5 DEVELOPMENT COMPONENTS

5.1 OVERVIEW

SICEEP includes the development of a combination of new multi-functional facilities and flexible spaces to enhance the existing convention, exhibition and entertainment facilities. The SICEEP development works consists of the demolition of the existing Entertainment Centre and Entertainment Centre car park (Haymarket) to give way to redevelopment into mixed-use precinct with residential/retail precinct; an increase in capacity of the exhibition and convention space - ICC, ICC Exhibition Centre, as well as the development of the new Multi-Functional Entertainment Centre (MFEC) – The Theatre.

5.2 RECONFIGURATION AND REALIGNMENT OF DARLING DRIVE

It is proposed that Darling Drive be reconfigured and realigned to accommodate the expansion of the ICC Exhibition Centre and the development of the loading dock facilities. It is noted that the existing configuration of Darling Drive provides two lanes per direction with a one directional off-road cycle lane on either side. This existing design was intended to also cater to truck parking, loading and queuing on Darling Drive prior to loading/unloading at the existing Exhibition Centre loading docks. The proposed design reduces Darling Drive to one lane per direction (with a storage lane/turn bay on the northbound lane at the access entrance to the ICC Exhibition Centre north carpark) but transfers truck parking, loading and queuing within the loading dock facilities.

The assessment of mid-block lane capacity of Darling Drive is essential to provide an indication of the ability of Darling Drive to carry existing and future traffic.

The AUSTROADS *Guide to Traffic Engineering Practice - Part 2: Roadway Capacity* states that the typical one-way mid-block lane capacities on urban roads under interrupted flow conditions are 900-1000 vehicles/hr/lane. Table 5-15 provides the traffic flow limits for different levels of service, in terms of peak hour flows for one and two lanes of unidirectional travel. Level of Service is used as a performance standard to assess effect of a development proposal on the traffic efficiency of the road network.

Table 5-15 LOS Criteria – Urban Road Peak Hour Flows

Level of Service	One Lane (veh per hr)	Two Lanes (veh per hr)
A	200	900
B	380	1400
C	600	1800
D	900	2200
E	1400	2800

It is estimated that the average peak hour volume on Darling Drive is approximately in the order of 550 vehicles per hour per direction. From Table 5-15, it can be stated that Darling Drive will still have the capacity to accommodate existing traffic plus additional traffic to be generated by the north and south car parks. Hence, the proposed reconfiguration of Darling Drive is

anticipated to be able to accommodate the average peak hour volume plus the additional volume to/from the carparks.

5.3 ROAD CHANGES TO EXHIBITION PLACE

The network represented in the future base model initially assumes the current configuration of the access lane from Darling Drive/Pier Street roundabout to The Theatre carpark and the proposed Northwest carpark in The Haymarket, including the access link to Pier Street on-ramp adjacent to Exhibition Place. Further design development works have introduced proposals for road changes to the access lane from the roundabout. A one-way system is being proposed whereby vehicles accessing the carparks will enter from the roundabout but will exit via a one way road running parallel to northern boundary of the northwest block of The Haymarket in the east-west direction then turning southbound parallel to Darling Drive merging into the outer lane on Darling Drive. This is shown in Figure 5-17. This new configuration will force vehicles exiting the carparks to travel southbound towards Ultimo Road.

