

INROS LACKNER AG

Consulting Engineers & Architects



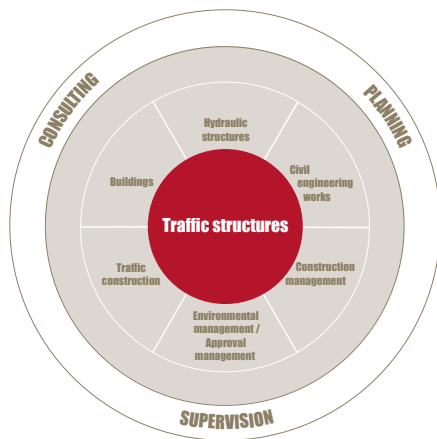
Traffic structures



We build bridges and connect roads, railway tracks and waters, developed and undeveloped locations, people and regions. Engineering works such as bridges, tunnels, troughs, supporting walls and noise barriers are the elements which dominate the appearance of our traffic and transportation networks. They are an important part of our developed environment and hence a significant component of our building culture – even if we are not always aware of it.

Our engineers and architects responsibly meet the challenges of technical and design requirements as well as economic efficiency and feasibility. Low maintenance costs always play a decisive role. For the purpose of realistically evaluating engineering works and their integration in our building and natural environment, we increasingly apply 3D visualization and computer animation.

Service



COMPETENCIES

For traffic structures in combination with and/or across:

- Motorways
- National, local and district roads
- Non-classified roads
- Sideways and bikeways
- Bridleways and trails
- Railway tracks
- Suburban railway and streetcar tracks
- Waterways, waterbodies

CONSULTANCY

- Expert opinions
- Damage assessment
- State of construction
- New construction
- Rehabilitation
- Demolition
- Special foundations
- Visualization
- Computer animation
- Special bearings
- Monument conservation
- Reinforcement
- Documentation
- Calculations of economic efficiency

BUILDING

- Tunnels
- Troughs
- Bridges
- Ro-Ro/traject bridges
- Rope supporting structures
- Supporting walls
- Noise barriers
- Cable-stayed bridges
- Traffic sign gantries
- Earth movements
- Game bridges
- Deep base plates
- Pile-type foundation elements

SERVICES

- Project and structural design
- Classification
- Recalculations
- Primary investigations as per DIN 1076
- Safety and health coordination
- Project control
- Construction management
- Permissions in individual cases
- Crossway agreements
- Structural design

ARCHITECTURE

- Composite steel construction
- Composite concrete construction
- Composite wood construction
- Prestressed concrete construction
- Reinforced concrete construction
- Concrete / Light-weight concrete construction
- Brickwork construction
- Wood construction
- Steel construction
- Cast iron construction
- Fiber glass and carbon fiber reinforced plastics



Tunnels and troughs

The coalescence of markets, competitiveness and ever increasing requirements of noise and landscape protection determine the development of traffic infrastructure today.



With regard to the expansion and new construction of transportation routes as well as supply and disposal networks, this increasingly results in the need of arranging underground constructions at locations where conurbations are to be developed and obstacles such as rivers, estuaries and mountains are to be handled.



In tunnel construction, comprehensive practical and theoretical experience is required to correctly evaluate the numerous influences and relations of and between the planned structure, the construction environment (e.g. mountains) and the construction progress.



Railway fly-overs & bridges over railway tracks

Railway fly-overs & bridges Railway bridges are subject to special conditions since the operational requirements of the relevant line section are affected. In comparison to roadway bridges, significantly higher axle loads and higher dynamical effects of the rolling wheels (stiffer structures) must be considered on the one hand, while on the other hand ongoing operation must be ensured.



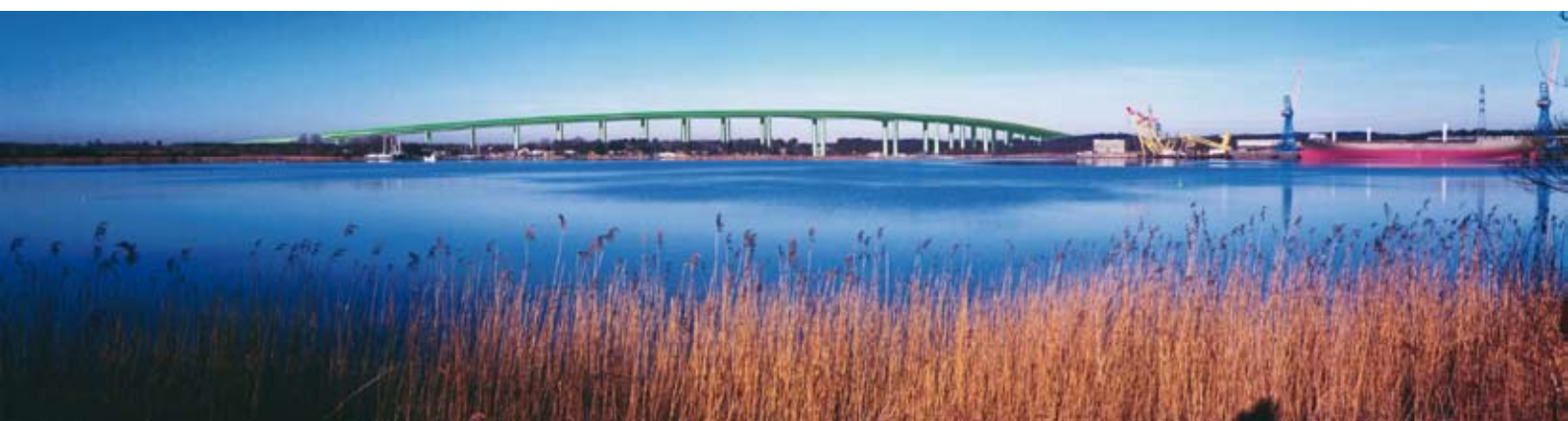
The provision of substructures frequently requires the establishment of temporary bridges. In case of railway fly-overs, superstructures are manufactured with excessive height and lifted in and/or positioned as complete and or partial structures; prefabricated part structures may also be used.



