

## RAIDER Realising Advanced Incident Detection on European Roads

a research project of the  
cross-border funded joint research programme  
“ENR2011 MOBILITY – Getting the most out of Intelligent Infrastructure”

### 1) Introduction

“ENR2011 MOBILITY – Getting the most out of Intelligent Infrastructure” is a trans-national joint research programme that was initiated by “ERA-NET ROAD II – Coordination and Implementation of Road Research in Europe” (ENR2), a Coordination Action in the 7th Framework Programme of the EC. The funding partners of this cross-border funded Joint Research Programme are the National Road Administrations (NRA) of Belgium, Switzerland, Germany, Netherlands, Norway and United Kingdom.

### 2) Project Facts

**Duration:** 01/11/2011 – 28/02/2013

**Budget:** EUR 320.000

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### 3) Project Description

Incident detection is an essential capability for Road Authorities to manage their road networks and adequately respond to incidents. Issues with the quality of detection, such as a high false alarm rate, delays in detection, or inaccurate location of incidents, directly impact operations. High quality of data enables faster resolution of incidents and pro-active measures to avoid traffic disturbance.

RAIDER is a research project aiming to improve incident detection systems by incorporating new technologies for road side systems and utilising in-vehicle systems and nomadic devices. Improvements in incident detection are expressed in terms of detection quality and the estimated costs and benefits of the detection systems. RAIDER has a focus on near future technology improvements.

Road Authorities are consulted to identify the three most relevant classes of incidents, and to assess their current system performance, operational issues and future requirements. Potential performance of new technologies is evaluated, and generic specifications are defined to incorporate these new technologies in system concepts to improve existing incident detection systems.

#### 4) Expected Results

RAIDER follows a methodology to deliver results that are applicable to all European Road Authorities:

- Stakeholders are consulted to assess their operational experiences and issues with existing systems, and to define user needs and requirements for incident detection systems (now and in the future) as a reference for evaluating new technologies. Experts from the National Road Authorities are consulted actively as stakeholders to ensure outcomes are fit-for-purpose by selecting the top priority types of incidents and most pressing issues as reference cases for research.
- Quality criteria for the functionality and performance of incident detection systems and their major components; sensors, data fusion and incident detection algorithms. These quality criteria are derived from the user needs and requirements on incident detection functionality and performance.
- System concepts for incorporating new technologies for road side systems and for utilizing in-vehicle systems and nomadic devices.
- Estimating costs and benefits as well as the feasibility of innovative of proposed incident detection systems.
- Generic specification for incident detection systems, and their major components (sensors, data fusion and incident detection algorithms) in terms of quality requirements.
- Obstacles to implementation of potential systems and recommendations for mitigation.

Key tasks and deliverables:

- Stakeholder workshop to collect and consolidate the user needs and requirements.
- Stakeholder workshop to disseminate the generic specifications for incident detection systems.
- Intermediate working documents on user needs and requirements, data quality criteria, and generic specifications.
- Summary report with final results and recommendations for facilitation of implementation of potential solutions.

Benefits to the Road Authorities

This project will identify anticipated future developments and international best practice in incident detection to support Road Authorities' network management duties. This will include:

- User needs and requirements – a consolidation of the stakeholders' operational and technological experiences with existing systems and demands in the near future.
- Identification of new and emerging incident detection technologies with indication of system performance in terms of strengths and limitations for application in the near future
- Feasibility assessment of incident detection technologies – mapping of the requirements against appropriate incident detection technologies' performance, and guidance for demonstration of the business case (case benefit analysis).