpark beneath the aquatic centre. As the peak periods stated in the Guide are 2 hours, we have assumed a conservative 75% will travel during the school peak hours. This has the potential to generate 54 vehicles in the morning and 20 in the afternoon along the subject roads. The post-development traffic volumes on the surrounding roads are shown in **Table 4**.

Road	AM Peak	PM Peak
	(veh/hr)	(veh/hr)
Avon Road (Section A)	514 + 54 = 568	612 + 20 = 632
Avon Road (Section B)	627 + 54 = 681	510 + 20 = 530
Avon Road (Section C)	643 + 54 = 697	531 + 20 = 531
Arilla Road	584 + 54 = 638	363 + 20 = 383
Mayfield Avenue	415 + 54 = 469	285 + 20 = 305

Table 4 Estimated post-development traffic volumes

Source: Urbis, 2024

4.2.2. Expected conditions

The additional 72 trips calculated based on the Guide are anticipated to be spread over a two-hour period, equating to roughly one car every 1 minute and 40 seconds. This is not expected to have major adverse impact on the existing road and traffic conditions. The pick-up traffic for the ELC is likely to be spread out over several hours from the afternoon into the evening, resulting in a low impact on the road network during the main school pick-up time period.

It should also be noted that the primary intention of the ELC is to provide an early learning and child care service to Pymble's staff members, especially those who might find it challenging to return to work after maternity or parental leave. As such, the number of children enrolled in the ELC contributing to additional trips is expected to be fewer than 90, which further reduces the number of extra trips generated. Staff members generally arrive from approximately 6:45 AM to 7:30 AM, and depart from 3:30 PM onwards.

Generally, ELC pick-up and drop-off periods are less concentrated than at schools, as there is no defined start and finish time, and parents are not required to arrive at a particular time. As such, the peak periods for the ELC drop-off and pick-up are unlikely to strictly overlap with the school's morning



and afternoon peak traffic. Consequently, the ELC generated trips are expected to have a negligible impact on the road network.

4.3. ASSESSMENT OF TRAFFIC VOLUMES AND CONDITIONS

The Guide to Traffic Generating Developments sets out the environmental capacity performance standards on local residential streets – streets with direct access to residential properties. **Table 5** from the guideline relates to streets with direct access to residential properties. Trunk collector and spine roads with no direct property access can carry higher traffic flows.

The performance standards establish benchmark guidelines that align with good practice and prioritize safety. However, these guidelines are adaptable and are not considered as the absolute maximum volumes, as there is no specific threshold beyond which issues are guaranteed to arise.

As outlined in **Table 5**, performance standards include both a desirable and a maximum number of vehicles per hour. However, it is important to note that Environmental Capacity is not solely determined by traffic volumes, but rather it is a multifaceted concept that considers a variety of factors. The functional classification of a street, its design, surrounding land uses and the average speed of traffic play significant roles. Therefore, it is a comprehensive approach that considers safety, amenity and the movement of traffic for effective planning and development.

Road Class	Road Type	Maximum Peak Hour Volumes (veh/hr)
Local	Access way	100
	Street	200 environmental goal, 300 maximum
Collector	Street	300 environmental goal, 500 maximum

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Source: Guide to Traffic Generating Developments

Considering the function of the roads surrounding the school, Avon Road, similar to Pymble Avenue and Beechworth Road collect the local traffic and connect it to the wider road network, i.e. Pacific Highway. The generally quiet and residential character of Arilla Road and Mayfield Avenue are acknowledged. However, due to a lack of a direct connectivity from Avon Road to the Pacific Highway, Arilla Road and Mayfield Avenue could also be considered to have the function of collecting and connecting traffic to the wider road network.

With regards to traffic volumes pre-development, the hourly peak hour profile of the total traffic volumes along the subject roads are shown in **Figure 13** below.





