DB Engineering & Consulting

Eisenbahn für die Welt von Morgen

Agenda

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Die DB E&C

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Unsere Referenzen

Foto: fotolia/den-belitsky

Das sind wir

Im DB-Konzern

Deutsche Bahn

Vorsitzender

Finanzen & Logistik

Digitalisierung & Technik

Personal & Recht

Infrastruktur

Personenfernverkehr

Regionalverkehr

Güterverkehr

DB InfraGO

DB Energie

DB E.C.O. Group

DB Bahnbau Gruppe

DB Services

DB Kommunikationstechnik

...

DB International Operations

DB Engineering & Consulting

Foto: Getty Images

Mehr als **185 Jahre**
Eisenbahn-Know-how

Das sind wir

In Deutschland

7 Regionen mit mehr als **80 Standorten**

Hauptsitz in Berlin

Kompetenzcenter Stadtbahn
in Karlsruhe

Projekte in mehr als **100 Ländern** seit **1966**

6.200 Mitarbeitende
94 Nationen
für alle Gewerke

Foto: Daniel Saarbourg

DB Engineering & Consulting GmbH | 2024


Das sind wir
Weltweit
Auf allen Kontinenten vertreten
Projekte in mehr als 100 Ländern seit 1966
Foto: EDzL
DB Engineering & Consulting GmbH | 2024

Unsere Leistungen

Maßgeschneiderte Produkte für jede Lebenszyklusphase

Projektmanagement & Beratung

Shadow Operator / Early Operator

Machbarkeitsstudie → **Planung** → **Bauüberwachung** → **Prüfung & Begutachtung** → **Betrieb*** → **Instandhaltung**

- Nachhaltige Mobilitäts-lösungen
- Strategie-beratung
- Beratung schienen-basierte Logistik
- und mehr ...

- Planung Bautechnik
- Realisierungs-management
- Planung Ausrüstungs-technik
- System-Integration
- Baubetriebs planung
- und mehr ...

- Planprüfung
- Unabhängige Begutachtung
- Abnahme-prüfung
- und mehr ...

- Durchführung Betrieb
- Durchführung Instandhaltung
- Betriebs-beratung
- Zustandsüber wachung und -diagnose: Fahrzeuge
- Zustands-überwachung und -diagnose: Infrastruktur
- und mehr ...

Foto: Daniel Saarbourg

*DB International Operations
(Part of DB E.C.O. Group)

Feasibility study tramway extension Darmstadt-Griesheim-West / Riedstadt

Brownfield

Client
- DADINA – Darmstadt-Dieburger Nahverkehrsorganisation

Duration
- November 2019 – December 2020

Services
- Technical investigation,
- Transportation and operational planning,
- Estimation of the benefit-cost factor for:
- New double-track line according to BOStrab (6.5 km)
- Variant analysis

At the moment, tram lines 4 and 9 from Darmstadt terminate in Griesheim at Bar-le-Duc Square. There are considerations to extend the tram network by a new line to the western boundary of Griesheim and beyond to the Riedstadt districts Wolfskehlen and Goddelau.
In a feasibility study, several variants are to be examined to determine the extent to which an extension to Griesheim-West or to Riedstadt would have the prospect of a benefit-cost factor > 1.0 according to the standardized valuation procedure and whether more detailed planning for the project would be recommended.

Potential and feasibility study extension of thr S-Bahn to Dieburg

Brownfield

Client
– RMV Rhein-Main-Verkehrsverbund

Duration
– December 2018 – December 2020

Services
- Investigation of variants with regard to routing (new section), double-tracking and electrification
- New construction of stops and platform extensions
- Calculation of travel time and generation of timetables
- Benefit-cost analysis according to project dossier procedure
- Potential analysis*

Project discription
The study area includes the extension options for the RMV lines S1 and S2 south of Frankfurt to Dieburg as well as the extension of the Dreieich line Buchschlag - Oberroden - Dieburg and a continuation to Darmstadt main station

