# 9 CONSTRUCTION TRAFFIC IMPACT AND MANAGEMENT

## 9.1 BACKGROUND

A Preliminary Construction Management Plan has been prepared by Lend Lease Project Management and Construction (LLPM&C). The document outlines the preliminary management plans relating to the construction works in the PPP and The Haymarket.

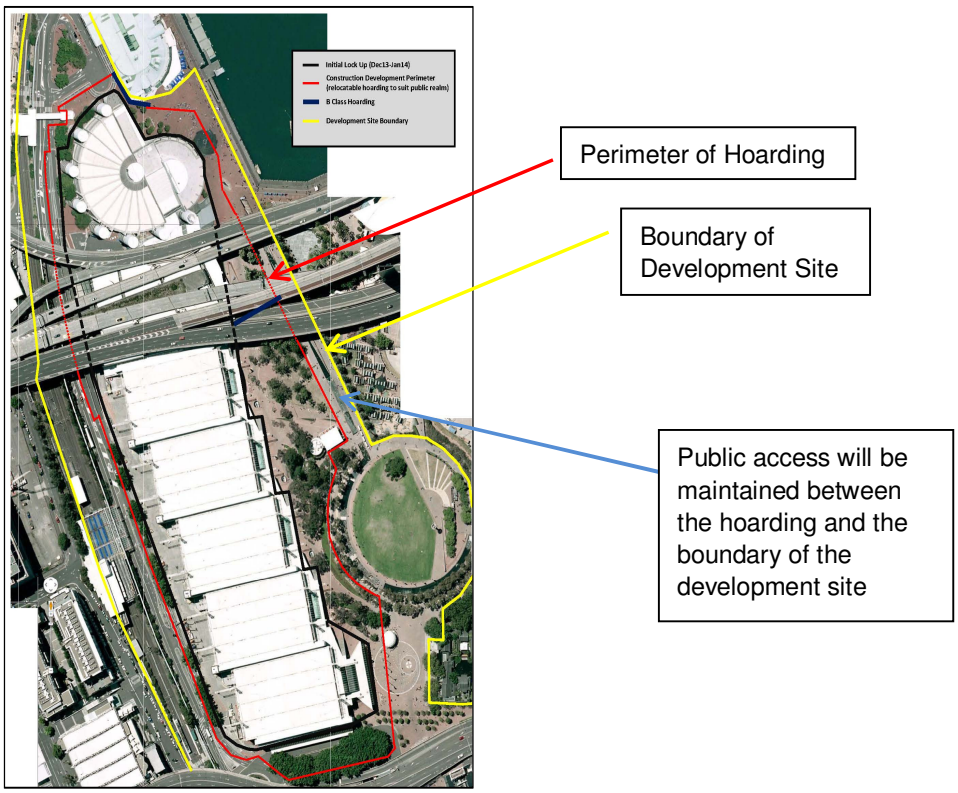
This section presents excerpts from the above document relevant to Traffic and Pedestrian Management during construction including description and layouts of the planned mitigation arrangements demonstrating how, during the development, the pedestrian and vehicular movements will be addressed to minimise impact.

## 9.2 SITE BOUNDARY

### 9.2.1 NORTHERN AND CENTRAL SECTORS

Figure 9-34 below depicts the different hoarding boundaries within the Northern and Central Sectors and identifies areas accessible to the general public and areas cordoned off for the construction works.

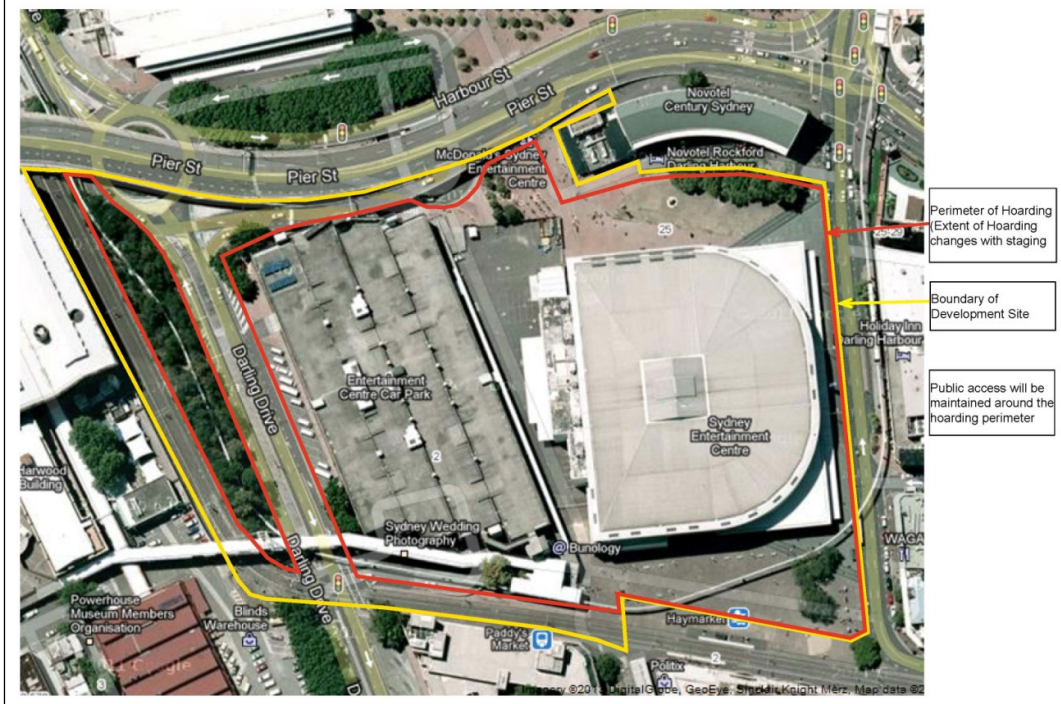
**Figure 9-34 Construction Site Boundaries**



