

## 2.6.2 Site Objectives

The Concept Plan Approval documentation including the Transport Report has adopted mode split targets for the journey to work in the Barangaroo precinct. The targets have been retained in the Concept Plan Modification and the revised Transport Concept Plan.

The targets are:

- 83% by public transport (63% rail, 20% bus);
- 12% pedestrian/other;
- 4% car;
- 1% ferry.

These targets represent world's best practice for the development of a new urban precinct adjacent to an existing CBD. Central Sydney is the most accessible location in the metropolitan region and already achieves high levels of public transport use, walking and cycling among CBD users and visitors. However, car use in the journey to work (JTW) to Central Sydney remains substantial at about 25% (average weekday 2003). In addition, car trips through rather than to Central Sydney are very high as the city is the major harbour crossing point and through-route for east-west traffic.

The NSW Government is committed to maintaining acceptable traffic flows and intersection levels of service in the CBD. Any significant increase in car travel to Central Sydney resulting from Barangaroo's development would cause significant network deterioration for city traffic. Bus services, including those necessary to service Barangaroo and deliver the mode split targets, would also be detrimentally affected. Key risk areas in the road network are the northern CBD, including George Street, Margaret St, Erskine Street and approaches to the Harbour Bridge.

Low levels of car use in the immediate area surrounding Barangaroo will also help achieve other important objectives, such as activating the street level and maintaining local amenity. The quality of the local and regional environment, in particular air quality will also be improved.

The NSW Government has also accepted that achieving the mode split and traffic management objectives is critically dependent on the provision of high volume, quality pedestrian access between Barangaroo and the Wynyard precinct. These links will be supported within Barangaroo by a connected street network.



*Road congestion in the CBD is a significant transport issue*

## 2.6.3 Site Population and Other Attributes

Based on the generation rates indicated in Section 2.6.1, the total floor area (including the additional area proposed in the Concept Plan Modification) is expected to result in Barangaroo accommodating a total of up to 22,000 workers and 1,500 residents.

Application of the adopted parking rates also indicated in Section 2.6.1 together with on-street and miscellaneous parking supply factors will result in on-site parking supply indicated in the following table:

Land Use and Activity	Parking Supply Spaces
Commercial/mixed use	673
Hotel	143
Residential	771
Parkland public car park	300
<b>Total on site</b>	<b>1,887</b>
On-street	400
Public buildings	16
Ports parking (retained)	140
<b>Grand Total</b>	<b>2,446</b>

The parking supply for the commercial floor area will be much less than the 1,182 spaces which would be provided if the City of Sydney Council code was applied. The 400 on-street parking spaces will be short-stay spaces in a rationalised arrangement along Hickson Road.

Based on the adopted trip generation rates and other assumptions for the 22,000 workers, and the adopted levels of parking supply, the commuter transport task for the journey to work in the Concept Plan Modification for Barangaroo has been assessed. The following table shows the daily inbound JTW task and mode share, the daily train and bus market, and the AM 3 hour peak transport task for train and bus.

Mode	Daily Inbound JTW		AM Peak 3 Hour JTW Main Public Transport	Main Public Transport Daily Market
	Number	Mode Share		
Train	12,500	63%	6,100	12,000 – 13,000
Bus	4,100	20%	2,000	4,000 – 4,500
Car	750	4%		
Other	2,500	12%		
Ferry (King St Wharf)	280	1%		

## 3 Transport and Access Planning Framework

### 3.1 Introduction

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To implement the requirement of the Statement of Commitments, the Barangaroo Steering Committee established a Transport and Access Working Group (TAWG) charged with transport planning of Barangaroo including preparation of TMAP and supporting studies. Members of the TAWG are the Foreshore Authority, the Office of the Coordinator General and the Ministry of Transport (Chair), with the Roads and Traffic Authority (RTA), NSW Maritime, RailCorp, Department of Planning, and NSW Treasury as advisors.

