

## Extension of the Road Safety Impact Assessment for bicycle traffic

*Clemens Kielhauser, Laura Schnoz and Bryan T. Adey*

**Keywords:** Bike safety, Safety assessment, Safety instrument

During the planning of cycling infrastructure, the accident costs of cycling accidents can be significantly influenced. The Road Safety Impact Assessment is a method used in the planning phase to assess network-wide safety impacts of different project variants and hence to determine the safest project variant. It is targeted at motorised individual traffic. The expected number of accidents (expected value) is estimated for each network element (roads and intersections). The result of the Road Safety Impact Assessment is a comparative evaluation of the variants by means of the accident costs.

This paper presents the adaptation of this method to bicycle traffic in order to enable a comparison of the safety effects of project variants in this area as well. For this purpose the following components have to be adapted for bicycle traffic: 1) The methodology for determining the bicycle traffic volumes and the network parameters, 2) the limits for determining the investigation area, 3) the accident rates for the roads respectively the accident figures for the nodes as well as the distribution of the accident severity categories.

For this purpose, information from different literature sources was collected and consolidated. Finally, the values were calibrated with accident data provided by the police. As the different literature sources sometimes provide different values, each parameter is accompanied by the standard deviation in order to quantify the range of variation of the literature data and to make the calculation more transparent.

The adapted method is then demonstrated by using it to evaluate eight different variants of a new bicycle infrastructure on the Sihlquai in the city of Zurich, Switzerland.

It can be clearly shown which project variant causes the lowest accident costs, and the additional presentation of the uncertainties contained in the calculations provides additional information on the safety of typical construction elements.

In summary, it can be said that the adaptation of the procedure for a bicycle Road Impact Safety Assessment is feasible. The inclusion of the uncertainties also helps to identify points where there are greater ranges of variation in the literature and should therefore be investigated in more detail.