

**XXIVth WORLD ROAD CONGRESS
MEXICO 2011**

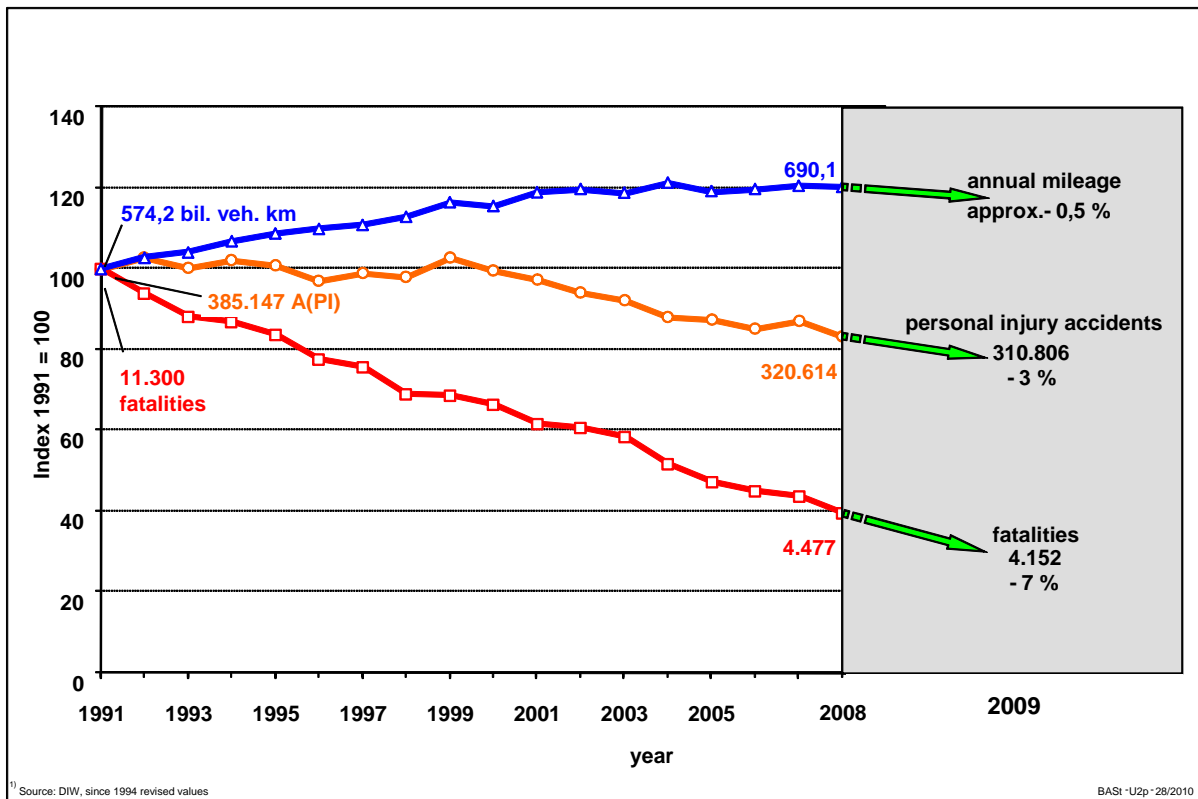
GERMANY - NATIONAL REPORT

STRATEGIC DIRECTION SESSION STC

**A STRATEGIC APPROACH FOR SAFETY:
PUTTING KNOWLEDGE INTO PRACTICE**

Traffic Safety Management in Germany

The improvement of traffic safety has since many years been an important political and societal goal in Germany. Especially the development in the number of road deaths per annum illustrates the already achieved successes. Despite a distinct increase in traffic volume, especially on motorways, and due to substantial improvements in traffic safety already achieved since the 1970s, the number of individuals killed in road traffic could be reduced from almost 7,000 in 2001 to just over 4,000 in the year 2009.



Pic. 1: Development of number of road deaths and billion vehicle kilometres on BAB (federal motorways)

In order to support this development also by road infrastructure measures, several procedures were devised for a safety management of road infrastructure in Germany which explicitly consider aspects of traffic safety in the planning, design, construction and operation of roads. The experience gained in the application of these procedures together with the knowledge acquired within the framework of the CEU-sponsored project RiPCORD-iSEREST were brought into the development of the European Directive on Road Infrastructure Safety Management. In the project RiPCORD-iSEREST best practice guidelines for the procedures road safety impact assessment, road safety audit, road safety inspection, black spot management and network safety management were elaborated (amongst others). The application of the procedures laid down in the European

directive will in Germany be mandatory for the road network classified as TEN-roads. The Federal Ministry for Transport, Building and Urban Development will recommend that these procedures should further be used for all federal state roads.

