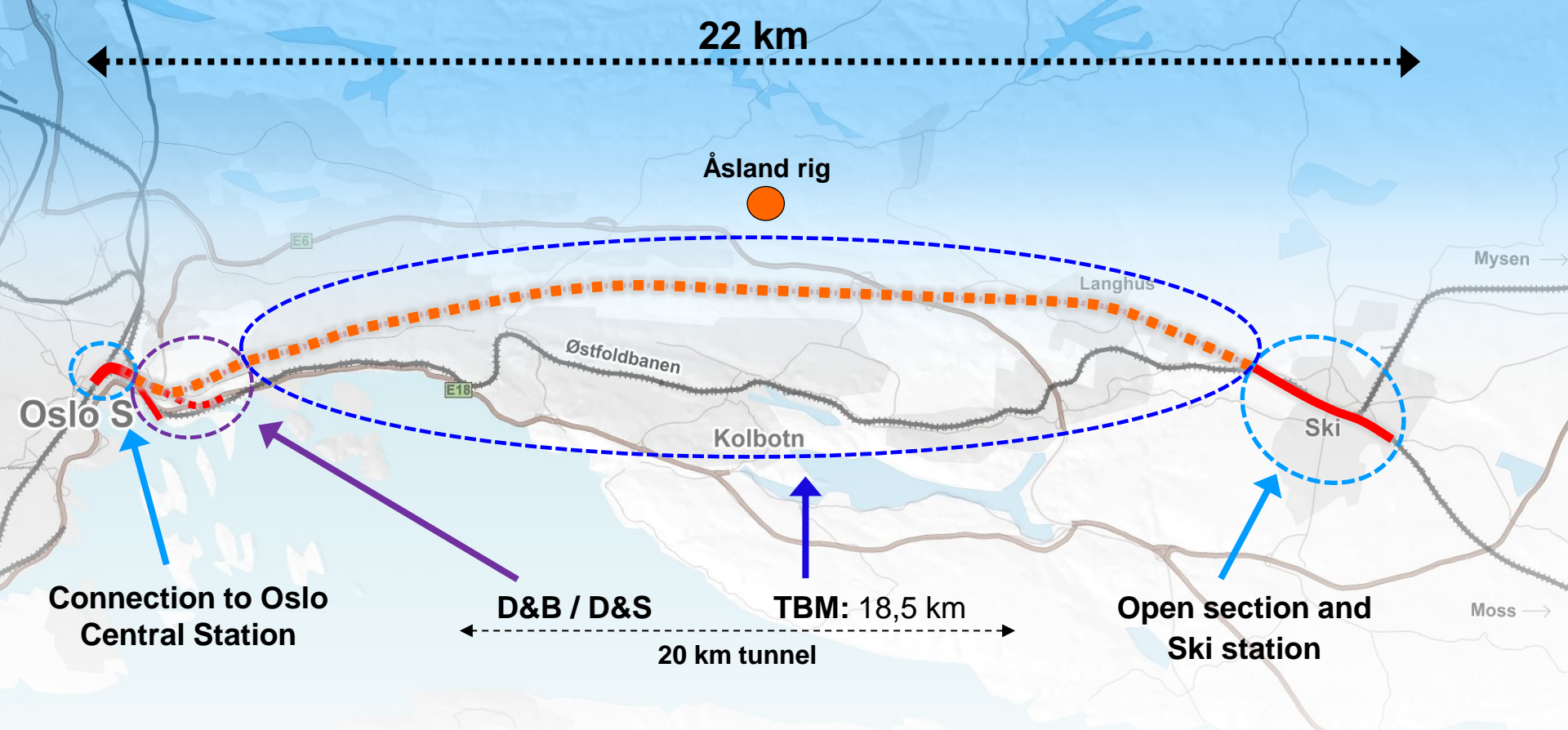


The Follo Line Project



THE FOLLO LINE PROJECT LONGEST. URBAN. COMPLEX. FASTER.



The Follo Line Project is divided into 4 subprojects – comprising 5 large EPC contracts



