8 May 2023

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Kevin Kim
Department of Planning and Environment
Submitted via the Planning Portal

Ref: GW21039255

Re: SSD 46014456 Concept Proposal and Stage 1 application for a new independent school in North Sydney – Submission

This submission has been prepared on behalf of the Wenona School (Wenona) in response to the exhibition of SSD 46014456, which seeks approval for a Concept Proposal and Stage 1 application for a new 1,560 student independent school at 41 McLaren Street, North Sydney (herein referred to as the Reddam proposal).

Key issues and recommendations
This submission highlights the following procedural and technical matters the Department should consider as part of its assessment:

1. The reasonableness of the exhibition period during the Easter holiday and school term break;
2. The strategic justification of the Reddam proposal;
3. The requirement for the planning documentation to accurately document and assessment the Reddam proposal site's current and future context and the development's impact on the Precinct within which the site is located;
4. Clarification of operating hours and consequential impacts;
5. Demand on, and implications for, open space and community infrastructure in the Precinct within which the site is located;
6. Traffic generation and movements;
7. Car parking, drop off and pick up arrangements;
8. Pedestrian movements and bicycle parking; and
9. Infrastructure capacity.

The issues identified above are supported by the following recommendations:

1. The Department should extend the public exhibition period for an additional 14 days to ensure:
    a. the Department's own community participation objectives are satisfied; and
    b. all affected stakeholders have a reasonable amount of time to review the Environmental Impact Statement and respond to the public exhibition.
2. The Department should require the Applicant to undertake a robust and evidence based supply and demand analysis that demonstrates:
    a. there is current unmet demand for 1,560 student places
    b. that the unmet demand is in the North Sydney LGA
    c. that the Precinct and the site is the best possible option to cater to the unmet demand
    d. that the unmet demand must be immediately met (i.e.: within the next 2 years).

3. The Department should require the proponent Applicant to update the EIS to provide a comprehensive contextual analysis. The cumulative impacts of the proposed development must be accurately quantified and assessed.
4. The Applicant should clarify its intended operating hours and any activities proposed to be carried out on weekends.
5. The Applicant should be required to provide a revised Social Impact Assessment that specifically demonstrates there is sufficient capacity across existing open space, facilities, and infrastructure to accommodate the demand that will be generated by the proposed school community.
6. A revised traffic impact assessment should be prepared informed by comparable independent schools. Data sources and adopted modal split and vehicle occupancy assumptions should be comprehensively documented to enable validation of the methodology and the resulting impact assessment.
7. SIDRA models should be updated to correct identified errors in intersection layouts.
8. The absence of on-site car parking has implications for the surrounding street network and requires further justification.
9. The design and operation of the pick-up and drop off arrangements should be reconsidered, particularly having regard to the consequential impacts to the surrounding road network.
10. The physical provision of bus parking bays/layover requires further detailing. The implications of proposed bus bays/layovers on the local street network and the safety of students travelling to/from buses should also be assessed.
11. It is recommended that a pedestrian facility assessment based on the TfNSW Walking Space Guide be prepared to quantify existing and proposed pedestrian movements, particularly in the context of committed and known redevelopment projects in the precinct.
12. SIDRA analyses should subsequently be adjusted and updated to account for the forecast pedestrian movements.
13. The Department must consider the capacity of proposed infrastructure to service the existing development in the context of the committed development pipeline in the broader precinct. The impact of any electrical substation or kiosk required to be located within the public domain requires careful consideration, including the impact of any new infrastructure on footpath capacity.

About Wenona School

Wenona School is an all-girls independent, secular, day and boarding school located on land that is 220m from the proposed development site.

The Wenona Campus is 1.7 hectares in area and comprises multiple landholdings across between Miller Street, Ridge Street and Walker Street (see image below). The Campus comprises a junior school (on both East and Central Campus) and a senior school on the Central and West (i.e. Miller St) Campus.

The total Wenona student population is approximately 1,500 students, 50 of whom are boarders housed in the heritage Messiter and Ralston houses fronting Walker Street. Approximately 225 FTE staff are employed by Wenona.

Wenona is comparable to the Reddam proposal in terms of land use, student and staff numbers and operating hours. The technical issues set out within this submission are drawn from front line experience and the day to day operational insights that running an independent 1,500 student school in the North Sydney CBD entails.

Wenona landholdings

Eastern Campus Central Campus Western Campus

1. Inadequate exhibition period

Wenona is concerned with the Department's decision to exhibit the SSD during a period that coincides with the Easter holiday and term break and during which many people are away or indisposed. A potential lack of awareness about the exhibition period and the insufficient time provided to make submissions may underestimate local stakeholders' interest in the Reddam proposal.

The precinct within which the development is proposed to be located is characterised by a number of public, catholic systemic, and independent schools which would have similarly been on term break for the same duration. These include Monte Sant' Angelo, Marist Catholic College, St Mary's Catholic Primary School, North Sydney Boys High School, North Sydney Girls High School, Cameragal Montessori School, Cammeraygal High School, and Sydney Church of England Grammar School.

The exhibition period, commencing 6 April 2023 and initially scheduled to conclude on 3 May 2023, has coincided with term break during which these schools have been effectively shut down. For Wenona, this has resulted in 19 calendar days during which staff, who would ordinarily be responsible for preparing a submission, have been on leave.

The nineteen days during which Wenona and other education facilities were on term break equates to 67% of the total statutory exhibition period. The Department's extension of the exhibition period by three business days to 8 May 2023 to accommodate network outages was welcome, however the term break still makes up more than half of the extended statutory exhibition period (59%).

It is understood and acknowledged that the *Environmental Planning and Assessment Act, 1979* mandates a minimum 28 day exhibition period for State significant developments. It is also understood that the period between 20 December and 10 January (inclusive) is the only period that is legislatively excluded from the calculation of a period of public exhibition. Convening a statutory exhibition period during the calendar year's second most significant holiday period for the minimum 28 day period is a potential denial of procedural fairness to school stakeholders and community members who may reasonably taken a holiday over the Easter period and school term break.

Savills is aware of numerous examples where the Department has held extended public exhibition periods over school holidays to ensure the community has sufficient time to review and respond to a proposed development. The public exhibition period for the Reddam proposal should have similarly run for a period that accounted for the Easter holiday and term break.

Recommendation 1: The Department should extend the public exhibition period for an additional 14 days to ensure:

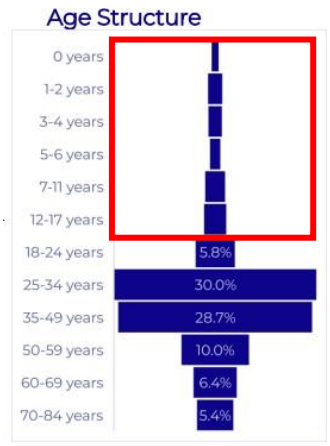
a. the Department's own community participation objectives are satisfied; and
b. all affected stakeholders have a reasonable amount of time to review the Environmental Impact Statement (EIS) and respond to the public exhibition.

2. Unsubstantiated project justification and student demand

The EIS asserts the proposal is required on the basis that it will meet projected demand for education facilities. There is no evidence in the EIS or supporting studies to substantiate this claim other than references to the North District Plan's indication that 21,900 school places will be required by 2036.

