

Submission by Sandell Consulting Regarding Barangaroo Ferry Terminal/Hub (SSI 6727)

The construction of a new ferry hub at Barangaroo South is a welcome and much needed addition to Sydney's transport infrastructure.

The following suggestions are made for improving the plan:

1. The plan is predicated on changes to the ferry network outlined in the NSW Government's strategy paper, "Sydney's Ferry Future". That strategy will limit the level of demand for ferries terminating at Barangaroo and exacerbate current congestion problems at Circular Quay. It is recommended, therefore, that the terminal should be designed to play a larger role in the ferry network than that proposed in the Ferry Future plan. This includes changing the Woolwich line so it terminates at Barangaroo and creating a new line to connect Barangaroo with the Bays Precinct renewal development.
2. The pontoons need to provide a larger waiting area for passengers to avoid dangerous crowding, especially during events.
3. There appears to be an assumption that existing manually operated gangways will be used at the Barangaroo terminal. As there is a parallel project by Transport for NSW to design a new ferry fleet, this is an opportunity to incorporate more sophisticated gangway technology to speed up the loading and unloading of passengers.

1. Role of Barangaroo in Sydney's Ferry Network

Development at Barangaroo and completion of the Wynyard Walk project will mean the new ferry terminal provides an ideal entry point to Sydney's CBD for ferry users travelling from west of the city. The Wynyard Walk will create an uninterrupted pedestrian corridor to the heart of Sydney and easier walking access to more of the CBD than what is available from the Circular Quay terminal. It is therefore logical that Barangaroo become the hub for all ferries coming from the west, including the Woolwich and Parramatta lines.

In addition, a new ferry line to Jacksons Landing and the redeveloped Bays Precinct is highly desirable. This would logically terminate at Barangaroo, or become an extension of the existing Darling Harbour line.

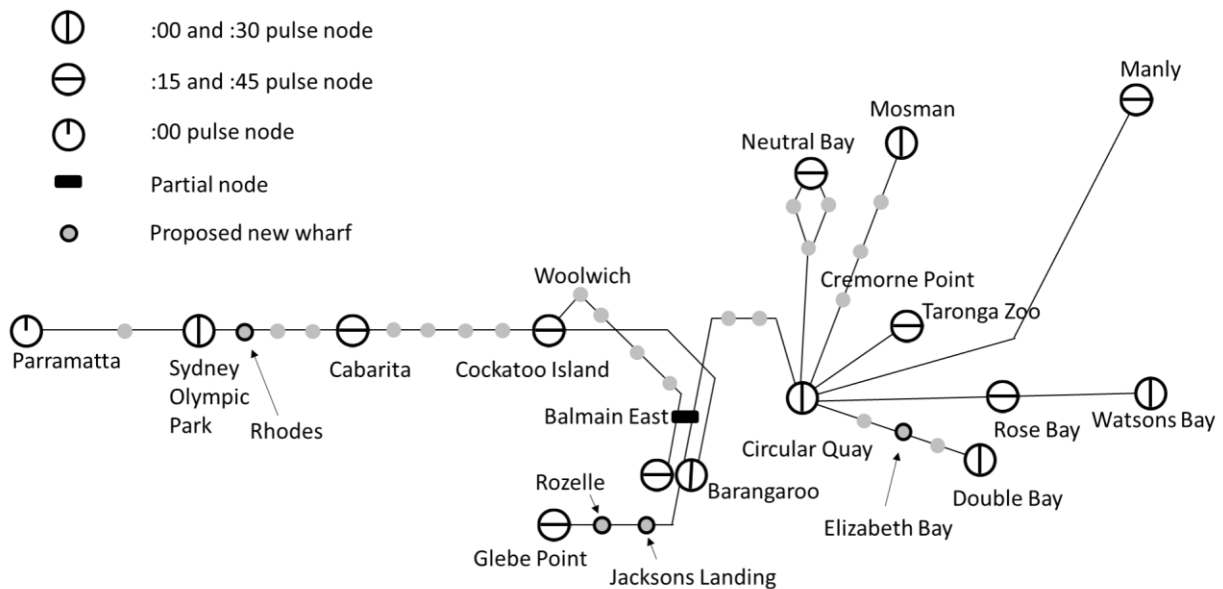
To be a truly effective hub, connecting lines should provide convenient ferry to ferry connections. For example, passengers travelling from Jacksons Landing or the Bays Precinct should be able to transfer at Barangaroo for a Parramatta River ferry. This will add to the vibrancy of the Barangaroo terminal, but can only be done properly through integrated regular interval timetabling (1) to minimise wait times. Ideal wait times for transfers are in the range of 4-10 minutes. If less than this, there is a risk of missing the connection; if more, passengers find the wait inconvenient.

Under the Ferry Future plan, the Barangaroo terminal will only operate as a very limited hub, with no new line connections:

- The Woolwich line will continue to Circular Quay, but with an extra stop at Balmain East to allow transfers to the Darling Harbour ferry (wait times for transfers are not specified).
- The Parramatta River line will continue to have a mix of Circular Quay and Barangaroo services.
- The Bays Precinct opportunity is not identified.