The TAWG has had the responsibility of addressing the matters identified in the January 2007 Statement of Commitments and developing the initial transport proposals in the 2007 Transport Report for the Concept Plan. The work of the TAWG has been especially focused on achievement of the mode split targets identified in the Transport Report for the Concept Plan.

The Statement of Commitments has been amended in the Concept Plan Modification in respect of TMAP requirements to ensure consideration of the on-site parking regime, the integration of Barangaroo with rail (metro and heavy) and bus services at Wynyard, an active waterfront and ferry use. Other modes including walking and cycling, possible light rail, taxis and coaches must also be considered.

In the Concept Plan Modification, the changes in floor area are the main variations that impact on transport and access; there are no other relevant changes to the Terms of Approval, the inclusion of Barangaroo in the Major Projects SEPP, and the Director General's requirements. In the latter, the need for the TMAP for the project is endorsed and the revised Transport Report for the Concept Plan is acknowledged.

## 3.2 Methodology (for developing TMAP including TAWG)

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The methodology for the development of a TMAP involves the following steps:

- Identification of the components, scales and attributes of the proposed urban development that impact on, determine or influence transport and access;
- Review of the existing conditions for transport and related matters in and around the urban development site and in its regional context; identification of data inputs;
- Establishment of the aims and objectives for and the outcomes sought for transport and access in respect of the development, taking into account local conditions, the regional context and broader objectives such as air quality;
- Identification and agreement of key assumptions and standards concerning transport and access, and of key contextual matters such as the development planning regime, for use in the assessment process;
- Carrying out of technical studies, modelling and other assessments of the various relevant aspects of transport and access;
- Determination of an integrated package of transport, land use and associated actions necessary to achieve the established aims, objectives and outcomes;
- Identification of the transport infrastructure and service components of the integrated package, responsibilities for delivery, funding, timing and implementation;
- Development of a management plan to ensure delivery and achievement of outcomes, and establishment of mechanisms for ongoing information gathering and adjustment of the management plan as implementation of the urban development proceeds.

The TMAP for Barangaroo is derived from the iterative process that has been underway since 2006. This has involved refinement of the Barangaroo concept and development details, establishment of the statutory planning and approvals framework, and preparation of the initial Transport concept based on investigation of various transport and access matters. The Statement of Commitments and development of the Concept Plan Modification has facilitated the more detailed assessment of transport and access matters in a series of supporting studies commissioned by the TAWG over 2007 and 2008. These have provided the basis for the revised Transport Report in the Concept Plan and this TMAP.

## 3.3 Service Principles

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Principles for transport and access have been adopted for Barangaroo's development. The service principles are:

- meet the mode split targets and provide access to existing public transport bus and rail services;
- provide access to public transport to/from the site without prejudicing the majority of existing passengers to and from the CBD;
- provide the opportunity for integration with envisaged future rail developments including the proposed North West Metro Rail, future heavy rail or possibly Light Rail;
- not preclude the opportunity to create a major multimodal transport interchange with ferry, rail and bus services; and
- provide safe and convenient access to all, including the mobility impaired.

The transport and access service strategy for the implementation of these principles involves the following possible transport initiatives;

- Pedestrian Linkages: a new high-volume and attractive pedestrian tunnel to the frequent rail and bus services at Wynyard Station and George Street will be essential, together with foreshore walkways and links to adjoining areas;
- Light Rail: detailed planning for Barangaroo does not preclude future construction of a light rail system along Hickson Road but technical and economic assessments of the feasibility have not been undertaken;
- Rail: from 2017, Barangaroo is proposed to be serviced by the North West Metro via a new station in the Wynyard Station precinct linked to the Barangaroo pedestrian tunnel.
- Bus Services: current reconfiguration of CBD bus services provides the opportunity to provide direct high frequency services through the Barangaroo site;
- Cyclists: the Concept Plan Approval documentation envisages the provision of cycleways as part of the generous foreshore walkways as well as facilities for cyclists on site.

