

SYDNEY INTERNATIONAL CONVENTION, EXHIBITION AND ENTERTAINMENT PRECINCT (SICEEP) TRANSPORT AND TRAFFIC ASSESSMENT



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DARLING HARBOUR LIVE

Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP)

Transport and Traffic Assessment

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Report No

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EXECUTIVE SUMMARY

The Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP) Project importantly forms a critical element of the NSW Government's aspiration to "make NSW number one again".

The SICEEP Site is located within the Darling Harbour precinct. Darling Harbour is a 60 hectare waterfront precinct on the south-western edge of the Sydney Central Business District that provides a mix of functions including recreational, tourist, entertainment and business.

SICEEP project includes the development of a combination of new multi-functional facilities and flexible spaces to enhance the existing convention, exhibition and entertainment facilities.

SICEEP forms part of the vision embodied in the Darling Harbour South Master Plan. 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.

Destination Sydney' - a consortium comprising AEG Ogden, Lend Lease, Capella Capital and Spotless) aims to transform Darling Harbour and create the new Sydney International Convention, Exhibition and Entertainment Precinct. Key features of the Darling Harbour Live Preferred Master Plan include:

- Delivering world-class convention, exhibition and entertainment facilities, including:
 - Up to 40,000m² exhibition space;
 - Over 8,000m² of meeting rooms space, across 40 rooms;
 - Overall convention space capacity for more than 12,000 people;
 - A ballroom capable of accommodating 2,000 people; and
 - A premium, red-carpet entertainment facility with a capacity of 8,000 persons.
- Providing up to 900 hotel rooms in a hotel complex at the northern end of the Precinct.
- A vibrant and authentic new neighbourhood at the southern end of the precinct, called 'The Haymarket', home to an IQ Hub focused on the creative industries and high-tech businesses, apartments, student accommodation, shops, cafes and restaurants.
- Renewed and upgraded public domain, including an outdoor event space for up to 25,000 people at an expanded Tumbalong Park.
- Improved pedestrian connections linking to the proposed Ultimo Pedestrian Network drawing people between Central, Chinatown and Cockle Bay Wharf as well as east-west between Ultimo/Pymont and the City.

This Transport and Traffic Assessment report has been prepared to fulfil the Environmental Assessment Requirements issued by the Director General for development approval. This study assesses the traffic impacts associated with the proposal and outlines Transport Management and Accessibility Plan (TMAP) for the precinct to ensure that the development achieves its preferred outcomes and objectives.

Traffic Impact

A micro-simulation model was developed for the core study area. AIMSUN (Advanced Interactive Microscopic Simulator for Urban and Non-Urban Networks) is a dynamic transport

modeling software tool that has the ability to model the movements of individual vehicles and their interactions with other traffic and network constraints. This level of modeling is well suited for modeling traffic circulation in urban centres, and developments such as the SICEEP development. The network modeling was then supplemented by more detailed assessments of selected key intersections using the SIDRA intersection modelling software to test intersection performance at the isolated level during the selected peak hours and to identify potential measures to achieve improved outcomes.

The traffic modelling encompasses the Whole of Precinct (WOP) and investigates cumulative impacts from the development of the PPP, The Haymarket and the Hotel. The future modelling scenario represents 'worst case scenario' analysis and accounts for design proposals put forth at this time of writing.

An assessment of the existing traffic conditions of the Site indicate:

- The site is easily accessible via public transport services generally located on the eastern side of the Darling Harbour precinct and consisting of buses, light rail, ferry services and heavy rail. It is noted that public transport services are available to service the site and new opportunities exists for expanded services to cater to the future requirements of not only the SICEEP development but the adjacent areas;
- Traffic modelling investigations on the road network surrounding the Site revealed:
 - The five key intersections perform at an acceptable LoS on a typical Friday or Saturday PM peak;
 - Some turning movements at the intersections have longer delays and have capacity issues with the available phase time splitting information;
 - At the Pyrmont Bridge Road/Murray Street/Darling Drive intersection, the left and right turning movements from Pyrmont Bridge Road west are the critical movements in terms of average delay. Queue length will occasionally exceed right turning bay (40m) and overflow to the adjacent lane;
 - Similar results for right turning from Darling Drive east which showed queue lengths exceeding lane storage length (50m) and blocking the through traffic movement; and,
 - Right turn from Goulburn Street East in the intersection I-4 shows a potential capacity issue and the queue extends back of the short turning bay and blocks the through movement. At present there is provision for two short lanes – 30m and 28m for right turning vehicles.

Future traffic modelling was undertaken considering Whole of Precinct development to assess potential impacts on traffic and transport. The modelling investigated both a Friday evening peak and a Saturday evening peak for future without SICEEP expansion and future with SICEEP expansion. The modelling tested an option in the egress arrangements for the proposed public carpark located at The Haymarket precinct. Future network scenario proposes a one-way scheme in the southbound direction adjacent to Darling Drive.

On the overall, the outcomes of the modelling 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.

The results further indicate:

- In general, the surrounding road network has the capacity to accommodate the proposed development but will require minor improvements at some key intersections. These include:

- Optimised signal settings at all intersections will improve intersection performance and maintain level of service at acceptable levels;
- Improved signal coordination at the intersection at Harbour Street/Pier Street/Goulburn Street; Goulburn Street/Sussex Street and Goulburn Street/George Street will minimise downstream effects;
- For a Friday event future scenario - no adverse impact on intersection performance is expected from the development with a one-way;
- With Friday event traffic, the intersection of Pyrmont Bridge Road/Murray Street/Darling Drive intersection operates at "LoS C. 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;
- With the exception of Pyrmont Bridge Road/Murray Street/Darling Drive intersection, the operational performance of the key intersections are considered satisfactory for Saturday event traffic;
- 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.