As indicated in the EIS document, the Ferry Future plan provides for a significant increase in Darling Harbour and Parramatta River services. Week-end services are projected to increase from three to eight per hour on the Darling Harbour line and from two to six on the Parramatta River. Week-day peak Darling Harbour services are planned to increase from two per hour to six per hour. As there is no intention to reduce the number of lines terminating at Circular Quay, the increase in Darling Harbour services running between Barangaroo and the Quay will actually worsen the congestion problems there. This undermines part of the rationale for building the Barangaroo terminal.

The diagram below presents an alternative to the Ferry Future plan. It makes Barangaroo a genuine hub for services west of the CBD. It will follow integrated regular interval timetabling principles to ensure convenient connections at network nodes, including Barangaroo.



Features of this network include:

- The Darling Harbour line is extended west from Barangaroo to Glebe Point/ Bays Precinct. The line also incorporates the Taronga Zoo line so there is no need for passengers travelling from Barangaroo to the Zoo to transfer at Circular Quay;
- All off peak River ferries, including week-end services, terminate at Barangaroo. Extras in the peaks run to Circular Quay via McMahon's Pt and Milsons Pt;
- All Cockatoo Island/Woolwich ferries terminate at Barangaroo with timed transfers to the Darling Harbour line at Balmain East for those who need to go to Circular Quay;
- All ferries terminating at Circular Quay arrive shortly before the hour and half hour; and depart shortly after the hour and half hour. This provides convenient ferry to ferry connections for all services which hub at Circular Quay.

Every destination in the network can be conveniently accessed from Barangaroo, with a maximum of one transfer. The longest wait time at a transfer point (Circular Quay) is 10 minutes. This will add significantly to the utility of Barangaroo as a ferry hub and improve access to tourist destinations.

As the Woolwich ferries will no longer run to Circular Quay, and all week-end and week-day off peak Parramatta River ferries terminate at Barangaroo, the congestion issues at Circular Quay will be significantly alleviated.

Note that the plan does not include the current Pyrmont Bay wharf. Instead, this location could be better connected with Barangaroo South by a pedestrian/ bicycle bridge or tunnel.

Revenue hours increase beyond current hours by about 12%, but this is less than the increase implicit in the Ferry Future plan. In addition, the increase in costs will be more than offset by farebox revenue growth due to the expected lift in patronage.

The implication of this alternative network plan is that each of the Barangaroo terminal berthing faces will service one line: Bays Precinct line; Circular Quay/Zoo line; Woolwich line; and Parramatta River line. In the off peak, the lines operate at 30 minute intervals, but can increase to 15 minute intervals during commuter peaks or busy week-end periods. Even a 10 minute interval is possible, without causing congestion or customer confusion, which will happen if ferries for the one line are operated from more than one berthing face.

2. Demand Forecasts

Demand forecasts for the Darling Harbour and Parramatta River lines in the EIS are ambitious:

- *Week-day AM peak arrivals at Barangaroo to increase from the current 650 (King Street) to 3,000 in 2016.* The 650 includes 150 on Darling Harbour services and 500 from the Parramatta River. Even if all the 550 River passengers who currently go to Circular Quay in the peaks now elect to go to Barangaroo instead (note there is no plan to cease Circular Quay arrivals from the River), where will the other 2,000 come from? The ferry mode share of high growth locations, like Wentworth Point and Meadowbank, has always been low and they will not contribute more than a small number of extra passengers, even if a new wharf is built at Rhodes.
- *Ferry journeys are "estimated to grow at up to 8% per year through to 2026".* Compounded over 12 years, that means ferry patronage is forecast to increase to 42 million in 2025-26, a rise of 160%, yet overall growth in all journeys to the CBD is only forecast to rise 23% in 20 years. This seems to be a very optimistic growth forecast for ferries.

While it may have been considered necessary to lift demand estimates to justify building a new terminal, a better approach is to make the network changes outlined in section 1 above, which offer a more realistic prospect of significant demand growth.

3. Passenger Ingress and Egress

On a busy Sunday, and especially during major events, a First Fleet ferry can unload close to 400 passengers at Darling Harbour, while another 400 wait to board.

The pontoons proposed for Barangaroo are wider than those at Circular Quay - 23 metres compared to about 18 metres at the Quay. Despite the pontoons being wider, the waiting areas do not appear to be large enough.

The combined waiting area for the two berths on each pontoon is about 200 square metres. This includes seating, which effectively reduces the available space. On busy days, it is quite conceivable that over 600 passengers will be waiting to board a First Fleet ferry on the north berthing face of a pontoon and a RiverCat on the south face. It is not safe, especially with multiple strollers and some passengers in wheelchairs, to cram three people per square metre into the waiting area. The US Transportation Research Board manual on Transit Capacity and Quality of Service advises that where densities are greater than 1.5 persons per square metre in a queuing area, "long term waiting is

discomforting" (2).

4. Gangway Technology

Building the new terminal is also an opportunity to modernise gangway technology to speed up passenger loading and unloading. Whether this will be done at Barangaroo is not clear. The concept design drawings show mobile ramps which look similar to the current set up. It should not be impossible to design a better vessel/ pontoon interface which allows 400 passengers to quickly disembark and 400 others to quickly board.

Footnotes

- (1) Integrated regular interval timetabling is the approach adopted in Switzerland and other countries in Europe to provide users with conveniently connected public transport networks.
- (2) Transportation Research Board: Transit Capacity and Quality of Service Manual - 2nd Edition. Part 7 Stop, Station and Terminal Capacity <http://www.trb.org/Main/Blurbs/153590.aspx>

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