

ADDITIONAL WAITEMATĀ HARBOUR CROSSING MULTI-MODAL TRANSPORT CORRIDOR ROUTE PROTECTION

IPENZ Transportation Group Conference, Hamilton, 29 – 31 March 2017

Geoffrey Haines, BES, Assoc.NZPI (Presenter)
Senior Transport Planner, NZ Transport Agency
Geoffrey.Haines@nzta.govt.nz

Rebekah Pokura-Ward, MSc(Hons), LLB (Presenter)
Principal Transport Planner, NZ Transport Agency
Rebekah.Pokura-Ward@nzta.govt.nz

ADDITIONAL WAITEMATĀ HARBOUR CROSSING MULTI-MODAL TRANSPORT CORRIDOR ROUTE PROTECTION

ABSTRACT

The Additional Waitematā Harbour Crossing (AWHC) is a long term, strategic multi-modal transport project which will provide more options to move people and freight across the harbour while supporting growth, safeguarding resilience and prolonging the operational life of the Auckland Harbour Bridge. The current concept for the additional crossing is two double decker deep-bored tunnels, to accommodate both road and rail between Onewa Road and Esmonde Road on the North Shore, and the central motorway junction in the city centre.

Route protection is the first of many project stages and involves the identification and protection of the land needed on either side of the Waitematā Harbour through designations and potentially a coastal permit for the tunnel to occupy the area beneath the seabed in the harbour.

The Transport Agency and its transport partners are working together to ensure the future harbour crossing is delivered as a multi-modal (road/rail) transport solution.

INTRODUCTION

The Additional Waitematā Harbour Crossing (AWHC) will be the largest single transport project in New Zealand's history and because of its sheer size and complexity there are many steps and challenges to go through. We are at the beginning of the project – the 'route protection' phase, which is intended to secure and protect the corridor for when it is needed in the future. This paper overviews the work that has been undertaken to date to select the route from 159 options and looks at what happens next to progress this major infrastructure project for New Zealand.

STRATEGIC CONTEXT

The AWHC is a long term, strategic transport project that will provide more options to move people and freight across the harbour while supporting growth, safeguarding resilience and prolonging the operational life of the Auckland Harbour Bridge.

With the high rate of development happening in Auckland there is a need to protect a route for the additional crossing in order to provide long term planning certainty and ensure land is available to construct the crossing when it is needed.

Notices of requirement were originally lodged by the Transport Agency and KiwiRail in December 2009; however these were subsequently placed on hold as there was on-going debate over the form (i.e. tunnel or bridge) of the future crossing. Following preliminary business case work in 2010, which included assessments of both the bridge and tunnel options and initial considerations regarding the need, timing, funding and procurement options, the Minister of Transport, Simon Bridges, in 2015 gave direction to recommence route protection for an additional crossing.

The additional crossing has been recently considered as part of the Auckland Transport Alignment Project (ATAP), which concurred that it is important to continue the work that is currently underway to protect the route for a new harbour crossing in a way that integrates potential future road and public transport requirements (Ministry of Transport, The Treasury, Auckland Council, Auckland Transport, State Services Commission, NZ Transport Agency 2016).

PROJECT OVERVIEW

The Transport Agency and its transport partners are planning for the future of cross-harbour travel and working towards protecting a route for the crossing. The additional crossing will provide a multi-modal (road/rail) tunnel – a direct north-south motorway connection and public transport link between Onewa Road and Esmonde Road on the North Shore, and the central motorway junction in the city centre. The current concept for the additional crossing is fully integrated with two multi-modal double decker deep-bored tunnels that can provide three lanes of motorway on the top deck, and public transport (likely rail) on the bottom deck. The AWHC will operate in conjunction with the Auckland Harbour Bridge, which will provide direct general traffic connections between the city centre and North Shore.

STAKEHOLDER ENGAGEMENT

This is a collaborative process and the Transport Agency is working closely with stakeholders to understand key themes and values to inform the decision on the recommended route. The Transport Agency has also brought its Treaty Partners into the process to understand cultural values, concerns and opportunities. As the project team works toward lodging notices of requirement for designations, engagement with the wider community is planned.

