

# DEVELOPMENT AND TESTING OF SOLUTIONS FOR ACCESSIBILITY HARMONISATION OF INLAND PORTS

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D.T2.2.5 Trailer Port Concept

Final

03 / 2021

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PP2 Saxon Inland Ports Upper Elbe



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# 1. Background

The Elbe ports in Saxony and Ústecký kraj have succeeded in establishing themselves as competitive locations for the transshipment of goods. Due to the general nature of these ports, i.e. their geographical location, their ability to handle all types of goods and their multimodality, there is an existential interest in connecting the ports to the Orient-East-Med corridor. In the coming years, the focus will be on improving the accessibility of the ports in the road pre- and onward-carriage to rail and ship transport. This will make a significant contribution to the expansion of an environmentally friendly infrastructure.

The corresponding pilot action D.T2.2.4 “Accessibility harmonisation of inland ports in the German-Czech section of the OEM corridor” shows the currently possible routes for heavy goods traffic as well as the planned infrastructural measures in the catchment area of the ports. This creates the opportunity to visualise the existing deficits in the accessibility of the ports and to initiate change processes that improve the competitiveness of the ports. At present, the number of routes is limited and an expansion of the infrastructure is urgently needed. They should be sensitised to include the inland ports in future road infrastructure planning and to find cross-border solutions and take them into account in future spatial planning. As a first step towards improving the current situation a trailer port concept for combined transport (CT) was developed for the port of Dresden to contribute to easing the bottleneck on the Elbe valley rail route between Dresden and Ústí nad Labem.

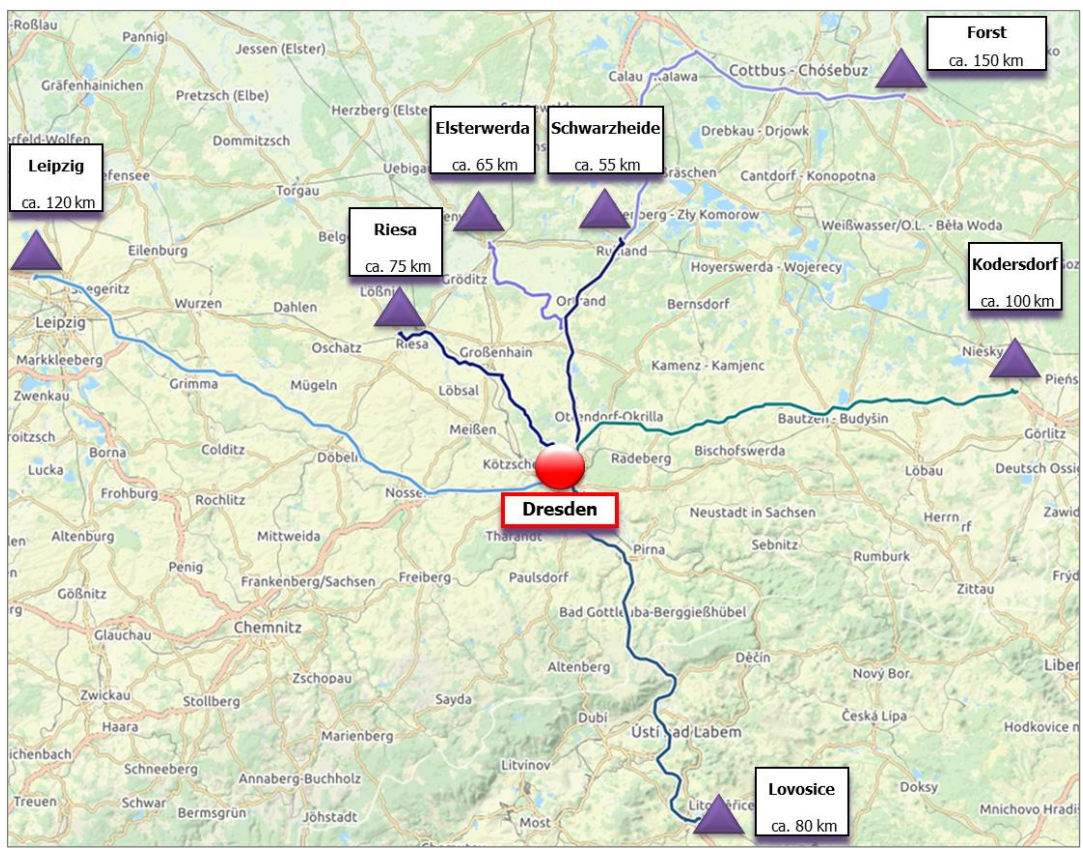


Figure 1: Location of the CT location in Dresden and the surrounding transshipment facilities