The above critical movements indicate improvement measures are required to achieve satisfactory intersection performance. However, it should be noted that only the right turning movement from Darling Drive to Murray St is directly attributable to traffic movements generated by the future SICEEP development. The right turn movements from Pyrmont Bridge Road to Murray Street represent vehicle movements outside the study cordon and have also manifested to be a critical movement in the existing intersection operations.

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

- Pyrmont Bridge Road eastbound right turning bay extension at intersection with Darling Drive and Murray Street.
- 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. Although this movement does not impact on the overall intersection operational performance, the modelling shows there are capacity issues in terms of lane queues and spillover to the adjacent through lane.

Pedestrian Analysis

Pedestrian access to and from the SICEEP and adjacent areas of the CBD is provided by a network of footpaths alongside major roads. Pedestrian connectivity across Darling Harbour and adjacent areas in the CBD consists of multiple road crossings or overhead walkways including steps, ramps or lifts.

The major pedestrian links to the Precinct include connection to Town Hall and Central Station. The principal routes to and from Town Hall are Druitt Street and Bathurst Street. From Central Station, a direct route exists along Quay Street but is under-utilised as linkages close to Central Station are poor. At the intersection of Quay Street and Hay Street, the route is further

obstructed by the loading area between the Sydney Entertainment Centre and the Entertainment Carpark.

The proposed pedestrian network builds on the initiatives introduced with the Ultimo Pedestrian Network and the Chinatown Public Domain Plan and provides interfacing with the improved pedestrian network around South Darling Harbour. Aside from maintaining existing routes, the design will extend the UPN to Darling Drive to improve access and strengthen linkages between Central Station, the education precinct (UTS/TAFE), Haymarket, Chinatown from the south towards the Powerhouse Museum and Darling Harbour to the north. The reconfiguration of Darling Drive and the new pedestrian connections will enhance accessibility to Quarry Street to the west and create new east-west connections through Tumbalong Place.

The design proposes to enhance at-grade pathways through The Haymarket towards Tumbalong Park creating a direct north-south promenade extending from Quay Street to the Harbourside and linking major public gathering spaces (Haymarket Square, Tumbalong Park and Harbourside) within the Precinct.

Pedestrian modelling was undertaken to assess the impact on existing and anticipated future pedestrian movements in the public realm. The modelling results indicate that the public realm will generally be operating at a level of service "A" with the weekday pedestrian volumes and the event related pedestrian volumes. The incorporation of a wide 20m boulevard significantly improves pedestrian access and mobility within the precinct.

A sensitivity test was carried out to determine potential impact of increased pedestrian activity during events and the results indicate the level of service may decrease to "B" with small and minor patches of areas performing at a LoS "C", mostly at crosspoints and mostly fronting commercial areas.

Parking

There are a number of public carparks located adjacent to and within walking distance to the SICEEP that can accommodate a total of approximately 10,000 bays. The existing car parking provision within the SICEEP consists of 1,900 car park spaces at the Entertainment Centre carpark and 900 car park spaces at the Exhibition Centre. However, 600 carpark spaces in the Entertainment Centre carpark have been blocked off as per Darling Quarter development approval.

Proposed car parking provision for the SICEEP will consist of parking facilities for Darling Central/Bayside and The Haymarket, totalling 2,264 spaces.

Parking provision for the PPP will total approximately 1,226 and will be located at:

- Exhibition Centre carpark (721 spaces);
- The Theatre carpark (107 spaces); and,
- Haymarket North West block carpark (400 spaces) located within The Haymarket Precinct

It should be noted that the above carpark spaces are indicative and the final number may differ slightly. Hence, the modelling outcome is not expected to change significantly and the results will vary marginally.

Parking provision for The Haymarket Precinct will total approximately 1,040 depending on the final design. These are distributed across The Haymarket precinct and mainly catering to the residential development.

The proposal also seeks approval for the following parking rates to apply to The Haymarket:

- Studio apartments – 0 space`

- One bedroom – maximum 0.5 space
- Two bedroom (includes 1 bedroom plus study) – maximum 1 space plus 1 space per 5 units
- Three bedroom and more – maximum 2 spaces
- Commercial – maximum 1 space per 300 m².

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.

Construction Traffic Management

A Preliminary Construction Management Plan has been prepared by Lend Lease Project Management and Construction (LLPM&C). The document outlines the management plans relating to the construction works in the PPP. A separate plan will be developed for the detailed DA submissions for The Haymarket and the Hotel development.

This Traffic and Pedestrian Management Plan during construction includes descriptions and layouts of the planned mitigation arrangements demonstrating how, during the development, the pedestrian and vehicular movements will be addressed to minimise impact.

TMAP Package of Measures

A package of measures has been defined to identify 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. The package of measures is intended to support the proposed development of SICEEP and to reduce dependence on the private car. The package includes a range of initiatives, addressing:

- 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;
- Intersection improvements to maintain adequate intersection performance in the long term; and
- Travel Behavior Change.

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.