

Sydney Opera House
**Sydney Opera House Site
Activation Proposal**
Transport Assessment

Issue | 8 August 2016

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 237666

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Meetings Minutes - Transport Management Centre

1.3 Consultation

Consultation was undertaken with the Transport Management Centre (TMC) regarding the performance of current event management plans during major and medium outdoor events.

Key lessons from this meeting were the following:

- Large events typically do not result in the unsatisfactory operation of the road network immediately surrounding the SOH
- The large variety of events attract people with varying transport demands as well.
- The Sydney CBD light rail will have effects on SOH accessibility, both during as well as after construction.
- A range of transport opportunities are needed for visitors, particularly post events
- Increased collaboration with surrounding event organisers would offer opportunities for more effective transport management.

Appendix A contains minutes of the meeting with the TMC

1.4 Purpose of this Report

This Traffic Impact Assessment is intended to accompany a modification to DA 445-10-2003 (The Forecourt DA) for temporary use of public space for outdoor events and functions. The objectives of the report are outlined below.

Prepare a Traffic Impact Assessment (TIA) that:

- *evaluates daily and peak traffic movements likely to be generated by the development, including peak traffic movements during special events;*
- *identifies any temporary and or permanent event specific upgrades to roads/intersections required to facilitate the proposal;*
- *details access arrangements for workers to/from the site, emergency vehicles and service vehicle movements;*
- *details how visitors and the public (as relevant) will access and leave the site;*
- *demonstrates how staff and visitors to the site will be able to make travel choices in order to minimise adverse traffic impacts.*
- *include details on parking provision on-site and in nearby car parks, and on-street. The parking demand should be assessed and measures to discourage/provide alternatives to private car use identified.*
- *include details of the measures proposed to encourage event patrons to cycle to the site, and any measures required to manage cycling traffic and bicycle parking.*

2 Existing Transport Conditions

2.1 Existing Travel Patterns

Given the location of the SOH to the nearby Circular Quay public transport interchange and the Sydney CBD, the majority of patrons attending events at the SOH typically arrive via non-car modes of transport. The limited number of on-site parking spaces contributes to this low car mode share.

All nearby public transport stops and car park locations are at a small distance from the SOH, which means the last segment of people's trips is always made on foot.

2.2 Vehicular Access

Vehicle access to the Sydney Opera House is provided via the northern end of Macquarie Street which is effectively a dead-end street serving the uses along the Bennelong Point, namely the Sydney Opera House and the Macquarie Street residential and commercial uses.

A roundabout at the northern end of Macquarie Street gives access to a service route which goes underneath the Podium Steps into a covered vehicle concourse. The recent completion of the Vehicle and Pedestrian Safety (VAPS) Project has provided greater pedestrian and vehicular separation as most heavy vehicle movements are now directed to the sub-terranean loading dock. The access driveway is controlled via a security gatehouse.

The route interfaces with the pedestrian link from Eastern Circular Quay to the SOH. People with disabilities and older people unable to walk long distances can be dropped off closer to the entry of the building (taxi's and private vehicles), either at the on-site roundabout or in the covered concourse. No other private vehicles are permitted to access the southern forecourt area.

During the largest events (e.g. New Years Eve) and major events on the SOH forecourt, Macquarie Street is closed for vehicle access to increase pedestrian flow capacities. Access for emergency vehicles is retained.

See Figure 2 for an overview of the road network around the SOH.



Figure 2 Vehicular site access.

2.3 Parking

There is limited public parking availability in the precinct surrounding the SOH – encouraging patrons to use public transport and/or walk and cycle to the site. The main SOH public car park is located on Macquarie Street (accessed from the north) and has 1,200 parking bays. It should be noted this car park is privately owned and operated, and not under the control of Sydney Opera House management. There is limited on-street parking available surrounding the SOH, which can be assumed is not used for event parking due to the time restrictions (mostly 1P).

There are a number of accessible parking spaces available in the vehicle concourse. These spaces are only available for patrons attending a performance.

The closest public car parks near the SOH are shown in Figure 3 and include:

- Gateway Car Park
- Gold Fields House Car Park
- 37 Pitt Street
- Governor Phillip Tower Car Park
- No. 1 O'Connell Street Car Park

Although these parking areas are located outside a 500m radius of the site, they do offer viable alternatives for patrons driving to the site should the main SOH car park be at capacity.

