

# **SWEDEN**

## **ACTIVITY REPORT 2013**

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BK Swedish Rock Construction Committee, is a non-profit national organization with 106 corporate members from public and private construction managers, constructors, equipment suppliers, and mining companies, consulting firms, institutions and research foundations.

BK is also the national group of ITA in Sweden. BK: s bard meets three times per year.

BK: s Annual Meeting in March normally gathers more than 500 delegates.



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### **Major tunneling projects in Sweden currently under construction or being planned.**

Besides these major projects several tunnels and other underground facilities are under construction like garages, a cold water storage, sewage tunnels and cable tunnels to mention a few.

**Norra länken** stretches between Tomteboda and Värtan and connects to the E4 towards Uppsala at Norrtull and Roslagsvägen at Frescati. It is northern Europe's largest road tunnel project.

#### **What?**

Norra länken will be 5 km long in total, of which 4 km is in tunnels.

#### **Who?**

We are building Norra länken in cooperation with the City of Stockholm.

#### **Why?**

To solve traffic problems in the region and to gain a better environment in the inner city. Norra länken is needed to develop the new city districts of Hagastaden and Norra Djurgårdsstaden.

#### **Opening dates:**

Winter 2014/2015: the section between

Norrtull - Frescati - Värtan opens.

2015: the southbound section between Norrtull and Tomteboda opens.

2017: the northbound section between Tomteboda and Norrtull opens.

2019: the Värtabanan tunnel opens.

### **The City Line in Stockholm**

The City Line is a double-track railway with two new stations to be built in a six km long tunnel between the commuter stations Stockholm South and Tomteboda north of the City. The City Line will solve the capacity problem for rail traffic through central Stockholm. The City Line will be used for

commuter trains while other services will run on the existing surface tracks through Stockholm.

**The Stockholm bypass Project – E4 Förbiart Stockholm – is a new motorway linking southern and northern Stockholm resulting in a new route for the European highway (E4) past Stockholm.**

A new link west of Stockholm has been under investigation for several decades and a large number of different alternatives have been studied. To reduce the impact on sensitive natural and cultural environments, just over 18 km of the total of 21 km of the motorway link are in tunnels.

The land acquisition plan is now adopted and is to be approved by the government.

The work on the project planning for building documentation is ongoing. By the winter of 2014/2015 we will start construction of the access tunnels and the three temporary harbors. The construction work for the main contracts is planned to start in the spring of 2015. The Stockholm bypass will take approximately 10 years to finish.

When the link opens for traffic it will be one of the longest road tunnels in the world. By 2035, the Swedish Transport Administration (Trafikverket) estimates that The Stockholm bypass will be used by approximately 140.000 vehicles per day.

**The Marieholm Tunnel together with the Partihall Intersection and the new Marieholm Bridge, are part of the Marieholm Connection project.**

The new road tunnel and railway bridge crossing the Göta Älv River, will connect the Port of Gothenburg and the industries at Hisingen with the central part of the city.

Gothenburg is the second largest city in Sweden located on the west coast and has a population of almost half a million. 70% of Scandinavia's total industrial capacity is located within a 500-kilometre radius of the Göteborg Region. The Port of Gothenburg is

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the largest port in Scandinavia with over 11,000 visits by ships each year. Gothenburg is one of the fastest growing regions of Northern Europe.

Gothenburg is in a big need of new Göta Älv River connections since the current crossings are overloaded during rush hour traffic and the railway transportations are constantly increasing.

### **This is the South Marieholm Bridge**

The South Marieholm Bridge is a railway bridge that will cross the Göta Älv River close to the existing Marieholm Bridge (Marieholmsbron). The purpose of the new bridge is to decrease the vulnerability of the rail links across the Göta Älv River and to increase the capacity of the railway to the Port of Gothenburg. The Marieholm Bridges link the Port of Gothenburg and the industries on north Hisingen with the Norwegian and Swedish mainland via the West Coast Railway (Västkustbanan), the Western Main Line (Västra stambanan) and the Bohus Line (Bohusbanan).

