APPENDIX A

Transport Management and Accessibility Plan
Mott MacDonald , August 2012

Sydney International Convention, Exhibition and Entertainment Precinct

Traffic Management and Accessibility Plan

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Infrastructure New South Wales

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Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
A	17.08.2012	F. Ramos	S. Luke	S. Luke	Issued for Client Review

Content

Mott MacDonald

1. Introduction

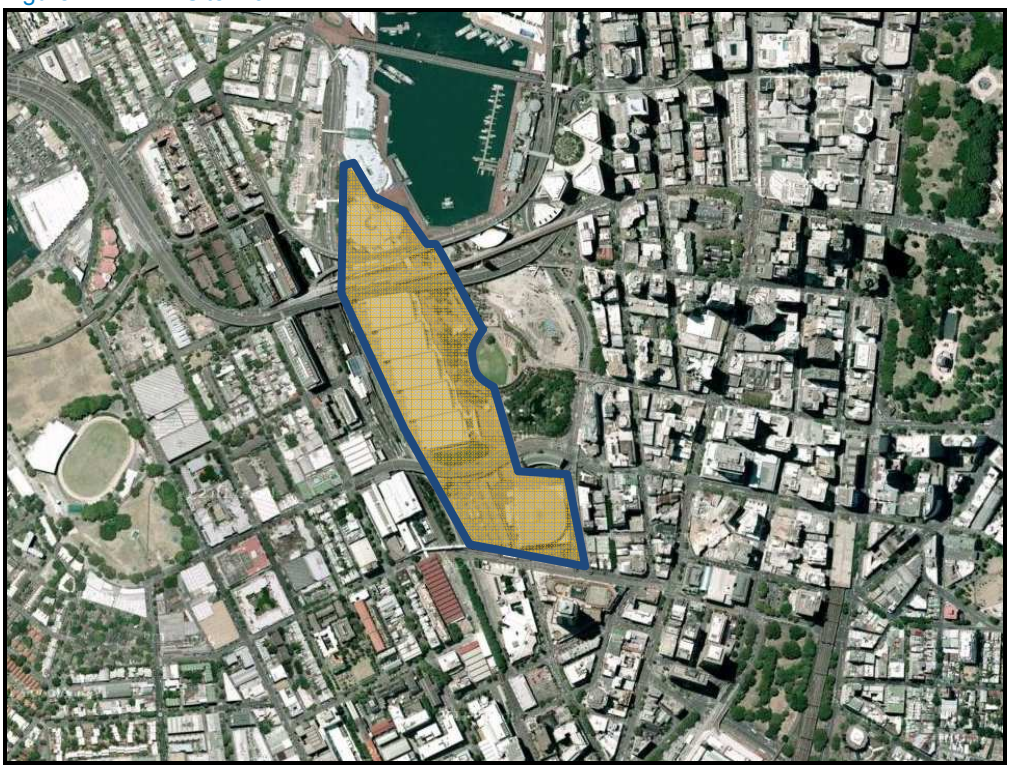
1.1 Background

Mott MacDonald Australia has been commissioned by Infrastructure NSW to undertake an assessment of the impact of the proposed development of the Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP) in terms of traffic transport and accessibility. This assessment is to integrate with documentation prepared by shortlisted proponents for the submission of an Environmental Impact Statement and State Significant Development Application.

An existing traffic and transport conditions report was submitted to Infrastructure NSW in May 2012. This report provided a review of the existing traffic, transport and accessibility conditions surrounding the SICEEP site. It also included modelling of the traffic conditions surrounding the site using AIMSUN software. This provides a 'base case' for traffic conditions at the site. The second stage of this project requires an assessment of the impact of the proposed SICEEP development terms of traffic, transport and accessibility. The 'base case' generated in the first stage has allowed for the impact of traffic generated by the proposed development to be assessed. As outlined in the Services Brief, the proposed development has not been finalised, and given this, the Reference Design forms the basis for this traffic and transport impact assessment. The development of this assessment should also provide direction and inform the shortlisted proponents in their specific tender bids.

This report comprises the second part of the total assessment and seeks to provide a detailed assessment of the impact of the SICEEP development in terms of traffic, transport and accessibility. The subject site location is shown in Figure 1.1.

Figure 1.1: Site Plan



Source: Google Maps

1.2 Aim

The purpose of each section of the report is as follows:

- Section 1 provides a brief introduction about the proposed development of the SICEEP site;
- Section 2 provides a review of relevant strategic and policy documents, ensuring the objectives of these documents guide the development;
- Section 3 discusses the impact of future developments within the vicinity of the SICEEP site;
- Section 4 incorporates a review of the existing conditions and transport arrangements for the site;
- Section 5 details the proposed development and likely traffic and transport arrangements as well as detail a preliminary Traffic Management and Access Plan for the site;
- Section 6 assesses the composition of travel modes for the proposed development; a key factor in the traffic impact assessment;

- Section 7 provides an assessment of the parking demand for the proposed development;
- Section 8 assesses the traffic impact of the proposed development on the surrounding road network and includes the estimation of traffic generation and traffic distribution;
- Section 9 provides a traffic network impact assessment by comparing the AIMSUN modelling outputs of a future model case with the 'base case' model generated in the existing conditions report;
- Section 10 provides an assessment of the impacts on pedestrian connectivity and public transport access.
- Section 11 provides a commentary on potential ameliorative measures to be undertaken on the road network as a result of the traffic impact of the proposed development;
- Section 12 provides a summary of the report findings and recommendations; and

1.3 Required Consultation

This report was prepared based on observations of the existing conditions and provides the framework for which to assess future scenarios and prepare a TMAP. It is anticipated that consultation with authorities will take place prior to commencement of further studies as well as during further studies.

2. Strategic & Policy Context

2.1 Introduction

This section contains a review of the strategic and policy objectives that will shape SICEEP. These documents include:

- NSW 2021;
- Metropolitan Plan for Sydney 2036;
- Sydney City Draft Sub-Regional Strategy;
- Integrated Land Use and Transport Policy Package;
- Planning Guidelines for Walking and Cycling;
- Sustainable Sydney 2030; and
- City of Sydney Chinatown Public Domain Plan.

The focus being on the policies, strategic directions and development provisions that have direct implications for the SICEEP development and will have an influence on land use and transport services and facilities in the future. This information will be used as the basis for developing a TMAP for SICEEP and a set of policies and actions that will allow the successful integration of land use and transport planning.

2.1.1 NSW 2021

NSW 2021 developed by the NSW government displays the focus the government has employed in planning for future of NSW, it plans to make 'NSW number 1 again'. The document is a 10 year plan to rebuild the economy, provide quality service, renovate infrastructure, restore government accountability and strengthen our local environment and communities.

The document, NSW 2021 is based on 5 key strategies that are aimed to respond to the challenges and opportunities NSW will face in the future with an increasing and diversifying population. The 5 strategies that NSW 2021 is based on are:

- **Rebuild the Economy**: Focuses on restoring economic growth and establish NSW as the leader of business activities throughout Australia;
- **Return Quality Service**: The government aims to work with the community to provide the best transport, health, education, policing, justice and family services with the focus on the customer;
- **Renovate Infrastructure**: An aim to rebuild infrastructure that makes a difference to both the economy and our population;
- **Strengthen Our Local Environments and Communities**: Focus on improving people's lives by protecting natural environments and building a strong sense of community; and

- **Restore Accountability to Government:** Focuses on returning planning powers to the community and giving people a say in decisions that affect them.

The 5 strategies that NSW 2021 is based on is largely relevant to SICEEP as the renovation of this facility is aimed to directly and indirectly contribute to economic benefits of NSW and is consistent with the goal of the plan to make 'NSW number 1 again'. However the strategy to 'Renovate Infrastructure' from the NSW 2021 plan is particularly relevant to SICEEP, as the strategy focuses on improving quality and choice for the public through improvements and redesign in the public service. Creating an integrated transport system is a major focus of this strategy as the NSW government displays a commitment to delivering effective transport systems that reduces travel time and provides significant benefits to businesses and the community at large.

The TMAP Framework for SICEEP aims to address the relevance of this initiative with regards to improving the public service of transportation as it aims to promote the use of public transport and reduce the transportation by car. The TMAP strategies seek to encourage more efficient travel patterns and influence decisions about travel and involve the following:

- Improve the transport options available;
- Provide incentive to change travel mode and travel time; and
- Improve accessibility to the development through the encouraged use of public transportation.

2.1.2 Metropolitan Plan for Sydney 2036

The Metropolitan Strategy, prepared by the NSW Department of Planning (DoP), examines key issues facing Sydney and plans for the growth and change of the greater metropolitan region (GMR). It is a strategic document that outlines a vision for Sydney over the next 25 years, which is to be underpinned by detailed planning through sub-regional strategies and Environmental Planning Instruments (EPIs). The Strategy sets the context for the City of Sydney's role in relation to broader transport, employment and residential objectives.

In order to plan for growth, the Metropolitan Strategy presents a series of objectives and actions within the following seven primary strategies:

- Economy and employment;
- Centres and corridors;
- Housing;
- Transport;
- Environment and resources;
- Parks and public places; and

- Implementation and governance.

One of the main objectives of The Metropolitan Plans is to capitalise on this investment in Sydney's future by ensuring the growth of the city occurs in a way that encourages public transport use. The focus on location of new developments will be supported in a manner that encourages public transport use to keep Sydney compact, connected and moving. Managing congestions and achieving environmental and health benefits for the sustained growth of the city through the effective increased use of public transport is a key objective of the Plan.

The preparation of the TMAP framework for the SICEEP development presents an opportunity to further realise and strengthen the plan for Sydney's future. The location of the development plays a major role in encouraging the use of public transportation and reduction in private vehicle travel.

According to reports in The Metropolitan Plan, transport accounts for 20% of Sydney's energy related green house gas emissions, with the majority generated by road transport. The SICEEP is envisioned to be able to cater for large events that will result in the turnover of a substantial number of visitors. With proximity to a range of public transportation modes and ease of pedestrian access to nearby public transport and the heart of Sydney city, the use of public transportation will be made more attractive over the use of private vehicles, reducing kilometres travelled on road and realising the sustainable objectives stated in The Metropolitan Plan.

2.1.3 Sydney City Draft Sub-Regional Strategy

The implementation process of the Metropolitan Strategy allows for sub-regional planning, proposed as an intermediate step in translating the Metropolitan Strategy into strategies for each grouping of local government areas and ultimately local planning strategies. The draft sub-regional strategies are based on the Metropolitan Strategy and provide actions specific to the sub-region to be undertaken by State and Local Government. Implementation of these sub-regional strategies will be given statutory force through Ministerial directions issued under Section 117 of the EP&A Act 1979.