Student numbers published in the North District Plan are based on projected population growth and ***future*** demographic profiles, calibrated against projected school aged children and housing supply forecasts. The North District Plan captures the City of Ryde, Hornsby, Hunters Hill, Ku-ring-gai, Lane Cove, Mosman, North Sydney, Northern Beaches and Willoughby local government areas. Interrogation of the Department of Planning and Environment's population projections clearly demonstrates the Northern Beaches, Ryde, Hornsby, Ku-Ring-Gai, and Willoughby LGAs will all be subjected to greater population growth and dwelling demand than North Sydney[1]. Notwithstanding the District wide population growth and housing pressures, school aged children are the second slowest growing population cohort in the District[2].

The age structure diagram contained within the Applicant's Social and Economic Impact Assessment (reproduced below) clearly demonstrates that the future population will be older, and school aged children will represent a significantly smaller proportion of the future population. The proposal has not considered school aged children, but growth more generally, typically at the older end of the spectrum. The Applicant's argument that it is contributing to meeting student demand assumes all places grow or change in the same way, at the same rate, or at the same time.



☐ Proportion of existing and future school aged children

Source: Social and Economic Impact Assessment, Ethos Urban (4 November 2022)

Recommendation 2: The Department should require the Applicant to undertake a robust and evidence based supply and demand analysis that demonstrates:

- there is current unmet demand for 1,560 student places
- that the unmet demand is in the North Sydney LGA
- that the Precinct and the site is the best possible option to cater to the unmet demand
- that the unmet demand must be immediately met (i.e.: within the next 2 years).

[1] https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections
[2] https://greatercities.au/north-district-plan/future-of-north-district/metropolitan-context-of-north-district

3. Inaccurate reflection of the Reddam proposal site's current and future context

One of the obligations upon consent authorities, such as the Minister for Planning (or his delegate), is to consider the suitability of the site for the development which can include a consideration of whether the proposal is compatible with the surrounding land uses and the existing environment.

Figure 10 – Future Surrounding Development within the EIS (pg 26) in inaccurate as 50 McLaren is the limit of the Metro site. Figure 10 also does not accurately reflect all approved and proposed developments in the precinct or broader catchment. It identifies 41 McLaren Street in the context of a limited number of development proposals to the south.

Developments that have been omitted from Figure 10 and the EIS generally, including those to the north:

- 43 storey commercial tower – 153-157 Walker Street, North Sydney
- 48 storey commercial tower – 100-102 Walker Street, North Sydney
- 26 storey commercial tower – 63, 69-71, 73-79 and 81-83 Walker Street North Sydney
- 55 storey commercial tower – 110-122 Walker Street, North Sydney
- 27 storey commercial tower – 105 Miller Street, North Sydney
- 14-24 storey mixed commercial and residential tower – 52 McLaren Street, North Sydney
- Residential development (189 dwellings) – 173-177 Walker Street and 11 Hampden Street, North Sydney
- Marist Brothers expansion – 264, 270, 282 and 288-290 Miller Street, 25 and 31 Carlow Street, 34-36 and 40 Ridge Street, North Sydney

The EIS does not demonstrate that the compatibility and cumulative impact of the Reddam proposal has been assessed in the context of all known development activity within the Precinct and the North Sydney CBD. The appropriateness of introducing the proposed intensity of education uses within the precinct, particularly in proximity to other schools has not been comprehensively documented. Traffic and pedestrian movements, hours of operation, and implications for existing precinct infrastructure requires assessment.

Recommendation 3: The Department should require the Applicant to update the EIS to provide a comprehensive contextual analysis. The cumulative impacts of the Reddam proposal must be accurately quantified and assessed.

4. Impacts associated with extended hours of operation have not been assessed

Page 35 of the EIS indicates the school will operate from 7:00-6:00, however it is silent on whether this is limited to weekdays and/or weekends.

Independent schools typically run sports and other extra-curricular activities on weekends. The traffic impacts of any such activities requires assessment to properly evaluate potential impacts in the context of the precinct's day to day operations.

Recommendation 4: The Applicant should clarify its intended operating hours and any activities proposed to be carried out on weekends.

5. Significant increased demand on and implications for Precinct infrastructure

The EIS indicates the open space/playground strategy is concentrated on providing roof top spaces within the school, with relatively little consideration of active and recreational playground space. The Department of Education's Educational Facilities Standards and Guidelines (EFSG) Schedule of Accommodation - Version 1.1 requires 10sqm of playground space per student to meet the educational needs of its students. While the Reddam proposal is an independent school, the Department's EFSG are a sound rule of thumb and recognise the importance of ensuring students are provided with a well-rounded educational experience which includes a combination of indoor and outdoor learning.

The absence of suitable active and recreational playground space on site will necessitate the school's students having to utilise off site facilities and infrastructure. The introduction of 500 (and ultimately nearly 1600 students) will place additional pressure on existing open spaces such as St Leonards Oval and Primrose Park. North Sydney Council recognises the magnitude of the issue, resolving on 13 March 2023 to prioritise the preparation of an Open Space and Recreation Strategy as open space has not kept pace with the needs of the existing population let alone projected future population[3]. The additional demand that the Reddam proposal will have on what are already popular and well utilised open space areas has not been adequately assessed in the EIS.

Recommendation 5: The Applicant should be required to provide a revised Social Impact Assessment that specifically demonstrates that there is sufficient capacity across existing open space, to accommodate the demand that will be generated by the proposed school community.

6. Inadequate and inaccurate traffic impact assessment

a) Modal splits, occupancy rates, and traffic generation

Wenona has engaged Ason Group to review the EIS and supporting traffic related documents. The following summary should be read in conjunction with Ason's detailed assessment provided at **Appendix A**.

i. The ambitious mode share targets adopted are unsubstantiated and cannot be validated based on the publicly available information. Consequently, the traffic assessment has underestimated the traffic generation impacts on the local road network and nearby intersections. The anticipated traffic growth in the network is expected to result in some intersections in the vicinity of the Reddam proposal which are already operating close to capacity, to come under significant pressure. The Reddam proposal will further create impact on the level of service of the surrounding local and classified road networks.
    - The data used to inform adopted mode share targets has not been drawn from comparable independent schools and data sources are not well documented.
    - The 50-70% shift in mode proposed from car driver to public and active transport modes for Kindergarten to Year 6 and 90% mode shift for Years 7-12 is overestimated. Consideration needs to be given to the very realistic proposition that a high proportion of school parents will drive the children to/from the school resulting in a much higher reliance on private vehicle movements than currently reported. Revised mode share targets would also assist in more accurately quantifying the traffic impacts of the Reddam proposal.
    - The traffic impact assessment has not adopted year based mode share splits and as such does not accurately reflect the traffic generation patterns of the junior and senior schools.
    - The Applicant has elected not to rely on any of its other campuses to inform travel patterns and modes. Mode share targets should have been informed by traffic surveys/counts collected at Reddam House's campuses across Sydney to reflect actual operational modes and provide the most realistic operating circumstances for the McLaren Street site.
    - Staff movements have been omitted from the traffic impact assessment.