Oslo Central Station

Currently Norway's largest transport project – directly between Oslo and Ski



Currently Norway's largest transport project – directly between Oslo and Ski

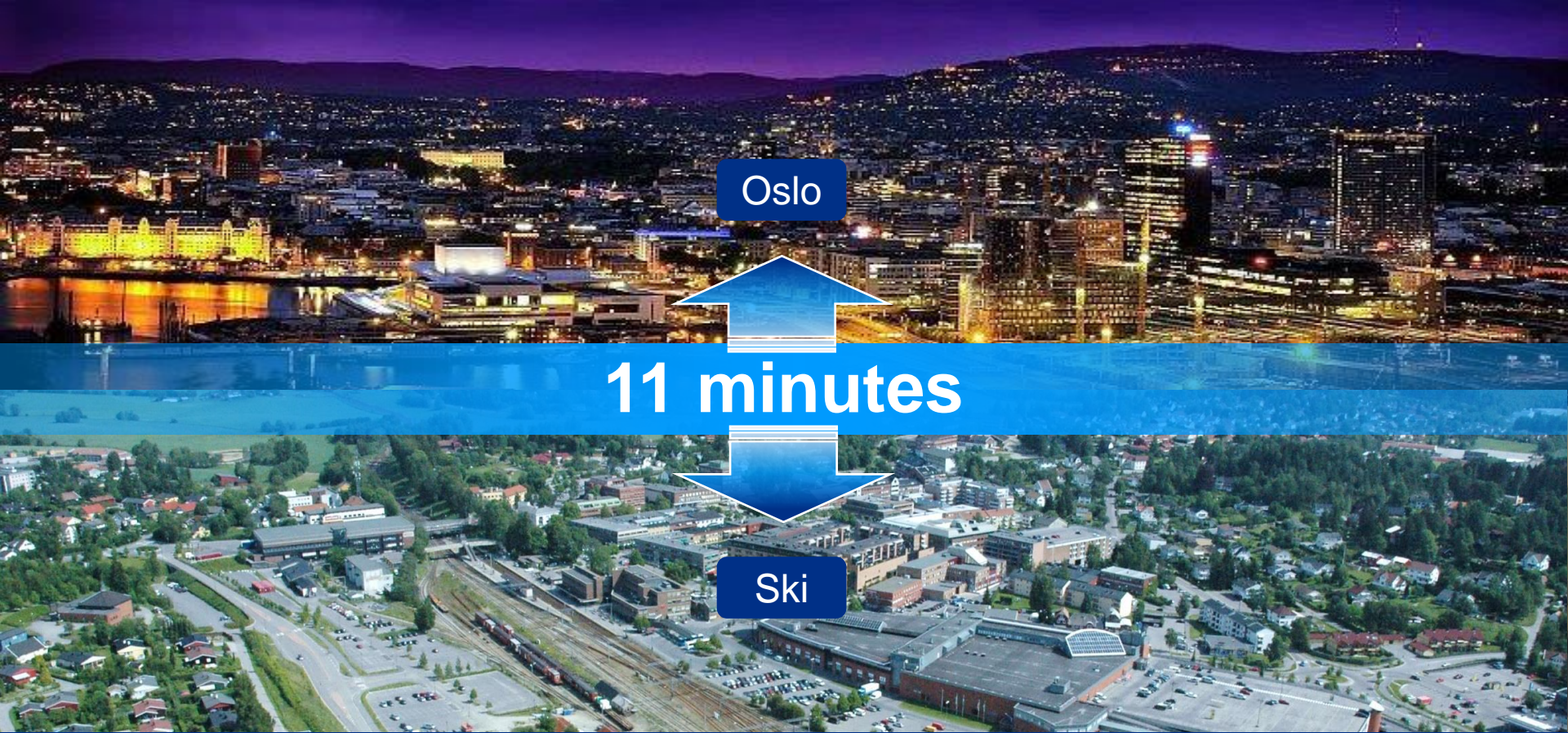


Ski Station

Currently Norway's largest transport project – directly between Oslo and Ski



Provides increased traffic capacity to/from Oslo – Norway's largest public traffic hub