The City of Sydney Sub-region occupies a central and strategic part of the Greater Metropolitan Region and the Metropolitan Strategy recognises that it will continue to face growth pressures. Key directions for transport identified in the Sydney City Sub-regional Strategy are:

- Investigate increased public transport capacity and protect corridors for high capacity;
- Public transport modes including potential metro link projects;

- Improve interchanges, stations, bus stops and ferry wharves;
- Implement the CBD bus strategy; and
- Coordinate road upgrades, bus priority measures, walking and cycling access.

Major tasks identified include:

- Improve transport between centres;
- Improve the existing transport system;
- Influence travel choices to encourage more sustainable travel;
- Improve transport decision making: planning, evaluation and funding;
- Ensure sufficient port capacity is available to serve Sydney;
- Improve efficiency of all types of freight movements in Sydney;
- Connect the regions and economic gateways within the greater metropolitan region; and
- Minimise the adverse impacts of freight movements.

A major challenge is delivering a transport planning framework and public investment in transport infrastructure to cater for the large expected population increase, development of new residential areas and employment growth. The transport objectives that will have implications for SICEEP include:

- Improved public transport operations within the CBD and throughout the sub-region, including improving access, capacity and connections to emerging centres;
- Developing an integrated transport system to reduce reliance on private motor vehicles through increased use of public transport, walking and cycling; and
- Opportunities for further high capacity transit modes (including metro rail lines) that will be investigated in conjunction to walking and cycling, which will be actively encouraged and supported in infrastructure planning.

2.1.4 Integrated Land Use and Transport Policy Package

The department of Urban Affairs and Planning developed this document that explains the policy which has been developed to reduce car travel and provide more equitable access to services. The main objective of the Integrated Land Use and Transport document is to ensure that urban structures, building forms, land use locations, development designs, subdivisions and street layouts achieve the following planning objectives:

- Improve access to housing, jobs and services by walking, cycling and public transport;
- Increase the choice available transport and reduce dependence on cars;
- Reduce travel demand including the number of trips generated the development and the distance travelled, especially by car;
- Support the efficient and viable operation of public transport; and
- Providing for sufficient movement of freight.

The proposed SICEEP development is consistent with the Integrated Land Use and Transport document as it aims to create a domain that will accommodate business and other community activities that will all operate in one location. This will assist in the minimisation of travel and the length of trips, particularly by cars. By developing a facility that caters for multi-purpose needs the development will encourage the public to travel shorter distance and make fewer trips. The proximity of this facility to a wide range of public transportation modes such as trains, buses and light rail provides the initiative to reduce, over time, the dependence on single occupancy vehicle trips and to increase public transport usage. The TMAP framework developed for SICEEP focuses on the promotion and implementation of sustainable travel measures consistent with the philosophy of the Integrated land Use and Transport Policy Package.

2.1.5 Planning Guidelines for Walking and Cycling

These guidelines have been provided to assist professionals to improve consideration of walking and cycling during the planning process. The guideline's objective is to create a walk-able and cycle-able city as an important part of creating a sustainable city. There are a number of city-scale design principles that assist the creation of walk-able and cycle-able cities. All emphasise urban renewal and the creation of compact mixed use accessible centres around public transport stops.

2.1.6 Sustainable Sydney 2030

The Sydney 2030 initiative is about changing the way people live, work and play in the Greater Sydney Metropolitan Region. This initiative was formed through consultation with the community and asking what they envisioned Sydney 2030 would look like. The people and visitors of Sydney agreed that Sydney 2030 should be a city that is green, global and connected.

3. Future Development in the Vicinity of SICEEP

3.1 Introduction

The development of other infrastructure in the vicinity of SICEEP will influence traffic, transport and access requirements of the precinct. Each of the developments mentioned below will contribute to the increased pedestrian and thoroughfare activity and number of visitors to the precinct. A brief summary of each of the developments envisaged to impact SICEEP are detailed below.

3.1.1 University of Technology, Sydney [UTS] Business Faculty Building

In late 2009, UTS commissioned Frank Gehry to develop a design concept for UTS Business School's new building, as part of the UTS Campus Master Plan. The ideas were based on Vice-Chancellor Ross Milbourne's vision to create a world-leading university of technology. The new UTS faculty of business building, named the Dr Chau Chak Wing Building is scheduled to be completed by the end of 2013 at a total cost of $150 million and excavation for the site is currently under way. The site is located on Ultimo Road, west of Darling Drive and will generate renewed and expanded pedestrian and vehicular traffic in the area.

3.1.2 Darling Walk Site

Darling walk is a $560 million dollar redevelopment combining commercial office and leisure space and is located in between Tumbalong Park and Harbour Street. The main tenants for the site are the Commonwealth Bank. The site incorporates commercial and retail precincts as well as integrating with Tumbalong Park through the redevelopment of a large children's playground at the western edge of the site. Darling Walk provides new trip attractors in close proximity to the site as well as improving pedestrian access to the eastern boundary of Darling Harbour through upgraded pedestrian facilities at Harbour Street being developed by Lend Lease.

3.1.3 Redevelopment and expansion of Star City Casino

The redevelopment and expansion of the Star city Casino commenced in 2009, and has recently expanded to include a 3,000-seat multi-purpose entertainment venue. The current $575 million redevelopment project that commenced in 2009 includes development such as reorientation of the property towards Sydney Harbour, a new 5-star hotel, several new restaurants, bars, 4,000m^2 of retail space and refurbishment and expansion of the casino. In August 2010 Tabcorp announced plans to invest an additional $285 million including the multi-purpose Events Centre and VIP customer facilities. The Events Centre comprises 2,400 m^2 of column free space that will have views of Sydney Harbour and the city Skyline. The venue has been designed to host performers as well as domestic and international conferences, exhibitions and functions.

3.1.4 Barangaroo Development

The major new $6 billion Barangaroo site currently under construction is expected to generate activity and business events for Darling Harbour and the convention and exhibition centre precinct. This development has the potential to generate up to a $ 1 billion for the NSW economy each year for the next 10 years. It will comprise commercial office towers mixed with residential apartments in a public waterfront precinct, public open space and a new Headland Park in the centre of the Sydney CBD.

4. Initial Transport Assessment

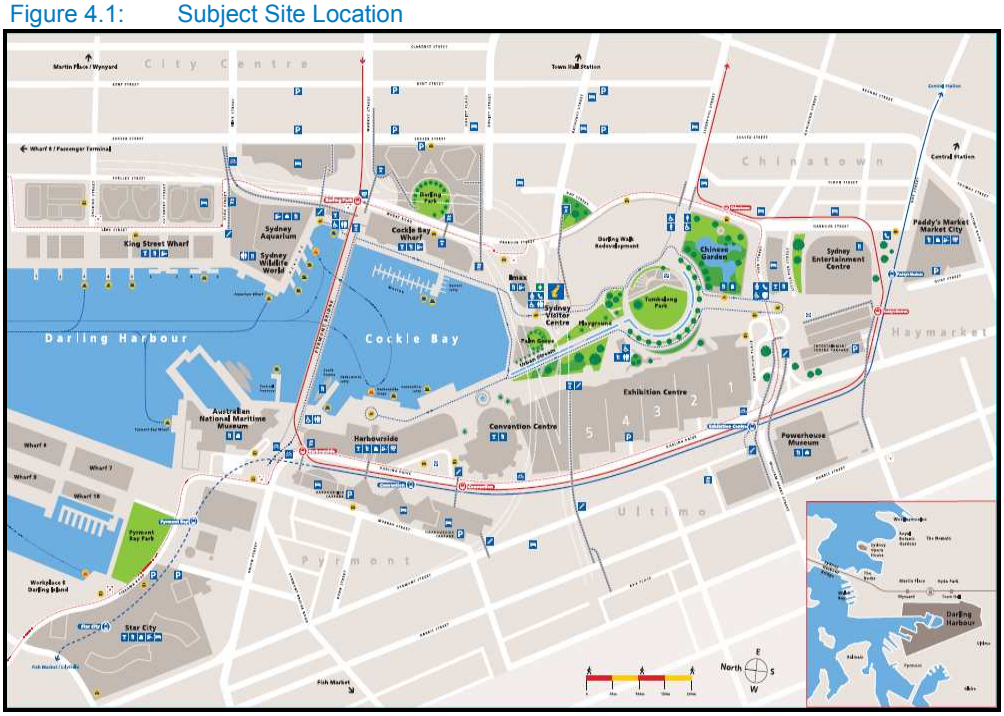
4.1 Background

The existing conditions report provided a detailed assessment of the existing transport conditions for the SICEEP site. The SICEEP site is located along the western edge of the Darling Harbour Precinct and continues south to the Haymarket precinct. The site is divided into three sectors by existing arterial corridors. The northern sector of the site houses the Convention centre and foreshore walkway areas servicing Darling Harbour and the Harbourside Shopping Centre to the north. The M4 Western Distributor overpasses and associated access ramps divide the northern and central sectors. The central sector contains the Exhibition Centre, Tumbalong Park and public thoroughfares providing access to Darling Harbour South. The Pier Street overpass and Harbour Street intersection divide the central and southern sectors. The southern sector contains the Entertainment Centre and the Entertainment Centre car park, which lies in the south western corner of the site.

The entire site is contiguously bound to the west by Darling Drive and the existing Light Rail and Monorail corridors. To the north of the site lies the Harbourside Shopping Centre, with Darling Harbour to the north east and a number of large hotels to the north west. To the east of the site lies the southern extent of Darling Harbour foreshore and the Imax Theatre adjacent to the northern sector. The Darling Quarter and Chinese Gardens are east of the central sector, and the Chinatown precinct of Dixon Street lies to the east of the southern sector. Hay Street forms the southern boundary of the site, with the University of Technology Building 5 and Paddy's Markets to the South. The site falls under the Darling Harbour Development Plan No.1 (1996). Planning Ministry approval must be sought for any developments within this precinct.

The land uses in close proximity consist of Hotels and Residential to the east in Ultimo and Pyrmont, Educational and Retail to the south, with the Market City Centre and the University of Technology buildings and a mix of Retail and Commercial to the east with the Sydney Central Business District. To the north of the site lies the Harbourside Shopping Centre. Figure 4.1 indicates the Subject Site Location.

Figure 4.1: Subject Site Location



Source: Sydney Harbour Foreshore Authority

4.2 Parking Supply

Details of the existing car parking availability in the Darling Harbour South Precinct are shown in Table 4.1 below.

