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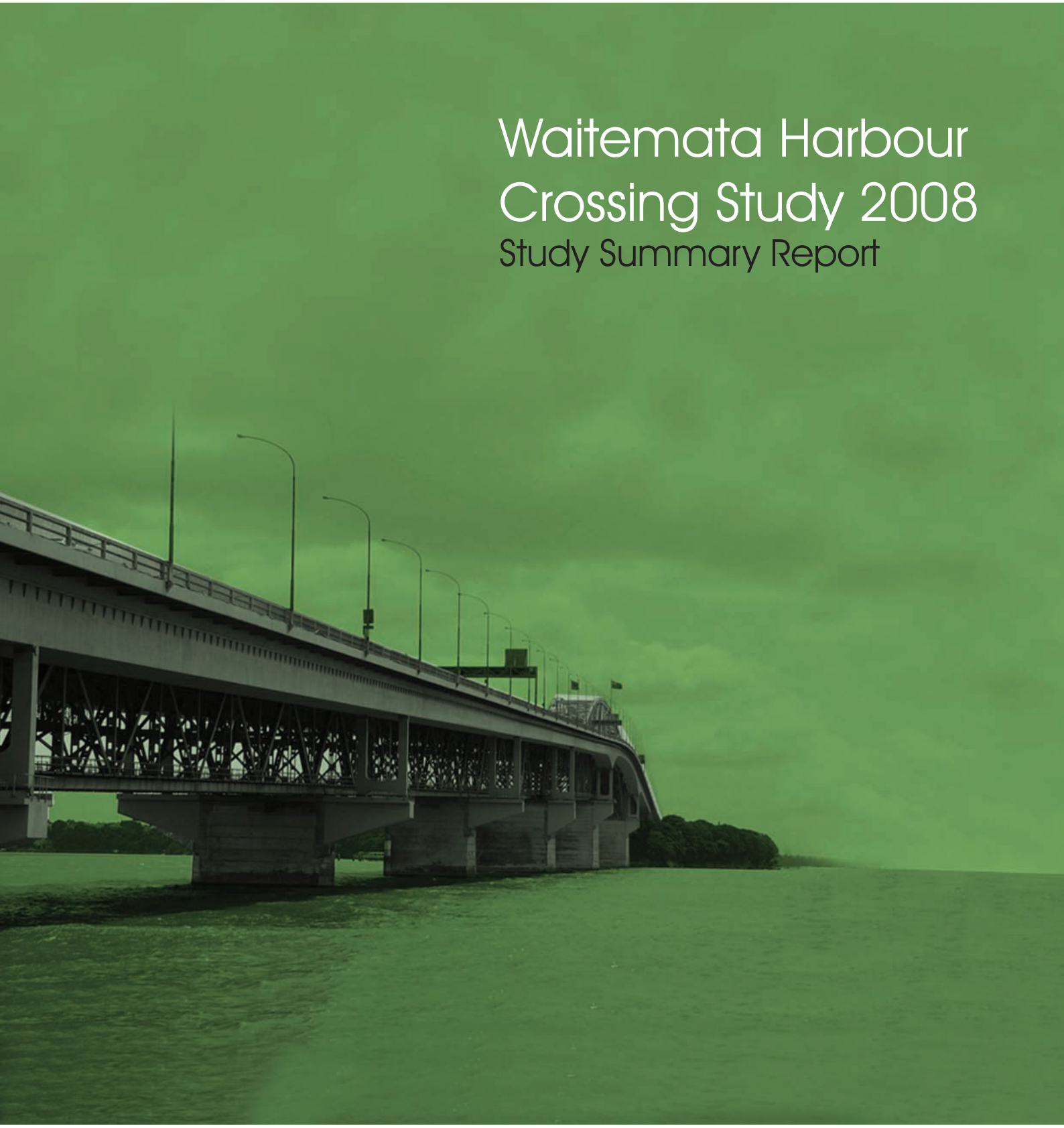
# Waitemata Harbour Crossing Study 2008

## Study Summary Report



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# Waitemata Harbour Crossing Study 2008

## STUDY SUMMARY REPORT

April 2008

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# Document history and status

| Revision | Date issued | Reviewed by | Approved by | Date approved | Revision type |
|---|---|---|---|---|---|
| 1.0 | 31 March 2008 | H Asche | D McCoy | 31 March 2008 | Client issue |
| Final | April 2008 | H Asche | D McCoy | April 2008 | General Circulation |
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## Distribution of copies

| Revision | Copy no | Quantity | Issued to |
|---|---|---|---|
| 1.0 | 1 | 1 plus electronic | Client team members, study team |
| Final | 1 | | General Circulation |
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|---|---|
| **Printed:** | 18 May 2008 |
| **Last saved:** | 18 May 2008 01:54 PM |
| **File name:** | I:\ANFAA\Projects\AN00866\DELIVERABLES\FINAL VERSIONS OF ALL REPORTS\Study Summary Report\Study Summary report final.doc |
| **Author:** | DSM |
| **Project manager:** | DSM |
| **Name of organisation:** | WHC Project Partners |
| **Name of project:** | Waitemata Harbour Crossing Study |
| **Name of document:** | Study Summary Report |
| **Document version:** | Final |
| **Project number:** | AN00866.0 |

# 1. Executive Summary

## 1.1 Report Purpose

Organisations responsible for planning transport infrastructure around the Auckland Harbour (the Project Partners) decided to undertake the Waitemata Harbour Crossing Study, to identify the preferred location for an additional harbour crossing. Issues associated with the Wynyard Quarter Plan Change prompted the need to this matter to be given some urgency.