### 3.4 Scope of Investigations

Under the guidance of TAWG, the MoT (with the involvement of other transport agencies as necessary) has managed the completion of all of the studies, assessments and transport planning required to support the TMAP and meet the requirements of the amended Statement of Commitments.

These are indicated in the following table which summarises the requirements of the Statement of Commitments, as amended in Items 16 and 17.

The full versions of all the reports listed in this table are in the Appendices.

Summary of Statement of Commitments Requirements	Name of Report	Report by and Date
<p><b>Road Network</b></p> <p>An assessment of the traffic impacts of Barangaroo's development on the surrounding Sydney CBD road using the RTA's PARAMICS traffic model to investigate and test:</p> <ul style="list-style-type: none"> <li>• impact on traffic operation of changes to pedestrian movements and volume configurations;</li> <li>• effects on bus services and different service strategies; and</li> <li>• different scenarios of traffic generation estimates.</li> </ul> <p>In particular the roads and traffic assessment is to advise on:</p> <ul style="list-style-type: none"> <li>• a cohesive local, CBD and regional street network;</li> <li>• likely traffic impacts on key local and regional intersections;</li> <li>• local and regional infrastructure improvements;</li> <li>• traffic signal requirements at Sussex/Napoleon Streets;</li> <li>• A possible westward extension of Grosvenor to Kent Street;</li> <li>• Retention of Margaret Street along the southern boundary.</li> </ul>	<p>Barangaroo Road System Traffic Report</p> <p>Barangaroo Modified Concept Plan Transport Report</p>	<p>Masson Wilson Twiney (MWT) May 2008</p> <p>MWT June 2008</p>
<p><b>Parking</b></p> <ul style="list-style-type: none"> <li>• Development of on-site parking regime;</li> <li>• Provision of layover and parking for buses and coaches;</li> <li>• Changes to Hickson Road parking arrangements to replace long stay with short stay parking.</li> </ul>	<p>Above reports; East Darling Harbour Car Parking Considerations</p>	<p>MWT September 2006</p>

## 3.4 Scope of Investigations *continued...*

Summary of Statement of Commitments Requirements	Name of Report	Report by and Date
<b>Bus services</b> <ul style="list-style-type: none"> <li>• Consideration of different bus service strategies;</li> <li>• Options for the extension/amendment of bus services including need traffic works;</li> <li>• Options to provide services with development stages;</li> <li>• Provision of off-road layover facilities for buses and for coach drop off and parking.</li> </ul>	Barangaroo Bus Service Strategy	Transport and Traffic Planning Associates April 2008
<b>Cycling</b> <ul style="list-style-type: none"> <li>• Facilitating the high level mode split to public transport, and encouraging walking and cycling;</li> <li>• Off-site improvements that will facilitate pedestrian and cycle access between the site, Wynyard Railway Station, Millers Point, the Rocks, Circular Quay and Dawes Point.</li> </ul>	Barangaroo Cycle Strategy	ARUP June 2008
<b>Pedestrian links</b> <ul style="list-style-type: none"> <li>• Consideration of pedestrian desire lines and general public domain improvements to benefit wider CBD;</li> <li>• Off-site improvements to facilitate pedestrian access between the site, Wynyard Railway Station, Millers Point, the Rocks, Circular Quay and Dawes Point; including potential for grade separated connections between the site/Hickson Road and Wynyard Station;</li> <li>• Impact on traffic operation of changes to pedestrian movements and volume configurations;</li> </ul>	Pedestrian Field Study; Pedestrian Strategy	ARUP December 2007; June 2008
<b>Heavy and Metro Rail</b> <ul style="list-style-type: none"> <li>• Integration and linkage of Barangaroo with rail (Metro and heavy) and bus services at Wynyard;</li> </ul>	Information in the public domain	Information provided by MoT