## 2. Site location

Sächsische Binnenhäfen Oberelbe GmbH (SBO) is a multimodal handling and logistics company with a wide range of services in the ports of Dresden, Riesa and Torgau. The Free State of Saxony is the sole shareholder of the GmbH.

Six ports along the Upper Elbe form the backbone of the port group. These are Dresden, Riesa, Dessau-Roßlau and Torgau in Germany as well as Děčín and Lovosice in the Czech Republic. The SBO has also taken over the management of the port of Mühlberg.

Each of the locations is a universal port with trimodal transshipment options and regional focuses. The ports specialize in project cargo, heavy cargo, container traffic, bulk and dangerous goods as well as conventional general cargo.

The Alberthafen Dresden-Friedrichstadt is a universal port. The central location of the port and direct connection to the B6 federal highway, the A4 federal motorway and the core network of DB AG represent optimal location conditions for trimodal traffic.

In the Alberthafen Dresden-Friedrichstadt there are high-performance systems available for the handling of general cargo, bulk and heavy goods with a crane capacity of up to 600 tons. Modern quay systems also enable problem-free use of mobile crane technology. The RoRo system can be used to load goods up to 370 tons.

In addition to outdoor storage areas and covered storage areas, the Alberthafen Dresden also has a modern assembly hall for the assembly of systems and machines. There are also several truck service facilities here. These include a parking lot, a self-service petrol station and public scales.



Figure 2: Alberthafen Dresden; source: SBO





So far, the focus of SBO's combined transport activities has been in the port of Riesa. Here the company operates a trimodal container terminal with regular rail and ship connections to the Port of Hamburg. In 2020, a total of 36.000 TEU were handled here with both modes of transport. This value is slightly below the level of the two previous years (due to the pandemic situation). The terminal has reached its capacity limit and is to be replaced by a significantly more efficient system.

Although the basic technical requirements are also available in the Alberthafen Dresden on the north bank with two double-arm luffing cranes and adjacent track systems and handling areas, CT handling in Dresden is currently concentrated on the rail-road handling facility in the freight village core area. After the successful establishment of this terminal in maritime CT (seaport hinterland traffic), there has been increasing demand in continental traffic for several years. In addition to a regular connection to Osnabrück, a CT bundling concept for cross-border logistics chains has been established here since 2018: Smart Rail Logistics GmbH as a joint venture of L.I.T. Spedition GmbH and the railway company Captrain Deutschland GmbH have been operating a CT train connection between the GVZ (freight village) Dresden and the Volkswagen plant in Emden since 2018. For this purpose, truck transports exclusively from VW suppliers from northern Czech Republic, southern Poland, Saxony and Thuringia are bundled in Dresden. The loading onto the train, which commutes to Emden three times a week, takes place in so-called jumbo swap bodies, which enable the volume transports common in the automotive industry.

Other CT operators are also increasingly orienting themselves towards Dresden as a geographically favorable bundling point for the relocation of cross-border truck traffic from / to the Czech Republic or Poland to the rail. However, the demand in this area is concentrated almost exclusively on cranable semitrailers as the loading container commonly used in international transport with Eastern Europe. In 2019, the operator HUPAC carried out test transports to Geleen (NL), but has since discontinued them due to a lack of space in the terminal for interim parking of the trailers.

The operator LKW WALTER also expressed interest for CT routes between Dresden and Rostock. The operator has checked the conditions in the existing CT terminal and it has again been shown that the existing parking space for trailers is too small for just one of the two CT routes mentioned. LKW Walter already operates a CT connection between Rostock and the Czech CT terminal Lovosice near the border, in which there is no free capacity for a further increase in the frequency of the CT connection. Additional train rotations are therefore to be offered from Dresden in the future.