Table 4.1: Current Carpark Capacities and Peak Time Occupancy

Car Park	Spaces	1pm	6pm	Comments
SEC	1900	926	1423	On site
SCEC	900	800	600	On site
World Square	557	495	330	345 m east
Market City	614	546	364	170 m south
Thomas Street	600	533	355	300 m south
Harbourside	1387	1233	822	4 mins light rail
Star City	2500	1218	912	7 mins light rail
TOTALS	8458	5751	4806	
Availability of Parking spaces		2707	3652	

Source: Halcrow TMAP Assessment (Reference Section 5.5 Page 45)

Note:

- This assessment is based on parking demand surveys undertaken by Halcrow for the car parks listed at 1:00pm and 6:00pm. The level of occupancy for each car park was established and from this an estimate of car parking availability within 5 minutes walking distance of the site was established.
- It was estimated that 1271 spaces were available at 1pm and 1499 spaces at 6pm with the balance of spaces more than 5 minutes walk requiring travel by light rail;
- 600 spaces in the SEC car park have been reserved for the use of Darling Quarter leaving only 1300 spaces available for other users;
- The SEC and SCEC car parks will be demolished/amended as part of the redevelopment of the SICEEP precinct and additional developments will have been completed in the precinct. Below attempts to identify additional public car parking spaces available within 300 metres of the site after completion of the SICEEP Redevelopment; and
- The occupancy of off-site car parks has been estimated as 89% at 1pm and 59% at 6pm with decreasing occupancy later in the evening.

4.3 Road Network

The significant roads within and surrounding the site and their indicative road classification in accordance with reference to RTA Road classification criteria are listed in Table 4.2 below:

Table 4.2: RMS Road Occupancy

Road	Classification
M4 Western Distributor(Freeway)	Major Arterial
Pier Street	Arterial
Darling Drive	Arterial
Harbour Street	Collector
Goulburn Street	Collector
Liverpool Street	Collector
Hay Street	Collector
Bathurst Street	Collector
Druitt Street	Collector
Pyrmont Street	Collector
Harris Street	Collector

4.4 Traffic

To ascertain the existing traffic conditions surrounding the site, a series of traffic surveys were undertaken to collect data for the purposes of analysis in establishing the existing AIMSUN model for the site, and to determine the peak periods under regular weekly traffic, on weekends, as well as during special events.

Turning movement count surveys were undertaken at the following locations in the vicinity of the site:

- Pyrmont Street/Allen Street;
- Harris St / Quarry St;
- Harris St / William Henry St;
- Harris St / Macarthur St;
- Darling Dr / Pier St;
- Darling Dr / Quay St;
- Darling Drive/Harbourside Roundabout Access;
- Harbour St / Liverpool St;
- Harbour St / Goulburn St;
- Harbour St / Hay St;
- George St / Goulburn St;
- George St / Hay St;
- Sussex St / Goulburn St; and
- Sussex St Hay St.

Tube count and video surveys were also undertaken to measure the weekly traffic volumes along these main corridors and to determine the weekday, weekend and event peak period volumes.

Tube counters were installed at the following locations:

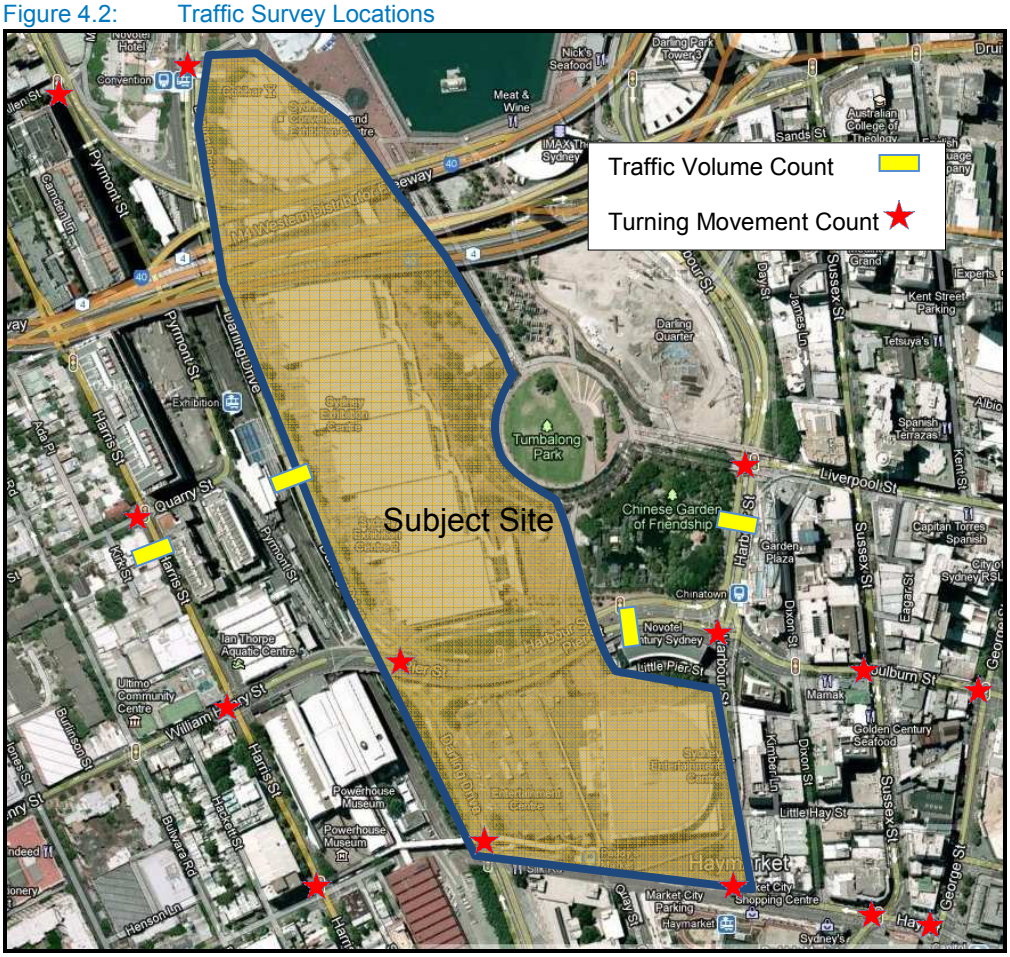
- Darling Drive; and
- Harris Street

Video counters were installed at the following locations due to site constraints:

- Harbour Street
- Pier Street

Figure 4.2 indicates the location of all the traffic surveys undertaken.

Figure 4.2: Traffic Survey Locations



Source: Google Maps

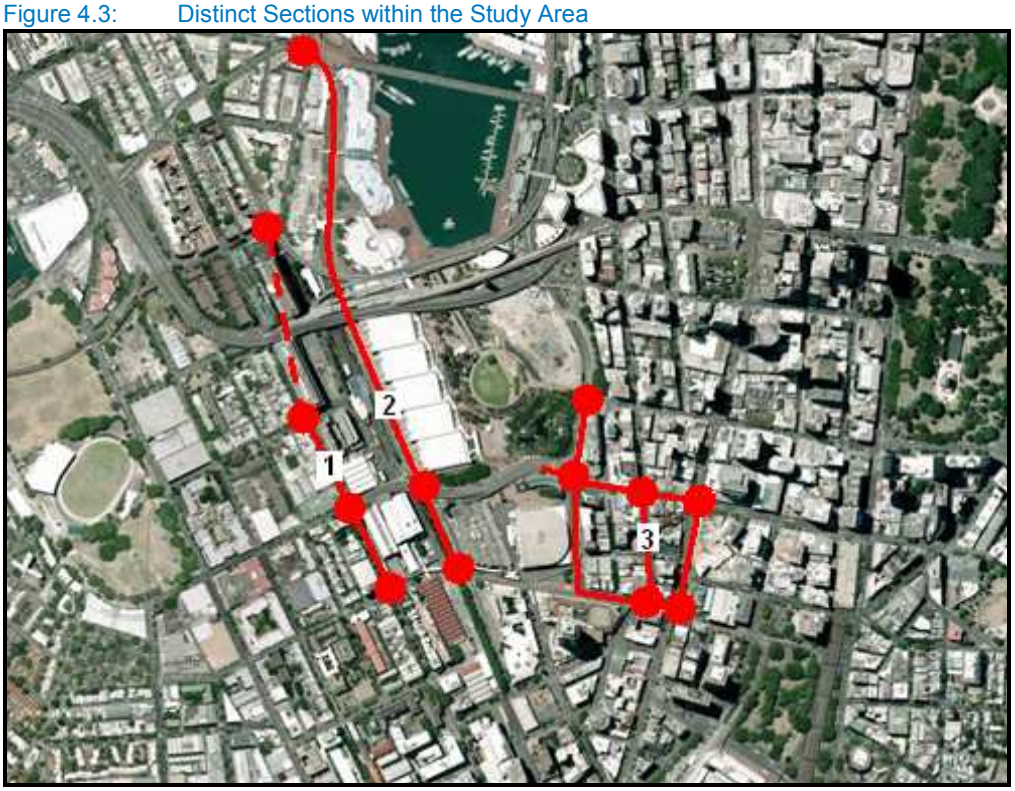
4.4.1 Local Road Network

The local road network as defined in the project brief can be broken down into 3 distinct sections as follows:

- Section 1 – Three intersections along Harris Street plus one additional intersection;
- Section 2 – Three intersections along Darling Street plus car park accesses; and
- Section 3 – Six intersections within a grid defined by Harbour Street, Goulburn Street and George Street.

The sections are shown below in Figure 4.3.

Figure 4.3: Distinct Sections within the Study Area



Source: Google Maps

Section 1 represents traffic travelling along Harris Street. This section predominantly carries traffic between Ultimo (with Parramatta Road being the primary origin / destination) and Pyrmont.

Section 2 represents the section with the lowest traffic flows, namely running along Darling Street adjacent to the site. Traffic through this section includes motorists travelling between the city centre and various destinations in Pyrmont. It is also the primary access for the subject site and is therefore considered to be the section which will be most impacted by the proposed development.

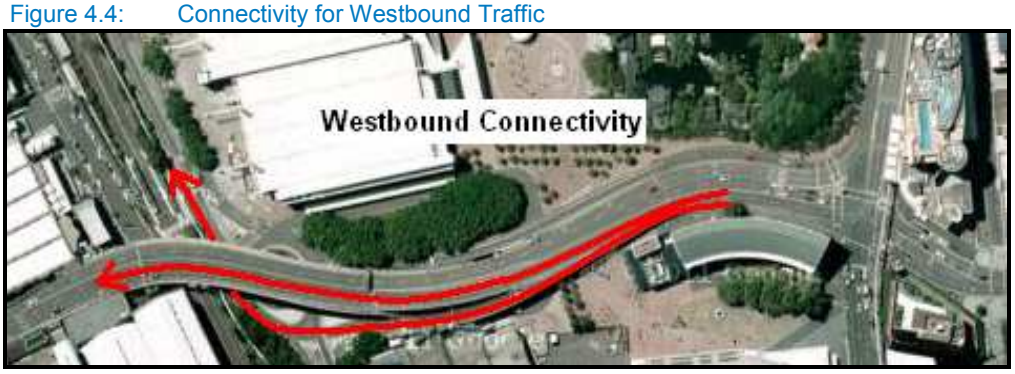
Traffic travelling within Section 3 includes a wide variety of traffic in terms of origin and destination. The origins and destination includes traffic travelling through the area to various destinations throughout the city as well as motorists connecting to the Western Distributor in order to travel in or out of the city.

