

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 Druiitt 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/ Goulburn 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 Hotel development, the following next steps are highlighted:

- Design review of Darling Drive approach to the intersection with Murray Street/Pymont 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