### 9.2.2 SOUTHERN SECTOR

Figure 9-35 below depicts the indicative hoarding locations within the Southern Sector and identifies areas accessible to the general public and areas cordoned off for the construction works. The construction of the Southern Sector buildings will proceed in stages with further detail provided with stage 2 DA submissions

**Figure 9-35 Construction Site Boundaries**




## 9.3 CONSTRUCTION VEHICLE ACCESS

The primary construction heavy vehicle egress will be via the established Darling Drive network to the West of the development. This will involve vehicles accessing Darling Drive from the North using Pyrmont Bridge Road, Pyrmont and vehicles accessing Darling Drive from the South using Ultimo Road and Harris Street, Ultimo.

In the later phases of development of the precinct, construction access will be via Harbour Street to the east of the southern sector.

Traffic movements and vehicles will conform to current Roads and Maritime Services (RMS) requirements.

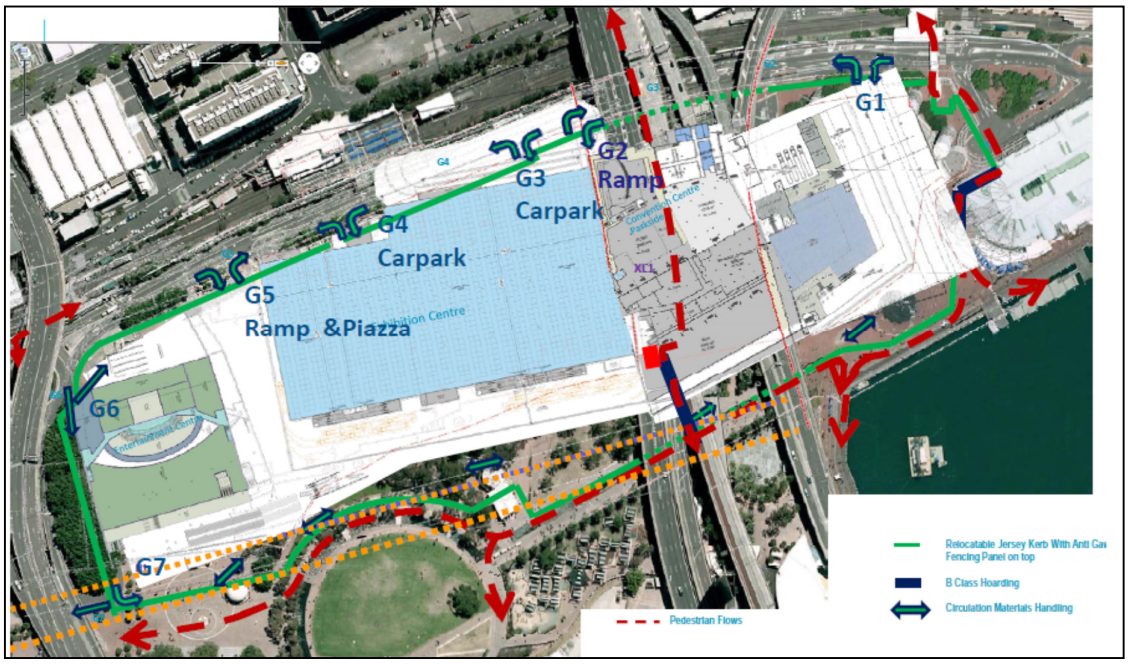
All vehicles accessing the site will conform to the “Traffic controls at work sites” manual, and Australian Standard 1742 – Traffic control, and only certified traffic controllers shall be used to direct vehicles outside of the construction boundaries. Traffic movements and vehicles to the site shall maintain the existing entry and egress points currently used by the existing Precinct, especially to Darling Drive.

## 9.3.1 NORTHERN AND CENTRAL SECTORS

The main entry and exit for construction materials and vehicles shall be from the west, off Darling Drive, and from the south utilizing the current roadway access to the SHFA maintenance compound located under the Pier Street overpass.

All vehicles will use the entry and exit gates G1 to G7 as detailed on Figure 9-36.

**Figure 9-36 Access to Site – PPP Precinct**




The secondary construction light vehicle egress will be via the established road network systems, including Pier Street.

On site construction access routes will be established, within the construction boundary, along the east side of the new Exhibition/Entertainment buildings and to the rear of new Convention Centre to facilitate materials handling for tower/crawler cranes and forklifts. Hoists will transport personnel and lighter materials within each building.

Construction traffic to and from the development site will be subject to constraints imposed by the current traffic network. Advice received from the RMS at various meetings is that increased traffic to Darling Drive and surrounding road network would be best suited to non-peak hour times as such we will ensure that our bulk deliveries will be coordinated to these times.

It is noted, however, that the construction vehicle movements will not exceed the current vehicular movements that have been monitored, from the existing convention centre, exhibition centre, multi deck carpark and entertainment centre into the surrounding road network.