## 3.4 Scope of Investigations *continued...*

Summary of Statement of Commitments Requirements	Name of Report	Report by and Date
<p><b>General</b></p> <ul style="list-style-type: none"> <li>• Identification of public transport service opportunities and constraints with a view to facilitating the high level mode split to public transport, and encouraging walking and cycling;</li> <li>• Consideration of timing of traffic and public transport infrastructure improvements in line with the staged development of the Barangaroo site;</li> <li>• Consideration of other modes: light rail, taxi and coaches;</li> <li>• Need to protect possible future alignments including possible future light rail system with appropriate reservation of road space on Hickson Road.</li> </ul>	All of the above reports	

## 4 Transport and Access Service Strategy

### 4.1 Road Network

Road access for people travelling by car and for service, delivery and emergency vehicles is essential for major urban development projects. If too many people, especially workers, travel to Barangaroo by car however, the CBD road network will be unable to manage, local amenity, pedestrian and road safety and the environment will be degraded. Excessive traffic will make it harder for people to access Barangaroo by walking, cycling and public transport, especially bus.

The Concept Plan adopts an on-site road and traffic layout that connects with minimal alterations into the existing CBD road network. The main elements are:

- Hickson Road will serve as a collector road with no direct vehicular access to development sites in Barangaroo. With a boulevard-style urban design treatment, it will contain a trafficable lane able to accommodate buses as well as cars, a parking lane, pedestrian footpaths, and central median. Provision for bus layover areas could be included. The width of Hickson Road could accommodate a light rail system;
- Globe Street within Barangaroo will provide for local access and cycle movements in a landscaped setting but will have limited external access options. It will be wider at its southern end which will include an extended pedestrian footpath, a parking/cycle lane and central median;
- Napoleon Street is proposed to form the main vehicular access point to Globe Street. A new section of Napoleon Street west of Sussex Street will include two very wide footpaths, a parking/cycle lane and a trafficable lane. Modifications to the existing section east of Sussex Street will ensure the Barangaroo cycle networks link to the broader CBD network;
- Margaret Street which extends eastward from Napoleon Street to the important CBD corridor of George St will also provide an important access corridor for Barangaroo;
- Munn Street at the northern end will provide access for service vehicles and underground parking. Typical of east-west side streets to Barangaroo, Munn Street will include wide pedestrian footpaths, kerbside parking lanes for coaches on one side and cars on the other and a trafficable lane.

Access to and from the Harbour Bridge is another important consideration for vehicles visiting Barangaroo. Access onto the Bridge is via Kent St which is particularly congested during the PM peak period.

## 4.1 Road Network *continued...*



Barangaroo road network and surrounds

## 4.1 Road Network *continued...*

### Road network modelling

As required by the Statement of Commitments, modelling of traffic behaviour on the preferred road network for Barangaroo has been completed in the Road System Traffic Report. Paramics is a microscopic simulation technique suited to detailed local investigations as it includes on-ground information about road conditions including on-street parking and traffic signals.

All of the necessary inputs were included in the road network modelling using Paramics. Traffic generation rates for the different types of development were derived from surveys of existing comparable development in Central Sydney. Bus movements identified in the Barangaroo Bus Service Strategy (Section 4.5) were included, and allowance made for the possible future inclusion of a passenger ship terminal. Distribution of traffic on the major existing road network was calculated on the basis of the JTW data from the 2001 Census.

The Paramics modelling methodology the options assessed and the results are presented in Road System Traffic Report. The options were:

Option	Features
1	Approved Concept Plan development with 4% car mode share for JTW in offices
2	As with 1 but 10% mode share to car
3	As with 1 but with the left turn from York St to Margaret St banned
3a	Option 3A added a reversal of the one-way in Wynyard Lane
4	Modified Concept Plan development, with 4% mode share for JTW to offices

The options were modelled for two periods on weekdays: the AM 7.00 to 10.00 peak with a focus on 8.00 to 9.00; and the PM 4.00 to 7.00 peak with a focus on 5.00 to 6.00 PM.

