Ultimo Pyrmont Public School Vehicle Access

Road Safety Audit

Concept Design Stage

23rd February 2018

JN18027_Report02 Rev03

On Behalf of

Arup

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Project Summary

Job Number	JN18027
Final Report Date	23/02/2018
Title of Audit	Ultimo Pyrmont Public School Vehicle Access
Location of Audit	Ultimo
Project Description	The aim of this project is redevelop the Ultimo Pyrmont Public school.
Purpose of Audit	The aim of this Road Safety Audit (RSA) is to assess the proposed vehicle access on Wattle Street in the context of the existing conditions, and the interface between the existing and proposed works.
State of Audit	NSW
Stage of Audit	Concept Design Stage
Client Company	Arup
Client Contact	James Turner
Client Phone	02 9320 9259
Client Email	James-R.Turner@arup.com
Audit Team Lead	Mark Keech
Audit Team Member	Richard Thomas

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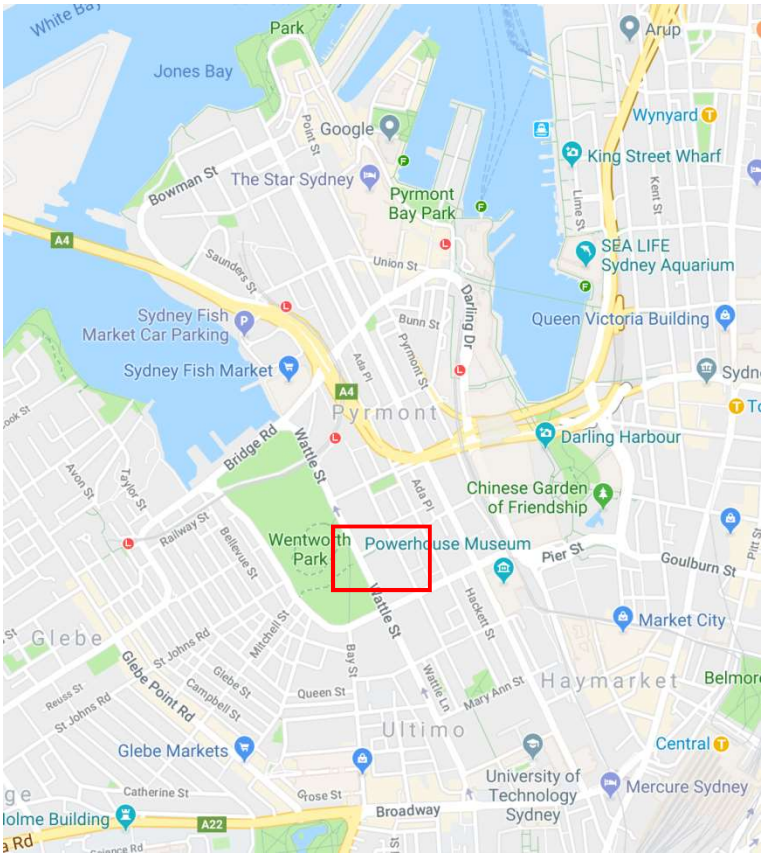
1 Project Description

The aim of this project is to redevelop the Ultimo Pyrmont Public school on Wattle Street, Ultimo. The proposed redevelopment would increase student numbers from 335 to 800, including an increase in staff numbers and the addition of a child care centre.

The aim of this Road Safety Audit (RSA) is to assess the proposed vehicle access on Wattle Street in the context of the existing conditions, and the interface between the existing and proposed works. Internal vehicle and other road user movements within the car park have also been assessed.

2 Study Area

The general audit location is shown below.



Source –Google Maps

3 Background Information

The following background information was referenced during the audit:

> SKT001-A Garbage truck - Wattle Street driveway (Issue A – 29/01/2018)

> Ultimo Public School Site Vehicle Access (ARUP Ref 255340 22/8/2017)

4 Audit Stage

A Concept Stage Audit was carried out with a desktop assessment of the provided plans, report, Google Maps and Google Street view.

The audit was generally undertaken in accordance with 'TNSW Guidelines for Road Safety Audit Practices (2011)' and 'Austroads: Guide to Road Safety Part 6: Road Safety Audit (2009)'.

5 Exclusions

At the time of the audit there were no exclusions presented to the audit team.

6 Audit Team

The audit team and client details are shown below.

