

The Öresund Metro

- combined results from preliminary studies in four phases



GREATER
COPENHAGEN



In January 2012, the Cities of Malmö and Copenhagen launched a preliminary study of establishing a metro link between Malmö and Copenhagen and the opportunities this could bring as a complement to the Öresund Bridge. The various studies have been co-financed by the EU Interreg Öresund-Kattegat-Skagerrak programme. The fourth phase was concluded in April 2021. The project is part of the joint Traffic Charter in the Greater Copenhagen collaboration.

For more information visit:
oresundsmetro.com

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Chapter 1

Summary - Effects of the Öresund Metro

This report presents what the Öresund Metro is, how it will affect the labour market and enterprise sector, the environment and climate and become part of the future European transport system. It also describes various collaborations that are behind the project and what needs to be done in continuing work.

The Cities of Malmö and Copenhagen together head studies of the Öresund Metro, which were started in 2012 with support from the EU Interreg Öresund-Kattegat-Skagerrak programme. The results of these studies show that there are good grounds to start a Danish-Swedish intergovernmental inquiry into the Öresund Metro.

Effects on the labour market

The Öresund Metro, that will roughly halve the travel time across Öresund with departures up to every 90 seconds, will impact the labour market. One million

more people will be able to travel to the other side of Öresund within an hour. The number of jobs that fall within a 60-minute commute across Öresund will increase by half a million to 1.3 million. This will stimulate growth, employment, innovation and research.

Effects for imports and exports by rail

Freight transport by rail is of major export and import importance for the whole of Scandinavia. 80 percent of freight trains from Sweden use the the Öresund Bridge. Completion of the Fehmarn Belt Tunnel in 2029 will increase freight traffic across the Bridge. The Öresund Metro will free up capacity for more freight trains on the Öresund Bridge as a large proportion of regional passenger services will use the Öresund Metro instead.

Part of the EU Trans-European Transport Network Master Plan (TEN-T)

The EU has a master plan to modernise the entire European transport network and develop more efficient transport corridors for freight traffic.

Öresund Bridge is named in the plan as a critical link in Scandinavia. To achieve environmental and climate goals of shifting more freight volumes from road to rail by 2050, more capacity is needed for freight trains on the Öresund Bridge compared to today. The Öresund Metro will free up capacity for more passenger and freight traffic in the transport corridor from Scandinavia and all the way to the Mediterranean.

International effects

Around 30 million people travel to and from Copenhagen Airport each year. The airport is a hub for international access to the whole of Scandinavia. The Öresund Metro, with up to 40 departures per hour, will improve service to and from the airport and its competitiveness.

Climate and Environment Effects

The EU Commission has listed changes that are needed to cut emissions of greenhouse gases in the transport sector. An overall goal is to reduce emissions from the transport sector by 90 percent by 2050. Then a substantial part of the 75 percent of freight transports that are currently on the road need to be shifted to rail and shipping. The Öresund Metro will also stimulate increased use of public transport. This will mean a more efficient use of energy and lower emissions.

Chapter 2

Foreword

The cities of Malmö and Copenhagen have been looking into an Öresund Metro between our cities for about ten years. The Metro is a central link in our collaborative work to create a platform for sustainable transport, green growth and a stronger region.

The Öresund Metro is a further catalyst for the development the Öresund Bridge contributed to when it was built in 2000, and will act as a third level of the Bridge. A level that will enable faster and more frequent travel for more people. A level that relieves the Öresund Bridge to allow more capacity for freight and passenger trains.

At the time of writing, we are in the middle of a global coronavirus pandemic that has meant that borders have once again separated people in our region. However, we know we need to cast our eyes forward and prepare for greater integration in the future. In 2029, the Fehmarn Belt Tunnel between Denmark and

Germany is due to open. Shorter travel times mean we will become closer to the rest of Europe both physically and mentally. Our cities are right in the centre in a new north European context with tremendous potential for growth and increased innovation. Sustainable transport, trade and travel between Scandinavia and the rest of Europe will increase. Öresund must not become a bottleneck.


Today, the Öresund region is the biggest labour market region in the Nordic area with 14 universities and world-leading industries within the future area of e.g. Life Science. A metro link will further expand this region by a million more people being able to commute across Öresund in less than one hour and reach 500,000 more jobs.

Naturally, we are also driven by the Paris Agreement and helping to achieve these climate goals. Countries the world over need to do everything in their power to

reach these goals. Here, the Öresund Metro will contribute via future-proof sustainable transport, travel, commuting and growth. The Öresund Metro is one key to green mobility and commuting in a growing region. It is a solution that will stimulate the green reset and increased rail travel to and from the continent. Our cities and our common region can be developed while in parallel, more people, more goods and products can be transported across national borders in a sustainable and efficient way.

We hope this report, a bilateral collaboration between the Cities of Copenhagen and Malmö, contributes to both knowledge and dialogue about the need for and solutions to important social investments. Our

results show that it is high time a Danish-Swedish Intergovernmental inquiry into the Öresund Metro was started. We and the whole of the Danish-Swedish collaboration organisation in Greater Copenhagen are in agreement. We are grateful that the EU Interreg programme has supported the Öresund Metro studies in four phases.


Lars Weiss,
Lord Mayor of
Copenhagen


Katrin Stjernfeldt Jammeh,
Mayor of Malmö



The map shows the core corridors in the European Transport Network (TEN T), the Öresund Bridge between Malmö and Copenhagen, the Öresund Metro in green, the Fehmarn Belt link between Denmark and Germany and rail ferry link

Chapter 3

The Öresund Metro in brief

The Öresund Metro, a metro link under Öresund, will be rapid, frequent, reliable and sustainable. It will give increased capacity on the Öresund Bridge for more freight trains and long distance rail services. It will stimulate commuting and integration. The largest labour market in the Nordic area – the Öresund region.

The Öresund Metro is a metro link under Öresund between central Copenhagen and central Malmö. Metro trains will pass through a tunnel bored through limestone rock at the shallowest part of Öresund. A journey between the central stations in Malmö and Copenhagen will take about 20 minutes with departures up to every 90 seconds. Like the Copenhagen Metro system, the Öresund Metro will be driverless. It will be a closed system for underground metro trains that connect to the Copenhagen metro system. The Copenhagen Metro system has over 98 percent punctuality at rush hour and is appreciated by passengers.

In Denmark, the tunnel will connect with Copenhagen Metro at part of the northeastern Amager. There are many connections in the Danish metro system, including the planned new urban development on Lynetteholm. On arrival in Copenhagen, it is easy to travel onwards via the metro system, bus, S-train, change to regional trains and trains to Hamburg and the rest of Europe. The Metro is also important for services to Copenhagen Airport and its network of international flights.

In Sweden, the Öresund Metro will connect to Malmö Central station that will have a metro station with bus transfer, regional trains and trains to the rest of Scandinavia. Two stops are planned at Västra hamnen on the stretch before Malmö C.

At least half of all passengers using public transport across Öresund in 2035-2040 are expected to use the Öresund Metro. This means that capacity will be freed up for rail passenger and freight traffic across Öresund Bridge.



The Öresund Metro will be part of the Copenhagen Metro system. As the trains will be driverless, trains can operate closer together and with shorter trains, which means superior passenger service and cost-efficient operation. Top speed will be 120 kmph.
Photo: rfs.fotografi

Facts

Tunnel length: 22.1 km from coast-coast
Costs: Approx. EUR 4 billion, including a 50 percent surcharge for risk. These costs include land stretches for connections in Copenhagen and Malmö. The coast-coast stretch will cost approx. EUR 3 billion.
Financing: future surplus from the Öresund Bridge, ticket revenues and EU contributions
Construction time: 6.5-7 years
Max speed: 120 kmph
Departures: up to every 90 seconds
Travel time: Copenhagen Central station – Malmö Central station circa 20 minutes
First services: ca 2035

Photo: Bax Lindhardt



"The Öresund Metro can contribute to building even better relations and collaboration between different organisations in the Öresund region, an innovative environment measured in international benchmark terms. Creating better communication opportunities will not only increase partnerships between academia and industry but also boost exchanges within the culture sector."

*- Kerstin Tham,
President of Malmö University*

"An Øresund Metro would be a fantastic benefit. As such it is absolutely vital, that we ensure better transport across our region, if we want to be a genuine powerhouse, that can compete with other regions in Europe. An Øresund Metro will make it easier for job seekers to find work in all parts of the region and similarly easier for companies to recruit labour. What's more, a metro will bring us closer together as residents in a stronger community. There is therefore no reason to hesitate about getting started."

*- Per Christensen,
Chair of the 3F Union*

Chapter 4

Effects of the Öresund Metro

Investigations and analyses of the Öresund Metro show that it would bring many benefits for people and businesses, in short, to the whole of society here. The following section describes benefits for the labour market, for importing and exporting by rail and for the climate and environment. Plus the benefits for Europe and international effects.

Photo: Nicolai Periesi



4.1

The Öresund Metro will make the labour market larger

Malmö C-Copenhagen C in 20 mins, almost half the current travel time. 2.3 million people can reach the other side of Öresund within an hour, a million more than today. Number of jobs within a one-hour commute will increase by half a million to 1.3 million.

A journey of around 20 minutes between the central stations in Copenhagen and Malmö and with departures up to every 90 seconds, will boost accessibility throughout the entire Öresund region. An accessibility analysis by consultants ÅF Infrastructure AB (2018) shows that the travel time with the metro would be almost halved between Copenhagen C and Malmö C compared to taking the Öresund regional train service across the Öresund Bridge. Virtually all urban areas in the Copenhagen region are within an one-hour reach of Malmö C. From Copenhagen C, the whole of Malmö, Lund and urban areas are within a one-hour reach. Much of Skåne and East Denmark would benefit from the shorter travel times by metro.

The metro will be an alternative route across Öresund and reduce vulnerability to delays and disruptions to public transport. As the metro will have its own track without sharing this with other rail traffic, this will increase the reliability and robustness of the entire transport system.

