Improving Connectivity in Fishermans Bend – Phase 3

Client Name: Department of Environment, Land, Water and Planning

Document Title: Fishermans Bend Public Transport, Active Mode Link and Connectivity Study

Revision Date: 24 February 2017

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1. Executive Summary

The Fishermans Bend Taskforce is progressing development of a Framework Plan to guide development across Fishermans Bend. An ability for residents and workers to move efficiently within Fishermans Bend precincts will be just as important to the success of the development as being able to effectively move to and from Fishermans Bend. Effective planning to provide high quality, multi-model connections within Fishermans Bend, including across the M1 freeway corridor, will be a key factor in shaping how the precinct evolves over time.

Jacobs was engaged by the Department of Environment, Land, Water and Planning (DELWP) to investigate a range of options for enhancing connectivity for all modes of transport between the various precincts of the emerging Fishermans Bend renewal area. This engagement included three separate phases of work including:

- Assessment and design of feasible options for a number of new and enhanced crossings of the M1 freeway to enhance connectivity between the Fishermans Bend development precincts.
- Assessment and design of a range of options for a new public transport route connecting two options for new Yarra River crossings to both Turner St to the west and to Fennell St to the south.
- Assessment of a number of options for a full new public transport alignment from Collins St in Docklands connecting to both Turner St and Fennell St.

The options for connecting new public transport connections from the Yarra River into routes heading into the Employment and Sandridge/Wirraway precincts that were designed and assessed during the second phase of work are shown on the map below. All the routes shown were found to be feasible, but were all found to have a range of costs and benefits.

In addition to completing concept designs and costing for the options identified, Jacobs also completed a Multi-Criteria Analysis (MCA) for each route. In summary, whilst the four routes shown above could all be built and would support efficient public transport operations, they each required large sections of elevated structure over roads (Lorimer St in particular) and park land that would have a significant impact on the amenity of the area. To respond to this finding, a new ‘fifth alignment’ was identified for assessment that would not require large sections of elevated structure over public areas whilst achieving the same connectivity. Jacobs was engaged to progress a ‘third phase’ designing and assessing this alternative route. The new fifth route is aligned slightly to the west of the earlier Yarra bridge design to support connection to a route over the M1 via Hartley St in the south. This report details the findings of the assessment of this new alignment option.

In summary, Jacobs were requested to design and assess the following three (3) new alignment options:

**Option 1:** Public transport route alignment over the Yarra towards Hartley St connecting with Turner St - three (3) sub options (1A, 1B and 1C) have been considered for the Option 1 route between Lorimer St and Turner St.

**Option 2:** A public transport route alignment over the Yarra towards Hartley St connecting with Fennell St via a bridge over the M1.

**Option 3:** A public transport route alignment over the Yarra towards Hartley St connecting with Fennell St via a tunnel under the M1.

Jacobs have also assessed the route including a bridge providing either 6 metres or 9 metres clearance over the Yarra River. A map showing the alignment of the 3 ‘Phase 3’ options is shown below.

The assessment of these options identified a range of issues and challenges including the likely impact on existing properties, where the route would need to be on structure and issues associated with accommodating a public transport stop before the route splits towards Fennell St and Turner Streets. All options were found to be feasible and involve far less elevated structure. Significantly, unlike the earlier options, a Hartley St alignment can be built with the public transport crossing Lorimer St at grade before crossing the M1 whilst remaining within gradient limits for safe public transport operations. The key variations between the options were in the area of likely impact on property acquisition, impact on road space allocation on Lorimer St and other urban realm outcomes.

A multi-criteria assessment process was used to consider the trade-offs between the options and to determine a preferred approach. This process identified that a choice is required across three ‘route components’ to establish a full preferred route. The choices are:

1. Yarra bridge height – 6m or 9m river clearance?
2. Preferred route alignment for connection from Lorimer St to Turner St?
3. M1 Crossing – bridge or tunnel?
In summary, the MCA found that:

Yarra River Bridge:

From a design perspective, a bridge providing either 9 metres of 6 metres clearance will reach grade on the south side of the Yarra so the height of the clearance has no impact to the south. The key difference between the two bridge heights considered were the level of marine access they provide and the location where the two options are able to reach grade on the north side of the river.