4.4.2 Connectivity

The sections of road network described above operate relatively independently with little connectivity between them. The primary connectivity is provided by Pier Street which runs east – west across the three sections.

The key intersection connecting the three sections of road network is the Pier St / Harbour St / Goulburn St intersection. In a westerly direction, the connection allows for a direct traffic flow from this intersection directly into Section 1 (given that there are no intersections along Pier Street between Harris Street and Harbour Street) as well as a direct traffic flow into Section 2 via the off ramp on Pier Street (refer to Figure 4.4).

Figure 4.4: Connectivity for Westbound Traffic



Source: Google Maps

The connectivity in an easterly direction is similar with the exception that traffic approaching Harbour Street from Darling Street (i.e. Section 2) is restricted to left turning movements onto Harbour Street. (Refer to Figure 4.5).

Figure 4.5: Connectivity for Eastbound Traffic

Source: Google Maps

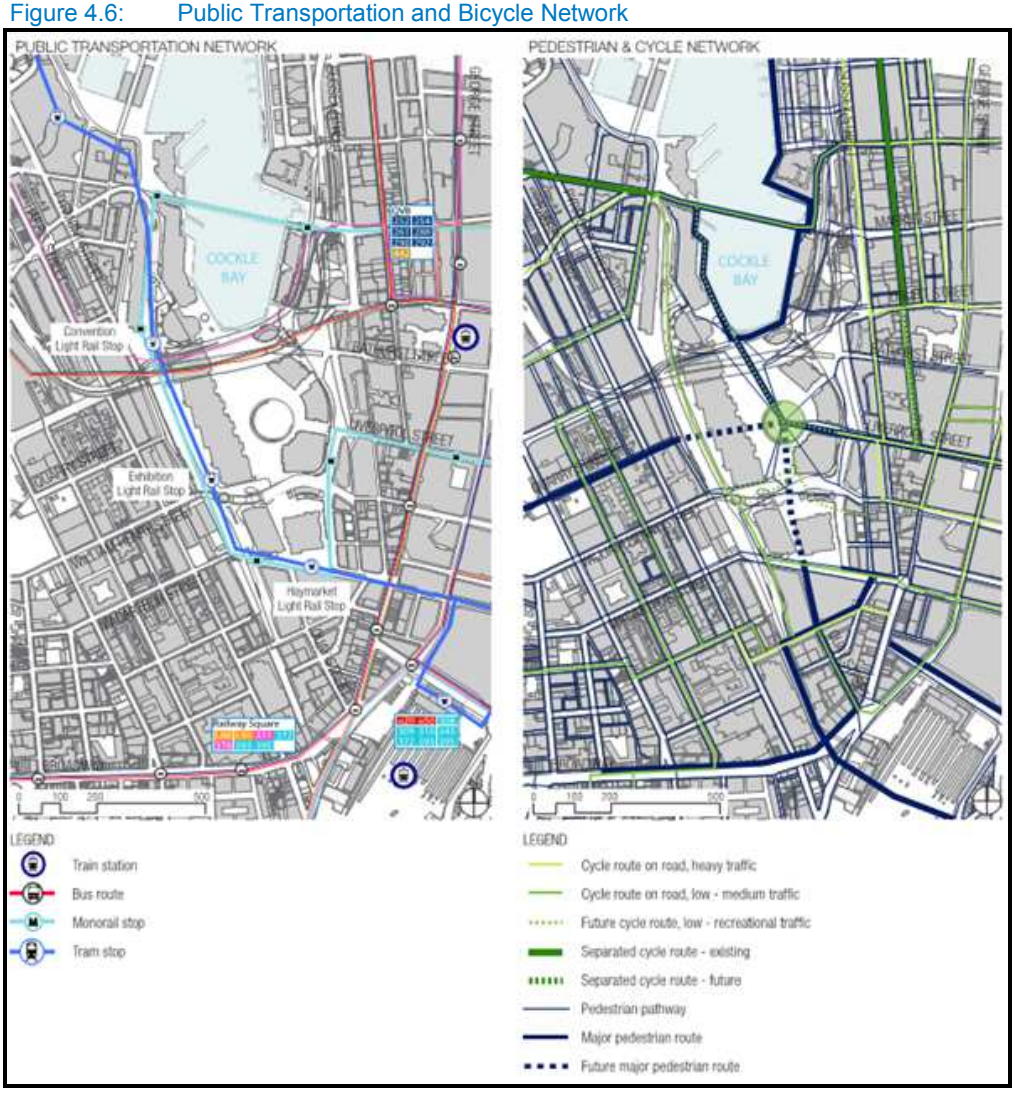
4.5 Pedestrian Network

There are a large number of pedestrian routes throughout the site. This stems from the public domain areas within Tumbalong Park and the provision of pedestrian access to the large number of trip attractors within, and surrounding the site. A visitor snapshot for 2011 published by Sydney Harbour Foreshore Authority indicates that the whole of Darling Harbour including SICEEP are an extremely popular tourist destination, with an estimated 25 million visitors to the area each year. Moreover the combined patronage of the Convention, Exhibition and Entertainment Centres has necessitated the provision of large public spaces and numerous accesses to each venue to cater for the large pedestrian volumes. Figure 4.6 indicates the numerous public transport options for pedestrians surrounding the SICEEP site.

4.6 Bicycle Network

The site is located in close proximity to the Sydney CBD Cycleway network, consisting of on-street marked cycle lanes, and separated at-grade cycleways that have been recently constructed to promote green transport as an alternative to other modes of transport. Figure 4.6 indicates existing and future bicycle network facilities surrounding the SICEEP site. Two Bicycle lanes border the site on its east and west faces. Figure 4.7 shows the Darling Street on-road cycle lane and the Darling Harbour off-road cycle path. These two lanes provide connectivity for the site to the Sydney CBD and surrounding areas. If travelling to the site by Bicycle, there are a number of bicycle parking stations immediately adjacent to the site as shown in Figure 4.8. In addition to this, there are, a number of other Bicycle parking stations in Darling Harbour, within 5 minutes walking distance to the site.

Figure 4.6: Public Transportation and Bicycle Network



Source: SICEEP Urban Design Guidelines (Woods Bagot)