The discussion following highlights some key focus areas that have been progressed by the AWHC project team during 2016.

ROUTE PROTECTION

With the high rate of development happening in Auckland there is a need to protect a route for the additional crossing, which will provide long term planning certainty for individuals, businesses and communities so land is available to construct the crossing when it is needed. If the route is not protected early on, development could potentially make the additional crossing more difficult to achieve in the future.

Route protection is the first of many steps required in the lead up to construction of the additional crossing. Future project phases will include indicative and detailed business cases, concept design and consenting, procurement, detailed design and finally construction (see Figure 1 below).



Figure 1: Steps required in the lead up to construction of an additional crossing

Route protection involves the identification and protection of the land needed on either side of the Waitematā Harbour through designations and potentially a coastal permit for the tunnel to occupy the area beneath the seabed in the harbour. Resource consents required to construct the additional crossing are not being sought at this time and will be applied for in a future stage.

Route protection is not intended to finalise the form and function of the future crossing. The design and how the crossing will work will continue to be refined through future project phases.

WHY ANOTHER CROSSING?

An additional harbour crossing is needed to:

- accommodate growing demand for cross-harbour travel for people by providing opportunities for a range of transport modes
- support the rapid growth of Auckland's population by increasing cross-harbour capacity
- support economic growth as a major freight corridor
- improve the resilience of Auckland's future transport and utilities network, which includes prolonging the functional life of the current Auckland Harbour Bridge by reducing heavy vehicle use of the asset

RAPID TRANSIT REQUIRES AN ADDITIONAL HARBOUR CROSSING

The Transport Agency is working with Auckland Transport to understand the need for rapid transit improvements across the Waitematā Harbour. The current Northern Busway is predicted to reach capacity due to high growth and requires planning for the future of cross harbour public transport.

Further investigations, led by Auckland Transport, continue to develop the appropriate long term public transport solution, including which mode to use (such as bus, light rail, heavy rail etc.) and network options (such as where the connections need to be, how it will operate and staging). To ensure the future harbour crossing is delivered as a multi-modal transport solution that is flexible and works well for the future people and businesses of Auckland, the Transport Agency and Auckland Transport have been designing a corridor alignment and footprint that can accommodate all potential rail modes. By protecting a route footprint now that enables a range of public transport solutions, the decision on the specific mode of public transport can be made in future project phases.

OPTIONS ASSESSMENT – THE PAST

Many studies into the additional cross harbour transport link have been undertaken in recent decades. This work included:

- 2008 – The Waitematā Harbour Crossing Study considered 159 potential crossing options, and recommended that the preferred route for a new crossing was between Onewa Road and Esmonde Road on the North Shore, and the Central City area (Transit New Zealand, Auckland City Council, Auckland Regional Council, North Shore City, ARTA 2008). This study concluded that a multi-modal crossing would be required, located west of Wynyard Quarter. The recommendation was for the crossing to comprise of tunnels with general traffic and passenger transport.
- 2010-11 – The AWHC Preliminary Business Case (New Zealand Government 2010) and Form Assessment Study (New Zealand Government 2011) confirmed that the tunnel was preferred over a bridge for environmental and consenting reasons.

- 2011 – The Draft Auckland Plan was issued for public consultation and included the need for an additional harbour crossing (Auckland Council 2011). Following public consultation, the Auckland Plan was issued in 2012 highlighting the AWHC as one of the three transport projects critical to Auckland’s growth. The plan confirmed a preference, as indicated by the Auckland public, for a tunnel rather than a bridge.
- 2012-2013 – Further internal Transport Agency studies were undertaken investigating the network implications (New Zealand Government 2012, Additional Waitemata Harbour Crossing Network Implications), the possibility of combined road and rail tunnels (New Zealand Government 2012, Additional Waitemata Harbour Crossing Combined Tunnel Feasibility Study), and confirming the form and alignment of the additional crossing.
- 2013 – The Cabinet Economic Growth and Infrastructure Committee noted MOT and Transport Agency advice that the AWHC’s proposed western tunnel route alignment was the most desirable alignment from an operational cost, environmental and implementation perspective. The Government supported the NZ Transport Agency protecting its preferred western tunnel route for the additional harbour crossing.