Directly between Oslo and Ski – enables 50% reduction in journey time



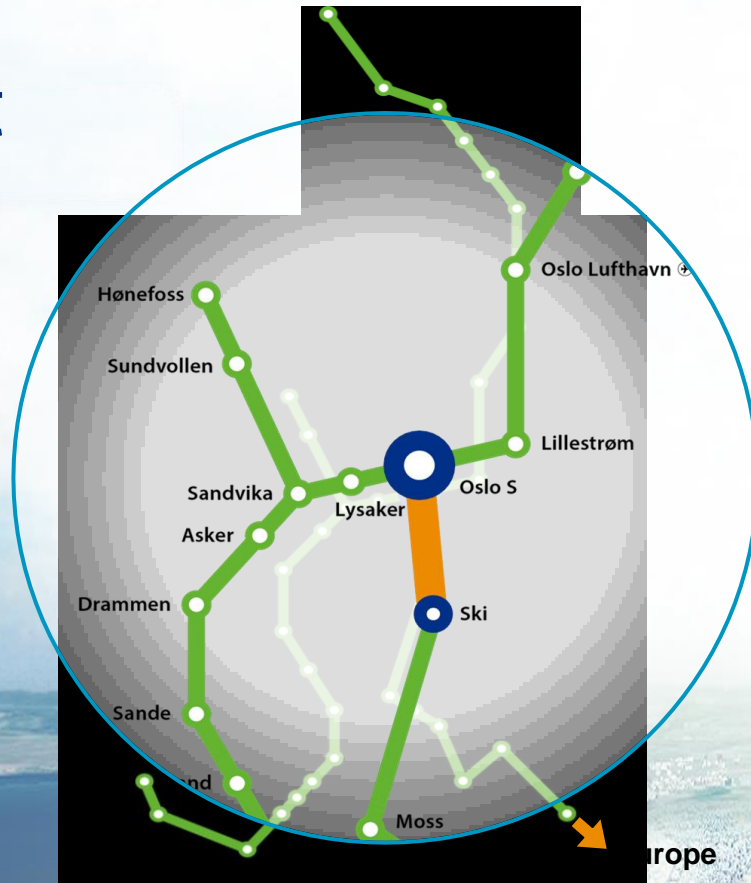
Oslo

11 minutes

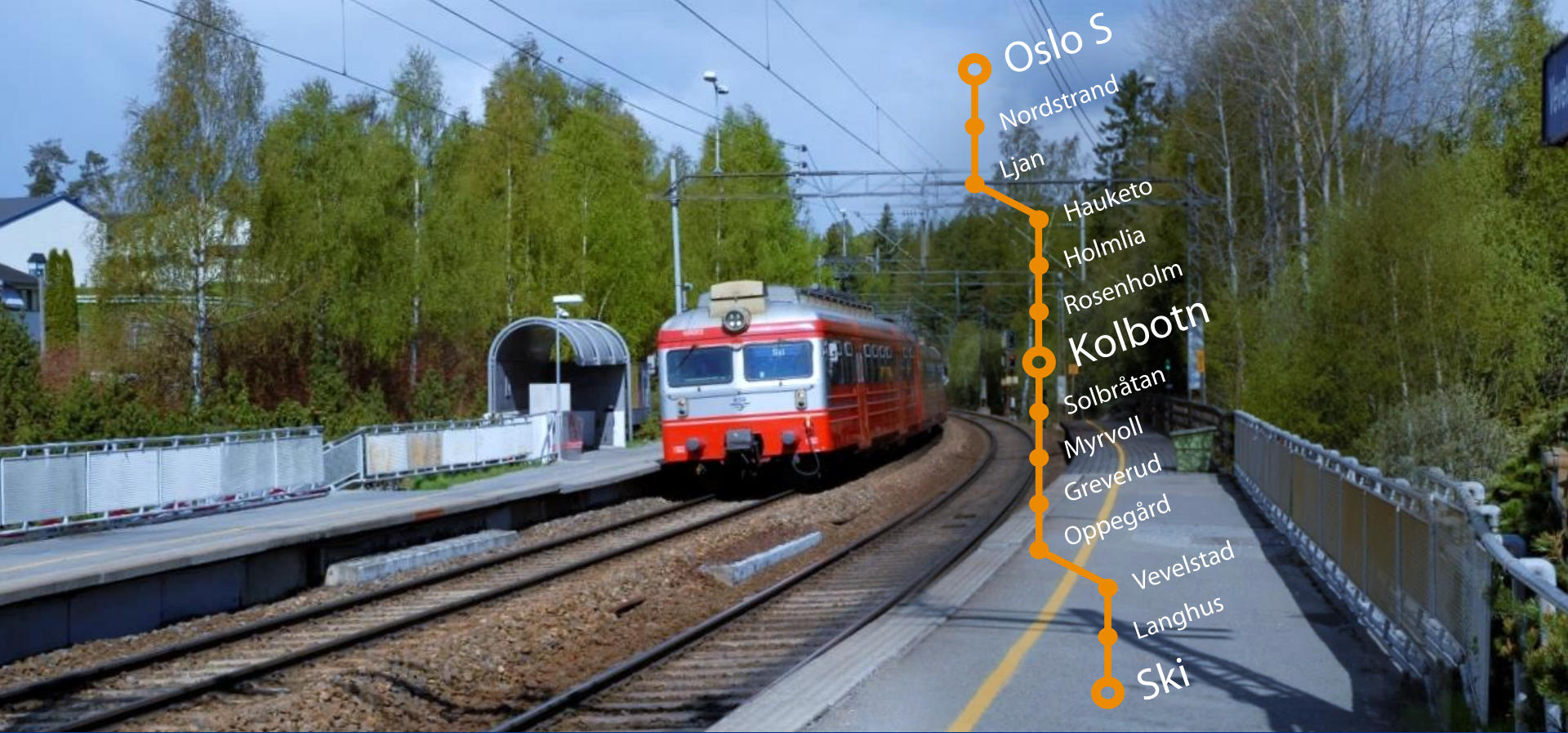
Ski

The Follo Line connects more efficiently residential and working areas surrounding Oslo

The InterCity net



The Follo Line may be combined with a future high-speed line to the Continent



Increased capacity for local trains on the Østfold Line



Increased capacity for local trains on the Østfold Line – including freight trains



Population growth of at least 30% anticipated – currently no extra capacity on rail or road



At least 100 years life expectancy – tunnel constructed to fulfil present and future requirements