Table 6-1 Audit Team & Client Details

Role	Name	
Client (Sponsor)	Arup	
Client Contact	James Turner	Senior Traffic Engineer
Client Email	James-R.Turner@arup.com	
Lead Auditor	Mark Keech	Level 3 Auditor
Lead Auditor Email	admin@amwc-rsa.com	
Team member	Richard Thomas	Level 3 Auditor

7 Audit Program

The audit program details are shown below.

Table 7-1 Audit Program

Activity	Date	
Opening Meeting	29/01/2018	
Audit	30/01/2018	
Draft Report	02/02/2018	RSA Report (DRAFT for comment)
Completion Meeting	12/02/2018	
Final Report	23/02/2018	RSA Report (Final for issue)

8 Audit Risk Assessment Technique

For each of the safety issues identified, the level of risk with each has been determined. The Tables Below are extracted from Austroads: Guide to Road Safety Part 6: Road Safety Audit (2009) and have been used in the assessment of risk for this audit.

Table 8-1 Incident Frequency

Frequency	Description
Frequent	Once or more per week
Probable	Once or more per month
Occasional	Once or more per year
Improbable	Less often than once every year

Table 8-2 Incident Severity

Severity	Description	Examples
Catastrophic	Likely multiple deaths	> High-speed, multi-vehicle crash on freeway. > Car runs into crowded bus stop. > Bus and petrol tanker collide. > Collapse of bridge or tunnel.
Serious	Likely death or serious injury	> High or medium-speed vehicle/vehicle collision. > High or medium-speed collision with a fixed roadside object. > Pedestrian or cyclist struck by a car
Minor	Likely minor injury	> Some low-speed vehicle collisions. > Cyclist falls from bicycle at low speed. > Left-turn rear-end crash in a slip lane.
Limited	Likely trivial injury or property damage only	> Some low-speed vehicle collisions. > Pedestrian walks into object (no head injury). > Car reverses into post.

Table 8-3 Resulting Level of Risk Matrix

	Frequent	Probable	Occasional	Improbable
Catastrophic	Intolerable	Intolerable	Intolerable	High
Serious	Intolerable	Intolerable	High	Medium
Minor	Intolerable	High	Medium	Low
Limited	High	Medium	Low	Low

9 Audit Findings

Table 9-1 Audit Findings

Item Location	Safety Hazard Finding	Frequency	Severity	Level Of Risk	Project Sponsor Response
1. Proximity of Quarry Street intersection	The intersection at Quarry Street is only 7.5 m from the access. When a vehicle is exiting the carpark the driver's attention would be focussed on traffic approaching from the left and it is possible that they might not be able to perceive the status of the traffic signals on their right due to the close proximity. There could be crashes at the intersection due to the short distance from the access point.	Occasional	Minor	Medium	The driveway has been located further south from the intersection in the latest design as agreed with RMS/TfNSW (15m from the intersection). This position has been agreed in principle by RMS/TfNSW on-site.
2. Turntable	The report shows a turntable to allow large vehicles to turn around, but this is not present on the drawings. For the purpose of this audit it is assumed that the turntable has been deleted as the drawing has the more recent date. It is essential that vehicles be able to enter and exit the carpark in a forward direction, particularly the design vehicle, as visibility in the reverse direction would be severely restricted and could lead to conflicts with pedestrians on the footpath and through vehicles and cyclists on Wattle Street.	Note			A turntable is no longer proposed as per the latest design. All vehicles will permit a turn within the site to exit in a forward's direction.
3. Kerb splay	The extent of the kerb splay and extents of any adjacent parking restrictions are not shown. There could be potential conflicts between the vehicle envelope and any fixed objects behind the kerb such as sign posts, trees or parked cars. There is a risk that obstructions within or near the vehicle operating envelope may cause the turning vehicle into the driveway to reverse in order to have a second attempt at entry. There is a risk of collision between a reversing vehicle and northbound vehicles in Wattle Street.	Improbable	Serious	Medium	On-street car parking is being restricted up to 10m from the driveway by No Stopping signage. The driveway layback will be designed at a later stage by a Civil Engineer and constructed to accommodate the swept paths of the vehicles clear of any obstructions as shown on the architectural drawings.