ii. The average number of students per vehicle has been unable to be validated.
    - Average car occupancy is a critical assumption as it determines trip generation rates, the demand for drop off/pick up arrangements and the adopted assumptions and efficacy of the kiss and ride.
    - The evidence to support the assumed 1.7 students per vehicle rate has not been provided, limiting the ability for Ason Group to validate the assumption.
    - The vehicle occupancy rates and trip generation calculations have not taken into consideration the likely number of students across the junior school and high school from the same household. The staggered start and finish bell times are expected to result in additional trips where multiple students from the same household will alter travel patterns to align with the different bell times for each school.

iii. The traffic counts and lack of transparency regarding the methodology used to calibrate data calls into question trip generation rates, queuing impacts on the local road network and potential deterioration of intersection performance. The submitted SIDRA modelling also underestimates signal phasing and contains inaccurate intersection layouts.
    - The SIDRA modelling adopts a practical cycle time of 50 seconds for the Miller Street/McLaren Street intersection. This cycle time does not reflect existing conditions which favour Miller Street's function in the arterial road network (i.e.: phasing for north/south movements are longer than 50 seconds) and result in queuing along Ridge Street, Elliott Street and Walker Street. The arterial function of Miller Street is expected to continue being prioritised ahead of alleviating queuing in east-west running streets. Reddam school traffic in McLaren Street could be expected to be subordinate to maintain north-south flows along Miller Street. The inaccuracies in the SIDRA modelling have highlighted the exclusion of signal phasing and timing which prevents an accurate assessment from being completed.

3 https://www.northsydney.nsw.gov.au/ecm/download/document-10381548

- The SIDRA modelling incorrectly depicts the Harnett Street/McLaren Street intersection.
  - Harnett Street is only 7m wide and cannot accommodate the 4 lanes depicted in the model.
  - The Harnett Street approach should be modelled as a shared left and right-turn lane and the westbound approach should be modelled as 1 shared left and through lane.
- The SIDRA model incorrectly depicts the McLaren Street/Walker Street intersection.
  - The McLaren Street approach should be modelled with a stop control rather than the currently modelled give-way way sign. The 6m short lane on the westbound receiving lane should be removed.

Recommendation 6: A revised traffic impact assessment should be prepared, informed by comparable independent schools, their own school data, and accurate road usage modelling. Data sources and adopted modal split and vehicle occupancy assumptions should be comprehensively documented to enable validation of the methodology and the resulting impact assessment.

Recommendation 7: SIDRA models should be updated to correct identified errors in intersection layouts.

b) Car parking drop off/pick up arrangements

i. The number and configuration of car parking spaces, combined with the proposed drop off and pick up arrangements, present design and operational challenges. Poor management of the kiss and drop will result in queuing that extends onto the public road network and impacts the performance of nearby intersections.
   - The proposed provision of 10 car parking is grossly underestimated. The North Sydney Development Control Plan 2013 prescribes a maximum of 1 space per 6 staff. Application of this rate to Reddam's proposed 123 FTE staff would equate to 20 spaces. While the parking rates are maximums, the impacts to on street parking have not been assessed.
   - The managed student collection system relies on well managed and efficient movement of students from the holding area within which students are understood to be located (beyond the foyer) to vehicles. Precedents demonstrating the assumed 60 and 80 second drop off/pick up times have not been demonstrated. Delays in the travel time will impact the adopted 80 second average cycle time.
   - It is unclear whether access to the basement level drop off and pick up zone will remain fully open throughout the school day. If access is shut during core school hours, the proposal should factor in that there will be vehicles queuing along Harnett Street prior to the PM bell time, impacting queuing in the local road network along McLaren Street, Walker Street and possibly Miller Street. Our observations are that parents from existing schools in the precinct seek to avoid queuing by arriving up to 30 minutes prior to bell times, placing additional pressure on the surrounding street network.

Recommendation 8: The absence of on-site car parking has implications for the surrounding street network and requires further justification.

Recommendation 9: The design and operation of the pick-up and drop off arrangements should be reconsidered, particularly having regard to the consequential impacts to the surrounding road network.

c) Bus Layovers

i. The Applicant's intention to promote non-private vehicular modes of transport suggests additional bus zones will be required. Dedicated bus parking spaces in front of the proposed school would displace existing on street parking. Physically accommodating the bus parking bays would also potentially narrow the existing McLaren Street aisle widths within the road reserve. This will avoid flow-on issues in relation to the queuing on approach because of ingressing vehicles trying to drop off students combined with the conflict created with buses trying to leave the bus bay.

ii. The site's 40 metre frontage is already dominated by timed parking areas, two side access roads, established trees and power lines. The northern McLaren Street frontage is similarly dominated by timed on street car parking and driveways to north facing properties. Once construction on the northern side of McLaren Street area is complete, we anticipate additional timed parking, a loading zone, a taxi rank, and ride-share spaces will be put in place. This is no physical space allocated for the required bus bays.

iii. Vehicle/ pedestrian conflicts and the safety risks associated with locating bus bays away from the school have not been considered, particularly during the AM and PM peak.

iv. The impacts of students and pedestrians traversing the site's immediate frontage, crossing Hartnett

Lane and presenting an interference with the ingress and egress of vehicles accessing the drop off and pick up zone has not been assessed.

Recommendation 10: The physical provision of bus parking bays/layover requires further detailing. The implications of proposed bus bays/layovers on the local street network and the safety of students travelling to/from buses should also be assessed.

d) Pedestrian movements

i. The distribution of forecasted pedestrian movements and adequacy assessment of the existing and future footpath network has not been provided.
   - There appears to be little provision for pedestrian access to 41 McLaren Street to accommodate the anticipated number of pedestrian movements. The pedestrian volumes have been set at a default value of 50 pedestrians/hour in the SIDRA model. This default position is inadequate for a school of 1,560 students, their parents and school staff, combined with other residents and workers in the precinct (particularly when the Metro becomes operational and high volumes of pedestrian traffic are anticipated) . This should be adjusted based on contemporary surveyed pedestrian volumes, which recognise that the Precinct's intersections serve several schools and the North Sydney CBD resident and worker population.
   - SIDRA analyses should subsequently be adjusted and updated to account for the forecast pedestrian movements.

Recommendation 11: It is recommended that a pedestrian facility assessment based on the TfNSW Walking Space Guide be prepared to quantify existing and proposed pedestrian movements, particularly in the context of committed and known redevelopment projects in the precinct.

Recommendation 12: SIDRA analyses should subsequently be adjusted and updated to account for the forecast pedestrian movements.

7. Infrastructure augmentation has the potential to impact the public domain

The probable need for amplification of energy infrastructure is of concern as Ausgrid increasingly requires substations and kiosks to be constructed in the public domain to ensure the minimum access, safety separation, and clearance requirements can be provided. Any future substation or kiosk would provide an additional obstruction in the already congested and highly utilised public domain, and may also diminish footpath capacity.

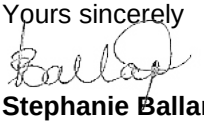
Recommendation 13: The Department must consider the capacity of proposed infrastructure to service the existing development in the context of the committed development pipeline in the broader precinct. The impact of any electrical substation or kiosk required to be located within the public domain requires careful consideration, including the impact of any new infrastructure on footpath capacity.