*Service provision by Inovaplan GmbH, Karlsruhe

Feasibility study and economic feasibility study Vision Odenwaldbahn 2030

Brownfield

Client
- RMV Rhein-Main-Verkehrsverbund

Duration
- Mai 2018 - today

Services
- Platform extension at 27 stations to 170 m, taking into account construction and equipment issues (signaling)
- New construction of two interchange sections
- New construction of a crossing station
- Construction of simultaneous entrances in a junction station
- Scenario consideration for electrification of the line completely / partially using battery hybrid vehicles
- Rough cost estimate
- Economic feasibility study based on the project dossier procedure*.*

*Services provided by Inovaplan GmbH, Karlsruhe

In terms of the dependency of the vehicles and the current capacity shortages, a feasibility study will investigate the economic viability of an expansion of the nearly 130 km long Odenwaldbahn with additional meeting sections and platform extensions.
In addition, electrification of the line as a whole and in sections using battery hybrid vehicles was investigated.

Bilder: links + oben: M. Laug; unten: Willi Schlag

Feasibility study looping out RSB Reutlingen

Brownfield

Client
- City Reutlingen

Duration
- September 2018 – June 2020

Services
- Investigation of variants for looping out of the EBO line into the BOStrab line
- Replacement measures for tracks and platforms at DB
- Route variants for the Gomaringer Spange
- Concept for operational handling
- Section-by-section integration of light rail into road space

The city of Reutlingen is served by the Plochingen - Tübingen main line. As part of the Neckar-Alb regional light rail system (RSB), it is planned to loop the light rail trains from the north and west out of the line and onto the new inner-city light rail. In addition, the rail line that is to be reactivated from Gomaringen is to be connected.

The geometric framework conditions required an extensive investigation of the technical and operational possibilities.

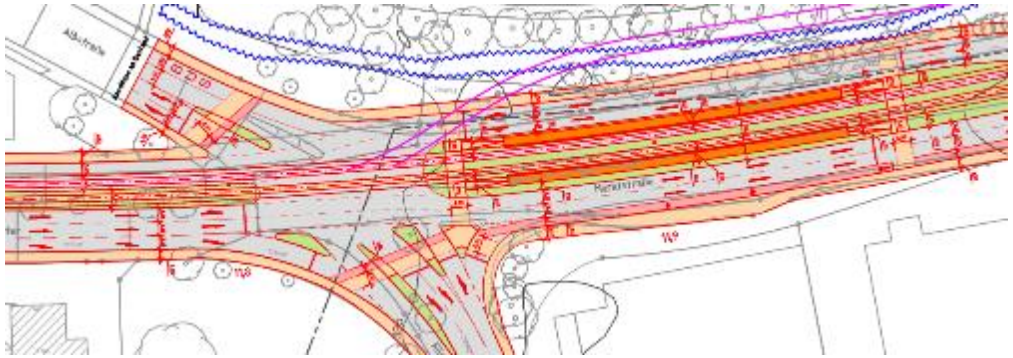
Neckar-Alb regional light rail
Reutlingen light rail with links