1.3 million jobs within a one-hour commute

With shorter travel times and connections to other public transport, 2.3 million people will be able to travel from Copenhagen C and Malmö C across Öresund within 60 minutes. Or a million more people than today. The journey between the two central stations itself will take just over 20 minutes.

The number of jobs within a 60-minute commute between the countries will increase by 500,000, from 800,000 to 1.3 million. This will enable a common labour market to grow. It will create new opportunities within many sectors – enterprise, research and education, tourism, culture etc. Local residents, business owners, students and visitors will all benefit.



A nurse living in Lund, Sweden, can commute to Rigshospitalet in Copenhagen within one hour. A researcher at the Technical University of Denmark can save 19 minutes off their journey to the Faculty of Engineering at Lund University. A teacher who lives in Copenhagen can reach their school in Eslöv in Sweden in less than an hour. Photo: Büro Jantzen

Demographics challenging welfare

The Öresund region is facing demographic challenges. In eastern Denmark, population growth in the 20-59 year age group is low in the Capital Region of Denmark and negative in the Zealand Region. On the other hand, in Skåne, an increase in the 20-64 age group is forecast. Swedish and Danish forecasts also point to a big rise in the 60+ age group throughout the entire Öresund region.

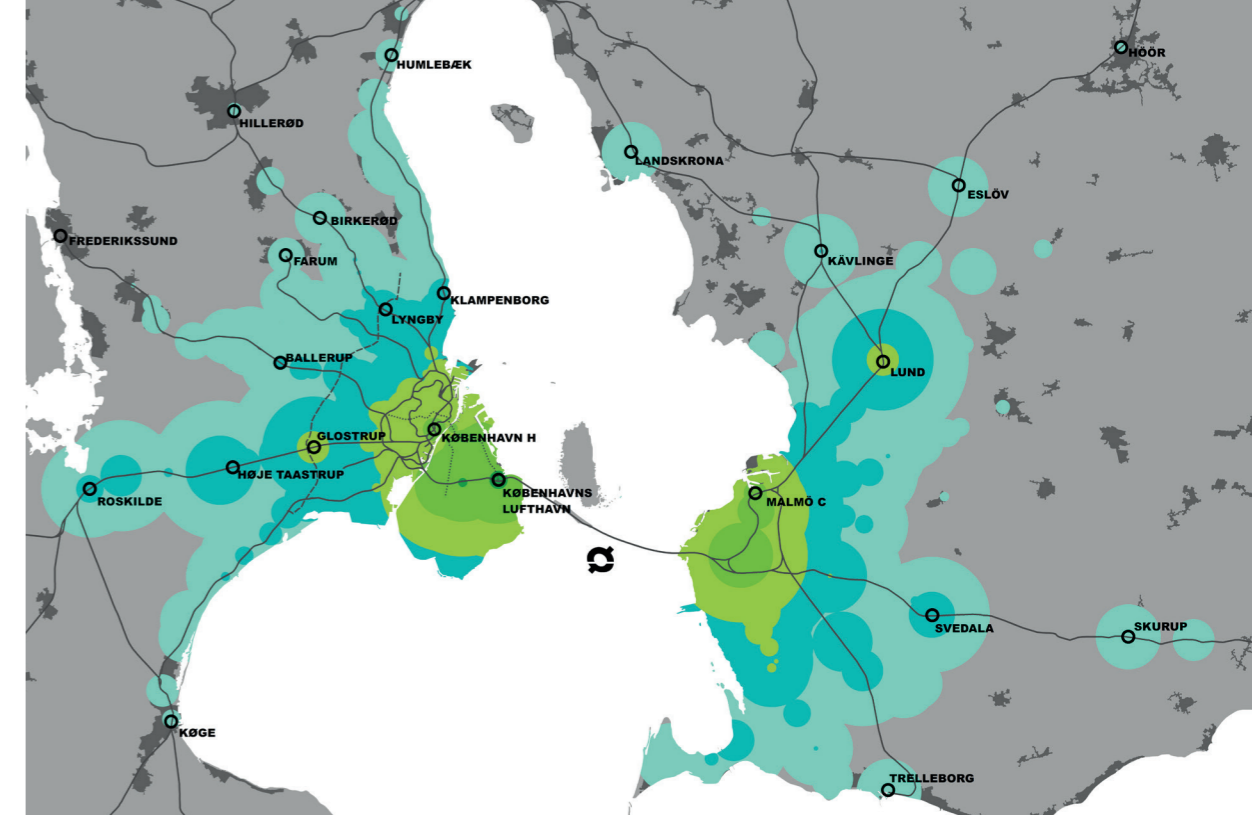
Altogether, this demographic development challenges the possibility of maintaining the current level of welfare in the region. A bigger exchange of labour across Öresund will be needed and the Öresund Metro can contribute to this.

“There is a really good logic to bringing the whole of the Øresund region closer together. The shorter travel times will increase mobility in both Copenhagen and Malmö, and in the areas around both cities. This will be good for both employees and employers, with more jobs and jobseekers to choose from. The dynamics, together with a close network of major universities and businesses, can make a big contribution to economic growth in the whole area around Copenhagen.”

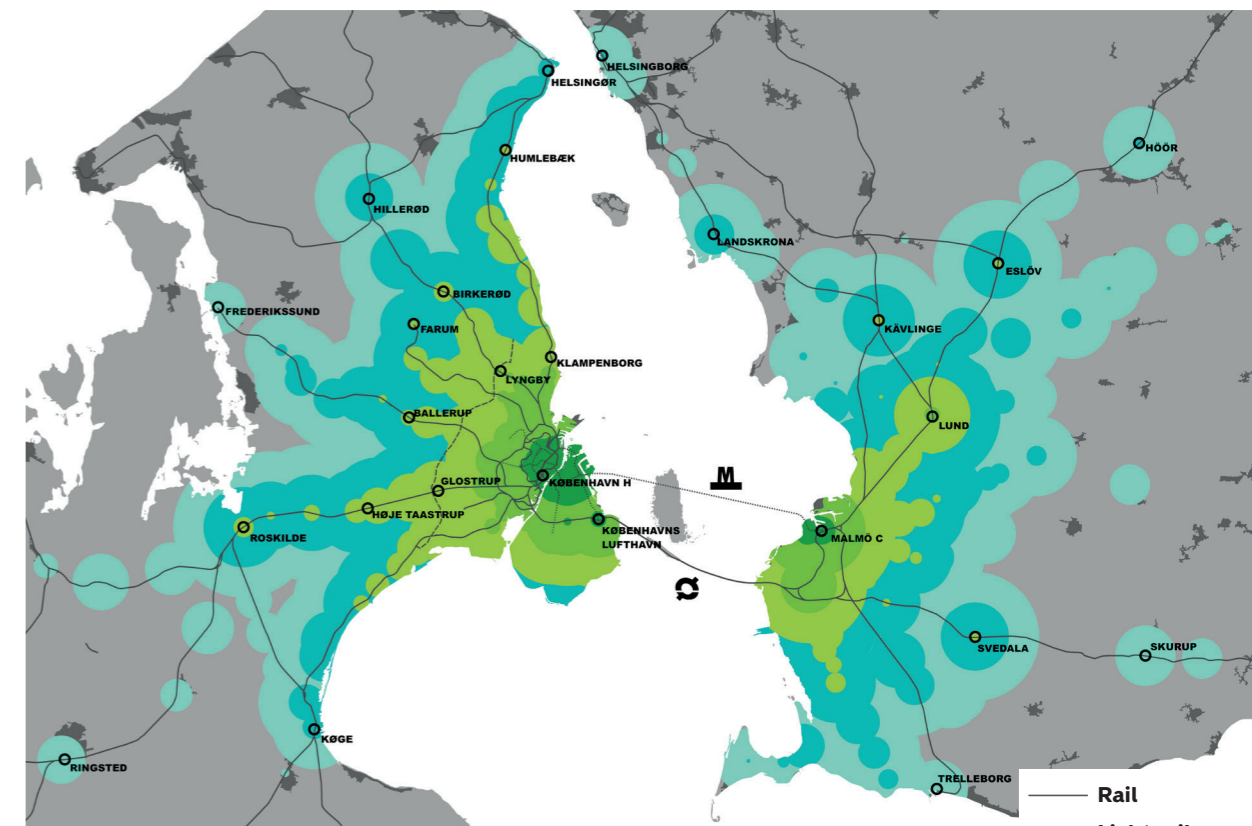
- Claus Jensen,
leader of the Dansk Metal union

“Imagine being able to reach an additional half a million jobs within a one-hour commute – from 800,000 to 1.3 million job opportunities. The Metro will contribute to a robustness and stimulate economic growth in both the region and the rest of Denmark and Sweden, from the planning stage right through the entire lifespan of the metro.”

- Ulrika Hallengren,
CEO Wihlborgs Fastigheter AB



Accessibility in 2018 via a regional train on the Bridge from Copenhagen Central station and Malmö Central station to the other side of Øresund. Travel times are based on no border controls in Sweden.



Accessibility in 2035 with a regional train on the Bridge and an Øresund Metro from Copenhagen Central station and Malmö Central station to the other side of Øresund. Travel times are based on no border controls in Sweden. Travel times under 60 min shown in green.

4.2

Updated traffic forecast and the relief effect of the Öresund Metro

Forecasts indicate that the number of people using public transport across Öresund will increase from 30,000 to 60,000 a day in 2035. The Öresund Metro can carry at least half of all future travellers across Öresund. The short travel time and frequent departures will also increase travel. The Öresund Metro will accordingly free up capacity for freight trains and long distance trains.

In the updated Öresund Metro traffic forecasts from 2018, estimated users of public transport across Öresund is calculated to increase. The analysis is an expansion of traffic forecasts linked to the Copenhagen inquiry Public transport in Copenhagen (KIK2 2018).