Figure 4.7: Bicycle Lanes in the vicinity of the site

Source: www.sydneycycleways.net

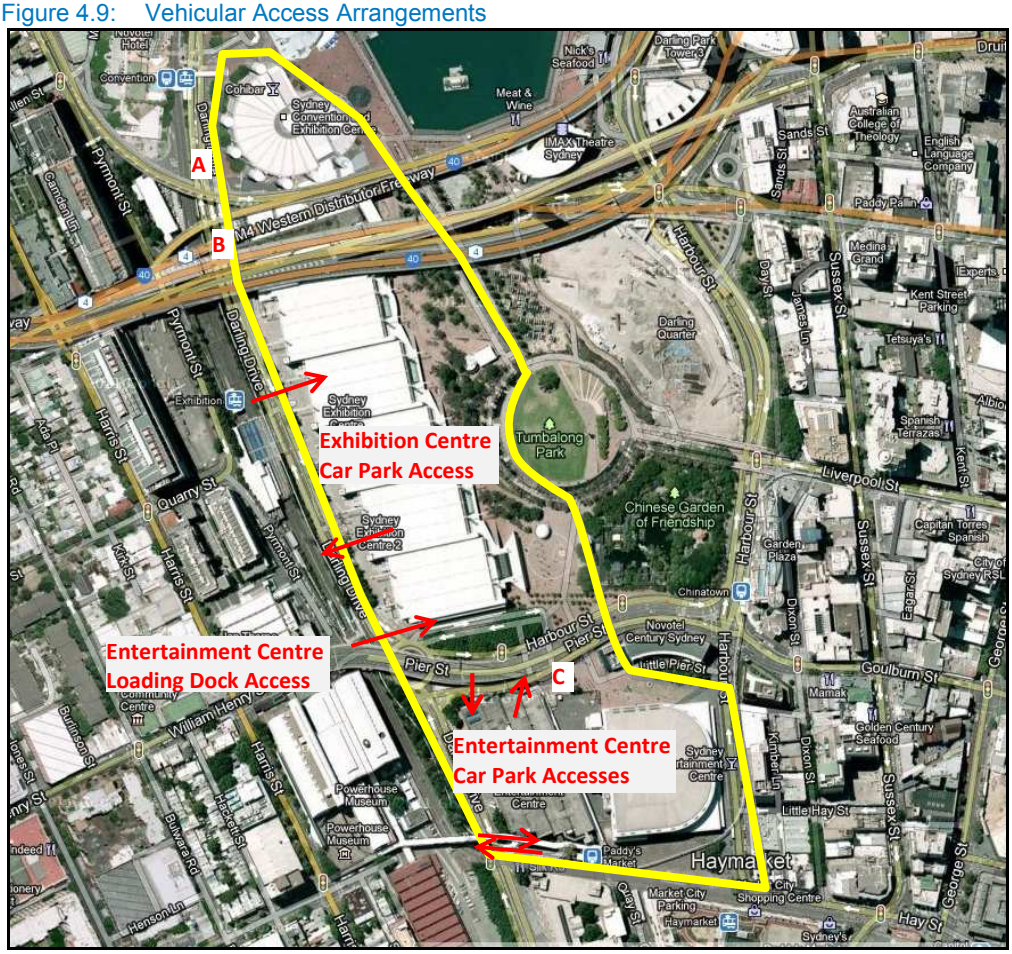
Figure 4.8: Bicycle Parking Locations

Source: www.darlingharbour.com

4.7 Current Access Arrangement

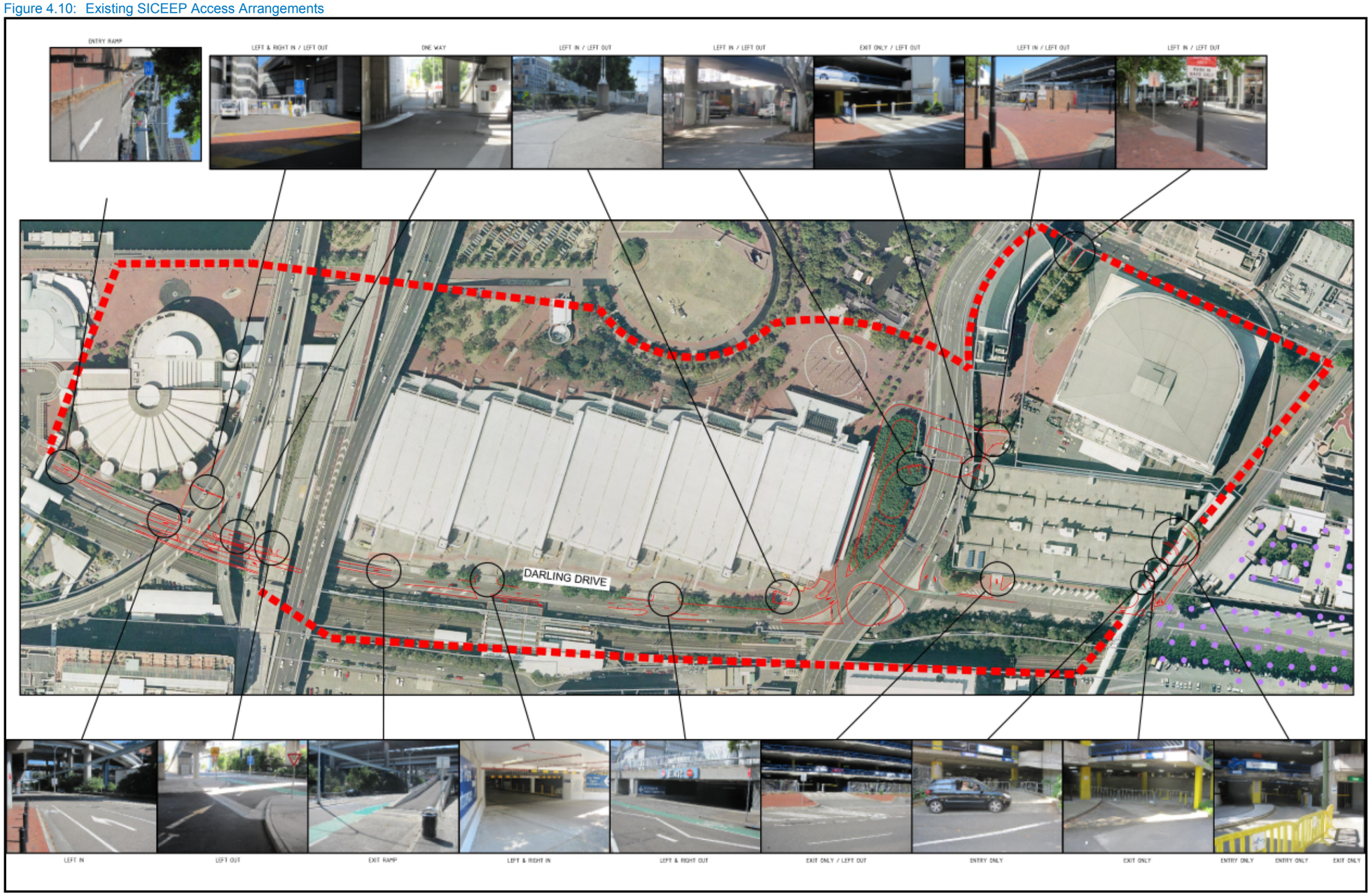
The existing vehicular site access arrangements for SICEEP are from Darling Drive as marked in Figures 4.9 and 4.10.

Figure 4.9: Vehicular Access Arrangements



Source: Google Maps

Figure 4.10: Existing SICEEP Access Arrangements



4.7.1 Car Park Access

Access to the Exhibition Centre Car Park is located on Darling Drive. The entrance driveways are located at the rear of Exhibition Hall 4 and the exit driveways are located at the rear of Exhibition Hall 2. Access and egress is available in both directions along Darling Drive. Access to the Entertainment Centre car park is divided between the north and south end of the car park. The southern access is located on Darling Drive via a separated laneway access just north of the intersection with Quay Street. The southern exit driveway lies adjacent to the southern entrance driveway. The northern access is located via an entrance ramp located on the Pier Street off ramp. The northern exit driveway connects with the one way loop road underneath the Pier Street overpass.

The current access arrangements for the Exhibition and Entertainment Centre car parks have been assessed and found to be in accordance with Australian Standards.

4.7.2 Loading Dock Access

The loading dock accesses for the Convention Centre, Exhibition and Entertainment Centre are marked as A, B and C respectively in Figure 3.12. Access and egress to the Convention and Exhibition Centre loading docks are available in both directions along Darling Drive. Access to the loading dock for the Entertainment Centre is located via a one-way loop road which runs under the Harbour Street/Pier Street overpass, accessed from Darling Drive just north of the roundabout intersection with Pier Street. It provides access to the Back of House and service areas for the Entertainment Centre. There is also an exit driveway from the Entertainment Centre Car Park located on this loop road. Entry and exit for all the loading docks is in a forward direction.

The current access arrangements for the Convention, Exhibition and Entertainment Centre loading docks have been assessed and found to be in accordance with Australian Standards and do not raise any safety concerns.

4.7.3 Pedestrian Access

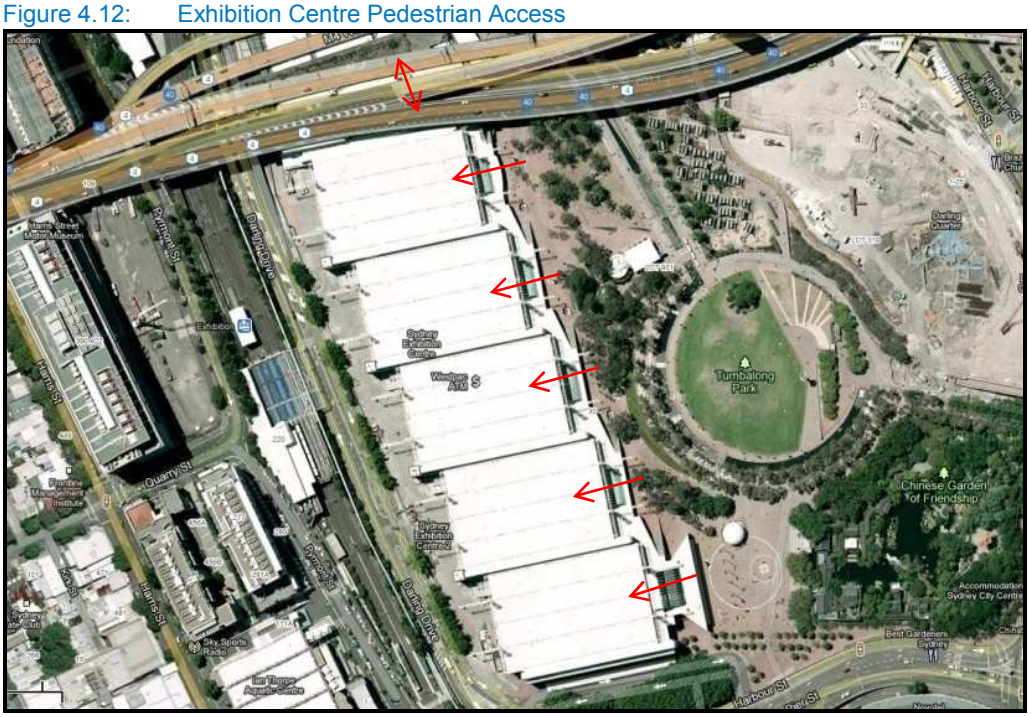
Pedestrian access arrangements to the three centres are mostly configured to accommodate the majority of pedestrian movements from the Darling Harbour concourse. All access points are wheelchair accessible via pedestrian ramps and walkways.

Figure 4.11: Convention Centre Pedestrian Access

Source: Google Maps

The pedestrian access arrangements for the Convention Centre are marked in Figure 4.11. The access points are distributed between the Bayside and Parkside wings of the Convention Centre. Pedestrian Access to the Bayside wing is located at the northern end of the site, adjacent to the Bus and Cab rank at the rear of the Harbourside Shopping Centre. Access to the Parkside wing of the Convention Centre is split between the eastern entrance located adjacent to the Tumbalong Concourse, and the western entrance located at the porte cochere on Level 1 of the building. There are internal accesses between the two wings of the Convention Centre as well as internal accesses to the Exhibition Centre to the south.

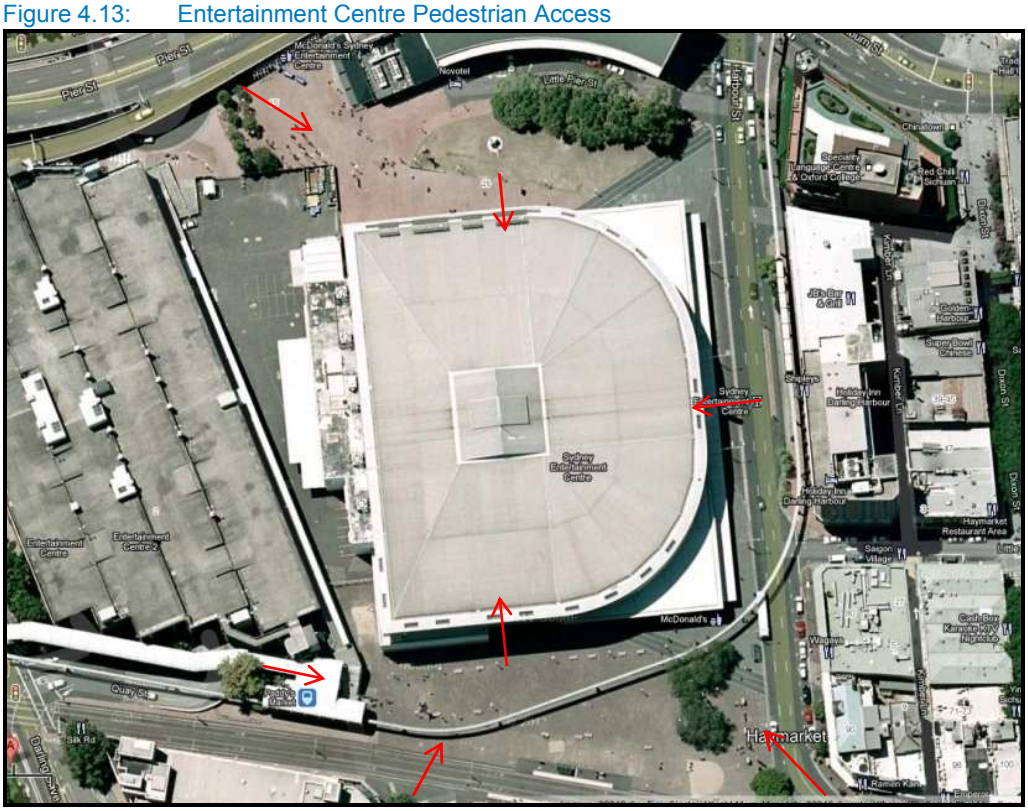
Figure 4.12: Exhibition Centre Pedestrian Access



Source: Google Maps

The pedestrian access arrangements for the Exhibition Centre are marked in Figure 4.12. The access arrangements for exhibitors are extensive, with access points available along the length of the eastern frontage. Access to each hall is then managed via the eastern foyer which runs the length of the building. There is also an internal access available from the Convention Centre to the north.