Figure 5-17 Road Changes to Exhibition Place

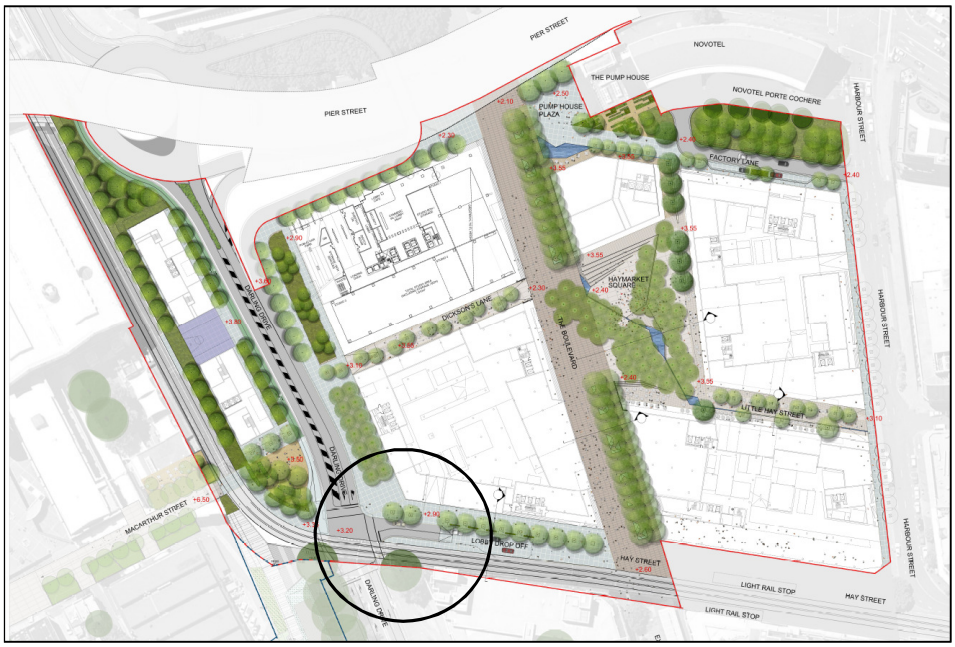
The above road changes will impact on the existing bus operators and coach access under the Pier Street viaduct. However, two new bus drop-off locations will be provided within the precinct.

The impact of this proposed road change has been modelled and the results are presented in Section 6.2 of this report.

5.4 NEW LANEWAY AT HAY STREET

A new laneway at Hay Street is being proposed to service the podium at the Southwest sector of The Haymarket Precinct. The laneway will also serve as a drop off for residents and visitors. The laneway is adjacent to the access driveway to the SW carpark and entry and exit will be controlled in the same manner as the carpark access via the signal system at the intersection with Darling Drive. This is similar to existing SEC carpark entry arrangements.

Figure 5-18 New Laneway at Hay Street



5.5 PARKING PROVISION

Car parking provision for the SICEEP will consist of parking facilities for Darling Central/Bayside and The Haymarket.

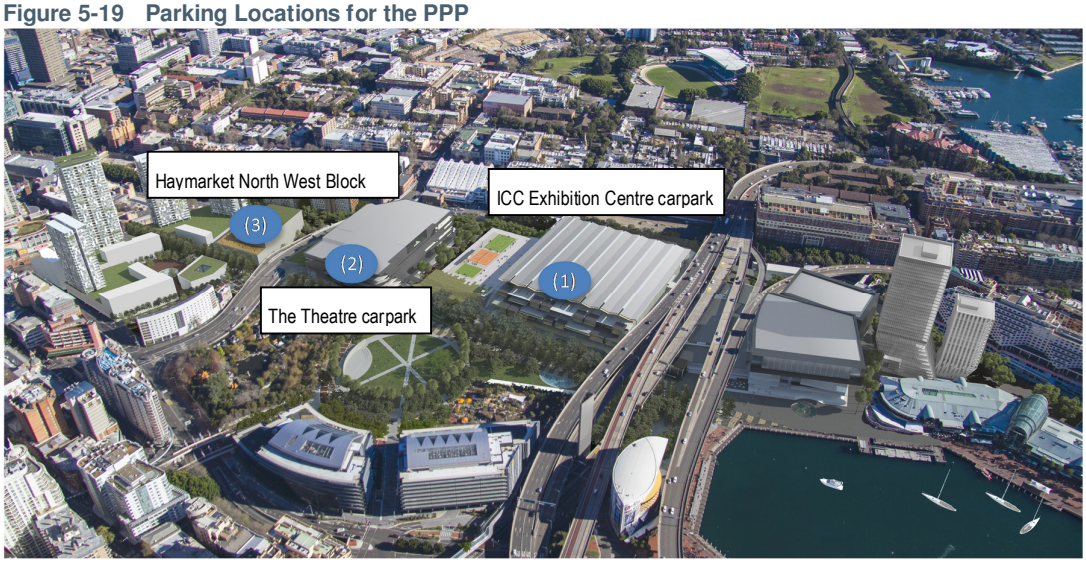
5.5.1 OVERALL PARKING FOR THE PPP AND THE HAYMARKET

Parking provision for the PPP will be located at:

- ICC Exhibition Centre carpark (719 spaces);
- The Theatre carpark (107 spaces); and,
- The Haymarket North West block carpark (400 spaces) located within The Haymarket Precinct.