The truck movements anticipated will be spread evenly though out the construction programme. Usually the bulk truck movements would be during the excavation phase, however, our adopted design means there is no big bulk excavation activity thereby reducing the heavy vehicle activity upfront.

During the course of the development it is anticipated that vehicle movements for such trades as Demolition, Civil, Piling, Detail Excavation, Structure, Facade, Internal Finishes & Public Domain works shall occur.

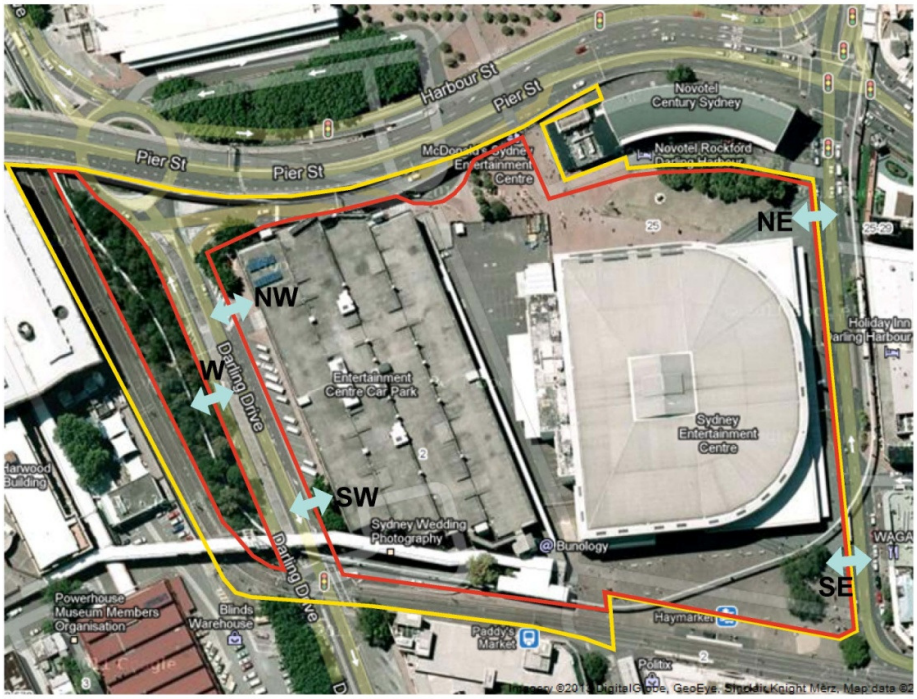
Based on the programme and volume of materials required, it is estimated that approximately 3 – 4 trucks per hour will access the site for the duration of the development. In such instances, such as concrete pours, this volume will increase, but shall be controlled (as the preferred supply plant is within 1km of the development) to alleviate any congestion to the surrounding traffic network.

## 9.3.2 SOUTHERN SECTOR

The main and entry for construction materials and vehicles servicing the west, north west and south west development lots shall be from the west, off Darling Drive. The south east, north east and north development lots will be access from Harbour Street.

All vehicles will use the entry and exit gates located generally as shown on Figure 9-37 .

**Figure 9-37 Access to Site – The Haymarket Precinct**




On site construction access routes will be established within the construction boundaries with hoists transporting personnel and materials within each building.

The truck movements anticipated will be spread evenly throughout the construction programme. Usually the bulk truck movements would be during the excavation phase, however, our adopted design means there is no big bulk excavation activity thereby reducing the heavy vehicle activity upfront.

During the course of the development it is anticipated that vehicle movements for such trades as Demolition, Civil, Piling, Detail Excavation, Structure, Façade, Internal Finishes and Public Domain works shall occur.

Based on the programme and volume of materials required, it is estimated that approximately 3-4 trucks per hour will access the site for the duration of the development. In such instances such as concrete pours. This volume will increase, but shall be controlled (as the preferred supply plant s within 1km of the development) to alleviate any congestion to the surrounding traffic network.

## 9.4 PARKING

Onsite parking will not be allowed during construction. Measures will be implemented to encourage the use of public transport systems already in place for construction staff and workers. This will be conveyed through all subcontract documentation and site inductions. Timetables shall be provided for all bus routes and the three closest railway stations serviced by bus routes.

## 9.5 PEDESTRIAN ACCESS

### 9.5.1 NORTHERN SECTOR

The existing drop off and pick up area to the west of Harbourside is to be maintained in its current formation including existing vehicular access to and from Darling Drive. It is envisaged that this area's function for deliveries, bus and taxi movement, shall not be impeded by construction traffic entering the site to the south. Traffic control to this entry is to be maintained and monitored during the course of the works. Through consultation with relevant bus and taxi representatives procedures shall be established to ensure harmony of vehicle movements within the area. This approach is used to ensure that Stakeholders of Harbourside, bus and taxi companies are least impacted by the works to the Facilities

Current pedestrian movements from Novotel Car Park across existing overhead pedestrian walkway and road crossing from lightrail, to Darling Drive, shall be maintained temporarily during the course of construction to the Northern Sector. This will involve protective hoardings which will direct pedestrians to Harbourside, along the existing footpath. This will still provide public access to existing bus stop and taxi rank. The walkway will be demolished in March 2014. The existing public pedestrian access south along Darling Drive, on the eastern side, will be made redundant during the course of construction due to the location of the new Convention Centre building, construction access and egress for vehicle movements and alterations and realignment to Darling Drive.