Conclusion

The matters raised within this submission reflect Wenona's experience operating a 1,500 student school and deep understanding of the Precinct's day to day operations. The issues raised in this submission demonstrate that the EIS and particularly the traffic modelling are inadequate, particularly given the proposed enrolment size of 1,560 plus staff. Accordingly, it is our view the Applicant should be required to submit an updated EIS informed by a supplementary traffic impact assessment and corrected modelling. The revised documentation should be re-exhibited to enable community members and precinct stakeholders, as well as Wenona's planning and traffic experts, to properly interrogate and assess the proposed development. Provision of additional information would also provide stakeholders with an opportunity to make any further submissions should they wish to do so.

Wenona would welcome the opportunity to discuss SSD 46014456 and the matters outlined above with the Department particularly as they relate to the successful operation of the Precinct. Please contact the undersigned on 0412 775 365 should you have any questions.

Yours sincerely



Stephanie Ballango
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8 May 2023

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RE: Transport Response to the Reddam House State Significant Development Application (SSD-46014456),

Dear Stephanie,

Wenona School has engaged Ason Group to:

- assess and quantify the cumulative traffic impacts the Reddam School proposal could have on Wenona School's current and future operations, due to the proposed size and proximity of the proposed Reddam School and Wenona School, and their reliance on McLaren Street; and
- provide traffic advice to inform submission/representation required by Wenona School as part of the statutory process of Reddam School.

Background

Ethos Urban has prepared an Environmental Impact Statement (EIS, 1 December 2022, 2220107, version 3.0) for a Concept Proposal and Stage 1 State Significant Development Application pursuant to Section 4.22 of the EP&A Act.

The Concept Proposal comprises the adaptive reuse of the heritage-listed building to accommodate a new independent school to be operated by Inspired Education, with a capacity of approximately 1,560 students from Kindergarten to Year 12.

Detailed approval for the following Stage 1 works is concurrently sought:

- Early works and site preparation, including demolition, excavation, and tree removal.
- Adaptive reuse of basement, ground and Levels 1 and 2 for a school, accommodating approximately 500 students.
- Relocation of the existing driveway to the south-eastern corner along Harnett Street.
- Reconfiguration and extension of the basement to include the following:
  - On-site pick-up and drop-off zone comprising 10 pick-up and drop-off bays;
  - 10 car parking spaces and 102 bicycle spaces, including end-of-trip facilities;
  - Loading dock;
  - Mechanical Plant and Services;
  - A multipurpose sporting facility; and
  - Drama and dance classrooms

- Detailed internal fit-out of Ground Level, Level 1, and Level 2 to accommodate a total 498 students. Fit out works will comprise 34 x General Learning Areas (GLAs), 6 x Special Learning Areas (SLAs) and associated facilities for a school, including general office and admin areas, staff rooms, sick bay, library, canteen, and breakout spaces.
- Refurbishment and restoration of existing lift core and services.
- External works to the rooftop, particularly the extension of the plant room to accommodate 2 x cooling towers and the installation of a new acoustic screening with a maximum height of RL 99.6.
- Essential external restoration and maintenance works to the existing facades and terraces, including:
  - Replacement of existing glazing and associated framing where required to accommodate new services;
  - Installation of new external handrails to all terraces; and
  - Removal of sunshade devices along Harnett Street on the Basement Level and replacement with solid bronze metal finish.
- Detailed landscaping works to the Ground Level, Level 2, and Level 7, including additional tree planting and fencing to integrate with the design of the new school.
- Installation of three building identification signs.
- Installation and augmentation of associated services infrastructure to service the new school.

The subject site is located 220 metres south of the Wenona School, 90 metres south-east of the future Victoria Cross Metro Station, 800 metres north of the North Sydney Railway Station, and located within the northern quadrant of the North Sydney CBD and the Ward Street Precinct.

Documents Reviewed

Ason Group has reviewed the following documents as part of this assessment. Details and abbreviations as referenced in this report are as follows:

- EIS Report: Ethos Urban, *Environmental Impact Statement – 41 McLaren Street, North Sydney*, Version 3.0, 1 December 2022
- TIA: ARUP, *Traffic and Transport Impact Assessment*, Reference REP-TR-TTIA01, F4.1, 14 December 2022
- CPTMP: ARUP, *Construction Pedestrian Traffic Management Plan (CPTMP),* Final, 1 November 2022
- GTP: ARUP, *Green Travel Plan – 41 McLaren Street, North Sydney*, REP-TR-GTP01, Final 2.0, 2 November 2022
- OTMP: ARUP, *41 McLaren Street, North Sydney – Dec 2022*
- TTIA Peer Review: JMT Consulting, *41 McLaren Street, North Sydney Independent Transport Review*, 27 October 2022

Proposed Transport Aspects of Reddam House Development – Concept Development

The key components of the Concept Plan drawn from the EIS Report and supporting documents which have informed this assessment are summarised below.

- Land use –independent Kindergarten to Year 12 school
- Student and staff numbers:
  - 1560 students (560 primary students and 1,000 high school students)
  - 123 full-time equivalent staff members

- Hours of operations: 7 am – 6 pm.
- Proposed bell times, start and finish times:
  - Junior School – 8:30 am to 3:00 pm
  - Senior School – 8:50 am to 3:30 pm
- An on-site out-of-school hour care (OOSH):
  - 150 students
  - 7:30 – 8:50 am
  - 3:00 – 6:00 pm.
- Pedestrian access points with reference to Figure 14 of the EIS:
  - primary access from McLaren Street
  - secondary access point on Faith Bandle Place.
- Vehicular access and egress proposed from Harnett Street:
  - access/egress point linked to Basement Level 3
  - internal circulation drive within the basement will provide for pick-up and drop-off
  - Harnett Street access will also be used for deliveries and servicing.
- Parking:
  - 10 car parking spaces proposed within Basement Levels 2, 3 and 4.
  - Parking spaces are reserved for staff and employees only
  - access to parking will be provided off the basement entry along Harnett Street
  - 10 pick-up and drop-off spaces are also provided within Basement Levels 2 and 3 in a parallel configuration
- Bicycle parking:
  - 102 bicycle racks proposed in the basement
  - 68 spaces are reserved for students
  - 18 spaces are reserved for staff members
  - 16 spaces are reserved for visitors.
  - end-of-trip facilities reserved for staff members.
- Loading dock
  - proposed within Basement Levels 2 and 3
  - will accommodate vehicles up to 6.4 metres in length
  - access/egress to the loading dock is proposed via the access point off Harnett Street
  - loading area designed to enter and exit the basement in a forward direction.

Existing Traffic and Transport Condiotns

The road hierarchy in the vicinity of the site comprises the following roads:

- Pacific Highway: is an RMS State Road (MR 10) that generally runs in a north south direction. In the vicinity of the site, the Pacific Highway provides a divided carriageway, three (3) lanes of traffic in each direction and accommodates a speed zoning of 60km/h. A T3 transit lane operates in the left northbound lane from 3:00pm to 7:00pm Monday to Friday restricting it to vehicles with three (3) or more people. Time restricted parallel parking is only provided in the left lanes between Berry Street and Miller Street.