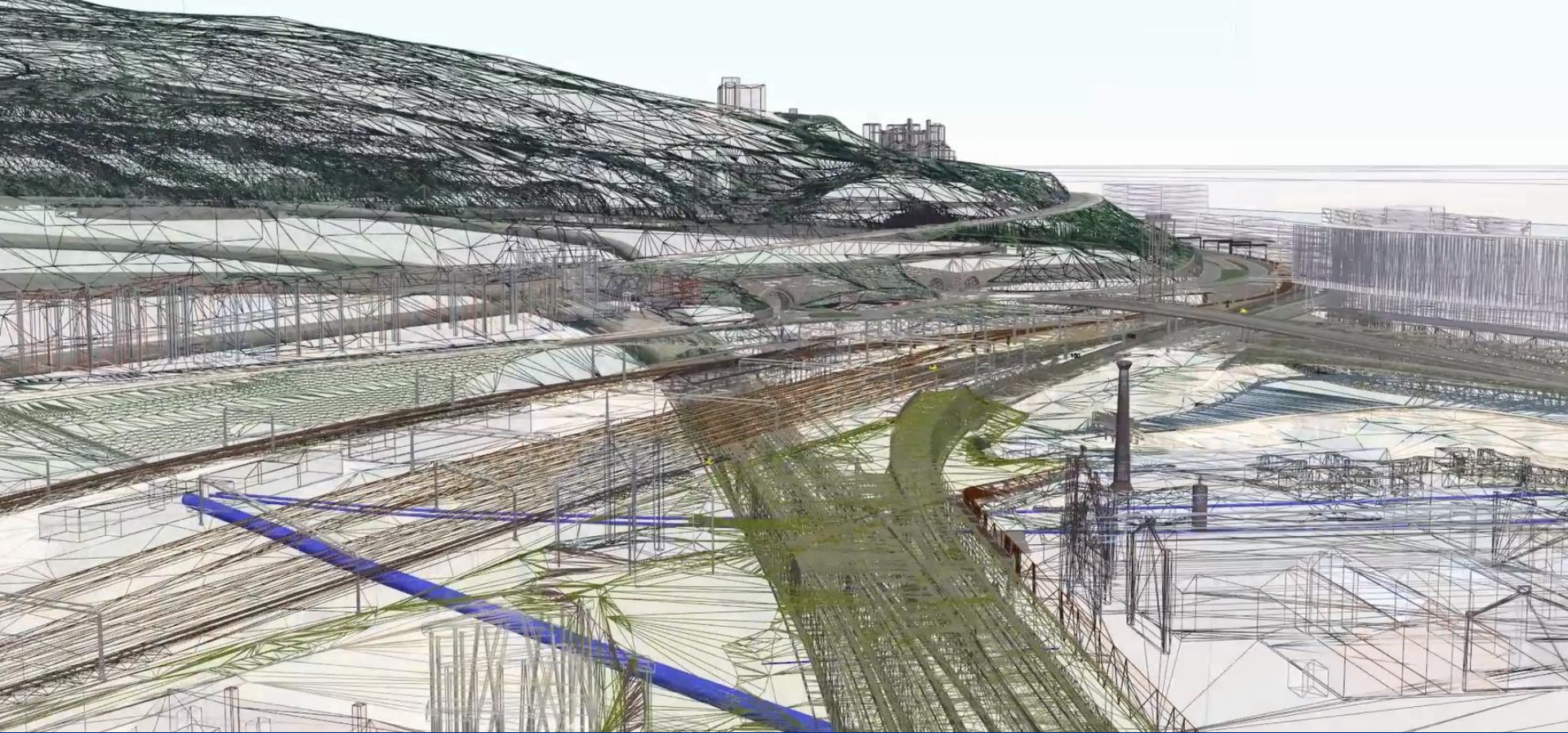
Designed for speed up to 250 km/h



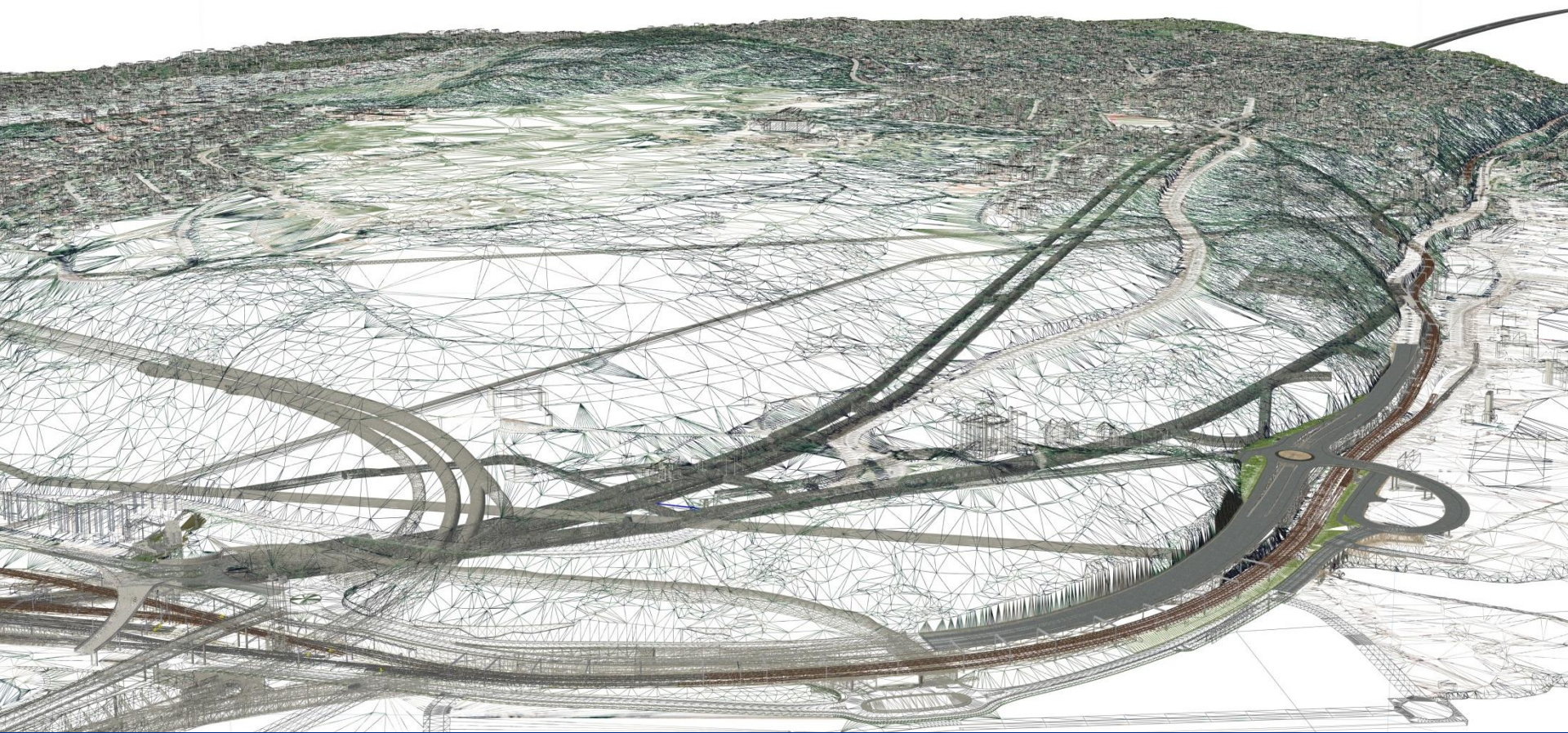
The longest railway tunnel to date in the Nordic countries – 20 km



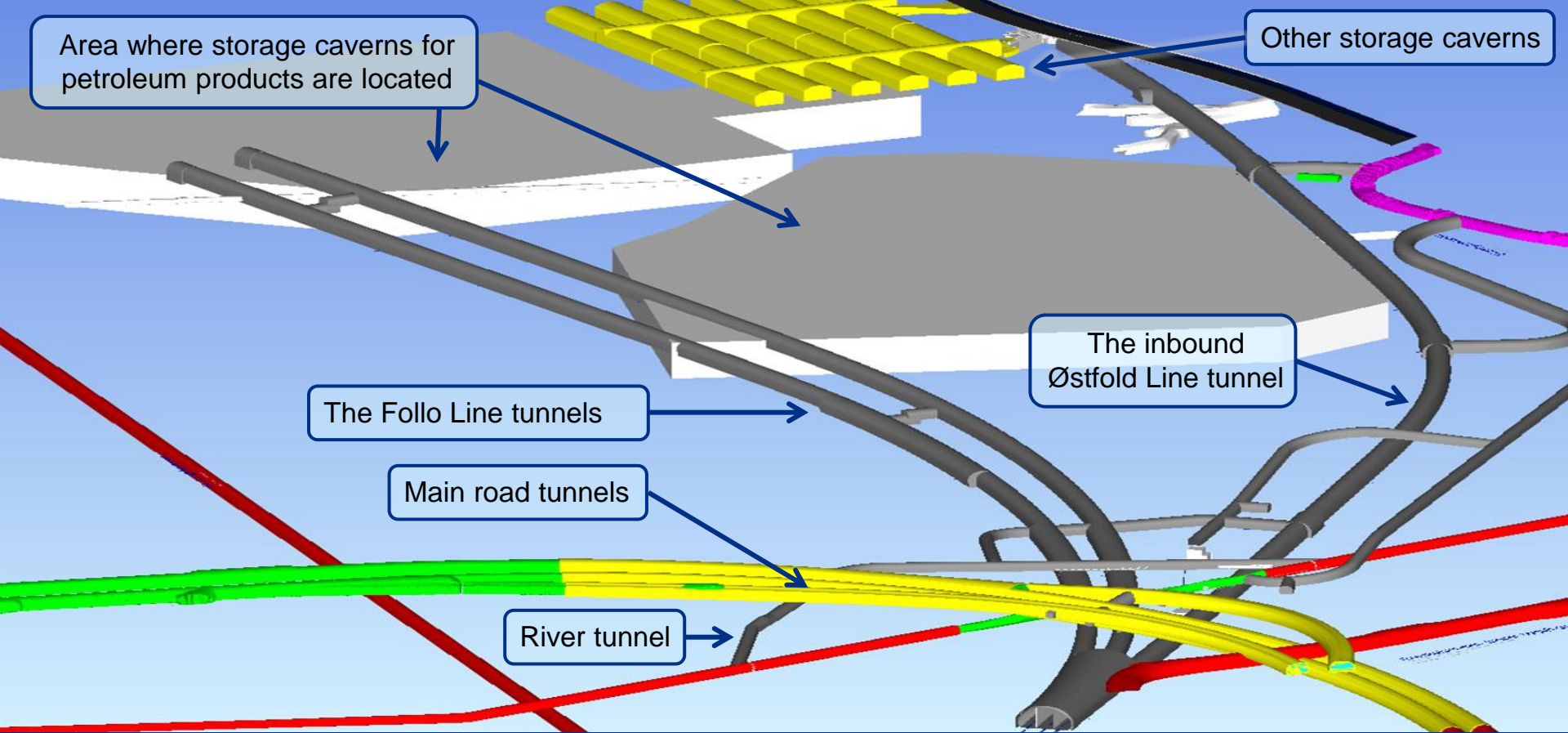
First long railway tunnel in Norway to have separate tubes