Public access to Darling Harbour shall be provided to the south of the existing Harbourside building. A full overhead protective hoarding 2meters wide shall be installed for the safety and protection of the general public during the Development Phase of the new Facilities.

The current Western Distributor pedestrian access to Parkside is to be maintained during the course of the initial onsite setup and other construction activities during the Development Phase. The existing stair from the flyover to the Exhibition Halls shall be maintained until relocation is required to allow the progress of construction activity. A temporary stair will be provided to maintain access to the existing ground level with the existing lift. Both shall be monitored and maintained to provide access to an overhead protective hoarding, delivering pedestrian flow through the construction area into the public domain. The existing public access to the eastern side of Parkside, adjacent to the stream, is to be maintained during the course of construction but subject to realignment and relocation during the Public Realm works.

## 9.5.2 CENTRAL SECTOR

The existing public pedestrian access north and south along Darling Drive, on the eastern side, and the southern end of the existing Exhibition Halls, will be made redundant during the course of construction due to the location of the new Exhibition Halls, construction access and egress for vehicle movements, materials handling and alterations and realignment to Darling Drive.

This will be facilitated by redirection and relocation, from the west, of the existing pedestrian access from Quarry Street, Pyrmont Street and the light rail station. This entails the creation of a new pedestrian pathway from the lightrail station, on the western side of Darling Drive, south, under the Pier Street overpass, creating a pedestrian crossing on the southern side of the roundabout accessing Darling Harbour between Pier Street down ramp and the existing multilevel car park within the South Sector. Once these works are completed the existing pedestrian crossing to Darling Drive is to be made redundant.

The public walkways around and through Tumbalong Park will remain available during the course of the Facilities construction. This will involve the western walkway around Tumbalong Park, Tumbalong Park, and the open area to the front of the Chinese Gardens to be available until the staging of the Public Realm works. This ensures public connectivity from Pier Street to Darling Harbour and vice versa.

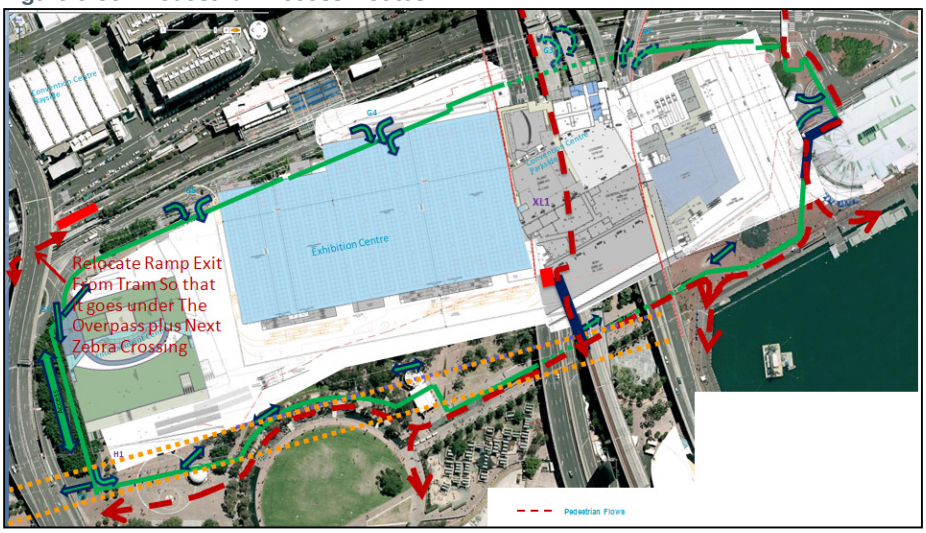
The current perimeter hoarding/fence locations shown are general locations to achieve and maintain public access, with further detailed locations to be accepted and agreed for construction safety requirements and allowing access to existing services for maintenance

Due to the nature of the site and close proximity to general public, the main site personnel/office access shall be from Darling Drive and eastern side of the site, utilising entries already established by the current operators.

Satellite amenities compounds for the workforce, shall be established along the eastern side of the site, to allow ease of access for construction personnel from existing public transport systems. These shall be relocated into the completed halls upon their completion to allow for public works to commence.

Figure 9-38 details proposed pedestrian movement diversions to ensure that the Public are diverted safely around the site. This allows, with minor diversions, for the same level of egress that is currently available

**Figure 9-38 Pedestrian Access Routes**



The light rail station passenger ramp is to be altered so that passengers are directed to the south of the site. A new zebra crossing will be installed over Darling Drive. Pedestrians can then walk down the southern side of the Pier Street overpass and along the eastern side of the site.

### 9.5.3 SOUTHERN SECTOR

Development of the Southern Sector will be undertaken in stages with pedestrian access adjusted progressively to respond to those stages. Future Stage 2 DAs will provide further detail regarding pedestrian access during construction generally adopting the following principles:

- Hoardings will be erected to prevent public entry into constructions areas;
- Public access along existing desire lines around construction areas will generally be maintained unless noted otherwise below but subject as well to Stage 2 DA;
- The existing elevated pedestrian walkway from Harris Street will be terminated at the western side of the light rail corridor with a new lift and stairway provided to connect with Hay Street;
- The elevated walkway between the SEC carpark and the SEC will be closed from commencement of demolition of the SEC carpark;
- The southern portion of the Boulevard will be completed by December 2016 to connect with the Northern and Central Sector portion of the Boulevard;
- Pedestrian access along Darling Drive will be controlled during realignment works to facilitate the staged construction of the road works and to ensure public safety.