- Berry Street: forms part of the RMS State Road (MR 10) and runs in an east west direction between Arthur Street in the east and Edward Street in the west (State road between Arthur Street and Pacific Highway). Berry Street generally provides three (3) lanes of traffic in an eastbound direction only and accommodates a speed zoning of 40km/h. Time restricted parallel parking is provided along both kerbsides.
- Miller Street: is an RMS State Road (SR 2111) that generally runs in a north south direction between Strathallen Avenue in the north and Lavender Street in the south (SR 2111 between Falcon Street and Pacific Highway). Miller Street provides two lanes of traffic in each direction and accommodates a speed zoning of 40km/h in the vicinity of the site. Time restricted parking is generally provided along both kerbsides.
- Walker Street: a local road that runs in a north south direction between Ridge Street in the north and the Pacific Highway in the south. Walker Street provides a single lane of traffic in each direction and accommodates a speed zoning of 40km/h during morning and afternoon school times on school days and 50km/h the rest of the time. No Parking restrictions are provided within the Wenona School frontage to allow for student set-down and pick-up purposes. Time restricted parallel parking is generally provided along the remainder of the Walker Street kerbsides.
- McLaren Street: a local road that runs in an east west direction between Walker Street in the east and Pacific Highway in the west. McLaren Street provides a single lane of traffic in each direction and accommodates a speed zoning of 40km/h. Time restricted parking is provided along both kerbsides, noting that some stretches of McLaren Street are currently frontages to construction sites and accordingly No Parking restrictions are temporarily in place.
- Angelo Street: is a local road that runs in a north south direction between McLaren Street in the north and Berry Street in the south. Angelo Street provides a single lane of traffic in a southbound direction only and accommodates a speed zoning of 40km/h. Time restricted parallel parking is generally along the eastern kerbside whereas the western kerbside only provides a loading zone near Berry Street.
- Faith Bandler Lane and Harnett Street: local dead-end streets that run north south for part of the block from McLaren Street. Both primarily function as service and access lanes and are heavily utilised for bin/waste collection, and rear access to properties.

Proposed Transport Aspects of Reddam House Development – Stage 1 Development

The key components of the Stage 1 Project Application drawn from the EIS Report and supporting documents which have informed this assessment are summarised below.

- Student and staff numbers:
  - 498 students
    - K – Yr 2: 150 students
    - Yr 3 – Yr 6: 123 students
    - Yr 7 – Yr 12: 225 students

Pedestrian and vehicle access, car parking, pick-up and drop-off facility, bicycle parking, end-of-trip facilities and loading facilities, as proposed for the School in its ultimate form under the Concept Proposal are proposed to be delivered as part of Stage 1 works.

Key Traffic and Transport Considerations

Ason Group's review of the EIS Report and documentation has highlighted the following key issues which should form the basis of a submission to the public exhibition period, each of which is discussed in further detail below:

- Mode share assumptions;

- Pick up/drop off arrangements and operation;
- Vehicle occupancy rates;
- Incorrect SIDRA layout for two intersections;
- Lack of cumulative impact assessment of recently approved education uses;
- Insufficient sensitivity analysis of traffic impacts should the adopted mode share targets not be met;
- Lack of assessment of the adequacy of the pedestrian network; and
- Lack of detail on traffic management measures to adequately manage potential conflicting traffic movements.

Mode Share Assumptions

Our review has revealed the adopted mode share assumptions are ambitious and unsubstantiated, and accordingly the traffic assessment has underestimated the traffic generation and impacts on the local road network and nearby intersections. Given the importance of applied mode share to the Traffic and Transport Impact Assessment, we are of the opinion that further validation of the data used, and calculations undertaken that informed the applied mode share should be provided to validate the applied mode share.

The EIS and TIA assume that the limited provision of on-site car parking spaces will ensure a public transport-based mode. We disagree with this base assumption and are of the opinion the mode share target should have been established and included in the TIA, supported by data sourced from studies of comparable independent schools, and existing schools/campuses operated by Reddam House.

The proponent's traffic consultant (Arup) has instead relied on traffic reports prepared for schools in North Sydney and surrounding areas to develop future mode share estimates for the K-Year 2, Years 3-6 and Years 7-12 cohorts. The schools referenced in both the EIS and TIA are in **Figure 1**and the mode share applied to each student cohort is identified in **Figure 2**.

Appendix F

Mode share of surrounding schools

School	Grades	Survey Year	Public Transport Mode Share	Car Mode Share
Chatswood Public School	Primary School	2019	9%	30%
Chatswood Public School	High School	2019	51%	16%
Loreto Kirribilli	Primary School	2017	27%	60%
Loreto Kirribilli	High School	2017	58%	34%
Marist North Sydney	High School	2018	83%	10%
Marist North Sydney	High School	2020	51%	26%
Monte Sant Angelo Mercy College	High School	2020	75%	20%
North Sydney High School	High School	2021	13%	24%
St Aloysius' College	Primary School	2017	50%	50%
St Aloysius' College	High School	2017	87%	11%
St Marys Catholic College (North Sydney)	Primary School	2020	6%	72%

Figure 1: Mode Share of Surrounding School (Source: Appendix F of ARUP TIA)

Table 3 Applied mode share proportions by student cohort

Student cohort	Car	Public and Active Transport
K – Year 2	50%	50%
Year 3-6	30%	70%
Year 7-12	10%	90%

Figure 2: Applied Mode Share (Source: Section 5.1 of ARUP TIA)

Ason Group has interrogated the referenced reports and made the following observations:

- The 11 reference schools comprise 4 primary schools and 7 high schools. Of these, 8 were independent schools and 3 were public schools.
- As Reddam House is an independent school with no defined enrolment intake area, Ason Group disagree with Arup's approach that the mode share data of public schools is of less relevance as the majority of students enrolled should be from within a set enrolment intake area detailed in School Finder.
- Notwithstanding this, Arup has not detailed the calculations or analysis undertaken to substantiate the adopted mode shares identified in Figure 2. In addition, data utilised in cited transport reports has not been sourced, limiting the ability of Ason Group to interrogate and verify or refute the adopted mode shares. Only the traffic reports for St Aloysius' College (Primary School), St Aloysius' College (High School), and St Marys Catholic School (Primary School) contain publicly available mode share data broken down to year levels. Cohort or year-based mode shares are not publicly available for the remaining 8 schools.
- Ason Group notes that the 'North Sydney High School 2021' data referred to appears to have been sourced from the traffic assessment prepared by Ason Group for the North Sydney Public School. North Sydney Public School is a primary school, and accordingly, the project has either been incorrectly cited or the data inappropriately applied.

Ason Group's review of the EIS and supporting traffic reports combined with traffic mode share studies previously completed by Ason Group, has identified the following deficiencies:

- The adopted car-based mode share has been underestimated. In the absence of robust cohort or year-based mode share data, the traffic assessment should have adopted the following average car-based mode shares for independent Primary Schools and High Schools derived from Figure 1:
    - Independent Primary Schools – 61%
    - Independent High Schools – 20%
- Mode share targets should have also been informed by traffic surveys/counts collected at Reddam House's campuses across Sydney to reflect actual operational modes.
- Staff traffic movements and mode share have not been assessed at all in the TIA.
- Revised mode shares that reflect realistic private vehicle travel would increase trip generation rates during the AM and PM peak and may have the potential to impact queuing across the road network and the performance of local intersections.