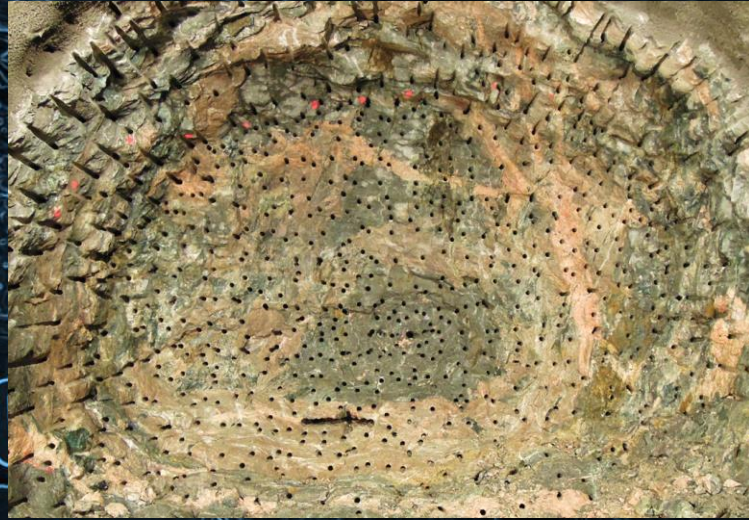
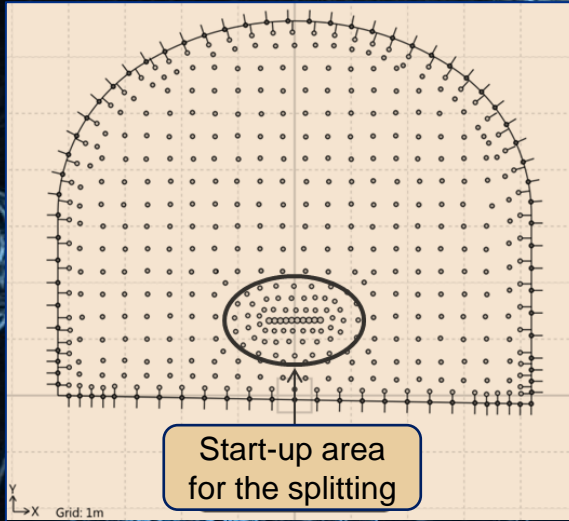
A large scale project – complicated crossings close to Oslo Central Station



A large scale project – complicated crossings close to Oslo Central Station



Complicated crossings in the northern part of the tunnel – existing tunnels and sensitive installations



Careful excavation of the rock by drill & split performed close to existing sensitive installations



Careful excavation of the rock by drill and split performed close to existing installations



A large scale project – excavation by four Tunnel Boring Machines (TBM)