The pedestrian diversion from Exhibition light rail station (refer 9.5.2 above) will be coordinated with the construction works of the Southern Sector.

## 9.6 TRAFFIC MANAGEMENT MEASURES

Appropriate directional signage and traffic control will be provided to ensure vehicles enter and leave the site with minimal disturbance to other road users and so they are advised of any changes in road conditions.

Temporary road closures, single lane access and relocations during the construction period will be subject to coordination with the appropriate authorities. All traffic related issues and changes shall also be presented to Stakeholders as part of the consultation process. These will, wherever and whenever possible, are carried out in non-peak periods.

## 9.7 SUMMARY

The traffic and pedestrian management plan outlined in the Construction Management Plan is generally aimed at mitigating any potential impacts that may be attributed to the construction works. Risks to the public and the construction crew may be minimised through the implementation of the construction management plans specifically prepared for the SICEEP construction works. The Plan will be regularly updated to address any new outcomes identified through constant monitoring as the works progress.

# 10 TMAP PACKAGE OF MEASURES

## 10.1 INTRODUCTION

This section identifies current and proposed initiatives aimed at ensuring that transport and accessibility to the SICEEP is managed according to the desired outcomes and to ensure satisfactory performance of the transport network in accordance with sustainable strategies. A package of measures has been identified to support the proposed development of SICEEP and reduce dependence on the private car.

The package includes a range of initiatives, addressing:

- Travel Behaviour Change;
- Transport operations by providing sufficient service thresholds to ensure quality of transport service and thus, providing incentives for modal shift;
- Infrastructure measures to improve walking, cycling and public transport opportunities while maintaining adequate vehicle access; and
- Intersection improvements to maintain adequate intersection performance in the long term.

The initiatives discussed below should be implemented as an integrated package to realize its benefits. A number of the measures are interrelated and will achieve its maximum benefits when implemented in a coordinated manner.

## 10.2 TRAVEL BEHAVIOUR CHANGE

Community attitudes towards non-car travel are affected by a wide range of issues, from peer attitudes, privacy and security, flexibility of timing, multi-purpose trips, and confidence of the return-home trip.

A number of community and government based initiatives have been put in place in various developments over recent years endeavouring to alter people's behaviour and to decrease the number of people travelling by private car. The most common behaviour change strategy is to promote the use of public transport for routine travel by encouraging individuals to reconsider their need for the use of a private car. In the case of SICEEP, the aim would be to expand the strategy to promote the use of public transport not only for daily routine travel but also for special travel to events. Achieving reduced car mode travel by improving public transport, pedestrian and cycling facilities is increased when their introduction coincides with a marketing campaign informing potential users of the benefits of using these modes.

A travel plan framework should be developed to outline the following:

- Existing transport services available in the local area;
- Access to information on travel to the site;
- Review of local pedestrian and cycle network;
- Timescale for initiatives; and,
- Details for future monitoring.

The main means of achieving behaviour change for travel to the SICEEP is to ensure that the required public transport services and infrastructure are made available (e.g. bus routes,

footpaths, cycle-ways), and then to ensure that the community knows of their existence, and the benefits to them for using the facilities.

Strategies to effect behavioral change during the operations include (but not limited to):

- Marketing event tickets at the SICEEP with subsidised public transport travel cost to encourage attendees to enjoy the benefits.
- Up-to-date route and timetable information should be provided at each public transport stop. Leaflets and timetables should also be made available through letterbox drops, and be readily available at local shopping and community centres.
- Carpark design to incorporate car spaces for small cars, carpooling, electric vehicles and hybrid cars;
- Preferential parking for car share operations
- Incentives for public transport users and rewards for employees who use cycle, public transport, carpooling, hybrid, electric or alternate fuel vehicles;
- Wayfinding, signage and infrastructure to provide real time information on travel options;
- Provide end-of-trip facilities such as storage rooms, lockers, showers and change rooms;
- Organise a 'BUS' – Bicycle Users Group to encourage group travel and 'buddy' system for safe travel
- Community discussions throughout the development of the precinct would be an additional forum for promoting public transport, cycle and pedestrian information to residents and visitors; and,
- Preparation of a Green Travel Plan for the site to encourage walking, cycling, use of public transport and car sharing.

During the construction stage, measures can also be put in place to encourage workers to travel by public transport, cycle and walking. These include, among others:

- A site travel plan can be prepared and distributed to the construction team to ensure sufficient information is available for them to make judgement on their travel choice;
- Temporary end-of-trip facilities (i.e. cycle parking, lockers etc.) can be made available;
- Where feasible, shuttle service to a major public transport interchange can be provided at certain times during shift change especially during the early hours or late hours during the day.
- Parking can also be restricted to discourage car drivers amongst the workers. Preferential parking privileges can be given to carpooling or car share systems; and,
- Forums prior to start of the construction works and follow-up meetings would assist in the exchange of information on issues that arise regarding travel to and from the worksite.

Whilst infrastructure (road and rail) and public transport service provision are costly to deliver, travel demand management measures are usually inexpensive to implement. This include activities such as setting up information kiosks in the area and at bus stops, and initiatives to ensure employers or event organisers provide transport information, and programs to support car-pooling opportunities and public transport use, and non-transport support such as onsite services.

