

### 4.3.3 Wynyard-Barangaroo Link

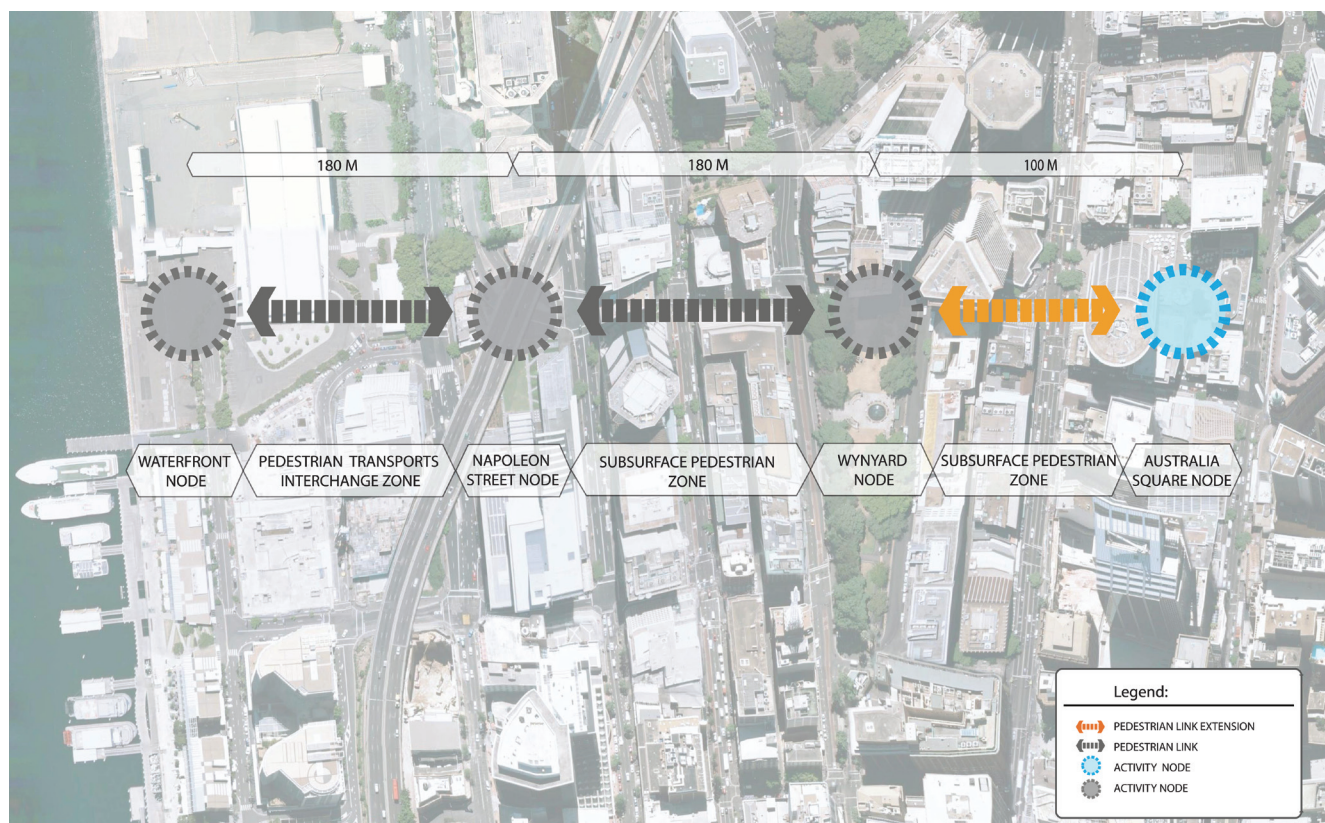
The critical component of the Barangaroo Pedestrian Strategy is the corridor between the precinct and Wynyard station. Surveys of existing usage and modelling of future flows in the corridor, taking into account growth from existing city development and from Barangaroo including a surge factor allowance of 40%, indicated total demand of up to 20,870 pedestrians per hour.