Åsland – A huge rig area located close to the main road

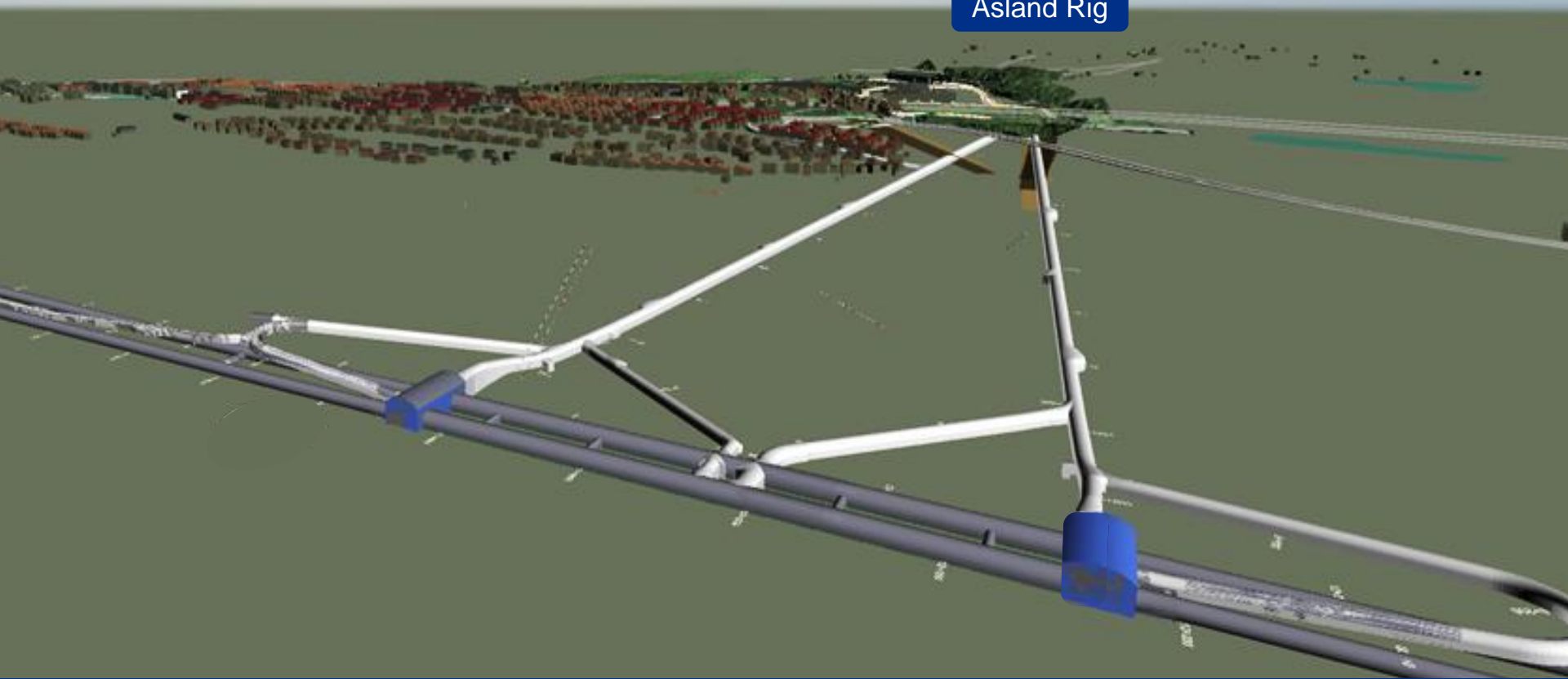
Åsland Rig

Two TBM in north direction Oslo

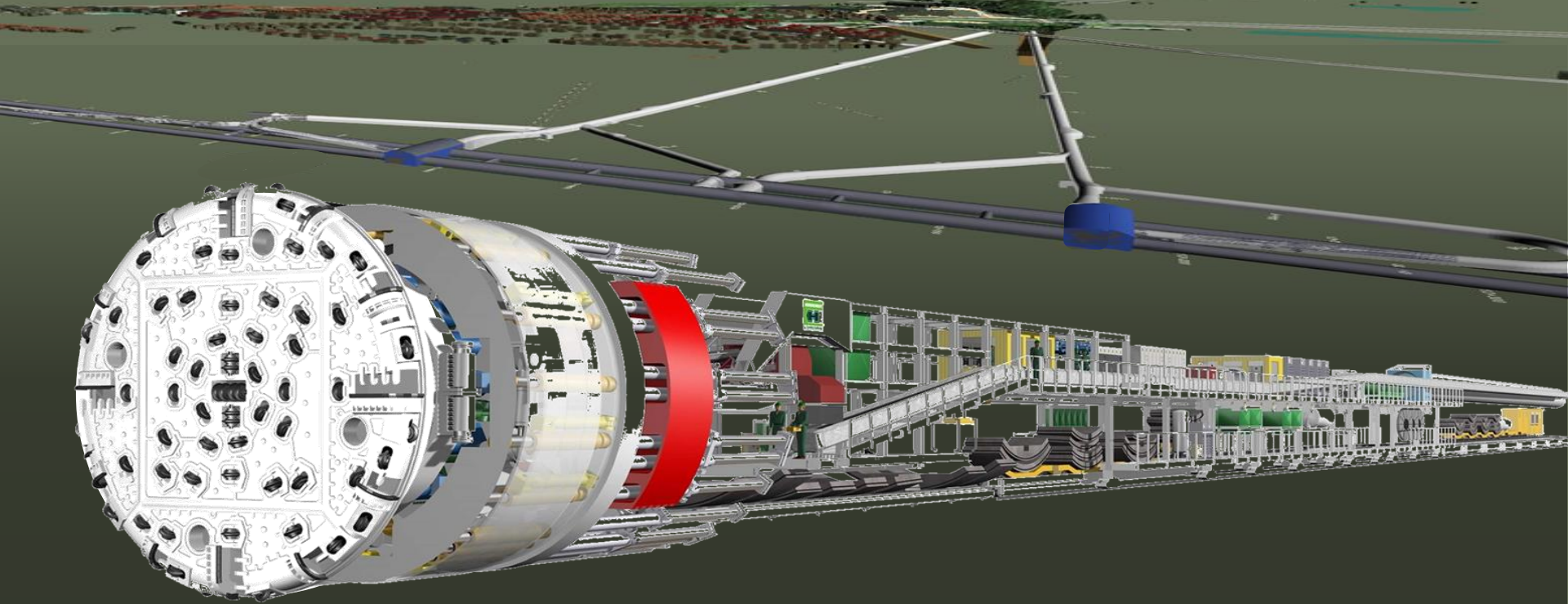
Two TBM in south direction Ski

Four TBMs will be excavating 18,5 km of the tunnel from the Åsland Rig area

Åsland Rig



Complex and efficient – multiple simultaneous operations, challenging logistics



TBM: Length 150 m, weight 2400 tons, diameter 9.96 m, 71 cutters, excavating in average 12-15 m a day



The first of four TBMs designed for abrasive and strong Norwegian rock (Herrenknecht, Germany)



The tunnel will be excavated by drill & split / drill & blast in addition to the four TBMs



10-11 million tons of rock spoil will be removed within a period of 3-3.5 years



Excavated material will be reused at Åsland rig area and for segment production



Extensive works at Oslo Central Station and new tracks for the relocated Østfold Line



Construction work to be carried out without disruption to the daily flow of traffic



Construction work to be carried out without disruption to the daily flow of traffic



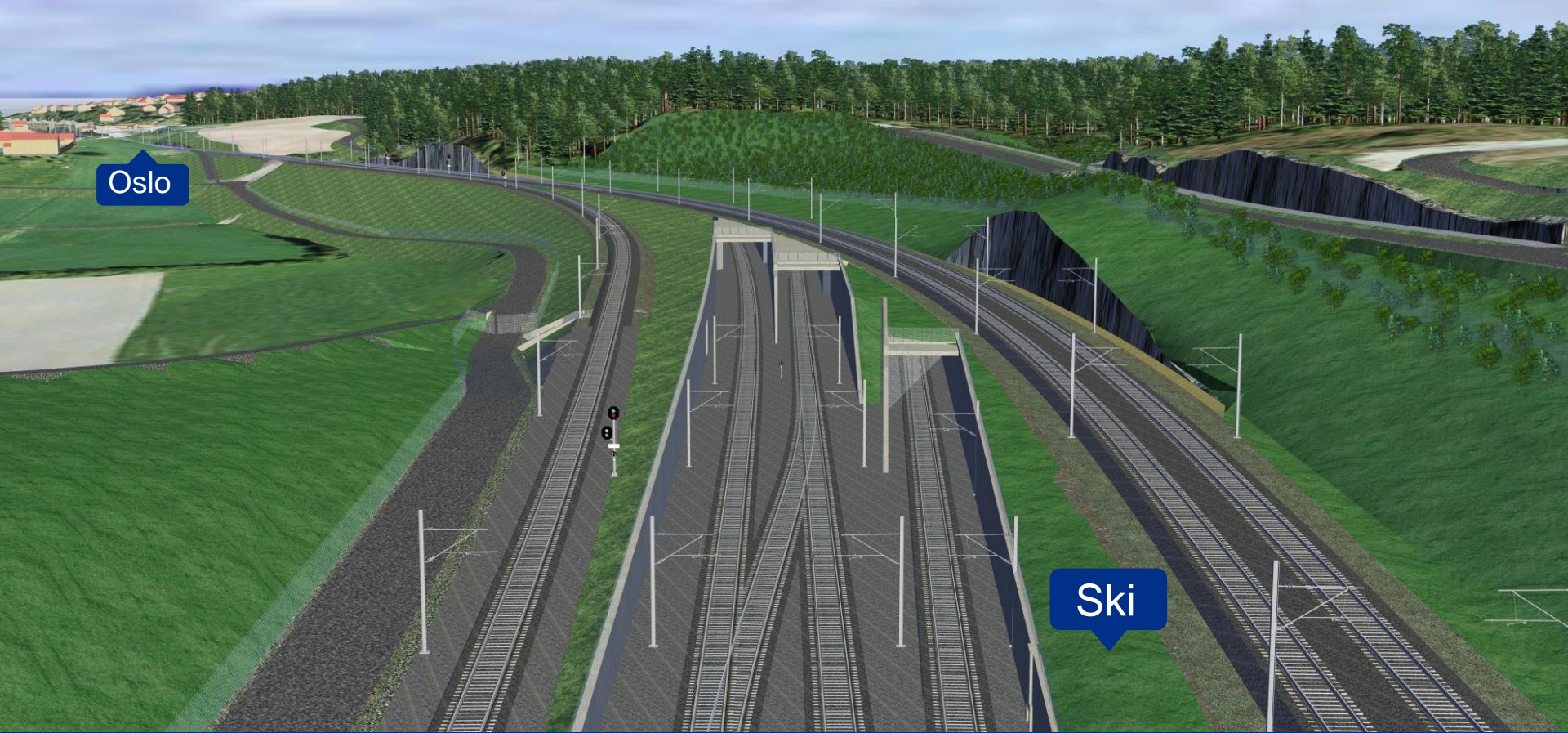
The Follo Line is constructed with connection to several platforms at Oslo Central Station