Figure 4.13: Entertainment Centre Pedestrian Access



Source: Google Maps

The pedestrian access arrangements for the Entertainment Centre are marked in Figure 4.13. The main access is located on the eastern frontage of the building along Harbour Street. Additional pedestrian accesses are also located on the northern and southern frontages. Regional access to the site is available via the concourse from Darling Harbour to the northwest, from Quay Street to the south and from Hay and Little Hay Street to the south west.

5. Proposed Development

5.1 Reference Design

Woods Bagot prepared a Reference Design on behalf of Infrastructure NSW that provides an indicative layout for the proposed development of the SICEEP site. The development is to comprise a revised design to the existing layout that has the Entertainment Centre separate from the rest of the precinct, to the south of Pier Street. The proposed development is to consist of a single consolidated complex, running from the existing Convention Centre at the northern end, reconfigured Exhibition halls in the centre of the precinct, to a new Entertainment Centre complex at the southern end located partially over the footprint of the existing Exhibition Centre.

The existing site of the Entertainment Centre is to be developed into 2 separate multi storey buildings. The larger of the two buildings is to have a mixed land use with retail tenancies on the bottom level and residential units above. An additional retail building will also be located adjacent to the southern wing of the Entertainment Centre car park, which is to be retained. This area will be known as the Quay Gateway Quarter.

5.2 Proposed Gross Floor Areas

A number of functional spatial requirements have been set out as part of the SICEEP project. The reference design has been developed to comply with these functional requirements. These are specified and discussed below.

5.2.1 Plenary Hall/s

The plenary hall functional requirements are as follows:

- Mega convention requirements of up to 6,000 delegate seating capacity; and
- Large convention requirements of no less than 3,000 delegate seating capacity.

Plenary hall/s with removable flat floor and/or raked seating for:

- Medium convention requirements of 750 to 1,500 delegate seating capacity; and
- Small convention requirements of up to 750 delegate seating capacity.

5.2.2 Meeting Rooms

Meeting rooms will be dispersed throughout the facility to align with all core functions, however, will be primarily focused around servicing the convention facilities.

The provision for meeting rooms within the redeveloped facilities is outlined below:

- A total functional area of 5,000 sqm, comprised of:
  - 10 rooms x 150 sqm (Small Meeting Rooms); each capable of subdivision into 2x 75sqm rooms; and
  - 8 rooms x 450 sqm (Large Meeting Rooms); each capable of subdivision into 2x 225 sqm rooms.

5.2.3 Exhibition Halls

A total of 40,000 sqm of Exhibition space will be provided within the development. This will be achieved through the provision of:

- 15,000 sqm of “Standard” exhibition hall space, to be located within the Exhibition Centre;
- 15,000 sqm of “Convex” exhibition space, to be collocated within the Convention Centre;
- 5,000 sqm of “Multi-functional” exhibition space, to be located within the Convention and Entertainment Centres; and
- 5,000 sqm of outdoor exhibition space.

The existing exhibition facilities have a GFA of 25,000 sqm. The proposed development will increase the exhibition GFA by 15,000 sqm.

5.2.4 Entertainment Centre

The reference design proposes and multi-use arena seating up to 8,000 people in its maximum configuration. The multi-purpose arena facility will incorporate the requisite exhibition and meeting room requirements specified above.

The existing Entertainment Centre has a maximum capacity of 12,000. There is therefore a net reduction in capacity of 4,000.

5.2.5 Concurrent Events

The facilities have been designed such that concurrent events can be supported. Concurrent events may include a large and small conference being hosted simultaneously, or a conference and exhibition, etc. It is not anticipated that concurrent events would be supported during the hosting of a major conference (6,000 pax), for example.

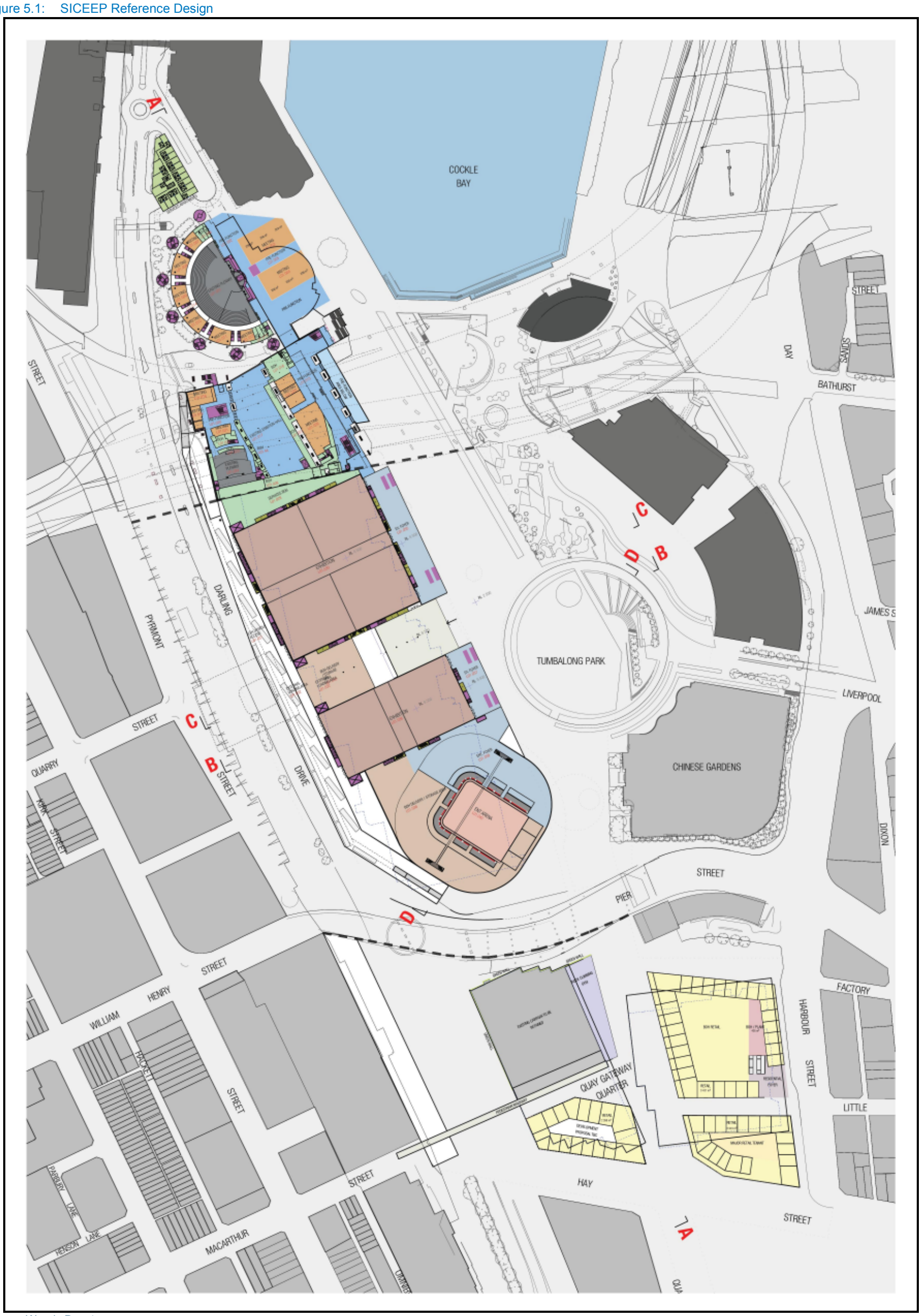
5.2.6 Commercial Development

Commercial development is proposed to the south of Pier Street at the site of the existing Entertainment Centre. The commercial development aspects are undefined and have not been included in this assessment.

5.2.7 Change in Development Area

The most significant change in development area in the proposed development scenario is to the exhibition space which will increase by 15,000 sqm (37.5%). The entertainment centre/multi-use arena capacity will be reduced by 4,000 people. The proposed convention facilities are to be based on refurbishment of the existing, therefore the GFA will be as per existing. The proposed commercial development to the south of Pier Street will reflect an increase in GFA for this portion of the site, however, the details of these facilities will be subject to further assessment when further details become available.

Figure 5.1: SICEEP Reference Design



Source: Woods Bagot

5.3 Access Arrangements

5.3.1 Private Vehicle Access

Private vehicle access for the core functions of the proposed facility (convention, exhibition and entertainment) is proposed off Darling Drive via a number of discrete access points and in a similar configuration to the existing access arrangements. The current access to the Entertainment Centre car park under Pier Street will be maintained.

The proposed commercial development fronting Harbour Street will be accessed from Harbour Street; access to the commercial developments fronting Darling Drive will be off Darling Drive.

5.3.2 Loading/Delivery Arrangements

Access to the proposed exhibition loading dock running along the length of the exhibition facilities will be from Darling Drive at the location of the existing loading dock access under the Western Distributor overpass. Provision has been allowed for up to 12articulated vehicles along the exhibition frontage. An additional area has been allowed within the loading dock for storage of up to 10 articulated vehicles. It is intended that this will offset the existing storage arrangement along Darling Drive during the majority of events. During the highest capacity events, there may be additional truck storage required along Darling Drive, in a similar configuration to existing. It is considered that this will be infrequent and that the provision of additional storage capacity to cater for the largest events (low number thereof) may be an inefficient use of space, given the spatial constraints imposed on the development.

Services vehicle loading will be carried out within the basement level of the facility, with access to the north of the exhibition loading dock access described above. Provision has been allowed for the following servicing arrangements:

- 2 HGV Bays;
- 6 MRV Bays; and
- 8 SRV Bays.

The separation of service vehicle and exhibition loading facilities reflects an efficient use of space and will increase the respective capacities of each facility. Event management plans will need to be produced for each major event to program the set up and close down arrangements for all loading vehicle movements. The plan will consider any concurrent events at the facility or other nearby locations and seek to utilise off-peak periods for loading operations where possible.

Provision for accommodation of Outside Broadcast Vehicles during major events has been allowed within the facility fronting Darling Drive adjacent to the proposed multi-use arena.

5.3.3 Taxis

Two drop-off and pick-up zones for taxis are proposed. The first will be located along Pyrmont Street to the west of the site. Provision for parking of up to 20 vehicles will be provided in this location to the south of Quarry Street and access to the precinct will be via a bridge connection to the upper levels of the multi-use arena facility. The second taxi bay will be located to the north of the convention centre at the location of the existing taxi drop-off bay. The northern taxi bay will also function as a V.I.P. entry for major convention events, as required.

The taxi bays located at two discrete locations adjacent to the facility will have a number of functional benefits. These include providing more direct access from each venue and improved pedestrian management through the precinct. The two locations do not provide significant differential benefits in terms of origin or destination as they both have close access to the arterial road network.