After a detailed examination of the variants described, the establishment of a trailer port specially designed for handling cranable semitrailers in Alberthafen was favoured. In addition to the traffic development comparable to the intermodal terminal, the availability of a sufficiently large area for transshipment and interim parking of the trailers as well as the usability of the existing tracks in the quay area speak in favor of this location.



### 3. Traffic accessibility

Due to the close proximity of the trailer port to the existing rail-road CT terminal, there are no significant differences in terms of traffic development. On the road side, the connection is via the B 6 to the Dresden-Altstadt junction of the BAB 4, approx. 4 km away, from where the BAB 13 and the BAB 17 can also be reached.



Figure 3: Location of the port and the freight village (CT) in the road network; source: OpenStreet-Map

On the rail side, the trailer port is connected to the Dresden-Friedrichstadt train station via the port's track system (see Figure 4). Trains are delivered via a feeder track to the port station. From there, the groups of wagons are distributed to the tracks on the south bank of the port.

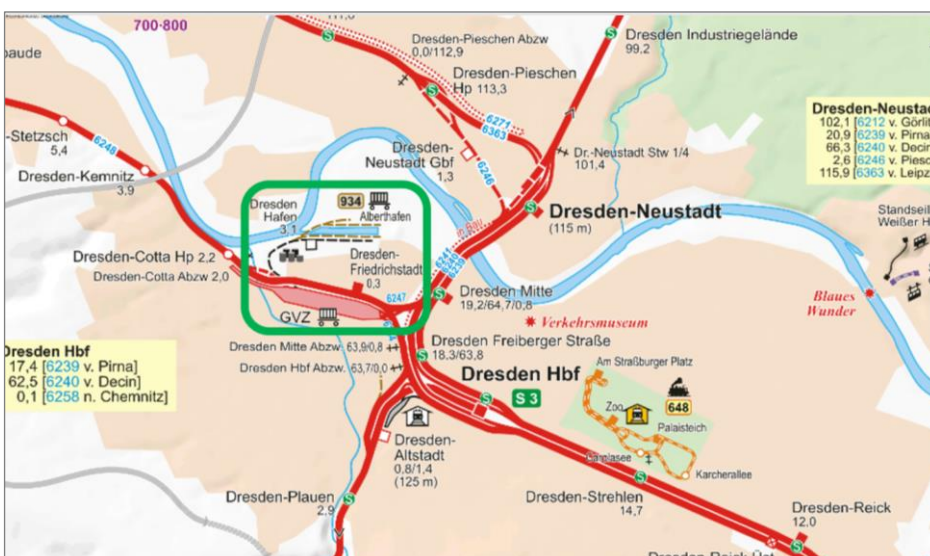


Figure 4: Location of the port and the freight village (CT) in the railway network; source: Eisenbahnatlas 2008

