

EuRSI
European Road Safety Inspection
a research project of the
cross-border funded joint research programme
“ENR SRO1 – Safety at the Heart of Road Design”

1) Introduction

“Safety at the Heart of Road Design” is a trans-national joint research programme that was initiated by “ERA-NET ROAD – Coordination and Implementation of Road Research in Europe” (ENR), a Coordination Action in the 6th Framework Programme of the EC. The funding partners of this cross-border funded Joint Research Programme are the National Road Administrations (NRA) of Austria, Belgium, Finland, Hungary, Germany, Ireland, Netherlands, Norway, Slovenia, Sweden and United Kingdom.

2) Project Facts

Duration:	01/10/2009 – 31/03/2011
Total Budget:	EUR 280.034,00
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3) Short Project Description

Road transportation in Europe is a high value sector area, having a turn-over of almost €2.5 trillion in 2006, with an estimated 293 million vehicles travelling on over 5 million kilometres of road-network, (EU Transport Statistics, 2009). In the same year, just under 43,000 people were killed on European roads (EU Transport Statistics, 2009). In 2001, the European Commission drafted an objective to reduce the present number of deaths by half to 25,000 by 2010. Rural roads constitute a large percentage of the total 5 million kilometres of route network throughout Europe (EU Transport Statistics, 2009). The European Commission has promoted a series of initiatives, research programmes as well as directives to help improve safety along European route networks. The road infrastructure directive is due to be implemented across Europe in December 2010. One of the four corner-stones of this directive revolves around road safety inspection (RSI). Road safety inspection procedures along rural road corridors vary across Europe.

The motivation for this European Road Safety Inspection (EuRSI) research proposal is to address some of short-comings in current rural-road safety inspection procedures, where the vast majority of accidents occur (ERF, 2008). These include research and development of latest state-of-the-art mobile route-corridor mapping technologies to highlight hazards and replace existing manual inspection methods. A second area deals with exploring novel risk assessment approaches to highlighting rural-road sections that may require immediate safety intervention following an RSI. A third area tackles trans-national standardisation issues through testing and independent validation of the system in four separate member states.

4) Expected Results

Road infrastructure safety has become a key area of interest within the transportation sector and is supported by a number of directives and initiatives. One of the chief findings of a recent ERF sponsored Infrastructure Safety Forum held in Brussels, November 2008, was the need to highlight and implement existing infrastructure solutions to improve road safety along rural roads, where the majority of fatalities occur (ERF, 2008). Safety testing of an existing road is called a road safety inspection (RSI) and is usually carried out at regular intervals, (SWOV, 2007). Article 6 in the Road Infrastructure Directive 2008/96/EC, due to come into force December 2010, sets out guidelines for carrying out Road Safety Inspections. These include periodic safety inspection by a competent entity to safeguard safety levels, identify road safety related features, prevent accidents and assess possible impact of road-works. There are three main areas where improvements could be made to carrying out RSI across Europe;

- RSI procedures themselves can vary from country to country (SWOV, 2007) and involve a high degree of manual input. In some countries, there are no formal RSI procedures in place. Collecting and processing route corridor information for road safety inspection surveys remains a manual based task. This usually requires an engineer either driving the routes or viewing videos of the routes (RIPCORDERa, 2007; SWOV, 2007 and EuroRAP, 2005). These multiple approaches to safety inspection give rise to data quality and standards issues such as measurement accuracy as well as feature and hazard classification.
- Rapid, reliable identification of rural road sections requiring safety intervention requires not only intrinsic hazard information provided by an RSI but also additional datasets such as historic vehicle collisions, road usage, points of interests etc. These datasets vary in terms of availability and quality across EU-27. There are various methodologies for computing road user safety risk along rural road networks (RIPCORDERa, 2007). From an RSI perspective, there are shortcomings in a number of these approaches in terms of precise identification and location of hazards. Also, other factors need to be considered in order to build a more detailed picture of the safety rating at any particular location along the rural road network. These shortcomings may impact on more effective remedial and correction action.
- Overall European standards in terms of collecting, processing, analysing and reporting on route corridor safety issues arising from RSI also requires closer examination. This hampers wider European adoption of road safety inspection procedures.

EuRSI seeks to address some of rural road related safety issues raised under the Objectives Development of evaluation tools and assessment of forgiving road safety measures. These deal with the lack of a common approach to RSI across Europe, more comprehensive rural road safety assessment and contribution to European standardisation of RSI. EuRSI proposes to address these short-comings through three objectives;

- Introduce latest mobile mapping based approaches to help automate route corridor data acquisition and processing. This includes capturing intrinsic route corridor information including; road geometry, road-side features, hazard identification, existing safety intervention and pavement condition. This will contribute to a more accurate, comprehensive representation of the physical route corridor as well as trans-national adoption of standards. One additional benefit of this system is enabling road management organisation, in some member states, capture full route geometry where none previously existed.
- Investigate the role of both intrinsic and transient factors together with latest machine-learning techniques for assessing risk arising from road survey inspection. These include intrinsic route elements produced by the RSI as well as additional information including: vehicle collisions database, meteorology, points of interest (POI) and road usage. The aim is to investigate suitable safety risk assessment methodologies that can highlight

rural road sections where immediate safety interventions may be required following an RSI.

- Encourage wider EU stakeholder participation and engagement in adopting a common approach. The design, operation and over all management of rural road networks varies across Europe. Various standards arising from new RSI technologies and methodologies will only be adopted if these are understood. EuRSI intends designing RSI technology following a comprehensive survey of existing approaches within EU-27 states. This will involve direct contact with various road agencies and if necessary, face to face consultation. A detailed road test will be carried out in four member states. Independent evaluation will be carried out with close cooperation of the host country road safety/operator agency. The methodology, testing and subsequent results will be disseminated to all EU road authorities via distributed report, conference publication as well as a workshop. These measures will contribute to wider adoption of a common approach to European RSI methodology.