Figure 13 Hourly Traffic Volumes (Two-way) on surrounding roads during AM and PM peaks

Figure 10 indicates that, according to the TfNSW environmental capacity standards, certain roads have temporarily surpassed the performance standards during peak hours. However, it is important to note that these exceedances are temporary and occur during the peak periods of school pick-up & drop-off, noting that the morning peak coincides with the commuter peak hours. The traffic volumes on these roads are shown to significantly decrease between 8:00am and 2:30pm, indicating that the traffic volumes are merely a result of the brief window of school pick-up and drop-off hours, as well as the morning commuter peak.

In terms of post-development conditions, the additional trips generated from the ELC during the peak period are not expected to materially change the current traffic conditions on the road network.



5. **RESIDENTS' SUBMISSIONS**

In addition to undertaking an industry standard assessment to address the conditions of consent, we felt that it is beneficial to analyse the resident submissions received as part of the SSD application. We have reviewed submissions related to concerns from a transport and traffic perspective regarding the student number increase. An examination of the submissions was undertaken to understand the underlying concerns from a local residents' perspective, so that the treatment measures proposed can be more targeted to respond to the concerns.

The main concerns summarised from the submissions are:

- There is traffic congestion during the peak student pick-up and drop-off hours on the local roads surrounding the school.
- There is overall a lack of pedestrian facilities such as footpaths, formalised pedestrian crossing points and pedestrian gates, especially along the western frontage of the school on Avon Road to service students residing northwest of the school.
- There is dangerous drop-off and driving behaviour at the wombat crossing near Grey House Walk.

It should be noted that the main focus of the submissions is on traffic volumes, the lack of pedestrian facilities and behaviour near Grey House Walk rather than traffic calming as such.

6. TRAFFIC CALMING MEASURES

Following the findings from the study, as described in Sections 3, 4 and 5, a mix of measures has been considered. These take into consideration the existing on-site parking facilities and their management, the surrounding road network, pedestrian infrastructure and residents' submissions.

Below is a summary of the key concerns, along with corresponding mitigation measures proposed.

6.1. KEY CONCERN 1: CONGESTION ON LOCAL ROADS SURROUNDING THE SCHOOL

6.1.1. Green Travel Plan

One way of reducing congestion on local roads is to reduce the number of vehicles travelling to and from the school. As part of the Conditions of Consent, the school was required to prepare a Green Travel Plan. Urbis is in the process of working with the school on measures which will help reduce car dependency and shift the travel mode to alternative options for both staff and students. Noting that the school already has many good measures, some additional measures which are being implemented and /or explored are:

- Implementation of an internal committee which will meet regularly to discuss and if required re-visit existing operation, management and measures with the view to reducing car dependency.
- Review the private Pymble Ladies' College bus usage and the potential to improve the routes and timings to encourage more students to use it.



- Providing pick-up shuttles from Pymble train station.
- Encouraging students that live locally to use active transport.
- Offering carpooling initiatives.
- Work on better communication with students and parents about programs, management (i.e. marshals along footpaths and crossings) and alternative transport options to raise awareness of other ways to travel to and from the school.

Other measures, as well as the expected impact on the travel mode shift is presented in the Green Travel Plan prepared by Urbis.

6.1.2. Enforcement of road rules

The school has engaged with relevant Council officers to organise parking rangers to patrol around the site and fine those not obeying road rules (i.e. double parking, parking in no stopping areas or undertaking dangerous manoeuvres). This will be repeated occasionally to ensure safety and enforce parking to occur in designated areas only.

6.1.3. Change of parking restrictions on Arilla Road

To alleviate the bottleneck at the Arilla Road / Avon Road intersection, and thus to improve traffic flow on Arilla Road towards the school, timed parking restrictions could be implemented on the eastern side of Arilla Road during the morning drop-off and the afternoon pick-up hours for the school. The proposed location is shown in Figure 14.

This measure would provide space to form two informal lanes close to the Avon Road / Arilla Road intersection, allowing both left turning and right turning traffic to flow concurrently.

The timed parking restrictions proposed will require further consultation with and approval by Council.

Update note: Subsequent to the initial preparation of this report in October 2024, parking restrictions were introduced by Council on the southwestern side of Arilla Road in approximately mid-November 2024. These cover the morning and afternoon peak periods on school days.