## 10.3 PUBLIC TRANSPORT INITIATIVES

Current and future improvements to existing public transport services are being planned and implemented by TfNSW. The design of the SICEEP will ensure that direct connections and

pedestrian linkages are in place to encourage and promote public transport use. Constant liaison with TfNSW may be required to be abreast with information on new updates on the status of development plans and actions for public transport improvements. By doing this, proactive planning can be undertaken to address shortfalls, if any, as the SICEEP development progresses.

### 10.3.1 CITY RAIL

Rail infrastructure initiatives focus on the existing rail system. The proximity of the existing rail stations puts the stations within walking catchment. Improvements being planned by TfNSW are aimed at providing better and more efficient services.

Darling Harbour Live's design proposal incorporates improved connectivity to Town Hall and Central Station via the enhanced pedestrian network consisting of the main boulevard, new east-west connections, and new pathways within the SICEEP. The interface of these new pathways with the external pedestrian network is primarily aimed at improving accessibility and enhancing connectivity to the public transport system and to active transport modes.

### 10.3.2 LIGHT RAIL

Darling Harbour Live's design incorporates improved connectivity to the Light Rail Stations on Darling Drive via new pathways and pedestrian crossing facilities on Darling Drive. These connections will enhance access to the light rail transport system and encourages patronage of the system.

Construction of the Inner West Light rail extension project is now underway and on track for completion around early 2014. The extension will run along the former Rozelle rail freight corridor connecting Central Station to Lilyfield and through the inner west to Dulwich Hill.

The extension is expected to improve access to public transport and connectivity within and around the Precinct such that new connections will form to surrounding shopping and entertainment districts fostering better public transport integration while promoting intermodal transfers between light rail, bus, cycle, heavy rail (Lewisham and Dulwich Hill stations) to travel to the Sydney Fish Markets, Star City, Paddy's Markets, Capitol Square and Leichhardt Marketplace.

In Dec 2012, the NSW Government also announced a commitment to build a new CBD and South East light rail line extending from Circular Quay through George Street to Central Station and to the University of NSW via Anzac Parade and Alison Road. The project includes the creation a pedestrian zone shared with light rail on George Street between Hunter Street and Bathurst Street with very limited car vehicle access.

This future addition to the light rail network will significantly improve light rail linkages to the SICEEP and allow commuters to change between modes with heavy rail, bus and ferry services at Circular Quay, Wynyard, Town Hall and Central Stations.

### 10.3.3 BUS NETWORK

With the expansion of the light rail system in the Sydney CBD, the NSW Government aims to streamline the CBD bus network to achieve an integrated transport solution to reduce congestion in the CBD. The CBD bus network will be redesigned to create simpler, faster and better bus services. Elizabeth Street will be the main north-south bus route while Park Street and Druitt Street will be the main east-west bus routes. Town Hall will continue to be the main bus interchange for commuters to and from the SICEEP. This combined with the introduction of

integrated ticketing /networks together with bus priority across Sydney will enhance bus service frequency and availability and enable ease in intermodal transfer between buses and other modes of transport.

### 10.3.4 FERRY SERVICES

The proposed future western ferry terminal at Barangaroo South is anticipated to be the base for the Parramatta River services for Parramatta, Balmain, Birkenhead and Pyrmont. The new terminal will be delivered as part of the development of the Barangaroo South precinct and will be located some 1.2 kilometers from Convention Centre but adjacent to the existing ferry wharf at Circular Quay. It is expected that the terminal will link Barangaroo with the existing ferry network and improve ferry services to Darling Harbour.

## 10.4 INFRASTRUCTURE MEASURES

The infrastructure measures are a combination of ongoing initiatives being implemented by others and planned improvements within the SICEEP.

### 10.4.1 WALKING

It is anticipated that the principal pedestrian link between Town Hall Station and Darling Harbour would be Bathurst Street with pedestrian crossing across Harbour Street mainly at the east-west elevated pedestrian walkway from Day Street or the elevated pedestrian ramps at Liverpool Street while the principal route between Central Station and Darling Harbour would be along the Ultimo Pedestrian network and Quay Street to Darling Drive together with the proposed north-south Boulevard within the Precinct.

Ongoing initiatives to improve pedestrian connectivity to the south/southeast with the Ultimo Pedestrian Network generally address access issues to Central Station. The proposed north-south boulevard within SICEEP will extend the UPN and significantly improve the north-south access routes.

To and from Town Hall Station, connectivity can be improved focusing on the existing east-west crossings at Bathurst Street, Market Street, Liverpool Street and Goulburn Street. Bathurst Street pedestrian access will mainly serve the Darling Central (north) and Liverpool Street will mainly serve Darling Central (south) while Market Street pedestrian access would mainly serve Bayside.

Liverpool Street will be an important pedestrian link to The Theatre and ICC Exhibition since it provides a direct pedestrian link to Tumbalong Park and it is anticipated to continue to be the major pedestrian access crossing over Harbour Street, being closest to Bathurst and providing the shortest path.