Brownfield

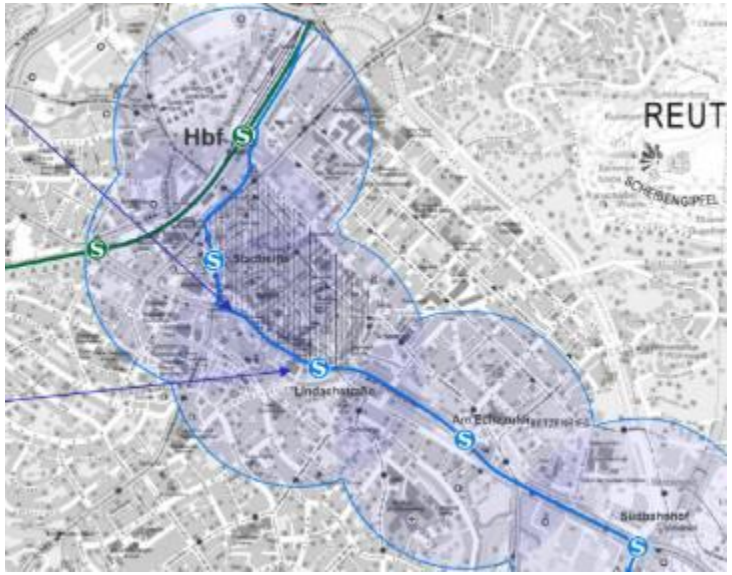
Client
- Stadt Reutlingen

Duration
- November 2018 – July 2020

Services
- Route identification for integration of light rail into DB line (linking BOStrab / EBO)
- Construction feasibility of inner-city line according to BOStrab
- Operational studies with calculation of travel times
- Costing and preparation for benefit-cost analysis (Standi)



- Construction of a new inner-city light rail line (approx. 5 km) from the main train station to the city limits of Pfullingen
- Open discussion of variants for inner-city routing
- Creation of a link between DB and light rail network at Reutlingen main station
- Reactivation of the disused line Reutlingen Hbf - Ohmenhausen (- Gomaringen) with connection to DB and future light rail network; reconstruction with local crossings according to BOStrab



Benefit-cost study
S-Bahn extension Filderebene - Neckartal

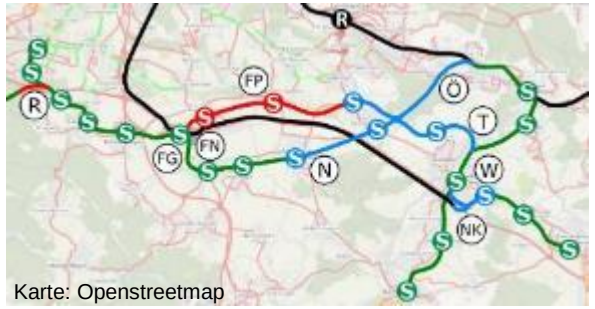
Brownfield

Client
- VRS Verband Region Stuttgart

Duration
- Februar 2020 – ongoing

Services
- Detailed consideration of the course of the corridor
- Verification and detailing of infrastructure planning
- Revision of cost estimate
- Structuring of the cost estimate according to the procedural instructions for standardized evaluation
- Preparation of operating concept and demand study by VWI (Institute of Transport Sciences) Stuttgart

A feasibility study was already carried out in 2019 to establish a new S-Bahn connection from the Filder plain (Stuttgart Airport) to the Neckar valley to the east. The results of that study are now to be updated and evaluated in a cost-benefit analysis. The rough considerations at that time are to be examined and updated in more detail. In particular, the route in the Körschtal valley is to be critically examined with regard to environmental concerns.
The benefit-cost study will be prepared on the basis of the updated cost estimate and the adjusted operating concepts due to new boundary conditions (commissioning of Stuttgart 21 and expert opinion on the Deutschlandtakt) and the resulting traffic effects.



Karte: Openstreetmap

Karte: LGL BW


Bilder: M. Laug

Regional light rail Neckar-Alb
Update Standardized Evaluation

Brownfield

Client
- Zweckverband Regional-Stadtbahn Neckar-Alb

Regional-Stadtbahn Neckar-Alb
Zweckverband

Duration
- 2018 – today

Services
- Update of the standardized evaluation for the Neckar-Alb regional light rail from 2012 according to new procedural instructions (2016).
- Updating of operating concepts with calculation of travel times and partial creation of new operating concepts in FBS
- Creation of platform occupancy plan
- Planning and adjustment of bus services (regional and city bus services)
- Updating of cost estimates and compilation of cost estimates of third parties according to the procedural instructions of the Standardized Evaluation
- Technical consulting for light rail systems in combination BOStrab / EBO