The assessments confirm that upgrading surface connections or use of the existing pedestrian underpass to Kent St will not be adequate for servicing pedestrian demand between Barangaroo and Wynyard station. Grade separation will be necessary to provide the most direct, safe and legible link with adequate capacity between Barangaroo and the public transport networks at Wynyard.

The Transport Infrastructure Development Corporation (TIDC) in conjunction with Ministry have considered at a strategic level the potential to link Barangaroo to Wynyard via a sub surface fully grade-separated pedestrian link. Such a link is considered essential to the success of the Barangaroo development. Preliminary investigations suggest an alignment following near Margaret St is the most optimal.

A pedestrian tunnel linking Barangaroo to Wynyard would be required to have the following characteristics:

- Linking south east corner of Barangaroo to Wynyard station
- Consideration of connection between the new tunnel and the proposed North West Metro Station near Wynyard.
- Fully DDA compliant
- Fully grade separated
- Pedestrian access from tunnel to surface at Kent St (or nearby)



*Schematic diagram of proposed pedestrian links between Barangaroo, Wynyard and Australia Square*

### 4.3.3 Wynyard-Barangaroo Link *continued...*

Any proposed link must consider constraints and opportunities including existing utilities and infrastructure, geotechnical condition, property title issues, built envelopes and surface connections of the spatial alignments, as well as constructability and costs.

The development of any concept must achieve optimal outcomes in terms of costs, impacts, functionality and integration with other transport infrastructure.

From an accessibility perspective, the options for the Barangaroo-Wynyard pedestrian link must be designed for adequate capacity and to improve walking conditions on surface routes. Sufficient activation within the link must be provided, to ensure improved safety, amenity and legibility. Safety and access for the mobility impaired must also be improved by minimising conflict with traffic, reducing slip hazards and overcoming the variations in levels.

#### *Possible extension to Australia Square*

Preliminary investigations have also scoped the possibility of an extension of the Wynyard to Barangaroo link eastwards to Australia Square under George St.

Such an extension provides benefits for the Barangaroo development by providing direct access for pedestrians from Barangaroo to walk directly to the CBD core in complete grade separation from surface streets.

#### **Pedestrian Connections – Conclusions for TMAP**

- Existing pedestrian links for Barangaroo are inadequate and will not allow the transport mode share targets to be achieved;
- The main pedestrian route between the precinct and the Wynyard transport hub will require a major upgrade with new infrastructure;
- Design and delivery of the pedestrian tunnel to Wynyard are to be undertaken by the NSW Government.
- A possible extension of the tunnel to Australia Square and connection with the proposed Metro station will be considered in planning.
- The Stage 1 RFDP Proponents are expected to consider upper level connection(s) over Hickson Road between existing streets and Barangaroo.

## 4.4 Heavy and Metro Rail

Access by rail is critical to making Barangaroo sustainable. Rail is intended to have a mode share of 63% for journeys to work in the precinct. Rail will also have a role in access to Barangaroo's other functions, including retail, recreation and tourism. Integration of rail facilities with bus services and pedestrian links is essential for rail to successfully meet the mode share target.

Access to Barangaroo by rail has three aspects:

- Services on the existing heavy rail network;
- The proposed North West Metro rail line and services;
- Wynyard station precinct, where both heavy rail and Metro services will be accessed.

### 4.4.1 Heavy Rail

The heavy rail network through Wynyard Station will provide the main access to Barangaroo. For AM peak passenger throughput and revenue generation, Wynyard is the third busiest station on the CityRail network (2008). Excluding the Illawarra Line, all CityRail lines serving the CBD pass through Wynyard. The number of daily services at the station is exceeded only by Central, Town Hall and Redfern. The Wynyard precinct is also a significant interchange between bus and rail.