Figure 5-19 shows the location of parking facilities for the PPP.

Figure 5-19 Parking Locations for the PPP



Source of Photo: Lend Lease Development

For the Darling Central/Bayside, parking provisions will consist of the redevelopment of the Convention and Exhibition Centre carpark (north carpark – Darling Central) and the new facilities for The Theatre (south carpark – Darling Central).

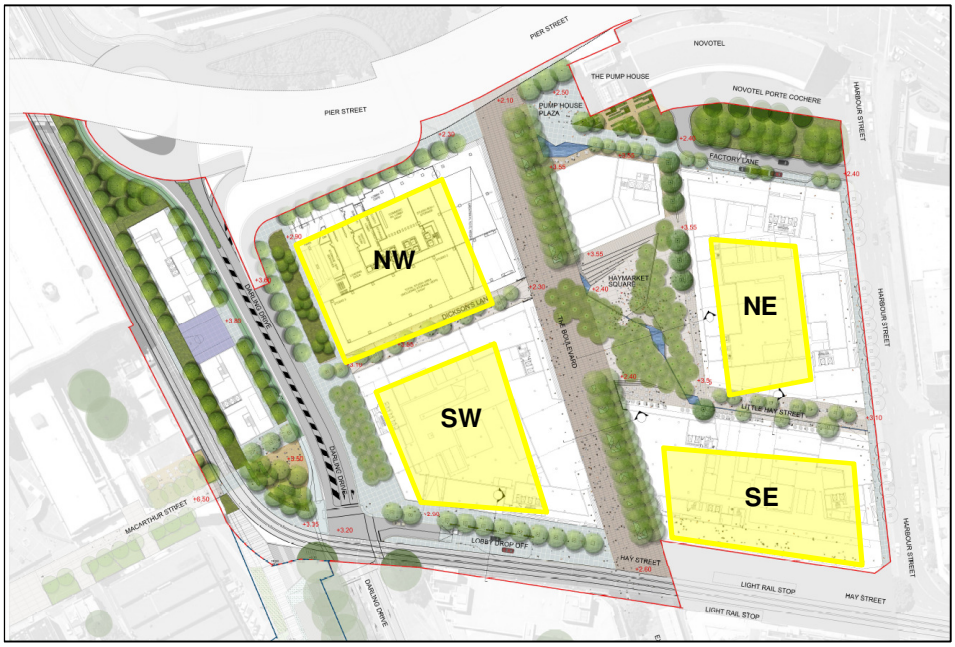
The proposed layout of the north carpark provides a total of 719 (711 standard and 8 disabled) car parking spaces and will have entrance and exit access arrangement along Darling Drive.

The south carpark (The Theatre) will have 107 car parking spaces and will have a new entrance and exit on the south side fronting the existing Entertainment Centre loading access road below Pier Street.

An additional 400 spaces will be provided within The Haymarket Precinct.

Parking provision for The Haymarket will consist of four blocks (NW, SW, NE and SE) with a total provision of approximately 1,440 car park spaces. It is intended that 400 spaces in the northwest block be allocated for public carpark and will be available for visitors to the SICEEP Precinct. The egress and exit point of the NW block will be at northern side facing Pier Street, the egress and exit point of the SW block will be maintained on the southwest corner off the intersection of Darling Drive/Hay Street, the egress and exit point of the NE block and the SE block will be provided on the east side fronting Harbour Street. This is shown in Figure 5-20.

Figure 5-20 Parking Locations for The Haymarket



A breakdown of the car park spaces is shown in Table 5-16.

Table 5-16 Proposed Parking Provision

Parking Location	Proposed Car Parking Bays	
ICC Exhibition North Centre car park (north – Darling Central)	719	
The Theatre car park (south – Darling Central)	107	
Total provision for PPP[1]		1226[1]
Residential / retail / student accommodation / commercial car park (The Haymarket Precinct) [1]		
North West Office/Commercial	50	
North East residential	350	
North residential	30	
South East residential	285	
South West residential	325	
Total provision within The Haymarket Precinct		1040
North West Public Carpark[2]	400[2]	
Total for Whole of Precinct		2266

[1] Current indicative design for The Haymarket Precinct

[2]This public carpark will consist of 400 car park spaces to be delivered under The Haymarket Precinct and will be available for visitors to the SICEEP precinct.