RiPCORD-ISEREST Road Infrastructure Safety Protection - Core Research and Development for Road Safety in Europe; Increasing Safety and Reliability of Secondary Roads for a Sustainable Surface Transport

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Project co-financed by the European Commission

Federal Highway Research Institute

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Pic. 2: RiPCORD-ISEREST brochure (www.ripcord-iserest.com)

Road Safety Impact Assessment

In Germany traffic safety is of major concern even in the context of assessment procedures for expansion plans. For the area of the federal transport infrastructure plan the prerequisites for its update are currently under preparation. In this context the procedure for the assessment of the impacts of new construction, re-construction and expansion measures on traffic safety will also be up-dated. In the further planning progress the evaluation of traffic safety is also a major component. Within the frame of economic feasibility studies of variants, the evaluation of traffic safety plays a major role in the determination of the preferred variant. The guidelines for the economic feasibility studies are being up-dated at the moment. Current knowledge about the traffic safety assessment of planned roads will be considered therein. Furthermore a German highway safety manual is currently being developed as a support for the assessment of design variants. It includes expected values for accident cost rates for various road cross sections and intersection types as well as supplements to these expected values in dependence on

deviations from standard values. This manual will enable a comparison of different expansion variants for individual road sections respectively intersections. It is the intention to create this German highway safety manual as a counterpart to the German highway capacity manual.

Road Safety Audit

It was already in the year 2002 that the guidelines for road safety audits were published in Germany. In addition to the audit steps defined in the European Guideline (draft design, detailed design, pre-opening and early operation) an additional audit step in the preliminary planning stage is included. Based on the experience in the area of safety auditor education and certification gained over the past years, a corresponding bulletin was published in 2009. This bulletin includes details on the qualifications for attending the course, the structuring of the course contents into single modules as well as possible module combinations. Additionally the course durations and the procedure of certification respectively of renewal of certification are described. The approved education centres as well as the certified auditors are listed on the BAST website (www.bast.de) in order to promote the safety audit. At present there are 8 education centres and 185 certified auditors listed on the website.

It has also been fixed in the bulletin for the education and certification of road safety auditors that in order to obtain a prolongation of the certificate proof of attendance of further training measures for auditors has to be presented apart from activity reports. Each year two 2-day seminars (further education measures) for safety auditors are held in cooperation with the German Road and Transportation Research Association. Current research results from projects dealing with the theme complex of infrastructure – traffic safety and new guidelines are presented on the first day. This event is not restricted to auditors; in fact, people who are involved in the areas of road planning and road design are also encouraged to partake so that they can consider the latest findings and regulations already in their current road plans or designs. The next day is filled with workshops exclusively for auditors where current examples of select topics are presented and discussed.

Road Safety Inspection

In addition to road safety inspections road patrols are conducted in order to monitor traffic safety aspects of the road infrastructure. This includes the control of road work zone

protection (road safety obligation). The obligation to conduct road patrols is laid down in the federal highway law respectively federal state legislation concerning roads. Based on these regulations road patrols have to be carried out regularly. The common ground for a unique procedure of road patrols is defined in the catalogue of "measures for road maintenance and operation" dated June 1997 (MK 6 d).

In the German Road Traffic Code it is stated that road safety inspections (VWV-StVO regarding § 45 StVO – German Road Traffic Code) have to be processed every second year, on those roads where accidents occur more frequently the interval is once a year. The intention of a road safety inspection is to check whether traffic signs and traffic installations meet the requirements for a smooth traffic flow. Special care is taken with regards to their physical state and recognisability in dark conditions as well as visibility at intersections, level crossings and in curves. Beside other items, the bulletin for road safety inspections contains special aspects concerning the task and the organisation of road safety inspections as well as detailed information regarding special thematic inspections (during night, at level rail way crossings, tunnels, traffic signs).

Network Safety Management and Black Spot Management

The Federal Highway Research Institute regularly calculates the safety potential for Germany's federal motorways. For this purpose the actual accident costs for individual road sections are compared to the value of the accident cost rate expected for modern, guideline-compliant construction. The comparison of the so calculated, by infrastructure measures reachable safety potentials, enables a prioritisation of road sections according to potentially necessary safety improving infrastructure measures. In order to be in compliance with the CEU directive, BAST will calculate the safety potential for all TEN-roads in Germany. The procedure of these calculations is described in the guideline 'Network Safety Management' which was published in 2003.

The obligation to conduct a black spot management system is also fixed in the German Road Traffic Code. For those parts of the road network where the accident occurrence is above a specific threshold an accident commission has to conduct an investigation in order to develop countermeasures. These accident commissions are teams composed of experts of the police, the road and the traffic authorities. In order to support the work of these accident commissions, the effectiveness of different countermeasures was analysed. Based on literature research and data from 65 nationwide accident investigation commissions, a collection of examples of measures taken to combat the total reported 110

accident black spots was assembled. These measures were analysed and evaluated with regards to the achieved reduction of accident numbers and consequences as well as their efficiency based on cost/benefit comparisons. Here the difference between traffic engineering and infrastructure measures found special consideration. From the gained results the advantages and disadvantages of infrastructure measures for the reduction of road traffic accidents were derived.

The resulting collection of examples points out opportunities for improvement of traffic safety at accident black spots. It became evident that changes to infrastructure are often suitable measures for a sustainable elimination of accident black spots and thus to improve traffic safety in the whole road network. Infrastructure measures received more than three times a very good rating than traffic engineering measures. On average they achieve a more than one and a half times higher effect than traffic engineering measures or packages of infrastructure and engineering measures. Especially those accidents with high accident costs were reduced by infrastructure measures.

The investigated sites, the measures and the results of these analyses are published on the website of the German Federal Highway Research Institute (BASt).