

STRING

# A modern transport system between the Öresund Region and Hamburg



THE STRING-CORRIDOR SEEN IN THE CONJUNCTION WITH THE CORRIDORS TOWARDS OSLO AND STOCKHOLM (PICTURE: STRING).



The Capital Region of Denmark

REGION SJÆLLAND





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### A fixed link over Fehmarn Belt

The construction of the fixed link across Fehmarn and the land works in both Denmark and Germany, represent a major modernisation of North European infrastructure and is expected to be finalised in 2021. The total investment in the new infrastructure is close to 10 billion EUROS; 'financed in different ways according to the State Treaty between Denmark and Germany: The German land works are financed by the German State, the fixed link itself and a major part of the Danish land works are financed via the state owned company Femern A/S, that, during the construction phase achieve the necessary loans on the international market, backed by a state guaranty from the Danish State. Once in operation the loans are amortized via the toll that the users of the link are going to pay and the fee that the train operators will be paying. Part of the improvement of the infrastructure from Copenhagen to Rødby that will take place before the link opens in 2021 is financed by the Danish State. The link and the land work is part of the Transeuropean network TEN-T, and is prioritised as a Core Network corridor on the north-south corridor from Helsinki to Valetta in Italy.

The investment and the modernisation of the infrastructure is an historic improvement of accessibility in Northern Europe, and one that will affect millions of inhabitants and businesses, as well as resulting in growth for the surrounding economies. Even more so the investment will constitute a significant improvement for the climate friendly transport modes – given that the right framework is established, thus improving the compatibility for rail transport as a feasible substitute to road and air traffic.



The corridor between the Öresund region and Hamburg is a vital part of the EU TEN-T corridor from Helsinki to Valetta in Italy.

PICTURE: STRING

Volumes of freight transport development; showing an increase in volumes that cannot be accommodated without expanding the capacity of the transport system.

#### Freight transport development



Development in passenger transport, showing that passenger transport has significantly increased in the last 20 years. Car traffic is dominating, whereas rail is only slowly developing forward as an EU-average.

Passenger transport development



During the next year the specifications for the link itself and the land works in Denmark and Germany will be decided – and along with it the defined quality of the transport system in Northern Europe for the next 25 to 30 years. Therefore the STRING partners (Hamburg, Schleswig-Holstein, Region Zealand, Capital Region of Denmark and Region Skåne) have undertaken two studies: "Status for High Speed Networks in Northern Europe" and "Bot-tlenecks in the European infrastructure" in order to be able to give our recommendations for the quality of the future transport corridor from Hamburg to the Öresund Region.

## Status of the study "High-Speed Networks in Northern Europe"

The study shows the following:

- Only in Germany are designated high-speed lines in operation (1100 KM)
- Plans for high-speed networks are under consideration in Norway and Sweden
- Denmark looks at the max travel time between cities as a target, not speed as such
- The European Programme TEN-T leaves the "technical" responsibility of the corridors to the member states
- Investment is driven by a microeconomic outlook in Germany, but by a macroeconomic outlook in Denmark and Sweden
- DB Netze plans for an electrified doubletrack with max speed of 160 KM/h Lübeck-Puttgarden
- Denmark plans for an high-class technical solution with max speed of 250 KM/h (Copenhagen-Ringsted) and 200 KM/h (Ringsted-Rødby)
- Travel time Copenhagen-Hamburg after the opening of the fixed Link: 3.40 hrs
- With "reasonable" additional investments 2,5 hours can be achieved



PICTURE: TRANSPORT DATALAB

## Status of the study "Bottlenecks in the corridor between Öresund and Hamburg"

The study "Bottlenecks in the Infrastructure between Scandinavia and Central Europe " shows the following:

- Severe congestion problems in the German net in, and south of, Hamburg
- Plans for elimination of the immediate bottlenecks in the Danish system (Kastrup, Ny Ellebjerg)
- A new double track across the Storestrøm link is under consideration
- The German hinterland connections to the Femern Belt link is planned for max 160 KM/h (120 KM/h for freight)
- Single track will exist when the link opens and until 2025/26
- The Fehmarnsund Brücke can be a 3 lane motorway with regulation of traffic according to the traffic flows
- The rail-link on the Fehmarnsund Brücke will remain single track no plans for a new link
- Max capacity for a single track is 90 trains per day the forecast says 138 trains per day, when the link opens
- I.e. the German Hinterland constitutes the "weak spot" in the whole corridor from the day the link opens
- Once the Fehmarn link is completed, the Öresund crossing will become a corridor bottleneck



PICTURE: WWW.PIXELIO.DE

## Öresund-Hamburg in 2,5 hours

The STRING partners; Region Skåne, Capital Region of Denmark, Region Zealand, Schleswig- Holstein and Hamburg, are pleased to note that Denmark and Germany are in the process of realising the largest ever modernisation of the infrastructure system between Scandinavia and Central Europe to date. The Fehmarn Belt Fixed Link and its connected land works is a central component in the realisation and implementation of the EU vision of a cohesive European transport system, as expressed in the 'Connecting Europe' strategy. However, the STRING partners believe it is necessary to review the cost estimate and take a closer look at the cost benefit relationship.



The illustration demonstrates the current plans for the corridor between the Öresund region and Hamburg.

PICTURE: STRING

These large-scale infrastructure investments, amounting to a total of approximately 10 billion EURO, are also an important precondition for assuring that environmentally friendly rail transport achieves a competitive advantage in relation to more environmentally straining transport systems for travel and freight, such as air and road. The investment is thus an essential contribution to meeting regional, national and European climate goals, as set out in the EU 2020 Strategy.

