Sydney Harbour Casino Properties Pty Ltd

Project Star - Transport

Supporting Information to Preferred Project Report

ISSUE

Sydney Harbour Casino Properties Pty Ltd

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Supporting Information to Preferred Project Report

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1 Introduction

This report provides supporting information to the Preferred Project Report on issues related to traffic and transport access. The information is summarised in the Arup letter of 25 November 2008.

The information responds to issues raised in the Planning NSW letter of 17 November 2008. It is based on the information provided in Arup Transport Impact report of 3 July 2008 and the revised schemes developed by the Architects in November 2008.

2 Traffic Movements

2.1 City of Sydney

City of Sydney (CoS) Council have expressed concerns regarding the impact of the proposed development on the local traffic network. Traffic surveys were conducted by Arup in May 2008 on a Friday evening from 4.30pm to 1am Saturday, as well as between 7am to 9.30am Friday. This took into account both the morning and evening commuter peaks, as well as the late night peak associated with casino traffic. Previous surveys by Arup at the casino had confirmed that the late night peak traffic pattern is similar on Friday and Saturday nights.

Analysis was conducted at six intersections in the Pyrmont area, as per those listed in the Director General's requirements in June 2008. Arup modelling and analysis demonstrated that all except one of these intersections will have spare capacity in all peak periods following the casino upgrade, and thus operate efficiently. This intersection in question (Pyrmont Bridge Road/Murray Street) is discussed in section 2.2.

Additional modelling and analysis has been requested by CoS at the following intersections:

- Pyrmont Bridge Road/Harris Street
- Pyrmont Bridge Road/Western Distributor/Bank Street
- Pyrmont Bridge Road/Bridge Road/Wattle Street

From survey data collected by Arup in May 2008, modelling was performed at the Pyrmont Bridge Road/Harris Street intersection. This analysis confirmed the intersection will operate satisfactorily following the proposed development. Detailed results for this intersection analysis are presented in Table 1.

Table 1 Future Performance of Pyrmont Bridge Road/Harris Street Intersection

Scenario	Time Period	Level of Service	Degree of Saturation	Average Delay (s)
Current	PM Peak (5.45pm – 6.45pm)	B	0.70	15.4
	Late Casino Peak (10.30pm – 11.30pm)	A	0.45	13.3
Future	PM Peak (5.45pm – 6.45pm)	B	0.88	21.2
	Late Casino Peak (10.30pm – 11.30pm)	A	0.53	13.7

Arup observations in 2008 of the intersections on Pyrmont Bridge Road to the west of the Casino site (Bank St and Wattle St) in the PM weekday peak indicate some movements are approaching capacity. These critical movements were mainly related to vehicles wanting to travel along the Western Distributor over the Anzac Bridge. The additional traffic generated by the casino will not significantly impact on these critical movements. Traffic travelling eastbound along Pyrmont Bridge Road towards the Star City was observed to clear the intersections in one signal cycle, with no significant queuing observed. Thus the intersections will operate largely as existing following the proposed development.

The hotel porte cochere on Pyrmont Street is intended to be used by taxi drop offs and valet parking only. This will be enforced through appropriate signage, line-markings and the presence of Star City staff during busy periods. As the porte cochere will lie entirely within Star City property, staff will have the authority to refuse access to vehicles attempting to access the hotel porte cochere, and direct them around to Pirrama Road.

2.2 RTA

RTA SCATES modelling has shown the intersection of Pyrmont Bridge Road and Murray Street to be operating below capacity during both the morning and evening commuter peaks. The RTA's Network Operations Section considers however that the intersection becomes congested on Friday and Saturday evenings between 10pm and 1am. Arup surveys conducted during this time period actually showed a lower volume of traffic present and observed congestion in the late evening peak hour (10.30pm to 11.30pm) compared to the commuter peak hours. Modelling during this late casino peak indicates the intersection to be operating satisfactorily following the development, with a level of service D. Site observations indicate that all vehicles typically proceed through the intersection in a single signal cycle.

CoS Council's proposal to ban the right turn from Pyrmont Bridge Rd into Murray St would increase the capacity of the intersection, reducing the average vehicle delay. Star City patrons who make use of this movement to access the Harbourside car park during busy periods, would need to take an alternative route if this proposal is enacted, via Allen Street, Harris Street, Pyrmont Street or Bunn Street

A construction management and demolition plan has been requested by the RTA. At this preliminary stage this is not yet required, but shall be prepared at an appropriate time when construction process detail becomes available.

2.3 Sydney Buses

Sydney Buses have expressed concern over the degree of queuing on Pirrama Road at the car park entrance. Site observations at the intersection of Edward Street and Pirrama Road during both the PM and late night peak hours indicate vehicles clear the intersection and enter the car park in one signal cycle. Traffic modelling demonstrated the intersection will operate with spare capacity following the casino upgrade, with a level of service A.

Paramics simulation modelling was performed by Arup for the original porte cochere layout as submitted with the original EA. This model showed no significant impact to the road network surrounding the casino.

The adequacy of the revised porte cochere layout was re-analysed by Arup using Paramics. This modelling included an allowance of some vehicles being delayed due to pedestrians crossing at the driveway points. The Paramics modelling demonstrated the modified porte cochere will operate satisfactorily into the future (see Appendix B).