Whilst the Harbour Street/Pier Street intersection can be anticipated to also carry pedestrian traffic, it is not considered as an ideal route for pedestrians to and from George Street but can still potentially be a pedestrian access route for pedestrians walking to and from the vicinity of Dixon Street and Goulburn Street. As noted in the TMAP Report by Mott MacDonald, the intersection design is not suitable for high pedestrian traffic for safety reasons. It is also further noted that this intersection will also be a major route for event related vehicle traffic to and from the carparks. Hence, it is not advisable to promote this route as a major pedestrian link as improvement options to the intersection would be very limited and may not have significant positive impact.

It may also be worthwhile to focus efforts on improving pedestrian access to and from public transport nodes using existing facilities through interactive wayfinding and signage, coordination and pedestrian priority at signals and pathway enhancements.

### 10.4.2 CYCLING

The provision of new cycling facilities linking the development to the external cycle network and the installation of support facilities within the precinct are aimed at encouraging the use of cycle and increasing the mode share according to the current targets for sustainable transport.

### 10.4.3 PARKING

Variable Message Signs will be displayed at locations leading up to ICC Sydney, advising the status of parking in the Car Parks. These signs will indicate “Reserved Parking Only” for large events, “The number of spaces available” or “Car Park Full “. The VMS is critical to manage the entry of vehicles into the precinct and will be a key instrument in directing traffic to suitable locations for parking, hence reducing travel time on the network and potentially road user delays.

In addition, appropriate parking policies are incorporated to further reduce car mode split, including:

- Reducing availability. The provision of unconstrained parking is not cost-effective and also encourages car usage;
- A pricing scheme to control the use of parking and discouraging driving by both staff and visitors;
- Carpooling measures to encourage higher occupancy vehicles schemes; and
- Parking management such as the allocation of preferential spaces for car sharers or multi-occupancy vehicles, and reduced parking fees.

## 10.5 INTERSECTION IMPROVEMENTS

The results of the modelling indicate that intersection operational performance can be improved through signal coordination and optimisation of the signal timings. However, these changes cannot be imposed only on a single intersection independent of the network. It should be noted that the SCATS system is a coordinated adaptive system that operates on a fixed-time cycle but is programmed to adapt a cycle phasing appropriate for the traffic flow volumes detected at the intersection. The SCATS network is operated and maintained by the RMS and can be altered to suit future traffic demand. Hence, liaison with the RMS will be required to ensure that future traffic forecasted for the SICEEP are considered and measures can be put in place to aid in minimising intersection delays during specific time periods and on special days.

# 11 CONCLUSION

The key traffic and transport management objective for the SICEEP is to reduce potential traffic impacts and deliver a transport management plan to proactively address any potential impacts can be mitigated and that operational efficiency of the network can be maintained.

The assessment was undertaken to assess existing and future transport conditions surrounding the precinct with consideration of the Whole of Precinct development that will be delivered in stages. The outcomes of the assessment note key features of the development that would support the overall efficiency of the transport network servicing the site include the following:

*Public Transport*

- The site is well served by public transport – rail, LRT, bus and ferry.
- The development design provides enhanced access to the public transport services.
- There is improved connectivity to the light rail via new pedestrian linkages and crossing facilities.

*Parking*

- Parking provision for the PPP facilities will consist of a total of 1226 spaces. This level of parking provision together with the available off-site parking is deemed adequate to service the expected peak parking demand for the site and at the same time will deliver the best 'value for money' car park solution.
- Parking provision within The Haymarket precinct complies with the minimum requirements set by the RMS Guidelines for specific land use development.
- Parking rates being sought for the residential component are justified on the basis of comparable developments in the immediate vicinity of the development.

*Road Network/Intersection Operational Performance*

- Optimised signal settings at all intersections will improve intersection performance and maintain level of service at acceptable levels.
- Improve signal coordination at the intersection at Harbour Street/Pier Street/Goulburn Street; Goulburn Street/Sussex Street and Goulburn Street/George Street.
- The overall operational performances of the intersections in the future scenarios are maintained in 'status quo' for Friday event traffic.
- Future Scenario – Friday event traffic, the intersection of Pyrmont Bridge Road/Murray Street/Darling Drive intersection operates at "LoS D. With the one way exit lane, vehicles are diverted away from the Darling Drive/Pier Street roundabout and the Pyrmont Bridge Road/Murray Street/Darling Drive intersection.
- The results of the intersection modelling indicate that the one way road system proposed for the Theatre carpark and NW Haymarket carpark egress would significantly improve operational performance of adjacent intersections.
- With the exception of Pyrmont Bridge Road/Murray Street/Darling Drive intersection, the operational performances of the key intersections are considered satisfactory for Saturday event traffic.
- Results further show that the critical movements at the Pyrmont Bridge Road/Murray Street/Darling Drive intersection are the right turning movement from Pyrmont Bridge Road to Murray Street and the right turning movement from Darling Drive to Murray Street. It is noted that the RT bay from Pyrmont Street is only 40 metres. The 95% back

of queue for that movement is 65 m. Similarly, the RT bay from Darling Drive East to Murray Street north is 50 m while the 95% back of queue is 86m.

- On the overall, the results indicate that the impact of the SICEEP development does not impose conditions on the intersections worse than what would have otherwise occurred through existing traffic.

  To achieve satisfactory intersection performance, the following improvement measures should be considered:

  - Pyrmont Bridge Road eastbound right turning bay extension at intersection with Darling Drive and Murray Street. However, vehicles turning right to Murray Street are not associated with the development traffic.
  - Darling Drive westbound right turning bay extension at intersection with Murray Street and Pyrmont Bridge Road.
  - Goulburn St westbound right turning bay extension at intersection with Harbour Street. The RT bays are 30m and 28m while the 95% back of queue is observed to be 49m and 46m, respectively. However, vehicles turning right from Goulburn Street to Harbour Street are not associated with development traffic.