- Construction of new inner-city light rail lines in accordance with BOStrab in Reutlingen and Tübingen
- Creation of a link between the DB and light rail network in the stations of Reutlingen and Tübingen
- Reactivation of disused lines according to EBO and partly BOStrab (Gomaringer Spange, Talgangbahn, Echaztalbahn)
- Electrification and sectional upgrading of existing lines
- New construction of stations to improve the accessibility effect


Quelle: VDV TramTrain

Cost-benefit analysis of the Public Transport Development Wiesbaden Ostfeld

Brownfield

Client
- ESWE Verkehrsgesellschaft mbH

Duration
- March 2020 – Dezember 2020

Services
- Corridor study for a new streetcar line
- Rough cost estimate
- Development of bus concepts
- Economic feasibility study (based on standardized) with demand calculation, operating cost calculation
- Presentation of alternative mobility concepts

To the southeast of downtown Wiesbaden, a new residential area is to be created in the form of Ostfeld, as well as a new commercial area to the west of WI-Erbenheim. As part of the feasibility study, an appropriate public transport system is to be developed for these areas. Different plan cases will be evaluated step by step with the focus on bus access, connection to the local rail transport system and streetcar access.
The study is being carried out in cooperation with PTV TransportConsult in Karlsruhe, which is working on the traffic model, bus traffic and alternative mobility concepts.

