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## THE FUTURE TRANSPORTATION NODE KØGE NORTH STATION

### Jesper B. HENRIKSEN

Industrial Designer, Partner  
DISSING+WEITLING  
Copenhagen, Denmark

[JHE@dw.dk](mailto:JHE@dw.dk)

### Steen Savery TROJABORG

Architect, CEO Partner  
DISSING+WEITLING  
Copenhagen, Denmark

[SST@dw.dk](mailto:SST@dw.dk)

### Poul Ove JENSEN

Architect, Director bridges  
DISSING+WEITLING  
Copenhagen, Denmark

[POJ@dw.dk](mailto:POJ@dw.dk)

### Summary

The Danish public infrastructure has in the recent years undergone various extensions and upgrades. With the new double-tracked railway line between Copenhagen-Ringsted, the Municipality of Køge in collaboration with Banedanmark and DSB, invited in 2014, four architectural firms to present design proposals for the new Køge North Station. A traffic centre and hot-spot for the entire Copenhagen area with its unique intersection of high-speed trains, local trains and the Køge Bay Motorway. Dissing+Weitling's design, in collaboration with COBE and COWI, was selected for execution, seeing off competition from the other teams lead by the Japanese architect Kengo Kuma, French firm Arep Ville and fellow Danish studio Gottlieb Paludan Architects.

The goal was a bridge with a design that could accommodate the clients' vision of a a transport node for the 90,000 people passing through the area daily – bringing together high-speed trains, local railway and the motorway leading into Copenhagen from the south. A design complementing the surroundings without overpowering them and at the same time a bridge that was an attraction in itself and turned the crossing into an event. The solution was a 225 metre long steel construction with a light superstructure with an ellipsoid shape.

**Keywords:** green mobility; urban development; infrastructure; pedestrian bridge; architecture; train station

### 1. Introduction

Over the period 2010-2018, Banedanmark, a state-owned enterprise that operates 3,102 km of railway tracks in Denmark, is expanding the Danish railway system with a new double-track electrified railway capable of being used by Denmark's first high-speed trains between Copenhagen and Ringsted via Køge. The Copenhagen-Roskilde section is one of the most important sections of railway in Denmark and is currently at its full capacity.

The new line Copenhagen-Ringsted will provide improved public transport links and reduce travel times between the major Danish cities. To accommodate Banedanmark's expansion, the Municipality of Køge wanted to construct a new station in Køge, since the city will naturally become a traffic centre and hot-spot for the entire Copenhagen area with its unique intersection of high-speed trains, local trains and freeways.



Fig. 1. Køge North Station

## 2. Competition

On May 2, 2014, the Danish organisations, Banedanmark, Køge Municipality and DSB jointly invited entries for an international restricted competition for the design of a new station in Køge North, Denmark, where a motorway, an S-train line and a future high-speed railway line between Copenhagen and Ringsted will meet. The station is an important element in an overall policy of promoting public transport in Denmark and the competition generated an inspiring and extensive debate on how a city's infrastructure should be designed in the future.

Four architectural firms were invited to submit a proposal for the bridge. Four very different firms that also presented very different ideas. Our scheme was prepared in collaboration with COBE and COWI and was eventually selected for realization. The competition assignment comprised of two elements. A covered footbridge over the Køge Bay Motorway, about 200 metres long, and a basic park and ride facility, around 900 cars. It was a necessity that the design had a degree of flexibility with the possibility of an extension in regards to passenger friendly facilities and capacity. The brief was complex and required close collaboration between many different disciplines.

## 3. Final Design

The project consists of a 225 meter long footbridge, a station, an associated park and ride facility and a vision model for the incorporation of these elements into the landscape. The ellipsoid footbridge, a 225 meter long steel construction with a light superstructure, connects the various transport corridors and creating a link between the eastern and western urban areas. The meandering shape of the footbridge is in cohesion with the larger infrastructural systems. The line of the bridge and the attached stairs and lifts are simple in their design, making the ellipsoid structure itself more expressive, clearly visably from a distance.

Køge North Station is a very unique project, both in terms of architecture and engineering. The station will be part of many people's everyday life. In our work we have focused on the flow across the freeway - from west to east and east to west. The difference between the open side in the north and the closed side in the south. Vista and intimacy. Movement and repose. The experience, atmosphere and joy of traveling.