

CASE STUDY

ST. GALLEN URBAN HIGHWAY: 300 KILOMETRES OF CABLE ON A 10-KILOMETRE SECTION

In the modernisation of the St. Gallen urban highway, safety and data cables are being used that meet the highest fire safety requirements.

The A1 Autobahn is one of the main traffic routes in the St. Gallen area. After more than 30 years in service, a total overhaul was required. To ensure operation of the existing infrastructure for another 15 to 20 years, in recent years all of the installations and components have been undergoing renovation and adaptation from the point of view of safety, accident prevention and environmental protection.

A central part of the project has been the renovation and modernisation of the tunnels within the metropolitan area. Since the middle of 2024, the Schoren, Rosenberg and St. Finden tunnels have been undergoing upgrades to improve operation and safety.

To achieve this, first of all temporary operating and safety equipment was set up. In 2025 the structure repair work began in the north tube of the Rosenberg Tunnel and the west tube of the Schoren Tunnel, together with installation of various systems, including lighting, fire alarm system, ventilation, exhaust air vents and power supply. In



2026 the same work started in the south tube of the Rosenberg Tunnel and the east tube of the Schoren Tunnel.

The length of safety and data cable required is around 300 kilometres. Responsible for the expert installation of these is ARGE RoadTEC SWOKA, a consortium consisting of the firms Kummler+Matter EVT AG in Zurich and Arnold AG which is based in Wangen. Datwyler IT Infra in Altdorf is ARGE's main supplier when it comes to safety and data cable.

Safety and data cable from one provider

For the temporary installations and the first new cabling, between May and December 2024, Datwyler IT Infra supplied 13 kilometres of low voltage cable (N)HXH with functional integrity E30–E60 and almost five kilometres of signal cable JE-H(St)HRH with E30–E90.

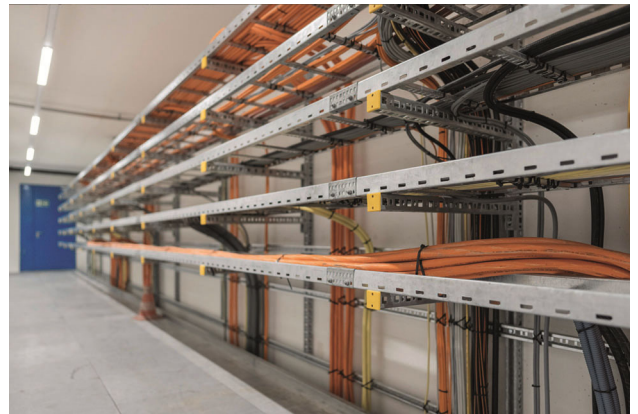
For data communication, 18 kilometres of FO Universal DLTS fibre optic cable were used – products with the highest fire safety class B2_{ca} according to the location.



Added this, in 2025, for the safety-relevant systems in the Rosenberg and Schoren Tunnels were first of all two kilometres of signal cable and 56 kilometres of low voltage cable. Another 3.3 kilometres of fibre optic cable connect the technical rooms to each other and to the central tunnel monitoring system in Lucerne.

For the local data networks, Datwyler provided 8.3 km of CU 7702 4P copper data cable and another four kilometres of CU 7702 GG-FRNC – the latter a Category 7_A special cable, mainly to connect all of the cameras and also to supply power (PoE).

For the installation in the Schoren Tunnel, between January and April 2026 Datwyler IT Infra supplied another 86 kilometres of low voltage cable and almost 17 kilometres of signal cable.



Extension of the data connections and cameras was with 15 kilometres of CU 7702 4P type data cable and another 13 kilometres of CU 7702 GG-FRNC.

Outlook

Next, the Bundesamt für Strassen ASTRA, the Federal Office for Roads, is planning to completely replace the signalling on the 10.4 kilometre long Autobahn section, create modern heating, ventilation and cooling systems in the tunnels and technical rooms and implement and test the control systems. And also all of the traffic routing systems and signalling will be replaced and rewired. After which the system controls will be implemented and tested. And after a trial run, a final integral test will be performed on the whole section.

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