

NEUBAUSTRECKE (NBS) KÖLN-RHEIN/MAIN, COLOGNE-FRANKFURT, GERMANY

OVERVIEW

LOCATION: FRANKFURT-COLOGNE
SCOPE: INTER-URBAN
TRANSPORT MODE: RAIL
PRINCIPAL CONSTRUCTION: GRADE
NEW LINK: YES

PRINCIPAL OBJECTIVES

NATIONAL/REGIONAL COMPETITIVENESS
NATIONAL/REGIONAL TRANSPORT LINK
PART OF EU TEN NETWORK
TRAVEL TIME SAVINGS
ALTERNATIVE TO CAR/AIR
EMERGENT OBJECTIVES:
LOCAL ECONOMIC DEVELOPMENT
LOCAL ACCESSIBILITY
STRATEGIC TRANSPORT LINK

PRINCIPAL STAKEHOLDERS

CLIENT: GFR/DB AG
PRINCIPAL FUNDER:
NATIONAL GOVERNMENT
ADDITIONAL FUNDING:
DB AG/EU/AIRPORT OPERATORS/REGION
PRINCIPAL CONSULTANT: DE CONSULT
REGULATOR: FEDERAL RAILWAY AGENCY

PLANNING AND IMPLEMENTATION

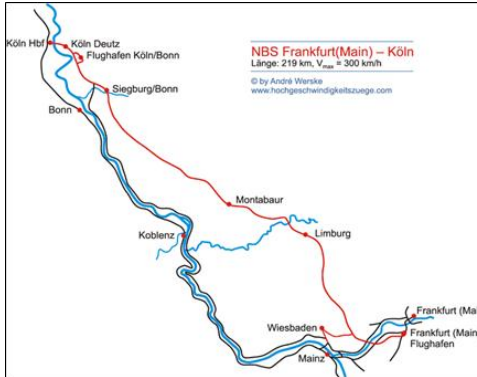
PLANNING START DATE: 09/1985
CONSTRUCTION START DATE: 12/1995
(SOUTH); 02/1997 (CENTRAL); 12/2000
(AIRPORT LOOP)
OPERATION START DATE: 05/1999
(SOUTH); 08/2002 (CENTRAL); 06/2004
(AIRPORT LOOP)
MONTHS IN PLANNING: 123; 137; 183
MONTHS IN CONSTRUCTION: 41; 66; 42
PROJECT COMPLETED:
12-36 MONTHS BEHIND SCHEDULE

COSTS (IN 2010 USD)

PREDICTED COST: 8.21BN (6.57+1.64)
ACTUAL COST: 8.57BN
PROJECT COMPLETED:
4% OVER BUDGET
FUNDING: 100% PUBLIC

INFRASTRUCTURE QUANTITIES

LENGTH (ROUTE): 177KM
LENGTH (TOTAL TRACK): 219KM
LENGTH IN TUNNEL: 47KM
LENGTH OF VIADUCTS: 6KM
NUMBER OF STATIONS: SIX
COST PER KM (USD 2010): 0.048N



INTRODUCTION

The 177km NBS Cologne-Rhine/Main line is the first rail track in Germany to be built exclusively for high-speed passenger trains. It has reduced the journey time between the two cities by half.

The line serves eight stations, including Frankfurt and Cologne/ Bonn Airports (the latter via a loop), of which five were built as part of the project. It also includes a branch line to Wiesbaden and Mainz. It is part of the European high-speed rail network linking Paris, Brussels, Cologne/Frankfurt, Amsterdam and London.

BACKGROUND

The main objective of the project was to aid national and regional economic development and attract passengers from air and road travel, by reducing journey times between Cologne and Frankfurt.

German Federal Railways (GFR) began planning a new line between Cologne and the Rhine/Main region in 1965. It was included in the 1973 Federal Transport Infrastructure Plan (FTIP), but the plan is not legally binding and the line was abandoned in 1976 due to a lack of consensus about the route.