In this analysis, a future extension of the Copenhagen Metro is assumed to link together Copenhagen Central station – northeastern part of Amager – Refshalvön with Nordhavn/Österport. In the same forecast, the

Öresund Metro is linked to the expanded Copenhagen metro network at Prags Boulevard station in northeastern part of Amager. From there, you can take a direct connection to both Copenhagen Central station and Österport and transfer to southbound metro lines to Copenhagen Airport and Örestad and to Northern Copenhagen.

The next metro stage in Copenhagen is currently being investigated at time of writing. Connecting the Öresund Metro to the Copenhagen metro system will depend on expanding the latter to the planned new urban development at Lynetteholm. Several proposals in this investigation would enable this connection.

Synergy between metro and regional trains

The traffic forecast provides an estimate of the synergy between a new Öresund Metro and continued traffic with Öresund trains (regional trains that link the regions in south Sweden and east Denmark), and compa-

res this purely with Öresund train services. Such travel is influenced by different variants of how the Öresund Metro will be structured. Partly by whether the speed limit under Öresund will be 100 or 120 kmph respectively, partly by the stretch in Malmö to Malmö C and onwards into central Malmö.

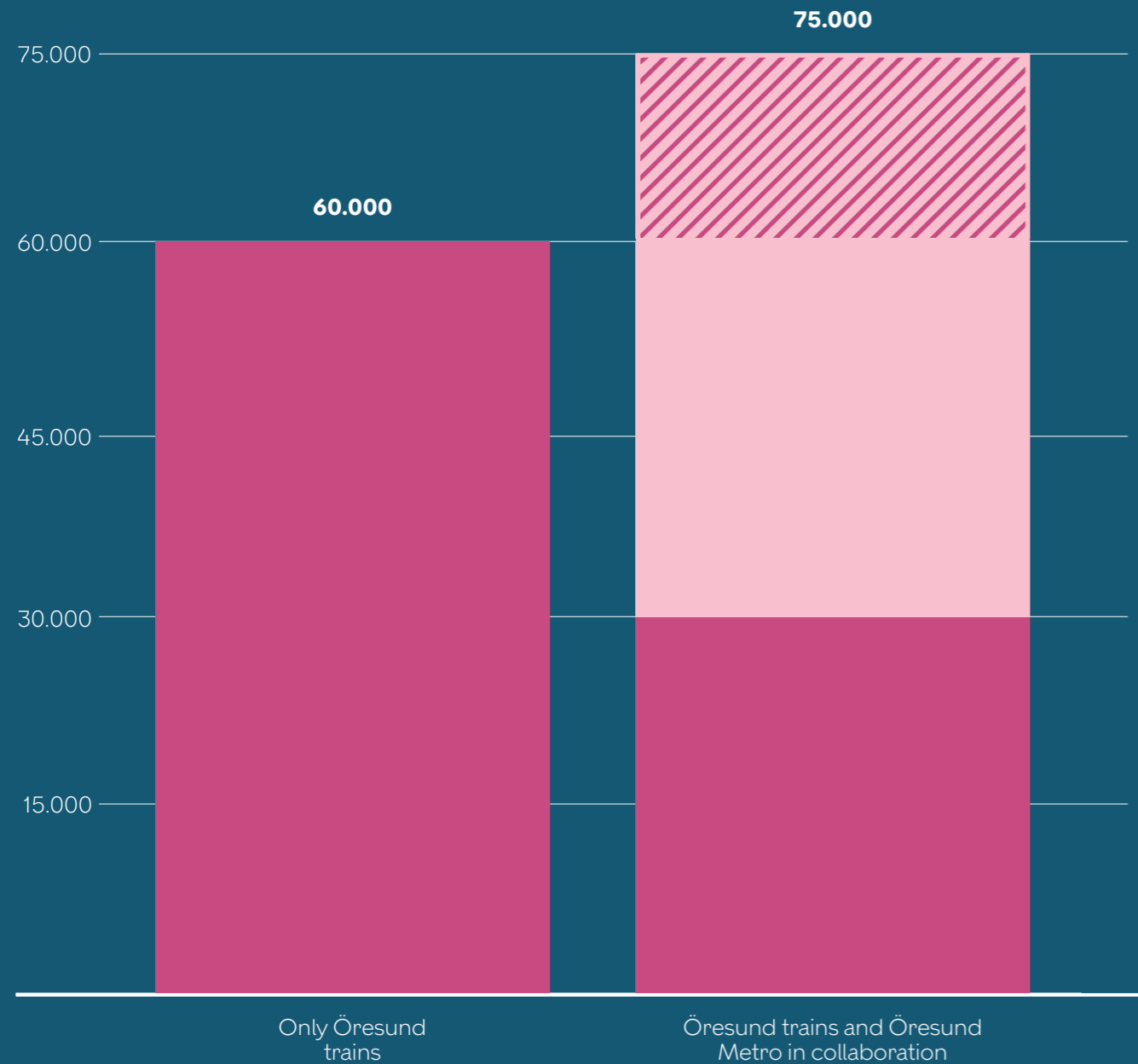
A frequency of 36 departures per hour in each direction during rush hour is estimated for the Öresund Metro. The highest frequency the metro can have is 40 departures per hour, i.e. every 90 seconds. The Metro trains run in a closed system and do not have to be coordinated with other rail traffic (freight and passenger services).

The Metro will provide a big increase in capacity for passenger traffic

Different traffic scenarios of future passenger numbers in an Öresund Metro range from 40,000 to 60,000 passengers per day. With the Öresund trains alone, around 60,000 passengers a day on weekdays from 2035 and beyond, assuming there is enough room on the trains. That is double the number of daily passengers compared with today, which is about 30,000.

Synergies between Öresund Bridge trains and the Öresund Metro

- Travellers on Öresund trains
- Travellers on Öresund Metro that relieve Öresund trains
- New travellers on the Öresund Metro



The figure shows that the Öresund Metro would relieve regional Öresund train services across the Bridge by reducing traveller numbers by around half from 2035+. The Öresund Metro would also attract around 20 - 25% new travellers. The number of travellers will then grow in line with growth in the region. The Öresund train capacity that will no longer be needed when the Metro opens will free up capacity for long distance passenger and freight rail services on the Bridge.

A combined assessment of the different scenarios gives the following future scenario:

With an Öresund Metro, Öresund train passenger numbers in 2035 and beyond would be halved and therefore be on a par with the 2019 level, i.e. 30,000. The other half of these passengers are expected to choose the Öresund Metro. What's more, the number of journeys is expected to increase by 20-25 percent thanks to the shorter travel times on the Öresund Metro and more frequent departures, i.e. 15,000 travellers. The number of people travelling and the split between Öresund trains and Öresund Metro can vary depending on the assumptions about metro speeds and the stretch in Malmö.

Traffic relief on the Öresund Bridge

The Öresund Metro will take at least 50 percent of the future public travel estimate of 60,000 travellers per day. An increase of around 15,000 new travellers can also be expected. This would mean the number of people travelling by Öresund train services can be kept at the 2019 level, i.e. 30,000. In which case, six Öresund train departures per hour in each direction during rush hour would be sufficient to enable capacity on the Öresund Bridge tracks to be used for an expansion of freight and long distance rail services between the whole of Sweden, Denmark and Europe.

4.3

The Öresund Metro will promote exports and imports by rail

80 percent of freight trains from Sweden go via the Öresund Bridge. The new Fehmarn Belt Tunnel between Denmark and Germany will increase the number of freight trains. Capacity for four freight trains per hour in each direction is needed on the Öresund Bridge. The Öresund Metro will free up capacity on the Bridge.

Sending freight by rail is of major importance for exports and imports in the whole of Scandinavia. For example, the Öresund Bridge handles 80 percent of freight that goes by rail to and from Sweden and the continent, according to Swedish Transport Administration figures.

Many signs point to an increase in rail freight transport, not least in respect of climate goals set. There is also a need for greater energy and space efficiency in transport, as this reduces costs and is better for the environment. Here, moving freight by rail offers several

advantages. Shifting freight transport from road to rail reduces emissions in the transport sector. Energy consumption per ton transported is lower for rail transport than road transport. This will remain the case even if future trucks are electric or diesel powered.

Rail is prioritised in the EU

When the Fehmarn Belt Tunnel opens in 2029, Denmark will have two rail routes for freight trains from Copenhagen to Germany. The rail corridor via the Great Belt Bridge and Jutland will be complemented by a shorter rail link via the Fehmarn Belt. While assessments vary as to how rapidly freight traffic will increase, all forecasts point in the same direction. There will be significant expansion, which will challenge capacity across Öresund. How rapidly this will happen will depend on factors such as what conditions will enable rail freight to compete with road freight. For example, permanent, dedicated freight train channels between Malmö and Hamburg will be necessary. This also applies in the transport corridor from Scandinavia



Photo: Colourbox

in the north to the south of Italy, a key corridor for traffic through Europe. Permanent freight train channels need to be available 24 hours a day and give transport buyers a competitive service, with good delivery times and punctuality.

Expanding the station at Copenhagen Airport to four tracks would mean the Öresund Bridge could handle 16 train departures per hour in each direction for passenger and freight trains, compared with 12 today. This is expected to happen around about 2029, but no decision has yet been made.

Addressing bottlenecks on the land connections to the Bridge will be crucial to maximise capacity on the Bridge in a first stage. For instance, on the Danish side, the station at Copenhagen Airport needs to be expanded to four tracks and on the Swedish side, grade separation is needed at Svågertorp Station and at Malmö C rail depot.

100 freight trains a day to achieve climate goals

Several investigations, such as by the Swedish Transport Administration and the Danish Ministry of Transport, assess that there will be a need for three freight channels via the Öresund Bridge to manage the increase in traffic from the Fehmarn Belt Tunnel as early as 2030. Today, one to two freight channels per hour are utilised in each direction. In time, four

freight channels per hour and direction will be needed to reach the EU climate goals in the White Paper from 2011 according to a report by consultants Sweco (2020). This would mean up towards a hundred freight trains a day to achieve the targets in the White Paper.