4. Entry from Lane 2	While the turning paths by a vehicle turning right into the access from lane 2 indicate that there would be no encroachment of lane 3 (numbered from the right-hand kerb), the manoeuvre would be restrictive due to the constricted access point at the gate. It is possible that the driver of a large vehicle might take the turn wide in order to enter the access. If a vehicle were to encroach lane 3 while trying to enter the access, there is a risk of collision with through vehicles in Wattle Street.	Occasional	Limited	Low	Larger vehicles have a 'do not turn overtaking vehicles' sign and drivers of such vehicles are expected to drive with respect to the NSW road rules. The design permits the largest vehicle expected to the site to turn wholly from Lane 2.
5. Exit through gate	For the design vehicle exiting the facility, visibility to pedestrians would be limited due to the angle that the vehicle would be approaching. This visibility would be further restricted by the fence or wall. There is a risk that pedestrians could be struck because they were not visible to the truck driver.	Occasional	Serious	High	A convex mirror can be considered so that drivers can sight the footpath prior to leaving the site. Auditory and visual warning devices will also be considered on the façade to warn pedestrians of exiting vehicles. The façade has an open grille arrangement which will enable pedestrians to look into the car park and see vehicle movements.
6. Space for movements inside the carpark	The space inside the carpark is restricted and there is limited space for the design vehicle movement. If other vehicles are trying to use the carpark at the time of a delivery or garbage collection, there could be conflicts. There is a risk of crashes inside the carpark due to the limited amount of space for manoeuvring.	Probable	Limited	Medium	The use of the car parking spaces will not be concurrent with the loading uses. It is expected that the loading dock will be scheduled and used outside of drop-off and pick-up times for the school, so these uses will be separated.
7. Space for movements entering the carpark	Due to the limited space within the carpark, if a vehicle tried to enter when there was insufficient space it could lead to dangerous reversing movements back out into Wattle Street. When the carpark is full there is an increased risk of crashes between vehicles that have failed to enter the carpark and through vehicles on Wattle Street.	Probable	Minor	High	As per Issue 6. Given that the loading dock is unoccupied during peak drop-off and pick-up time, this space will be available for manoeuvring. In addition, if a loading vehicle arrives while one is already loading, there is space for a vehicle to wait prior to the other vehicle leaving.
8. Conflict between vehicle and	The report indicates that there would be a variety of movements throughout the day including deliveries, garbage collection, staff access and pick up and drop-off of special needs students. In such a confined space	Occasional	Serious	High	As per Issue 6. These uses will be scheduled so that movements will not occur at the same time. The only pedestrians that could be expected in the manoeuvring areas

pedestrian movements	the potential for conflicts between some of these movements is high. There is a risk of vehicle and pedestrian collisions within the confines of the carpark particularly during peak movement times.				include occupants of the vehicles within the area. For the approximate number of (four) car users, we believe this is an unlikely conflict.
9. Access gate or roller door	The report indicates that access would be gained through a roller door at the property boundary which would be left open during school hours. It is possible that this open door could be used as an uncontrolled pedestrian access to the school. If there are more pedestrians using the carpark, particularly small children, the risk of a vehicle hitting a pedestrian increases.	Occasional	Serious	High	There is only controlled access from the loading dock / car park for the staff. Staff will be discouraged from using this access unless they are a cyclist or person with a disability. These people will have allocated use and a prior understanding /access card to use this access.
10. Right turn out	Wattle Street has a one-way movement northbound at this location. There is nothing to indicate that it is not possible to turn left on exit from the carpark. There is a risk that a driver who is not familiar with the site could turn left out of the carpark and enter Wattle Street in the wrong direction resulting in a head on crash.	Occasional	Serious	High	A 'No-Left turn' sign will be considered facing the car park exit to ensure this event does not occur. We disagree with the likelihood of the risk, given that vehicles will enter from this roadway and will be familiar with its nature prior to departure.

10 Formal Statement

We, the undersigned, declare that we have reviewed the site and data listed in this report and identified the safety and operational deficiencies above.

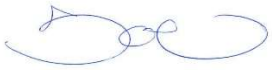
It should be noted that while every effort has been made to identify potential safety hazards, no guarantee could be made that every deficiency has been identified.

A project sponsor is under no obligation to accept the findings outlined in this audit report. This report simply provides the opportunity to review potential safety issues highlighted by the auditors.

This audit will be recorded on the NSW Register of Road Safety Auditors and the project sponsor should expect email notification from the register to confirm the audit has been carried out.

We recommend that points of concern be investigated, and necessary corrective actions undertaken.

Mark Keech
Level 3 Road Safety Auditor
Team Leader



Richard Thomas
Level 3 Road Safety Auditor
Team Member