A V.I.P. entry/ Porte Cochère is proposed towards the centre of the precinct off Darling Drive.

5.3.4 Coaches

Coach parking is proposed in its present location adjacent to Darling Drive and the existing exhibition centre site. It is anticipated that parking for approximately 20 coaches will be provided in this location.

Coach drop off and set down that is currently conducted along Harbour Street adjacent to the existing Entertainment Centre will be conducted along Darling Drive adjacent to the Facility, being the only road frontage. The suitability of Pyrmont Street for coach pick up and set down was investigated; however, the geometry of the road does not permit coach turning movement at the end of Pyrmont Street without significant works.

5.3.5 Buses

It is noted that there are currently no bus routes running along Darling Drive, which will be the focus of redevelopment. The existing bus route along Pier Street will not be affected by the proposed development.

Consideration has been given to opportunities for the improvement of future bus operations in the area. It is noted that this area is currently serviced by light rail, with direct connection to Central Station, which is a major interchange for bus operations. No additional accommodation for bus operations is proposed as part of the redevelopment of the SICEEP site.

5.4 Road Network

There are no significant changes proposed to the existing road network. Minor amendments to the access arrangement off Darling Drive will necessitate reconfiguration of some lanes and turning facilities. Pyrmont Street, to the south of Quarry Street will be reconfigured to permit taxi parking and turning at the southern end. Pyrmont Street will also be reconfigured to provide connectivity (pedestrian and emergency vehicles) across Darling Drive to the Facility.

5.5 Pedestrian Management

Pedestrian management during major event scenarios is a critical consideration for the future development. The major concentrations of simultaneous event patronage are considered to be the convention facilities to the site's north and the multi-use arena to the north of Pier Street. The convention facility will maintain its existing footprint and frontage to Darling Harbour which provides pedestrian dispersal capability to the north, south and east. The western frontage of the convention centre to Darling Drive is not considered a major pedestrian egress route and will be largely confined to taxi and coach pickup/drop off.

The multi-use arena is afforded enhance pedestrian management opportunity by its dual frontages to Darling Harbour and Pyrmont. Access to the arena is provided at ground level from the east and south to Darling Harbour and from the west to Pyrmont via the high level pedestrian bridge. In particular, taxi movements have been separated from primary pedestrian and vehicle routes. This provides a number of points of egress separated from the major vehicular routes of Darling Drive and Harbour Street.

5.6 Pedestrian / Cyclist Connectivity

It is proposed to maintain the existing bicycle routes depicted in the City of Sydney Cycle Strategy and Action Plan 2007-2017 as part of the proposed development. The principal route pertaining to the SICEEP development runs along the western side of Darling Drive (on-road) for the length of the development. It is proposed to maintain this cycle route in its existing configuration. The internal spine through the precinct from Hay Street in the south along the eastern edge of the existing exhibition and entertainment facilities offers an alternative cycle route through the site, however is less amenable to commuting given the high volumes of pedestrian traffic and the lack of a dedicated cycle path.

Bicycle parking is proposed along the eastern frontage of the proposed exhibition and entertainment facilities.

There is future potential to provide enhanced pedestrian connectivity though the expansion of the Ultimo Pedestrian Network and improved connectivity to the western CBD. These are considered to be regional enhancement opportunities and the need for their implementation is not triggered by the redevelopment of the SICEEP site. The proposed bridge connection to Pyrmont Street off Darling Drive will significantly improve pedestrian connectivity to the west towards Ultimo.

The future design of the commercial precincts to the south of Pier Street will need to accommodate enhanced pedestrian connectivity; connecting the entertainment / exhibition precinct through to Hay Street, particularly to align with future City of Sydney plans to convert Hay Street to a pedestrian zone between George and Sussex Streets.

5.7 Traffic management Plan during Construction Period

A conceptual Construction Traffic Management Plan (TMP) has been developed for the reference design of the proposed SICEEP development. The conceptual TMP is attached in Appendix A. The main points are discussed below.

5.7.1 Demolition/ construction activities

The proposed convention facilities are to be based on refurbishment of the existing facilities. As such, no demolition/ major construction activities will take place for the Convention Centre site. The existing Exhibition Centre site will be demolished and will be reconstructed to accommodate proposed increased exhibition area space as well

as a new Entertainment Centre. The existing Entertainment Centre site (to the south of Pier Street) will be demolished for the future retail and residential development. The main points in relation to demolition/construction activities are listed below.

- All loading and unloading associated with construction including spoil removal must be accommodated on site;
- All Demolition and excavation activity to be provided for on-site;
- All vehicles involved in the excavation and/or demolition process and departing the site with demolition materials, spoil or loose matter must have their loads fully covered before entering the public roadway.
- Prior to the commencement of work, suitable measures are to be implemented to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site. Any material deposited on adjacent roads shall be removed within a reasonable time;
- All street trees adjacent to the site must be protected at all times during demolition and construction;
- All demolition/construction activities including noise management as well as tree protection/verge management shall be implemented as per relevant policies and to the satisfaction of local Council and authorities.

5.7.2 Access arrangement

Vehicular access to the Convention Centre site will be provided from Darling Drive. The Convention Centre will undergo refurbishment with no major construction/demolition activities. The vehicular access will be provided through existing service roads off Darling Drive below Pier Street.

All vehicular access for the proposed Exhibition Centre & Entertainment centre site will be provided from Darling Drive with northern access to be used as entry only access and southern access to be used as exit only access to minimise vehicular conflicts on Darling Drive. Two-way traffic movement (one lane in each direction) on Darling Drive shall be maintained at all times with minimum lane width of 3.5m. All pedestrian/cyclist access through the existing site from Darling Drive should be closed and necessary warning signs for pedestrian/cyclist delineation shall be provided.

For existing Entertainment Centre demolition site, all vehicular access to be provided from Harbour Street using single entry/exit access. Harbour Street is a one way street and as such all vehicles from the site will have left-in/left-out access arrangement.

5.7.3 Traffic control measures

The conceptual Construction Traffic Management Plan attached in Appendix A incorporates traffic control measures for the proposed development. This traffic control measures are indicative and are subject to change depending upon future staging of works as well as site specific requirements. Further Traffic Management Plans shall be developed by the PPP Proponent to the satisfaction of City of Sydney Council and Roads and Maritime Services (RMS).

5.7.4 Other Considerations

The adjacent road network carries significant traffic volumes during morning and evening peak periods. All major construction vehicle movements including loading/unloading or spoil delivery/removal shall be avoided during peak traffic periods on business days i.e. between 7am to 9am during morning peak period and after 4pm in the evening peak period.

The reference design for the proposed development has been provided however, the development will require further refinement and staging for demolition/construction activities. As such, the detailed vehicle routes and number of trucks has not been determined at this stage. The major truck movements for the proposed Exhibition Centre and Entertainment Centre will be provided from Darling Drive. Further routes to/from the site will depend upon the source of construction materials as well as spoil dispose location which will be developed by the PPP Proponent and implemented to the satisfaction of local authorities and RMS.

The PPP shall also prepare Vehicle Management Plan for vehicle usage within the site covering all construction vehicle movements.

The detailed Traffic Management Plan prepared by the PPP Proponent should also incorporate any special events in the vicinity of the site which will affect the construction activities. The Traffic Management Plan should cover any systems, processes and personnel required for such special event.

The existing public transport services should not be affected by the site construction activities.

6. Travel Mode

6.1 Introduction & Background

The parking strategy and anticipated trip generation depends on many variables. The most significant determinant is considered to be the anticipated travel mode. This section summarizes the travel mode assessment and forms the basis on which the parking strategy is formed and the anticipated trip generation is estimated.

This section incorporates previous studies undertaken for the area, various assumptions, assessments of similar sites, and guidance from policies governing future development in the area.

An assessment of the travel mode split for similar sites has been undertaken in order to determine the most appropriate travel mode split target. Details of the similar sites are listed below.

6.1.1 Adelaide Convention Centre

The convention centre in Adelaide varies from the subject site in that it is not located adjacent to and Exhibition Centre or an Entertainment Centre. However, it is within close proximity to Adelaide Casino, Parliament House and Festival Theatre. The venue has a capacity to cater for 9,500 people and 1,200 parking spaces are provided. This equates to 1 parking space for every 8 people. It should be noted that the site is adjacent to a railway station and a taxi rank, and that a free bus service is provided within Adelaide City. Adelaide City Centre is also substantially smaller than Sydney City Centre, such that the travel mode split is likely to vary significantly.

6.1.2 Brisbane Convention & Entertainment Centre

The Convention and Entertainment Centre in Brisbane is not located adjacent to an Exhibition Centre. The venue has the capacity to cater for 17,500 people (including the theatre) and 1,600 parking spaces are provided. This equates to approximately 1 space for every 8.5 people. The site is located adjacent to South Brisbane train station and is within relatively close proximity to the Ferry terminal at South Bank. The site is also serviced by taxi ranks, 6 coach bays and a bus station within relatively close proximity.

6.1.3 Melbourne Convention & Exhibition Centre

The Melbourne Convention & Exhibition Centre is not located adjacent to an Entertainment Centre. At peak loadings, the centre caters for a maximum loading of 8,000 people. There are 1,060 spaces in the centre plus 550 spaces in South Wharf adjacent to the site as well as Freeway Car park within close proximity. This equates to 1 space for every 5 people. The site is serviced by a Tram stop adjacent to the site (which transports people to major train stations) as well as a bus service from Southern Cross Station to the Convention Centre. In addition there is a taxi rank and coach pick-up / drop-off available.

The recently constructed Melbourne Convention and Exhibition Centre (MCEC) included in its parking strategy the use of parking spaces within close proximity to the site. The MCEC is considered to be the most similar site to the currently proposed development in that it is close to the CBD, is located in a general entertainment precinct and near a casino. It is therefore anticipated that the parking provision for the proposed development will be quite similar.