*Wynyard Station is one of the busiest stations of the CityRail network*

Rail services at Wynyard will benefit from the completion of a number of projects in the Rail Clearways program:

- A new rail turnback (completed in 2005) and train stabling (completed in 2007) at Macdonaldtown to hold trains ready for services close to the CBD, has helped increase services at Wynyard, reduce crowding and boost reliability especially on the Campbelltown and East Hills lines;
- An extra platform at Berowra (completed in 2006) has increased the reliability of North Shore Line trains which start from Richmond/Penrith;
- A new turnback and extra platform at Homebush will improve in particular City via Ashfield services. The turnback allows Inner West services to terminate at Homebush without affecting South Line services.

The Epping to Chatswood Rail Line is a major new addition to Sydney's rail network. Opening in early 2009 it will benefit Wynyard by providing an alternative rail path to the CBD from the north and north-west. This will free-up capacity on the Western Line between Strathfield and the CBD to enable up to four additional train services per hour from the North Shore Line, increasing services at Wynyard.



## 4.4.2 Wynyard Station

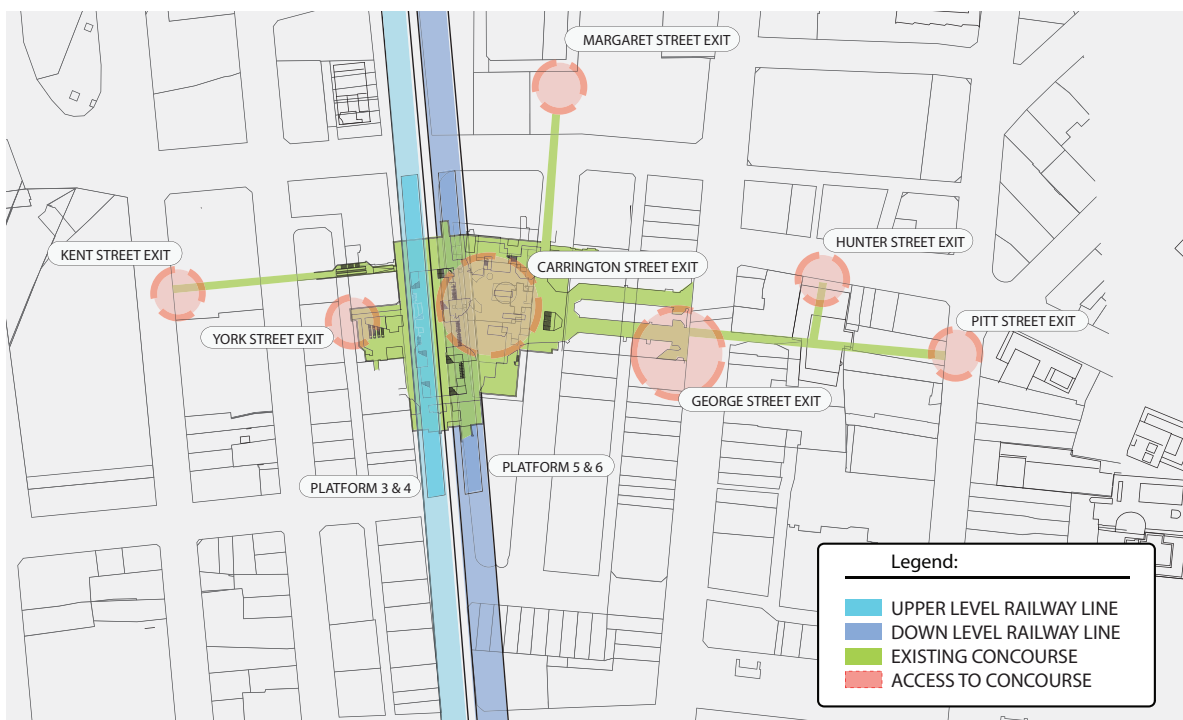
Wynyard Station faces increasing demand as the north western quadrant of the CBD continues to expand in employment and services. RailCorp is investigating undertaking an upgrade of Wynyard station in the future, in conjunction with the Ministry of Transport. The upgrade aims to reduce overcrowding and improve pedestrian flows, and provide for better integration of the station with development in the immediate surrounds.