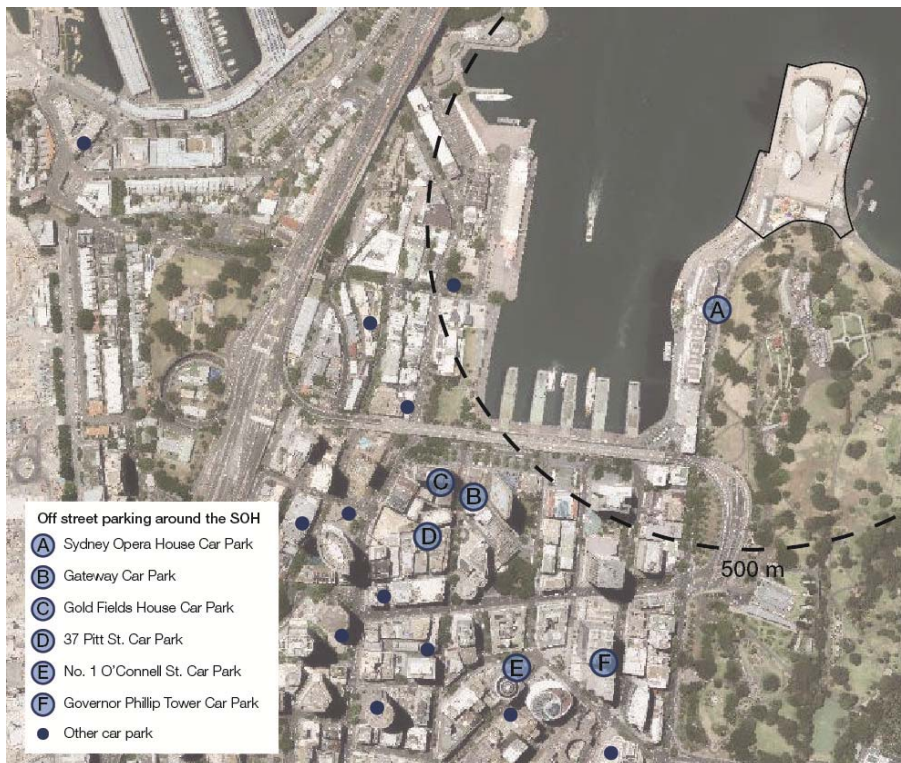


Figure 3 Off-Street car parking locations.

2.4 Taxis

Designated kerb side taxi zones are located along the eastern side of Macquarie Street between the car park entry and exit ramps. The taxi zone operates between 8pm and 7am.

2.5 Event Sizes

There is a large variety in types of event held at the SOH forecourt and the associated visitor capacity. In the last year, visitor capacities have ranged between 300 and 24,000 visitors. See Table 1 for an overview of past events.

Table 1 Overview of past events around the SOH.

Event	Location	Date	Visitors
SATH summer playground	Western boardwalk	Jan. 2014	24,000
Vivid	Whole of site	May/June 2014	18,000
Live Nation - Jack Johnson	Forecourt	Dec. 2013	12,000
Sydney Running Festival	Roadway	Sept. 2013	5,000
Australian Red Cross	Northern boardwalk	Nov. 2013	1,200
Great Aussie Swim	Man 'o war	Jan. 2014	300

It should be noted that the attendances at large events as outlined in the table (e.g. Vivid, Jack Johnson) were over a number of days and do not represent the number of people on site at any one time.

2.6 Public Transport Access

Circular Quay functions as a major public transport hub for the SOH and is located around 600 meters away. Circular Quay accommodates the following transport modes and destinations:

Mode	Major destinations	Last departures
Train	T2: Airport, Inner West & South Lines T3: Bankstown line Central Station (connecting to T1: North Shore, Northern & Western Line and T4: Eastern Suburbs and Illaware Line)	00:00 (week day) 00:30 (weekend day)
Ferry	Manly, Taronga Zoo, Parramatta River, Darling Harbour, Neutral Bay, Mosman Bay, Watsons Bay. Private ferries connecting to multiple locations.	00:00 (weekdays and weekend days)
Buses	The Alfred Street bus station has 5 bus platforms, hosting 15 buslines. Circular Quay does not host any NightRide buslines. A complimentary Shuttle Bus which runs between Circular Quay near Stand E (under the Cahill Expressway) and the Sydney Opera House	00:30 (weekdays and weekend days) 45 minutes following last performance in theatres

The Sydney CBD lightrail is planned to finish construction in April 2019, and will connect Circular Quay via George Street, Central Station, Surry Hills to Randwick and Kingsford.