The existing car parking provision consists of 1,900 car park spaces at the Entertainment Centre carpark and 900 car park spaces at the Exhibition Centre, totalling 2,800 spaces. However, 600 spaces at the Entertainment Centre carpark are blocked off as per Darling Quarter development approval. In comparison to the existing, the overall proposed parking provision for the Precinct will be reduced by approximately 536 spaces. This is in line with the overall commitment to implement sustainable initiatives/transport measures and urban design that encourage the uptake of non car mode transport and reduce dependency on the private car vehicle within the Precinct. Sections 5.5.2 and 5.5.3 further justifies suitability and adequacy of the proposed car parking provisions for the proposed development.

5.5.2 CAR PARKING REQUIREMENTS FOR THE PPP COMPONENT

There are currently no specified guidelines on parking generation rates for dynamic facilities such as convention centres, exhibition halls and entertainment centres. The future parking requirements for the precinct can be guided by past trends or current patronage and by current strategies promoting sustainable transport where target mode share for car mode is set lower than the existing whilst supported by strategies to reduce car reliance and promote Green Travel. The assessment of the requirements can be based on the following:

- Demand Scenario 1: Event driven demand and capture rate – An analysis of SCEC and SEC historical data was undertaken to quantify the event driven car parking demand and capture rate within the precinct.
- Demand Scenario 2: Demand modelling based on average annual demand – Car bay population is based on AEG Ogden's event and patronage forecast with a view to provide maximum value for money to the State.
- Demand Scenario 3: Peak demand modelling – While the car park solution is based upon providing value for money to the State, it must be demonstrated that during occasional occurrence of simultaneous large events within the Core Facilities that adequate car bays are available to service this demand.
- Benchmarking – The number of car bays provided for core facilities are benchmarked against other convention and exhibition centres in Australia.

a) Demand Scenario 1: Event driven demand and capture rate

The carpark demand for the PPP is primarily driven by convention and exhibition events which typically occur during the day. Activities at the ICC and ICC Exhibition are anticipated to manifest a peak parking demand during typical working hours of the day.

Analysis of the SCEC car park between January 2010 and December 2011 demonstrates an average event capture rate of 21%. This capture rate is defined as the number of car park transactions (521,557) divided by the number of SCEC facility attendee days (2,558,929). The capture rate is used to approximate the strong correlation that exists between event patronage and the number of car park transactions.

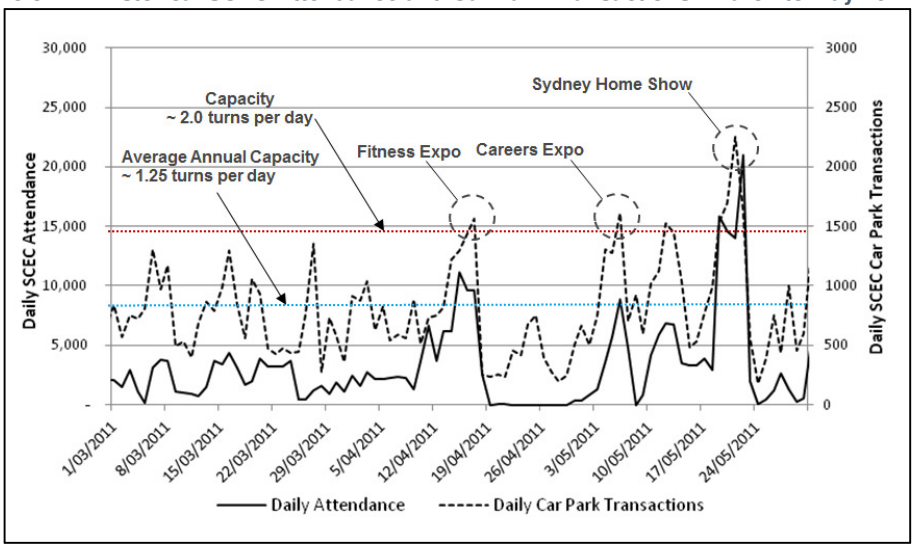
Analysis of the SEC car park demonstrates that demand is driven by a combination of entertainment event demand, plus low yielding early bird parking which is used as back fill where events are not occurring. The majority of entertainment events occur at night with records showing activities at the existing Entertainment Centre are likely to manifest a peak parking demand on a weekday evening, typically on a Friday evening.