A modern and well functioning transport system is also a necessary foundation on which to bring the North European people, industries, culture and economies closer together. Such a development will also contribute to generating enhanced quality of life and innovation; both which are essential to the STRING vision of creating a North European green growth engine.

However, the STRING partners still see the need for further improvements to the quality of the existing plans in order to achieve the best possible regional integration, and to strengthen the competitiveness of environmentally friendly transport systems between the Öresund region and Hamburg.

### **STRING Recommendations**

#### The Swedish, Danish and German governments must do more

We therefore encourage the Swedish, German and Danish governments to generate a common understanding and support for the need of an efficient, environmentally friendly transport system connecting the three nations. It is incremental to the existing infrastructure investments that Denmark, Germany and Sweden are seen as part of a cohesive corridor with uniform standards and quality.

#### 2,5 hours between Öresund and Hamburg

The STRING partners recommend a common consensus around the aim that the time for travelling between Copenhagen and Hamburg, should not be longer than 2,5 hours once the Fehmarn Belt Fixed Link opens in 2021. The aim of the proposal from the STRING partners is to reduce the transport time between Copenhagen and Hamburg as far as possible. The vision is two and a half hours between Copenhagen and Hamburg, instead of the planned three hours and 40 minutes that will be the estimated transport time when the fixed link across Fehmarn Belt is established. The rail transport time must be shorter in order to be competative with air traffic and to fulfil the climate protection goals of the European Union.



PICTURE: STRING

The STRING partners are Hamburg and Schleswig-Holstein in Germany, the Capital Region of Denmark and Region Zealand in Denmark and Region Skåne in Sweden. The new Storestrøm link will contribute to this goal. The expansion of the regional traffic systems between Lübeck and Hamburg, the so called S4 solution, must be completed in order to release the necessary capacity required to run high-speed trains between Oslo, Stockholm, Copenhagen and Hamburg.

#### Joint discussions with railway operators in the three countries are necessary

The way in which the customers see the infrastructure is also to do with the quality of the trains running, and the operating timetables. Therefore, STRING encourages the railway operators in Sweden, Germany and Denmark to establish a close cooperation regarding future levels of service, relating to comfort and the frequency of train departures.

The collective transport solution between Öresund and Hamburg will result in the strengthening of the entire western Baltic, and should be seen as an integral part of the future highspeed rail network between Oslo, Stockholm, Copenhagen and Hamburg, and on to Berlin and other European metropolises.

#### A new Öresund Crossing and a new Femernsound Link are next in line

Looking further into the future, the need for a new fixed link over Öresund between Helsingborg and Elsinore is very important, along with the need for a new fixed link over the Fehmern sound in order to safeguard the capacity, quality and mobility of the North European transport system.

## Need for the EU to provide maximum financial support for large scale infrastructure projects

STRING approves of the EU's large scale plans for the expansion of the North European transport corridors, and of the EUs role as a contributor to assure that national and regional expansions of infrastructure corridors correlates with these. We therefore see a clear need for the EU to provide maximal financial support for both the Fehmarn Belt Fixed Link, as well as the necessary expansion of the associated land infrastructure in Denmark, Germany and Sweden.

### STRING Scenarios

Below you will find 3 different improvements of the basic infrastructure on land that is planned in Denmark and Germany as a consequence of the construction of the Femern belt Link. The scenarios are prepared by HTC and Datalab Consultants: Scenario A represents the current plans, including the proposed new link across the Storestrøm in Denmark. Each of the following scenarios is an improvement of the previous going from merely a speed improvement in Scenario B over new constructions in Scenario C to a full high speed solution with new build "short-cuts" in Scenario C. In the table the extra costs is added to the previous scenario and in the tables the total investment in the land work on the Danish and German side are highlighted. The investment of 5 bn EURO in the Femern Belt Fixed Link itself is not part of the calculations below. The scenarios B and C are relevant alternatives representing the recommandations of the STRING partners.



Investments for a 200-250 km/h upgrade in DK and DF

+1.5 billion €

#### Scenario D

Investments in dedicated high-speed section in DK and DF

+2 4 billion €

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motorway and further upgrade to +200 km/h as well as extra capacity between Hamburg-Lübeck due to the extension of commuterline (S-Bahn S4

The ultimate high-speed project in line with the

ICE/TGV best standard. The last minute saved

could however be expensive. Further short-cut lines at Guldborgsund and Lübeck are necessary

in order to reach the travel time.

project).

Travel frequency, measured as inhabitants travel activity between two points (whether for business or leisure trips) will increase as a result of the scenarios presented above – based on previous experiences and assumptions that the process of integration through bringing two major cities closer together increases the travel frequency. Hamburg and the Öresund region is a comparable distance to Brussels and Paris, which shows an increase in travel frequency of 0, 9 trip per inhabitant per year.









PICTURE: STRING

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STRING is the political cross-border partnership between Hamburg and Schleswig- Holstein in Germany, the Capital Region of Denmark and Region Zealand in Denmark, and Region Skåne in Sweden.

Our vision is that the STRING region will be the driver behind a North European green growth corridor consisting of the STRING region in a functional partnership with our neighbouring regions. The corridor will be a green European powerhouse; a strong strategic axis contributing to knowledge, growth, welfare, and sustainability in Northern Europe, including the Baltic Sea Region.