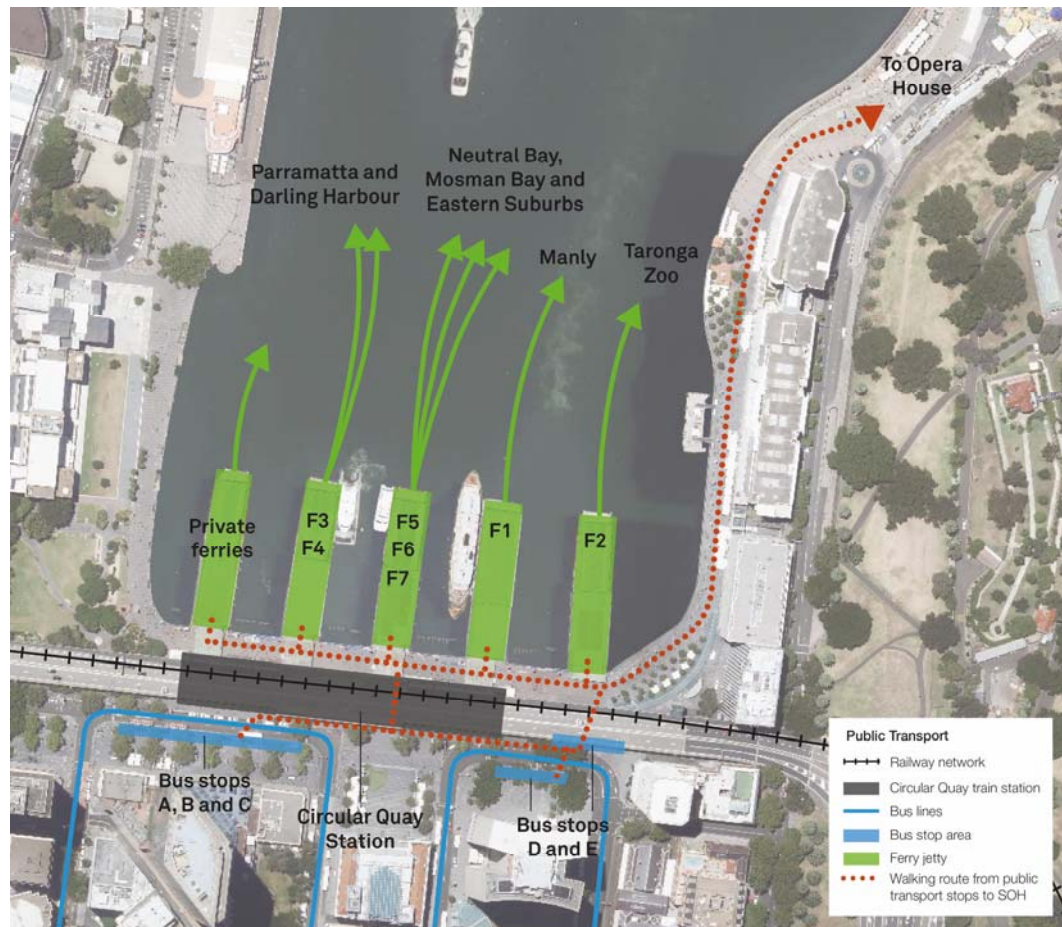


Figure 4 Public transport facilities around Circular Quay

2.7 Pedestrian Access

For pedestrians, the SOH site has three main entry points as shown in Figure 5, those being:

- East Circular Quay
- Macquarie Street
- Royal Botanical Gardens (through the gate)