In order to avoid large access heights in the bridge approach and/or to meet structure gauge requirements, trough, truss and tie-bar arch cross-sections are preferred.



In addition to steel structures and the still used concrete and 'rolled girder in concrete' superstructures, there is a trend towards the appli-





Roadway & pedestrian bridges, others

Traffic and transportation systems must continuously meet the set requirements. Particular importance is attached to the development and expansion of highway networks as an important part of the entire traffic and transportation infrastructure, as well as to their crossings.



From economic, technical and design perspectives, high demands are to be met so that the lifetime of bridges used for traffic and trans-



portation is maximized while financial and staff expense is minimized. In contrast to roadway bridges, pedestrian bridges should represent



light structures with an optimum utilization of material properties. Adaptation to urban and landscape architecture must be particularly considered.

Mobile bridges & ferry terminals



Mobile bridges are crossway constructions of waterbodies and bear railway tracks, roadways or paths.



Traffic in/on the crossing routes is either released or blocked. The mobile superstructure/the mobile superstructure component is designed as a bascule, swing or lift bridge, i.e. rotated on a horizontal or vertical axis or lifted vertically on lifting towers.

Additional design tasks are set for mechanical engineering, drive systems and electrical engineering as well as for control technology, e.g. as regards traffic safety systems and bridge lighting with different operation requirements.



Consequently, ferry terminals are the landside connecting constructions to ferryboats and bear railway tracks (traject bridges), roadways or paths (e.g. Ro-Ro bridges) with the same elements of technical equipment.



Tunnels and troughs



- Intersection Warnemünde- platform tunnel and road bridge in Rostock / Germany
- Platform tunnel and platform accesses Wandsbek-East, Trough structures "Tonndorfer Hauptstraße" and "Sonnenweg" in Hamburg / Germany
- Trough structures and flyovers of the federal highway B106/B104 in Schwerin / Germany
- Railway tunnel below the „Havel-Oder waterway“/ Germany
- Railway tunnel below railway tracks of the German Railways "DB AG" in Hannover / Germany

Railway fly-overs & bridges over railway tracks



- Connection of the railway fly-over JadeWeserPort Wilhelmshaven / Germany
- Urban subway construction A (93), undercrossing of channel Goldbekkanal in Hamburg / Germany
- Replacement of the railway bridge over the Elbe-Lübeck Canal near Büchen / Germany

Roadway & pedestrian bridges, others



- Karachi Harbour Crossing Bypass of the harbour area in Karachi / Pakistan
- Road bridge across the Nile river in Aswan / Egypt
- Bridge construction program for five bridges / Togo
- Bridges for Istrion Epsilon Highway / Croatia
- Rehabilitation of the „Poeppelmann bridge“ across the „Mulde river“ in Grimma / Germany
- Federal Motorway A19 – Replacement construction of the bridge over the „Petersdorfer Lake“ / Germany
- New construction of GRP bridge for pedestrians and bicycles over the federal road B 106 N to by-pass Schwerin / Germany

Mobile bridges & ferry terminals



- Combined rail/road ramps in Ust-Luga and Baltiysk / Russia
- Federal road B 110, "Kahliden brige " in Demmin and "Peene bridge" in Zecherin (basculer bridges) / Germany
- Scandinavia quay in Lübeck-Travemünde: Ro-Ro double storey bridges with ramps / Germany
- Ferry port of Puttgarden on Fehmarn: Ro-Ro double -storey ramps, rail road main deck ramp, pedestrian gangway and access ramps / Germany
- Ro-Ro ramp for the Airbus plant A 380 in Hamburg / Germany
- Ferry terminal in the Sea Port of Rostock and in the ferry port of Sassnitz on Rügen / Germany

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