

## Second Harbour Rail Crossing

by Alex Stoney, 27 June 2011.

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File: Transport Infrastructure Priorities\Second-Harbour-Crossing-2.doc

This proposal recommends the construction of a Second Harbour Crossing, shown in red on the map below, to be used by trains from the North West Rail Link (and possibly also by the trains from the Parramatta-Epping rail link) and by a Northern Beaches Railway.





This proposal is based on my submission of 21 September 2009, to the Sydney Morning Herald Public Inquiry into Public Transport, Section 13 (e), with slight amendment..

A railway to the Northern Beach suburbs was included in Bradfield's plan three quarters of a century ago. This railway will relieve the congestion of Military Road, Cremorne and Mosman, and also relieve congestion on the Sydney Harbour Bridge, and at Town Hall station.

This recommended Second Harbour rail crossing, should start in Elizabeth Street, City, with the line branching at Cremorne station to St Leonards station, where two (new but unused) platforms are available, and a line to the Northern Beaches. This plan includes quadruplication of the St Leonards to Chatswood line, and will permit all passengers from West, North, North Shore and Northern Beaches lines to choose whether to travel to Wynyard/Town Hall or to Museum/Martin Place.

This proposal suggests a new underground Museum station should be provided under Elizabeth Street, with easy access to the existing Museum Station and the City Circle. From here the line should continue along under Elizabeth Street to an interchange station at Martin Place, with the line passing between the platforms and the concourse, which are sufficiently separated to permit this. The concourse of (new) Martin Place station could have an underground connection to the nearby St James station, thus giving Eastern Suburbs passengers an exchange to City Circle trains as an alternative to the over-crowded Town Hall station.

Under Phillip Street, the tunnels should turn Eastward to pass under the Cahill Expressway, the City Circle Railway, Macquarie Street, and the entry to the Sydney Harbour Tunnel, then under the Botanical Gardens, and Government House, around the Opera House car-park, then under-water to the East of the Sydney Opera House. The tunnel under the Harbour might be pre-cast (as the road Sydney Harbour Tunnel was) or bored through rock, and will probably be a mixture of both. It should pass to the East of Kirribilli, to Kurraba Point, rising to a Cremorne Station, after which the line branches, one going to the Northern Beaches, and the other to St Leonards station, where it leads (via Chatswood and Epping) to the North West Rail Link.

An excellent article describing the construction of the Sydney Harbour Tunnel, was in the "Australian Geographic" magazine, No. 27 July-Sept 1992, and has considerable relevance to this railway proposal. This gave the cost of the 2.26 kilometre underwater tunnel, as \$556 million, which suggests that the recommended underwater railway tunnel will be no more expensive (per kilometre) than the Epping Chatswood railway, which also passes under water.

After following under the alignment of Military Road, the Northern Beaches line might have its Mosman Station, near Quakers Hat Bay, before continuing underground to a tunnel under Middle Harbour, at Parrawi Point. It would continue with underground stations at Balgowlah Heights, Fairlight, Harbord, Collaroy, North Narrabeen and Mona Vale.

Construction of this railway would alleviate congestion at Military Road, Sydney Harbour Bridge, York Street, Town Hall Station, while improving travel times and costs for many passengers.

The under water route has been chosen by reference to a map of Port Jackson (Sydney Harbour), which shows a maximum depth of 16.7 metres in the area East of Kirribilli. This compares favourably with the location of the existing road Sydney Harbour Tunnel, which passes through an area near the northern pylon of the Harbour Bridge, with a depth of 19.7 metres. Also the recommended crossing of Middle Harbour at Parriwi Point, appears to be 290 metres long, and 16 metres deep, compared with the location at Beauty Point (upstream from the Spit Bridge) which is 470 metres wide and 31 metres deep.

This project is recommended for construction soon after the North West Rail Link commences service.