BEFORE: Oslo S – The Medieval Park 2016



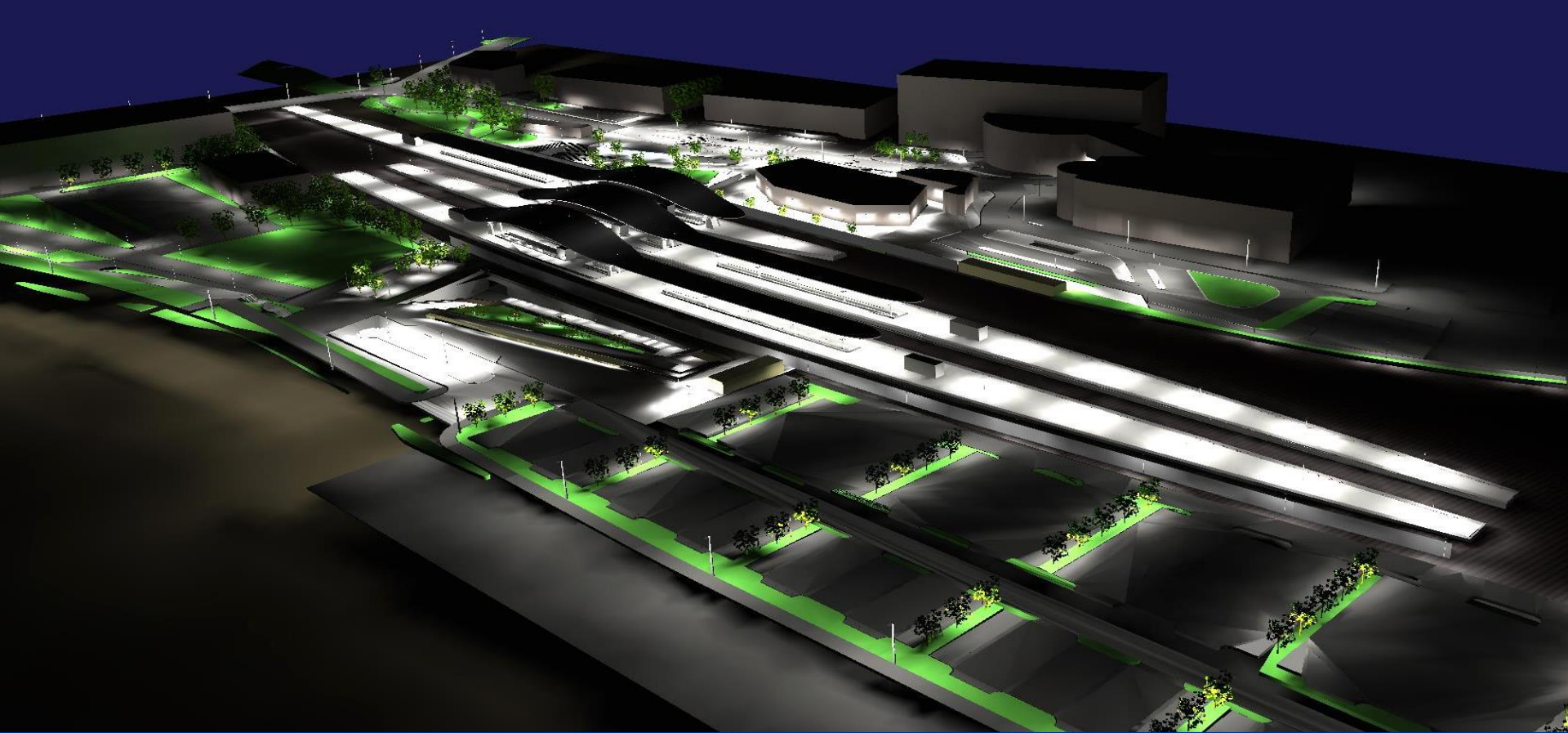
AFTER: Oslo S – The Medieval Park 2021



Necessary realignment of the existing Østfold Line both in Oslo and north of Ski Station



The new Ski Station – an efficient and modern transport hub



The new Ski station will be built with 6 tracks, 3 platforms and a new pedestrian underpass