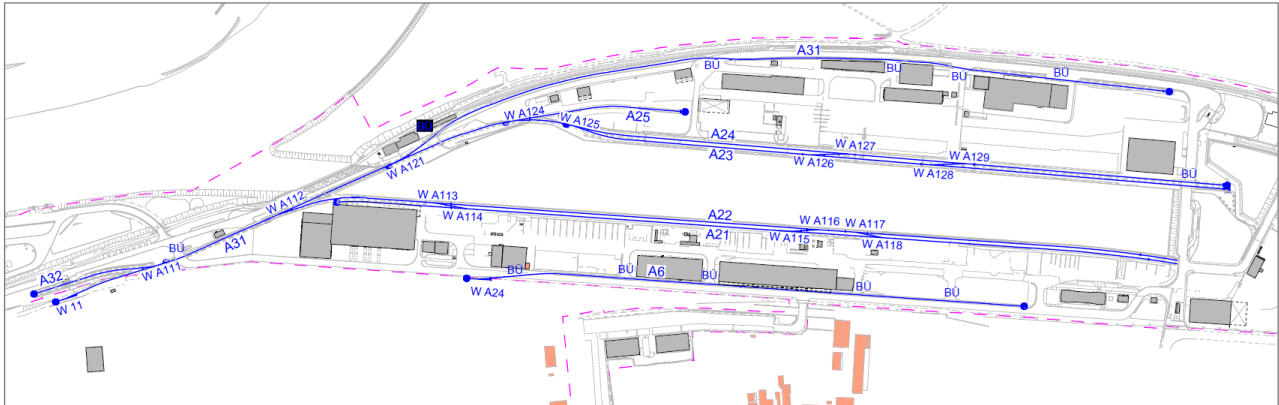


Figure 5: Track plan of the port of Dresden

The operating concept provides that the mainline locomotive - e.g. as a last-mile or dual-mode version - drives through the Dresden-Friedrichstadt station directly into one of the two southern port tracks. This enables a train length of 650 m to be achieved. Trains with a length of less than 600 m can also end in pure electric traction in Dresden-Friedrichstadt in order to be transferred from there to the port in diesel traction. Corresponding shunting capacities are permanently available both in the train station and in the port.

For the "direct entry" variant, the planned installation of a switch at the head of the port provides a bypass option, via which the mainline locomotive drives back and then pushes the second part of the train into the adjacent track. All other maneuvering movements are carried out by a road-rail vehicle.



## 4. Terminal configuration

The trailer port is to be built in the southern area of the port. Of the two tracks available in the quay area, the land-side track is to be used in an area of approx. 330 m each for transshipment to one half-train and the waterside track for parking the other half-train. After the handling has been completed, the half-trains are swapped between the tracks with an existing two-way vehicle. The actual transshipment area, which is to be served by a reach stacker, extends over a length of approx. 150 m.

In order to make all transshipment positions accessible for the reach stacker, the half-train is shifted in the (landside) loading track by the road-rail vehicle. A terminal tractor is to be used for maneuvering between the transshipment area and the trailer parking area. The storage area will have a capacity of around 65 trailers.

The combined transport service is to be operated year-round in multiple shifts from Monday to Saturday. The capacity of the intermodal system should be able to handle up to 4 trains per day with approx. 38 trailers each (individual weight 35 t).

If demand increases, there is a long-term option to expand the system. This can take place as part of the planned renovation of the southern quay wall. By relocating the quay wall in the direction of the port basin and the resulting gain in space, it is possible to build additional loading tracks on the waterside, which are served by a gantry crane.

The following figures shows the planning area on the south bank of the port basin.



Figure 6: View of the south bank with marking of the track area intended for trailer handling; source: SBO