Whilst a bridge providing 9 metres Yarra clearance would be preferred from the perspective of retaining greater waterway access, in particular to the Yarra’s Edge Marina development, this improved access was found to be a far smaller benefit than the costs associated with the impacts of the higher bridge. Specifically, a bridge providing 9 metre clearance of the Yarra, would involve a structure that would reach grade on Collins St, between Navigation Drive and Harbour Esplanade, until after it has crossed over the top of the street to reach the Collins St median. This would result in a large, elevated structure over the top of Collins St overshadowing all surrounding building and the Collins St streetscape. A bridge providing 6 metres clearance can reach grade before arriving at Collins St. Due primarily to far lower impact on the amenity of Collins, the MCA determined that a bridge providing 6 metres clearance of the Yarra was preferred.

As part of previous study Fishermans Bend Public Transport and Active Mode Link: Options Assessment Report (Jacobs October 2016) and opening bridge had been assessed but this is not part of this study.

Alignment Connecting Public Transport Route from Lorimer St to Turner St:

Three variations of Option 1 were to connect a public transport corridor from Lorimer St near Hartley St to Turner St to the west. The key difference between the three options considered was the degree of property acquisition required for the alignment compared to the impact on current allocation of space within the existing Lorimer St road reserve. In summary, Option 1A would have no property acquisition impact, however, with the public transport route placed on the south side of Lorimer St, traffic lanes would need to be reduced in width to only 3m wide and eastbound on-street bicycle lane and the existing median area will need to go. The loss of bicycle land would impact the operational functionality of the active transport bridge components by removing an approach route, whilst the removal of the median would result in the loss of all current trees and traffic currently turning right into Yarra’s Edge from separated right turn lanes would have to turn right from the traffic lane.

Option 1B would involve some land acquisition (approx. 2m wide strip/400m2 from the front of properties consisting of car parking and vehicle dealership) along the south side of Lorimer St to slightly widen the road reserve. This acquisition would allow for retention of lane width and eastbound on-street bicycle lane and the median strip, but requires removal of one westbound lane. Whilst this option would allow for retention of the central median – a strong positive for the amenity of the area and safety of access to Yarra’s Edge – loss of a traffic lane would be a concern due to Lorimer St being the preferred port freight route.

Option 1C would involve a larger acquisition (approx. 10.5m wide strip/2100m2 from the front of properties consisting of car parking and vehicle dealership), with the new public transport route built fully on land of the properties along the south side of Lorimer St, but would allow for retention of all current road space on Lorimer St.

A key factor that impacted the assessment of these options is the current, and continuing, use of Lorimer St as a key heavy freight route connecting Webb Dock to the south west of the project area, to Swanson Dock and the Dynon Rail Yards to the north. The Victorian Government has recently leased the port for 50 years to a private sector operator, which includes planning for further significant expansion of trade through Webb Dock. Without delivery of a substantial (costly) alternative route, the role of Lorimer St as a key connection between the port and rail freight precinct is likely to continue and grow.

Given the importance of the freight route and continued tree retention, maintenance of separate right turn into Foundry Way and retention of existing bike lane provision, the MCA found that Option 1C, which provides for retention of the existing level of road space on Lorimer St, was on balance the preferred option.

Crossing of the M1 Freeway:

Route Options 2 and 3 provided alternative approaches for connecting the public transport route from Lorimer St, via Hartley St, to Fennell St on the south side of the freeway. The key difference between the two options was that Option 2 would provide this link through a bridge structure over the M1 whilst Option 3 would involve a tunnel under the freeway. The horizontal alignments for both options are identical.

Jacobs prepared full, feasible concept designs for both options. Following confirmation of the geological conditions in the area and the resultant clearances below the freeway required to build a safe tunnel, it became clear that a tunnel arrangement would not be feasible from a tram operating perspective. Trams operate at maximum gradients around 6%. In order to have a tram at grade at Lorimer St and Fennell St, grades within the tunnel of 18 - 20% would be needed. A tram cannot operate at these grades.

In summary, before any consideration of the alternative amenity or connectivity outcomes offered by a tunnel relative to a bridge, the MCA determined that a tunnel was not a feasible operational option for a new tram route between Hartley St and Fennell St. A bridge is clearly the preferred option.

Summary MCA result for the Full Phase 3 Route:

Combining the outcomes of consideration across the three route components, the MCA process concluded that the preferred route for a public transport corridor from Collins St connecting to Turner St and to Fennell St was via a bridge providing 6 metres clearance over the Yarra, connecting to a route to Turner St via a new easement fully within land acquired from properties on the south side of Lorimer St and, thirdly, connecting from Lorimer St to Fennell St via Hartley St and a bridge over M1.