The broad outcomes of the modelling were:

- **Option 1:** the road network copes with the additional traffic generated without obvious new traffic operation issues compared to the present apart from some additional queuing and lower average speeds;
- **Option 2:** the additional traffic generated by the higher car mode share exacerbates existing network congestion to the extent of lock up in some conditions and general inability to cope satisfactorily;
- **Option 3 and 3A:** the changes to expedite bus movements along Margaret St to/from Barangaroo by reducing general traffic in that street showed some benefits but pointed to the need for more detailed assessment;
- **Option 4:** there is reasonable traffic operation although average speeds were lower, as with Option 1; the Concept Plan Modification would operate without overloading the local road network.

## 4.1 Road Network *continued...*

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The modelling endorsed the preferred road network for Barangaroo's development in the Concept Plan Modification, and in particular the external network connections. At the more detailed level, the intersection of Sussex and Napoleon Streets was indicated as having insufficient capacity to accommodate forecast demand at an acceptable level of service without any improvements. For this reason, new traffic signals are proposed for this intersection, including requirements for pedestrians such as a scramble crossing or more conventional arrangements. The additional modelling work also suggested that an alternative, high volume pedestrian facility would be required to ensure that vehicular access to Barangaroo will work effectively. Details on individual intersection performance in the modelling are included in the Road System Traffic Report (Appendix B).

### **Road Network – Conclusions for TMAP**

- The road network for development of Barangaroo must be based on the endorsed mode share targets including the low mode share target for car travel;
- Achieving the mode share targets requires a supporting policy framework including stringent parking requirements;
- In order to optimise pedestrian safety and minimise impact on vehicular access, there needs to be consideration of an alternative, high volume pedestrian facility linking the site to Wynyard;
- The physical road transport infrastructure must be based on the modelling as outlined in the Road System Traffic Report;
- Stage 1 RFDP responses must include a cohesive street network connecting land use components and local roads within and to CBD streets and regional roads;
- Identification, timely delivery and funding of road and intersection upgrades for the road network will form essential components of Stage 1 and will be subject to RTA final approval.

## 4.2 Car Parking

Parking supply is a primary tool for the management of travel demand. If parking supply is limited by the number of spaces available, time limitations and use charges, people have a powerful incentive to use other modes of transport to access major urban developments.

However a constrained parking supply will only work properly where there are other travel choices, and where parking is also closely managed in surrounding areas. These conditions are met in Barangaroo, providing the foundation for a restricted on-site parking supply to achieve a very low mode share for private car travel.

Central Sydney is the most accessible location in the Greater Metropolitan Region by public transport modes. Barangaroo's proximity to the Sydney CBD, its planned physical and transport integration with the CBD through pedestrian and bus links, and development of new transit infrastructure such as the proposed North West Metro line and station, will ensure that people visiting, living or working in Barangaroo will have excellent travel choice.

Barangaroo's proximity to the Sydney CBD also means that surrounding urban areas are intensively used already and many streets are subject to restrictive parking management regimes. Few opportunities for nearby on-street parking will be available, although this issue may require further attention. People living in high density residential development in and around Barangaroo should have less demand for car travel because of a high level of public transport accessibility and proximity to employment and services.

In this context, the adopted commercial parking rate for Barangaroo is 1 space per 600m<sup>2</sup> GFA. This is based on the effective parking supply rate for major developments in Sydney CBD. It is also substantially more stringent than the current requirement in the City of Sydney, contained in the Central Sydney Local Environment Plan 2005, which is around 1 space per 340m<sup>2</sup>. This rate would result in some 1,182 spaces being provided for the commercial floor area in Barangaroo Stage 1.