CityBahn Wiesbaden/ Mainz
Section 2 Theodor-Heuss-Brücke - WI / University

Brownfield

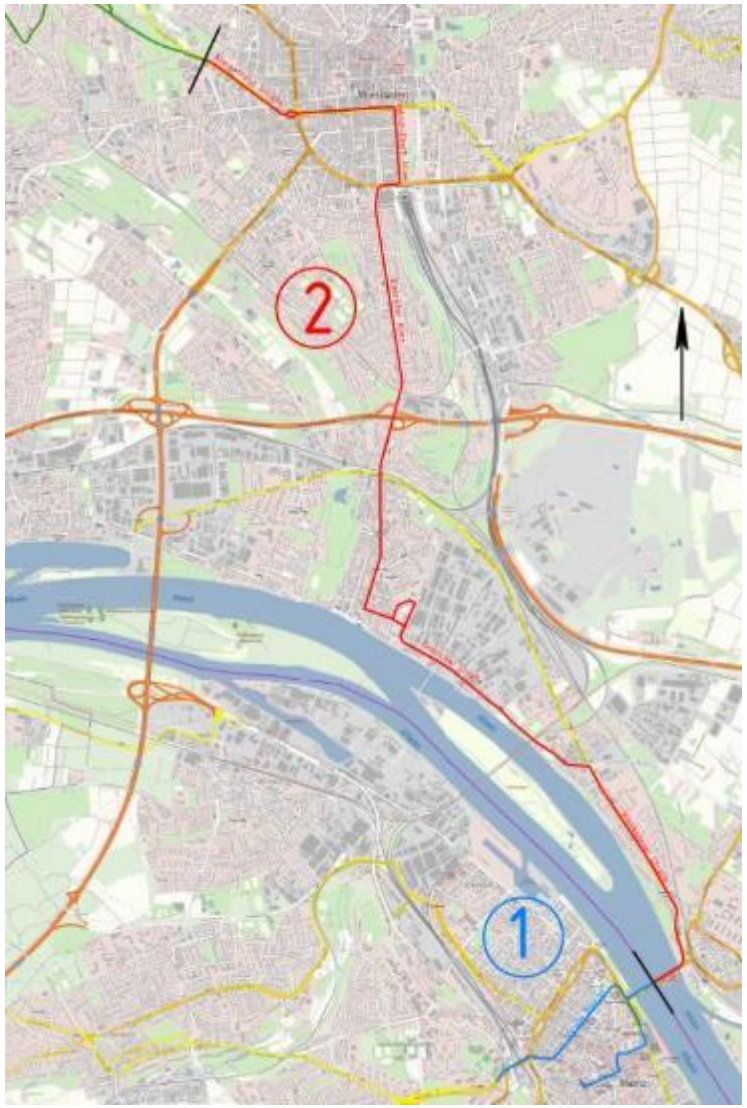
Client
- CityBahn GmbH

Duration
- June 2017 – November 2020

Services*
- Lph 1-4 Overhead line system and DC substations
- Lph 1-4 Control and safety technology
- Lph 1-4 50 Hz technology
- Lph 1-4 Telecommunication systems (BOStrab)
- Geotechnics

Project description
New construction of approx. 12.2 km of tramway on meter gauge, with connection to the Mainz network. Designed for approx. 100,000 passengers per year. The line will be double-tracked, mainly on separate tracks, but also partly flush with the road. The line will be electrified with 750 V DC and overhead lines.

*Services E&C; overall project in consortium of Schüßler-Plan (leader), Mailänder Consult, DB Engineering & Consulting



CityBahn Wiesbaden/ Mainz
Section 3.2/ 4.1 Kohlheck – Bad Schwalbach (Aartalbahn)