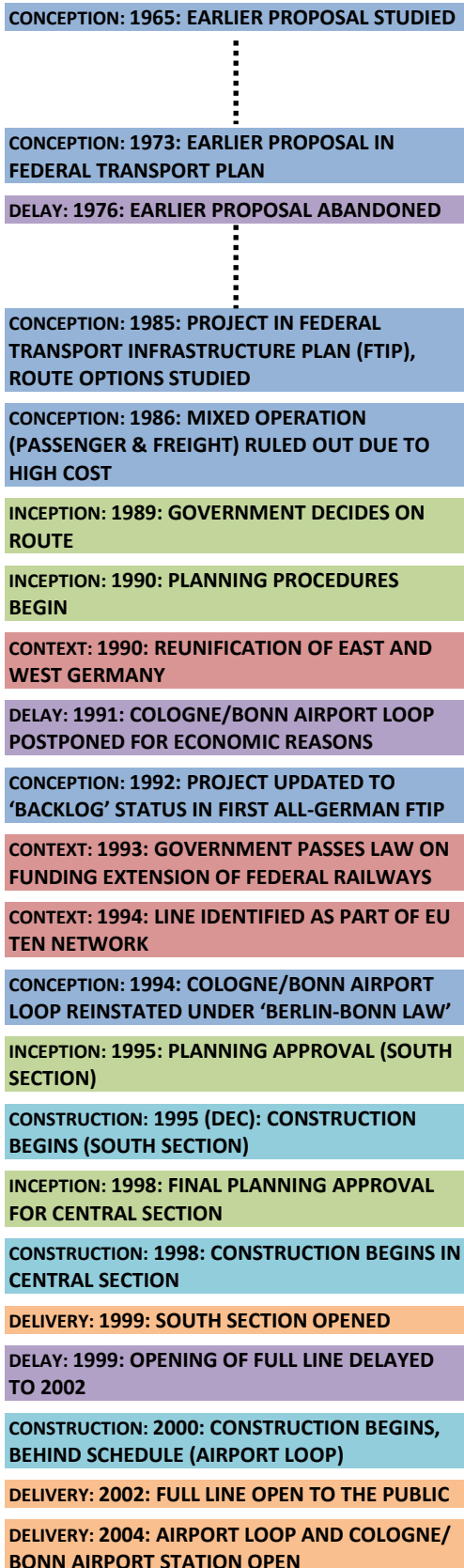
A new proposal appeared in the 1985 FTIP, and GFR began comparing five route options. A cost-benefit analysis at the time gave a ratio of 4.0, making it a high priority project. An early decision was to contain costs by catering only for passenger traffic.

The national government decided on the route in broad terms, and detailed route plans were considered through the spatial planning procedures of the three regional governments involved. The procedures included environmental impact assessments and public consultation and in this case led to about 100, mostly unsuccessful, legal disputes and numerous detailed changes to the project. Although originally planned with only one intermediate stop, extra stops were required to secure regional government funding. This affected the cost of the project and also the extent to which it could meet its original objective of reducing travel time.

The Cologne/Bonn Airport loop, abandoned in 1991 for economic reasons, was reinstated in 1994 as compensation to Bonn for moving the federal government to Berlin, under the 'Berlin-Bonn' law.

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TIMELINE



CHARACTERISTICS

The cost was estimated at EUR 2.3bn in 1985 (USD 4.85bn at 2010 prices)¹ and EUR 3.96bn (USD 6.57bn at 2010 prices) when construction began in 1995. An additional EUR 1.04bn (USD 1.64bn at 2010 prices) was agreed for the airport loop in 2000. The final project cost in 2004 was EUR 6bn (USD 8.57bn at 2010 prices).

GFR (DB AG from 1992) acted as commissioning client and project manager, and DE Consult was responsible for design. The Federal Railways Agency, established in 1994, took over supervisory and approval roles. Construction contracts were let in three sections, each subdivided into separate lots. The contract for the central section was awarded to a group of bidders based on a 'functional tendering' system.

The line runs mostly parallel to a motorway, reducing environmental impacts. It required 30 tunnels (22 constructed by mining) and passes under motorways 15 times. Slab tracks and linear eddy current brakes are innovative technical features.

TIMELINE ISSUES

The planning procedures involved complex negotiations with regional and local stakeholders, lasting eight years in total. Although the south section around Frankfurt opened on schedule, the central and north sections and Wiesbaden branch did not: tunnelling problems and delays in plan approvals led to intense negotiations between DB AG and the federal government in 1999, after which delivery of these sections was postponed by a year to 2001. The extended construction time also increased costs.

The construction of the Cologne/Bonn Airport loop was initially abandoned for economic reasons, until given legal backing by the 1994 Berlin/Bonn law.

FUNDING

The national government has a legal obligation to provide railway infrastructure and was the principal source of finance. Under a 1995 agreement, it agreed to pay up to EUR 3.96bn (including land acquisition, equipment, structures and planning costs), with EUR 0.15bn in subsidies from the EU. DB AG were to pay EUR 0.41bn and most extra costs. However, cost overruns were such that DB AG actually paid about a third of the total.

¹ Costs have been converted to USD at 2010 prices, using historic inflation rates and current exchange rates, to allow comparison between projects.