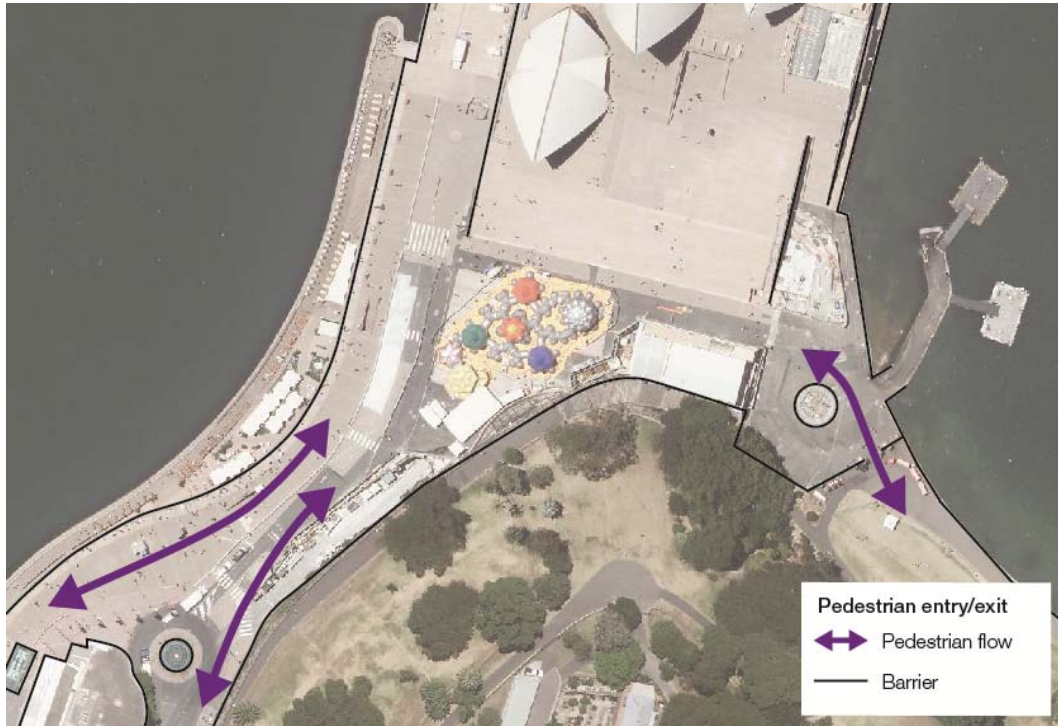


Figure 5 Pedestrian site access.

Depending on what type of event is on, the entry points have different kinds of roles:

- East Circular Quay: Main pedestrian entry corridor for small and large events.
- Macquarie Street: During major events, Macquarie Street is inaccessible for cars (except emergency and VIP vehicles) and used as an additional pedestrian entry corridor. The Macquarie Street footpath is used at all times however to accommodate pedestrian movements to/from the site
- Royal Botanical Gardens: Designated pedestrian entry/exit during major events to relieve capacity at the other available access points.

While there are some strong pedestrian “desire lines” and pedestrian travel paths across the Forecourt, the Forecourt is publicly accessible space and pedestrians can be observed walking in each and every direction within the Forecourt.

All vehicle movements in the forecourt area are managed by security personnel from the guard house. Vehicles are instructed to move at 10km/hr with hazard lights on.

The forecourt and broadwalk directly around the SOH is at grade and accessible for all users. Access to the building for the mobility impaired is available through a lift, which is located near the stage door under the stairs on the west side. The lower concourse can be reached through a lift and escalators.

2.8 Pedestrian Management

The Vehicle and Pedestrian Safety (VAPS) Project has been implemented to achieve the long standing objective of separation of heavy vehicles and pedestrian traffic on the forecourt of the Sydney Opera House with the outcome of improving public safety, the visitor experience of the forecourt and views of the Sydney Opera House and Sydney Harbour. The project included:

- Construction of an underground loading dock facility to be located under the Sydney Opera House with direct access to the back of house
- Construction of a new vehicle access ramp from Macquarie Street to the new loading dock
- Removal of the existing vehicle access road flanked by kerbs across the forecourt to be replaced with a finish similar to existing
- Removal of the existing guardhouse and construction of a new guardhouse relocated to control entry down the ramp
- Associated minor changes to the forecourt

The completion of the VAPS project has made pedestrian movements around the southern forecourt significantly safer when compared to the previous environment.

2.9 Cycling Network

Cycling is not a common mode of transport to the site, however the area is used for recreational bike traffic outside event hours. Please see Figure 6 for the surrounding bicycle network. During events around the SOH there is a limited amount of bicycle parking available at the entrance of the event.



Figure 6 Bicycle network.