Average Car Occupancy

Section 5.2 of the TIA adopts an average vehicle occupancy of 1.7 students per vehicle. Evidence to substantiate this assumption has not been provided in the TIA and as such Ason Group has been unable to validate the average number of students per vehicle. Average car occupancy is a critical assumption as it

determines trip generation rates, the demand for drop-off/pick-up arrangements and the adopted assumptions and efficacy of the pick-up and drop-off facility.

The TIA's trip generation calculations have not taken into consideration the likely number of students across the junior school and high school from the same household. The staggered start and finish bell times are expected to result in additional trips where multiple students from the same household will alter travel patterns to align with the different bell times for each school. Alternatively, a parent will pick up a junior school student at 3:00 and then delay departure to await the pick-up of a high school student 30 minutes later. That vehicle remains in the local road network during this time.

Pick Up and Drop Off Assessment and Management Arrangement

The proposed pick-up and drop-off arrangements pose layout and operational challenges. The successful operation of the pick-up and drop-off facility is contingent on ambitious assumptions, which are prone to fail when pressure tested, leading to consequential impacts on the circulation of traffic through the pick-up and drop-off facility and onto the surrounding road network.

Section 5.4 of the TIA and the Preliminary OTMP outline the proposed operational pick-up and drop-off arrangements.

Average stopping times of 60 and 80 seconds have been adopted for the AM peak and PM peak respectively.

A managed collection system will be implemented for the pick-up and drop-off facility, comprising:

- Parents arriving for pick-up will be required to provide a student name to a staff member;
- Staff member would summons students from an enclosed waiting area.

The pick-up and drop-off area extracted from the OTMP is reproduced in **Figure 3** and illustrates five (5) car bays are proposed along the northern aisle and three (3) car bays are proposed along the eastern aisle. The three (3) car bays are adjacent to the foyer area which is connected to the upper-level learning spaces which we understand will hold students awaiting pick-up.

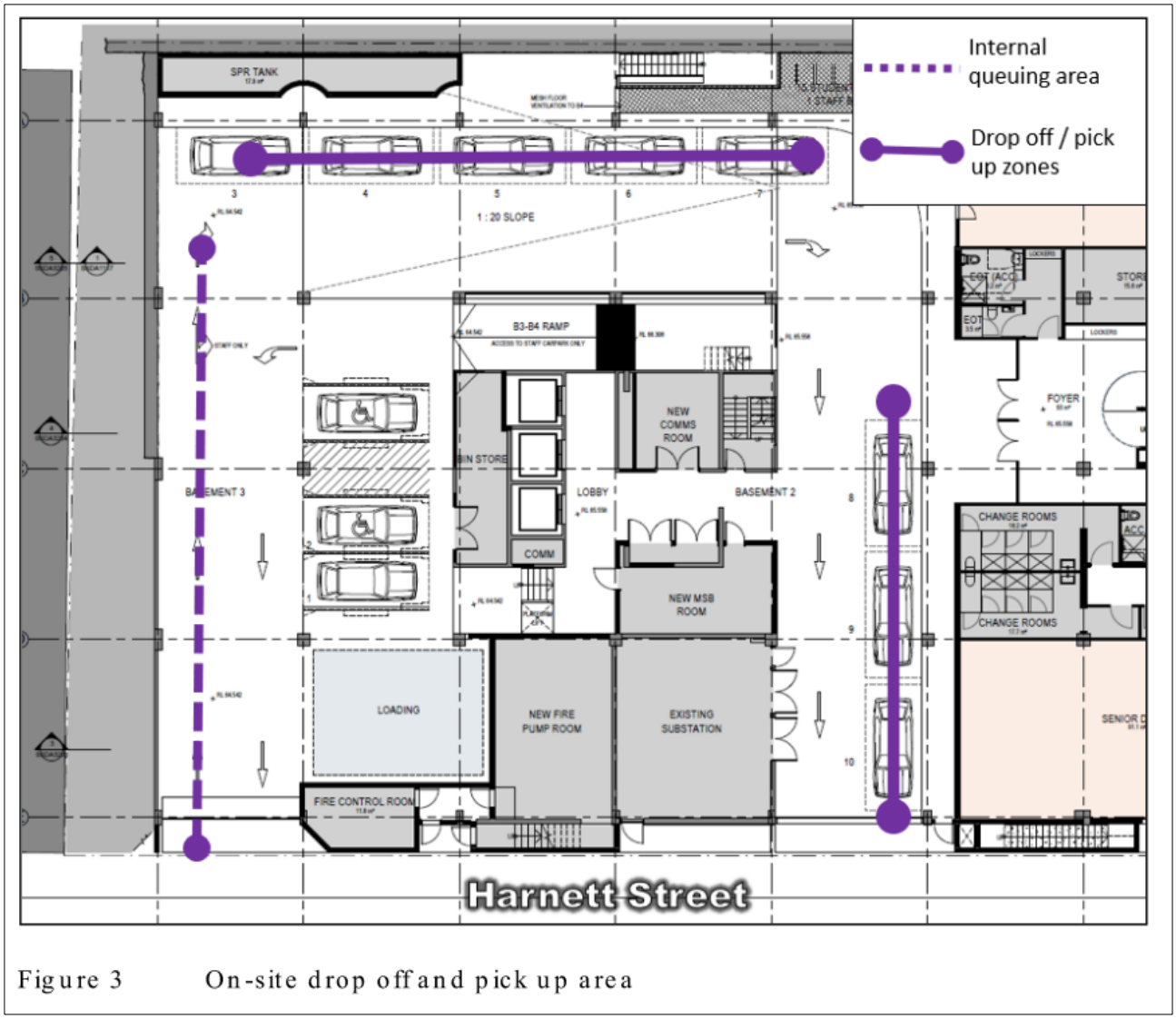


Figure 3: On-site drop-off and pick-up area (Source: ARUP OTMP)

Our review of the layout and swept paths included in the TIA, highlight the following matters:

- It is unclear where the staff member(s) will be positioned to view student names on vehicles and summons students. The procedure assumes parents arriving for pick up will provide the student(s') name to a staff member, which means the staff member needs to be standing to the right side of the vehicle (driver being on the right side of the vehicle). Alternatively, student names could be positioned in the left corner of the windscreen for the staff to read. A third option (particularly for parents picking up siblings across the junior and senior school) may require parents to park in a bay and leave the vehicle to approach a staff member located close to the drop off pick up bays to ask a staff member to summon the student(s). This procedure is likely to require more than 80 seconds on average during the PM pick-up time.
- The time taken for a student(s) to traverse the distance between the 'holding area' within which students are understood to be located (beyond the foyer) and the parking bay has not been considered. Delays in the travel time will impact the adopted 80-second average cycle time.
- The OTMP does not outline whether access to the Basement level drop off and pick up zone will remain fully open throughout the school day. If the access is shut during core school hours, it is highly likely that there will be vehicles queuing along Harnett Street prior to the PM bell time, impacting queuing in the local road network along McLaren Street, Walker Street and possibly Miller Street. If the pick-up and drop-off facility are not tightly managed, queuing that extends onto the public road network may affect the performance of nearby intersections.