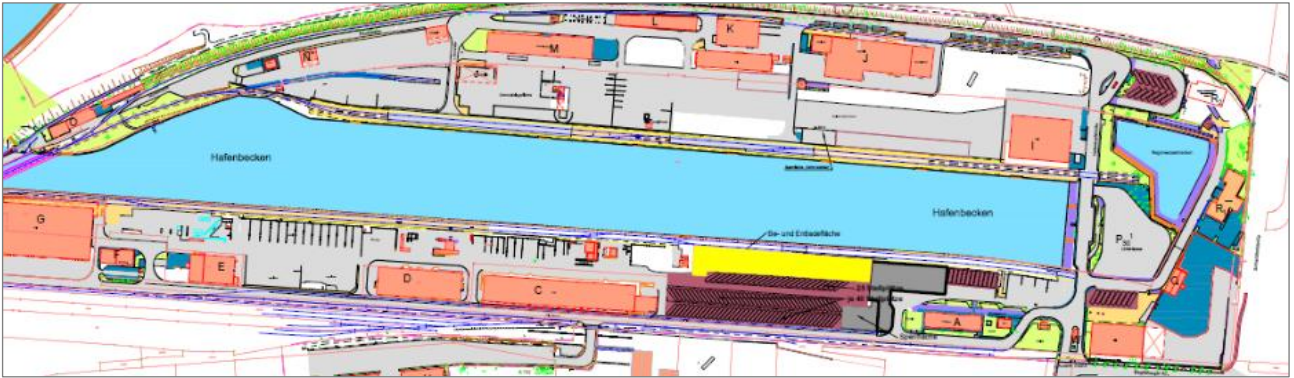


Figure 7: Location of the planned trailer port; source: SBO

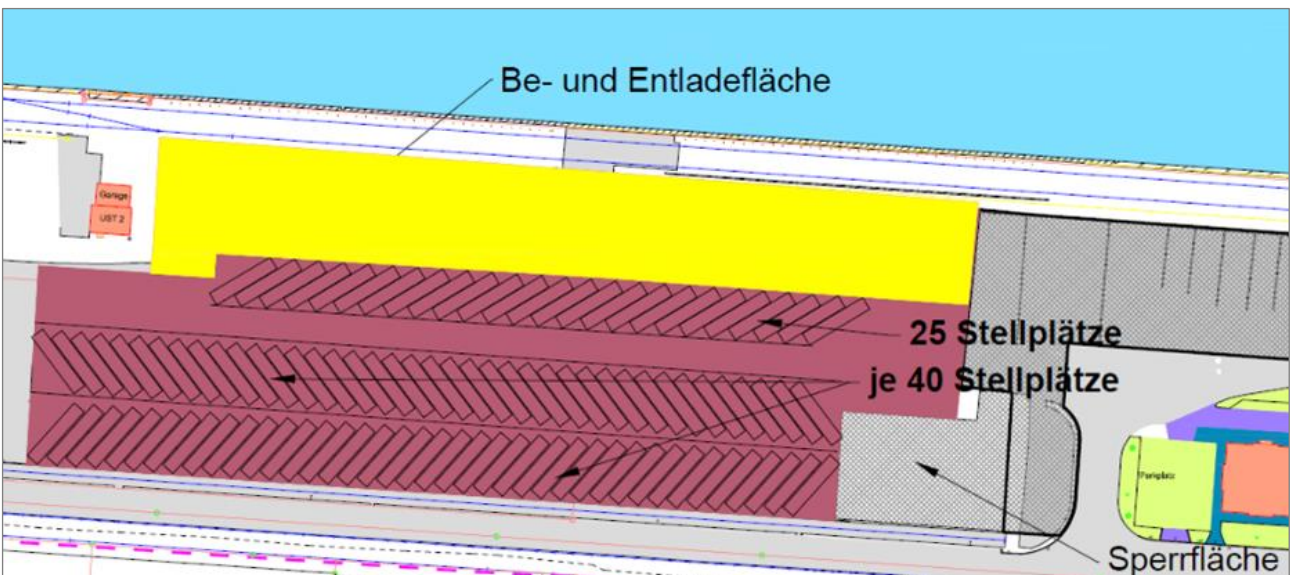


Figure 8: Schematic site plan of the planned trailer port; source: SBO



Figure 9: South bank, future trailer parking area (looking west)





Figure 10: Track area (facing west)



Figure 11: South bank, track area (facing east)



Since January 2021, the CT operator LKW Walter carries out test traffic on the CT route Dresden - Rostock. For this purpose, a temporary transshipment point with a reach stacker was set up on a section of the north bank that was actually upgraded for heavy goods handling.

This area as well as the test operation are shown in the following figures.



Figure 12: Transshipment area north bank (looking west)



Figure 13: Transshipment area north bank (looking east)





Figure 14: CT cargo handling north bank (1)



Figure 15: CT cargo handling north bank (2)



## 5. Impact on the OEM corridor

The new CT service between Dresden and Rostock is the first regular intermodal block train service on this route within the last 30 years. This train service is the result of a working group on the OEM corridor liner train concept, which is also part of the CORCAP project (D.T2.3.5). One of the basic preconditions for a sustainable provision of this intermodal service is the elimination of the infrastructure bottleneck for the handling of craneable semitrailers in the Dresden region, mainly resulting from raiiside storage areas in combination with efficient handling equipment. This will be provided by the establishment of the new trailer port. Essential pre-investment steps like application for federal government funding and starting the tendering process for the detailed planning were carried as part of the CORCAP project.

After the planned extension of the corresponding intermodal terminal in the port of Rostock, trains with a length of 740 m can be handled there. The railway line from Saxony is also part of the 740 m route network. In the future, this will open up opportunities to supplement existing trains by adding additional wagons. So far, the trains from Dresden are usually approximately 100 m shorter, which corresponds, for example, to three double pocket wagons for the transport of 6 semi-trailers. Consequently, the two infrastructure projects will lead to a harmonised capacity extension for intermodal services in the OEM corridor section between Dresden and Rostock.