3 Description of Proposal

The proposal seeks approval permitting the temporary use of public space for provision of events and functions. The proposal seeks to modify the current development consent to reallocate the number of event days per event. This would involve amendments to condition 5 of the consent as outlined below (proposed modifications in strikethrough and bold red):

Table 2 Description of proposal

<i>Maximum Number Of Events And Days Per Event (inclusive of set up and clean up)</i>	<i>Maximum Number Of Event Days Per Year</i>
For performing arts/ community /corporate events One Off Event: <ul style="list-style-type: none"> • 1 Event in 2016 (maximum of 25 days) Annual: <ul style="list-style-type: none"> • 5 Events (maximum of 11 days per event) • 3 Events (maximum of 20 days per event) 	<i>Up to a maximum of 99 days per annum</i>

The modification does not seek to modify the existing limitation of 6,000 people contemplated in the current development consent. The proposal covers the southern forecourt, monumental steps and western broad walk.

4 Transport Assessment

The following sections provide an assessment of the transport impacts arising from the proposal. It should be recognised that the proposal does not seek any increase in the number of patrons on site at any one time – and therefore would not result in additional pressures on the adjacent transport network.

4.1 Pedestrian Management

Even for the largest events on the SOH forecourt, pedestrian access is proposed to be maintained from East Circular Quay, Macquarie Street and the Royal Botanical Gardens. It is only in very rare circumstances where temporary restrictions are necessary to ensure public safety that access would be restricted.

Since the implementation of the VAPS project, pedestrian management for outdoor events has significantly improved through the separation of heavy vehicles and pedestrian traffic on the forecourt of the Sydney Opera House. The VAPS project supports the objectives of the proposal by facilitating improved pedestrian safety during outdoor events.

Bespoke event manuals are prepared prior to any outdoor event held at the SOH which outlines the specific pedestrian access/emergency evacuation arrangements based on the event setup. These manuals contribute to the efficient management of pedestrians during events of all sizes.

Prior to and following the completion of major events, it is recommended the northern end of Macquarie Street continue to remain closed to vehicle traffic.

It is important to note that the modification does not seek to modify the existing limitation of 6,000 people contemplated in the current development consent.

4.2 Vehicular Site Access and Exit

The increase of events around the SOH associated with the proposal will need to be managed appropriately in terms of vehicle movements. Mitigation measures in place to support the proposal include:

- Currently, the EOG (Event Organising Group) functions as a coordinating body between organisations which manage events in the precinct – of which the SOH is a member. Most important coordination issue includes the planning of arrival, layover and departure of delivery vehicles around eg visitor flows (peak hours), CBD traffic, other organisers' delivery vehicles, etc. The EOG shares information and discusses the impacts of event logistics in the area. Continued collaboration will be necessary to support the increase in the number of outdoor events held at the SOH.
- Vehicles undertaking deliveries to the vehicular forecourt and for the performing arts (ie. bump in / bump out vehicles) are typically booked in advance. Food and beverage deliveries are typically booked in advance through 'mobile dock' which is an online booking system to manage vehicle

movements. Vehicles which are not booked or without appropriate documents are not permitted to enter the Forecourt.

- Personnel continue to manage vehicle movements north of the roundabout at Macquarie Street to ensure only authorised vehicles enter the forecourt area when the site is at capacity (e.g. New Years Eve)
- Event management plans will continue to be prepared outlining the measures in place to manage vehicle movements prior, during and after events.

4.3 Road Network Impacts

The proposal involves no changes to the size of events held at the SOH. The limited amount of on-site parking at the venue will continue to encourage patrons to walk, cycle or take public transport when attending outdoor events. Discussions with the Transport Management Centre indicate large events typically do not result in the unsatisfactory operation of the road network immediately surrounding the SOH.

The SOH will continue to work closely with key agencies to manage any adverse traffic impacts arising from specific events. Management plans will be in place to ensure the external and internal road network operates efficiently prior, during and post events.

A further measure to be considered by the SOH to manage road network impacts is dampening the departure profile immediately after events by offering patrons alternatives in the form of nearby entertainment. These could be offered by surrounding destinations, and would have the benefit of decreasing the peak transport demand.

Therefore road network impacts arising from the proposal are expected to be minimal. No road network upgrades are considered necessary to support the proposal, nor at the principal entry points to the site on Macquarie Street or at Government House gates.

4.4 Public Transport

The SOH benefits from being located adjacent to the Circular Quay transport interchange. This offers patrons the opportunity to arrive via three modes of transport – bus, ferry and heavy rail. A complimentary shuttle bus is available between Circular Quay near Stand E (under the Cahill Expressway) and the Sydney Opera House.

