New metro line section and station

The Løren Line is a 1.6 km new section of metro line between the Ring Line and Grorud Line. The section also includes a new metro station, Løren Station, which is station no 101 on Sporveien's metro system.

The transformation of the Løren area, from business and industry to residential, highlighted the need to improve the public transport service in this part of Oslo. Sporveien also wanted to be able to offer its passengers from the Grorud Valley a shorter journey time to the northernmost stations on the Ring Line (circular metro line). It would also free up capacity in the city centre tunnel, which would allow more departures from the eastern suburbs (Østensjø Line).

Aas-Jakobsen worked as the lead consultant on this project during several of the planning phases, when these were still known as the Hasle Curve and Løren Curve, and in autumn 2011 we were hired by Sporveien Oslo to prepare the construction plan, including the preliminary phase, and to provide supervisory assistance. Our sub-consultants were Vianova PT, Geovita, Electronova, ECT, Ingenia, NGI, Grindaker, Brekke & Strand Akustikk, DnV, Bjartnes and Sweco. A preliminary phase was implemented between November 2011 and March 2012, then the work of preparing the construction plan started.

The first documents for competitive tendering were sent out in February 2013, with a total of 16 inquiry for contracts of various sizes being prepared, the last of which was sent out in the summer of 2017. Preparatory site work started in March 2013, while the first ground was broken for the first main contract in June of the same year.

The Løren Line is a 1.6 kilometre new double-track section of metro line, and consists of an approximately 1100 metre long tunnel through bedrock, a roughly 220 metre long concrete culvert, and an approx. 70 metres long concrete base slab. In order to connect to the Grorud Line, around 500 metres of this section of metro line were rerouted in a new corridor. Along the rerouted Grorud Line, retaining walls were built along both sides of the corridor, at heights of up to 6 metres. A rock bridge was established where the Løren Line crossed the Ring Line.

Project name: Løren Line and Løren Station
Project period: 2012-2016 (2017)
Owner: Sporveien Oslo AS
Client: Sporveien Oslo AS
In brief: The engineering design of the 1.6 kilometre metro line section between the Ring Line and Grorud Line, including the new Løren Station with its station hall cut into the bedrock deep underground
Project size: 1330 MNOK

Contact:
Office adress: Lilleakerveien 4a 0283 Oslo Norway
Phone:+47 2251 3000 Email: post@aaj.no
Løren Station was also built on this section, a new station with a 120 metre long station hall cut into the bedrock, approximately 25 metres below ground level, with two exits to ground level. The exits are located at Peter Møllers vei and Gildevangen in the Løren area. As well as the public areas, the station also houses a number of technical rooms needed to operate the station and line. The parts of the station that are above ground level are designed around new apartment blocks, some of which had already been built, and some of which will be built during and immediately after the station’s construction period. The station is designed to accommodate around 8,000 passengers a day.

The Løren Line project was a challenging project in many ways. Because of a tight time schedule, the project was split into contracts with a number of different start dates, and at times several of the various contracts were active in parallel. Well-planned construction work and good phase plans were some of the many prerequisites for success.

One of Sporveien’s main focuses was on the connections to the existing corridors, both before and during the construction period. Connection to the Ring Line was implemented in several phases during a 9 month period of line closure, and opened on schedule. Connection to the Grorud Line was perhaps the most challenging part of the project. Because of the huge numbers of people using the Grorud Line every day, the project was only allowed to close the line for a short 2.5 month period one summer. The rest of the work was performed by routeing the line onto single track operation for almost 1.5 years, with construction work taking place right next to the operational track.

The station was essentially constructed via two vertical shafts which were almost 30 metres deep, in parallel with construction work on the apartment blocks close by. This resulted in a number of challenges in terms of logistics and the interface with the construction site, and the successful implementation of the work depended on detailed planning/engineering work.

Because the design involved a deep station hall, evacuation/fire was a major challenge, and this governed a number of choices and design solutions at the station. Working closely with Sporveien’s technical personnel and OBRE (Oslo Fire and Rescue Service) enabled us to resolve this challenge extremely satisfactorily.

The main Løren Line project and Løren Station opened on 3 April 2016, with the ceremonial ribbon cut by the mayor and head of the city council. The project was delivered on time and under budget. Some minor finishing work has been needed over the last year, but the overall impression is still just as positive. Aas Jakobsen and its network partners were major contributors to this result.