For other activities in Barangaroo Stage 1, the parking requirements will be the same as the current requirements in Central Sydney, namely:

Land Use	Parking Requirements
Residential	1 space per 4 studio unit; 1 space per 2 1-bedroom unit; 1.2 spaces per 2-bedroom unit; and 2 spaces per 3-bedroom units
Hotels	1 space per 5 bedrooms and 1 space per 100 m2 of function area
Theatres/recital halls	1 space per 7 seats
Serviced Apartments	1 space per 1-bedroom unit and 1.2 per 2+ unit

Traffic generation by residential development in higher density urban areas is known to be closely related to public transport availability and facilities for walking and cycling to employment, services and recreation areas. It is likely that there will be a low level of peak period traffic generation by Barangaroo's residential areas. However, it will be important for the sale or rent of parking spaces within Barangaroo to be closely controlled.

## 4.2 Car Parking *continued...*

It is appropriate for some public parking supply within Barangaroo to meet the needs of users of the headland park areas, and of visitors to businesses and people living in Barangaroo. Public parking should be provided on-street to assist in street activation and subject to time limitations such as a maximum of 2 to 3 hours as well as charges to eliminate long stay use. Existing long stay on-street parking should be subject to this new parking regime. It is envisaged that total public on-street parking would total 400 spaces, including a rationalised arrangement along Hickson Road.



*Current parking arrangements on Hickson Road which will be rationalised when Barangaroo opens.*

As indicated in Section 2.6.3, the floor areas proposed in Barangaroo will result in on-site parking supply based on the adopted parking rates. Together with on-street and miscellaneous parking supply factors the following table shows the total parking supply for Barangaroo:

Land Use and Activity	Parking Supply Spaces
Commercial/mixed use	673
Hotel	143
Residential	771
Parkland public car park*	300
<b>Total on site</b>	<b>1,887</b>
On-street	400
Public buildings	16
Ports parking (retained)	140
<b>Grand Total</b>	<b>2,446</b>

\* A 300 space concealed car park will be provided under Headland Park by the Foreshore Authority

Compliance will be required with parking provision requirements for people with disabilities in all developments.

## 4.2 Car Parking *continued...*

### Parking – Conclusions for TMAP

Strict limitations on parking supply are crucial to achieving the mode share targets for car travel and for public transport, walking and cycling;

- Stage 1 RFDP Proponents are to apply the parking provision rates adopted in this TMAP to development floor area in Barangaroo Stage 1.
- Provision of parking above these limits will have a detrimental effect on surrounding road network performance including bus services.
- While some on-street parking supply in the commercial and residential areas of Barangaroo can help make streets more active, the overall on-street supply must be short stay only and limited in number.

## 4.3 Pedestrian Linkages

### 4.3.1 Pedestrian Context and Needs

Excellent pedestrian access is critical to restoring the connection between Sydney's CBD and the harbour foreshore at Barangaroo. High levels of pedestrian access are essential to achieving the low mode share for car travel and the high mode share for rail travel that are critical to making Barangaroo's development successful.

Walking encourages healthy lifestyles and helps improve environmental quality by reducing use of motorised modes. Workers and visitors walking to from and within Barangaroo will add to the precinct's vitality, encourage street activity, promote a stronger community and make it a safer place.

The committed mode share target for "Other" (which includes pedestrians and cyclists) is 12% for the JTW to Barangaroo. The mode share for "other" access to CBD employment is already high (at around 10%).



*Significant grade difference between core CBD (on left) and Hickson Road and Barangaroo site (on right)*

### 4.3.1 Pedestrian Context and Needs *continued...*

However, Barangaroo should achieve more, given its location and low parking availability, and community concerns about higher fuel prices and traffic congestion. Almost all of the people travelling by public transport will need to walk part of the journey to and from Barangaroo.

There are significant barriers in the existing external pedestrian connections between the CBD and the Barangaroo site. Links tend to be indirect, slow, visually unattractive and dominated by cars. High levels of demand around Wynyard already cause footpath crowding in some locations. There are significant grade differences between the Wynyard Station-George Street area and Hickson Road that is a barrier to walking and cycling and does not allow for access for mobility impaired or those with prams.