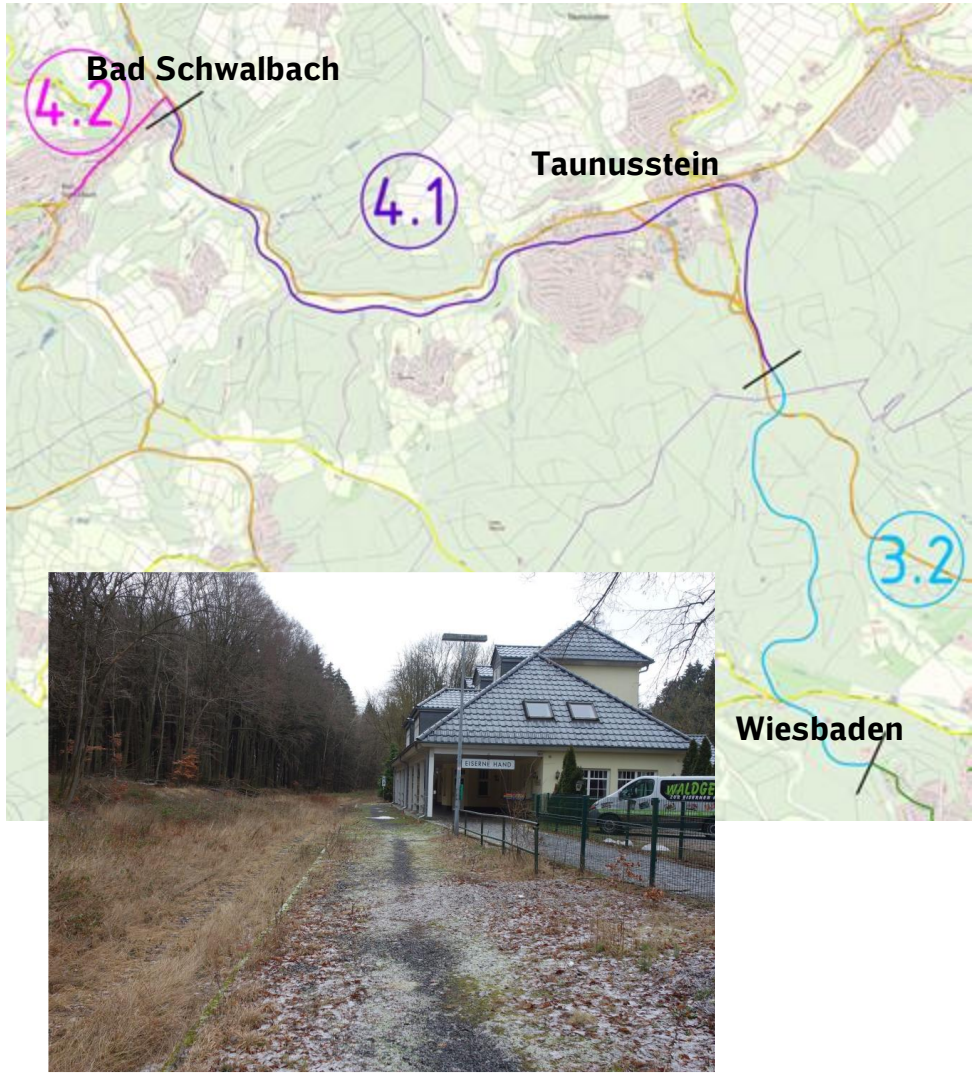
Brownfield

Client
- CityBahn GmbH

Duration
- June 2019 – November 2020

Services*
- Lph 1-2 Catenary system and DC substations
- Lph 1-2 Control and safety technology
- Lph 1-2 50 Hz technology
- Lph 1-2 Telecommunication systems
- Geotechnics

Project description
Reactivation of approx. 15.5 km of railroad to meter gauge according to ESBO with new construction of approx. 0.7 km of tramway, linking Mainz and (planned) Wiesbaden network. The line will be single-tracked on separate tracks, with double-tracked sections. The line will be electrified with 750 V DC and overhead line.



*Services E&C; overall project in consortium of Schüßler-Plan (leader), Mailänder Consult, DB Engineering & Consulting

Regional light rail Neckar-Alb
Electrification and extension of the Ermstalbahn, module 1

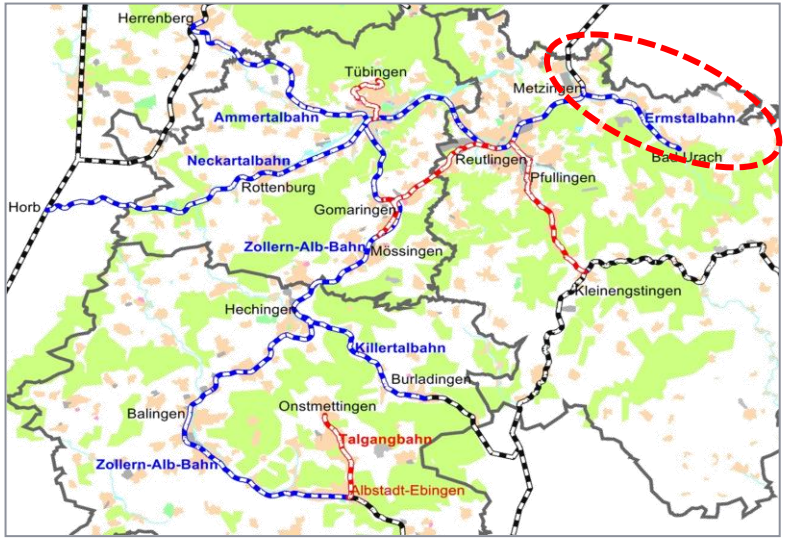
Brownfield

Client
- Erms-Neckar-Bahn AG

Duration
- August 2013 – 2017

Services
- Planning presentation of the civil engineering measures for traffic facilities, civil engineering structures and the technical equipment (HOAI phase 1 to 4)
- Feasibility / concept electrification
- Development of a construction phase concept
- Design of an operational task specification (Bast)
- Coordination services, GVFG application, support in the planning approval procedure

- NE-Bahn with 21.4 km line length according to EBO
- Length of line to be electrified:
  - 10.4 km with 15 kV / 16.7 Hz, according to DB regulations
- Platform extension at 8 stations
- Reconstruction of Gsaidt station, including freight traffic
- Addition to Metzingen station with prospects for complete barrier-free accessibility
- Affected civil engineering constructions: 4 pieces
- Investment volume: approx. 15.5 million EUR



Our references

New Construction of LRT Wiesbaden - Mainz

Location: Wiesbaden / Mainz
Client: ESWE Verkehrsgesellschaft mbH
Duration: 2017-2020

The meter-gauge light rail system is the first and central element in the perspective realization of a complete light rail network between the regional capitals Wiesbaden and Mainz. The route between Bad Schwalbach and Wiesbaden includes a former section of the Aartal line which is to be reactivated.