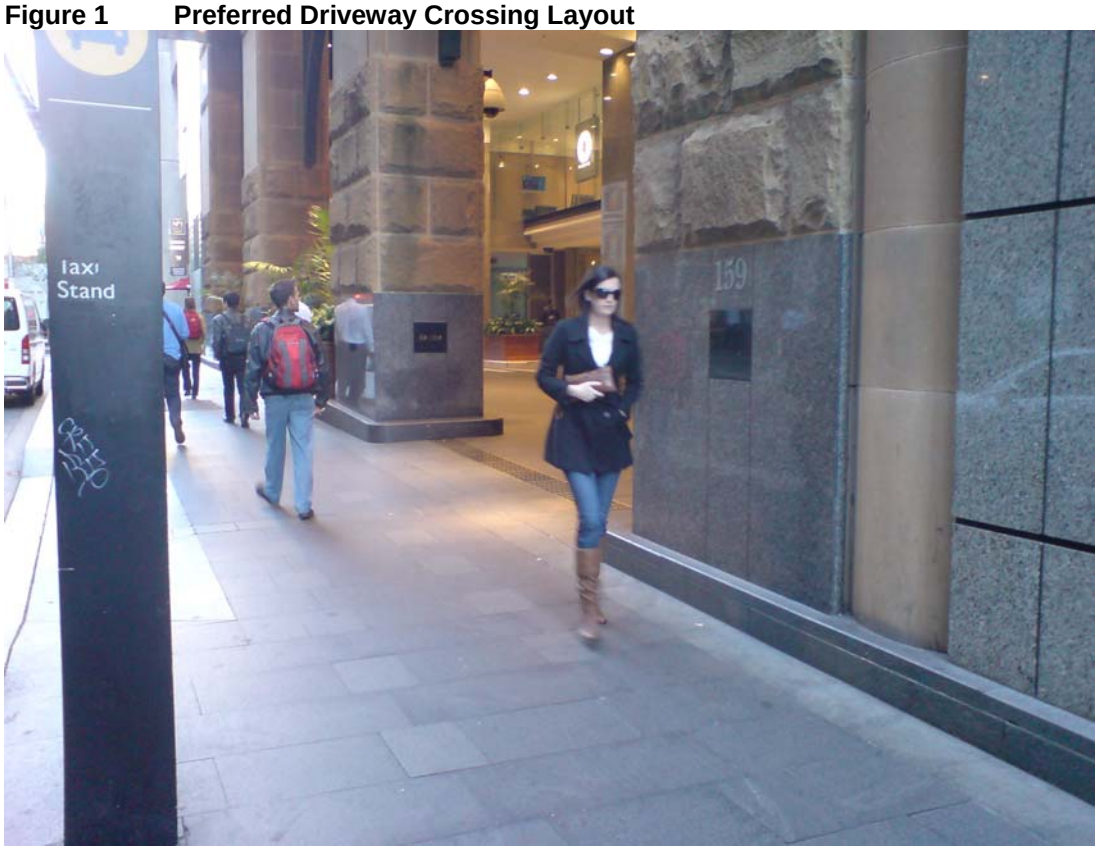
Sydney Buses have also requested a review of the existing line marking arrangements to see if it is practicable to better facilitate a queuing area for left turning traffic into the Star City car park. These line-markings currently present on Pirrama Road would be refreshed in consultation with Sydney Buses, RTA and CoS to improve circulation. Improved car park signage surrounding the site will improve circulation and reduce conflict at this entrance point.

3 Community Amenity and Safety

3.1 City of Sydney

Council has expressed concern regarding the additional driveway crossing points created by the porte cochere on Pyrmont Street and Pirrama Road. To reduce potential conflicts between vehicles and pedestrians at these locations, driveway style entrances which are fully integrated with the adjoining footpath would be implemented (see Figure 1 as an example of the flush pavement proposed). The footpath is to be at one continuous level, with no layback. The crossings would also be designed with consistent pavement material, including a delineation of vehicle paths. Improved lighting and signage indicating the rights of pedestrians, as well as unobstructed level sightlines between pedestrians and vehicles, will further alleviate these conflicts. The City's Street Design Code shall be referenced in the design of these crossings.

Figure 1 Preferred Driveway Crossing Layout



The northern porte cochere on Pirrama Road is to be limited by Star City management to use by limousines and VIP vehicles during special events only. It is expected only a small number of vehicles will make use of this porte cochere on a daily basis. When in use, Star City attendants will be on hand to direct vehicles in and out. For most of the day when this porte cochere is not in use, the driveway will be chained off or similar to vehicle traffic, preventing unauthorised entries.

To provide pedestrians with a sheltered walking path, a weather protection awning will be provided where new work is proposed. Antisocial behaviour will be more easily monitored, with improved passive and active surveillance of the street edge.

The footpath along Union Street adjacent to the new hotel is to be upgraded according to Council street design codes.