Figure 2 shows the 159 options considered in 2008. The preferred route between Onewa Road and Esmonde Road on the North Shore, and the Central Motorway Junction in central Auckland has formed the basis of the current option assessment work.



Figure 2: 159 options considered in 2008

OPTIONS (ALTERNATIVES) ASSESSMENT - THE CURRENT PHASE

The current phase of option (alternative) assessment has focused on comparing over 60 variations of the 2008 base alignment. These variations to the base alignment were defined by feasible connection points to the central motorway junction in the city and the Northern Motorway on the North Shore in the vicinity of Esmonde Road or Onewa Road interchange. The AWHC tunnels are intended to provide motorway-to-motorway connections that by-pass Auckland’s city centre. The Auckland Harbour Bridge will provide direct connections between the city centre and the North Shore.

For the Southern side of AWHC, around 48 alternatives were developed on the basis of three feasible bored tunnel portal locations (Z Pier, Victoria Park and Wynyard Quarter) and their tie-in to the motorway.

A suite of 18 alternatives were developed for the Northern connection, including alternative connections to Esmonde Road and Onewa Road. Bored tunnel configurations stopped at Onewa Road, continued to Esmonde Road or had a combination of both (i.e. northbound stopping at one location, southbound at the other).

MULTI-CRITERIA ANALYSIS (MCA) PROCESS

Multi-Criteria Analysis (MCA) methodology is regularly used by the Transport Agency to compare options against a range of criteria and in particular the social and environmental effects of the options as part of the designation process under the RMA. The MCA framework is also used to consider some of the broader business case matters used by the Transport Agency, including transport benefits and costs.

The MCA tool has been developed and applied within a “collaborative decision” format to evaluate the 60+ AWHC route alternatives derived from the 2008 base alignment.

Altogether 36 attributes were identified as being relevant to differentiate between alternatives and responding to key parts of the RMA. These attributes were grouped into the following key criteria areas (see Figure 3 below):

- Environment
- Transport
- Cultural (Mana Whenua)
- Community (including Social Effects)
- Other factors important to NZTA including costs, constructability and consentability

