

The implementation of individual and economic goals requires a high degree of mobility. To ensure mobility, high-capacity traffic infrastructures are crucial. This includes, in particular, bridge and tunnel structures. The protection of these structures is of central importance, especially considering the increased threat posed by recent natural disasters, major accidents, criminal acts or terrorism. The damage or even complete loss of certain structures results in considerable economic deficits and can adversely affect the functionality of further important infrastructure and supply facilities to a significant extent (domino effect).

To further guarantee a high level of availability of infrastructure constructions, extensive research projects on the topics of civil security are carried out at the Federal Highway Research Institute (BAST).

In addition to road user safety, the high availability of structures is an equally important factor for the civil security research. Events, which are not common and pose extreme stress or strain for structure users and the structure itself, are examined.

On the one hand, the Federal Highway Research Institute uses this information to support operative tasks and on the other hand to gain important synergies for the requirements of road safety. Conversely, road safety research results can be applied excellently to civil security tasks. In particular, procedures for the evaluation of the road tunnel safety levels, as well as new technologies such as infrared scanners for the detection of overheated vehicle parts can be integrated here.

Thus, the research activities on civil security (security), carried out by the Federal Highway Research Institute, always include the perspective of road safety (safety). This is the only way to achieve optimal results in terms of safety and economic efficiency.

The research activities in the field of civil security are a relatively new focus for the Federal Highway Research Institute. This is why it is so important that the research projects provide concrete results which can be utilised directly.

This is where the Federal Highway Research Institute, with its competencies in the field of research as well as in tunnel and bridge construction and its national and international networks, offers the ideal conditions for putting project results into practice quickly and implementing them in the relevant regulations.

The Federal Highway Research Institute's focus in civil security research lies on the scenario specific safety assessment of structures, the evaluation of new measures and processes, and the demonstration on test tracks or directly at the structure.

Civil Security of Infrastructure Constructions



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www.bast.de



Protection of Critical Highway Bridges and Road Tunnels



www.skribt.org

The objective of the project SKRIBT is the identification of potential threat scenarios which could directly affect bridge and tunnel constructions and the users thereof. In accordance with the „all-hazard approach“, imaginable natural and man-made threats are considered and their effects on structure and users thereof are determined. The effectiveness and efficiency of possible protection measures are tested by risk-scenario analyses and cost-effectiveness analyses.

The research results are elaborated in the form of recommendations on the implementation of measures for the different target groups: Structure users, structure owners, structure operators and emergency services. For this purpose, different measures are demonstrated on selected structures during the project.

The Federal Highway Research Institute is the consortium leader for this project which is funded by the Federal Ministry of Education and Research (BMBF).

Security of Road Transport Networks



www.seron-project.eu

In conjunction with partners from Austria, Switzerland, Belgium, Denmark, Great Britain and Germany, the Federal Highway Research Institute is developing a methodology for the analysis and evaluation of road networks and their road infrastructure elements in terms of their sensitivity in the event of potential extraordinary damage incidents.

Both, regional and supra-regional effects, which could occur as a result of potential long-term restrictions of the road network, are analysed. A knowledge database, which is based on these findings, is being set up. The project is funded by the 7th Framework Programme of the European Union and led by PTV Planung Transport Verkehr AG, based in Karlsruhe. The project duration is approximately three years.

The Federal Highway Research Institute is involved in the project SeRoN as a consortium partner.

Real Time Security Management System for Infrastructure on German and Israeli Roads



www.retiss.de

Serious accidents, for example heavy goods vehicle accidents, as well as criminal or terrorist acts are challenges which road infrastructure operators are confronted with. Both, measures for prevention and measures for correct and rapid response in case of an emergency, require up-to-date information on the safety condition of the structures at all times - for example traffic density, type of vehicles, damaged vehicles - as well as the approximate number of people located in a tunnel or on a bridge.

Under the project RETISS, a system, which provides the operators in the tunnel control centre with real-time information about the current level of safety in the tunnel, is being developed. To this end new detection systems are combined with existing sensor technology and the output data of these sensors is analysed and evaluated in real-time.

The Federal Highway Research Institute is the consortium leader for this project, which is funded by the Federal Ministry of Education and Research (BMBF).

Security Risk Management Processes for Road Infrastructures



www.secman-project.eu

Within the framework of the project SecMan, methods are being developed and compiled in a handbook ready for practice by the Federal Highway Research Institute in conjunction with partners from Austria and Slovenia. The purpose thereof is to enable operators and owners of road infrastructure constructions to establish a security-risk-management within the framework of a structured and uniform approach.

Based on the project results, the owners and operators of the infrastructure constructions are able to evaluate their structures in a systematic and comprehensible manner in terms of security relevant risks and, if necessary, to take effective action for prevention and protection. The application of a uniform procedure guarantees the comparability of the evaluations.

The project is funded by the EC within the framework of an „Action Grant“.