3.2 Sydney Buses

Sydney Buses have expressed concern regarding the congestion in the bus and coach under croft area off Pirrama Road . The latest plans for this layover (sent to Arup Friday 28th November, 2008) indicate there to be a minimum carriageway width of 4m at the narrowest point behind the main entrance. As buses and coaches are approximately 2.5m wide track or wheel path, and are 3m wide mirror to mirror, the width in excess of 4m provided at this point provides sufficient space for these vehicles to manoeuvre within the layover. The facility then widens out to approximately 7m to accommodate bus and coach parking. The section diagrams provided to Arup indicate adequate clearance within the layover for buses to pass unobstructed under the main staircase.

During the development stage, there would be improved consultation between Star City management and Sydney Buses to agree to a better arrangement for traffic circulation within the under croft area. Improved Star City security enforcement of parking and standing arrangements would also reduce these conflicts within the layover.

Sydney Buses have also requested removal of the pedestrian crossings within the layover. This is not supported, as best practice is to encourage people to make use of the bus and light rail interchange, thereby reducing car dependency. In the future it is expected fewer people will enter the bus layover directly from Pirrama Road, with the new entry arrangement to encourage more people to enter and exit directly from the main Casino floor.

4 Site Access

4.1 City of Sydney

Secure bicycle and motorcycle parking is to be provided within the Star City car park to encourage non-car usage to the site. Secure staff bike parking will be provided, including end of trip facilities such as lockers, showers and change rooms.

In consultation with CoS, Star City would fund in the order of 100 public bicycle parking facilities in the vicinity of the site. This could be in the form of 'O Rings' on smart poles and bicycle racks in Pyrmont Bay Park. The Green Transportation Plan to be implemented by Star City will further encourage public transport and other non-car modes of travel to the casino.

The planned CBD metro, to run from Central to Rozelle, would include a station in the Pyrmont area. Likely to lie within feasible walking distance of Star City, this new piece of infrastructure would improve public transport access to the site in future years.

The planned bicycle lane on Union Street will improve access to Star City for cyclists, without adversely impacting on traffic circulation around the casino site.

The additional vehicular drop off facility on Pirrama Road will provide an additional option for improved taxi circulation and operations. It is envisaged taxis will drop off passengers on Pirrama Road, then proceed left around the site to the existing Jones Bay Road rank.

4.2 RTA

The car parking and loading dock areas have been designed in accordance with the Australian Standards for off-street car parks and commercial vehicles (AS 2890.1 and AS 2890.2). This includes loading bays, aisle widths, turn paths and parking bay dimensions.

All private, service and delivery vehicles will enter and exit the site in a forwards direction, with the exception of occasional articulated vehicles delivering sets to the stage door dock on Edward Street. While it was not considered ideal to have these occasional articulated vehicles reversing over the footpath, there are unique circumstances that are applicable in this single situation. These include:

- Articulated vehicles only arrive either to bump-in/bump-out a major stage show. These stage shows generally run over a four to five month period, so these vehicles will be performing these manoeuvres only a few times per year.
- As Edward Street is a cul-de-sac formed by the light rail fence, there is little pedestrian activity along the footpath
- During the occasional periods when these heavy vehicles are using the loading dock, traffic controllers working under strict traffic management conditions will be present to ensure traffic flows smoothly and the safety of pedestrians is protected.

Analysis of swept paths of the longest vehicles entering the site confirms that these turning manoeuvres are acceptable. See Appendix A for detailed drawings of these vehicle swept paths in and out of the site.

The RTA has suggested that consideration should be given to a raised concrete median to prevent right turn movements in and out of the porte cochere on Pirrama Road. This is not supported on the grounds of pedestrian safety. Raised median strips induce a trip hazard, and encourage pedestrians to use them as an inadequate refuge island halfway across the road. Pedestrians should be encouraged wherever possible to cross at the signalised crossings that exist across both Pirrama Road and Edward Street.

Directional signage, as well as the placement of double solid lines, is considered appropriate to discourage right turn movements in/out of the porte cochere. The whole traffic

engineering philosophy of Star City is based on encouraging anticlockwise circulation around the Star City block favouring predominantly left turns in and out of Star City. The presence of the roundabout at the intersection of Jones Bay Road/Pirrama Road allows vehicles to turn around if they require.

If the authorities were to advocate medians, the overall layout should be subject to an urban design and transport review of this section of Public Domain Plan of Pirrama Road. The broader issue of pedestrian movement in this area incorporating the site and the public realm will be subject to the Public Domain Plan. Pedestrian movement and streetscape treatments along and across Pirrama Road will be considered.

All works and advisory/regulatory signage as a result of the proposed development would be at no cost to the RTA or CoS.

4.3 Sydney Buses

Sydney Buses have suggested the inclusion a parking countdown display. This is a worthwhile measure, which would indicate to motorists how many spaces are available within the Star City car park. This system would contribute to improving circulation and reducing queuing at the car park entrance, as well as around the Pyrmont area. The countdown signage would be designed and located to minimise additional visual impact beyond the existing casino and parking and way-finding signs.