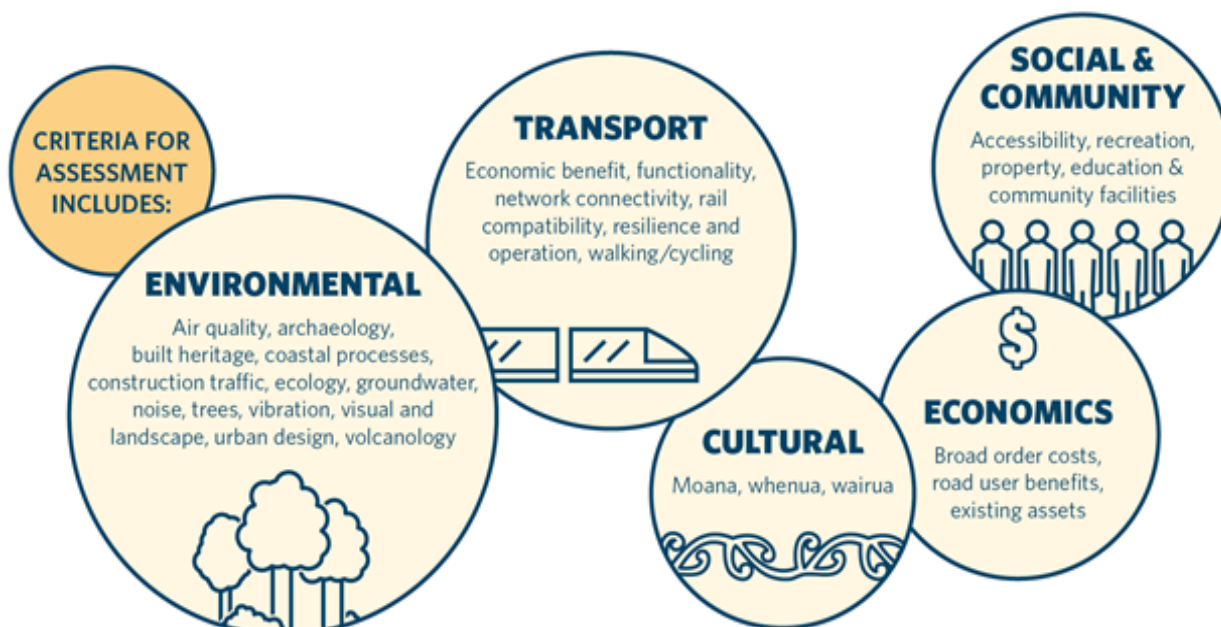


Figure 3: Alternatives assessment criteria

For each individual attribute a range of specialists covering the environmental, design, transport and economic spectrum assessed how each alternative ranked against each other and as compared to the “do minimum” condition (i.e. without an additional harbour crossing). A seven point scoring system was adopted, ranging from ‘Positive Significant’, through ‘Neutral’ to ‘Adverse Significant’ impacts.

The MCA process involved a series of workshops during 2016 with subject matter experts assessing the relative benefits and dis-benefits of each option using the MCA criteria in a collaborative forum. High level feedback from key stakeholders including Heritage NZ, Auckland Council, Auckland Transport, Local Boards and the Department of Conservation has also been used to inform the MCA discussion and related decision making. Mana whenua groups holding an ancestral association and interest in the project area are actively participating in the MCA process as the project's cultural experts. Mana whenua developed the cultural MCA criteria, provided cultural baselines for assessment and informed the project team of issues, values and opportunities via a series of workshops and site visits (see Figures 4 and 5 below).



Figure 4: Site visits with Iwi



Figure 5: Iwi-led MCA hui

OUTCOMES FROM THE MCA PROCESS

Early outcomes from the MCA process indicate that alternatives selected going forward are those that have comparatively lower impacts on the social, cultural and natural environment while still meeting the project's transportation objectives.

The main alternatives for the north side include connections to either Onewa Road or Esmonde Road (see Figure 6 below). Following initial MCA workshops, further assessment and refinement to options have been undertaken and the Transport Agency will soon be recommending an alternative for route protection. This extended process to arrive at a robust recommended alternative is not uncommon for a project of this scale. The best performing alternative will look to minimise impacts on valued volcanic features, cultural sites and ecological areas, and avoid reclamation into the Waitematā Harbour. Reclamation was not supported by a number of key stakeholders and Iwi. At the time of the initial MCA process, reclamation was considered un-consentable as it was classified as a prohibited activity under the operative Auckland Regional Coastal Plan and non-complying under the proposed Auckland Unitary Plan.