The study objective was:

**"To identify the preferred option for delivering integrated, safe, responsive and sustainable cross-harbour travel between North Shore and the Isthmus to facilitate the future growth and development of the Auckland Region."**

Supporting this objective, a series of project objectives and functionality principles were derived. The overall theme was focused towards improving passenger transport links between North Shore City and the CBD, improving wider regional connectivity for all modes of travel and improving the resilience and flexibility of the transport network.

This report describes the study, which was carried out in two separate phases; phase 1 involved development of a long list of possible options for a new harbour crossing and a subsequent assessment to determine a short list. In Phase 2, the short listed options were refined and assessed in greater detail, from which a recommended option was identified for the new crossing.

## 1.2 Evaluation Framework

Given the policy background for New Zealand transportation projects, an LTMA / RLTS themed evaluation framework was developed as an assessment tool to initially determine short listed options, then which option was to be recommended. Key criteria within the evaluation framework were as follows:

- Economic Development and Regional Growth – covering consistency with the Regional Growth Strategy and economic growth;
- Connectivity – addressing connections between transport networks, functionality principles and flexibility;
- Environmental – sustainability issues and the key environmental criteria such effects on natural and built environments;
- Social & Community – measures of social severance and displacement of communities; and
- Implementation – relating to cost only in Phase 1, but extended to include risk, constructability, staging and flexibility in Phase 2.

## 1.3 Study Phase 1

The first task in Phase1 was development of a long list of feasible options for the crossing. A key aspect of the study was to consider how to provide for both passenger transport and other modes crossing the harbour. Given the long term planning horizon for the project, the passenger transport element of the new crossing was optimised for electrified suburban rail. All options were developed recognising the potential future use of the existing Auckland Harbour Bridge.

The study identified 159 possible options for a new harbour crossing (plus a "do-nothing" option of no new crossing), with tunnels or bridges joining the same points considered to be two separate options. In addition, options were generated with intermediate connection points where possible; for example routes connecting Esmonde Road to SH16 (Port and Westbound) at Central Motorway Junction (CMJ) have possible connections at Onewa and Wynyard.

Once the option long list was finalised, options were evaluated to produce a short list. The first step focussed on the positive aspects of the options, namely economic development, regional growth and connectivity criteria, from which a reduced list of options was derived. Subsequently, the reduced option list was reassessed using a more refined assessment system and considered both positive and negative aspects of options.

Operational options, such as ferries, did not reach the short list as they did not satisfy the project objectives as effectively as other options. However, measures to optimise use of existing infrastructure and improve ferry services are likely to be implemented prior to a new harbour crossing.

The evaluation process concluded with a short list of options on three alignments, although the question of whether the crossing would be a bridge or a tunnel had not been settled. Ports of Auckland operational requirements rendered a bridge impractical from Princess Wharf eastwards, as the approaches would be too long to achieve the necessary height. However, alignments that would be suitable for rail by bridge were feasible to the west of Princes Wharf, given the gradients would have to be shallower than the existing bridge.

Phase 1 of the study concluded with the following option short list:

**Option 1: Esmonde to Britomart**

- Passenger transport (only) in a new tunnel or on a new bridge between Esmonde and Britomart, with possible connections at Onewa and Wynyard.
- General traffic on the existing Auckland Harbour Bridge
- Walking and cycling on either a new bridge or the existing Auckland Harbour Bridge (with appropriate modifications to the existing bridge.)

**Option 2 Esmonde to Britomart & SH16**

- Passenger transport in either a new tunnel or new bridge across the harbour, with tunnels to landside connections between Esmonde and Britomart. Possible connections at Onewa and Wynyard.
- General traffic in either a new tunnel, or new bridge (as well as on the existing bridge), with tunnels to landside connections between Esmonde and SH16 at either Wellington Street (Port and Westbound) or Newton (Westbound only). Possible connections at Onewa and Wynyard.
- Walking and cycling on either a new bridge or the existing Auckland Harbour Bridge (with appropriate modifications to the existing bridge.)

**Option 3 Esmonde to Britomart & Grafton**

- Passenger transport in a new tunnel between Esmonde and Britomart. Possible connection at Onewa.
- General traffic in a new tunnel between Esmonde and Grafton (as well as on the existing bridge) with possible connection at Onewa.
- Walking and cycling on the existing Auckland Harbour Bridge (with appropriate modifications to the existing bridge.)

A plan showing each of these options is included as Figure 1 overleaf.

## 1.4 Study Phase 2

Phase 2 of the study involved developing the short listed option concepts, assessments of performance and impacts against a range of criteria, then comparing options using the evaluation framework.

It was assumed that an electrified suburban rail operation crossing the harbour to North Shore would be similar to that currently proposed for the south side of the harbour. The rail network is planned to be enhanced with the introduction of the CBD rail loop. An important part of the CBD rail loop will be a City Centre rail station, probably in the vicinity of Albert Street / Wellesley Street. Hence for this phase of study the southern limit of the passenger transport element of the harbour crossing was taken to be Fanshawe Street / Quay Street, rather than Britomart.