

WESTERN HARBOUR CROSSING, HONG KONG, HONG KONG

OVERVIEW

LOCATION:

WESTERN HARBOUR, HONG KONG

SCOPE: INTRA-URBAN

TRANSPORT MODE: ROAD

PRINCIPAL CONSTRUCTION: TUNNEL

NEW LINK: YES

PRINCIPAL OBJECTIVES

STRATEGIC TRANSPORT LINK

CONGESTION RELIEF

PRINCIPAL STAKEHOLDERS

CLIENT/PROJECT MANAGER:

HK GOVERNMENT

CONCESSIONAIRE:

WESTERN HARBOUR TUNNEL CO LTD

MAIN CONTRACTOR:

NISHIMATSU KUMAGAI JV

DESIGNER:

MAUNSELL-ACER-PARSONS BRINCKERHOFF

LOAN ARRANGER: HSBC

PLANNING AND IMPLEMENTATION

PLANNING START DATE: 05/1989

CONSTRUCTION START DATE: 08/1993

OPERATION START DATE: 04/1997

MONTHS IN PLANNING: 51

MONTHS IN CONSTRUCTION: 44

PROJECT COMPLETED: 3 MONTHS

AHEAD OF SCHEDULE

COSTS (IN 2010 USD)

PREDICTED COST: 0.83BN

ACTUAL COST: 0.90BN

PROJECT COMPLETED: 8% OVER BUDGET

FUNDING: 100% PRIVATE

(69:31 DEBT:EQUITY)

INFRASTRUCTURE QUANTITIES

LENGTH (IN TUNNEL): 2KM

LENGTH (CONNECTING ROADS): 10KM

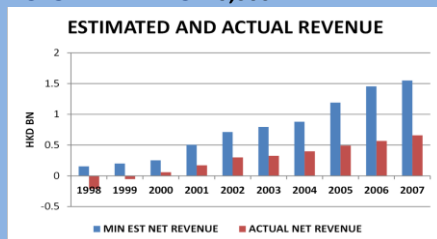
NUMBER OF BRIDGES: 17

COST PER KM (2010 USD): 0.07BN

PATRONAGE (1997) & REVENUE

FORECAST TRAFFIC: 50-70,000 VPD

ACTUAL TRAFFIC: 20,000 VPD



INTRODUCTION

Western Harbour Crossing was Southeast Asia's first dual three-lane immersed tunnel when it opened in 1997. It is a build-operate-transfer project funded through tolls.

The tunnel is 2km long and has 10km of associated roads. It connects Hong Kong Island and the West Kowloon Reclamation, and forms part of Hong Kong's Airport Core Program.

BACKGROUND

The main objectives of the project were to relieve growing traffic congestion on the two existing harbour crossings and to contribute to the transport infrastructure links planned to support the new airport due to open in 1997.

The government decided at an early stage that the Tunnel should be funded by the private sector. In 1991 a study by the Western Harbour Crossing Consultants of the project's engineering, financial and environmental feasibility suggested a build-operate-transfer model.

The government's advisory committee on the environment rejected the environmental impact assessment report, as measures to reduce the impact of traffic noise upon residents were considered inadequate. The government later agreed a compensation package for those affected.

The formal enabling mechanism for the project was a government ordinance enacted in 1993. However, the impending transfer of sovereignty to China formed an influential backdrop to the project's progress. The agreement between British and Chinese governments on financing for the Airport Core Program was the subject of intensive negotiations leading up to the transfer in 1997. The full Program would be a significant drain on government reserves and the operation of its facilities would continue beyond the transfer. However, the WHC project was also considered justifiable on a stand-alone basis even without other elements of the Program.

Following the invitation of tenders, the Western Harbour Tunnel Company Ltd (WHTCL) was appointed by the Hong Kong government to finance, design, build, maintain and operate the WHC for 30 years, until August 2023. No other bids had been received: the two leading bidders had joined forces shortly before submitting their bid.