b) Demand Scenario 2: Demand modelling based on average annual demand

In order to establish carpark requirements, modelling has been undertaken by W. Hamill Consulting to determine an optimum car park provision rate for the PPP. This modelling has been carried out based on average demand in order to maximise efficiency of the car park solution. A review of historical data revealed the following:

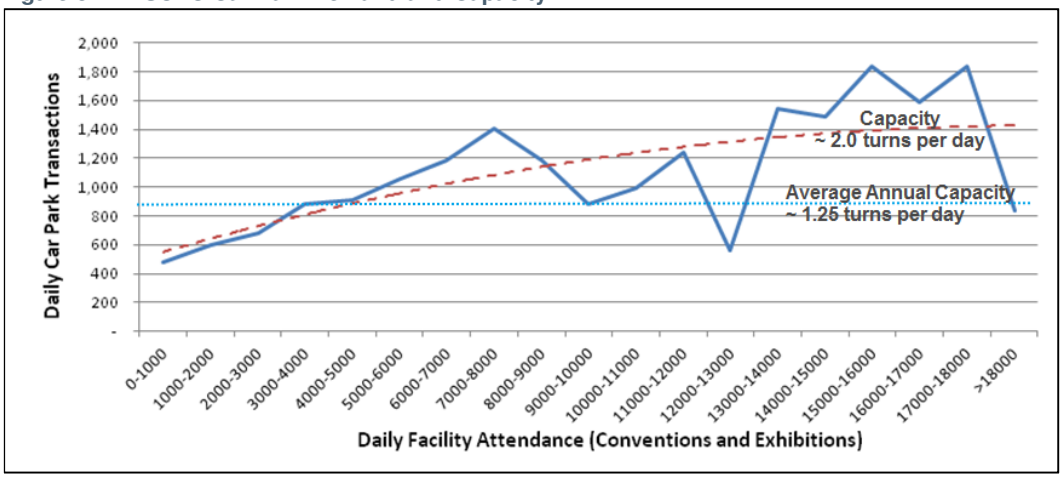
- The existing SCEC car park demonstrates an average capture rate of 21% as described in section a) above. Over a 2 year period the existing SCEC car park demonstrated an average capacity of 1.25 times the number of car bays. This means that each car bay can sustain a maximum of 1.25 transactions per day over the course of a year. While the actual capacity on a given day can exceed this value, the lower annual average takes into account the daily distribution of parkers including variation in demand during the week, as well as seasonal variation.
- The maximum car park demand occurred on Saturday 16 October 2010 during the International Motor Show exhibition. On this day, the SCEC car park recorded 2,806 transactions equalling 3.8 turns per bay per day. For peak day analysis in section c) the maximum capacity is assumed to be 4 turns per bay per day.
- The chart below demonstrates the daily SCEC attendance and number of car park transactions over a 3 month period. This demonstrates that for medium to large exhibition events the car park typically reaches a capacity at 2.0x the number of car bays.

Figure 5-21 Historical SCEC Attendance and Car Park Transactions - March to May 2011



- Furthermore, the trend line in the chart below (SCEC Car Park Demand and Capacity) demonstrates that the existing SCEC car park typically approaches capacity at approximately 2.0 turns per bay per day during large exhibition event days. On days where the existing SCEC facility has a low attendance (less than 1,000 attendees), there remains a baseline demand for approximately 500 car bays. This demand is largely driven by event organisers, event bump in/out day demand and casual parkers accessing the Darling Harbour precinct.

