

Norway



Name: Norwegian Tunnelling Society

Type of Structure: Non-profit, open society with members from the whole value chain, both corporate and personal members.

Number of Members: 1,000 personal members and 100 corporate members (Including research institutes, academia, and public clients)



Organising digital conference

ASSOCIATION ACTIVITIES DURING 2020 AND TO DATE

The Norwegian Tunnelling Society has a set of yearly events such as conferences, courses and evening meetings. Among these, the largest is the Fjellsprengningsdagen, which gathers more than 700 rock blasting and TBM enthusiasts to share knowledge and the latest news. 2020 became a very different year to most. We still managed to arrange an array of different courses and evening meetings. The yearly conference went ahead as a digital event with approx. 200 participants.

Norway was among the finalist in three categories in the ITA Tunnelling Awards: The Ryfast project in the category “Major project of the year”, “Spiralen” in the category “Oddities of the underground” and the Lower Otta hydropower in the category “Project of the year incl. renovation (up to €50M) – the last one winning this category!

The Society publishes handbooks and technical reports in Norwegian and one English publication every year. In 2020 we published a Norwegian handbook about bolting, and another one for Rockblasters.

CURRENT TUNNELLING ACTIVITIES

The tunnelling activity in Norway has increased again in 2020 after two years of

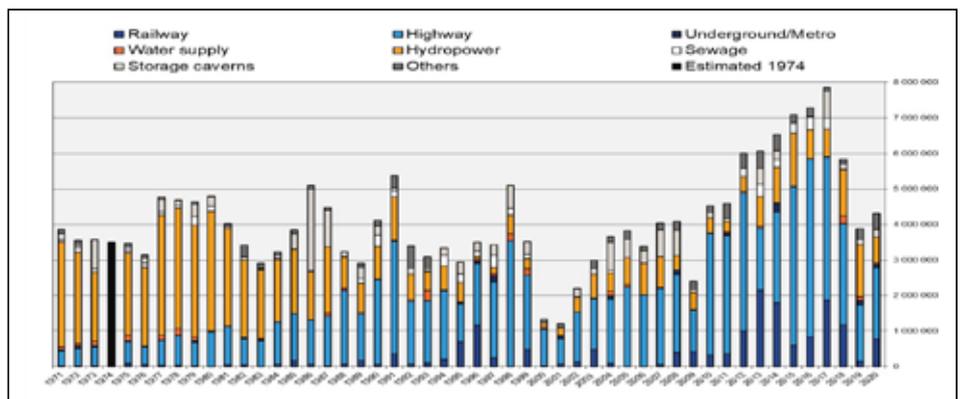
decline in both 2018 and in 2019. In 2020 we excavated 4.3Mm³ rock underground. The amount of excavated rock has been steadily growing, but 2018 ended up being

the first year with a decrease in volume since 2009. The major part of the activity is still concentrated around road and rail tunnels, with hydropower tunnels as a significant amount of the activity.

The project that excavated the most in 2020, was the E39 Kristiansand Vest-Mandal Øst. This is a road tunnel project for Nye Veier, where more than 600,000m³ has been excavated. Digital solutions are developing apace in Norway, and at this project a web-based access solution will contain and display all of the project’s BIM models. This includes documents and work basis, health, environmental and safety matters, progress information, quality and FDV documentation.

The company that excavated the most totalled more than 1Mm³. The largest project being built by it being Nordøyveien, where the company excavated almost 600,000m³. Nordøyveien is a project with several road tunnels for The Norwegian Public Road Administration just outside Ålesund. In addition to digitalisation, zero emission construction is a main focus for many contractors in Norway, at Nordøyveien they have started using a brand-new electrical loader.

Three important tunnel projects opened up for traffic in 2020. Two being in the middle of Norway; E6 Soknedal, and Fv714 Salomon road. Both projects eliminate large distances with narrow and winding roads and many fatal accidents. The third is E134



Tunnel statistics



The team grouting at Nordøyveien



E6 Soknedal

Damåsen – Saggrenda, improving the traffic flow around the city of Kongsberg.

FUTURE TUNNELLING ACTIVITIES

The high activity within infrastructure development will continue in the years to come. And we believe that we will see a further increase in the activity.

Work has already started on a new railroad between Drammen and Kobbervikdalen. This project will complete the double track railroad from Oslo to Tønsberg and opens in 2024. The project will include 6km of hard rock tunnelling, almost 300m soft ground tunnelling and about 700m of cut-and-cover.

Another large project we are waiting for is a large infrastructure project that will be a joint rail and road project, the Ringerike Line and E16 Highway, it will include a 40km long tunnel for the railway in addition to some shorter tunnels both for rail and new highway between Sandvika and Hønefoss.

Nye veier will continue the road building along E18 from Porsgrunn to Stavanger. These projects will include both tunnels and rock blasting over ground. The same goes for the new E6 between Hamar and Lillehammer, and the new E6 both south and north of Trondheim.

The Norwegian Public Road Administration has started with the first contract for Rogfast. This project will include the longest and deepest subsea tunnel to date.

A new big project is in planning, a new water supply for Oslo. The water will go through a long tunnel from the Holsfjord west of the city into the existing net of water pipes. In addition, The Fornebu Line is

starting soon. This will be a metro tunnel that will connect Fornebu with the rest of the metro system in Oslo. Furthermore, both a new metro and a railroad tunnel is under planning through the central part of Oslo City.

As a curiosity we also have to mention the Stad tunnel – the world's first tunnel for ships! The construction of this 1.7km long tunnel starts in 2021.

STATISTICS

1. Length or volume excavated - % mechanized / % conventional during 2020:

72,266m in total, (included 5,175m by TBM) - 4.3Mm³ in total

2. An example of tunnels completed:

The excavation for the Søgne tunnel is complete (4040m)

3. List of tunnels under construction:

More than 50 tunnels under construction at all times in Norway

EDUCATION ON TUNNELLING IN THE COUNTRY

Norway has several universities giving both bachelor and master's degrees with several aspects of tunnelling, the major ones being NTNU in Trondheim and University of Oslo. In addition to the higher degrees of education, Norway can offer a set of schools preparing the students through a four-year program for the certification for rock blasters. In addition to these educational institutes, you have a set of courses and classes with different level of classifications and certifications.