From April 2019 public transport at Circular Quay will be further enhanced following the opening of the Sydney CBD and South East Light Rail service. This will provide a connection from Randwick/Kingsford, through Moore Park and Surry Hills all the way to Circular Quay. This public transport infrastructure will provide another viable non-car mode of travel to the site, thereby reducing the overall impact on the road network.

4.5 Taxis

Taxis will continue to operate in the vicinity of the SOH to transport patrons to and from the site. The proposal is not expected to impact the way in which taxis currently function, although improved wayfinding, information services and a more efficient way of allocating taxis could offer a benefit in providing more efficient departure of patrons from the precinct.

4.6 Parking Provision

The proposed capacity of events around the SOH will remain the same. There is however a greater likelihood an outdoor event will run concurrently with an event within the building – therefore increasing the overall demand for parking. Mitigating this however is the limited on-site parking available, and the cost of parking in adjacent commercial car parks. Patrons are expected to continue to use public transport as their main mode of access to the site, and therefore limited parking impacts are expected from the proposal.

4.7 Cycling

The SOH is supported by a network of nearby formal and informal cycling routes as previously shown in Section 0. While cycling currently accounts for a small proportion of overall travel to the site, a limited amount of bicycle parking is available at the entrance of the event. Should additional outdoor events be approved as part of this application, SOH staff would continue to monitor demand for bicycle parking at outdoor events to ensure sufficient supply of spaces. Consideration could be given to better promoting the cycle parking available to staff and patrons of outdoor events via the SOH website.

4.8 Transport Information

The Sydney Opera House website offers information on the accessibility of the SOH, including parking, public transport information, accessibility information for MIP's and information on additional services and facilities. This is an effective way in which both staff and visitors are informed of the different transport options available to access the site.

4.9 Opera Australia Southern Forecourt Production

4.9.1 Description

Celebrating Opera Australia's 60th anniversary, Sydney Opera House – The Opera will be held on the southern forecourt of the Sydney Opera House in October/November 2016. Five (5) performances will be presented over two weekends.

Key dates for the event are as follows:

- **Bump-in: 17 October to 21 October 2016**

Bump in works will occur between 8am and 11pm and will be undertaken in accordance with standard practice and procedures as previously outlined in this report.

- **Offsite Rehearsals: 10 October to 21 October 2016**

No impact to operation of the southern forecourt

- **Onsite Rehearsals: 22 October to 27 October 2016**

During on-site rehearsals the affected areas will be closed down between 8am and 11.30pm. Events operations staff will be in place to direct the general public away from the closed off areas.

- **Event period 1: 28 October 2016 to 29 October 2016**

During events the affected areas will be closed off the public, and will reopen on 11.30pm the night of 29 October.

- **Non-event period: 30 October 2016 to 2 November 2016**

From 30 October to 2 November, performances will not be presented with the site maintaining public access pathways across the Forecourt and up the Monumental Steps.

- **Event period 2: 3 November 2016 to 5 November 2016**

During events the affected areas will be closed off the public.

- **Bump-out: 6 November to 11 November 2016**

Bump out works will occur between 8am and 11pm and will be undertaken in accordance with standard practice and procedures as previously outlined in this report.

4.9.2 Transport Assessment

The Opera Australia event will be carried out in accordance with the framework and principles outlined in this strategy. A draft events management plan has been prepared, with a detailed traffic management plan to be developed by Opera Australia prior to the event.

A number of transport options will be available to patrons to attend the event, including:

- Train
- Bus
- Ferry
- Water Taxi
- Taxi
- Car
- Complimentary shuttle bus between Circular Quay and the site. Designed for elderly and less mobile customers, seating is limited and available on a first come, first served basis

Drink and dining options will be available both before (from 5pm) and after the event (up to 11pm) to spread the travel demand and reduce the impact on the wider transport network. A total venue capacity of approximately 3,200 per performance is proposed which is lower than the maximum 6,000 permitted under the current development consent.

Subject to the continued implementation of appropriate traffic management measures to support the event, the transport impacts arising from the proposal can be managed appropriately.

5 Summary and Conclusions

This transport assessment supports a modification to a development application for temporary use of public space for outdoor events and functions at the Sydney Opera House (SOH). Approval for up to 99 event days per calendar year is sought in addition to events already permitted as exempt development.