- Due to the adaptive reuse nature of the development, the car park access aisle is restricted by structural columns and walls. The movement of vehicles and the safety of staff members in a constrained environment requires detailed assessment, especially if staff members are expected to approach parents at the driver's side of the vehicle.

Trip Generation – Stage 1

Trip generation rates for the Stage 1 Project Application are based on unvalidated mode share and occupancy rates assumptions. The ambitious mode share assumptions nor the number of students per vehicle have been verified through survey data to validate the assumed Stage 1 operation.

The trip generation assessment outlined in Section 5.2 of the Stage 1 TIA indicates the proposed development will generate 47 car trips during the peak 15-minute period when accounting for:

- Stage 1 student population cohort breakdown into junior (K – Yr 2), middle (Yr 3 – Yr 6), and high school (Yr 7 – Yr 12);
- 75% utilisation of the 50-space OOSH facility during the PM peak, with utilisation weighed towards students in lower grades (i.e., junior and middle school cohorts); and
- An occupancy rate of 1.7 students per vehicle.

The GTP is unclear as to whether the applied mode share will be established at the commencement of school operations, or whether the mode share is a target to be achieved over the longer term. If the latter, the trip generation assessment upon the school's opening has been underestimated.

Trip Generation – Concept Plan

Trip generation rates for the Concept Proposal have not been determined as yet as Concept approval only is sought. However, section 6.1 of the TIA states the applied mode share outlined in Section 5.1 of the TIA (i.e., Figure 2 in this report) can be equally applied to the Concept Plan scenario. When the trip generation and maximum projected future student population are extracted as per Figure 4, the PM peak period car-based demand generates 72 trips for the Junior School, and 39 trips for the High School during the peak 15-minute period. However as outlined previously, the adopted mode share is low for car-based modes and accordingly it is our opinion that the peak 15-minute period car trips are lower than what is likely to eventuate.

6.2 Trip generation

Inspired Education provided the following projected student numbers by year level:

Kindergarten to Year 4:	72 students per year level
Year 5 and Year 6:	100 students per year level
Year 7 and Year 8:	150 students per year level
Year 9 to Year 12:	175 students per year level

Maximum future student population: 1,560

These were summarised into the following junior, middle and high school cohorts:

Kindergarten to Year 2:	216 students
Year 3 to Year 6:	344 students
Year 7 to Year 12:	1,000 students

Figure 4: Concept Plan Student Cohort Numbers (Source: Section 6.2 of ARUP TIA)

Section 6.4 of the TIA Report outlines the pick-up and drop-off modelling undertaken. The 85th percentile analysis demonstrates that for one incident per week, the number of arriving cars would exceed the drop-off capacity causing a single vehicle to be stationary on the southbound lane of Harnett Street. This sensitivity analysis is unable to be validated as calculations have not been included in the publicly available documentation.

It is further noted that the Concept Plan assessment assumes an average stopping time of 60 seconds during the AM Peak and 80 seconds for the PM peak for the pick-up and drop-off facility, as per Stage 1. The concerns articulated in relation to Stage 1 regarding the management and operation of the pick-up and drop-off area are equally relevant to the Concept Proposal. Should the operation of the pick-up and drop-off area be managed in a less than optimal manner, queuing is likely to exceed that anticipated in the TIA resulting in operational impacts to Harnett Street, the local road network and nearby intersections.

Traffic Assessment

There are several issues associated with the traffic assessment relating to traffic counts and data which have informed the modelling methodology. The omission of the data from the EIS and TIA has limited Ason Group's ability to verify the validity of the assessment and/or complete our own in-house assessment as we have been unable to establish comparable baseline conditions and apply the same calibration techniques. Notwithstanding this, the following matters are highlighted for Wenona's consideration.

The assessment completed appears not to have taken into consideration the cumulative impact of recent approvals, where upstream and downstream traffic impacts are expected. Of particular relevance are the recent approvals for the following education establishments in the SIDRA modelling:

- Monte Sant Angelo Mercy College, Independent Yr 7 – 12 High School, SSD-10393 approved on 9 October 2020;
- Cameragal Montessori School, Early Childhood Education for 0 – 6 years old and Primary (up to Year 6), DA241/22; and
- Marist Catholic College North Shore with St Mary's Catholic Primary School, Independent K – Yr 12, SSD-10473 approved 23 September 2022, and DA306/22.

The traffic modelling completed is limited to the following three local intersections within the immediate vicinity of the site:

- Miller Street / McLaren Street;
- Harnett Street / McLaren Street; and
- Walker Street / McLaren Street.

The traffic assessment should have considered a broader assessment of the likely traffic impact of the road network given the proposed number of students and high dependency on non private car travel modes. In the event the identified mode share targets are not met, traffic impacts are likely to extend beyond the three local intersections that have informed modelling to the broader local road network and regional road network including classified and arterial roads. It is reasonable to assume that the apparent shortfalls in modelling underestimate the queuing impacts on not only the local road network but also impacts on the intersection performance and queuing impacts on Miller Street, Berry Street and the Pacific Highway which form part of the regional and arterial road network.

We would recommend traffic modelling be expanded to include the following intersections at a minimum to determine impacts on queuing and intersection performance. Modelling should include sensitivity analyses which tests not only the potential impacts on the three local intersections but also those listed below should the proposed mode share not be achieved:

- Falcon Street / Miller Street
- Ridge Street / Miller Street
- Pacific Highway / McLaren Street
- Berry Street / Miller Street
- Berry Street / Walker Street

We have also identified several errors in the SIDRA modelling which require clarification and correction to allow an accurate assessment of both the Concept Plan and the Stage 1 development to be completed.

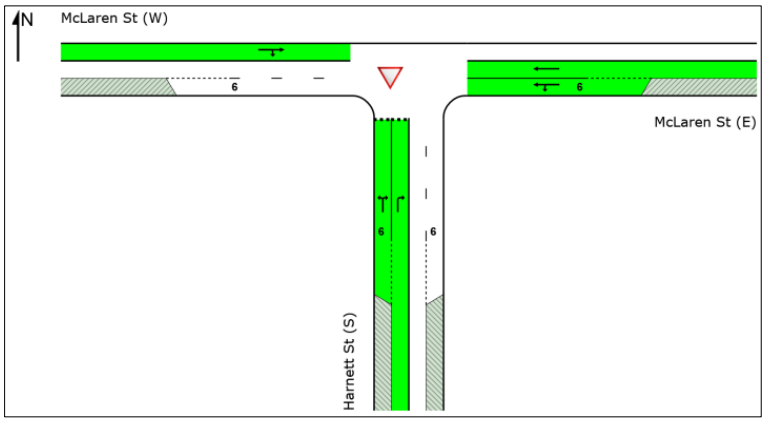
The traffic assessment has been modelled in SIDRA based on June 2022 traffic counts, which have been factored up to pre-pandemic traffic volumes from 2018. We presume this method has been adopted to reflect changes in local traffic conditions and possibly due to nearby Sydney Metro works. It is unclear whether the June 2022 traffic counts were undertaken well clear of the end of Term 2. Traffic data has also not been provided in the TIA to validate how the June 2022 counts were factored up. The report does not detail whether the factoring up of traffic data incorporated traffic generation associated with recently approved education uses, particularly where the AM and PM peak periods are expected to coincide with Reddam House, even with the proposed staggered start / finish times.