To benefit imports and exports to and from Scandinavia and the continent in an environment and climate friendly way, capacity for at least three freight trains per hour in each direction round the clock will be needed. Eventually four freight trains per hour in each direction will be needed.

Passenger traffic will be switched to the Metro

With four freight trains per hour in each direction, there will be capacity for eight passenger trains on Öresund Bridge, as each freight train takes as much space as two passenger trains. For example, this would mean space for two long distance trains at the same time as space for six regional trains. Synergy between regional trains and the Öresund Metro can meet the needs of local and regional travellers and people going to Copenhagen Airport while enabling rail freight traffic to be expanded on the Bridge at the same time.

“It is incredibly important that we have a seamless flow of goods and services between Sweden and Denmark and in so doing also with the rest of Europe. Here, the Öresund Metro will play an important role as we do not want any bottlenecks between our two countries. Added to which, it is important to strengthen the Öresund region, something I am convinced will benefit both Sweden and Denmark.”

*- Peter Fellman,
Editor in Chief Dagens Industri*

“The closer the Øresund region is linked together, the better it will be for enterprise and the people here. A new link will boost growth and development in the whole region and help create fertile soil for everything from new start-ups to large, established businesses. We must not run out of capacity across Øresund and the time is therefore ripe to start doing the analysis and work now.”

*- Bettina Hagerup,
Director Danish Chamber of Commerce*

4.4

The Öresund Metro will link Scandinavia with Europe

The EU has a master plan (TEN-T) for the railway system. Rail traffic will increase with the new Fehmarn Belt Tunnel between Denmark and Germany. Capacity on the Öresund Bridge is expected to face a challenge - the Öresund Metro can add capacity to the Bridge.

The European transport system TEN-T is about creating a sustainable European network consisting of railways, roads, ports and airports. The aim is to eliminate bottlenecks and technical barriers in the transport systems in order to create social, economic and geographic cohesion within the EU. The Öresund Metro will contribute to realising this plan.

One part of this European plan is a core network with nine rail corridors, (see map right). The Öresund Bridge is included as a link to the so-called ScanMed Corridor, that crosses the continent from Scandinavia in the north to the south Mediterranean Sea. The corridor is an important axis for the European economy.



Ten-T consists of a core network with nine corridors that link together key hubs in Europe. A common signalling system and rail freight corridors should be completed by 2030. The ScanMed corridor (pink) links the Nordic capital cities (Oslo, Copenhagen, Stockholm, Helsinki) with the Mediterranean (major cities and coastal ports in Italy, Sicily, Malta). Source: The EU Commission

Bottlenecks in the ScanMed Corridor

There are two main bottlenecks in the ScanMed Corridor, the Fehmarn Belt between Denmark and Germany, and the Brenner Pass between Austria and Italy. Here, two of the biggest EU infrastructure projects are in progress: a road and rail tunnel under the Fehmarn Belt between Denmark and Germany (completion 2029) and the 55-kilometre rail tunnel under the Alps between Austria and Italy, the Brenner Tunnel. Both tunnels are being co-financed by the EU Commission and the member countries.

The Fehmarn Belt Tunnel will create a better rail link to Hamburg, the third largest port in Europe. This new link will also halve the travel time for passenger trains between Copenhagen and Hamburg to 2.5 hours. Travel time for freight trains will be cut by two hours.

“Creating a better-connected Europe is of fundamental importance to future growth and prosperity. In this regard developing the Fehmarn Belt Region through the Fehmarn Belt Fixed Link is vital. Making the most of the Fehmarn Belt Fixed Link also means taking a wider perspective and supporting complementary regional and local transport links. The Öresund Metro could be such a link by freeing up existing capacity, thus unlocking the full transnational potential of the Fehmarn Belt Region and its European neighbors.”

*– Pat Cox,
coordinator of the ScanMed corridor, former
President of the European Parliament*

“The Öresund Metro is a natural continuation of an open EU. Open job market, open borders, open social intercourse and open culinary exchanges. So much innovative work can only become better with simple borderless cooperation.”

*– Bert Nordberg,
Chair of Vestas and TDC*

Double the number of trains in 2035

A 2018 analysis by consultants Ramböll shows how the Fehmarn Belt Tunnel will increase traffic flows between Sweden, Germany and the rest of the continent. Bottlenecks can arise in both Hamburg and across Öresund between Denmark and Sweden. The graphs to the right show expected traffic increases by rail between Scandinavia and the rest of Europe. Freight train volumes passing over the Öresund Bridge are expected to double in terms of the number of trains when the Fehmarn Belt Tunnel opens.

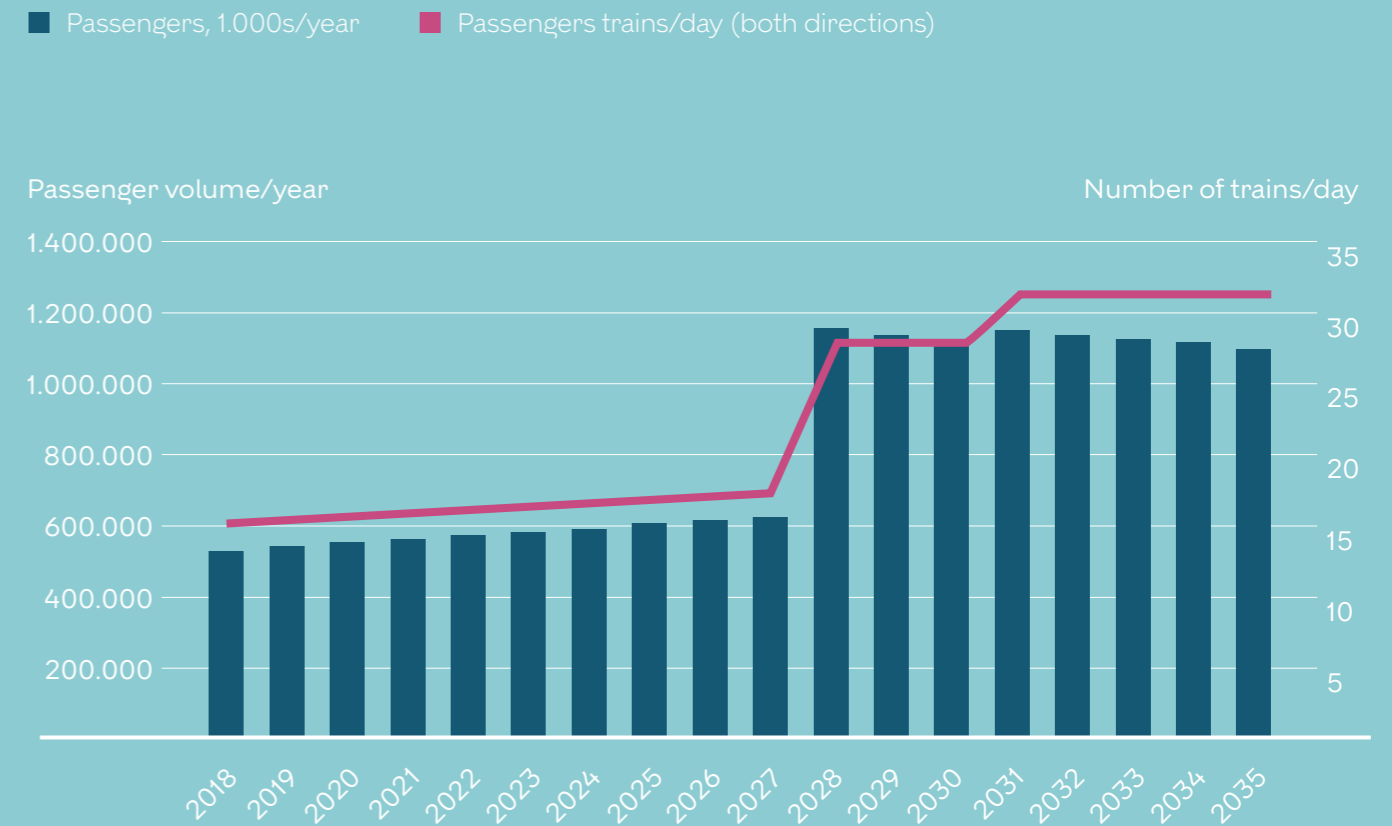
Other analyses also predict increased goods flows as a consequence of the Fehmarn Belt Tunnel, expansion of railways in Denmark and new railway for high speed trains in Sweden. To be able to handle this expansion, the Öresund Bridge needs capacity for three to four freight trains per hour in each direction compared to an average of two freight trains per hour in each direction today.