An existing underpass connecting Wynyard Station to Kent Street lacks adequate capacity. It is unlikely to cope with future demand caused by developments around King St Wharf such as the Westpac headquarters even without the addition of people walking to and from Barangaroo.



*Crowding on Kent St at exit of pedestrian underpass from Wynyard*



*Existing pedestrian underpass from Wynyard does not have sufficient capacity for future demands*

## 4.3.2 Pedestrian Strategy

A Pedestrian Strategy (Appendix E) has been developed for Barangaroo, based on research of the existing pedestrian environment around Barangaroo, the needs of pedestrians generated by different activities in Barangaroo, and the relationship with transport nodes and other activities in the CBD.

To support Barangaroo's connectivity with the rest of the CBD, there will need to be new pedestrian infrastructure and designated routes providing attractive and legible links focusing on Wynyard Park and Station, the CBD north of Bathurst Street, Millers Point, the Rocks and Circular Quay, and the wider pedestrian network within and to the CBD.

For AM and PM peak period trips by workers at Barangaroo, the main pedestrian desire lines are from the commercial development in the southern end of the site and Wynyard public transport hub. The main desire lines will change in the midday peak more towards mid-city areas. Outside peak periods, pedestrians will focus more strongly on access to Walsh Bay and King Street wharf areas as well as Wynyard and mid-city.

Modelling of pedestrian flows has been completed, taking into account current pedestrian flows, expected pedestrian demand including origins and destinations, time-of-day variations and the mode split targets for Barangaroo. The main conclusions of the modelling are:

- Barangaroo including the additional 120,000 m<sup>2</sup> GFA will generate around 33,000 users daily. Over the whole year, and allowing for major events, Barangaroo could attract some 11 million people (compared to Darling Harbour which attracts about 15 million);
- In the PM peak period of the journey to work, the busiest part of the weekday, the average hourly pedestrian generation by Barangaroo will be 11,163. The majority – 4,322 people – will walk between Wynyard and the southern part of the Barangaroo precinct where employment will be concentrated;
- During major events, the highest pedestrian volumes will be between Wynyard and the Headland Park.
- Between the Rocks and Circular Quay and the middle of Barangaroo, significant pedestrian volumes are likely to be generated;
- The Barangaroo - Circular Quay route can also serve as a major pedestrian thoroughfare during major events, as demonstrated during World Youth Day 2008.

In considering the options to deal with the expected pedestrian flows, the Pedestrian Strategy took into account the issues of safety, route capacity, amenity, legibility and the needs of the mobility impaired.

### *The "Do Nothing" option*

The "Do Nothing" Option would leave pedestrian infrastructure in its current state. People with mobility impairments would face major constraints, arising from the undulating terrain, excessive gradients and poor quality stairs. The main pedestrian route between Wynyard and Barangaroo will lack sufficient capacity, causing congestion to the point of extremely restricted movements. Without grade separation, the safety of pedestrians will be impaired by conflict with traffic, and vehicle flow capacities will be reduced. The "do nothing" option will suffer also from low amenity and poor legibility.

## 4.3.2 Pedestrian Strategy *continued...*

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### *Upper level connections*

As a response to the local topography, upper level connections are proposed in the Consolidated Concept Plan at Bull Street-Jenkins Street, and Margaret Street West – Napoleon and Margaret Street, and a connection to Clyne Reserve in the north. These facilities could ease access for the mobility impaired and provide increased capacity with acceptable levels of service. Safety and legibility would be improved and conflict between pedestrians and vehicles reduced.

However, there are concerns about the amenity impacts arising from the high level connections in terms of visual intrusions, and reduced activity on ground level routes. An additional upper level connection from High Street is recommended to provide a step free link between Observatory Hill and Barangaroo for pedestrians and cyclists.

## 4.3.2 Pedestrian Strategy *continued...*

The Pedestrian Network Hierarchy proposed for the development of Barangaroo is indicated below.



*Proposed pedestrian routes accessing Barangaroo*