



... AND REALISING ADVANCED INCIDENT DETECTION ON EUROPEAN ROADS WITH RAIDER



RAIDER

RAIDER is an ERA-NET ROAD II project of the joint research programme "ENR2011 MOBILITY - Getting the most out of Intelligent Infrastructure".

Incident detection is essential for Road Authorities to manage their road networks and adequately respond to incidents. Issues with the quality of detection, such as delays, inaccurate location of incidents, or high false alarm rates directly impact operations. Significant investment may be required to improve detection quality with additional roadside detection systems. New developments in nomadic devices, in-vehicle systems and third party services may provide solutions that both improve incident detection quality and reduce costs.

RAIDER aims to improve incident detection systems by integrating innovative technologies that are expected to be available by 2020. eCall can significantly improve the detection of severe accidents, while cooperative vehicle and road side systems can provide early detection and warning for a variety of hazards and (near) incidents. Nomadic devices will be ubiquitous and provide detailed traffic information through service providers, but may not be ade-

quate for detecting accidents reliably. Additionally, innovative roadside detectors may still be required at specific locations.

Experts from the National Road Authorities have been consulted early in the project to select their most pressing issues as reference cases for research, for example hard shoulder monitoring and the detection of accidents, stationary vehicles and traffic congestion. The detection quality of existing and new technologies is reviewed against the user needs and requirements. Quality is estimated in a generic way for the detection of specific incidents, i.e. using parameters like detection delay and rate, and the function of penetration rates of equipped vehicles, detector spacing and traffic volume. In a similar way, quality improvement can be estimated when an existing infrastructure is extended with a new detection technology. This methodology enables system concepts to be proposed to improve existing infrastructure for specific types of incidents.

Some of the most common road use cases are considered and alternative system concepts for incident detection explored. The feasibility, costs and ben-

efits of innovations in the near future in roadside sensors, nomadic devices, and in-vehicle devices are assessed. The project follows the following methodology:

- Generic specification of the innovative detection technologies, data fusion and incident detection algorithms, in function of the existing infrastructure, user needs and requirements on incident detection performance.
- Feasibility and cost assessment of innovative roadside sensors, nomadic devices and in-vehicle systems to improve incident detection.

These results can be applied by Road Authorities to assess the performance of their existing incident detection systems, identify necessary improvements, and define specifications for tendering. The specifications and feasibility assessment also provide the necessary input for cost benefit analyses of such improvements.

PARTNERS



► See www.fehrl.org/raider or contact Toon Beeks at toon.beeks@tno.nl for more information.