TIMELINE

CONCEPTION: 1981: SHORTLISTED OPTIONS FOR NEW TUNNEL CROSSING

CONCEPTION: 1989: NEED FOR TUNNEL CONFIRMED IN COMPREHENSIVE TRANSPORT STUDY. FEASIBILITY STUDY BEGINS

CONTEXT: 1989: NEW AIRPORT ANNOUNCED

CONCEPTION: 1990: GOVERNMENT ANNOUNCES PROJECT WILL BE BUILT AS B-O-T SCHEME

DELAY: 1991-2: ADVISORY COMMITTEE REJECTS EIA REPORT, GOVERNMENT AGREES COMPENSATION PACKAGE

CONTEXT: 1991: BRITISH/CHINESE AGREEMENT ON SUPPORT FOR AIRPORT CORE PROGRAM

INCEPTION: 1992: CALL FOR TENDERS FOR B-O-T SCHEME

INCEPTION: 1992: THE TWO LEADING BIDDERS JOIN FORCES AS WHTCL AND SUBMIT ONLY BID

INCEPTION: 1992: WHTCL AWARDED FRANCHISE

INCEPTION: 1993: FORMAL PROJECT APPROVAL BY GOVERNMENT ORDINANCE

INCEPTION: 1993: WHTCL AND GOVERNMENT AGREE TOLL ADJUSTMENT MECHANISM

INCEPTION: 1993: WHTCL/BANKS LOAN AGREEMENT

CONSTRUCTION: 1993: CONSTRUCTION BEGINS

CONSTRUCTION: 1995 (SEPT): FIRST FOUR SECTIONS OF IMMERSSED TUBE IN POSITION, WHC 48% COMPLETE

CONSTRUCTION: 1996 (APR): FINAL UNIT SUNK INTO PLACE, WHC 71% COMPLETE

CONSTRUCTION: 1996 (SEPT): IMMERSSED TUNNEL SECTION COMPLETE

CONSTRUCTION: 1996 (DEC): WHC 95% COMPLETE

DELAY: 1996: TAXI DRIVERS DISPUTE TOLL LEVEL

DELIVERY: 1997 (APR): WHC OPENED TO TRAFFIC

CONTEXT: 1997 (JUL): HONG KONG SOVEREIGNTY TRANSFERRED TO CHINA

DELIVERY: 2001: TOLL RISES HAVE REDUCED TRAFFIC, CONGESTION ON OTHER HARBOUR CROSSINGS INCREASED

DELIVERY: 2023: END OF CONCESSION

CHARACTERISTICS

The project cost was estimated in 1992 as HKD 6.5bn (at 1997 prices) (USD 0.83bn at 2010 prices)ⁱ. The final cost in 1997 was HKD 7bn (USD 0.90bn at 2010 prices), although WHTCL raised HKD 7.5bn in finance. The government also spent HKD 2.8bn on associated roadworks.

Shares in WHTCL are held by Cross Harbour Tunnel (37%), China Merchants (Hong Kong) (13%), the Adwood Consortium (CITIC Pacific, 10%, and CITIC Hong Kong, 25%) and Kerry Group (15%). WHTCL appointed the Nishimatsu Kumagai JV as main contractor, with sub-contracts for design, reclamation works, construction of the immersed tunnel, and mechanical, electrical and electronic works. They also appointed Scott Wilson Kirkpatrick as an independent checker and Ove Arup & Partners as project co-ordinator.

TIMELINE ISSUES

Despite initial uncertainties about Chinese government support, there were no major delays and the project was completed ahead of schedule.

FUNDING

WHTCL was required to maintain a debt: equity ratio of 69:31. It provided HKD 2.4bn equity for the project, and borrowed HKD 5.1bn in a syndicated bank loan involving 22 banks (60-70% from Japanese banks). Its agreement with the government involved an automatic toll adjustment mechanism that guaranteed the concessionaire a target rate of return. This caused controversy amongst legislators, who argued that the rate of return was too high, but the government refused to jeopardise the project by re-opening negotiations.

According to government estimates, WHTCL was expected to earn net revenue of HKD 60-83.7bn during the concession period. However, its performance has been disappointing to date: both traffic volumes and revenue have been consistently well below estimates. WHTCL has responded by increasing toll levels (four times to 2008), but this has only resulted in further reductions in traffic volumes and queues at the two other harbour crossings, which have lower tolls. The project has thus been criticised for not meeting its original objective of relieving congestion on the other crossings.

ⁱ Costs have been converted to USD at 2010 prices, using historic inflation rates and current exchange rates, to allow comparison between projects.