Figure 14 Map of the proposed treatment measures

Source: Nearmaps, modified by Urbis

6.2. KEY MATTER 2: LACK OF PEDESTRIAN FACILITIES

As part of the Development Application, the school submitted contributions to Council for infrastructure improvements. It is also understood that Council has a yearly improvement plan for pedestrian infrastructure within the LGA.

With this in mind, the school would welcome any improvements to the pedestrian network surrounding the school by the Council, whether it be new footpaths, upgrade or maintenance of existing footpaths or new crossing locations. An improvement of pedestrian facilities enabling pedestrian (and cycling) access to the school would increase the walkability in the area and hence encourage students and staff living in local areas to walk to school.

As per the recent travel surveys, there are 11% of students and 4% of staff living in walking distance, and 50% of students and 26% of staff in cycling distance. Currently, only 13% of students and 6% of staff walk, and under 1% of students and staff cycle to school. Improving pedestrian infrastructure has a potential to have a significant positive impact on the travel mode, and therefore, on the traffic congestion observed and reported by the residents.



6.3. KEY MATTER 3: DANGEROUS DROP-OFF AND DRIVING BEHAVIOUR AT GREY HOUSE WALK

An initiative in the Green Travel Plan is to improve the communication to parents about the message of safe pick-up and drop-off procedures and practices. The information will be provided in the Travel Access Guide, the school's website and newsletter.

The school will periodically work with Council to involve Council rangers and/or the Police to monitor and regulate parking and pick-up and drop-off behaviour on Pymble Avenue. The presence of rangers or police can help establishing and enforcing a standard of conduct for parents.

The school is already in contact with Council to request additional rangers onsite. The school has also attempted to contact with a Council staff – Tony McCormack (Head of Compliance).

Some recommended signage improvements are as follows:

- Clearing up trees covering existing signages.
- Consult with TfNSW to convert the 40km/h school zone sign at the northern entrance into Pymble Avenue to include flashing lights, thereby increasing their visibility and prominence.

7. CONCLUSIONS AND RECOMMENDATIONS

The recent traffic survey and video footage indicates that during the peak drop-off and pick-up times, a 10 to 15-minute window exists where the roads around the school, namely Avon Road, Arilla Road, and Mayfield Avenue, experience higher traffic volumes and exceed the environmental capacity standard. There is an existing bottleneck at the Arilla Road / Avon Road intersection, which results in cars queuing all the way to Mayfield Avenue. However, it is noted that these circumstances are temporary and occur during the peak periods of school pick-up & drop-off only, noting that the morning peak coincides with the commuter peak hours. Parking restrictions (during the morning and afternoon peaks on school days) have also been introduced by Council on the southwestern side of Arilla Road in November 2024, subsequent to the preparation of this report.

In regards to the additional trips expected to be generated by the ELC, the pick-up and drop-off is likely to be spread out over longer periods of time, resulting in low impacts on the road network during the main school drop-off and pick-up time periods.

To better understand the impact of the situation from the viewpoint of local residents, the submissions received during the development application process were examined. The main concerns raised in these submissions include peak period traffic congestion, insufficient pedestrian facilities, and road safety issues related to pick-up and drop-off near Grey House Walk.

In response to these submissions, a combination of green travel initiatives from the Green Travel Plan (Urbis, 2024) and other measures including on-street parking management and signage improvements have been proposed. These measures aim to alleviate the impacts of the school's transport and access, particularly during the peak pick-up and drop-off times.

The proposed measures include:

 Implementation of initiatives developed as part of the Green Travel Plan to reduce car dependency and shift the travel mode to alternative options for both staff and students



- Occasional enforcement of road rules by parking rangers
- Signage improvement around the wombat crossing at Grey House Walk to improve visibility and alert drivers of the crossing.
- Pymble will work with Council to identify pedestrian infrastructure improvements which would be expected to support a high proportion of students to walk and cycle. The school would welcome any improvements to the pedestrian network surrounding the school by the Council.

The recommendation above that involve modifications in public road areas such as the extent of timed parking restrictions and signage improvements will require further investigations. These investigations will require consultations with the Council.

Yours sincerely,

R. Botre

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