### **Why is there a need for a new Marieholm Bridge?**

At present in Gothenburg, there is only one single-track bridge for the railway traffic across the Göta Älv River. This bridge carries all traffic into the Port of Gothenburg. Disruptions to this flow entail great harm to the industry and port activities. A new complementing bridge is therefore important to increase the stability of the system. With the South Marieholm Bridge, there will be two railway bridges across the Göta Älv River.

### **Construction plans**

The existing Marieholm Bridge is an openable bridge of the type lift-swing bridge. The South Marieholm Bridge will be built according to the same principle and placed south of the existing bridge, as close as possible in terms of the engineering. The openable part of the bridge will be 72 metres long and located seven metres above the surface of the water. In its entirety, however, the bridge will span 1.5 km, since it, in addition to crossing the Göta Älv River, will

stretch across the Säveån River and the industrial areas of Marieholm and Tingstad. Like the existing Marieholm Bridge, the new bridge will also have foot and cycle paths.

### **Planning status**

The Land and Environment Court have granted permission and the railroad plan is adopted. Procurement of the main contract is ongoing. Preparation contracts are estimated to start in 2013, whilst the main contract is planned for 2014.

The South Marieholm Bridge is financed by the Swedish Government, the City of Gothenburg, Port of Gothenburg, Region Västra Götaland and AB Volvo. Through this financing, the project will be able to commence several years ahead of schedule. The total cost of the new Marieholm Bridge is estimated at SEK 1.35 billion according to the 2009 level of prices.

### **This is the Marieholm Tunnel**

The Marieholm Tunnel is a road tunnel under the Göta Älv River that aims to improve accessibility to the Port of Gothenburg, Norra Älvstranden and to industries in western Hisingen. The Marieholm Tunnel will relieve the Tingstad Tunnel and link up the E6, E45 and E20 motorways by creating a connection to the Partihall Intersection.

The Partihall Intersection is the first stage and was finished in 2011. It was built as a bridge between the Ånäs Junction on the E20 and a new junction on the E45 at Marieholm. The Marieholm Tunnel (blue arc) is the second stage and is currently being planned, it is to connect to the Partihall Intersection via a junction at Marieholm and to the E6 at Hisingen via the Tingstad/Ringö Junction.

### **Why is there a need for the Marieholm Tunnel**

The Göta Älv River crossings are currently overloaded during rush hour traffic, causing long, time consuming queues. This is particularly evident if there is the slightest disruption. The capacity of the Tingstad Tunnel reached its maximum a long time ago. The Marieholm Tunnel is intended to reduce the load on the Tingstad Tunnel and reduce

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the vulnerability of the current road system crossing the Göta Älv River. At the same time, traffic safety, the environment and regional development are promoted. The Marieholm Tunnel increases the accessibility of Norra Älvstranden, Gothenburg Harbour and the industries in western Hisingen.

### This is what we are constructing

The Marieholm Tunnel will be just under 500 m long and will be constructed using the immersed tunnel technique, which means that a number of completed tunnel elements will be sunk into a dredged channel at the bottom of the Göta Älv River. The tunnel will be constructed partly as cut and cover tunnel and partly as immersed tunnel. The cut and cover and the ramps will be constructed in-situ in dry construction pits. The tunnel will have three lanes in each direction and has been dimensioned for speeds of 50 –70 km/h.

### Planning status

The project has been granted all the permissions required in order to build the tunnel. During 2013, tender documentation and building documents will be finished for the Marieholm Tunnel and the two connection points Tingstad and Marieholm. Procurements of the different contracts will take place during 2013 and 2014.

The project is financed by the West Swedish Agreement where 50 per cent of the financing comes from Region Västra Götaland, Region Halland and Gothenburg City. State funding finances the remaining 50 per cent. The total cost for the Marieholm Tunnel is calculated to 3,500 MSEK at 2009 price levels.