5 Other Submissions

The following access and transport related issues were raised in other submissions:

Submission	#	Issue	Response
Sydney Regional Development Advisory Committee	4	Notes that the intersection of Pyrmont Bridge Road and Murray Road is congested at peak operating periods however, the Traffic Report suggests no action to be taken Traffic Report suggest discouraging right turns into and out of the Porte cochere, Committee suggests that the measures used to discourage may not be sufficient Suggests a Demolition and Construction Traffic Management Plan to be submitted to Council to detail traffic movements and traffic control around development Swept paths of longest vehicle to be submitted Proposed layout of the parking area is to be in accordance with Australian Standards	See section 2.2 See section 4.2 See section 2.2 See section 4.2, Appendix A See section 4.2
Pyrmont Resident	7	Concerns over traffic flow implications	See section 2.1, 2.2
Pyrmont Resident	8	Concerns over increased additional traffic on Pyrmont and Union Streets & impact to surrounding area Car parking provision is excessive	See section 2.1, 2.2 See Preferred Project Report (PPR)
Pyrmont Resident	9	Car parking provision is excessive Existing traffic congestion exacerbated by new traffic & parking arrangements Objection to the Porte cochere Pedestrian amenity should be provided between Edward St and Pirrama Rd Need to encourage public transport alternatives	See Preferred Project Report See section 2.1, 2.2 See section 2.1, 2.3, 3.1 Existing signalised pedestrian crossings across Edward St and Pirrama Rd to remain See section 4.1, Arup Traffic Report H.DA - T.1000 (section 6.2)
Resident	10	Increased traffic movements in the area	See section 2.1, 2.2
Resident	12	Generation of additional traffic and impact on surrounding area	See section 2.1, 2.2
Resident	13	Car parking provision is excessive and will impact on the surrounding area	See Preferred Project Report

Resident	14	Management of Jones Bay Road Taxi Rank Increased traffic generation Pedestrian amenity is lost with the façade on Union Street Removal of sheltered walking path between Jones Bay and Pirrama Roads	See section 4.1 See section 2.1, 2.2 See section 3.1 See section 3.1
Resident	16	Management of Jones Bay Road Taxi Rank Increased traffic generation and impacts on the local surroundings Pedestrian amenity is lost with the façade on Union Street Removal of sheltered walking path between Jones Bay and Pirrama Roads	See section 4.1 See section 2.1, 2.2 See section 3.1 See section 3.1
Resident	17	Reduced pedestrian amenity Increased traffic congestion exacerbated by new traffic & parking arrangements	See section 3.1, 3.2 See section 2.1, 2.2, preferred project report
Resident	19	Absence of improvement of the Public Transport network Management of the Jones Bay Road Taxi Rank Management of the Loading Dock Increased traffic congestion and impact on surrounding community Parking provision is excessive	Planned CBD metro to include station at Pyrmont See section 4.1 See section 4.2, Appendix A See section 2.1, 2.2 See Preferred Project Report
Resident	20	Existing traffic congestion exacerbated by new traffic and impact to surrounding areas Additional car parking spaces will generate increased traffic	See section 2.1, 2.2, Preferred Project Report Increased traffic not considered significant to affect local road network
Resident	22	New traffic and parking arrangements will impact on local parking Management of Jones Bay Road Taxi Rank Porte cochere provides opportunity for concentration of anti-social behaviour	See section 2.1, 2.2, Preferred Project Report See section 4.1 To be monitored with improved active and passive surveillance of the street edge
Pyrmont Action Inc. (Pyrmont Resident Group)	23	Existing traffic generation exacerbated by the development Car parking provisions are excessive for the local area Absence of improvement of public transport network	See section 2.1, See Preferred Project Report See section 4.1, Arup Traffic Report (H.DA - T.1000, section 6.2), Planned CBD metro to include station at Pyrmont.

