

**IRDES**  
**Improving Roadside Design to Forgive Human Errors**  
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

<b>Duration:</b>	15/09/2009 – 15/09/2011
<b>Total Budget:</b>	EUR 267.713,00
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<b>Partners:</b>	Peter Saleh, Austrian Institute of Technology (AIT), Austria Helen Fagerlind, Chalmers University of Technology, Sweden Eleonora Cesolini, ANAS SpA, Italy Goyat Yann, Laboratoire Central des Ponts et Chaussées (LCPC), France

### 3) Short Project Description

Each year 43.000 persons are fatally injured in Europe due to road accidents. The RISER Project has shown that even though 10% of the total accidents are single vehicle accidents (typically run-off-road (ROR) accidents) the rate of these events increase to 45% when only fatal accidents are considered.

One of the key issues of this dramatic increase in the ROR fatality rates is to be found in the design of the roadsides that often are “unforgiving”.

A number of different studies have been conducted in the recent years and design standard developed for improving roadside design but still there is a need for:

- A practical and uniform guideline that allows the road designer to improve the forgivingness of the roadside;
- A practical tool for assessing (in a quantitative manner) the effectiveness of applying a given roadside treatment.

The aim of the IRDES project is to produce these two outputs with specific reference to a well identified set of roadside features.

For the definition of the design guidelines existing design guidelines, manuals and standards will be analysed to reach a single and practical set of recommendations for each feature. A

European Survey will also be performed among the National Road Administrations to identify the treatments used to improve roadside design and their estimated effectiveness.

For the evaluation of the effectiveness of different treatments existing literature will be combined with before/after studies and application of risk assessment models already available in the Partners Research Teams.

#### 4) Expected Results

Each year approximately 43.000 persons are fatally injured in Europe due to road accidents. The accident analysis conducted within the RISER Project, funded by the EU, concluded in 2005 that even though 10% of the total accidents are single vehicle accidents (SVA, typically associated to run-off-road type accidents) the rate of SVA events increase to 45% when only fatal accidents are considered.

One of the key issues of this dramatic increase in the Run Off Road (ROR) fatality rates is to be found in the design of the roadsides that are often “unforgiving”. A Forgiving Roadside Design Approach is aimed at “making human errors less fatal or harmless at the best” [CEDR (Conference of European Directors of Roads) Strategic Workplan 2009-2013]. CEDR has identified the design of forgiving roads as one of the top priority within the Strategic Work plan and, for this reason, a specific Team dealing with Forgiving Roadside has been established within the TG on Road Safety of CEDR.

A number of different studies have been conducted in the recent years and design standard developed for improving roadside design but still there is a need for:

- A practical and uniform guideline that allows the road designer to improve the forgiveness of the roadside;
- A practical tool for assessing (in a quantitative manner) the effectiveness of applying a given roadside treatment.

The aim of the IRDES project is to produce these two outputs with specific reference to a well identified set of roadside features that will be identified in the first phase of the project as those that appear to be more relevant and for which data can be found to assess effectiveness.

For the definition of the design guidelines existing design guidelines, manuals and standards (eg: RISER Guideline, AASHTO Roadside Design Guide, PIARC Road Safety Manual, SETRA [FR], Swedish and Austrian standards etc.) will be analysed to reach a single and practical set of recommendations for each feature. RISER will actually serve as the basis for this activity and the IRDES project will benefit of the participation of Chalmers University of Technology who acted as the Coordinator of RISER.

For the evaluation of the effectiveness of different treatments existing literature (e.g. RIPCORDER, ROSEBUD, HSM, CEDR etc) will be combined with before/after studies and application of risk assessment models already available in the Partners Research Teams.