The Metro's role in the larger plan

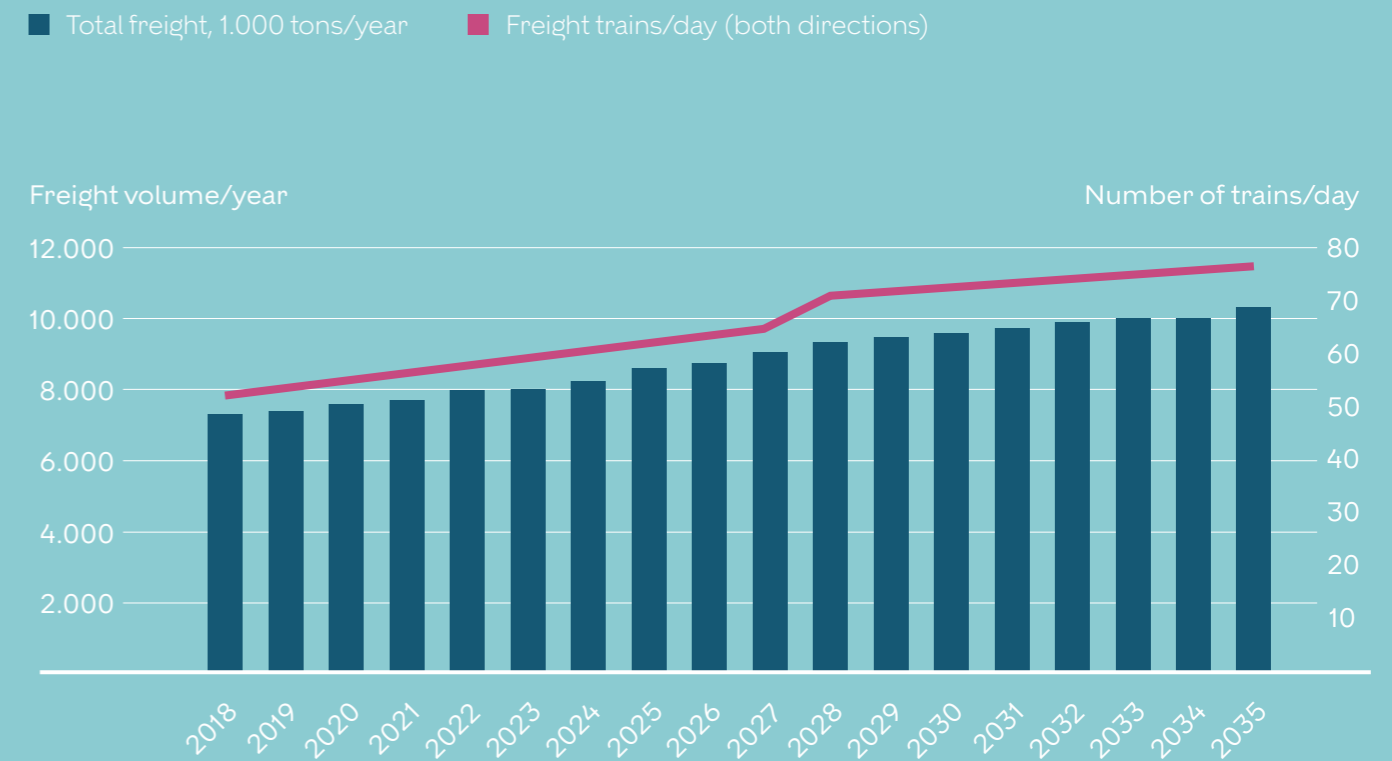
The Öresund Metro between Malmö and Copenhagen plus The Rapid Transit Railway Line (S4) project between Hamburg and Bad Oldesloe in Germany can, according to Ramböll (2018), eliminate obstacles that can arise after the Fehmarn Belt Tunnel has opened. Both projects will create growth, mobility and a green reset in the transport system, according to the consulting company.

By taking over a large part of regional passenger traffic, the Öresund Metro will free up rail capacity on the Öresund Bridge. In so doing, transport can be switched from road to rail, which is the EU aim.

Forecast passenger traffic by rail between continental Europe and Scandinavia 2018-2035



Forecast freight traffic by rail across the Fehmarn Belt link 2018-2035



Source: Ramböll (2018) based on Intraplan Consult GmbH & BVU Beratengruppe (2014)

4.5

The Öresund Metro will strengthen the transport system around Copenhagen Airport

The Öresund Metro will improve services for millions of travellers. It will improve the airport's international competitiveness.

In a normal year, around 30 million people fly into and out of Copenhagen Airport each year. The airport is important for international accessibility to and from the whole of Scandinavia and a hub for the Öresund region transport system. Transport in the region around the airport affects the airport's competitiveness and growth.

An analysis by Ramböll (2019) shows the importance of the Öresund Metro in securing flexible transport between Denmark and Sweden across Öresund and with this, also between Scandinavia and the rest of Europe.

According to Ramböll, the Öresund Metro will contribute by:

- Creating a more robust and high frequency alternative to Öresund trains and at the same

time, make travel by Öresund trains more reliable for people heading to the airport.

- Further developing the combined capacity in the infrastructure across Öresund to meet the transport needs of freight trains, plus local, regional and long distance rail services (including high speed trains).
- Separating local and regional commuter traffic from regional, long distance and freight traffic. In so doing, the Metro will contribute to a more efficient use of the Öresund Bridge and future infrastructure such as faster rail travel from West Denmark, faster rail travel from West Denmark to CPH Airport via the South Ring, new railway for high speed trains in Sweden, plus freight and long distance rail services from Fehmarn Belt.
- Freeing up capacity for a more flexible organisation of Öresund trains that will gain a larger

regional catchment area between South Sweden and South and West Zealand.

- Strengthening integration and growth in the Öresund region which will contribute to the development and competitiveness of Copenhagen Airport.

Regional Öresund train will continue to be a good travel option for Swedes flying to and from Copenhagen Airport. But the Öresund Metro will increase services to and from the airport. Even though the travel time via the Metro to the airport will be about eight minutes longer than by Öresund train, the Öresund Metro will depart up to every 90 seconds, i.e. 40 hourly departures. That is significantly more than the current six trains an hour at rush hour with Öresund trains. An alternative route across Öresund also reduces vulnerability in the transport system.

98 percent punctuality

Öresund Metro punctuality will be similar to the Copenhagen metro system. Over 98 percent punctuality is very high reliability. This is important for travellers, not least those with a flight to catch. According to the Ramböll analysis, approximately 20 percent of Öresund trains were delayed in 2018, as shown by Danish Ministry of Transport statistics.

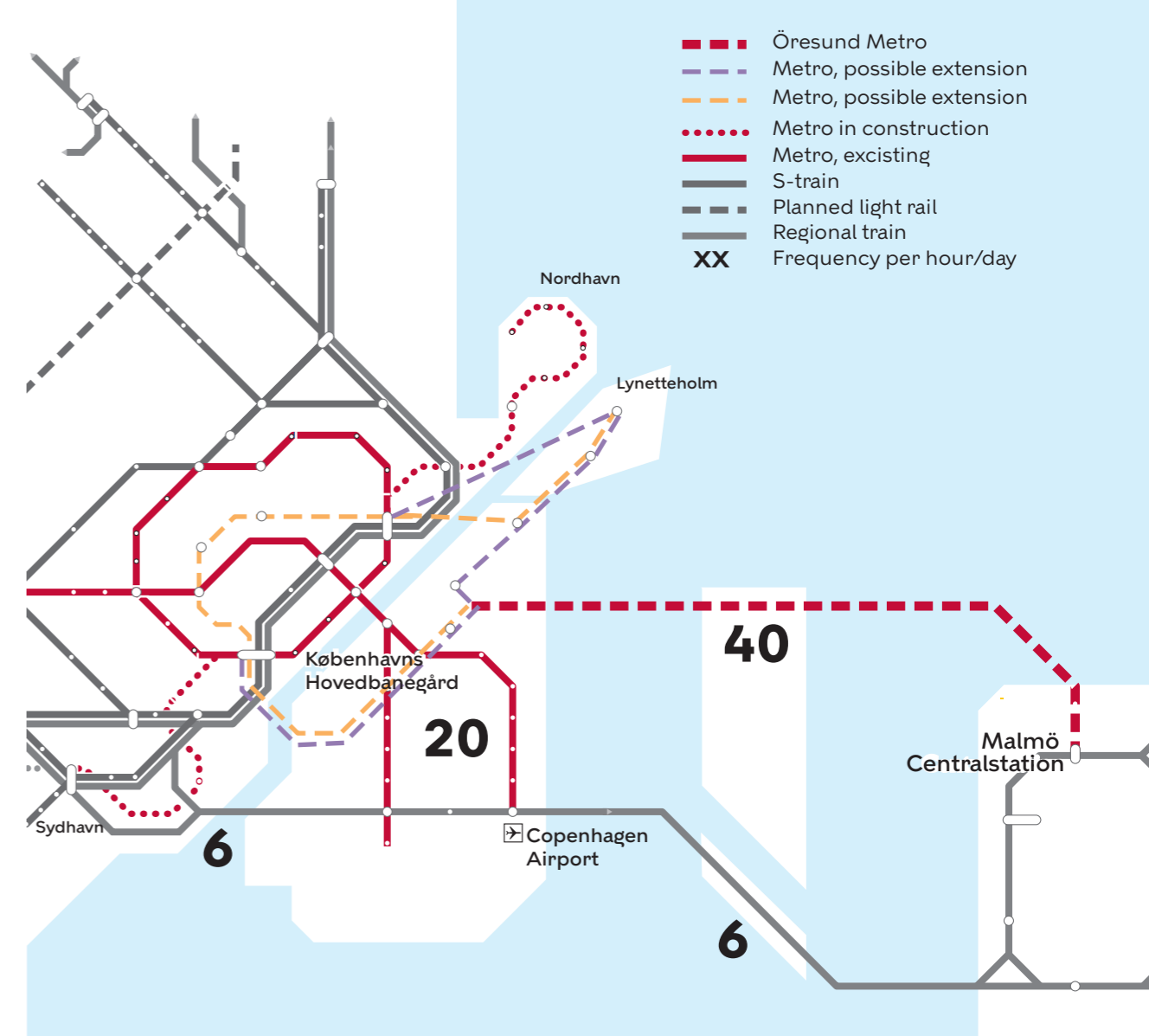
The Öresund Metro is a prioritised infrastructure investment in the Copenhagen Airport development master plan.

“The Öresund Metro is a visionary project, that will deliver a significant boost to the infrastructure in our shared region. We know that fixed links significantly increase mobility. A strong infrastructure in Greater Copenhagen is also crucial for the development of our international connections within aviation, as airline passengers want to be able to reach their final destination quickly.”

- Thomas Woldbye,
CEO Copenhagen Airport

“European Spallation Source in Lund (ESS) is one of the world’s biggest infrastructure projects within research and technology. Euro 1.8 Bn is being invested and 13 European countries are participating. A Metro link to Copenhagen, high speed trains to Hamburg and the rest of Europe are strategic for our position as a leader within research.”

- Pia Kinhult,
Head of Host States Relations, European Spallation Source (ESS)



The figure shows the number of rail and metro services across Öresund per hour. Regional Öresund trains operate with a frequency of six trains per hour. The Öresund Metro will have up to 40 departures an hour.

