

ORESUND LINK, COPENHAGEN-MALMÖ, DENMARK-SWEDEN

OVERVIEW

LOCATION: COPENHAGEN-MALMÖ
SCOPE: TRANSNATIONAL
TRANSPORT MODE: ROAD/RAIL
PRINCIPAL CONSTRUCTION: BRIDGE/TUNNEL
NEW LINK: YES

PRINCIPAL OBJECTIVES

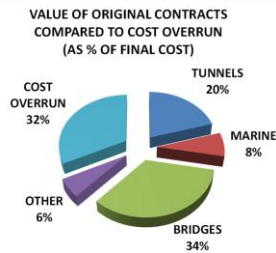
INTERNATIONAL TRANSPORT LINK
TRANS-EUROPEAN NETWORK
CROSS-BORDER REGIONAL DEVELOPMENT
LOCAL AIRPORT LINK

PLANNING AND IMPLEMENTATION

APPROX. PLANNING START DATE: 1984
CONSTRUCTION START DATE: 10/1993
OPERATION START DATE: 07/2000
MONTHS IN PLANNING: 112
MONTHS IN CONSTRUCTION: 81
PROJECT COMPLETED: ON SCHEDULE

COST (IN 2010 USD)

PREDICTED COST: 2.96BN
**ACTUAL COST: 4.10BN (TUNNELS: 0.9BN;
MARINE: 0.33BN; BRIDGES: 1.5BN)**
**PROJECT COMPLETED:
39% OVER BUDGET**
FUNDING: 100% PRIVATE



INFRASTRUCTURE QUANTITIES

TOTAL LENGTH: 74KM
RAIL: 42KM
ROAD: 32KM
BRIDGE: 7.8KM
TUNNEL: 4KM
ARTIFICIAL ISLAND: 1.3KM²
COST PER KM (2010 USD): 0.06BN

PATRONAGE

**FORECAST TRAFFIC (2007):
15,732 VPD (ROAD); 28,000 PPD (RAIL)**
**ACTUAL TRAFFIC (2007):
18,432 VPD (ROAD); 26,600 PPD (RAIL)**

INTRODUCTION

A road and rail link across the Oresundⁱ between Sweden and Denmark, consisting of a bridge 7.8km long and a tunnel 4km long.



In addition to improvements to connecting transport infrastructure, associated hub development is taking place at Bridge City in Malmö and Ørestad in Copenhagen.

BACKGROUND

Proposals for a fixed link date back to the mid-19th century although technical and political feasibility was often an issue. The Swedish and Danish governments agreed to build a link in 1973, but the energy and economy crisis, Denmark's decision to join the EU and increasing environmental awareness blocked progress.

The European Roundtable of Industrialists lobbied for a link in 1984 but their proposal was perceived as a road project facilitating 'just-in-time' production and so threatening jobs at the local and national level, and met with widespread scepticism. The objective of promoting cross-border regional development emerged in the late 1980s, in the context of economic difficulties facing both cities and Sweden's decision to join the EU.

Representatives of the two governments formed the Oresund delegation in 1984. Over seven years the delegation studied and reported on options for a link and their environmental impacts (primarily effects on water flow, increased traffic and land use issues). The option of a combined road/rail bridge gained the support of Swedish and Danish parliaments in 1990.

The two governments signed an agreement in 1991, committing them both to form state-owned stock companies. The companies would form a consortium responsible for the financing, design, construction and operation of the link, with loans raised on the international finance market, repaid by revenues from user fees and guaranteed by the two states.