Engineering design of the technical equipment in the phases from basic evaluation to planning approval design according to BOStrab:

- Overhead catenary
- DC substations
- Structural design of overhead catenary
- Signaling and telecommunications
- 50Hz systems with illumination and point heating

Greenfield

38 regular stops

EMC-survey report

35.3 km
route length

Signaling according to BOStrab und ESO

Photo: Klaus Trommer / CityBahn GmbH

Photo: Daniel Saarburg

Requirements of
BOStrab and EBO

Our references

Tram-train networks Karlsruhe and Heilbronn

Location: Karlsruhe, Heilbronn
Client: Albtal-Verkehrs-Gesellschaft mbH (AVG) / Karlsruher Schieneninfrastruktur-Gesellschaft mbH (KASIG) / Stadtwerke Heilbronn

Numerous individual projects in various stages of expansion:

- Operating Simulation
- Feasibility study
- Project management / general engineering
- Civil engineering
- Design review for railway engineering equipment
- Technical equipment
- Site management
- Construction supervision

Brownfield

Our references

Regional bypass west as regional tram-train

Location: Germany
Client: RTW Planungsgesellschaft mbH
Duration: 2018-2021

The bypass supplements the urban and regional transport network of Frankfurt and the Rhine-Main area. It improves the transport links of the districts in western Frankfurt (Main) and of Frankfurt airport.

- Consulting for vehicle concept for tram-train vehicles
- Project control
- Design services from basic evaluation to planning approval design for the railway systems and mechanical engineering equipment
- Surveying and subsoil and soil investigation

47.7 km long line network

BOStrab infrastructure is being set up from scratch in some cases

2 lines with **22** stops

System change from **BOStrab to EBO**

Photo: Frank Nagel

Brownfield

Our references

Suburban Railway Station „Elbbrücken“

Location: Hamburg
Client: DB Station & Service AG
Duration: 2015-2019

For the development of eastern "HafenCity", the Elbbrücken S-Bahn station, including the connecting structure to the subway, was put into operation at the end of 2019. The location on the River Elbe offers a spectacular panorama but presented the planners with high demands with regard to the building ground. Further challenges were posed by the limited space and the almost unlimited rail traffic during the construction phase.

Design services in the phases from basic evaluation to tendering:

- Traction power, technical building equipment
- Overhead catenary, traffic facilities
- Signaling, telecommunications
- Structural engineering, civil engineering

20,000
passengers per day

Urban development

Detailed design

70 Mio. Euro
Investment volume

Photo: gmp Architekten/Federico Carbonell

Brownfield

Our references

New Construction of Suburban Railway Line S4

Location: Hamburg
Client: DB Netz AG
Duration: 2014-2021

The federal states of Schleswig-Holstein and Hamburg and the Deutsche Bahn AG want to jointly create a suburban railway line from Bad Oldesloe to Hamburg: the S4 line. It is planned to rebuild and extend the line for a suburban railway service with overhead line and conductor rail from Hamburg main station to Ahrensburg.

Preliminary design and planning approval design for:

- Overhead catenary systems, transport systems
- Signaling, electrical power systems
- Engineering structures

97,000 passengers
per day

Dual operational systems
overhead catenary and third rail

35 km
line length

Photo: Uwe Grosner

Greenfield

Our references

Tel Aviv LRT Purple Line

Location: Tel Aviv, Israel
Client: Yenon Research & Design Ltd.
Duration: 2018-2025

The Purple Line is designed to connect the eastern regions of the Tel Aviv metropolitan area with the Tel Aviv city center. It is a light rail system on street level (at-grade) which will operate at line of sight driving mode. The line is designed analog to the German guideline for tram construction – BOStrab. The length of the line is approximately 28 km with 44 stops. Furthermore, it contains a depot.