About Copenhagen Airport in brief

In 2018, the airport set a record with a total of 30 million passengers. Over 60 percent travelled to or from the airport by public transport. The proportion of passengers that choose public transport is expected to rise.

It is the largest airport in Denmark and Sweden’s second airport in terms of the nationality of departing passengers. In 2019, around 1,375,000 Swedes flew from Copenhagen Airport (excl. transfer passengers from Gothenburg and Stockholm). Of these, around one million people went by train to the airport and some 230,000 went by car. The airport plays a key role in the international accessibility of the whole of Scandinavia.

The airport has set clear climate goals. In 2019, the airport was certified as CO2-neutral (energy usage). By 2030, both operations and transport to and from the airport should be emission free. By 2050, the goal is to be emission free when it comes to operations, traffic to and from the airport and the businesses that operate at the airport.

In 2019, the airport had over 3 million Swedish passengers. Of these Swedish travellers, 40 percent live in the south of Sweden.

4.6

The Öresund Metro will help to meet environment and climate goals

The EU Green Deal has set a goal of shifting a substantial part of 75 percent of freight transport from road to rail. By 2050, CO2 emissions can be reduced by the equivalent of 1,700 lorries or 100 flights between Copenhagen Airport and Stockholm Arlanda Airport per day – if freight and passenger traffic is switched to rail. The Metro will be powered by 100 percent green energy and create capacity for freight trains on the Öresund Bridge. Tunnel construction has little impact on the environment.

The EU Commission White Paper (2011) lists changes that are needed to cut emissions of greenhouse gases by 60 percent. One goal concerns moving a third of road transport of further than 300 km to rail and water transport by 2030. By 2050 fifty percent of future road freight volumes are expected to be transferred to rail transport. To achieve this, the rail infrastructure must be modernized and expanded.

Tougher climate goals for 2050

The EU Commission is further toughening its climate goals with its new growth strategy “the European Green Deal”. The EU aims to be climate neutral by 2050 and emissions from the transport sector needs to be reduced by 90 percent. The ambition is, among other things, that a substantial part of the 75 percent of freight transports that are currently on the road will be shifted to rail and shipping.

Transporting goods by rail uses less energy. A freight train is also more space efficient, corresponding to around 20 heavy goods vehicles with trailers that do not need to take up space on roads. Denmark, Sweden, Germany and the EU largely have very similar climate goals, to gradually reduce emissions of greenhouse gases by 2045-2050. By then, emissions are to be net zero. There are also targets for energy efficiency and the proportion of renewable energy for transport.

Powered by 100 percent green electricity

Travelling by metro is better for the environment than going by car. The Metro is very energy efficient and is powered by 100 percent green energy. With faster travel times and more frequent departures, more people will choose the Öresund Metro to cross Öresund. This will contribute to achieving targets of increased proportions of environment friendly travel, set both within the EU and by Denmark and Sweden.

The Öresund Metro will relieve the Öresund Bridge of regional rail public transport passengers by at least 50 percent by 2035+. This will free up track capacity for long distance freight and passenger trains across the Öresund Bridge. This will be needed when the Fehmarn Belt Tunnel between Denmark and Germany opens in 2029, when goods and passenger rail traffic between Scandinavia and Europe is expected to increase sharply.

More transport by rail will assure sustainable and climate friendly freight traffic between Scandinavia and Europe. An expected increase in passenger traffic by long distance trains and future high speed trains between Stockholm, Malmö, Copenhagen and Hamburg, will also contribute in a sustainable and climate friendly way.

Climate benefits of the Öresund Metro

Four different scenarios, based on the years 2035 and 2050, have been used to calculate the potential reduction in emissions in a study by consultants AFRY (2019). In total, emissions of carbon dioxide are assessed as being able to be reduced by between 350,000 tons CO2-equivalents per year and 1,650,000 tons CO2-equivalents per year when transport by air, car and HGV is shifted to rail. Such a transfer by 2050 would result in a maximal reduction corresponding to the emissions from 1,700 HGVs per day or 100 daily flights between Copenhagen Airport and Arlanda.

Little environment impact in Öresund

An environment analysis from 2013 shows that neither animal life in the sea, fauna on the seabed nor the water quality would be disturbed during the construction period. Nor would boring a tunnel under Öresund hinder the intensive shipping traffic. The excavated rock debris from the tunnel can be used as aggregates in urban development projects and as future protection against rising sea levels or other climate impact.

"I feel that we - all of us - have gained too little out of the fact that Malmö and Copenhagen are so close to each other. Copenhagen is fantastic, and Malmö is fantastic - and both have so much to offer. We have not been reaping the fruit that has been sown. This is why I support any initiative that can bring us closer to each other - for cultural, commercial and interpersonal reasons. A direct metro link between the two cities also has sustainability arguments in its favour - in the future we need to drive and fly less and travel by train and metro more. For environment reasons. Which is why a metro to Malmö is a really good idea!"

*- Mads Nørgaard,
owner and founder of Mads Nørgaard - Copenhagen A/S*

Photo: Nicolai Perjesi



4.7

Socio-economic analysis

The socio-economic return from the Öresund Metro will be in line with the City Circle Line in Copenhagen according to the Danish methodology. With the Swedish methodology, the Öresund Metro will deliver a lower socio-economic return, similar to other projects such as the Stockholm City Line and the West Link in Gothenburg. The results become better if effects such as operating stability, increased capacity and agglomeration are factored in. With the EU's future traffic system plan and if Region Skåne's strategy is realised, the Öresund Metro will deliver socio-economic benefits worth several billion SEK.

In 2021, consultants Incentives produced an updated socio-economic analysis of the Öresund Metro project based on the two different methodologies used by the Swedish Transport Administration and the Ministry of Finance of Denmark. The analysis was based on a metro system being constructed and opening for traffic in 2035.

This socio-economic analysis calculates the value of the benefits of a project in SEK and DKK and provides an assessment and calculation on to whether it can be economically profitable to invest in the project. This type of calculation is included as part of decision-making support data for a project and is one part of a broader assessment. However, the way the analysis methodologies are structured has been evaluated and debated at regular intervals.

Big gains for users of public transport

An Öresund Metro will almost halve the travel time between Malmö Central station and Copenhagen Central station compared to going by regional Öresund train across the Öresund Bridge. Öresund trains take around 40 minutes, while the Öresund Metro would take about 23 minutes. That is a time saving of 17 minutes. This shorter travel time is a significant positive for all daily commuters, leisure travellers and people travelling on business that go by Öresund train today.

The socio-economic analysis also shows that the shorter travel time with the Öresund Metro will attract new travellers who would not otherwise cross Öresund. Car users that drive across the Öresund Bridge would also switch to the Metro. Fewer cars would mean less congestion on the roads in the Öresund region.

Methodologies and results of these analyses

A socio-economic analysis addresses three key issues. The construction costs that are counted as a loss. The time savings that are created for travellers that deliver a gain. Plus the internal interest rate (IRR) that indicates the socio-economic return on the project.

In Denmark, projects at an early stage a factor in a risk premium of 50 percent on construction costs. This is not done in Sweden. The Swedish analysis of the Öresund Metro has factored in a 30 percent cost provision instead. The construction costs are therefore higher with the Danish methodology than the Swedish methodology.

With the Danish methodology, the Öresund Metro results in a socio-economic deficit of DKK 0.7 billion and an IRR of 3.0 percent. The Swedish methodology results in a socio-economic deficit of SEK 3.6 billion and a net present value ratio (return on investment) of minus SEK 0.14

Socio-economic effects, present value 2020, SEK and DKK bn.

	Danish methodology, DKK	Swedish methodology, SEK
Public costs	-14,6	-20,3
Road-users and public transport passengers	15,5	23,6
Other effects	-1,6	-6,9
Total main analysis	-0,7	-3,6
Internal interest rate main analysis	3,0%	3,2 %
Net present value ratio main analysis	-0,04	-0,14
Increased operating stability	1,6	2,4
Increased capacity	0,4	0,6
Agglomeration	0,1	0,2
Total main analysis including additional effects	1,5	-0,5
Internal interest rate main analysis including additional effects	3,3%	3,5%
Net present value ratio including additional effects	0,08	- 0,02

Source: Incentives 2021. All prices are calculated using 2020 prices. Costs for rolling stock, operations and maintenance have been provided by Metroselskabet (owned by the municipalities of Copenhagen and Frederiksberg and the Danish Government), costs for the coast-coast tunnel have been calculated by Ramböll (2017). Please note that positive figures indicate profits, negative figures indicate costs. The internal interest rate is not used as an evaluation criterion in Sweden, and the net present value ratio is not used as an evaluation criterion in Denmark.

Additional effects increase the socio-economic value

The analysis has also calculated the importance of increased operating stability, increased capacity on the Öresund Bridge and agglomeration. Agglomeration here concerns effects of the productivity increase that arise when companies and employees become more tightly connected via reduced travel times. These are effects that are not usually included as standard in socio-economic analyses. When these effects are factored in, the results show that with the Danish methodology, the project is profitable with a return of DKK 1.5 billion and an IRR of 3.3 percent. Using the Swedish methodology, the results show a deficit of SEK -0.5 bn and a net present value ratio of -0.02.

According to the Ministry of Finance in Denmark, with an IRR of 3.5 percent, the project would be profitable. Compared to the new City Circle line in Copenhagen that opened in 2019 (3.0 percent IRR) and the Ring 3 light rail project that has been decided and is now under construction (2.8 percent IRR), the Öresund Metro IRR is set as 3.3 percent (including the importance of increased operating stability, increased capacity on Öresund Bridge and agglomeration).

Compared to other big urban projects in Sweden, the results do not significantly differ. Socio-economic calculations are difficult to do for most big urban projects. The Stockholm City Line, City Tunnel in Malmö and the West Link in Gothenburg are projects that despite low (negative) socio-economic gains, were agreed on and have been implemented or are under construction.