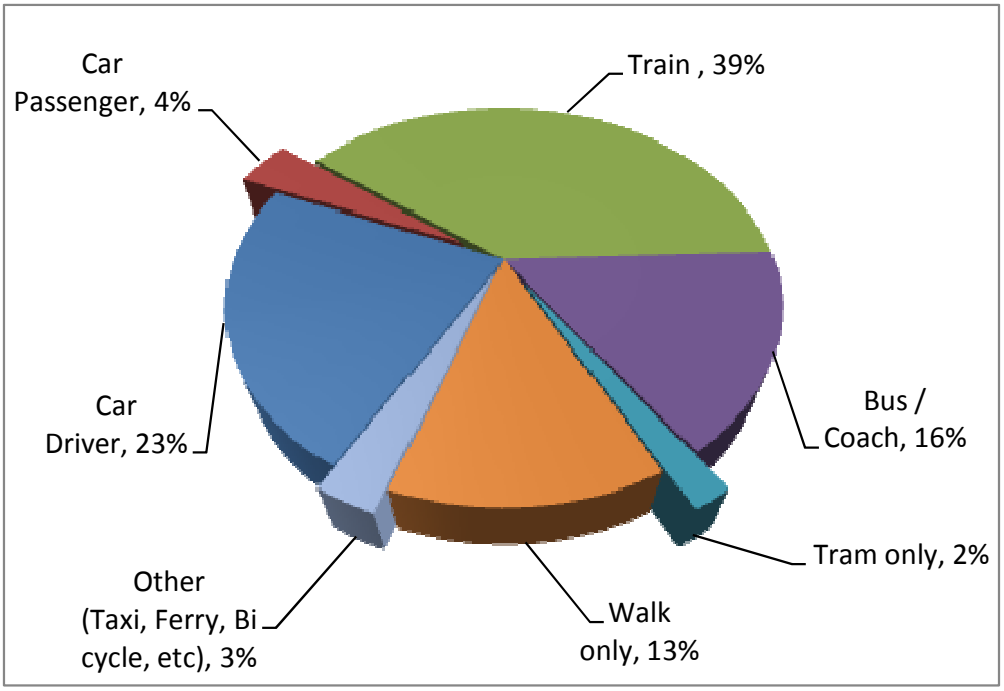
6.1.4 Sydney International Convention, Exhibition & Entertainment Centre

A detailed assessment of the travel mode and parking availability was undertaken and documented in the a Transport Management and Access Report prepared by Halcrow for the Sydney Harbour Foreshore Authority on 26 July 2011 (Halcrow Report). Details of the assessment are summarised below.

6.2 Journey to Work Data Assessment

The Halcrow report detailed an analysis of the Journey to Work (2006) data to determine the existing travel behaviour of the people working within the precinct. The results of the analysis are shown below in Figure 6.1.

Figure 6.1: Existing Travel Mode for the Precinct

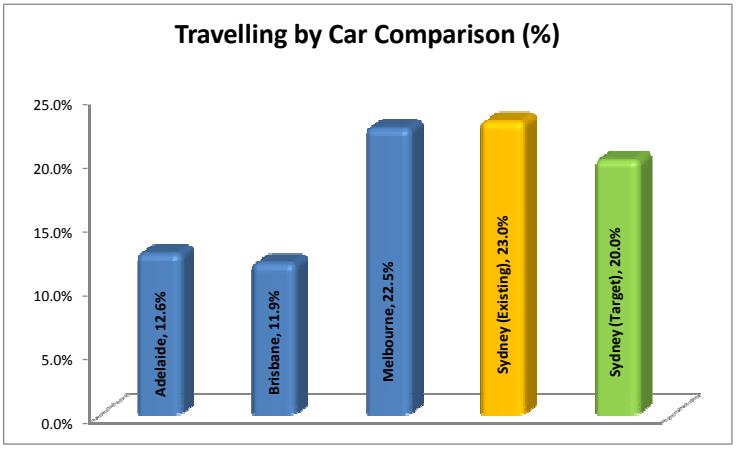


Source: Halcrow Report

The analysis revealed that there is a relatively high proportion of non-private vehicle modes used to access the site with 59% utilising public transport and 14% utilising active transport, namely walking and cycling.

Based on analysis of the parking provisions for similar sites, as well as considering their context relating to other transport infrastructure, a comparison of the proportion of people driving to these venues and to the proposed SICEEP development was undertaken. The results are summarised below in Figure 6.2.

Figure 6.2: Comparison of People Driving to Similar Venues



Source: Mott Macdonald

6.2.1 Car Reduction Target During Business Hours

Figure 6.2 above indicates two values for Sydney including the existing value of 23% and the target value of 20%. The target of 20% was initially set in the Halcrow report. The target aims to provide a reduction in the use of private vehicles as a travel mode. The reduction in car dependence reduces traffic on roads and is in line with the policies and guide lines set out to improve sustainable transport.

The target sets out an overall reduction of 3% of people driving to the venue, which may be considered marginal; however this proportionally represents a reduction in this particular mode of 13%. This is considered to be a satisfactory car reduction target and could be assisted in the future by the development of Travel Plans that outline public transport access and active travel alternatives available for each development within SICEEP.

A conservative (lower level) of traffic reduction has been adopted in the analysis contained within this report. This was done to identify an indicative 'worst case' traffic generation associated with the development. This would provide a robust assessment of the parking demand and traffic impact associated with the development. As with all assumptions included within this report the PPP proponent would be expected to make their own assessment of traffic and parking requirements.

6.2.2 Limitation of Journey to Work Data

The analysis undertaken was based on Journey to Work data and therefore resembles the travel mode for people working within the precinct. It is acknowledged that the travel mode for visitors may be different particularly given that their trips are less likely to be associated with work and therefore prefer other travel mode(s). For example, visitors to an event are less likely to travel alone and are therefore more likely to travel by car due to a reduction in costs associated with transport and / or parking. As such, the reduction target is appropriate to apply during typical business hours only (i.e. Monday to Friday between 9am and 5pm).

For the purpose of this analysis, it is assumed that the existing travel mode based on the Journey to Work data applies to day trips during the week as well as during the weekend only. The breakdown of travel mode during evenings, particularly during events, has been estimated based on several assumptions (as discussed throughout Section 6.2).

6.2.3 Travel Mode during Events (Visitor Behaviour)

Events associated with the site are generally organised to occur at the following times:

1. Typical working hours (i.e. between 8.30am and 6pm, Monday to Friday);
2. Weekday Evenings (i.e. after 6pm); or
3. Weekends (i.e. between 8.30am and 6-8pm or between 6-8pm and 10-11pm).

The breakdown of the travel mode based on the Journey to work data is more appropriate to adopt in (1) above; however during evenings and weekends it is anticipated that the travel mode will be different particularly given that the majority of visits are less likely to be work oriented and traffic on the road network is lower. The determination of an appropriate travel mode breakdown during events has been based on the Journey to Work data, and extrapolated to include several assumptions as follows:

- Larger events are usually held during weekday evenings or weekends;
- Visitors to events generally do not travel alone and are therefore more likely to travel by private vehicle and / or by coach;
- Private vehicles are preferred to public transport at night for safety reasons; and
- Major events are more likely to attract visitors from outer Sydney, interstate and from overseas, such that visitors are more likely to travel from nearby hotels via local buses, light rail, ferry or walking.

In light of the above the travel mode has been adjusted to more closely represent the likely travel mode split for visitors during evening events. The adopted travel mode split for existing visitors to evening events is shown below in Figure 6.3 and the comparison with the mode split based on the Journey to Work data is shown in Figure 6.4.

Figure 6.3: Estimated Existing Travel Mode during evening Events (%)

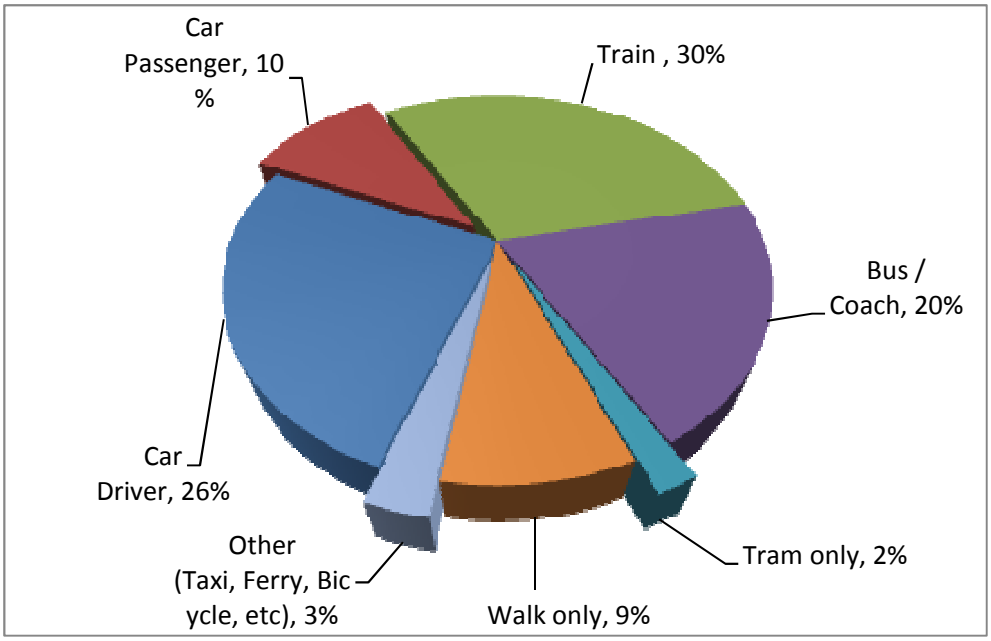
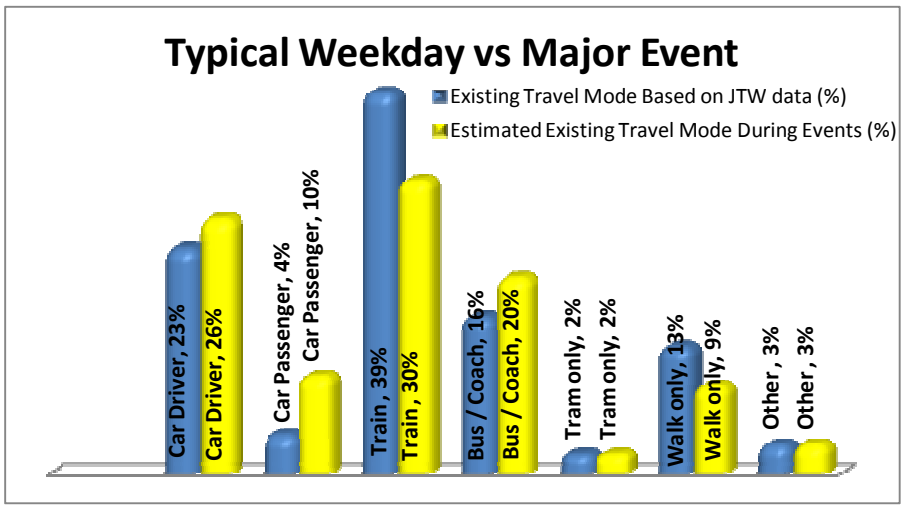


Figure 6.4: JTW Travel Mode vs evening Events Travel Mode



6.2.4 Car Reduction Target during Events

The car reduction target during typical business hours was to reduce the number of motorists driving from 23% to 20%. This represents a proportional reduction of 13%. The same reduction will be applied to the proportion of people driving during events such that the target will be to reduce the number of motorists from 26% to 22.5%.

This target has been adopted in determining the parking demand and trip generation.