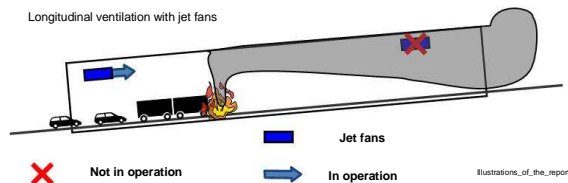


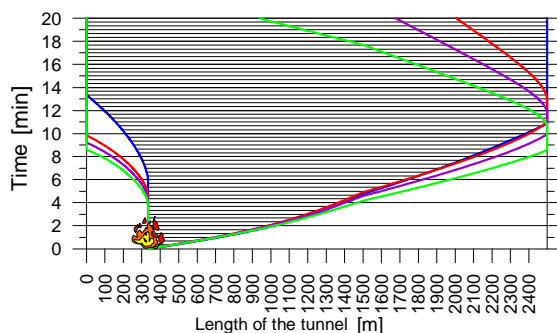
Location of the City Tunnel Freiburg with Schützenallee Tunnel



Subsequent Schützenallee Tunnel



Schematic representation of the mechanical longitudinal ventilation in case of a fire in an inclined tunnel section with unidirectional traffic



Fire case scenarios: 5, 30, 50 and 100 MW of thermal power in section 1 of the southern pipe with fluid traffic - ventilation off

Description

The function of the City Tunnel Freiburg is to provide a performant road in the Freiburg region in the area of the B31a/B31 from the bridge Schnewlinbrücke to the Schützenallee Tunnel. The City Tunnel Freiburg receives a profile with four traffic lanes, broken down into two tunnel pipes. The planned tunnel ventilation system is a mechanical longitudinal ventilation with jet fans.

According to the Guidelines for the Equipment and Operation of Street Tunnels (RABT), a risk analysis must be conducted for street tunnels with special characteristics starting from a length of 400 m and/or deviations from technical construction specifications. It should be determined if at least the safety level of a RABT-compliant tunnel is achieved or if any further measures are required.

Services

In a qualitative risk analysis, the risks in the City Tunnel Freiburg with the connected Schützenallee Tunnel were examined taking account of all safety-relevant planning and traffic factors. The risk calculations are conducted for the planned case and, for a comparison, for a reference case. The planned case is the currently planned tunnel. For the reference case, it is assumed that it corresponds to the specifications of RABT.

After a description and definition of the system to be reviewed, the event trees "collision" and "fire" have been established. For the event tree "fire", the smoke spread and contaminant concentration in the tunnel network were calculated. By means of the person flow analysis, the damage scopes were determined.

On the basis of the calculations, it was determined that despite the deviations, the planned preferred version of the City Tunnel Freiburg fulfills at least the safety level of the RABT-compliant reference tunnel. Therefore, no further safety measures are required, and it is proven that the deviations from RABT and the risks resulting therefrom can be accepted.