EU and Skåne strategies and goals increase the gains

The socio-economic effects are impacted by how many people will use public transport between East Denmark and South Sweden. If other strategies are realised in the future, the results of a socio-economic

analysis will be better. For example, if travel by public transport increases, more people will benefit from the Öresund Metro. The socio-economic return will therefore increase.

Two examples of such strategies are the Region Skåne passenger rail services strategy from 2021 and the EU goal of moving freight from road to rail in accordance with the 2011 EU White Paper Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system.

According to the new Region Skåne strategy for regional rail services in Skåne, the number of public transport journeys across Öresund will grow by over fifty percent by 2040. If this strategy is realised, this means that 24 million passengers will cross Öresund by public transport in 2035 and 31 million in 2040. This means that the net socio-economic gains with the Öresund Metro will increase to DKK 10 billion using the Danish calculation methodology and SEK 12.4 bn with the Swedish methodology.

Even more freight traffic on the Bridge would deliver higher socio-economic gains. The EU aim of moving freight transport to rail includes a need to increase capacity for freight trains across Öresund Bridge. The Öresund Metro has a very large capacity for passenger traffic, which will free up capacity for more freight trains on the Bridge.

As an example, the analysis shows that in one scenario without the Öresund Metro, 25 percent of Öresund passenger train services would have to be cutback to meet the increased need for capacity for freight train services. With an Öresund Metro, the socio-economic gains would increase to DKK 1.8 bn using the Danish calculation methodology and SEK 1 bn with the Swedish methodology.

**Sensitivity analysis
Socio-economic effects, present value 2020, SEK and DKK bn if the Region Skåne passenger rail strategy and the EU White Paper are realised.
Standard methodology with no additional effects.**

	Region Skåne passenger rail strategy		Increase in goods transport rail	
	Danish methodology, DKK	Swedish methodology, SEK	Danish methodology, DKK	Swedish methodology, SEK
Present value 2020	10,0	12,4	1,8	1,0
Internal interest rate	4,2 %	4,5 %	3,3 %	3,4 %
Net present value ratio	0,59	0,52	0,10	-0,04

Source: Incentives 2021. Please note that positive figures indicate profits, negative figures indicate costs. The internal interest rate is not used as an evaluation criterion in Sweden, and the net present value ratio is not used as an evaluation criterion in Denmark.

“Politicians should urgently ensure that supporting data are presented to show the socio-economic benefits of how the Metro will contribute to a larger and more integrated job market between Skåne and Zealand. This is so national politicians understand the value in relation to other major infrastructure projects and to make financing solutions easier. Presenting data showing how many billions society will lose if this is kicked into the long grass for decade after decade is just as urgent.”

*- Dan Olofsson,
chair of Sigma*



Chapter 5

Civil engineering and the environment

According to analyses by consultants Ramböll (2016) for example, in terms of civil engineering and building technology, the Öresund Metro can be realised in a proven and environmentally adapted way.

Engineering, safety and legal situation

Several tunnel alternatives, submerged tunnel with and without a low bridge, and a bored tunnel have been analysed previously. A 22 km long bored tunnel under Saltholm was assessed to be especially environmentally advantageous. A tunnel with two tracks in separate channels in one level as well as channels for equipment, ventilation and maintenance is assessed as being the most advantageous solution in terms of building technology, civil engineering economy, safety and operationally.

The analyses show that it is possible to build the tunnel to a high safety standard. Legally, there are no obstacles. There are only marginal differences between railway legislation in Denmark and Sweden. It is therefore possible to build a bored tunnel for a metro link in the same way as the railway systems were able to be connected across the Öresund Bridge.

The seabed in Öresund consists of limestone. Construction of the City Tunnel in Malmö and the metro system in Copenhagen has provided plenty of experience of working with limestone. The planning and construction work will take 6.5-7 years. Construction will only have marginal environment consequences in the civil engineering phase.

The figure show the tunnel in cross section for the coast-coast stretch

Illustration: KK Design



Chapter 6

Costs and financing

Construction costs

Constructing the metro system in a bored tunnel for the coast to coast stretch from Prøvestenen outside Amager on the Copenhagen side to Scaniaparken on the Malmö side will cost around EUR 3 billion including a 50 percent surcharge for risk. Including the land stretches on the Danish and Swedish sides, the total cost will be around EUR 4 billion including a 50 percent surcharge for risk. These costs are based on 2017 prices.

Financing

Financing can be done via a combination of possible financing sources. Future revenues from the Öresund Bridge Consortium, when the consortium's own and its owners loans have been repaid, are proposed as an important part of a financing model. Ticket revenues from Öresund Metro passengers and possible EU financing can also contribute to the total cost.

Öresund Bridge revenues from road traffic largely comes from regional and local traffic which indicates that future revenues ought to be used to strengthen the infrastructure in South Öresund.

The Öresund Metro can potentially be considered to be a development of the Öresund Bridge Consortium infrastructure, in terms of both function and organisationally. The Öresund Metro will be like a third level of the Öresund Bridge. It would therefore be natural to utilize future Consortium revenues as a form of financing.

There is a clear connection to the prioritisations in the EU TEN-T Core Network. Accessibility for cross border freight train traffic on the Öresund Bridge will be boosted by the traffic relieving effect of the Öresund Metro. Complementing the Öresund Bridge Consortium infrastructure with the Öresund Metro also offers clear climate and environment benefits. Road user charges are used to benefit both passenger and freight rail services.



Photo: rfs.fotografi

Possible co-financing from the EU is not only expected for the Öresund Metro at the planning phase but also at the construction phase if compared with the Fehmarn Belt Tunnel that is receiving co-financing for the investment of around ten percent. Ticket revenues from the Öresund Metro can finance running costs for the Öresund Metro and possibly also provide a smaller contribution to cover infrastructure costs.

"The establishment of an Öresund Metro will not only create better synergies between Copenhagen and Malmö - it will also clearly boost Greater Copenhagen as a strong north European business centre. We have positive experiences with the metro system in Copenhagen, something we intend to continue to build on. If there is a need for private co-financing, PensionDanmark is open to discuss this. We have good experiences of Public Private Partnerships (PPP)."

*- Torben Möger Pedersen ,
CEO Pension Danmark*

Foto: Ditte Valente



Chapter 7

Planning in Copenhagen and Malmö

The Cities of Copenhagen and Malmö are planning how the Öresund Metro can be connected to the existing and planned infrastructure system. Several lines and metro stretches and possible station locations are being analysed.



Photo: Büro Jantzen

7.1

How the Öresund Metro will connect with Copenhagen metro system

The Öresund Metro will connect to Copenhagen metro system via northeastern Amager and to the new metro line to the Island of Lynetteholm. In spring or summer 2021, the Danish government and City of Copenhagen are expected to resolve on which new draft line for the Copenhagen metro should be further investigated.

An Öresund Metro should will be integrated with the Copenhagen metro system, which is being expanded in different stages. In 2019, the City Circle Line opened with seventeen new stations in Copenhagen. In 2020, a new line to Nordhavn was opened. In 2024, a south-bound line to Sydhavn is being opened.

Further expansion of the Copenhagen metro system has been analysed in a feasibility study concerning how a metro line should be run to the future district of Lynetteholm.

New city area will climate proof Copenhagen

Lynetteholm is a future artificial island at the entrance to the harbour of Copenhagen for 35,000 people and the same number of jobs, towards the year 2070. The new island is also intended to climate proof the city against expected rising sea levels.

The Copenhagen plan is connect the island of Lynetteholm with a metro line to Østerport station. This new line should pass under the port entrance to Copenhagen and so relieve the existing M1 and M2 metro lines that are expected to have capacity problems.



Photo Büro Jantzen

Opportunities to connect to Sweden

In August 2020, the Danish feasibility study presented three alternative lines to Lynetteholm of which two would enable the Öresund Metro to connect in. See images right.

A future line to Lynetteholm would mean that passengers from Sweden would come directly into the entire public transport system in Copenhagen. They would have several stations to choose between with opportunities for rapid transfers to other destinations.

The next step

In spring or summer 2021, a further declaration of intent is expected to be entered into between the Danish government and the City of Copenhagen on which stretch is to be further analysed together with an environmental impact assessment.



Planned new metro lines in Copenhagen: M5 (top image) from Copenhagen Central station to Østerport via Amager and Lynetteholm has nine stations, three of which offer transfers to other metro lines, S-trains (urban-suburban services) and regional trains. M5 West (lower image) from Lynetteholm to eastern Prags Boulevard via Østerport, Forum and Copenhagen H has eleven stations, of which five offer transfers to other metro lines, S-trains and regional trains. The line has two stations on Lynetteholm and one on Refshalvön. Source: Metroselskabet

7.2

How the Öresund Metro will connect in Malmö

Several metro stations will be built in Malmö for increased accessibility. Malmö Central station will become a better hub and an attractive meeting place. Excavation debris can be used to protect against rising sea levels and for land reclamation.

The Öresund Metro connects from Copenhagen with twin tracks in one tunnel to the north end of Västra hamnen in Malmö. Points will be required to enable a change of track both towards Copenhagen and towards Malmö. The tracks can continue under Malmö in two smaller single track tunnels. In connection with the points area in Västra hamnen, there is space for the first metro station on the Swedish side.

Rock debris recycled to protect coastline

Tunnel boring will start in both directions in the northern part of Västra hamnen. Concrete elements for the tunnels will be brought in successively. The rock debris from boring can be used in the local area to reclaim usable land and form part of a coastal barrier to protect Malmö against rising sea levels.

The two single track tunnels under Malmö will run southwards to a metro station in line with Stora Varvs-gatan, such as close to Masttorget. It will then continue to Malmö Central station where passengers can transfer to rail, regional and local bus services. The metro tunnels will pass under the City Tunnel close to the Malmö Live events venue and arrive at a metro station south of the central station main building.



