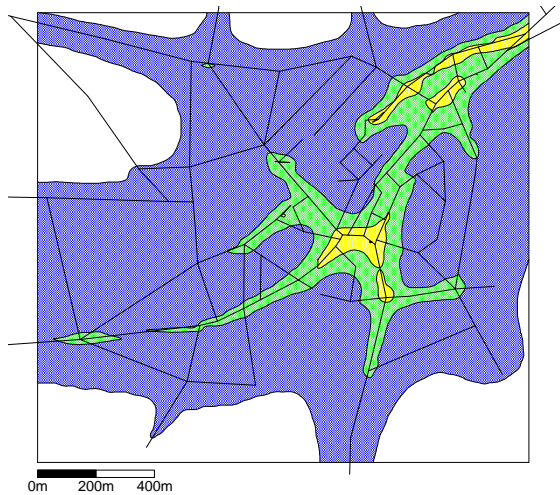
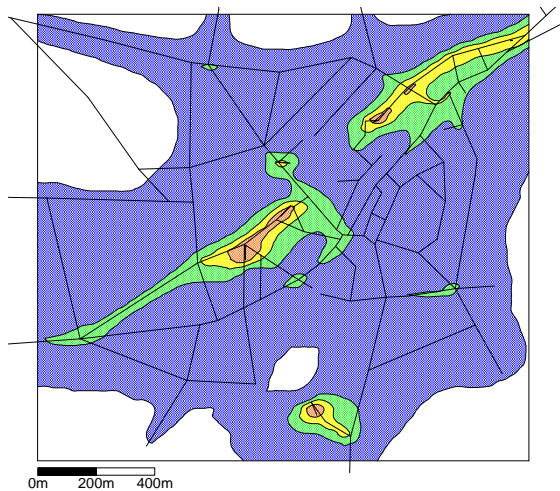




City centre of Frauenfeld 2006



2012 annual mean of NO₂-concentration without project F21



2012 annual mean of NO₂-concentration with project F21

Description

To reduce the impact of through-traffic on the city centre of Frauenfeld, the F21 Bypass is planned. An important part of the bypass road consists of a single-tube tunnel for two-way traffic. In such a situation, the advantages of a road tunnel become apparent. However, as a road tunnel causes a relocation of pollutants, the air quality in the vicinity of the tunnel portals has to be considered for the environmental assessment.

The figures show a comparison of the pollution concentration in the city of Frauenfeld for the year 2012 with and without the F21 Bypass. Using a detailed air dispersion study allows an analysis of the positive and adverse effects of different scenarios on urban air quality.

Services

For the Frauenfeld F21 Bypass project, HBI Haerter Consulting Engineers was responsible for the technical report on air quality as part of the Environmental Impact Statement.

The dispersion model HIWAY-2⁺, as applied by HBI in this project, includes more than 150 individual emission sources in a 2.5 km² dispersion area. With this very detailed model, even roads with very small traffic load have been included. The modelling process utilised the GIS coordinate system, which was already used for the traffic model. The GIS data were processed and provided by our client. In addition to the open roads, the exhaust air of the Bahnhof Tunnel and of the F21 Bypass Tunnel has been included.

The air dispersion calculation has been verified by HBI for the current situation as of 2005. Data on measurements of the 2005 NO₂ annual mean are available from several points within the city, allowing an assessment of today's pollution level. Wind measurements within the city are available on a very detailed scale as well. With these reference measurements, the calculated pollution level for 2012 (the design year for the F21 Bypass) has been based on very reliable and detailed information.