The *State Infrastructure Strategy 2008-2018* identified investigations into the future redevelopment of Wynyard station. This redevelopment will take into account long term passenger demand and needs at this station. It will therefore address capacity issues as well as pedestrian connectivity in the immediate surrounds of the station. These investigations will be commencing in the near future.

The date of delivery of the upgrade has not yet been determined. Integration of the upgrade with the North West Metro Station and the pedestrian tunnel to Barangaroo will be an important consideration for the upgrade.



*Future CBD growth will place additional demands on Wynyard station*



*Existing pedestrian connections around Wynyard station*

### 4.4.3 North West Metro

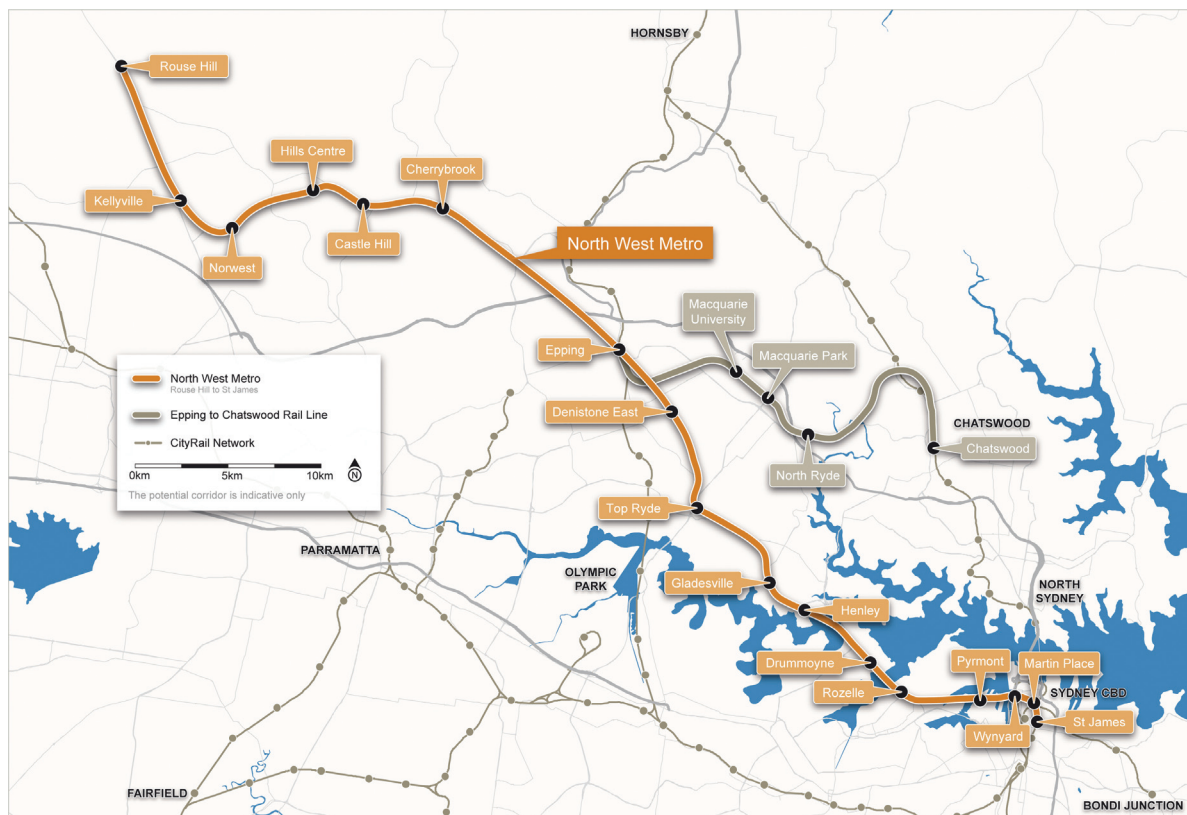
On 18 March 2008, the NSW Government announced the \$12 billion European-style metro rail line for Sydney which will service growth areas from the CBD to the city's north west. Metro rail is a rapid, single-deck heavy rail system which will take the pressure off the current rail network. Metro rail already operates successfully in more than 30 cities around the world.

