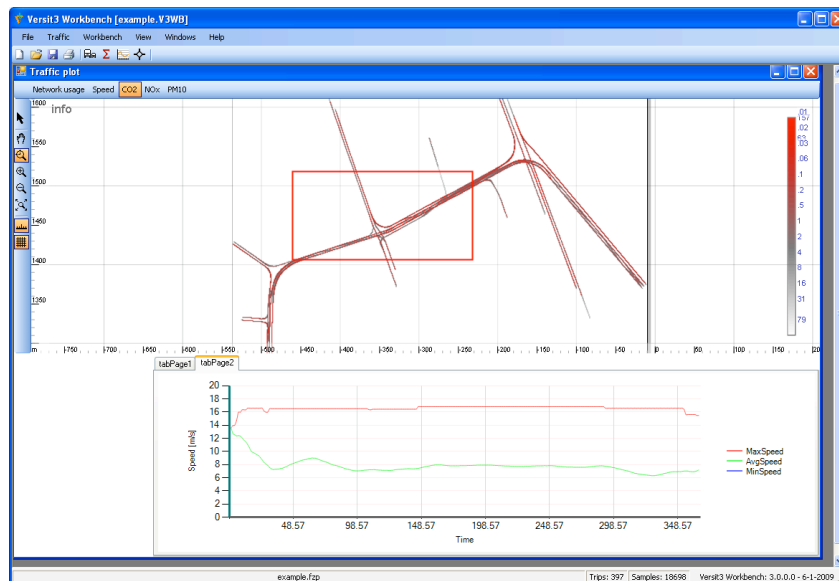


Predicting Local Vehicle Emissions Using Aimsun and VERSIT+^{micro}

DHV and TNO have now implemented an interface between Aimsun and VERSIT+^{micro}, making it possible to include the environmental effects of transport policies into simulation-based assessments. DHV uses Aimsun extensively across the Netherlands to analyse the effects of dynamic traffic measures and for traffic control design. To assess the impact of traffic on the environment at a local level in both time and space, DHV also uses the emissions model VERSIT+ developed by TNO in the Netherlands. The interface connects Aimsun with VERSIT+^{micro}, a special version of VERSIT+.

In order to be able to predict vehicle emissions in particular traffic situations, TNO has developed the emissions model VERSIT+ which is based on 15.000 measurements of vehicles in a laboratory setting. VERSIT+ is a statistical model which can predict vehicle emissions for specific vehicle types and technologies (e.g. euro norms, fuels, drive trains, injection technologies etc). Because the VERSIT+ model is far too complex to link to



traffic micro simulation programmes, a dedicated model, VERSIT+^{micro}, had to be derived from VERSIT+. Two main simplifications have been made. First of all, instead of one hundred models for every single vehicle type and class, four vehicle categories are defined which are based on the average vehicle fleet per category. Furthermore, a fleet composition for the urban and rural/highway environment has been made for each category to take into account that different types of vehicles drive in the different environments. This is an average of the typical fleet composition on the Dutch roads, in terms of age and technology of the vehicles in a particular year.

The latest version of VERSIT+^{micro} calculates PM₁₀, CO₂ and NO_x emissions on a detailed level. The results of an Aimsun simulation are presented in numbers and in graphs, which can be used for detailed analyses.

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