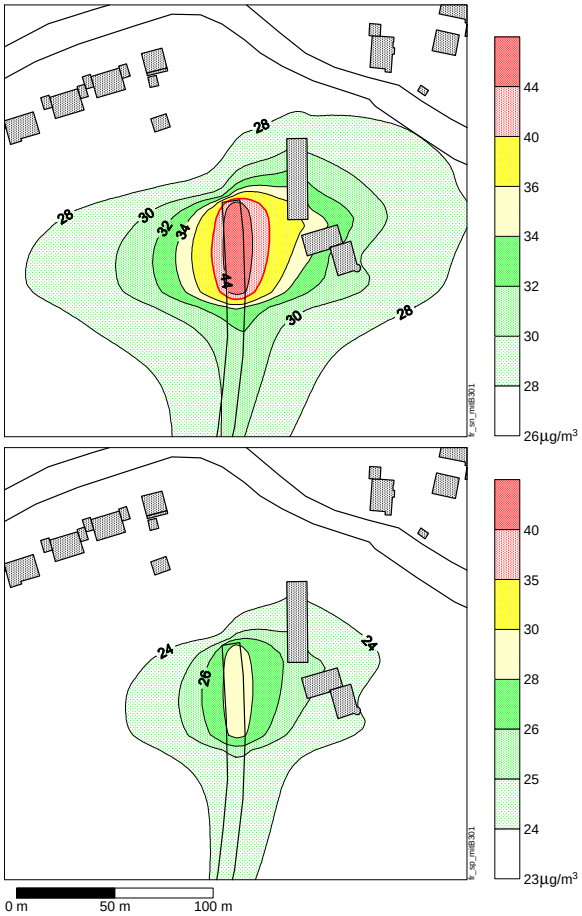
Western bypass Freising (DE)
Air dispersion study

Future location of the tunnel's south portal



2020 annual mean of NO_2- (top) and PM10-concentration (bottom) at the south portal, dispersion model MISKAM

Description

The Freising City Council proposes a western bypass road in order to reduce the traffic load in the city centre. The air dispersion study was performed for a 705 m long tunnel option in order to assess the viability of portal air discharge.

The Bavarian environmental agency BayLfU requested a detailed numerical assessment of the dispersion due to the close proximity of the tunnel portal to residential buildings. Therefore, the application of the numerical model MISKAM was required. The model is based on a numerical calculation of the three-dimensional flow field in an urban environment.

In addition to the air dispersion calculation, the study included an assessment of the tunnel ventilation system with regard to the German design code RABT.

The result of the study confirmed the tunnel design for longitudinal ventilation with free portal air discharge. The predicted pollution levels for NO_2 and PM10 are well below the air quality limits defined by the German environmental standard.

Services

HBI Haerter Consulting Engineers is responsible for the air dispersion studies and for the ventilation concept design, including:

- Preparation of data required for the air dispersion study, such as tunnel geometry, buildings, traffic, meteorological data and background pollution
- Tunnel ventilation concept design according to the German design code RABT
- Calculation of vehicle emissions based on data provided by the German environmental agency Umweltbundesamt
- Numerical model and dispersion calculation for the portal areas, application of MISKAM
- Graphical representation of predicted pollution levels
- Conclusions and recommendation