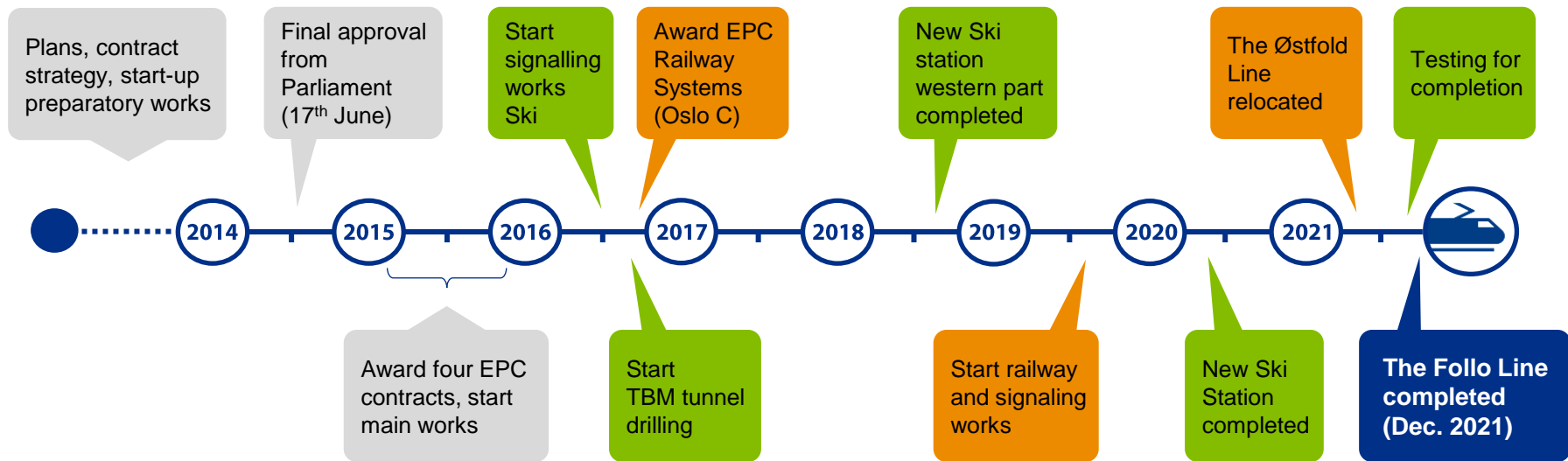
The development of Ski station includes a new bus station, enlarged car park, «bike hotel», etc.



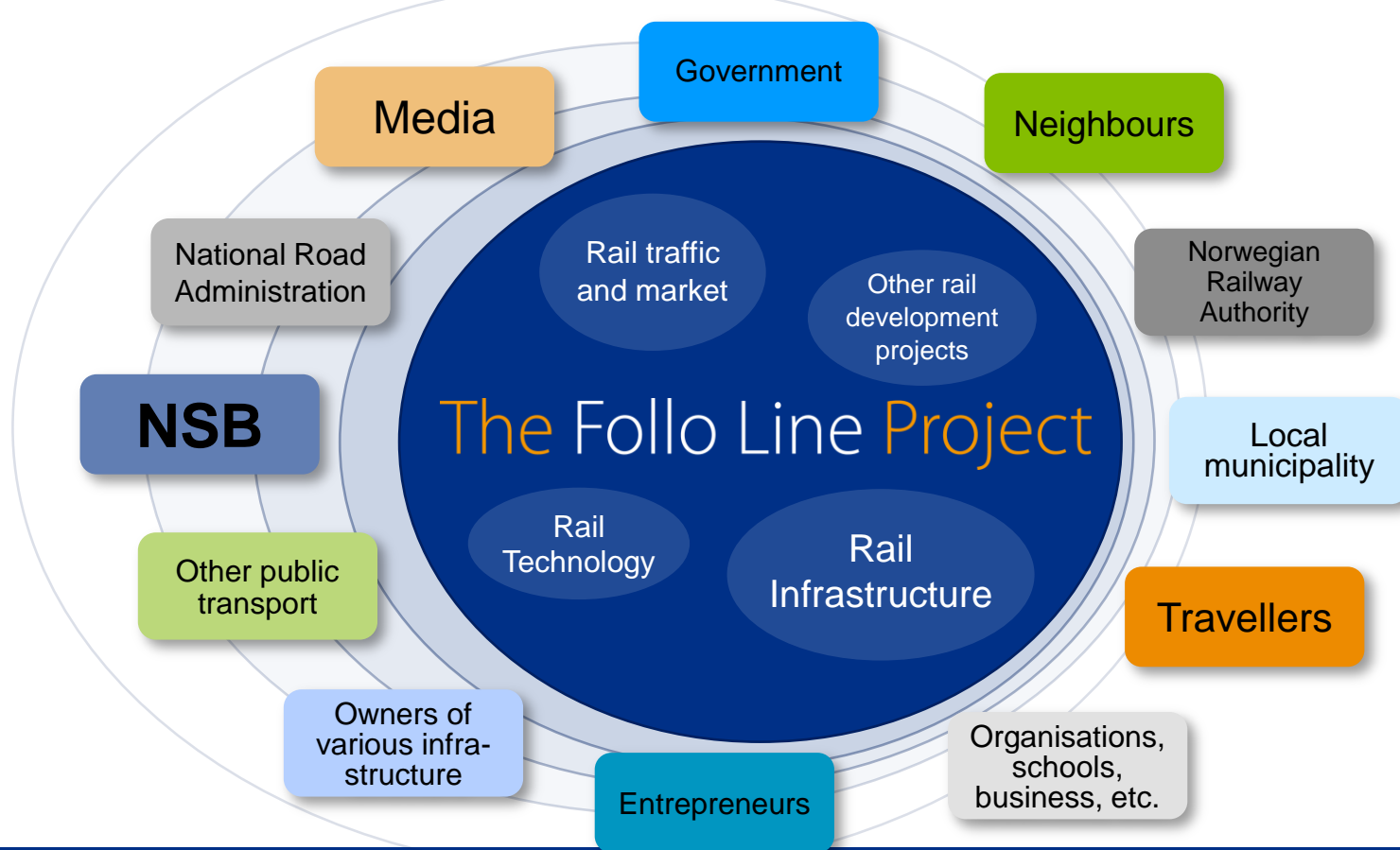
BEFORE: Ski Station 2006



AFTER: Ski station 2020



Timeline – The Follo Line Project



The Follo Line Project requires cooperation with various partners

- 
- An aerial photograph of an urban area, likely Oslo, with a proposed railway line highlighted in red. The line starts in the upper left, runs horizontally, then curves south and east, passing through a dense urban area with buildings and a river. The line ends in the lower right, near a large industrial or commercial area. The background is a dark blue gradient.
- Currently Norway's largest transport project
 - The longest railway tunnel in the Nordic countries to date – 20 km
 - 22 km new double track line – will comprise 64 km new railway tracks
 - Directly between Oslo and Ski public transport centre – 50% reduction in journey time
 - Forms the core part of InterCity development south east of Oslo
 - Designed for speed up to 250 km/h
 - Four subprojects – five EPC contracts and one Signal contract
 - TBM constitutes the largest EPC contract
 - One large rig area – less burden to the environment
 - The Follo Line Project is a pilot for innovative and efficient railway development
 - Scheduled for completion in December 2021

The Follo Line Project

LONGEST. COMPLEX. URBAN. FASTER.