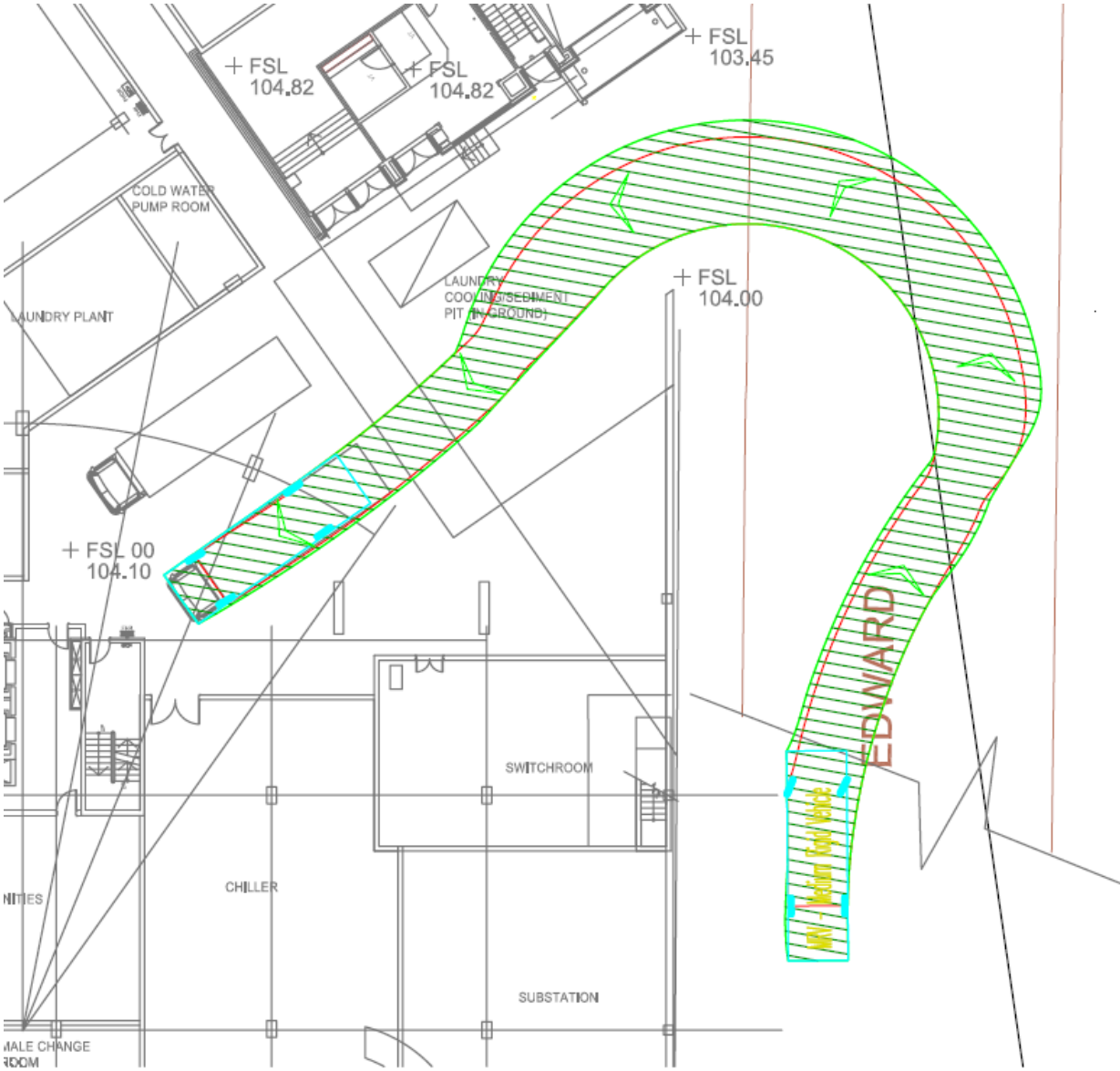
		Porte cochere restricts pedestrian movement	See section 3.1
Resident	24	Increased traffic generation and loss of local on-street parking Increased traffic generation impact on pedestrian and cyclist safety	See section 2.1, 2.2 See section 3.1
Resident	25	Existing traffic congestion exacerbated by new traffic & parking arrangements	See section 2.1, 2.2
Resident	26	Provision of 500 spaces excessive and would exacerbate traffic congestion in the area	See section 2.1, 2.2, Preferred Project Report
Resident	27	Porte cochere will increase traffic generation Increased traffic generation will impact on the surrounding local environment	See section 2.3 See section 2.1, 2.2
Resident	28	Increased traffic congestion caused by the taxi pick up zone on Pirrama Road Increased traffic congestion would impact on local traffic and parking	See section 2.3 See section 2.1, 2.2, Preferred Project Report
Resident	29	Increased traffic generation that would impact on the local environment	See section 2.1, 2.2
Resident	30	Existing traffic congestion exacerbated by new traffic & parking arrangements Car parking provision of 500 spaces is excessive	See section 2.1, 2.2 See Preferred Project Report
Resident	31	Car parking provision of 500 spaces is excessive	See Preferred Project Report
Resident	32	Very significant increase in traffic congestion	See section 2.1, 2.2
Resident	33	Existing traffic congestion exacerbated by new traffic & parking arrangements Parking overflowing to local streets	See section 2.1, 2.2 Parking to remain largely within off street car parks, e.g. Star City, Harbourside. Resident parking controls to remain
Resident	35	Existing traffic congestion exacerbated by new traffic & parking arrangements	See section 2.1, 2.2, see Preferred Project Report
Resident	36	Provision for 500 more car spaces will cause significant traffic and noise impact	See Preferred Project Report
Resident	37	Parking overflowing to local streets	Parking to remain largely within off street car parks, e.g. Star City, Harbourside. Resident parking controls to remain

		Existing traffic congestion exacerbated by new traffic & parking arrangements	See section 2.1, 2.2, see Preferred Project Report
Resident	38	Parking provision for 500 spaces will add traffic congestion to local area	See section 2.1, 2.2
Resident	39	Porte cochere has negative impacts on pedestrian amenity Existing traffic congestion exacerbated by new traffic & parking arrangements	See section 2.1, 2.3, 3.1 See section 2.1, 2.2
Resident	40	Absence of improvement of the public transport network Parking overflows into surrounding streets and impact local traffic and parking	See section 4.1, Arup Traffic Report (H.DA - T.1000, section 6.2), Planned CBD metro to include station at Pyrmont. Parking to remain largely within off street car parks, e.g. Star City, Harbourside. Resident parking controls to remain
Resident	41	On street car parking is currently hard to find due to parking overflowing from Star City	Parking to remain largely within off street car parks, e.g. Star City, Harbourside. Resident parking controls to remain
Resident	42	Additional car parking of 500 spaces will cause traffic congestion on local roads	See Preferred Project Report
Resident	43	Additional car parking of 500 spaces is excessive	See Preferred Project Report
Resident	44	Car parking provision of 500 additional spaces is excessive Existing traffic congestion exacerbated by new traffic and parking arrangements Parking overflows into local streets	See Preferred Project Report See section 2.1, 2.2 Resident parking controls to remain
Resident	45	Car parking provision for 500 additional spaces is excessive and would contribute further to existing traffic congestion in the surrounding area	See section 2.1, 2.2, see Preferred Project Report