Figure 5-22 SCEC Car Park Demand and Capacity



Car park revenue is primarily driven by demand from conventions, exhibition and entertainment event attendees. Demand Scenario 2 patronage and car park demand for 2019 is summarised in Table 5-17 below:

Table 5-17 Demand Scenario 2 Patronage and Car Park Demand, 2019

Building	Forecast Annual Attendee Days	Annual Car Park Demand (@ 21% capture rate)
Conference/Convention	590,070	123,915
Exhibition	702,343	147,492
Entertainment	441,000	92,610
Other Casual Parkers		221,607
Total	**1,733,413**	**585,624**

Based on Demand Scenario 2 the average car park demand per day is 1,604 transactions. Therefore, 1,283 bays are required to satisfy this average demand (i.e. 1,283 bays x 1.25 = 1,607 transactions). Increasing the number of car bays above 1,283 bays will provide minimal increase to revenue. Therefore additional capital expenditure on car bays will not provide value for money to the State.

It should be noted that the current layout of facilities results in each car park primarily servicing different markets. The SCEC car park caters for day time convention and exhibition event attendees, whereas the SEC car park primarily caters to commuters and early birds along with a large capacity to service occasional peak entertainment events.

The proposal will result in a much higher efficiency as car parks and facilities are better located to The Theatre (where that activity has moved from the south east of the Precinct to the centre west). This will enable a greater number of car bays to be used for both day and night time events, which will provide a better optimised and value for money car park solution.

c) Demand Scenario 3: Peak demand modelling

In order to test the car park solution, an assessment is made of its performance under peak demand scenarios. These scenarios are expected to occur infrequently (approximately 3 times a year) when multiple large events occur simultaneously.

The analysis is based on population estimates calculated for each scenario based on a test event scenario of three (3) conferences in the ICC plus a concert at The Theatre.

The analysis assumes a target mode share of 20% for private car transport. This is in line with the key objectives of *Sustainable Sydney 2030* and the overall *Sydney Metropolitan Strategy* whereby planning policies are aimed at reducing reliance on cars whilst improvements to public transport and active transport facilities are aimed at encouraging public transport patronage and active transport mode use. Crucial to successfully achieving these objectives is adequate consideration of factors that have an impact on people's travel behaviour. These factors include but are not limited to:

- Availability of alternative modes
- Service frequency of public transport
- Accessibility to non-car modes
- Pedestrian amenities and quality of pedestrian environment, and
- Availability of parking

Section 3.2 of this report cites the high level of availability of public transport connections and the general frequency of operation by rail, bus, ferry, and light rail. The existing services facilitate access of patrons and visitors to the precinct via these modes of transport.

Moreover, the design proposal for the SICEEP puts emphasis on improving access to allow optimum use of public transport, walking and cycling in support of the strategy to achieve a target reduction of car mode share to 20%.

Striking a balance between parking supply and demand is critical to ensure that efforts to promote sustainable transport will be supported. From a planning perspective, providing excess parking will defeat the purpose of encouraging use of sustainable transport modes.

Three peak parking demand profiles have been considered:

a) Daytime weekday – Medium exhibition plus three conferences in the ICC;

b) Daytime weekend – Large consumer exhibition plus three conferences in the ICC; and

c) Evening – Large banquet plus a concert in The Theatre.

The above scenarios are expected to occur infrequently. In the 2010 and 2011 calendar years, SCEC had greater than 20,000 attendees on only 8 days, or 1% of total days. Three quarters of these occasions fell on weekends.

Table 5-18 Peak Demand Estimates

Facility	Maximum number of persons		
	Morning	Afternoon	Evening
ICC			
Plenary Space / Meeting Space[1]	4,250	4,250	-
Banqueting Space[1]	-	-	2,500
Sub-Total	4,250	4,250	2,500
ICC Exhibition			
Lower Exhibition Halls	12,690	17,951	-
Upper Exhibition Halls	1,075	1,075	-
Sub-Total	13,765	19,026	-
The Theatre			
Plenary	-	-	8,000[4]
Sub-Total	-	-	8,000
Total for the day	**18,015**	**23,576**	**10,500**
Car Parking Demand (target mode share for car mode) [2]	**3,603**	**4,715**	**2,300**
Car Park Bays required [3]	**948**	**1,240**	**2,300**

[1] This is in accordance with the populations density outlined in the NSW Project Brief.

