Testing of 'application-based' goodness-of-fit measure of crash prediction model

Jiří Ambros[1], Harri Peltola[2]

[1] *Centrum dopravního výzkumu, v.v.i., Líšeňská 33a, 636 00 Brno, Czech Republic, jiri.ambros@cdv.cz*

[2] *VTT Technical Research Centre of Finland, P.O. Box 1000, FI-02044 Espoo, Finland, harri.peltola@vtt.fi*

Crash prediction models (safety performance functions) are one of fundamental tools of rational road network safety management. However there are many options in their development, involving the dilemma in choice of a model: while researchers strive for multivariate models, which demand area-wide databases of several explanatory variables; practitioners require simple models, based only on fundamental variables, which are more easily available and able to be periodically updated.

The model choice (relative comparison between models) is usually guided by various goodness-of-fit measures: one may use simple indicators (information criterions) or more detailed tools such as plot of cumulative residuals. Other possibility is concentrating on spatial and/or temporal transferability.

Nevertheless none of the mentioned options focus on practical application of models. Identification of hazardous road locations (network screening) is the first step of road network safety management process and may thus be considered an important practical application.

In the study the goodness-of-fit measure based on amount of differences in network screening results using simple and multivariate models will be tested. Two rural road data sets will be used: one from the Czech Republic where using crash prediction models has just developed; one from Finland where using simple crash prediction models have been practised for two decades. The results will show the possibility of using the proposed 'application-based' goodness-of-fit measure as well as the possibility of advocating the use of simple models.