The SOH benefits from its location adjacent to Circular Quay transport interchange – offering patrons a range of viable public transport access modes. From April 2019 public transport at Circular Quay will be further enhanced following the opening of the Sydney CBD and South East Light Rail service – providing another viable non-car mode of travel to the site.

The modification does not seek to modify the existing limitation of 6,000 people contemplated in the current development consent. Discussions with the Transport Management Centre indicate large events typically do not result in the unsatisfactory operation of the road network immediately surrounding the SOH.

The following mitigation measures will contribute to the efficient management of the transport network before, during and after outdoor events at the SOH:

- Continued collaboration with nearby trip generators via the event organising group to manage cumulative traffic impacts associated with outdoor events.
- Dampening the departure profile immediately after events by offering patrons alternatives in the form of nearby entertainment. These could be offered by surrounding destinations, and would have the benefit of decreasing the peak transport demand.
- Event management plans will continued to be prepared outlining the measures in place to manage vehicle and pedestrian movements prior, during and after events.
- Efficient management of delivery vehicles, particularly during outdoor events
- The recent implementation of the Vehicle and Pedestrian Safety (VAPS) to achieve the long standing objective of separation of heavy vehicles and pedestrian traffic on the forecourt of the Sydney Opera House
- Consideration of better promoting the cycle parking available to staff and patrons of outdoor events via the SOH website.
- Consideration of improved wayfinding, information services and a more efficient way of allocating taxis

In summary, the transport impacts arising from the proposal are expected to be minimal.

Appendix A

Meetings Minutes - Transport Management Centre

A1.1 Purpose of the meeting

An interview has been held with the Transport Management Centre regarding the performance of current event management plans during major and medium outdoor events.

The purpose of the meeting was to bring up current accessibility problems and bottlenecks at major SOH events and discuss probable effects of the proposed DA.

The meeting took place Friday 24th of July and had the following attendees:

- Stephen Elliot – Manager Major Government Events
- Edward Tai – Senior Transport Operations Planner
- Andrew Hulse – Senior Transport Planner
- Joey Schaasberg – Urban planner

A1.2 Key lessons

A1.2.1 Varying events attract people with varying transport demands

The SOH site hosts a large variety of events which all attract very differing demographic groups with varying travel behaviour. Not only the number of visitors, but also different mode shares, arrival profiles and required transport facilities largely affect the necessary precautions. Event examples and their specific transport requirements include:

Weekend Matinee Theatre: High car mode share, high parking requirements, low public transport use, drop-off facilities.

New Years Eve: High demand for taxis late at night, difficulty for VIPs to leave site after midnight, high public transport use, large simultaneous leave, large pedestrian flows obstructing transport flows, shutdown of Macquarie Street.

A1.2.2 The Sydney CBD lightrail will have major effects on SOH accessibility, both during as well as after construction

During construction of the Sydney CBD lightrail (October 2015), George Street will be closed for traffic, and Elizabeth Street will be rearranged to accommodate both private and public

transport in an effective way. In this period there will be less road capacity entering and exiting the CBD and SOH area and the capacity is less reliable (higher risk of problems).

After the light rail has open for users (planned July 2018), the importance of Circular Quay as a transport hub will increase by the addition of the lightrail. This might have varying effects on travel behaviour to the SOH, which could include an increase of pedestrians from Circular Quay over the Lower Forecourt and ultimately alleviation of the surrounding road network.

A1.2.3 Leaving visitor flows need more effective transport opportunities, especially with the proposed longer opening hours

Available transport systems for large egressing visitor flows are offered in one central place and there is little information about transport options. With the proposed longer opening hours, this might deteriorate due to a smaller supply of public transport and taxis later at night.

Possible measures to take include encouraging a more spread-out egress of visitors (eg by offering alternatives to go to neighbouring events) and improved wayfinding and information services.

A1.2.4 An increased collaboration with surrounding event organisers offers opportunities for more effective transport management

The Event Organising Group (EOG) is a monthly meeting of the major event organisers and trip generators in the Circular Quay area, where event schedules and requirements are shared and discussed. With an increase of SOH events, visitors and longer opening hours, it becomes more and more important to have an integral transport management approach of the entire Circular Quay area. This could entail tuning of bump-ins and bump-outs of different events and looking for opportunities to spread out the egress of the public.