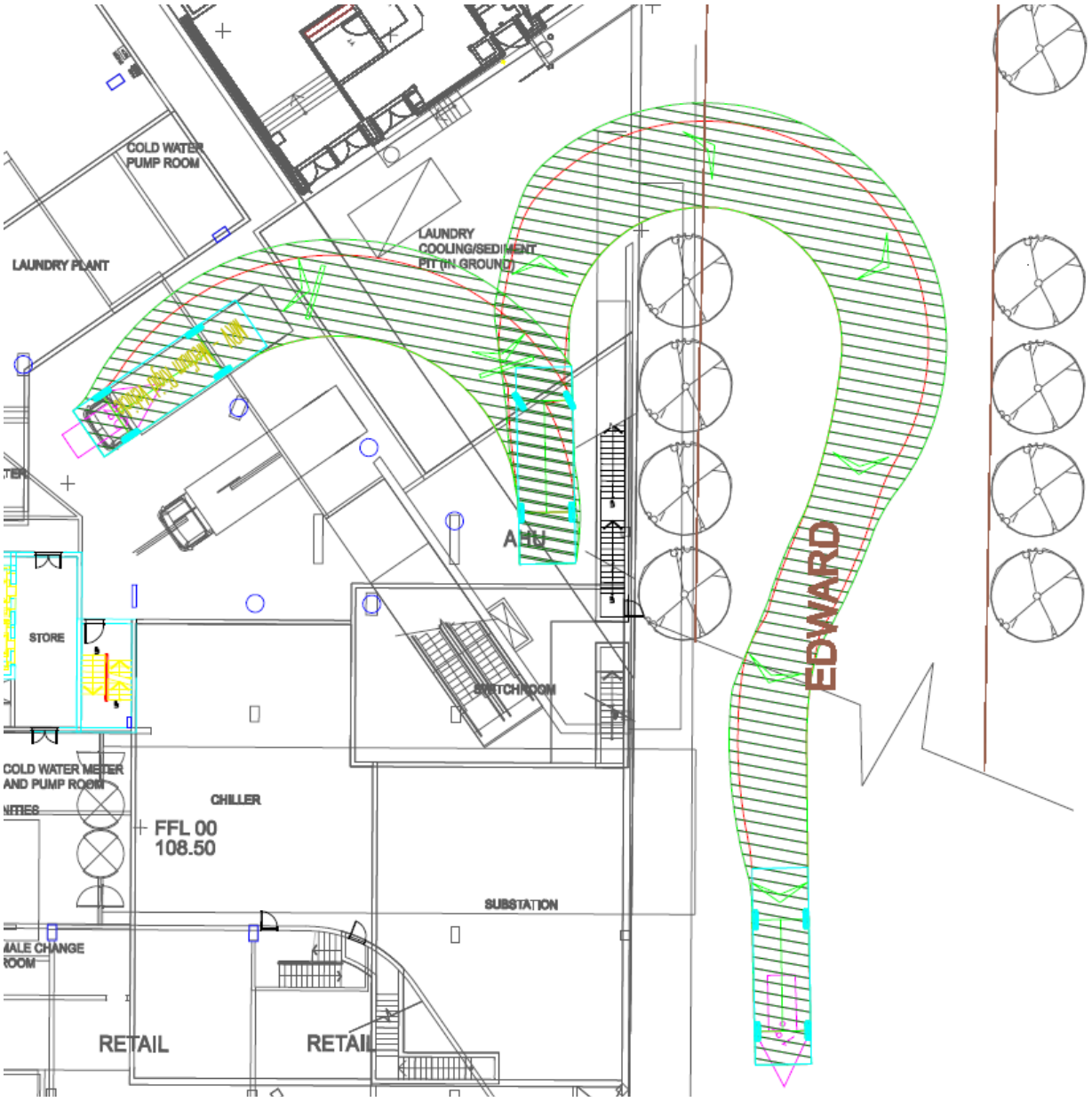
Appendix A

Vehicle Swept Path Analysis

A1 Medium Rigid Vehicle Entering Edward St Loading Dock

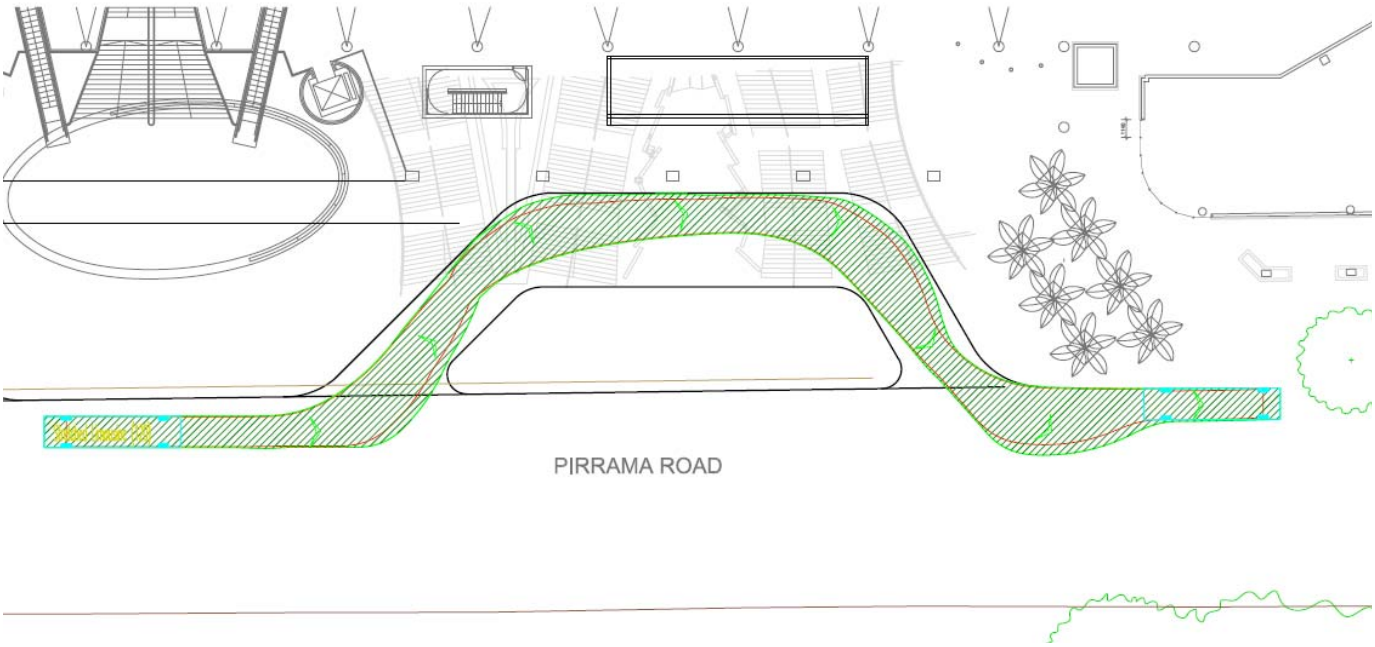


A2 Medium Rigid Vehicle Exiting Edward St Loading Dock

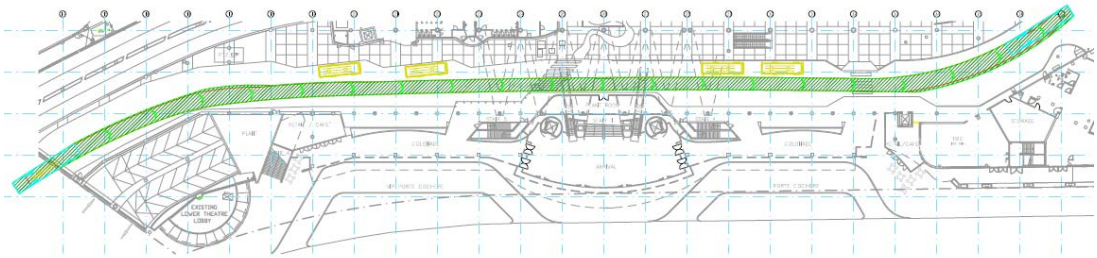



COLD WATER
PUMP ROOM
EDWARD
EDWARD
ST.
CHILLER
FFL 00
108.50
SUBSTATION
RETAIL
RETAIL

A3 Limousines Entering and Exiting Pirrama Road Porte Cochere



A4 Entry and Exit of Bus into Under Croft Area



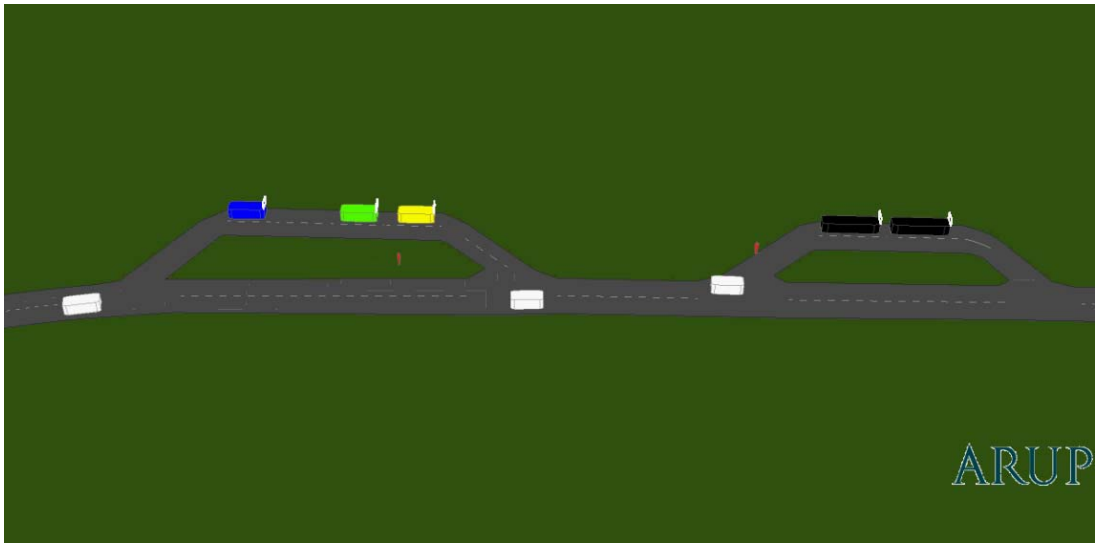
Appendix B

Paramics Modelling of Revised Porte Cochere Arrangement