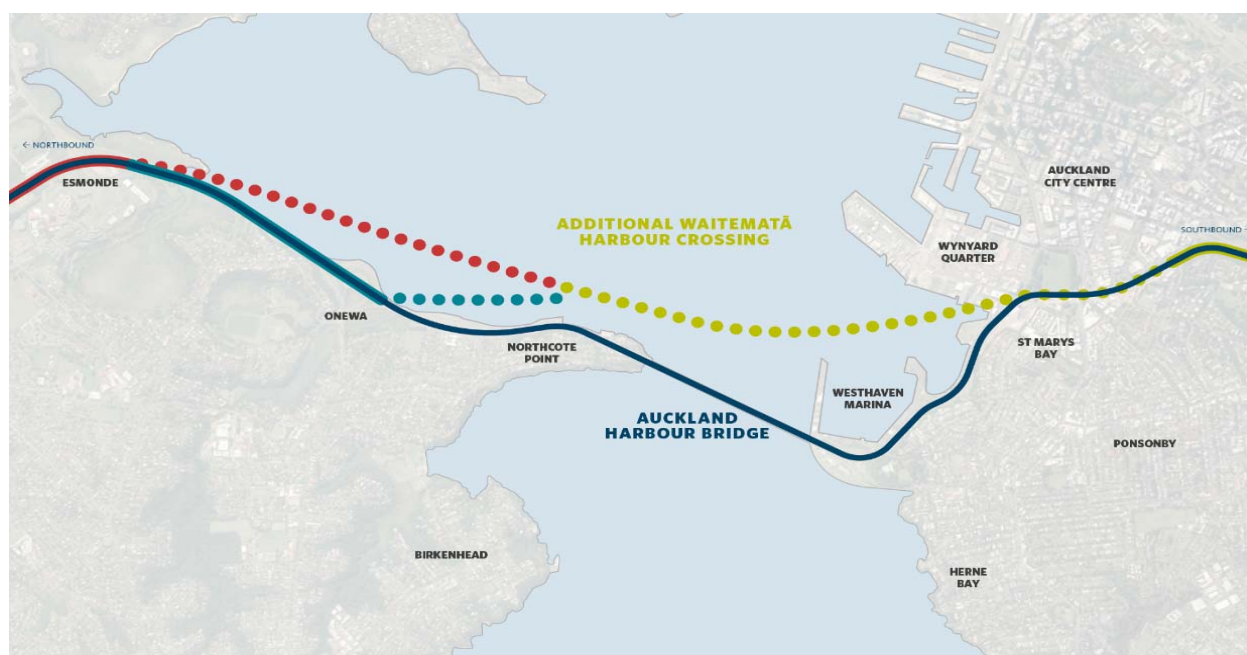


Figure 6: Options for the AWHC MCA process

For the Southern (City side) the best performing alternatives are those which minimised impacts on Victoria Park (i.e. the former shoreline), associated cultural and heritage sites and avoiding impacts on the local school adjacent to the motorway.

NEXT STEPS

Collaboration with the project experts, partners and stakeholders has led to the development of a recommended alignment that meets the transport objectives and Auckland's future transport needs within a highly valued environmental, social and cultural context. Importantly too, the recommended corridor works for all potential rail modes. Following confirmation of a recommended option the Transport Agency will be seeking to formally protect the route under the RMA. The Transport Agency with its project partners will be working together hereon in to further refine the design, connections to the wider network and mode options.

Ultimately, the protected route will form the basis of a fully integrated multi-modal transport corridor that meets the needs of Auckland's future.

REFERENCES

Auckland Council 2011, Draft Auckland Plan summary, Auckland,
<<http://www.aucklandcouncil.govt.nz/EN/planspoliciesprojects/plansstrategies/theaucklandplan/Documents/draftaucklandplansummary.pdf>>.

Ministry of Transport, The Treasury, Auckland Council, Auckland Transport, State Services Commission, NZ Transport Agency 2016, *Auckland Transport Alignment Project Interim Report: Findings and Conclusions – May 2016*, Auckland,
<<http://www.transport.govt.nz/assets/Uploads/Land/Documents/Auckland-Transport-Alignment-Project-Interim-Report.pdf>>.

New Zealand Government 2010, *Additional Waitemata Harbour Crossing Preliminary Business Case*, New Zealand Transport Agency (Auckland),
<<https://www.nzta.govt.nz/assets/projects/awhc/docs/preliminary-business-case-report.pdf>>.

New Zealand Government 2011, *Additional Waitemata Harbour Crossing Form Assessment Study Report*, New Zealand Transport Agency (Auckland),
<<https://www.nzta.govt.nz/projects/awhc/technical-reports/>>.

New Zealand Government 2012, *Additional Waitemata Harbour Crossing Combined Tunnel Feasibility Study*, New Zealand Transport Agency (Auckland).

New Zealand Government 2012, *Additional Waitemata Harbour Crossing Network Implications*, New Zealand Transport Agency (Auckland).

Transit New Zealand, Auckland City Council, Auckland Regional Council, North Shore City, ARTA 2008, *Waitemata Harbour Crossing Study 2008*, Auckland,
<<https://www.nzta.govt.nz/projects/awhc/technical-reports/>>.