The project remained controversial in Sweden, particularly as the environmental impact assessment took place only after the agreement to build the link was signed. The Swedish National Board for Environmental Protection refused planning permission, but its competence was questioned and the government referred the

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TIMELINE

CONCEPTION: 1973: SWEDISH-DANISH GOVERNMENTS AGREE TO BUILD FIXED LINK



CONTEXT: 1984 EUROPEAN ROUND TABLE PERCEIVED AS LOBBYING FOR ROAD LINK

INCEPTION: 1984: ORESUND DELEGATION APPOINTED

CONCEPTION: 1985: DELEGATION PROPOSES HELSINGBORG-HELINGØR RAILWAY TUNNEL & MALMÖ-COPENHAGEN ROAD BRIDGE. STATE FUNDING RULED OUT

CONTEXT: 1986: GREAT BELT BRIDGE DECISION BREAKS DANISH DOMESTIC POLICY BLOCK ON OTHER FIXED LINKS

CONCEPTION: 1987: DELEGATION RECOMMENDS COMBINED ROAD/RAIL BRIDGE BUT CONTINUES TO CONSIDER RAIL TUNNEL OPTION

INCEPTION: 1990: SWEDISH PARLIAMENT SUPPORTS COMBINED BRIDGE OPTION, DANISH LEADERS FOLLOW SUIT

INCEPTION: 1990: NEGOTIATIONS ON FUNDING STRUCTURE

INCEPTION: 1991: TWO GOVERNMENTS SIGN BINDING AGREEMENT. CONSTRUCTION TO START IN 1993 AND FINISH IN 2000

INCEPTION: 1992: ORESUNDBRO CONSORTIUM FORMED, APPLIES FOR PLANNING PERMISSION

CONSTRUCTION: 1993 (OCT): DANISH LAND INFRASTRUCTURE WORKS IN PREPARATION

CONTROVERSY/DELAY: 1993: PERMISSION REFUSED BY SWEDISH NATIONAL BOARD, FINALLY GRANTED BY WATER RIGHTS COURT BUT CONDITIONAL ON REDESIGN

INCEPTION: 1994: REDESIGN APPROVED BY SWEDISH GOVERNMENT

CONSTRUCTION: 1995: CONSTRUCTION STARTS. OC CONTRACTS WITH THREE CONSORTIA

CONSTRUCTION: 1997: FIRST TUNNEL SECTION IN PLACE

CONSTRUCTION: 1998: FIRST BRIDGE SECTION IN PLACE

DELIVERY: 1999: FIRST CAR DRIVES THROUGH TUNNEL

DELIVERY: 2000 (JUL): HANDOVER AND INAUGURATION

Decision to the Water Rights Court instead. The WRC granted permission, on condition that the project had no impact on water flow: this necessitated a redesign and further approvals.

CHARACTERISTICS

The components of the link were defined in the 1991 agreement: a four lane road and double track railway, starting from an artificial peninsula at Kastrup airport, Copenhagen, crossing in a tunnel to an artificial island and continuing to Limhamn, Malmö by bridge.

The Oresundbro Consortium (AS Oresund, Denmark and Svedab AB, Sweden) signed contracts with three consortia: Oresund Tunnel Contractors; Oresund Marine Joint Venture, for construction of the artificial island and dredging; and Sundlink Contractors, for bridges.

The cost was estimated at USD 2.96bn in 1991 (2010 pricesⁱⁱ). Maritime safety efforts, environmental protection and 'other' were amongst the reasons cited for escalating cost estimates. The final project cost was estimated at USD 4.10bn, a cost overrun of 39%.

TIMELINE ISSUES

Wider political issues influenced the timing of the project, such as the Danish policy not to allow a link across the Oresund before one had been built across the Great Belt. The controversy over environmental impacts delayed the approval process in Sweden.

FUNDING

The Oresund delegation's 1985 recommendation to fund the project entirely outside of public sector budgets was of fundamental importance to the funding structure. The use of surpluses from road tolls to finance land-based connecting infrastructure, and the payment of fixed fees by the national rail agencies to use the rail tracks, were amongst the issues covered in negotiations between the two governments.

As a result of the decision to rely on private funding, the project was appraised on the basis of economic profitability, rather than socio-economic cost-benefit analysis. However, road user fees were reduced when initial traffic was lower than expected, and the Consortium ran at a loss until 2009, despite increasing traffic.

ⁱ The spelling 'Oresund' reflects a compromise between the Danish *Øresund* and Swedish *Öresund*

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