The project will provide fast, high capacity rail services – independent to the CityRail network – and is part of a broader vision for Sydney's public transport future.

The NSW Government's new Sydney Link program is the culmination of the initiatives foreshadowed by the 2006 Urban Transport Statement.

The North West Metro is the first major project to be unveiled under the Sydney Link program and will run underground from the city, beneath Victoria Road towards Top Ryde, and then via Epping to Castle Hill, Norwest and Rouse Hill. There will be 17 stations on the metro line and interchanges with key CityRail stations and bus routes.

Construction of the new line may begin from both ends in 2010, with the first trains operating between Epping and the Hills Centre in 2015. The metro line will then extend to Rouse Hill, with metros running between Rouse Hill and the CBD by 2017.



*The North West Metro will offer a significantly larger catchment of commuters to access Barangaroo*

### 4.4.3 North West Metro *continued...*

With a station in the Wynyard precinct the North West Metro has direct implications and benefits for transport and access to Barangaroo. It will open up a large catchment of employees in Sydney's North West to access Sydney's CBD, and Barangaroo in particular. It will also provide for the first time rail services to Sydney's inner suburbs on the Victoria Road corridor.

Achievement of the mode share target for the journey to work by rail to Barangaroo will be supported by the North West Metro. Barangaroo will also be an important leisure destination and the North West Metro will enable more people to visit the precinct on weekends and for special events.

The Wynyard Metro Station is envisaged to receive a minimum five minute frequency of trains (12 per hour in one direction) during peak periods. It will have direct interchange with the existing heavy rail station and Wynyard's many bus services, reinforcing the transport hub role of the Wynyard precinct. Subject to confirmation of the rail alignment and station box configurations to the proposed pedestrian link to Barangaroo is likely to include direct pedestrian access to the Metro Station.

The Wynyard Metro Station will be located north west of the existing CityRail station. The final location of the station box is yet to be determined.

#### **Heavy and Metro Rail – Conclusions for TMAP**

- Barangaroo already has good access by rail from Wynyard and it will be improved further by the proposed North West Metro Rail and improvements to the heavy rail network;
- An integrated transport hub comprising the two rail systems, bus services and the Wynyard-Barangaroo pedestrian link will need to be created;
- The North West Metro is a NSW Government project and delivery and funding are not matters for the Barangaroo Stage 1 RFDP.

## 4.5 Bus Services

Presently the Barangaroo precinct receives only limited bus service because of the low level of generated demand in the area. However buses have an important role to play in providing access to Barangaroo. The Bus Service Strategy (Appendix F) is based on the achievement of a mode share target of 20% of the journey to work.

Development of a strategy to meet this target must take into account:

- The existing bus service arrangements for Central Sydney including the vicinity of the Barangaroo site;
- The NSW Government's CBD Bus Strategy contained in the 2006 Urban Transport Statement;
- Supporting traffic management and infrastructure including layover areas;
- Costs involved in implementation.

### *CBD Bus Strategy*

The NSW Government's multi-stage program of actions for CBD buses initially involves:

- Standardisation of the operating hours of all existing CBD bus lanes to 6.00am to 10.00am and 3.00pm to 8.00pm;
- Provision of a new mid city interchange in the Town Hall precinct including enhanced bus stop facilities in Park Street and York Street;
- Development of a new layover facility on the apron of the Domain Carpark;
- Staged introduction of service changes on a number of routes to take advantage of the new interchange and bus layover area, including some new services and extension of some routes through the city;
- In the future, removal of services from Castlereagh Street and consolidation in Elizabeth and George Streets; additional through-routing of services; reduction in layovers at Circular Quay.