- Concept and preliminary design
- Detailed design
- Tender support

Design according to BOStrab

22 km length

44 stations

Photo: Globes.co / DB E&C

Brownfield

33
signaled intersections

33 stations

24 km
route length

12 km
underground

Photo: DB E&C

Our references

Tel Aviv LRT Red Line – System Integration

Location: Tel Aviv, Israel
Client: CRTG-EEB
Red Line Systems Ltd.
Duration: 2018-2022

LRVs will operate under Line of Sight Driving (LOSD) and limited functionality of Automatic Train Protection (ATP) conditions at-grade while in the underground sections and on the fully segregated Kiryat Arveh branch, LRT trains will operate with Automatic Train Operation (ATO) and full ATP. Transition between both modes will be automatic. The LRT is designed according to SI 5350, analogous to **BOStrab.**

DB E&C was commissioned to ensure system integration for the entire Red Line Project. These include:

- Risk management
- System Assurance (RAM and Safety)
- Management of the complete testing and commissioning activities
- Review of systems for compatibility with system integration

Greenfield

Green Mountain line in operation since
December 2018

Green Mountain line:
7.3 km, 11 stations

Our references

Tamsui Light Rail Program

Location: New Taipeh, Taiwan
Client: Sinotech Engineering Consultants, Ltd.
Duration: 2014-2019

The Tamsui LRT (also known as the Danhai Light Rail System) was designed to reduce traffic congestion in Taipei City and spur the revival of neighboring towns. The new system will connect to the existing Taipei MRT Red Line and is intended to consist of the Green Mountain Line and the Blue Seaside Line. Phase 1 of the project is restricted to the Green Mountain Line.

- Consulting services in various fields for the design of a new light rail system based on the German guideline for tram construction - **BOStrab**

Blue Ocean line:
6.65 km, 9 stations

Photo: DB E&C

Photo: Canberra Metro Consortium

Our references

Canberra LRT

Location: Canberra, Australia
Client: Canberra Metro
Duration: 2016-2038

During the 20 years of operations, DB Engineering & Consulting will provide key personnel to the operating entity and conduct bi-annual audits in order to check compliance with set Key Performance Indicators and reveal areas for improvement.

- Design review
- Review of O&M contractor's processes, procedures and plans
- Operations preparation (incl. driver training, timetable and roster development and optimization)
- Acceptance tests and quality audits at contractor facility
- Bi-annual operational reviews (fleet management, infrastructure)
- Safety Management System

Greenfield

Doha Metro (phase 1 until 2022)

4 lines, 84 km route, 37 stations

146 km

long-distance transport network

Our references

Qatar Integrated Railway project

Location: Qatar
Client: Qatar Rail
Duration: 2011-2019

Development and implementation of a rail-bound, nationwide transport system with metro and light rail in Doha, long-distance and freight transport with connection to the neighboring states.

- Feasibility study
- System consulting
- Operational and network design
- Engineering planning for Doha Metro
- Support for construction of the Qatar Rail railway organization; system test of the long-distance transport network as a “shadow operator”

Photo: Foto: Torsten Spiller

Greenfield

Metro for Hajj-Operation

72,000 pilgrims
per direction and hour

18 km
route length

Concentration of operation on 7 days per year

9 stations

Photo: Joel Meierfeld

Our references

Al Mashaaer Al Mugaddassah Metro

Location: Mecca, Saudi Arabia
Client: Dar Al-Handasah Consultants
Duration: 2009-2019

DB E&C's experts have been advising the client since the implementation phase in technical and operational matters, taking on a comprehensive range of tasks in project management and project control. A particular challenge is the annual de- and recommissioning.

- Technical consulting
- Construction supervision
- Supervision of commissioning and operations for the annual Hajj