Some visual screenshots of the revised Paramics simulation model for the Pirrama Road porte cochere are displayed below. The simulation demonstrates that the porte cochere is able to easily cope with the expected volumes of traffic during a busy Friday or Saturday evening peak period. The scenario of a major awards night, where a number of high profile celebrities would arrive in limousines, was also modelled. These would arrive solely within the northern porte cochere, which would be closed off at all other times.

The screenshots below display the porte cochere vehicles parking to drop off passengers on the left hand kerb, with the right lane used solely for passing traffic. Further allowance has been made for pedestrians passing across the driveway crossings, thereby slightly delaying vehicles as they exit back onto Pirrama Road.

The full Paramics simulation video is contained on a CD which can be obtained (either soft or hardcopy) by contacting Arup directly.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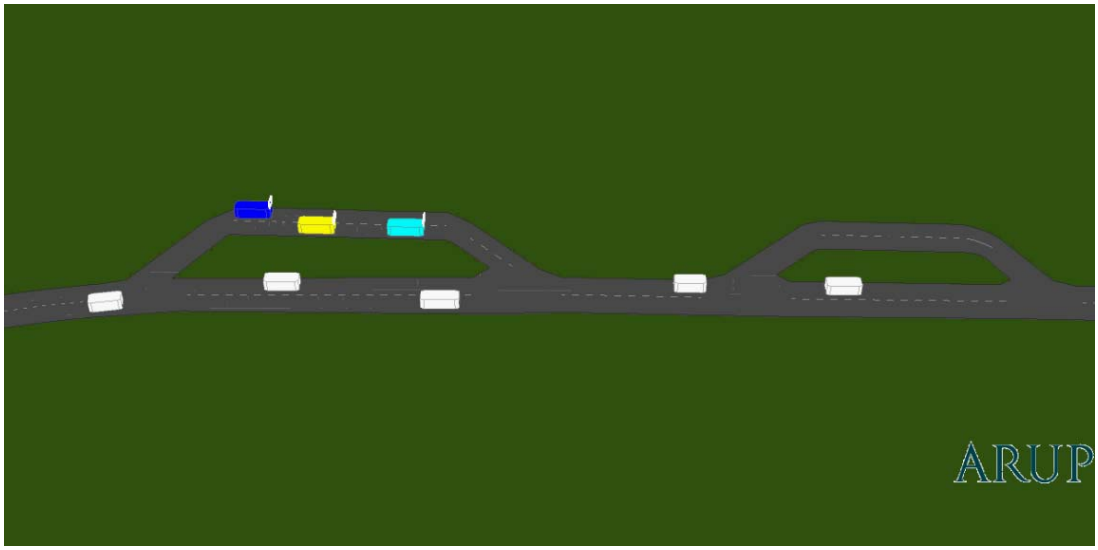
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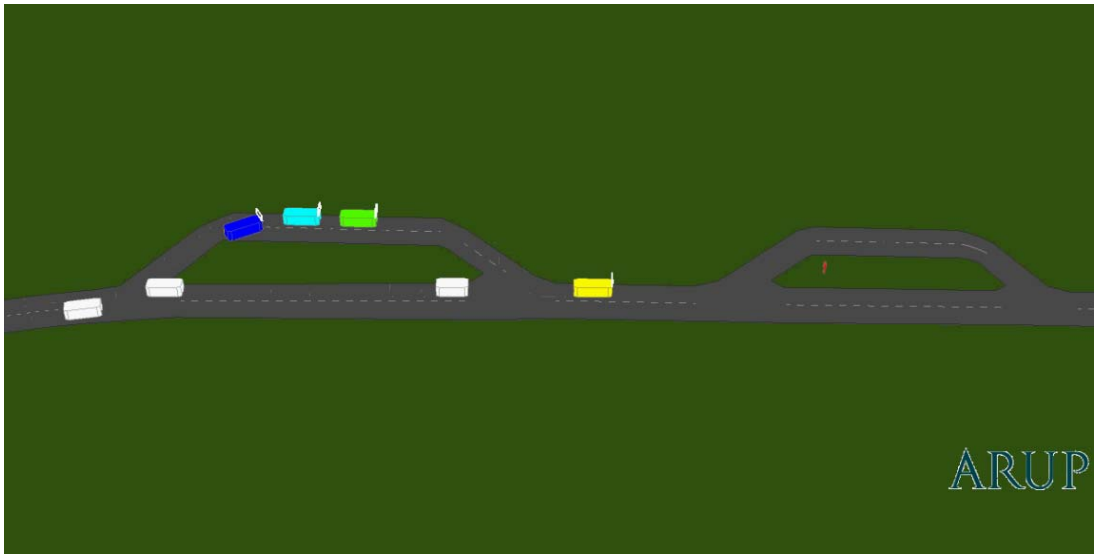
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