### *Bus service alterations for Barangaroo*

Within this context, the following alterations are proposed to CBD services to facilitate access by bus to Barangaroo as outlined in the Barangaroo Bus Service Strategy:

- Existing services on routes 412/413 to King Street Wharf will be rerouted via Barangaroo;
- Eastern Suburbs bus passengers will be able to access Barangaroo via an interchange in the Park Street/Elizabeth Street vicinity, where the Eastern Suburbs services will overlap with services to/from Epping/Lane Cove. The Epping/Lane Cove



*Buses play an important role in meeting the CBD transport task*



## 4.5 Bus Services *continued...*

services have stops at Wynyard (York and Clarence Streets) which are conveniently located for passengers to access Barangaroo. The Epping/Lane Cove services will be through-routed to the new Domain layover area via the Park Street interchange;

- Existing services on routes 373/377 from Coogee and Maroubra will be extended to Barangaroo to provide direct services without interchange; interchange between these extended services and any other Elizabeth Street route will further extend access to Barangaroo;
- Existing services 422-428 which operate via King Street Newtown, City Road and George Street will be rerouted to serve Barangaroo.

Note that the above regime is conceptual only. The final bus routing and service regime is subject to change and endorsement from the Ministry of Transport closer to the opening of the staged development.



Possible bus services to Barangaroo. (Note: routing is subject to change and final endorsement)



## 4.5 Bus Services *continued...*

These proposed changes will provide substantial bus service levels for Barangaroo.

Bus services	Frequency
From the Eastern Suburbs & the CBD East	5 minute AM peak direct services
From the south via Broadway	2-3 minute frequency in the AM peak
From the interchange in Park Street	3 minute AM peak service frequency along Clarence Street close to Barangaroo
For residents, visitors and workers from Barangaroo	3 minute AM peak frequency of services to Town Hall and Central; 2 minute frequency to Wynyard; and 5 minute frequency to Elizabeth Street

The proposed changes will also benefit other bus operations and reduce bus impacts in the CBD by removing some 30 services per hour in the PM peak and 25 services in the business period that would have operated from Circular Quay. Surveys and assessments indicate that some existing services will be affected by these changes however users will experience minimal impact.

The proposed bus service strategy for Barangaroo Stage 1 has been included in the traffic modelling with no adverse impacts identified.

A range of traffic management and bus infrastructure are necessary to implement these changes, including bus lanes, road network changes, traffic signal alterations, and bus stops, zones and interchanges. Any road network and traffic management changes will require final endorsement from the RTA in consultation with relevant stakeholders.

There will be increases in bus operating costs arising from the extension of services on the 422-428 and 373-377 routes which will be met by State Government.

A critical aspect of service management is provision of well-located layover areas for use by buses before, after and between trips. Layover requirements for the main proposed changes and potential layover areas close to Barangaroo have been assessed and three possibilities identified (in Argyle Street Millers Point, the King Street Wharf Coach Area and in Hickson Road). An on-street layover accommodating up to 7 buses on either or both sides of Hickson Road near Munn Street is recommended on the basis of bus operating cost impacts, space availability and impact on other land uses. Driver facilities would need to be provided.

### Bus Services – Conclusions for TMAP

- Barangaroo will receive upgraded bus service levels, including direct services to support the achievement of the mode share target;
- Stage 1 RFDP Proponents will need to consider the implementation of changes to bus routes, including traffic management and bus infrastructure needs;
- Final routing and service regimes are subject to approval from the Ministry of Transport, however, the Stage 1 development should receive a high level of bus service as described in this section;
- Detailed design of development at Barangaroo must accommodate bus routes, stops, layover areas and driver facilities.