The following information should have been provided to enable a detailed review of the traffic modelling work undertaken but has been omitted to date:

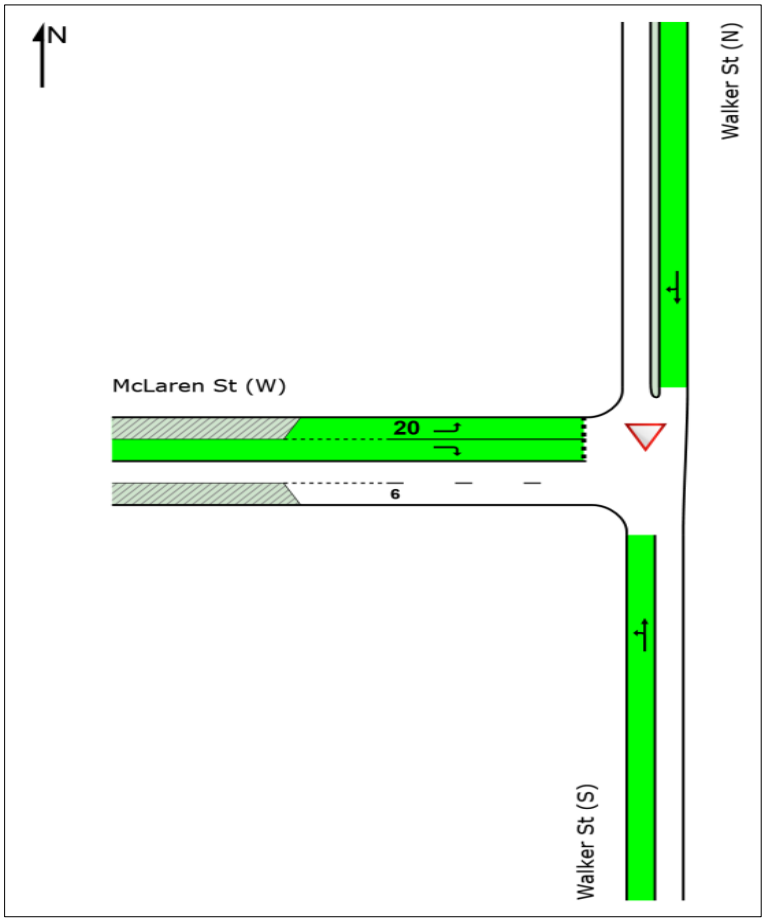
- Queuing assessment details;
- Calibration / validation completed for SIDRA modelling;
- Traffic distribution inputs;
- Other development traffic's distribution on the base network; and
- Clarification on the practical cycle time of 50 seconds applied to the Miller Street / McLaren Street SIDRA assessment. It is unclear if the cycle time was used in accordance with existing conditions, as no signal phasing and timing information was provided to enable assessment of the SIDRA modelling undertaken.

Our review of the completed SIDRA assessment indicates:

- The default assumption of 50 pedestrians per hour requires validation by surveyed pedestrian volumes and forecasted pedestrian volumes, particularly as the modelled intersections must account for pedestrians attributed to schools, workers and residents in the North Sydney CBD;
- The SIDRA-modelled layout at the Harnett Street / McLaren Street intersection is incorrect, thereby skewing the results. In particular:
  - Harnett Street is only 7m wide and cannot accommodate 4 lanes;
  - Harnett Street approach should be modelled as shared left and right turn lanes; and
  - The westbound approach should be modelled as shared left and through lane.



- The SIDRA-modelled layout at the McLaren Street / Walker Street intersection is incorrect thereby skewing the results. In particular:
  - The McLaren Street approach should be modelled with a Stop control, rather than a Give Way control given the number and range of traffic movements; and
  - The 6m short land on the westbound receiving land should be removed.



Pedestrian Facility Assessment

North Sydney CBD's excellent pedestrian connectivity is acknowledged, however, the high reliance on the future Victoria Cross Station as the key mode of transport to/from the school and consequential public transport mode share has not been validated., The distribution of forecasted pedestrian movements and adequacy assessment of the existing and future footpath network has not been provided.

A pedestrian facility assessment based on the TfNSW Walking Space Guide is recommended.

SIDRA analyses should subsequently be adjusted and updated to account for the forecast pedestrian movements.

Traffic Design

The adaptive reuse of an existing building means the car parking area is constrained and requires the implementation of traffic management measures (rather than design-led approaches) to ensure safe operations. Our review of the swept path assessments and floor plans provided in the documentation highlights the following design concerns.

The southern Harnett Street access driveway will provide multiple and concurrent functions raising the potential for conflicts:

- Entry to the pick-up and drop-off bays during peak periods;
- Entry to the OOSH;
- Entry and exit movements of the loading bay;

- Entry and exit movements of the staff parking area.

The TIA and OTMP specify loading activities are proposed to occur before 8 am and after 4 pm. This window coincides with the OOSH's operational hours (i.e.: from 7:30 am, should loading occur between 7:30 am and 8 am), potentially leading to safety impacts attributed to the lack of sightlines between parent vehicles and the loading bay vehicles.

The traffic management arrangements for staff vehicles following the afternoon bell time are unclear. In the event, staff vehicles are permitted to exit during the PM peak, swept path assessments indicate that staff vehicles will rely on the entry access aisle to complete left turn movements out of the Basement Level 4 to the Basement Level 2 ramp, before driving along the entry lane in order to perform left turn out of the southern Harnett Street access driveway. These movements introduce an additional level of complexity in a physically constrained environment. Further details on proposed traffic management measures will be necessary to ensure the safety of all road users.

The loading bay has been designed to accommodate vehicles up to 6.4m Small Rigid Vehicle in size. However, the submitted section drawings, and the TIA did not confirm whether the 3.5m height clearance is available. The TIA and OTMP also noted that a booking system will be in place to ensure at least 15-minute time slots are allocated to loading / deliveries. Details of the booking system have not been provided at this stage, limiting a thorough assessment to be undertaken. The OTMP also did not include measures to minimise reverse manoeuvres out of the site should the loading bay be occupied, when a second delivery vehicle enters the site. Again, these potential movements introduce an additional level of complexity in a physically constrained environment. Further details on proposed traffic management measures will be necessary to confirm the potential operational risks can be avoided and that the safety of all road users will be ensured.

Conclusion

Based on the review undertaken, we are of the opinion that additional information and clarifications of the above-mentioned matters should be requested of the applicant. Key issues identified are:

- Mode share assumptions;
- Pick up/drop off arrangements and operation;
- Vehicle occupancy rates;
- Lack of cumulative impact assessment of recently approved education uses;
- Insufficient sensitivity analysis of traffic impacts should the mode share targets not be met;
- Incorrect SIDRA layout for two intersections;
- Lack of assessment of the adequacy of the pedestrian network; and
- Lack of detail on traffic management measures to adequately manage potential conflicting traffic movements.

Yours sincerely,

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