[2] For Peak Demand 1 and 2 a target mode share of 20% for private car is assumed in line with the key objectives of Sustainable Sydney 2030 and the overall Sydney Metropolitan Strategy whereby planning policies are aimed at reducing reliance on cars whilst improvements to public transport and active transport facilities are aimed at encouraging public transport patronage and active transport mode use. For Peak Demand 3, the assumed mode share is higher at 22.5% (i.e. evening).

[3] Peak Demand 1 and 2 assumes that 26.3% of attendees are present at any one time as the demand is spread throughout the day. This assumption aligns with the maximum car park demand during the International Motor Show where parking turnover was observed to be 3.8 per car park bay per day. Peak Demand 3 assumes that 100% of attendees are present at the one time, reflecting the nature of the concerts and banquets

[4]During design development, the number of persons in the plenary may increase to 9,000 persons.

The above assessment of population based carparking demand confirms the maximum number of carparking spaces required for the Core Facilities during a weekday is 948, and on a weekend day is 1,240. On this basis, the proposed provision for the PPP of 1,226 car parking spaces is deemed to be sufficient. It is important to ensure that the SICEEP precinct contains adequate car parking for peak weekday demand as surrounding car parks will likely approach capacity due to commuter demand.

On weekend days and week nights car parks adjacent to the precinct have greater supply capacity without commuter use for business and tertiary institutions and as such the existing infrastructure can be efficiently used to satisfy rare peak demand. Satisfaction of car park demand for each of the peak parking scenarios is presented in Figure 5-23 and Table 5-19 below.

Figure 5-23 Precinct and Surrounding Car Park Locations

Table 5-19 Peak Demand Car Park Solution

Map ID	Car Park	Bays	Availability[3]		Peak Demand 1	Peak Demand 2	Peak Demand 3
			Day	Evening			
1	ICC Exhibition Centre	719	719	719	719	719	719
2	The Theatre	107	107	107	107	107	107
3	West of The Haymarket Square and South of Pier Street	400	400	400	130	400	400

Map ID	Car Park	Bays	Availability[3]		Peak Demand 1	Peak Demand 2	Peak Demand 3
4	Harbourside[2]	1387	152	568	-	22	568
5	1 Dixon Street	100	14	53	-		53
6	Darling Quarter	600	66	246	-		246
7	Darling Park	680	110	410	-		224
8	320 Harris Street	260	28	106	-		
9	Market City[1]	614	68	250	-		
10	World Square[1]	557	62	227	-		
11	Star City[2]	2500	1282	1588	-		
12	Citigate Central (Thomas St) [1]	600	67	245	-		
	Total	8264	3067	4911	948	1240	2309

[1] Cited in Halcrow Traffic report with availability within 5 minutes walk

[2] Cited in Halcrow Traffic report with availability within 5 minutes travel

[3] Availability is based on parking occupancy data cited in the Halcrow Report and MottMacDonald Report.

Table 5-19 above presents parking availability in the vicinity of the precinct and a proposed car park solution to address the peak demand for Scenario 2 and 3. The offsite carparks listed are within 5 minutes' walk or 5 minutes travel. Occupancy data presented in the Halcrow Report provide an indication of parking availability during the day (1:00 p.m.) and evening (6:00 p.m.). It is also further stated in the Mott MacDonald Report that parking occupancy for off-site parking spaces is 89% at 1pm and 59% at 6pm and consequently decreases later in the evening. As a parking strategy to manage Demand Scenario 3, it is proposed that the available off-site parking supply be considered to address additional parking supply requirements during the peak demand.

On the basis of the above three scenarios, it is concluded that the 1226 carparking bays proposed for the PPP is sufficient to serve the peak carparking demands of visitors, while also offering the best value for money for the State. Peak days are likely to be infrequent and therefore it is more efficient to make use of the existing car park supply surrounding the SICEEP precinct rather than construct additional car bays that will be used infrequently. Additionally, the construction of additional carparking bays to satisfy infrequent peak demand scenarios is not justified by the additional revenue as the marginal increase of the carpark is going to provide a diminishing return on each additional carparking bay, particularly so when catering to peak demand scenarios.

d) Benchmarking

Table 5-20 below sets out the number of car bays provided for similar Australian facilities in relation to venue capacity. This demonstrates that the number of car bays planned for ICC Sydney is similar to Melbourne and in excess of Adelaide and Brisbane.