The map shows a possible alignment and location of stations in Västra hamnen and Malmö C. Illustration: © Malmö stad

Where the metro station is to be located at Malmö Central station requires further analyses. For example, it can be below Centralplan or wholly or partly under Bastion Vänersborg and under the canal. Clearly, a metro station will be of tremendous importance for accessibility in the surrounding area. This includes both the north part of Gamla staden, Universitetsholmen and Nyhamnen in Malmö.

If the Malmö C metro station is the end station in a first step, the tunnels need to be run some distance past the station eastwards to enable a possible branch line and to be able to turn metro trains round. The solution chosen ought to enable a future continuation to be built without interrupting existing metro services.

Making Malmö Central station an attractive location

Irrespective of the exact location of the Malmö C metro station, the station area will change the way people move around there. This applies to public transport, car and bus users, pedestrians and cyclists. It should be possible to create an attractive place to meet there.

Illustration: © Malmö stad



Chapter 8

Partnerships and Collaborations

The Öresund Metro has the support of different organisations in Denmark and Sweden. The established partnerships and political collaborations in the Greater Copenhagen region and STRING region from Oslo and down to Hamburg are described in the following sections.



Photo: rfs.fotografi

8.1

The Öresund Metro Executive

In spring 2018, the Mayor of Malmö and Lord Mayor of Copenhagen launched the Öresund Metro Executive. This is a Swedish-Danish forum for dialogue between the enterprise sector, union organisations, universities, pension funds, media and project partners. The Executive has been tasked with broadening knowledge and quality in the continuing work to bring the Öresund Metro into being.

The Öresund Metro Executive

Leif Jakobsson (Chair), *former secretary of state at the Swedish Ministry of Finance and MP*
Katrin Stjernfeldt Jammeh, *Mayor of Malmö*
Lars Weiss, *Lord Mayor of Copenhagen*
Anders Carlsson Jerndal, *CEO Pågen AB Färskbröd AB*
Bert Nordberg, *Chair Vestas and TDC*
Betina Hagerup, *Director Dansk Erhverv*
Claus Jensen, *Chair of Dansk Metal Union*
Dan Olofsson, *Chair Sigma*

Katia K. Østergaard, *CEO Horesta*
Kerstin Tham, *President of Malmö University*
Lena Ek, *Chair Södra Skogsägarna and former Environment Minister*
Mads M. Nørgaard, *owner and founder of Mads Nørgaard - Copenhagen A/S*
Pia Kinhult, *Head of Host States Relations, European Spallation Source (ESS)*
Per Christensen, *Chair of 3F Union*
Peter Fellman, *Editor in Chief Dagens Industri*
Stig Ørskov, *CEO JP/Politikens Hus*
Thomas Woldbye, *CEO Copenhagen Airport*
Torben Möger Pedersen, *CEO Pension Danmark*
Trine Winterø, *Vice Dean Faculty of Health and Medical Sciences University of Copenhagen*
Ulrika Hallengren, *CEO Whilborgs Fastigheter AB*

"Our aim is to reach a decision on the Öresund Metro via a wide-ranging dialogue on needs and carefully investigated alternatives. From there, it will be a case of daring to take visionary decisions in order to influence how we can shape the future."

*– Leif Jakobsson,
Chair of the Öresund Metro Executive, former secretary of state and MP*

8.2

The Öresund Metro is a priority in Greater Copenhagen

The Greater Copenhagen Committee* works to enable sustainable growth and employment in the Greater Copenhagen region that covers South Sweden and East Denmark and is home to 4.4 million people**. The aim is to be a global centre for sustainable growth and green innovation.

Greater Copenhagen seeks to create better infrastructure and mobility, attract talents, stimulate investments and tourism, support international marketing and to create a more integrated growth region.

Consensus on the need for a metro link

Greater Copenhagen calls the Öresund Metro a prioritised infrastructure investment. The Greater Copenhagen Committee resolved in 2021 to seek the establishment of a Danish-Swedish intergovernmental inquiry.

In 2017, the EU Commission praised Greater Copenhagen as a good model for European collaboration for job market and economic integration. The Commission argued that if Greater Copenhagen were to develop its infrastructure for transport, this would help the region towards its goal of becoming a global centre for sustainable growth and green innovation.

“The new Fehmarn Belt Link between Denmark and Germany will be a game changer. In Greater Copenhagen we are looking to develop more links across Öresund. An Öresund Metro will help to exploit the full potential of the Femern Belt Link in order to generate green growth and innovation for the 4.4 million people in Greater Copenhagen.”

*– Citat från Tue Bak,
Managing Director of the Greater Copenhagen Secretariat*

“If we are going to prevent Copenhagen, and with this Denmark, from slowly falling behind in competition to attract foreign businesses, Copenhagen needs further development. And the best and most convenient development opportunity would be to create a larger capital city area by expanding integration with Malmö and the rest of Skåne. If, into the bargain, this can be done in a climate friendly way and with significant socio-economic gains in extending the successful expansion of the Copenhagen Metro across Öresund, we will move from postulating that Copenhagen and Malmö are connected together, to ensuring that this is genuinely the case. An Öresund Metro can prove to be the most significant infrastructure project for Copenhagen in the 21st Century.”

*– Citat från Stig Örskov,
CEO JP/Politikens Hus*

More public transport is needed

High accessibility and mobility from, in and around the Öresund region will promote sustainable growth and development. One of the goals is for Malmö or Copenhagen to be within a one hour travel time by public transport no matter where in Greater Copenhagen you live.

The Traffic Charter*** includes a call for more joint Danish-Swedish planning of infrastructure. This is about assuring international accessibility and to link together the region via more public transport and other green mobility.

Here are a few of the Traffic Charter projects designed to support economic growth and a green reset:

- Copenhagen Airport as the common international hub
- The Fehmarn Belt Link between Germany and Denmark
- A fixed link between Helsingør-Helsingborg
- An Öresund Metro between Copenhagen and Malmö
- High speed rail
- A green public transport network

On the Swedish side, the Öresund Metro has also been prioritised in the regional political agreement Skånebilden.



Source: Greater Copenhagen.

Facts

*Greater Copenhagen Committee
The Greater Copenhagen Committee is made up of 85 municipalities including Malmö and Copenhagen, plus Region Sjælland, Region Hovedstaden, Region Skåne and Region Halland. The region is home to 4.4 million people.

**More about Greater Copenhagen here:
<https://www.greatercph.com/>

***The Traffic Charter is a political agreement on cooperation to establish a vision and prioritised infrastructure investments.

8.3

The Öresund Metro is a priority in the mega-region STRING - from Oslo to Hamburg

STRING* is a partnership between regions and cities in Norway, Sweden, Denmark and Germany that aims to create a megaregion and a global green hub. It aims to enable a connected and sustainable transport infrastructure that can combat climate change and improve the lives of the people living here.

The STRING 2030 strategy prioritises new infrastructure backed by members from Norway, Sweden, Denmark and Germany. The Öresund Metro is one of the projects that has been highlighted as a specific priority in 2021. STRING has produced an analysis on bottlenecks for transport in the so-called STRING Corridor from Oslo to Hamburg. This is part of the north-south ScanMed EU Corridor from Scandinavia to the Mediterranean.

Bottlenecks must be eliminated

An analysis by KombiConsult (2021) shows that in order to support a green reset and maximise the regional effects of the Fehmarn Belt Link, definite bottlenecks need to be addressed. The Öresund Metro has been included in the analysis as one solution for the bottleneck at Öresund. Both passenger and freight train flows are expected to increase when the Fehmarn Belt Link opens in 2029. This will challenge future capacity on the Öresund Bridge.

The Öresund Metro would therefore contribute to a green transition and sustainable growth as part of both the STRING and ScanMed Corridors linking Scandinavia with the Mediterranean via Central Europe.



Source: STRING

Facts

*STRING is a collaboration between Oslo, Gothenburg, Malmö, Copenhagen and Hamburg plus Land Schleswig-Holstein, Region Syddanmark, Region Sjælland, Region Hovedstaden, Region Skåne, Region Halland, Region Västra Götaland and Region Viken. The area has 14 million inhabitants from Norway, Sweden, Denmark and Germany. More about STRING: <https://string-network.org/>

“If we are going to enable a green reset and achieve sustainable growth, the exchange of ideas and cooperation across borders will be vital. It will also require green, accessible and rapid transport all the way across Europe. The Öresund Metro will be a necessity to create a megaregion on the relative outskirts of Europe.”

*- Thomas Becker,
Managing Director STRING*

“The Öresund Metro is a key to growth in the region and stimulating collaboration in Scandinavia. A dynamic job market is important for us, on both the Swedish and Danish sides, that will increase growth and welfare.”

*- Anders Carlsson,
CEO Pågen AB*



Photo: Colourbox

Chapter 9

The next steps towards an Öresund Metro

The four preliminary studies that have been done about an Öresund Metro since 2012 show many positive effects. These are well founded and indicate that the studies ought to continue and in greater depth. The Cities of Malmö and Copenhagen, together with the Greater Copenhagen Committee and the STRING partnership in Norway, Sweden, Denmark and Germany, are all agreed that the Öresund Metro is a prioritised project. The aim is a continued intergovernmental Danish-Swedish public inquiry as a next step towards taking a strategic and carefully considered decision. For example, such an inquiry can take a closer look at engineering and financial considerations, socio-economic effects and the environment.

Copenhagen and Malmö are continuing to work together and analyse how the Öresund Metro can connect to existing and planned public transport links. In spring or summer 2021, a memorandum of agreement is expected to be entered into between the Danish government and the City of Copenhagen on which metro route to Lynetteholm should continue to be evaluated, which will play an important part in connecting the Öresund Metro directly into the Danish metro system.



The Öresund Metro – our common connection. Photo: Büro Jantzen



2020

National Danish-Swedish study

2025

Agreement between Denmark and Sweden

The tunnel across Fehmarnbelt opens

2030

6-7 year construction period for Öresund Metro

2035

Öresund Metro opens

Copenhagens next new metroline to Lynetteholm

Chapter 10

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