*Light Rail Proposal on George Street*

- Although there is yet no firm proposal determined by the NSW government on the extension of the light rail, a sensitivity test was undertaken to assess potential impact of the George Street LRT proposal on the network surrounding the SICEEP development. The results indicate that there is no significant impact on the network adjoining the SICEEP development area. Both key intersections including Harbour Street/ Goulbourn and Harbour Street / Liverpool are performing at satisfactory LoS for the future Friday Event and Saturday Event scenarios.

*Pedestrian*

- The development will provide improved pedestrian linkages notably the main boulevard within the Public Realm linking the Ultimo Pedestrian Network to the south and Harbourside to the north. The main boulevard will be 20m wide and will have sufficient capacity to cater to peak pedestrian demand anticipated during events at the PPP.

*Passenger Drop off and Collection*

- Two new bus drop off zones located near the main pedestrian entrances will be available to support private bus services to the facilities, notably during an event.
- Drop off and pick up taxi bays will be provided in the northern sector near the hotel development, in the central section near Tumbalong Place and in the southern section for The Haymarket development. These taxi and VIP drop off and pick up zones are located within areas that are convenient for access to the main entrances of the core facilities and segregated from the main road to allow ease in drop off and pick-up.

*Cycleway*

- Cycle connections will be enhanced via a dual lane two-way segregated cycle path on the west side of Darling Drive north of the Pier Street roundabout. South of the roundabout, the cycle way will split and link into the existing single lane, one-way cycle way network on either side of Darling Drive.

# 12 NEXT STEPS

In anticipation of the preparation of detailed DA submissions for The Haymarket Precinct and ICC Hotel development, the following next steps are highlighted:

- Design review of Darling Drive approach to the intersection with Murray Street/Pyrmont Bridge Road.
- Detailed assessment of the Darling Drive/Ultimo Road intersection is to be carried out as part of the relevant DA submissions.
- Road safety assessment of a road section along Harbour Street from Hay Street to Goulburn Street be undertaken to investigate pedestrian safety in more detail

# APPENDIX A

Transport Management and Accessibility Plan
Mott MacDonald , August 2012

# Sydney International Convention, Exhibition and Entertainment Precinct

## Traffic Management and Accessibility Plan

August 2012

Infrastructure New South Wales

Mott MacDonald

Mott MacDonald



# Sydney International Convention, Exhibition and Entertainment Precinct

## Traffic Management and Accessibility Plan

August 2012

Infrastructure New South Wales

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# Issue and revision record

| Revision | Date | Originator | Checker | Approver | Description |
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# Content

Mott MacDonald

# 1. Introduction



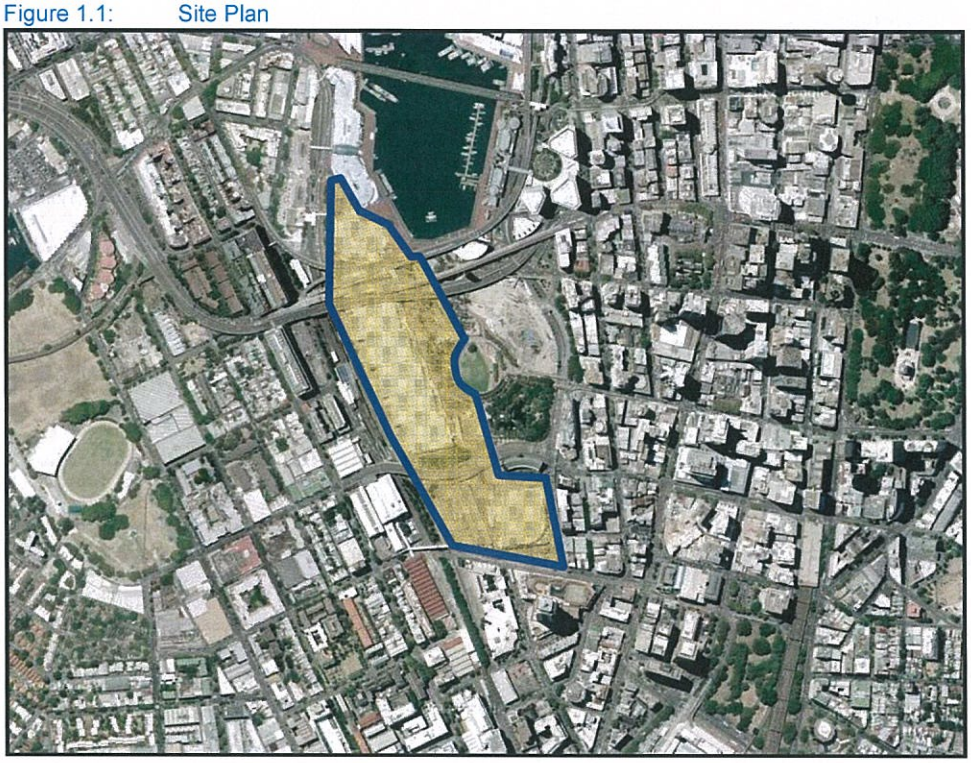
## 1.1 Background

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.